**The Impact of Customer Relationship Management (CRM) Technology on
Business-to-Business Customer Relationships**

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ABSTRACT

Recent academic and practitioner studies suggest that Customer Relationship Management (CRM) provides improved business opportunity, yet has received mixed performance reviews in the extant literature. This research explored the relationship between CRM technology adoption, market orientation and relationship marketing, and the subsequent impact on business relationships and relationship performance.

A conceptual model was developed based on the literature and information obtained through one-to-one in-depth interviews. The model incorporated key relationship constructs; trust, commitment and communications quality, and investigated the impact of CRM technology adoption on these constructs and relationship performance. In addition the firm's market and technology orientation was considered as critical antecedents to the adoption of CRM technology. The research incorporated a two-phased, cross-sectional design. The first research phase was exploratory, utilising one-on-one in-depth interviews with key informants. The objective was to explore the conceptualised CRM technology adoption – customer relationship model for robustness and realism. These findings were used to refine the CRM technology adoption – customer relationship model and the measurement instrument before proceeding with the explanatory phase of the study.

The explanatory phase of the research consisted of an instrument development stage – creating, testing and finalising the research instrument, followed by a quantitative study of medium and large business in the manufacturing, services and wholesale industries in New Zealand. The objective of this stage of the research was to test and validate the CRM technology adoption – customer relationship model and measurement instruments. Measures of CRM technology adoption were collected from the supplier firms, while measures of relationship strength and relationship performance were collected separately from the customer perspective.

The benefits for practitioners include methods to improved relationship and business performance from CRM technology implementation. The key benefit for academia is the development of a conceptual model linking CRM technology to RM, and providing insights into the synergies available from technology.

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TABLE OF CONTENTS

Abstract.....	i
Acknowledgements.....	ii
List of Tables	viii
List of Figures.....	x
 CHAPTER 1. Introduction.....	 1
1.1. Background.....	2
1.2. Research Problem	6
1.3. Research Objectives	7
1.4. Conceptualisation	7
1.5. Research Methodology	8
1.6. Delimitations of the Study	8
1.7. Importance and Value of the Research	9
1.7.1. Importance of the Research.....	9
1.7.2. Value of the Research for Academics	10
1.7.3. Value of the Research for Practitioners	10
1.8. Definitions used in this study	11
1.9. Chapter Summary	12
 CHAPTER 2. Literature Review	 14
2.1. Introduction	14
2.2. Relationship between Information Technology and Marketing	16
2.3. Overview of the Relevant CRM Literature	17
2.4. Evolution of Relationship Marketing	19
2.4.1. What is a Relationship?.....	20
2.4.2. Importance of Relationship Marketing	22
2.5. Relationship Strength	24
2.5.1. Trust	26
2.5.1.1. <i>Types of Trust</i>	26
2.5.1.2. <i>Findings from Trust Research</i>	28
2.5.2. Commitment.....	31
2.5.2.1. <i>Defining Commitment</i>	31
2.5.2.2. <i>Findings from Commitment Research</i>	32
2.5.3. Communication	34
2.5.3.1. <i>Defining Communication in the Context of Relationships</i>	34
2.5.3.2. <i>Findings from Communication Research</i>	35
2.5.4. Other Characteristics of Relationship Marketing.....	38
2.5.4.1. <i>Customer Satisfaction</i>	38
2.5.4.2. <i>Cooperation</i>	39
2.5.4.3. <i>Power</i>	39
2.5.4.4. <i>Performance of Duties</i>	40
2.5.4.5. <i>Dependency</i>	41
2.5.4.6. <i>Duration</i>	41

2.5.4.7. <i>Rapport</i>	42
2.5.5. Relationship Marketing Summary	42
2.6. Market Orientation (MO)	43
2.7. Relationship Performance	47
2.8. Customer Relationship Management (CRM)	49
2.8.1. CRM Definition	49
2.8.2. CRM IT Operational Model	51
2.8.3. CRM Strategic Model	52
2.8.4. CRM Process Model	52
2.8.5. Current CRM Use	54
2.8.6. CRM Issues	55
2.8.7. Customer (Market) Orientation	58
2.8.8. Information Technology Management	59
2.8.9. Executive Commitment	59
2.8.10. Integration of People, Process and Technology	60
2.8.11. CRM Technology Adoption (CTA)	62
2.8.11.1. <i>CRM Influence on Relationships</i>	64
2.8.12. Other CRM Considerations	66
2.9. Customer Relationship Orientation and Customer Expectations	67
2.10. Chapter Summary	68
CHAPTER 3. Research Model and Hypotheses	72
3.1. Introduction	72
3.2. The Conceptual CRM Model and Hypotheses	73
3.2.1. Market Orientation (MO)	74
3.2.2. IT Management Orientation (ITMO)	75
3.2.3. CRM Technology Adoption (CTA)	76
3.2.3.1. <i>CRM Functionality</i>	77
3.2.3.2. <i>CRM Technology Acceptance</i>	77
3.2.3.3. <i>CRM System Integration</i>	77
3.2.4. Relationship Strength (RS)	78
3.2.4.1. <i>Trust</i>	79
3.2.4.2. <i>Commitment</i>	79
3.2.4.3. <i>Communications Quality</i>	80
3.2.5. Relationship Performance (RP)	81
3.2.6. Moderator and Control Factors (secondary hypotheses)	82
3.3. Research Model Summary	83
3.4. Chapter Summary	84
CHAPTER 4. Research Methodology	85
4.1. Introduction	85
4.2. Research Paradigm	85
4.3. Exploratory Research Phase	86
4.3.1. Exploratory Phase Approach and Objectives	86
4.3.2. Sample Selection	87
4.3.2.1. <i>Unit of Analysis</i>	88
4.3.2.2. <i>Company Selection</i>	88
4.3.2.3. <i>Respondent Selection</i>	89

4.3.3.	Data Collection – Exploratory Phase	89
4.3.3.1.	<i>Contact</i>	89
4.3.3.2.	<i>Interview Protocol</i>	90
4.3.4.	Participation Rate and Respondent Profile	90
4.3.5.	The Interviews.....	91
4.3.6.	Exploratory Data Analysis Procedure	91
4.4.	Explanatory Phase of the Research	92
4.4.1.	Explanatory Phase Approach and Objectives	92
4.4.2.	Overview of Research Design.....	93
4.4.3.	Questionnaire Design	94
4.4.3.1.	<i>Information Required</i>	94
4.4.3.2.	<i>Type of Questionnaire and Method of Administration</i>	95
4.4.3.3.	<i>Form of Response</i>	95
4.4.3.4.	<i>Question Wording</i>	96
4.4.3.5.	<i>Question Sequence</i>	96
4.4.3.6.	<i>Physical Aspects of the Questionnaire</i>	96
4.5.	Development of Research Instruments	97
4.5.1.	Overview of Research Instrument Development	97
4.5.2.	Dependent Variables	99
4.5.2.1.	<i>Relationship Strength (C_RS)</i>	99
4.5.2.1.1.	Measurement of Trust (C_RT).....	100
4.5.2.1.2.	Measurement of Commitment (C_CMT).....	100
4.5.2.1.3.	Measurement of Communications Quality (C_CQ)	101
4.5.2.2.	<i>Relationship Performance (C_RP)</i>	102
4.5.2.2.1.	Measurement of Perceived Performance (C_PR)	102
4.5.2.2.2.	Measurement of Relationship Satisfaction (C_RSA)	102
4.5.2.2.3.	Measurement of Loyalty (C_LY).....	103
4.5.2.2.4.	Measurement of Customer Retention (C_RN).....	103
4.5.3.	Independent Variables.....	103
4.5.3.1.	<i>Measures of Market Orientation (MO)</i>	104
4.5.3.2.	<i>Measures of IT Management Orientation (ITMO)</i>	104
4.5.3.3.	<i>CRM Technology Adoption (CTA)</i>	106
4.5.3.3.1.	Measurement of CRM Functionality (CFN).....	107
4.5.3.3.2.	Measurement of CRM Technology Acceptance (CRA)	109
4.5.3.3.3.	Measurement of CRM System Integration (CSI).....	111
4.5.4.	Moderator and Control Variables	112
4.5.5.	Nominated Customer Contact	113
4.5.6.	Demographic and Classification Information	114
4.5.7.	Data Collection for Instrument Refinement and Verification.....	114
4.5.8.	Survey Implementation	115
4.5.8.1.	<i>Sample Selection</i>	116
4.5.8.1.1.	Unit of Analysis	117
4.5.8.1.2.	Company and Respondent Selection.....	117
4.5.8.2.	<i>Initial Contact</i>	118
4.5.8.3.	<i>Cover Letter and Mail-out</i>	118
4.5.8.4.	<i>Follow-up Procedures</i>	119
4.6.	Data Analysis and Hypothesis-testing Procedures	119
4.6.1.	Overview	119
4.6.2.	Structural Equation Modelling.....	120
4.6.3.	Partial Least Squares (PLS)	121

4.6.3.1. Confirmatory Factor Analysis (CFA).....	123
4.6.4. Exploratory Factor Analysis (EFA)	123
4.7. Chapter Summary	124
CHAPTER 5. Data Analysis and Results.....	125
5.1. Introduction	125
5.2. Exploratory Analysis and Results.....	125
5.3. Survey Response Analysis.....	128
5.3.1. Response Rate	128
5.3.2. Respondent and Demographic Profiles.....	131
5.3.3. Non-response and Response Bias	132
5.4. Data Screening and Preliminary Analysis	133
5.4.1. Overview	133
5.4.2. Missing Data	133
5.4.2.1. Non-eligible Respondents.....	134
5.4.2.2. “Do not know” Response – IT Management Orientation section.....	134
5.4.3. Assumptions Underlying Statistical Procedures	135
5.4.3.1. Normality of the Data	135
5.4.3.2. Sample Size and Power.....	136
5.4.4. Common Method Variance	136
5.5. Measurement Refinement and Initial Analysis	137
5.5.1. Validity and Reliability of Measures	138
5.6. Exploratory Factor Analysis (EFA).....	139
5.6.1. CRM Technology Adoption (CTA) - EFA	139
5.6.1.1. Final CTA 2-Factor Construct	141
5.6.2. Moderator Constructs: CXP and CRO	142
5.7. Confirmatory Factor Analysis and Measurement Model	144
5.7.1. Convergent Validity	148
5.7.2. Discriminant Validity.....	149
5.7.2.1. Final Measurement Model.....	150
5.8. Model Construction and Evaluation	153
5.8.1. Measurement (Outer) Model.....	153
5.8.2. Structural (Inner) Model	155
5.8.2.1. Revised Model.....	158
5.8.2.2. Model Fit	159
5.8.3. Direct Effects	161
5.8.4. Total Effects	162
5.8.5. Moderator Effects	163
5.9. Hypothesis Testing	163
5.10. Chapter Summary	165
CHAPTER 6. Discussion and Conclusions	167
6.1. Introduction	167
6.2. Effect of CRM Antecedents	167
6.2.1. Market Orientation	168
6.2.2. IT Management Orientation.....	169
6.3. Effects of CTA on Relationship Strength and Relationship Performance	170

6.3.1. Relationship Strength.....	171
6.3.2. Relationship Performance.....	172
6.3.3. Moderator and Control Factors.....	172
6.4. Research Implications and Contributions.....	174
6.4.1. Contributions to Theory.....	174
6.4.2. Contributions to Methodology.....	176
6.5. Managerial Implications.....	177
6.5.1. CRM Technology Adoption.....	178
6.5.2. CRM Application Development.....	179
6.6. Limitations of the Research Study.....	179
6.7. Directions for Further Research.....	180
6.8. Conclusion.....	182
6.8.1. Closing Remarks.....	183
Appendixes.....	185
Appendix A1: Interview Protocols and Contact Summary Forms.....	185
Appendix A2: Interview Data Display Summaries.....	198
Appendix A3: Scale Construction.....	213
Appendix A4: Copies of Survey Questionnaires.....	216
Supplier Questionnaire.....	216
Customer Questionnaire.....	228
Appendix A5: Cover Letters.....	236
Personalised Supplier Cover Letter.....	236
Generic Customer Cover Letter.....	237
Personalised Customer Cover Letter.....	238
Appendix A6: Summary of Supplier Respondent Demographic Information.....	239
Appendix A7: Test for Non-response Bias.....	242
Appendix A8: Analysis of Supplier “Do Not Know” Answers.....	245
Appendix A9: Survey Data Distribution.....	247
Appendix A10: Measurement Item Loading on Composite Indicator Scales.....	251
References.....	252

LIST OF TABLES

Table 2.1: Associations between Factors Found to Influence Key Constructs of Relationship Strength	24
Table 2.2: Relationship Quality and Relationship Strength Research Summary	25
Table 2.3: Trust Facets and Typology of Sampled Trust Research	30
Table 2.4: Market Orientation Dimensions Measured in Research	43
Table 4.1: Supplier CRM System Profile	90
Table 4.2: Supplier and Customer Respondent Profile (Exploratory Phase).....	91
Table 4.3: Instrument Development Sources for the Three Major Supplier Constructs.	98
Table 4.4: Customer Instrument Development Sources for the Two Major Dependent Constructs and Sub-constructs	98
Table 4.5: Relationship Strength Constructs and Sub-construct Details Used in the Current Study	99
Table 4.6: Relationship Performance Sub-constructs Used in the Current Study	102
Table 4.7: Major Supplier Construct and Sub-construct Details Used in the Current Study	103
Table 4.8: CRM Technology Adoption Sub-construct Details Used in the Current Study	106
Table 4.9: Target Enterprise (ANZSIC) by Employee Count.....	117
Table 5.1a: Supplier Response Profiles from Initial Contact (n = 1,639).....	128
Table 5.1b: Supplier Response Profiles from Questionnaires Sent (n = 526)	129
Table 5.2: Dyadic Response Profiles (n = 150)	131
Table 5.3: Participating Firms Employee Profile (n = 140).....	131
Table 5.4: Participating Firms ANZSIC Profile (n = 140)	132
Table 5.5: Comparing CTA Responses Between.....	134
Table 5.6: Supplier and Customer RS and RP Correlations (n = 113)	137
Table 5.7: Initial CTA Conceptual Factors, Constructs and Measurement Items	140
Table 5.8: CTA Two-factor Varimax Rotated Results	141
Table 5.9: CTA CKN Factor Analysis Results	142
Table 5.10: CTA USF Factor Analysis Results	142
Table 5.11: CRO and CXP Two-factor Varimax Rotated Results.....	144
Table 5.12: CXP Factor Analysis Results.....	144
Table 5.13: CRO Factor Analysis Results	144
Table 5.14: All CFA Model Factors	146
Table 5.15: Items Deleted Due to Loadings Less than 0.60 on Any Single Construct (LV).....	147
Table 5.16: Interaction Variables Deleted	148
Table 5.17: Summary of Measurement Model Quality	149
Table 5.18: Discriminant Validity Results Using AVE Approach	151
Table 5.19: Final Measurement Model Items, Loadings and Significance Values	152

Table 5.20: Constructs, Items and Composite Indicators	154
Table 5.21: Composite Indicator Measurement Model Quality Results.....	155
Table 5.22: Composite Indicator Scales Discriminant Validity Using AVE Method ..	156
Table 5.23: Inner Model Path Coefficients and Significance Level	157
Table 5.24: Revised Structural (Inner) Model Results	159
Table 5.25: Q2 and R2 Blindfolding Results.....	160
Table 5.26: Total Effects.....	162
Table 5.27: Summary of Hypotheses Testing.....	164
Table A2.1: Interview Questionnaire Summary	198
Table A2.2: Summary of CRM Technical Functionality Provided	210
Table A2.3: Summary of CRM Functionality Implemented	210
Table A2.4: CRM Integration Rating and Relationship Impact	211
Table A2.5: Market Orientation Influence on CRM Technology Adoption.....	211
Table A2.6: IT Management Orientation Influence on CRM Adoption.....	212
Table A3.1: Supplier Questionnaire Construction	213
Table A3.2: Customer Questionnaire Construction	215
Table A6.1: Respondent's Gender	239
Table A6.2: Reported Gross Revenues	239
Table A6.3: Reported Work Experience.....	239
Table A6.4: Reported Education Level.....	239
Table A6.5: Respondent Age	239
Table A6.6: Reported Relationship Length	240
Table A6.7: Reported Work Activity.....	241
Table A6.8: Reported Work Position/Title	241
Table A7.1: Late Supplier Respondent Demographic Statistics.....	242
Table A7.2: Late Supplier Respondent CTA Response Statistics	242
Table A7.3: Comparing Late Supplier Respondent Demographics.....	243
Table A7.4: Comparing Late Supplier Respondent CTA Responses (n = 113)	244
Table A8.1: Supplier 'Do Not Know' Response Statistics (n = 150).....	245
Table A8.2: Comparing Supplier 'Do Not Know' Respondent CTA Construct Responses (n = 115)	246
Table A9.1: Supplier Survey Data	247
Table A9.2: Customer Survey Data	249

LIST OF FIGURES

Figure 2.1: Informing domains	14
Figure 2.2: Overview of the evolution of information systems/technology with respect to marketing	16
Figure 2.3: CRM relevant literature domains	18
Figure 2.4: CRM IT operational model.....	51
Figure 2.5: CRM strategic framework model	52
Figure 2.6: CRM process	53
Figure 3.1: CRM technology adoption - relationship conceptual model	73
Figure 3.2: CRM technology adoption – customer relationship research model and hypotheses	84
Figure 4.1: Unit of analysis: Supplier – Customer dyad.....	88
Figure 5.1: CTA scree plot.....	141
Figure 5.2: CRO and CXP scree plot.....	143
Figure 5.3: Original measurement model used for confirmatory factor analysis	145
Figure 5.4: Composite scale measurement model.....	153
Figure 5.5: Initial structural model path coefficients	156
Figure 5.6: Revised structural model with path coefficients.....	158

CHAPTER 1. Introduction

With advances in technology, the proliferation of the Internet, and the emphasis on one-to-one marketing techniques, customer relationship management (CRM) has become a key focus of marketing (Palmatier, Gopalakrishna, & Houston, 2006; Payne & Frow, 2005). Predicated on the views that (a) strong customer relationships are important contributors to customer loyalty which leads in turn to corporate profitability and (b) information technology contributes to building strong customer relationships, CRM technology development and enterprise implementations have expanded at a phenomenal rate (Chalmers, 2006; Zablah, Bellenger, & Johnston, 2004). IDC (2004) predicted that worldwide CRM applications market would reach US\$11.4 billion in revenues by 2008, compared to US\$200 million in 1994, representing phenomenal growth in CRM over the time period. Paradoxically, at the same time as investment has increased, customer satisfaction ratings have continued to fall (Sweat & Hibbard, 1999).

Customer focus and relationship management have become fundamental marketing and business philosophies for many companies seeking competitive advantage. Establishing, maintaining and enhancing customer relationships have always been an important aspect of business. However, over the last few years there has been a significant increase in CRM related research (Kamakura et al., 2005; Ngai, 2005). Although CRM is considered by many academics to be a business philosophy closely related to relationship marketing, it is the link with technology that is particularly of interest. Marketing academics have begun to explore and understand the linkage between CRM technology, relationship marketing and business relationships as providing opportunities for sustainable competitive advantage.

Improvements in technology enable businesses to implement CRM systems that can create practical mass customization marketing programs, based on one-to-one marketing techniques. This linkage between marketing and technology is viewed by some academics as providing the opportunity to establish, cultivate and maintain long term, mutually beneficial interactions with large numbers of customers in a cost-effective manner (Peppers, Rogers, & Dorf, 1999; Reinartz & Kumar, 2000). By collecting past customer transaction information, demographics, psychographics, media and channel preferences, marketers hope to create personalized product and service offerings that

capture customer share, build customer loyalty and enhance profit (Niraj, Gupta, & Narasimhan, 2001; Venkatesan & Kumar, 2004; Verhoef, 2003). CRM systems are seen by some as an integral component of the information technology required to support and improve the business “front-office” and the customer relationship experience (Ling & Yen, 2001; Nguyen, Sherif, & Newby, 2007).

Despite these technological advances and high levels of investment CRM faces serious difficulties and implementation failures (Arnold, 2002; Davids, 1999; Doherty & Lockett, 2007; Ragowsky & Somers, 2002). CRM projects suffer from high failure rates, resulting from a range of problems which include lack of corporate customer focus, management commitment, change management, and people, technology and process issues (Kale, 2004; Raman & Pashupati, 2004). It has been estimated that 55 - 80% of all CRM projects fail to produce results (Bush, Moore, & Rocco, 2005; Seligman, 2002). A survey of 1,500 companies found that 91% of businesses plan to or have deployed CRM technology, yet 41% of the firms with CRM projects were experiencing significant problems (The Data Warehousing Institute, 2000). Davis (2002) reported that many CRM implementations fail to meet fundamental business goals; up to 70% of companies do not realize any benefit from CRM projects. Rigby, Reichheld and Schefter (2002a) found that twenty percent of senior executives reported that CRM initiatives had failed to deliver profitable growth. In some cases these initiatives had been viewed to in fact have damaged existing customer relationships. Such negative outcomes impact an organization’s ability to meet customer expectations, build strong relationships and improve performance.

Despite the ongoing implementation problems to date, many academics and practitioners continue to believe that CRM technology offers the potential for substantial benefits to corporations through improved customer relationships, customer retention, satisfaction and enhanced profitability (Bohling et al., 2006; Payne & Frow, 2005). The challenge many enterprises face is realising the considerable advantage brought about by leveraging CRM technology and relationship marketing effectively (Chalmers, 2006; Ngai, 2005).

1.1. Background

Motivation for this thesis is driven by two trends in the marketing and information technology (IT) environment. First, the growing requirement and acceptance in business

for marketing and IT to work closely together to deliver value to the organisation and the customer (Ling & Yen, 2001; Nakata & Zhu, 2006; Rust & Espinoza, 2006). Second, the growing importance of market orientation, and relationship marketing in particular, as an effective organisational business strategy (Kohli & Jaworski, 1990; Peppers & Rogers, 1993). With the rapid development of the Internet, e-commerce and self-service customer support, there are increased expectations from customers for improved, personalised service and immediacy (Beckett, Hower, & Howcroft, 2000; M. L. Roberts, 2003). This has prompted marketing practitioners to use technology to capture and use customer information in order to better meet customer demands (Álvarez, Martín, & Casielles, 2007; Peters & Fletcher, 2004b; Rust & Chung, 2006).

Customer relationships are considered superior to transactional exchange in their ability to create sustainable competitive advantage and superior business performance (Day, 2003). As a consequence, due to the impacts of globalisation and mass customisation, there is an increased focus on IT to provide applications and infrastructure in support of appropriate business-to-business customer relationships (Day, 2000; Day & Montgomery, 1999; Kotler, 1989; O'Malley & Tynan, 2000; Reinartz, Krafft, & Hoyer, 2004; J. S. Thomas, Blattberg, & Fox, 2004). The marketing, management, IT, and practitioner literature make numerous references to CRM's impact on business orientation and performance (Almquist, Heaton, & Hall, 2002; Goodhue, Wixom, & Watson, 2002; Palmatier et al., 2006; Rigby & Ledingham, 2004). Yet the increased adoption of CRM systems to help manage customer information and knowledge is perceived by some practitioners and researchers as not delivering proven business value (IDC, 2004; Raman & Pashupati, 2004). Business-to-business (also known as B2B and industrial buyer-seller) relationships have generally been the focus of relationship marketing research because B2B relationships are considered more regular, formal, constructive, and intense (Kong & Mayo, 1993; Peterson, 1995). Business interactions, and B2B relational exchanges in particular, progress over a period of time, from initial introduction through contractual negotiations and delivery of promises, reflecting an ongoing process (K. Roberts, Varki, & Brodie, 2003). As well, B2B relationships are considered to be based on rational behaviour and mutual acceptance of reciprocity with a strong likelihood of shared benefits and burdens (Dwyer, Schurr, & Oh, 1987), whereas consumer buyer behaviour is more emotional, less routine or regular, and largely non-negotiable (Stern, 1997). B2B relationships are

closer, more intense, regular and interactive than consumer (B2C) relationships (Kong & Mayo, 1993). The key difference between the two is the necessity and value of the B2B exchanges; there are dependencies and the potential for competitive advantage, as well as social and attitudinal dimensions from the buyer's perspective (Palmer, 2007; Sheth & Parvatiyar, 2000). For these reasons B2B relationships are the focus of this study.

Close links between the marketing and IT departments are viewed by some as a prerequisite for the successful implementation of CRM (Ling & Yen, 2001). However as a consequence of different success criteria, the marketing, management and IT disciplines have their own separate and distinct views of what constitutes successful CRM implementation (Bose, 2002; B. A. Corner, 2002; Crosby & Johnson, 2001; Lemon, White, & Winer, 2002; Reinartz et al., 2004). For example, measures of IT success include system and information quality, use (i.e., task-technology fit), and user satisfaction (DeLone & McLean, 1992, 2003; Goodhue, 1995). Whereas marketing success is predominately measured through business performance (Kamakura, Mittal, Rosa, & Mazzon, 2002), increasing profits (Reinartz & Kumar, 2000), capturing additional customers, implementing marketing programs (Verhoef, 2003), improving market share and delivering the right product (Kotler, 2003; Moorman & Rust, 1999). Differences in CRM technology adoption and outcomes may also reflect the firm's information technology management and market orientation (Karimi, Somers, & Gupta, 2001).

CRM is not therefore easy to define, as it holds different meanings for different people. This will be discussed further in Chapter 2. Some researchers consider customer relationship management (CRM) a business strategy (Day, 2003), while others view CRM as an organisational culture, focused on creating quality (profitable) relationships with customers (Ngai, 2005; Romano & Fjermestad, 2003). Still others believe that CRM is a technology which provides a comprehensive, reliable and integrated view of customers, delivering seamless personalised service through all customer touchpoints (Zikmund, McLeod, & Gilbert, 2003). The use of technology generally, as an aid to marketing (Shoemaker, 2001; Speier & Venkatesh, 2002), along with the value of CRM specifically to relationship and business performance, have been examined with mixed results (Croteau & Li, 2003; Stefanou, Sarmaniotis, & Stafyla, 2003). However, the research does seem clear in indicating that the firm's initial customer focus and

orientation may be a key antecedent to CRM success (Wright, Stone, & Abbott, 2002). The ability of a firm to understand and use technology appropriately raises an additional set of issues and may also contribute to the mixed reviews in the literature of the value of CRM technology (Karimi et al., 2001).

Underlying the growing acceptance and adoption of CRM in business are the concepts of market orientation and relationship marketing. Market orientation is a business philosophy that focuses the firm's resources on gathering, collecting, analysing, disseminating and responding to customer and competitor information in order to provide superior customer value (Kerin, Berkowitz, Hartley, & Rudelius, 2003; Mitussis, O'Malley, & Patterson, 2006; Pelham, 1997). Relationship marketing builds from a market orientation approach and encompasses the concept of establishing, maintaining, enhancing and commercialising customer relationships in order to achieve mutual objectives (Grönroos, 1990). Both market orientation and relationship marketing have been the subject of significant amounts of research (Adamson, Chan, & Handford, 2003; Grönroos, 1995; Gummesson, 1994a; Kohli, Jaworski, & Kumar, 1993; Narver & Slater, 1990). The majority of these marketing studies have indicated a positive effect of market orientation and marketing relationships on business performance (Crosby & Stephens, 1987).

Relationship marketing researchers have focused on what constitutes B2B relationships – how they are created, enhanced and sustained – in an effort to understand relationships between customers and vendors (J. C. Anderson & Narus, 1990; Dwyer et al., 1987). Key dimensions of relationships include trust, commitment and communications, although a range of other factors also influences the development and maintenance of relationships (Morgan & Hunt, 1994). CRM itself is viewed by some researchers as a practical application of relationship marketing (Gummesson, 2004). Yet the linkage between CRM and these key dimensions of customer relationships is tenuous due to the lack of empirical research (Gummesson, 2004; Reinartz et al., 2004). It appears from the extant literature that marketing practitioners predominantly use CRM technology to capture and manipulate customer data in order to prioritise and target profitable customers through integrated marketing programmes rather than to focus on developing and maintaining relationships (Goodhue et al., 2002; Romano, 2000).

The literature is not explicit that CRM technology implementation has been fully detailed or understood by organisations, let alone in a New Zealand context (Ngai, 2005; Raman & Pashupati, 2004). CRM involves IT to a significant degree, yet little research exists on the design, use or success of systems to support CRM from the marketing perspective (Reinartz et al., 2004). Introducing CRM is a major IT and management undertaking for any organisation; key variables have not yet been clearly identified, nor do current theories fully explain the behaviour of stakeholders or organisations following CRM implementation (Chalmers, 2006; Hughes, 2002; Ling & Yen, 2001). The limited number of CRM-specific empirical studies and theories available today needs to be expanded and the subject explored further (Goodhue et al., 2002; Romano, 2000).

CRM research is still considered by many researchers as limited in scope and depth, reflected in the lack of empirical and generalisable research (Gummesson, 2004; H.-W. Kim, Lee, & Pan, 2002; Reinartz et al., 2004; Romano & Fjermestad, 2003; Stefanou et al., 2003). Much of the IT-related research is focused on the functional aspects of implementation and there continues to be a call for additional research in order to understand, explain and benefit from the CRM phenomenon (Doherty & Lockett, 2007; Payne & Frow, 2006; Reinartz et al., 2004; Romano, 2000). The fundamental research problem these issues and trends evoke is outlined below.

1.2. Research Problem

The fundamental problem is the exceptionally poor business performance from CRM implementations (Raman & Pashupati, 2004). Prior marketing and IT research indicates that CRM applications are not uniformly delivering anticipated business improvements (Reinartz et al., 2004), and that the problem may stem from factors such as lack of customer orientation (Rigby et al., 2002a), IT management practice (Karimi et al., 2001) and issues around people, process and technology (Ling & Yen, 2001). Furthermore the available IT and marketing research indicates that customers may be suspicious of CRM implementations (Bhattacharjee, 2002; Hoffman, Novak, & Peralta, 1999) and that CRM applications may not actually assist in the creation or maintenance of customer relationships (Peters & Fletcher, 2004a). One of the issues leading to confusion in the research is the lack of an agreed CRM definition of what constitutes CRM and how the outcomes are determined and measured. This leads us to the research question:

What is the impact of CRM technology adoption on B2B customer relationships?

1.3. Research Objectives

The objectives of this research are to:

- Determine whether CRM technology adoption has a positive effect on business-to-business relationships and the extent of that impact,
- Determine whether the supplier firm's market orientation and technology orientation has a positive effect on CRM technology adoption and the extent of that impact,
- Contribute to the current marketing and IT literature on CRM technology and relationship marketing,
- Inform CRM practitioners engaged in CRM implementation and software development.

1.4. Conceptualisation

Based on an extensive review of the market orientation, relationship marketing and IT literature it is proposed that CRM technology adoption has a strong positive effect on customer relationship development and maintenance. In addition the firm's initial market orientation and IT management orientation is considered to positively affect the successful adoption of CRM technology within the firm. A brief description of the key constructs and variables follow, a more detailed discussion of the model constructs and sub-constructs can be found in Chapter 3.

The market orientation (MO) of the firm and IT management orientation (ITMO) (i.e., IT management practices) of the firm are considered to have positive effects on CRM technology adoption. Based on the existing literature MO is viewed as positively influencing the strength of the customer relationship. The CRM technology adoption (CTA) construct is positively linked to customer relationship strength and relationship performance. The dependent variables are relationship strength, and relationship performance. Relationship strength is also considered to positively affect relationship performance.

The conceptualisation of the CRM technology adoption – customer relationship (CTA – CR) linkage is used to address how CRM technology adoption affects the

ability of firms to create, enhance, and sustain customer relationships in terms of the impact of CRM technology on key relationship constructs and relationship performance. Each linkage between the key constructs will be framed as a specific hypothesis, to be tested with the research data. The justification for, and wording of, each specific hypothesis is provided in Chapter 3.

1.5. Research Methodology

In order to accomplish the stated objectives, a conceptual model was developed, tested and validated using instruments designed to measure CRM technology adoption, relationship strength, relationship performance and potential interrelationships. A two phase, cross-sectional design was used for this study (Creswell, 2003). The first phase was exploratory using a multiple case design as described by Miles and Huberman (1994), and Yin (2003) to: (a) better understand the CRM technology – B2B relationship phenomenon, (b) further verify and refine the conceptual model, (c) inform the scale development and (d) inform the interpretation of the survey results. Key informants from medium and large New Zealand businesses were invited to participate in one-on-one interviews to discuss CRM technology impact on B2B relationships. In separate interviews customer contacts, provided by the firms, were interviewed for their perspective on the B2B relationships. Insights gained from these interviews were used to refine the research model, and to confirm and adjust the hypotheses. In phase two survey instruments were developed and pre-tested in order to proceed with the explanatory phase of the study. Once the conceptual model and research instruments were finalised and verified a mail survey was implemented so as to empirically test the explanatory capabilities of the conceptual model, across a number of different businesses and industries within New Zealand.

The results of the survey were analysed using exploratory factor analysis (EFA) with SPSS. The partial least squares technique of structural equation modelling was used to confirm the measurement model and test the hypotheses.

1.6. Delimitations of the Study

The domain of relationships and related constructs extends into psychology, social science, and organisational behaviour, including various aspects of marketing, business, and IT (Kingshott, 2004; K. Roberts et al., 2003). The intent of this study is to better understand and attempt to explain the impact of CRM technology adoption on

relationships in the context of business-to-business (B2B) since the existence and importance of B2B relationship dynamics are well structured, documented and supported in the literature (e.g., Grönroos, 1989).

Business relationships and relationship dynamics are complex and consist of a number of dimensions (Fontenot & Wilson, 1997). Ongoing research efforts continue to identify additional business relationship elements, antecedents and influencing factors (Palmatier et al., 2006; Palmatier, Scheer, Houston, Evans, & Gopalakrishna, 2007). In the development of quality relationships trust, commitment and communications quality play a significant role. These three attributes are considered by many RM researchers as fundamental to relationship building (e.g., Medlin, Aurifeille, & Quester, 2005; Morgan & Hunt, 1994). For this reason the study centres in particular on the relationship attributes of trust, commitment and communications quality. It is beyond the scope of this research to investigate the potential effects of CRM on the myriad of additional relationship attributes.

1.7. Importance and Value of the Research

1.7.1. Importance of the Research

The importance of CRM research is emphasised by the continued academic and practitioner focus on relationship marketing (RM), and CRM in particular. The Industrial Marketing Management (IMM) journal devoted a special issue to relationship management titled “Transactions, Relationships or Both: Impact of Customer Strategies on Firm Performance” in November 2003. They also prepared a special issue on customer relationship management in August 2004. The Journal of Customer Behaviour produced a special issue on CRM in the spring of 2004. In addition the Journal of Marketing published a Special Issue on CRM in October 2005. However the Journal of Marketing Management’s (JMM) July 1997 special issue on Relationship Marketing did not include any articles referencing CRM specifically, indicating CRM was not viewed as a marketing focus at that time.

The Marketing Science Institute (MSI), founded in 1961, leads the way in developing rigorous and relevant knowledge by bringing together marketing scholars and corporate executives. They provide funding, an open environment for, and access to leading-edge marketing knowledge. MSI is widely acknowledged as a leader for marketing research prioritisation for both practitioners and academics. The MSI, in their

research priorities for 2004 – 2006 and again for 2007 – 2009, identified customer management as a key community of interest, and managing customers as a top tier priority topic. The MSI community awards top tier research priorities to those areas deemed most deserving of intensive research. Implementing and assessing the impact of CRM has been prioritised as one of the top six topics most important to the Customer Management community. This follows from MSI's 2002 – 2004 research priorities where CRM, and managing customer relations, were identified as two of the top five topics of interest for research.

1.7.2. Value of the Research for Academics

A key contribution is a fuller exploration of the linkage between CRM and contemporary relationship marketing theory. Existing literature implies a relationship between CRM and RM (e.g., Gummesson, 2004; Mitussis et al., 2006), but there is little published empirical CRM research in this area. In addition it is important to further expand, explore and explain the links between RM theories and CRM application.

The primary contribution of this research is the conceptualisation and empirical testing of CRM technology impacts on B2B relationships, and the operationalisation and measurement of CRM technology adoption within firms. Developing a measure of the impact of CRM adoption on B2B relationships provides an empirical method for academics to better understand and predict the relationship between CRM and RM. Measuring CRM technology adoption provides the ability to determine whether more intense CRM technology adoption leads to better customer relationships and improved relationship performance.

1.7.3. Value of the Research for Practitioners

Application developers, marketing and IT practitioners benefit from better understanding the factors that affect relationships that can be created and maintained through CRM technologies. In particular, CRM vendors benefit from understanding how CRM technology adoption affects customer relationships, and how key attributes around B2B relationships may be developed and better supported by CRM applications.

Marketing and IT practitioners ought to benefit from a better understanding of the relationship between CRM adoption (i.e., type of CRM technology, integration and acceptance), and customer relationship performance. This enhanced understanding should assist management decision-making when evaluating CRM technology. An

empirical method to study the effect of CRM technology adoption on customers' outcomes may provide additional insight for CRM applications and strategies. CRM applications can be developed that are beneficial to relationship building in particular and marketing more generally.

1.8. Definitions used in this study

Commitment	The desire and willingness to make short-term sacrifices (if necessary) in order to develop a confident and stable exchange relationship between partners.
Communication	The formal or informal sharing of meaningful and timely information between firms.
Customer CRM Expectation (CXP)	The customers' expectations from a supplier's adoption of CRM technology which may influence how customers perceive the relationship and the relationship performance. Considered as a potential relationship moderator.
Customer Relationship Management (CRM)	CRM is a customer-centric business focus shaped by the market orientation (MO) of the firm and implemented through IT. CRM includes the process of identifying, accepting and building appropriate mutually beneficial relationships with each customer (i.e., RM) through the use of technology in order to maximise value for each party.
CRM technology	A sub-set of CRM, focused on the technology and technology applications used to support CRM implementation.
Customer Relationship Orientation (CRO)	The customer's preference for a business relationship based on the customer's desire and appreciation of relationships. Considered as a potential moderator of customer perceived relationship strength and relationship performance.
Customer Satisfaction (CS)	A customer's cumulative satisfaction or overall contentment with a company, product or service.
Data warehousing (DW)	An electronic repository of an organization's data to facilitate retrieval, reporting and analysis.
Dyads	A supplier – customer pair, in this study used as the basis for data collection and analysis.
Enterprise Resource Planning (ERP)	Business support system that maintains the data needed for a variety of business functions such as Manufacturing, Supply Chain Management, Financials, Projects, Human Resources and Customer Relationship Management

Information Technology (IT)	The study, design, development, implementation, support or management of computer-based information technology, particularly software applications and computer hardware.
Knowledge Management (KM)	No common definition, but comprises a range of organisational practices to identify, create, represent, distribute and enable adoption of what it knows, and how it knows it.
Market Orientation (MO)	Comprises of three key activities with respect to customers and competitors: collecting, analysing and disseminating market intelligence
Market Turbulence (MT)	Relative stability or volatility of a firm's customer composition and preferences, as well as the rate of that change within the industry
Relationship Marketing (RM)	Attracting, maintaining and enhancing customer relationships.
Relationship Strength (RS)	Encompasses the dimensions of trust, commitment and communications quality expressed by the customer, and reflecting the influence of MO and CTA within the supplier firm.
Relationship Performance (RP)	Captures outcomes of the relationship through measures of customer satisfaction, customer retention, and customer loyalty.
Technology Turbulence (TT)	The rate of business technology innovation, as well as product innovation, in the industry
Trust	Confidence in an exchange partner based on contractual, competence and goodwill trust.

1.9. Chapter Summary

A brief discussion of the motivation for the research, research problem description, research model, and the theoretical and practical justifications was presented. An overview of the conceptual model, methodology and initial delimitations of the research were outlined. This thesis consists of five additional chapters. Chapter 2 presents the literature review focused around market orientation, relationship marketing, and customer relationship marketing from the perspectives of marketing and IT. Chapter 3 further develops the research model and hypotheses. Chapter 4 provides the details of the specific methodologies for each phase of the study, while Chapter 5 presents the results of the data analysis. Chapter 6 reviews the outcomes of the study and outlines the

discussion and conclusions, including limitations and areas for future research.

Appendices and references follow Chapter 6.

CHAPTER 2. Literature Review

2.1. Introduction

Given the multidisciplinary nature of CRM research it is important to review the literature from the pertinent disciplines that structure this investigation. This chapter reviews the major streams of literature in the marketing and information technology (IT) domains which relate to CRM, summarises the main research approaches and findings, and identifies gaps in the research. In order to establish the theoretical foundations of this research the chapter begins by looking at the relationship between IT and marketing (Section 2.2). Figure 2.1 represents a schematic view of the scope of the literature review. A miniature version of Figure 2.1 will be used through this chapter to help guide the reader through the literature review.

The literature domain of each sub-section will be highlighted by a darker colour. Section 2.3 provides an overview of the relevant CRM literature within the marketing, IT and management domains. Section 2.4 then examines the evolution and foundation of relationship marketing (RM) within the marketing discipline, while Section 2.5 provides a comprehensive literature review of how relationship strength has been measured. Section 2.6 explores the market orientation (MO) literature, and Section 2.7

extends the review into an examination of the relationship performance literature. Section 2.8 brings together the material drawn from both the marketing and IT domains into an overall discussion of the CRM literature. Specific customer perspectives not generally investigated in relationship research, but relevant to the topic, are discussed in Section 2.9. The chapter finishes by summarising the research gaps and opportunities.

The marketing discipline is fundamentally concerned with understanding customer needs and requirements; delivering value to customers resulting in high levels of customer satisfaction; pursuing long-term relationships with customers; and providing positive customer experiences when dealing with the firm (Jayachandran, Sharma, Kaufman, & Raman, 2005; Moorman & Rust, 1999; Webster, 1992). An underlying

Figure 2.1: Informing domains

premise is that relationship marketing provides value for the firm and is an essential element of the marketing concept (Grönroos, 1989; Morgan & Hunt, 1994; Reichheld, 1996). Businesses engaged in relationship marketing create and develop profitable exchange relationships with customers over time. This implies that long-term relationships with customers are better than short-term transactional exchanges, particularly in the B2B environment (Berry, 1983; Grönroos, 1990; Raman & Pashupati, 2004).

Information technology is concerned with the use, design, development, implementation and support of computer-based information systems. This includes the secure collection, storage, protection, transmission and retrieval of information (Turban, McLean, & Wetherbe, 2003). IT attempts to provide both strategic and operational value to businesses (DeJarnett, Laskey, & Trainor, 2004; J. C. Henderson & Venkatraman, 1999; Leek, Turnbull, & Naude, 2003; Zinkhan, Joachimsthaler, & Kinnear, 1987). It is concerned with the use and adoption of technology (e.g., Compeau, Higgins, & Huff, 1999; F. D. Davis, 1989), critical aspects of technology implementation (Brown & Vessey, 2003; Natovich, 2002; Nguyen et al., 2007), and the strategic role of IT within businesses (Chan, Huff, Barclay, & Copeland, 1997; Enns, Huff, & Higgins, 2003; Johnston & Carrico, 1988; Tallon, Kraemer, & Gurbaxani, 2000). IT provides the specific technology to implement one-to-one CRM applications and techniques on a large scale which are of benefit to firms, individuals and customers (Greenberg, 2002; Romano & Fjermestad, 2003).

The relationship marketing (RM) and technology adoption literatures contribute to the theoretical foundation for CRM research, and CRM can be viewed as a practical implementation of RM theory, with emphasis on one-to-one marketing techniques enabled through technology (Buttle, 2004; F. D. Davis, 1989; Doherty & Lockett, 2007; Gummesson, 2004; Ryals & Knox, 2001). The focus of this research is to understand and model the impact of CRM technology adoption on B2B relationships. Settling on a working definition of CRM is not straightforward, and will be discussed at length in this chapter, as a prelude to the development of the formal research model.

2.2. Relationship between Information Technology and Marketing

Marketing's association with and utilisation of IT began around the mid 1960s when the likely impact of massive data-processing capabilities on business practice was first considered (E. Y. Li, McLeod, & Rogers, 2001). Figure 2.2 presents a brief overview of the IT evolution with respect to marketing. Considered as purely a business support function in the early days, IT has evolved through simple, routine number crunching and data processing applications into a strategic contributor to contemporary business (O'Brien, 2004; Talvinen, 1995). Kotler (1966; 1970) was among the first to see the likely benefits of IT use in marketing including real-time information management of customer and competitor information, enhanced analytical capabilities and sophisticated decision support systems (DSS), anticipating the growth and early adoption of marketing information systems (MkIS) (E. Y. Li et al., 2001). Marketing's need to provide comprehensive support for senior management decision-making, and group working processes (such as electronic meetings), provided drivers for the early utilisation of executive information systems (EIS) and group support systems (GSS) (Easton, Easton, & Belch, 2003; Fjermestad & Hiltz, 2000; Hess, Rubin, & West, 2004). During the 1980s marketing practitioners began utilising Supply Chain Management (SCM) applications to help solve problems related to supply and distribution (Heckmann, Shorten, & Engel, 2003; Turban, McLean et al., 2003).

Figure 2.2: Overview of the evolution of information systems/technology with respect to marketing

Marketing has continued to take advantage of IT capabilities with artificial neural networks (ANN) and expert systems (ES) applications used extensively in marketing to

help analyse and supplement customer self-service centres and web-based service initiatives (Boone & Roehm, 2002; Fish & Segall, 2004; S. Li, Davies, Edwards, Kinman, & Duan, 2002; Moghrabi & Eid, 1998; O'Brien, 2004; R. W. Stone & Good, 1995; Turban, McLean et al., 2003; Venugopal & Baets, 1994). Enterprise Resource Planning (ERP) provides integrated real-time solutions across all business processes, allowing companies to focus on their internal processes to improve efficiencies, quality and profitability (Turban, Rainer, & Potter, 2003). Data warehousing (DW) is considered a critical component of CRM – sometimes termed the CRM engine – while data mining is the process of extracting information from data warehouses, looking for previously unknown information, for use by applications such as CRM (Greenberg, 2002; Nairn, 2002; Turban, Rainer et al., 2003; Wells & Hess, 2002).

Notwithstanding the extensive history, the IT and marketing relationship can be strained due to such factors as organisational cultural disparity between IT and marketing, differing key performance indicators (both implicit and explicit), and misaligned perceptions of system usability (I. Corner & Hinton, 2002). Despite the difficulties, there continues to be a need for IT and marketing departments to actively work together to develop comprehensive and integrated business strategies, support management decision making, create sustainable competitive advantage, and generate real-time market research applications (Demirdjian, 2003; Ling & Yen, 2001). As technologies continue to converge over time, their need will become even greater.

2.3. Overview of the Relevant CRM Literature

CRM applications are relatively new to the business world, conceived in the 1980s, but only attaining marketing prominence in the late 1990s primarily due to advances in information technology, data management systems, improved analytics, enhanced communications, systems integration and the rapid adoption of the Internet (Berry, 1995; Bose, 2002; Greenberg, 2002). The adoption of such technologies provides efficiencies for business change initiated by customer demand for customised, personal service. By collecting past customer transaction information, demographics, psychographics, media and channel preferences marketers hope to create personalised product and service offers that capture customer share, build customer loyalty and enhance profit over time (Kotler, 2003; Ling & Yen, 2001; Reichheld, 1996).

There is considerable overlap in business orientation and implementation issues between the CRM marketing, management and IT literature domains. However there are distinct differences in the focus of CRM research between the domains. Figure 2.3 is provided to put this study into perspective based on existing bodies of literature. The management literature is primarily concerned with organisational issues surrounding CRM business strategy development and implementation, and the critical success factors important to the successful adoption of a CRM business strategy. These organisational issues may also include the firm's market orientation and relationship marketing approach. Research of CRM as a business strategy is not the focus of this study and hence the management literature will not be exhaustively reviewed. For the most part the CRM IT literature has focused on critical success factors involved in CRM system (technological) implementation. As shown in Figure 2.3 the identified IT issues do overlap with both management and marketing domains. The CRM specific marketing literature is limited, and focuses to varying degrees on aspects of CRM including critical success factors, business strategy, market orientation and relationship marketing.

Figure 2.3: CRM relevant literature domains

Relationship marketing is a growing area of active interest and research, and CRM research is becoming more prominent in the marketing, management and IT research domains (Ngai, 2005). CRM research specifically has only come to the fore over the last decade or so, whereas relationship marketing has been practiced and researched for some time (Cassels, 1936; Grönroos, 1994b). Even here, a broad-based interest in

relationship marketing beyond a primarily Scandinavian focus has only emerged over the last fifteen years or so. Some authors have advocated that CRM was born from relationship marketing and is simply the practical application of long standing relationship marketing principles which have existed since the dawn of business itself (Gummesson, 2004; Ryals & Knox, 2001). As a specific area of enquiry however, CRM research is still quite new within the marketing discipline.

CRM research has maintained its distinctiveness from other marketing research areas such as RM and market orientation (MO), possibly due to the variety of research domains (i.e., Marketing, Management, and Information Technology), fragmented research focus (i.e., relationship marketing, management strategy, systems implementation), initial technology focus of CRM (e.g., technology fad), or perceived lack of a theoretical foundation (Helfert, Ritter, & Walter, 2002). The separate trajectories of RM and CRM research have given rise to significant gaps in the research literature which are assessed further below (Mitussis et al., 2006).

2.4. Evolution of Relationship Marketing

As early as 1948 Alderson and Cox discussed the impact of ecological studies on marketing theory acknowledging market relationships “as provid[ing] one starting point for a theory of the relationships of individual retailers or clusters and their customers” (p. 147). Following from this Morgan and Hunt (1994) suggested an all-encompassing RM definition: “Relationship marketing refers to all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges” (p. 22). Some argued that this went too far and eliminated the need for a separate definition of marketing itself (Peterson, 1995).

Since the mid-1970s contemporary studies of relationship marketing have been driven from what has been referred to as the Nordic School of Services, and the IMP Group in particular (Grönroos, 1995; Gummesson, 1994a). However it was not until 1983 that Berry (1983, p. 26) formally introduced “relationship marketing” into the academic marketing literature as “attracting, maintaining and – in multi-service organizations – enhancing customer relationships”. Mainstream marketing from the late fifties through to the late eighties focused primarily upon the study and utilisation of the marketing mix (the 4Ps) (Vargo & Lusch, 2004). Over the intervening years the

evolution and definition of RM has been somewhat convoluted (Bitner, 1995), with many RM researchers tending to use one of four dominate theoretical perspectives to investigate and understand interorganisational relationships: a) commitment-trust, b) dependency, c) transaction cost economics, and d) relational norms (Palmatier, Dant, & Grewal, 2007). The commitment-trust perspective is best exemplified in Morgan and Hunt's (1994) work. The exchange dependence structure viewpoint, whereby the interdependency of a partner determines the desire to maintain a relationship, takes into consideration power, willingness to compromise and opportunism (Ganesan, 1994; K. Kim & Frazier, 1997; N. Kumar, Scheer, & Steenkamp, 1995). The concepts of relationship specific investments (RSI), and opportunistic seller behaviour highlights transaction cost economics. Because RSIs represent sunk assets in a relationship, sellers are less likely to act opportunistically and hence, there is a greater expectation of partnership continuity (Rindfleisch & Heide, 1997; J. B. Smith & Barclay, 1997). Relational norms provide the fourth substantial theoretical perspective and often emerges with the commitment-trust viewpoint to explain the positive influence of relationship marketing (Gundlach, Achrol, & Mentzer, 1995; Siguaw, Simpson, & Baker, 1998). This perspective assumes that transactions are undertaken within the context and norms of a stable ongoing relationship and that a set of common contract norms exist (Cannon, Achrol, & Gundlach, 2000; Heide & John, 1992; Kaufmann & Dant, 1992).

More recently however a number of authors propose that an emphasis on the 4P marketing mix is no longer the dominant marketing logic and that RM may be a more appropriate "new" paradigm for marketing thought, theory and practice (Dwyer et al., 1987; Grönroos, 1989, 1990; Gummeson, 1994b; Kotler, 1992; Vargo & Lusch, 2004). With a strengthened focus upon RM, the CRM linkage becomes clear: "CRM provides management with the opportunity to implement relationship marketing on a company-wide basis" (Ryals & Knox, 2001, p. 535). Or as Zablah, Bellenger, and Johnston (2004, p. 480) state "relationship marketing is often cited as the philosophical basis of CRM[and] some perceive them to be so similar as to not warrant a distinction in the literature".

2.4.1. What is a Relationship?

A number of perspectives on and definitions of what constitutes a business relationship exist in the literature (Grönroos, 1990; Harker, 1999). Database marketing

(Tapp, 2005), direct marketing (Pearson, 1994), one-to-one marketing (Peppers et al., 1999), key account management (Burnett, 2001), and building and maintaining customer networks (Shani & Chalasani, 1992) have all been used to denote and describe business relationships (typically known as relationship marketing or RM within the marketing field itself). Some marketers consider a relationship to begin when customer information is collected and used in a database, or when any form of exchange of goods or services takes place. Grönroos (1990, p. 6) more fully described establishing, maintaining and enhancing customer relationships from the service provider's perspective: "1) establishing a relationship involves giving promises; 2) maintaining a relationship is based on fulfilment of promises; and finally, 3) enhancing a relationship means that a new set of promises are given with the fulfilment of earlier promises as a prerequisite." Relationships can be complex and are considered as a point along a transactional-relational continuum, with one extreme including ongoing, long-term business and social interactions, and the other end-point viewed as simple one-time single transactions (Grönroos, 1994a, 1995). Two main types of relationships exist in the business literature; business-to-business (B2B) and business-to-consumer (B2C).

Much of the marketing research has focused on what constitutes B2B relationships, attempting to understand the elements of business relationships; in particular the dynamics of relationship formation, growth, maintenance and termination (Dwyer et al., 1987; Fontenot & Wilson, 1997; Morgan & Hunt, 1994). There is a long history of research specifically examining industrial (B2B) buyer-seller relationships (J. C. Anderson, 1995; Baxter & Matear, 2004; Cannon & Homburg, 2001; Dwyer et al., 1987; Ganesan, 1994; Krapfel, Salmond, & Spekman, 1991; Levitt, 1983; Narayandas & Rangan, 2004; Nielson, 1998; Shapiro, 1974; Wilson, 1995). Grönroos (2000, p. 32) argued that there is still not enough research emphasis on trying to understand "What is a relationship?" or "When do we know a relationship has developed?" – but the amount of research attention focused on this area has increased markedly over recent years, and Grönroos overstates the dearth of work in the area.

Harker (1999) undertook a substantial literature review and uncovered 26 definitions of RM currently used in the RM research literature. Although these different conceptualisations make it difficult to communicate a shared understanding of RM theory and development, commonalities have emerged. For example, trust and commitment are consistently highlighted as elements central to proper relationship

development and enhancement (Morgan & Hunt, 1994; O'Malley & Tynan, 2000).

Harker (1999, p. 16) offered an RM definition based on the results and key conceptualisations from his study:

An organisation engaged in proactively creating, developing and maintaining committed, interactive and profitable exchanges with selected customers [partners] overtime [*sic*] is engaged in relationship marketing.

Grönroos (1996, p. 7) suggested that:

‘Relationship marketing is to identify and establish, maintain, and enhance relationships with customers and other stakeholders, at a profit, so that the objectives of all parties involved are met;’ and ‘this is done by a mutual exchange and fulfilment of promises’.

Ironically marketers on the supplier side appear to be the ones deciding when a relationship exists (without consultation with customers) and hence many definitions of RM in the contemporary literature lack a customer perspective (Grönroos, 2000). Grönroos attempted to address this issue with a customer oriented definition: “A relationship has developed when a customer perceives that a mutual way of thinking exists between customer and supplier or service provider” (p. 33). The “mutual way of thinking” in his definition referred to mutual commitment, loyalty, interaction and communications.

In summary, business relationships are complex exchanges between two parties and a relationship may exist anywhere along a continuum – from purely transactional (i.e., no relationship) to fully relational (i.e., embedded partnership and collaborative), yet necessarily mutually exclusive (Coviello, Brodie, Danaher, & Johnston, 2002; Gummesson, 2004). It is important to recognise that customers play an important and valued role in the initiation, development and maintenance of relationships. Therefore utilising a definition involving the customer as a central participant is inherently appealing as a basis for B2B relationship research (Grönroos, 1996, 2000).

2.4.2. Importance of Relationship Marketing

RM is considered by some academics as the new marketing paradigm, as relevant for manufacturing as it is for products and services (Grönroos, 1989, 1996; Gummesson, 1994a; Vargo & Lusch, 2004). RM theory postulates that benefits to the firm accrue in the form of protecting the customer base, by creating product differentiation and barriers to switching, and improving profits (Dwyer et al., 1987; Low, 1996; Reichheld & Sasser, 1990). Berry (1995) suggested that customers find RM attractive because of

its potential to reduce risk, increase recognition and impart prestige. An added benefit to both parties is the opportunity for the supplier to understand more about customer requirements thereby gaining the ability to customise and tailor solutions to customer needs.

Highlighting the importance of RM, Kalwani and Narayandas (1983; 1995) conducted a cross-sectional and longitudinal study based on 76 firms, pair-matched for SIC codes, market served and level of sales. They compared two groups, long-term relationship group with the transactional group, along three dimensions Net Sales, Inventory Turnover ratio and ROI over two separate periods 1986 – 87 and 1990 – 91. They concluded that long-term relationships provide a long-term competitive advantage without giving up profitability. Perhaps more importantly the benefits of understanding and delivering to customer requirements went beyond simple manufacturing efficiency gains but also led to higher profitability.

The most common factors viewed as reflecting the value of RM and influencing relationship development, maintenance and strength include:

1. Trust (J. C. Anderson & Narus, 1990; Crosby, Evans, & Cowles, 1990; Friman, Garling, Millett, Mattsson, & Johnston, 2002),
2. Commitment (Morgan & Hunt, 1994; Verhoef, 2003),
3. Communication (J. C. Anderson & Narus, 1990),
4. Satisfaction (Crosby et al., 1990; Selnes, 1998),
5. Power (Iacobucci & Ostrom, 1996; Narayandas & Rangan, 2004)
6. Cooperation (J. C. Anderson & Narus, 1990; Selnes, 1998) and
7. Performance (Gruen, Summers, & Acito, 2000; Helfert et al., 2002; Lemon et al., 2002)

Although a number of other variables, such as duration, conflict, competence and dependence/independence, have also been investigated with respect to relationship marketing, these studies generally find in turn some direct or indirect link to trust, commitment or communications (Aijo, 1996; J. C. Anderson & Narus, 1990; Berry, 1995; Ganesan, 1994; Grönroos, 1994a; Gummeson, 1994a; Leuthesser & Kohli, 1995; Lewin & Johnston, 1997; O'Malley & Tynan, 2000; Raval & Grönroos, 1996; Sirdeshmukh, Singh, & Sabol, 2002). These studies demonstrate the importance of trust, commitment and communications quality to relationship initiation and development. Table 2.1 lists some of the antecedents found to influence the trust, commitment and

Table 2.1: Associations between Antecedents Found to Influence Key Constructs of Relationship Strength

Antecedent	Construct	Relationship Outcomes
<ul style="list-style-type: none"> Experience (Dwyer et al., 1987) Competence (Sirdeshmukh et al., 2002) Organisational characteristics; Individual characteristics (Moorman, Deshpandé, & Zaltman, 1993) Shared values; Cooperation; Communication; Opportunistic behaviour (-ve); Investment (Morgan & Hunt, 1994) Performance (Narayandas & Rangan, 2004) Satisfaction (Verhoef, 2003) Use of power (-ve) (Iacobucci & Ostrom, 1996) Duration (-ve) (Doney & Cannon, 1997) 	TRUST	<ul style="list-style-type: none"> Enhanced relationship (Selnes, 1998) Functional conflict resolution; Less uncertainty; Increased commitment (Morgan & Hunt, 1994) Improved performance (N. Sharma & Patterson, 1999) Higher satisfaction; Increased cooperation (J. C. Anderson & Narus, 1990)
<ul style="list-style-type: none"> Communication; Trust; Cooperation; Investment (Morgan & Hunt, 1994) Performance (Narayandas & Rangan, 2004) (J. C. Anderson & Narus, 1990) Satisfaction; Price (Verhoef, 2003) Dependency (Ganesan, 1994) Loyalty (Garbarino & Johnson, 1999) 	COMMITMENT	<ul style="list-style-type: none"> Increased cooperation; Increased acquiescence; Increased continuity; Additional investment (Morgan & Hunt, 1994) Increased satisfaction (Verhoef, 2003) Improved performance (Narayandas & Rangan, 2004) Increased loyalty (Garbarino & Johnson, 1999)
<ul style="list-style-type: none"> Initial; Frequency (Leuthesser & Kohli, 1995) Open (Selnes, 1998) Meaningful; Timely (Lewin & Johnston, 1997) 	COMMUNICATIONS QUALITY	<ul style="list-style-type: none"> Increased trust; Increased commitment (Morgan & Hunt, 1994)

communications constructs in the relationship marketing research and the effect on relationship outcomes. This table highlights and further demonstrates the potential complexity of relationship research. Of all the factors investigated trust, commitment and communications have been most commonly identified as a pre-requisite or primary factor affecting relationship development and performance. With few reservations, this set of antecedents and constructs is similar for both business customers and consumers (Coviello & Brodie, 2001; O'Malley & Tynan, 2000).

2.5. Relationship Strength

One of the roles of marketing is to establish, maintain and develop relationships with customers. The strength (or quality) of business relationships between suppliers and customers has been investigated and measured in a variety of ways (Hausman, 2001; Morgan & Hunt, 1994; Odekerken-Schroder, De Wulf, & Schumacher, 2003). The general consensus is that strong relationships provide substantial benefits to both parties (Ravald & Grönroos, 1996). Although “there is no consensus on which dimensions make up relationship quality...[d]iscussions of

relationship quality often emphasize the importance of trust, satisfaction, and commitment” (Dorsch, Swanson, & Kelley, 1998, p. 130). Relationship strength has been shown to vary significantly between firms depending on the level of the individual sub-constructs, such as trust, commitment and shared norms (Hausman, 2001).

Wong and Sohal (2002) attempted to measure relationship quality directly using a single-item scale, with trust and commitment as antecedents of relationship strength. However, as shown in Table 2.2, marketing and IT researchers have generally considered relationship quality and relationship strength as a single multidimensional construct. These dimensions have included trust (Crosby et al., 1990; K. Roberts et al., 2003; Wong & Sohal, 2002), commitment (Lages et al., 2005; Wong & Sohal, 2002), conflict (Lang & Colgate, 2003), social bonds (Lang & Colgate, 2003), communications quality (Lages et al., 2005), customer satisfaction (Dorsch et al., 1998) and information flow (Lages et al., 2005).

Other researchers have developed models of relationship quality based on linking service quality, customer satisfaction, relationship strength, relationship longevity and relationship profitability (Storbacka et al., 1994). Given that relationship quality and relationship strength have been researched as synonymous constructs, only relationship

Table 2.2 Relationship Quality and Relationship Strength Research Summary

Study	Relationship quality /strength measure	Outcomes	Context
Crosby et al. (1990) (Marketing)	Trust and satisfaction (performance)(with salesperson)	Anticipation of future interaction and sales effectiveness	U.S. Insurance industry – whole life. Personal relationships
Storbacka, Strandvik, & Grönroos (1994) (Management)	Service quality, customer satisfaction, commitment, bonds	Relationship strength, customer profitability	Conceptual
Dorsch et al. (1998) (Marketing)	Trust, satisfaction, commitment, opportunism, customer orientation, ethical profile	Association between relationship quality and vendor status	U.S. Purchasing executives
Hausman (2001) (Marketing)	Trust, commitment, relationalism	Perceived performance, relationship satisfaction and continuance	US Hospital supply chain
Wong and Sohal (2002) (Marketing)	Single-item scale, trust and commitment as antecedents	Salesperson trust impacts overall RQ. Commitment is significant influence.	Retail shoppers - Australia
Lang and Colgate (2003) (Marketing)	Antecedents = commitment, trust, satisfaction, social bonding, conflict	Customer IT expectation and use influences RQ. Social bonding not significant.	Banking industry – New Zealand
K. Roberts et al. (2003) (Marketing)	Trust (credibility and benevolence), commitment, satisfaction, conflict	Significantly influences loyalty	Consumers
Lages et al. (2005) (Management)	Information sharing, communication quality, long-term relationship orientation, satisfaction	Quality of relationship has a positive impact on export performance	U.K. Export market

strength will be discussed further (e.g., Lages et al., 2005; Palmatier, Scheer et al., 2007; Storbacka et al., 1994). A number of specific dimensions of relationship strength from the literature are now reviewed.

2.5.1. Trust

Trust has been conceptualised in the literature as having “confidence in an exchange partner’s reliability and integrity” (Morgan & Hunt, 1994, p. 23), or alternatively as “a willingness to rely on an exchange partner in whom one has confidence” (Moorman et al., 1993, p. 82). Trust is considered by some IT researchers to be based on integrity, credibility and competence (Bhattacharjee, 2002). Other researchers believe trust is built through forthright and frequent two-way communications (Lewin & Johnston, 1997; Selnes, 1998).

Numerous studies have argued that trust is the foundation of RM (Doney & Cannon, 1997; Duncan & Moriarty, 1998; Dwyer et al., 1987; Fontenot & Wilson, 1997; Geyskens, Steenkamp, & Kumar, 1998; Lewin & Johnston, 1997; Narayandas & Rangan, 2004; Raval & Grönroos, 1996). Trust is a primary and fundamental requirement for successful relationship development (Berry, 1995; Grönroos, 1996; Medlin et al., 2005), and relationship maintenance (J. C. Anderson & Narus, 1990; Harker, 1999). In addition trust provides the basis for loyalty, relationship enhancement (i.e., decreased perception of risk), and yet is mediated by customer perceived value of the relationship (i.e., perceived net benefits) (Morgan & Hunt, 1994; Selnes, 1998; Sirdeshmukh et al., 2002). Trust has been conceptualised both as a dimension (E. Anderson, Lodish, & Weitz, 1987; Crosby et al., 1990), and an antecedent, of relationship strength (J. C. Anderson & Narus, 1990; Mohr & Nevin, 1990).

2.5.1.1. Types of Trust

Trust itself is considered multi-dimensional and cannot be researched or measured successfully in a unidimensional manner (Doney & Cannon, 1997; Ganesan, 1994; Geyskens et al., 1998; Pressey & Mathews, 2004).

Blois (1999) reviewed a number of relevant B2B marketing studies on trust and was concerned with the lack of clarity surrounding the conceptualisation of trust, and the different features of trust not represented in the marketing research literature (e.g., trust and reliance; blanket trust; reciprocity; trust and trustworthiness; and organisational trust). McKnight and Chervany (1996; 2000) proposed a four component

interdisciplinary model of trust that included disposition to trust, institution-based trust, trusting beliefs, and trusting intention. They suggested that the elements of the trusting belief component included competence, benevolence, integrity and predictability. Other researchers have similarly found trust, and trust development, to include competence (Bhattacharjee, 2002; E. Kim & Tadisina, 2003; Pressey & Mathews, 2004), benevolence (Bhattacharjee, 2002; Doney & Cannon, 1997; E. Kim & Tadisina, 2003; Pressey & Mathews, 2004), and credibility (Bhattacharjee, 2002; Doney & Cannon, 1997; Ganesan, 1994).

Sako (1992) proposed a typology of trust for management of buyer-supplier relations incorporating contractual trust, goodwill trust and competence trust. Contractual trust is based upon mutually agreed obligations, expectations, ethical standards, formality, and structure. That is, both parties believe, share and uphold similar ethical and moral standards of business; keeping and delivering on promises (Garbarino & Johnson, 1999). This includes the expectations of payment, use and security of confidential material, and basic honesty. Opportunism, as well as complete dependence on legal penalties, indicates a lack of contractual trust, while oral agreements indicate increased levels of contractual trust.

Goodwill trust captures such attributes as shared normative values, fairness, confidentiality, dependability, discreteness and benevolence (Gounaris, 2005). This type of trust reflects a form “of open commitment to each other ...[and] the willingness to do more than is formally expected” (Sako, 1992, p. 38). There are no explicit promises or professional standards to be met. Rather, there is the understanding that either party can take the initiative to exploit new opportunities without taking unfair advantage of the other. Goodwill trust increases the vulnerability of each party to be in the other’s debt. Bhattacharjee (2002), in his study of trust in online firms, identified that benevolence (goodwill) trust is a significant element of trust with the inherent belief that each party will act in a manner that is in the best interest of the relationship.

Competence trust is grounded in the belief that the partner has the ability, technical knowledge, expertise and capability (including managerial) to perform their role (Moorman et al., 1993; Sako, 1992). It is similar to the concept of ability trust (Bhattacharjee, 2002), and is “a pre-requisite for the viability of any repeated transactions” (Sako, 1992, p. 43).

2.5.1.2. *Findings from Trust Research*

Using a multi-format self-administered questionnaire, Moorman, Deshpandé, and Zaltman (1993) found that 15 interpersonal and organisational factors significantly affected users' trust. Complementing the traditional psychological approach to trust research by incorporating sociological theory, they found that individual user characteristics were not key factors. The other parties' perceived integrity, willingness to reduce uncertainty, confidentiality, expertise, sincerity, tactfulness, timeliness, and congeniality all significantly affected trust. Degree of formalisation was the only organisational structure found to affect trust. Other factors significantly affecting trust included the perceived power of the provider's organisation, the provider's perceived organisational culture, the reporting structure, and the firm's propensity for project customisation.

From 212 usable questionnaires returned from a wide variety of industries, Pressey and Mathews (2004), investigating patterns of UK supplier trust in long-term B2B relationships, found that at any point in time, any of the three trusting behaviours – contractual, goodwill or competence trust – may be in evidence, however goodwill and contractual trust did not co-exist within the same relationship. They also found that competence trust (the ability of the other party to perform their assigned role) was not only relied on by both parties, but may be a fundamental requirement for trust to exist. Furthermore trust may not necessarily progress from low levels of trust to higher levels of trust in a linear fashion over time, but may change based on situations and events.

Anderson and Weitz (1989), studied 690 dyadic relationships between independent manufacturing sales representatives and their principals. They found that more trusting relationships occurred with older relationships, and trust was enhanced by two-way communication, perceived congruent goals and between parties that provided mutual support. Lower levels of trust were found with parties that had poor reputations, and relationships involving asymmetrical power balance. The authors also found that older relationships required less communication, that communication helped build trust, while trust facilitated effective communication. However, Doney and Cannon's (1997) study of 210 US industrial manufacturing firms found no significant link between relationship duration and trust.

Ganesan (1994), studying 124 US retailer buyers and 52 sellers, using a mailed questionnaire, found that retailer and vendor commitment was mediated by trust

primarily because trust reduced perceived future risk. In his study only the credibility dimension of trust was a key predictor. Transaction specific investments (TSI) were found to increase a firm's perception of trustworthiness and helped create mutual dependency and signalled commitment. Suppliers' trust in retailers increased when performance outcomes were satisfactory, whereas retailers valued the supplier's reputation more.

IT researchers have developed "initial trust" measurement instruments to help understand how trust first comes about or is initiated. Bhattacharjee (2002) investigated three dimensions of initial trust: ability (competence and knowledge), integrity (principles, conduct and fairness), and benevolence (willingness to do good). The author concluded that, since (potential) customers transfer sensitive information (i.e., e-mail address, credit card information, personal information and preferences) to online firms, initial trust is important to the development of online relationships. Kim and Tadisina (2003) also developed a self-administered questionnaire to measure initial trust within an e-commerce environment. Competence and goodwill were again found to be significant factors impacting the development of initial trust. Within the context of business and technology, people may trust firms similar to how they trust people (Doney & Cannon, 1997), but people do not necessarily trust technology the same way (Friedman, Khan, & Howe, 2000). Roberts (2003) offered the perspective that a lack of trust is a primary obstacle to e-commerce and by implication e-interaction. Customer concerns over privacy and data use may influence a customer's willingness to participate in information exchange and this may impact the buyer-seller perception of technology and CRM adoption within supplier firms (Coupey, 2005; Peters & Fletcher, 2004b).

Trust is an important and necessary attribute for a strong and robust relationship and contributes to relationship performance and has been shown to be mediated by variables such as: performance (J. C. Anderson & Narus, 1990; Narayandas & Rangan, 2004), shared values (Morgan & Hunt, 1994), perceived value add (Sirdeshmukh et al., 2002), and customer satisfaction (Leuthesser & Kohli, 1995; Selnes, 1998).

Table 2.3 provides a summary from a number of studies indicating that the three types of trust proposed by Sako (1992), contractual, competence and goodwill trust, provide acceptable dimensions with which to classify and investigate trust within the

Table 2.3: Trust Facets and Typology of Sampled Trust Research

Study	Key trust facets studied	Typology (Sako 1992)
Dwyer, Schurr, and Oh (1987)	Expertise; reliability; co-operation	Competence
Anderson and Narus (1990)	Benevolence; other party will take action resulting in positive outcomes for both	Goodwill
E. Anderson and Weitz, (1989)	Fairness; benevolence; Long-term orientation; confidence in other; needs will be fulfilled	Contractual, Goodwill
Moorman, Deshpandé, and Zaltman (1993)	Integrity; expertise; intention; requires some aspect of vulnerability and uncertainty	Contractual, Competence, Goodwill
Ganesan (1994)	Credibility; benevolence	Contractual, Goodwill
Morgan and Hunt (1994)	Integrity; competence; benevolence	Contractual, Competence, Goodwill
Ravald and Grönroos (1996)	Will deliver on commitments	Contractual
Doney & Cannon (1997)	Calculative; Predictive; Capability; Intentionality, Transference	Contractual, Competence, Goodwill
Smith and Barclay (1997)	Affective – character, role competence, judgment, motive; Trusting behaviour – investment, forbearance; Communication	Contractual, Competence, Goodwill
Geyskens, Steenkamp and Kumar (1998)	Compatibility & fairness; communications, behaviour, support, economic outcomes	Contractual, Competence, Goodwill
Selnes (1998)	Competence	Competence
Garbarino and Johnson (1999)	Confidence; reliability	Competence
Grayson and Ambler (1999)	Competence; benevolence	Competence, Goodwill
Helfert, Ritter, and Walter (2002)	Benevolence; honesty; competence	Contractual, Competence, Goodwill
Sirdeshmukh, Singh and Sabol (2002)	Execution; consistency; skills; abilities; knowledge; fair, altruistic; problem-solving	Contractual, Competence, Goodwill
E. Kim and Tadisina (2003)	Measured initial trust based on competence and goodwill measures of trust. (e-business)	Competence, Goodwill
Narayandas and Rangan (2004)	Promises made and kept by individuals; performance outside terms of contract; commitment	Contractual, Competence, Goodwill
Pressey and Mathews (2004)	Fair; benevolent; confidential; technical knowledge, expertise, performance, expectations, mechanisms, formality	Contractual, Competence, Goodwill
Gounaris (2005)	Goodwill; moral order	Contractual, Goodwill

RM domain. However few studies have investigated and published the effect of CRM technology adoption on trust within B2B relationships.

Studies investigating CRM technology and trust include Payton and Zahay (2005) who found a lack of intra organisational trust between marketing and IT departments. In addition they found that CRM application users did not always trust the quality of the data available in the shared database. J. W. Kim, Choi, Qualls and Park (2004) found that the relationship strength between manufacturers and retailers, measured through satisfaction, trust and commitment, improved when CRM delivered increased customer satisfaction, customer relationship quality and customer loyalty. The limited CRM specific published research on supplier - customer trust represents a research gap.

2.5.2. Commitment

Commitment is considered within the marketing literature as a significant factor necessary for the creation, building and maintenance of relationships (Duncan & Moriarty, 1998; Dwyer et al., 1987; Fontenot & Wilson, 1997; Geyskens et al., 1998; O'Malley & Tynan, 1997). The impact and critical nature of commitment on relationships have origins in social exchange theory, organisational, buyer, and services marketing literatures (Morgan & Hunt, 1994).

2.5.2.1. Defining Commitment

Commitment typically has been defined as “a channel member’s intention to continue the relationship” (Geyskens, Steenkamp, Scheer, & Kumar, 1996, p. 304). Anderson and Weitz (1992, p. 19) defined commitment to a business relationship between two parties as the “*desire to develop a stable relationship, a willingness to make short-term sacrifices to maintain the relationship, and a confidence in the stability of the relationship*” [italics in original]. It has also been defined as an exchange relationship between partners “so important as to warrant maximum effort at maintaining it” (Morgan & Hunt, 1994, p. 23) and an “enduring desire to maintain a valued relationship” (Moorman, Zaltman, & Deshpandé, 1992, p. 316).

Although a few researchers consider commitment to be a complex multidimensional construct not easily understood or studied unidimensionally (Gruen et al., 2000; Gundlach et al., 1995; Medlin, 2003), Geyskens et al. (1996) and Gounaris (2005) postulated that motivation for commitment consists of two independent, yet not mutually exclusive, constructs – affective commitment and calculative commitment. Affective commitment reflects the desire to continue a relationship because of a psychological attachment, kinship or bond. There is an element of loyalty and belonging in the relationship (Gounaris, 2005). Calculative commitment, on the other hand, is based purely on cost – benefit analysis, separate and distinct from the relationship context. This type of commitment manifests itself in the perceived need to maintain the relationship due to the calculated investment and/or termination costs of leaving the relationship. A normative form of commitment is considered to create a moral (or reciprocal) obligation between two parties based on benefits received (J. P. Meyer, Allen, & Topolnytsky, 1998). The majority of the existing buyer-seller commitment research has focused only on the affective form of commitment (e.g., E. Anderson &

Weitz, 1992; N. Kumar et al., 1995; Moorman et al., 1992; Morgan & Hunt, 1994; Wilson, 1995).

2.5.2.2. *Findings from Commitment Research*

Morgan and Hunt (1994) found that commitment can be a demonstration of loyalty, whereby, for example, a supplier commits superior resources (vis-à-vis the competition) in order to maintain and enhance an existing relationship (Ganesan, 1994). Verhoef (2003) found that commitment is an antecedent both to customer retention and customer share development. Other empirical studies of commitment indicate a strong relationship between perceived commitment of both parties and their ability to overcome difficulties (conflict) in order to achieve mutual gain (Lewin & Johnston, 1997; Narayandas & Rangan, 2004). However Gruen, Summers and Acito's (2000) empirical study of commitment using life insurance agents (n = 2,545) concluded that commitment did not mediate future intention to purchase nor did it lead to retention. The authors believed that the non-significant results may have been influenced by the nature of the insurance industry, the use of aggregation in place of individual measures of commitment, and the attempt to link commitment to actual retention behaviour. Interestingly another insurance industry study undertaken by MacKenzi, Podsakoff, and Ahearne (1998) produced similar results providing additional support to Gruen et al's interpretation.

Morgan and Hunt's (1994) seminal study of commitment and trust concluded that commitment and trust are the primary mediating factors contributing to successful RM. They developed a questionnaire adapting a variety of existing measurement instruments and tested 13 hypotheses with a sample of 204 members of the National Tire Dealers and Retreaders Association (NTDRA), using correlations and structural equation modelling (LISTREL VII). They proposed establishing clear communications for information, such as performance evaluations, market information, forecasts and expectations, to help develop, sustain and improve trust and commitment between exchange partners.

Gundlach et al. (1995) investigated exchange relationships from the buyer and seller perspective, one of only two such studies (Medlin, 2003). The authors considered a three-component commitment model consisting of (a) input – the level of resources, (b) attitudinal – intention, and (c) temporal – consistency over time. The results indicated

that the credibility and level of input “reinforce and escalate commitment over time” (Gundlach et al., 1995, p. 90), while intention (attitudinal component) is not a clear predictor of commitment over time.

Narayandas and Rangan (2004) investigated relationships using grounded theory methodology in three industrial buyer-seller settings. They found that trust affects commitment and performance, and although individual trust is a precursor to development of commitment, interorganisational commitment does not foster interpersonal trust.

Gounaris (2005) collected data from 127 questionnaires mailed to companies in Athens, Greece. As part of this research the author investigated the effect of affective and calculative commitment on relationship maintenance and relationship investment. He found that higher levels of trust led to increased affective commitment, and that there was a causal relationship between trust and commitment in which trust precedes commitment. In addition Gounaris supported the findings from Geyskens et al. (1996) that the affective bond between the buyer-seller is important to relationship maintenance and leads to further relationship investment and enhancement. Furthermore the Gounaris study demonstrated that calculative commitment and affective commitment result in significantly different behavioural intentions. The study suggested that as the level of trust increases in the relationship, calculative commitment decreases. This supported an earlier study which found that “trust can lead even highly interdependent firms to focus less on calculative motivations and emphasize the *desire* to maintain the relationship because of identification with and attachment to the partner” (Geyskens et al., 1996, p. 314). Calculative commitment on the other hand appeared to have a negative impact on the intention to maintain relationships and increase investment.

In summary, commitment is considered essential for relationship success and affects relationship performance (Gounaris, 2005; Helfert et al., 2002; Morgan & Hunt, 1994). The underlying motivation for relationship commitment is important in order to better understand, investigate and predict ongoing relationship performance (Gounaris, 2005). Although there is a lack of empirical studies focusing on affective and calculative commitment, the distinction appears to provide a useful typology to study relationship commitment (Gounaris, 2005). Few studies have attempted to link CRM technology adoption and customer commitment (Park & Kim, 2003). The effect of CRM

technology adoption on commitment and relationship performance is not well understood and represents a gap in the relevant research literature.

2.5.3. Communication

Communication is used to initiate and build relationships; mediate ideas, thoughts and feelings, transfer information, solve problems and simply connect people (Bordia, 1997; Rix, Buss, & Herford, 2001). The area of communications research is vast and sometimes confusing, encompassing the transfer of meaning, as well as the transfer of data, and the use of channels of communication (e.g., technology mediated communication (TMC)) (Eunson, 2005; Rogers & Albritton, 1995). The abundance of communication channels available today increases the volume of information, as well as the quantity of information transferred (Rogers & Albritton, 1995). However this does not necessarily improve the quality of communication and understanding, and instead may culminate in Priestley's paradox (Eunson, 2005). Priestley's paradox proposes that quantity of communications (especially through TMC) may actually diminish communication quality, rather than enhance it. Similar paradoxical findings have been demonstrated in studies of the impact of technology on interpersonal relationships (McQuillen, 2003).

2.5.3.1. *Defining Communication in the Context of Relationships*

Neither communication nor communication quality appears to have single unified definitions in the RM literature (Mohr & Nevin, 1990). Communication has been "defined broadly as the formal as well as informal sharing of meaningful and timely information between firms ... [focused] on the efficacy of information exchange rather than the quantity or amount, and ... inherently taps past communications" (J. C. Anderson & Narus, 1990, p. 44). This form of communication definition has been used extensively in the RM literature (J. C. Anderson & Narus, 1984; Lewin & Johnston, 1997; Morgan & Hunt, 1994; N. Sharma & Patterson, 1999).

Communication effectiveness has been defined as the sharing of meaningful and timely information, with timeliness having an impact on perceived communication quality, satisfaction and trust (Moorman et al., 1993; N. Sharma & Patterson, 1999). Communication openness has been used to reflect the formal and informal sharing of plans, goals, expectations, motives and evaluation criteria (E. Anderson & Weitz, 1989; J. C. Anderson & Narus, 1984; J. B. Smith & Barclay, 1997). Some view

communications as the “glue” which holds relationships together (Mohr & Nevin, 1990), and that relationships would be impossible without good communication (Duncan & Moriarty, 1998), while others simply conclude that “communication is the exchange of information between supplier and customer” requiring an open dialog to maintain the relationship and trust (Selnes, 1998, p. 310).

Communication quality is reflected in the effectiveness (i.e., effectiveness of the media used) and efficiency (i.e., message clarity) of the communication (Shelby, 1998). Frequency of communication is also considered an element of quality. The perception exists that more frequent communication is better, yet an inappropriately high frequency of communications may become annoying, negatively impacting the value and quality of the communication (Mohr & Sohi, 1995).

2.5.3.2. *Findings from Communication Research*

Duncan and Moriarty (1998) argued that business relationships are impossible without communication, and that trust and commitment are simply products of effective communication. The authors suggested that the interactive nature of communication can build or diminish relationships, and therefore proposed a “communications-based relationship marketing model” focused on communication theory. Common elements between marketing and communication include; relationship exchange between stakeholders, feedback (interactivity), and information (messages). Sharma and Patterson (1999) analysed 201 mail survey questionnaires (23 percent response rate) from financial services customers in Australia and provided support for Duncan and Moriarty’s conceptualisation. Their results demonstrated that communication effectiveness, “the formal and informal sharing of meaningful and timely information between a client and advisor in an empathetic manner”, significantly and positively impacted relationship commitment and trust (N. Sharma & Patterson, 1999, p. 158). Empathetic communication involves listening and providing appropriate feedback to customers which can be used to develop emotional and social bonds, and a sense of closeness and comfort in the relationship. A strong empathetic bond can be advantageous in a relationship when problems arise (N. Sharma & Patterson, 1999).

Communication is not only a precursor to relationship commitment and trust (Lewin & Johnston, 1997; Morgan & Hunt, 1994), but is essential to the nurturing process and long-term orientation of relationships (Geyskens et al., 1998). Smith and Barclay (1997)

studying Canadian sales representatives from two multinational computer companies and their customers, using matched responses from 105 questionnaires, found that trusting characteristics and/or motives led to more open communication. More importantly however bilateral communication of needs, issues and priorities was what helped create meaningful relationships; not simply communication by itself (Dwyer et al., 1987). Cultivating an interactive, open and frequent communication environment focusing on valuable information – expectations, market information, and partnership performance – delivered in a forthright manner helps develop, sustain and hold the relationship together (Berry, 1995). The case study evidence provided by Lewin and Johnston (1997) supports the view that accurate, open, timely communication is key to relationship building. They found that the candid sharing of important confidential information is an important dimension to relationship maintenance. The authors noted that normal suppliers (i.e., those focused on transactional exchanges) were not viewed, or communicated with, in the same manner as long-term relationship suppliers.

Selnes (1998) found that communication had a significant influence on trust and customer satisfaction, contributing to the enhancement of the relationship and the propensity to re-purchase (i.e., continue the relationship). A mail survey study of 102 industrial companies (46% response rate) in the US B2B environment demonstrated that buyers can be satisfied with technology-mediated communication (TMC) (MacDonald & Smith, 2004). TMC demonstrated a positive effect on future purchase intention and trust (Zeithaml, Berry, & Parasuraman, 1996). At the same time the trust and commitment relationship factors mediated the effect of TMC satisfaction on future purchase intention. Yet the increase in CRM initiated TMC (i.e., Call centres and Internet) may delay or inhibit trust and relationship development (Wilson & Vlosky, 1998); creating a level of delayed or fragile trust, whereby parties may be more prone to defect due to “social deindividuation” (Bos, Olson, Gergle, Olson, & Wright, 2002). That is, in the absence of a face-to-face relationship there may manifest a lack of other-awareness that can decrease behavioural inhibitions making it easy for individuals to “opt-out” of relationships (Bordia, 1997).

Leuthesser and Kohli (1995) investigated the effect of RM on customer satisfaction and share of business by looking at the communication between customers and suppliers. They focused on three types of behaviours identified from the literature: type of information conveyed, frequency and richness (i.e., face-to-face) of the interactions

and organisational involvement. The sample consisted of 800 randomly chosen National Association of Purchasing Management members, obtaining a 59.3% response rate ($n = 454$). The results indicated that the type of interaction as well as the interaction frequency had a significant effect on customer satisfaction. Frequency of interaction appeared to be more important for trust-building at the beginning of a relationship. Contrary to the authors' hypothesis, there was a significant relationship between frequency of interaction and products with low customer importance. This was interpreted as buyers paying relatively more attention to quality of interaction when the product itself was less important.

Mohr and Sohi (1995) suggested that communication quality is a function of completeness, credibility, accuracy, timeliness and adequacy of communication flows. Their study consisted of 125 returned questionnaires (22 percent response rate) from a U.S. national sample of computer dealers. They found that only frequency of communication flow was significantly related to perceived quality of communication. Bidirectionality (i.e., feedback) and formality (i.e., formal or informal communication) had no significant impact on perceived communication quality, while bidirectionality did significantly affect communication satisfaction, as did communication frequency.

These studies highlight that correct initiating behaviour and quality of communication is important in relationship development and maintenance (Leuthesser & Kohli, 1995; Mohr & Spekman, 1994). In contrast Chong and Dick's (2004) empirical IT focused study of the influence of predictable and timely communication on cognition-based trust (rational and action based trust) in a virtual environment did not find a significant relationship. They argued this may be due, in part, to the methodology; a limited sample size, single site, and sample demographics.

In summary, RM researchers view communication effectiveness and quality as important factors in relationship development, maintenance and performance (J. C. Anderson & Narus, 1984, 1990; Berry, 1995; Dwyer et al., 1987; Fontenot & Wilson, 1997; Morgan & Hunt, 1994; Selnes, 1998), if not the key factor (Duncan & Moriarty, 1998), significantly affecting the initiation and development of trust and commitment directly (Geyskens et al., 1998). Key dimensions of communication quality appear to include timeliness, frequency, openness and accuracy. Communication enhances the relationship, and influences trust and commitment (J. C. Anderson & Narus, 1990; Lewin & Johnston, 1997; Morgan & Hunt, 1994; Selnes, 1998). However the empirical

research investigating the affects of CRM technology adoption on communication quality and effectiveness within a business relationship environment is sparse and general in nature. Park and Kim (2003), from their single case study analysis, conclude that CRM relationship activities benefit from appropriate, frequent and active communication between the company and the customer. The general importance of communication, the potential impact of technology-mediated communication in relationships, and the lack of specific CRM communications research indicates an important research gap.

2.5.4. Other Characteristics of Relationship Marketing

A number of additional factors with regards to relationship marketing have been examined in the extant literature. However the evidence for inclusion of these additional factors in this study is not compelling and in some cases the results have been found to be contradictory. Other than customer satisfaction (which is used in the relationship performance measure to be discussed later), these factors are not subsequently incorporated into the conceptual model under study. They are however briefly discussed here for completeness.

2.5.4.1. Customer Satisfaction

Customer satisfaction has been widely researched with respect to relationship marketing, yet defined in a number of different ways (Crosby & Stephens, 1987; Leuthesser & Kohli, 1995; Reynolds & Beatty, 1999; Selnes, 1998; Yeung, Ging, & Ennew, 2002). One definition popular with current researchers focuses on cumulative satisfaction or overall contentment rather than transaction-specific satisfaction (Andaleeb, 1996; E. W. Anderson, Fornell, & Rust, 1997; Garbarino & Johnson, 1999). However, the nature and measurement of customer satisfaction has been debated, with satisfaction found to be related to and difficult to discriminate from other positive emotions (e.g., happiness, joy, and enjoyment) (Bagozzi, Gopinath, & Nyer, 1999; Oliver, 1993). Studies have established positive relationships between customer satisfaction and price equity (Verhoef, Franses, & Hoekstra, 2001); loyalty (Oliver, 1999); trust and satisfaction (Selnes, 1998); satisfaction, trust and commitment (Garbarino & Johnson, 1999); usage level and satisfaction (Bolton & Lemon, 1999); as well as satisfaction and profitability (E. W. Anderson, Fornell, & Lehmann, 1994). In most cases satisfaction has been shown to be a complex factor, affecting some outcomes

more than others, although customer satisfaction and performance outcomes have been shown to be predominantly linear in nature; customer satisfaction increases as performance improves (E. W. Anderson et al., 1994; Yeung et al., 2002). Although satisfaction may not constitute a “unique, fundamental construct in and of itself” (Bagozzi et al., 1999, p. 201), the cumulative perspective of customer satisfaction has been considered and found to be significant both as a dependent and independent variable in a number of studies (Ganesan, 1994; Leuthesser & Kohli, 1995).

2.5.4.2. Cooperation

Cooperation between firms has been defined as actions taken in order to achieve mutually beneficial outcomes between the firms or independent singular outcomes with the expectation of reciprocation over time (J. C. Anderson & Narus, 1990; Lewin & Johnston, 1997). Trust, competitive strategy and dependency are generally considered a precursor to cooperation (A. J. Campbell, 1998). Anderson and Narus (1990), using social exchange theory and communications as the backdrop, found that firms meeting or exceeding performance objectives through cooperation with other firms (partners) cultivate trust and satisfaction (cf. Lewin & Johnston, 1997). They concluded that cooperation is an antecedent not a consequence of trust, whereas Morgan and Hunt (1994) found that commitment and trust leads to cooperation. This suggests that the relationship between cooperation, trust and commitment is an iterative process requiring a frank, honest and open exchange of information between the parties (J. C. Anderson & Narus, 1990; Lewin & Johnston, 1997; Selnes, 1998). However cooperation is not always based on trust or interdependency. Young and Wilkinson (1989) showed that in certain instances cooperation is coerced by the more powerful member and justified by the desired outcomes. Overall it was concluded that cooperation tended to overlap and link strongly to trust and commitment, and that its inclusion as a distinct construct would not add significant insight or explanatory power beyond those two constructs.

2.5.4.3. Power

Power, dependency and trust are intertwined to the extent that firms perceived to be powerful can be more trusting, while those perceived less powerful are less trusting of partners (Young & Wilkinson, 1989). Similarly, those firms most dependent are generally more receptive to the stronger firms overtures and suggestions (J. C. Anderson & Narus, 1990). The judicious exercise of power (acknowledged and accepted by the

other party), can help create a mutually beneficial relationship (Dwyer et al., 1987; Morgan & Hunt, 1994). However asymmetric power tends to lead to conflict, and subsequent loss of trust and commitment, while mutual dependency leads to less conflict (Morgan & Hunt, 1994; Young & Wilkinson, 1989). Asymmetric power may be transient in nature (strongly favourable to the more powerful firm initially), yet over time, given increased trust and commitment, culminate in lower risk, erode, or transfer to the other party (Narayandas & Rangan, 2004). Iacobucci and Ostrom (1996) found that good individual to individual relationships are generally balanced, symmetrical and pleasant in nature. They suggested therefore that firms should concentrate on creating the perception of a power balance in order to improve customer relationships. Given the nature of the study (the effect of CRM technology adoption) and the strong interaction between power and trust, the evidence for inclusion of power as a separate construct in this study was not considered sufficient.

2.5.4.4. Performance of Duties

How each party performs, or is perceived to perform their duties (within and outside the contract), affects the development, trust enhancement, and commitment within the relationship (Narayandas & Rangan, 2004). In particular, performing above the partner's expectations, leads to trust and satisfaction with the partnership (J. C. Anderson & Narus, 1990). Bolton (1998) modelled the effect of expected value on the duration of the relationship, postulating that cumulative satisfaction anchors the customers expectations. She found that a performance (service) 'pluses and minuses' balance sheet is taken into account with the cumulative effect of satisfaction being positively related to performance over time (i.e., service continuation). Lemon, White, and Winer (2002) investigated actual customer "service" purchase versus intention to buy. Their results also demonstrated that customers incorporate an adaptive expectations approach to repurchase services, that is, customers consider not only past and current business performance measures of service but also project future expectations and benefits of performance into their decision-making of retaining or changing service providers. The Gruen et al. (2000) study found that performance of the supplier positively affected customer participation and retention in professional associations, without necessarily being mediated by commitment. Given the inclusion of Sako's (1992) competence trust construct, the performance of duty construct is considered redundant for this study.

2.5.4.5. *Dependency*

Dependency within a relationship relates to the relative power and therefore the extent one party depends on (or must trust) the other party (J. C. Anderson & Narus, 1990). Some believe the development of interdependency is antecedent to a successful relationship (Lendrum, 2003). However, increasing interdependence asymmetry can decrease trust and commitment while increasing interfirm conflict. In addition Kumar, Scheer, and Steenkamp (1995) demonstrated that relationships with greater total interdependence exhibit higher trust, stronger commitment, and lower conflict than relationships with lower interdependence, although perceived mutual benefit may moderate feelings of asymmetrical dependence (Lewin & Johnston, 1997). Similarly Geyskens et al. (1996) found evidence that interdependence enhances commitment, but that the type of commitment will depend on trust.

However, Dwyer et al. (1987, p. 24) considered relationship development simply “a process of ever-expanding interdependency between buyer and seller.” Furthermore they suggested that any form of prolonged dependency (i.e., delayed payment or scheduled delivery) initiates a relationship (expected or not), since an element of trust and cooperation exists. Initially one firm within the relationship will be more dependent on the other, but this dependency asymmetry can be offset over time based on performance (within and outside contractual obligations), trust and commitment (Narayandas & Rangan, 2004). Due to the complex interactions between dependency, trust, power, performance and commitment, there was no compelling rationale to include dependency as a separate construct in this study.

2.5.4.6. *Duration*

Duration of the relationship is thought to affect the ongoing relationship dynamics – including trust, commitment and satisfaction (Gruen et al., 2000). Reynolds and Beatty (1999) found that long-term satisfied customers perceive additional social benefits and are more loyal to sales people as well as to the firm itself. Other studies however have found a negative correlation to ongoing relationship development, explained by growing too accustomed to each other, not challenging each other, or not initiating new innovations (Doney & Cannon, 1997; Helfert et al., 2002). Due to the contradictory results the duration construct was not included in this study.

2.5.4.7. Rapport

Rapport or the chemistry between customer and supplier has been shown to aid the development of trust between buyers and salespeople, as well as positively affect the ongoing relationship dynamics between individuals and firms (Doney & Cannon, 1997). The construct has been characterised as the quality of a relationship, enjoyable interactions between participants, mutual trust, or simply ‘clicking’ with another person (Bernieri, Gillis, Davis, & Grahe, 1996; Gfeller, Lynn, & Pribble, 1987; Gremler & Gwinner, 2000; Puccinelli, Tickle-Degnen, & Rosenthal, 2003). Irrespective of the definition, marketing researchers have recognised the value of establishing rapport consistent with Gremler and Gwinner (2000) (DeWitt & Brady, 2003; Gremler & Gwinner, 1998). Due to the lack of a clear definition of the rapport construct, and the similarity between rapport measures reported in the literature and the relationship strength and relationship quality constructs in the current study, rapport was not included as a separate construct in this research.

2.5.5. Relationship Marketing Summary

Relationship marketing is considered an essential element of the current B2B marketing mix. “The primary impetus behind the concept of relationship marketing is to foster a long-term relationship and thereby create repeat purchases” (Yau et al., 2000, p. 1112). Although a number of B2B relationship factors were reviewed, trust, commitment and communications are considered primary factors important to the development and maintenance of business relationships (Morgan & Hunt, 1994). Overall, the RM literature highlights the importance of incorporating these three factors in any B2B relationship research.

As noted above, relationship marketing is considered an important element of contemporary marketing, yet little CRM specific research has been published investigating the effect of CRM technology adoption on relationship marketing measures. However the extent and relative importance of relationship marketing within a firm, as well as the customer relationships themselves, may depend on the firm’s level of market orientation.

2.6. Market Orientation (MO)

Although the term “market orientation” has been defined in a number of ways (Kohli & Jaworski, 1990), several empirical studies share the conclusion that market orientation (MO) has a positive effect on business performance (Deshpandé, Farley, & Webster Jr., 1993; Moorman & Rust, 1999; Narver & Slater, 1990). In particular, Cano, Carrillat and Jaramillo (2004) identified, through meta-analysis, that MO plays an important role in business performance and long-term success, explaining approximately 12 percent of variance in business performance.

Market orientation has been defined as:

The generation of appropriate market intelligence pertaining to current and future customer needs, and the relative abilities of competitive entities to satisfy these needs; the integration and dissemination of such intelligence across departments; and the coordinated design and execution of the organization’s strategic response to market opportunities (Deng & Dart, 1994, p. 726).

Table 2.4 summarises dimensions of MO researched from selected key marketing and customer orientation studies since 1982. Customer orientation refers to a firm’s

Table 2.4: Market Orientation Dimensions Measured in Research

Factors	SOCO						RMO	
	Saxe and Weitz (1982)	Narver and Slater (1990)	Kohli, Jaworski and Kumar (1993)	Deshpandé, Farley and Webster, Jr (1993)	Deng and Dart (1994)	Gray, Matear, Boshoff and Matheson (1998)	Helfert, Ritter and Walter (2002)	Yau, McFetridge, Chow, Lee, Sin and Tse (2000)
Customer orientation	X	X	X	X	X	X	X	
Competitor orientation		X		X	X	X	X	
Interfunctional coordination		X	X		X	X	X	
Profit emphasis		X			X	X		
Long-term focus		X						
Responsiveness			X			X		
Bonding								X
Empathy								X
Reciprocity								X
Trust								X

focus on the customer, for example, the ability to sense and respond to customer needs, and can be defined as: understanding and meeting the customer’s ongoing needs, addressing customer satisfaction, continuously creating customer value, providing after sales support and demonstrating customer commitment. Competitor orientation represents a firm’s focus on competitor activity, the ongoing collecting and dissemination of competitor information throughout the business, the firm’s responsiveness to competitor information and the firm’s ability to respond. Interfunctional coordination conveys the firm’s ability to synchronise, coordinate and

leverage the creation and delivery of superior customer value between and within departments. Profit emphasis reflects a firm's focus on profit as an objective measure of performance, while long-term focus is the ability to take a long-term view of the business environment and objectives. Responsiveness refers to action taken in response to information collected and disseminated within the organisation. Bonding reflects shared goals and close relationships between supplier and buyer. Empathy is the ability to view and understand each party's perspective and reciprocity allows each party to make allowances for favours given and received, understanding that the favour will eventually be returned. Trust, in this context, refers to personal (goodwill) trust as the basis for the relationship (Sako, 1992; Yau et al., 2000). These definitions are commonly used to varying degrees in MO research (Kohli & Jaworski, 1990; Kohli et al., 1993; Narver & Slater, 1990; Pelham, 1997).

Saxe and Weitz (1982) developed the Selling Orientation – Customer Orientation (SOCO) scale, a 24-item paper-and-pencil instrument, in order to measure, “the degree to which a salesperson engages in customer-oriented selling... directed toward providing customer satisfaction and establishing mutually beneficial, long-term relationships” (p. 343). Although the SOCO instrument has been used successfully in identifying the customer orientation of sales people in a number of industries and is thought to reflect the firm's orientation, it has not been validated or generally used as a measure for a firm's market orientation (Periatt, LeMay, & Chakrabarty, 2004; R. W. Thomas, Soutar, & Ryan, 2001).

The MKTOR (Narver & Slater, 1990), MARKOR (Kohli et al., 1993) market orientation scales and their derivatives (e.g., Deng & Dart, 1994; Gray, Matear, Boshoff, & Matheson, 1998; Pelham, 1997) are currently the most commonly used instruments to measure MO. These scales have been used to help explain variance in business performance through a firm's embedded market philosophy and implementation activities. There are four fundamental dimensions or attributes that most researchers agree comprise MO: (a) customer orientation, (b) competitor orientation, (c) interfunctional coordination, and (d) profit orientation (e.g., Kohli & Jaworski, 1990; Kohli et al., 1993; Narver & Slater, 1990; Pelham, 1997). The MKTOR instrument was originally constructed as a 15-item scale, using 7-point Likert-type scales. It focused on (a) customer orientation, (b) competitor orientation and (c) interfunctional coordination as observable behaviours around sustainable competitive advantage and creation of

customer value (Narver & Slater, 1990). The MO score is the simple average from the three behavioural score components. Following the scale development and testing, Narver and Slater (1990) examined the MO construct against business performance. The results indicated that “market orientation is strongly related to profitability and business performance [and that] ... commodity business[es] with the greatest market orientation have substantial control over their markets” (Narver & Slater, 1990, p. 32). In addition their study supported the Kohli and Jaworski (1990) concept of MO as a continuum and concluded that MO is “relevant in every business environment” (Narver & Slater, 1990, p. 33).

Kohli, Jaworski, and Kumar’s (1993) criticism of Narver and Slater’s MKTOR instrument was that it (a) is too narrowly focused on customers and competition, (b) does not recognise the impact of speed of market intelligence gathering and dissemination, and (c) includes items not specific to market orientation. The subsequently developed MARKOR instrument provided additional validity to the MO construct (Kohli et al., 1993). However in another study investigating the antecedents and consequences of MO, Jaworski and Kohli (1993, p. 64) found a “linkage between a market orientation and performance”, but could not substantiate a relationship between MO and market share.

Pelham’s (1997) MO study of 160 small U.S. industrial firms supported an indirect relationship between MO and profitability, mediated by firm effectiveness and sales growth. In addition he found that MO impacted business performance more than any of the other variables considered in the study; industry structure, and strategy (low cost and differentiation). Varela and del Río (2003) investigated the Spanish food, timber and chemical sectors using the simplified 20 item version of the MARKOR scale (Kohli et al., 1993). Their results indicated that timeliness of information collection and dissemination are important elements of a MO firm, as is senior management’s cultural orientation and commitment to MO. In the Noble, Sinha and Kumar (2002) study, analysing shareholder letters in US based mass merchandising company annual reports over a period of years, performance was found to be positively influenced by sales orientation, while production orientation and customer orientation were not significantly related to performance assessment by senior executives. Narver and Slater (1990) inferred that market orientation requires long-term attention, and that short-term profitability should not be a primary focus of MO.

Gray et al. (1998) believed that responsiveness to competitor action (timeliness) and customer requirements is a necessary attribute of market orientation, while Helfert et al.'s (2002) empirical study indicated that market orientation, leading to resource availability, is an antecedent to successful relationship performance. Studies have demonstrated superior performance of MO in not-for-profit organisations (Cano et al., 2004). On the other hand resource availability (or operational market orientation) may simply reflect commitment (Morgan & Hunt, 1994).

Yau et al. (2000) believed that the existing MO instruments did not focus enough on the customer relationship nor capture the effect or impact of relationships on business performance. Therefore they developed a relationship marketing orientation (RMO) instrument, consisting of four components; bonding (four items), empathy (three items), reciprocity (three items) and trust (four items). They found the RMO construct exhibited a significant, and more dominant, impact on business performance than did market orientation as measured by the Narver and Slater (1990) MKTOR instrument. However the RMO instrument only measured relationship and performance, and did not take into account the broader MO perspective such as information collection and competition.

Market orientation “represents the foundation of high-quality marketing practice” (Kohli et al., 1993, p. 467) and has been shown to positively influence customer satisfaction which in turn leads to customer retention and increased profitability (Sanzo, Santos, Vázquez, & Álvarez, 2003; Singh & Ranchod, 2004; Storbacka et al., 1994). Although MO is widely viewed as the current basis of marketing philosophy (Hunt & Morgan, 1995; McNamara, 1972; Sanzo et al., 2003; Varela & del Río, 2003), Gray et al. (1998) noted that relatively few studies have attempted to generalise the results across multiple industries and that there is more to be learned by using the MO construct across a range of industries. Other studies suggest that a dyadic approach to MO research may be beneficial since companies may be unable to accurately self-report their customer orientation, implying it is the customer's perception of a firm's market orientation that is related to performance (Deshpandé et al., 1993; S. Henderson, 1998). Within the CRM context MO is best defined around the parameters central to CRM systems and applications and proposed by a number of researchers, which are: focus on customers, data collection, data analysis, responsiveness and dissemination of information (Deng & Dart, 1994; Kohli et al., 1993; Narver & Slater, 1990). The majority of definitions consider MO an adequate indicator of the level of market

philosophy that guides the firm's behaviour towards its customers (Day, 1994; Slater & Narver, 1995) and may play a key role in the successful adoption of CRM technology (Goodhue et al., 2002). This point is discussed and expanded on further in Section 2.8 Customer Relationship Management.

2.7. Relationship Performance

In contrast to business performance measures, such as financial (i.e., ROI) and customer-centric measures (i.e., customer satisfaction and retention) (e.g., Appiah-Adu & Singh, 1999), relationship performance considers the overall relationship behaviour and reflects customer satisfaction, loyalty, brand

awareness and overall performance compared to competitors, in addition to relationship outcomes (Gray, Matear, & Matheson, 2002; J. W. Kim et al., 2004). Sales growth and market share have been used as performance measures when investigating trust and relationships across international borders (Aulakh, Kotabe, & Sahay, 1996).

Relationship performance has been successfully investigated in Chinese supplier firms using subjective measures of commitment and profitability (Wilkinson & Wiley, 2000)

The different parties within a relationship may have diverse perspectives of the value and performance of the existing relationship yet few studies have attempted to measure relationship performance from both sides of the relationship dyad (Medlin, 2003). K. Kim (2000) investigated the impact of power, trust and commitment within the US industrial machinery industry on the solidarity of relationships between suppliers and distributors. The dependent variable was dyadic solidarity – no other dependent variable was tested or compared. Solidarity referred to the perceived unity, common goals and positive relationships between the matched suppliers and distributors. The matched responses (n = 67) to the questionnaire instrument, worded differently for supplier or distributor, indicated that coercive influence is less likely in a relationship built on trust, and commitment may not be sufficient to maintain a mutually beneficial relationship. The author concluded that the dyadic analysis approach is an appropriate method to investigate perceived and actual, firm and relationship performance.

Lages, Lages and Lages (2005) developed a relationship multidimensional scale comprised of: (a) amount of information sharing, (b) communication quality, (c) long-term orientation, and (d) satisfaction with the relationship. The authors found that the

perception of the relationship between exporter and importer in the UK export industry had a positive affect on export performance as measured through financial performance, strategic performance and satisfaction with the export venture. Other researchers have suggested that under certain circumstances satisfaction with business performance may outweigh a lack of trust within the relationship and that more research needs to be conducted on performance and satisfaction (Geyskens, Steenkamp, & Kumar, 1999).

Jayachandran et al.(2005) measured customer relationship performance through the firm's self-assessment of customer satisfaction and customer retention and found that CRM technology use had a moderating effect on the association between relational information processes (i.e., information capture, information integration, use and access) and relationship performance. Their sample consisted of 172 key informants (marketing, sales or customer service executives) from a variety of industries. Of the 172 responses however only 48 firms had implemented CRM technology. The Reinartz, Krafft, and Hoyer (2004) study on the other hand indicated that CRM technology use did not appear to significantly and positively effect financial performance. Their study was conducted in the Austrian, German and Swiss financial, hospitality, online retail and power utility consumer markets, using both primary and secondary data sources. The sample consisted of 211 usable responses from executives responsible for CRM operations. One explanation for the different results presented by Jayachandran et al. is that the CRM technology effect may materialise "more easily and earlier on intermediate process measures" (p. 190) than on financial performance outcomes.

The relationship research literature indicates that, depending on the objectives of the research, it may be important to collect both economic and non-economic measures separately and from both the supplier and customer perspectives (Geyskens & Steenkamp, 2000; Geyskens et al., 1999; Medlin, 2003). These studies also indicate that the source (i.e., objective or subjective) and type of business performance (i.e., financial or non-financial) data is an important consideration and should reflect the purpose of the study undertaken. The scarcity of research investigating the effect of CRM technology adoption on customer relationship performance appears to be a significant research gap and could enrich the relationship marketing literature.

2.8. Customer Relationship Management (CRM)

Although the basis of CRM has been around since 1956 (e.g., the segmentation of discrete customer groups), it is only within the last 6 to 10 years that CRM has created a significant impact in the business world (Nairn, 2002). The management focus on relationship marketing (specifically one-to-one marketing techniques) (Peppers & Rogers, 1993; Peppers et al., 1999) and market orientation (focused on collecting, analysing and disseminating large quantities of customer data) helped create the opportunity for CRM technology. The rapid growth of CRM can be attributed to: (a) fierce business competition for valuable customers, (b) the economics of customer retention (i.e., life-time value) and (c) technology advances (Buttle, 2004; Goodhue et al., 2002; Karimi et al., 2001; Ling & Yen, 2001; Winer, 2001).

CRM has been described from a number of different perspectives including functional, technical and managerial aspects (Doherty & Lockett, 2007; Ngai, 2005; Sathish, Pan, & Raman, 2002; Wright et al., 2002). From a management perspective, due to the inherent focus on the customer, CRM is viewed as an important business strategy and philosophy (e.g., Almquist et al., 2002; Beckett-Camarata, Camarata, & Barker, 1998; Chang, Yen, Young, & Ku, 2002). Marketing academics view “CRM [as] a concept that adds [practical] value to the meaning of customer orientation” (Wright et al., 2002, p. 340), helps operationalise MO and provides marketing value (e.g., Aspinall, Nancarrow, & Stone, 2001; Reinartz & Kumar, 2002; Rheault & Sheridan, 2002; Ryals, 2005; Srivastava, Shervani, & Fahey, 1999); while IT researchers appear primarily interested in the technological and implementation aspects of CRM (e.g., Chalmeta, 2006; Cooper, Watson, Wixom, & Goodhue, 2000; Gefen & Ridings, 2002; Romano & Fjermestad, 2001; Wells & Hess, 2002).

2.8.1. CRM Definition

Rigby et al. (2002a) state that most executives cannot readily define CRM, and Greenberg (2002) quotes ten different definitions provided by leading CRM software development business CEOs. Early definitions of CRM focused on the acquisition and long-term retention of customers (Ling & Yen, 2001; The Data Warehousing Institute, 2000; Wyner, 1999). CRM as a business strategy is another common definition: “CRM

is an approach or business strategy which provides seamless integration of every area of business that touches the customer” (Sathish et al., 2002, p. 545). Others have defined CRM in terms of the opportunity for profit maximisation, as in attracting and retaining “economically valuable” customers while getting rid of “economically invaluable” ones (Pan & Lee, 2003; Romano, 2000; Romano & Fjermestad, 2001). A number of studies take a more integrative and holistic approach to CRM, attempting to define CRM jointly through its relationship with technology and as a business strategy (Bose, 2002; Buttle, 2004; Dibb, 2001; Goodhue et al., 2002; J. Kim, Suh, & Hwang, 2003; Sathish et al., 2002; The Data Warehousing Institute, 2000). This type of definition moves us closer to capturing the dual aspects of CRM that need to be given consideration when assessing the success or otherwise of actual CRM implementations. Each aspect considered on its own is likely to yield an incomplete picture. Vendor (e.g., Oracle, PeopleSoft, SAP, and Siebel) and practitioner magazine (e.g., destinationCRM.com, CRM Magazine, and CRM Today) definitions focus on the profit potential of CRM technology implementation. For example: “CRM...is a company-wide business strategy designed to reduce costs and increase profitability by solidifying customer loyalty” (destinationCRM, 2002).

CRM technology has also been viewed as providing the “glue” that integrates “front office” (i.e., sales, support and marketing) and “back office” (i.e., ERP and/or order fulfilment) applications for sales and marketing, via tools for detailed analysis and modelling, along with the technology infrastructure to seamlessly provide a single cohesive and comprehensive customer-facing unit (Buttle, 2004; I. J. Chen & Popovich, 2003). The contemporary view of CRM is defined more around using technology and IT to help manage the relationship with customers. In general, CRM technology defining characteristics and elements found within the extant literature generally focus around the use of IT to: (a) acquire and retain long-term customers, (b) create a (long-term) business strategy, (c) help implement CRM processes, and (d) increase profit (over time).

This study adopts the more holistic CRM approach, reflecting the intent of Gummeson (2004), and Ling and Yen (2001) regarding CRM as a customer-centric business focus, shaped by the market orientation (MO) of the firm and implemented through IT. In particular CRM includes the process of identifying, accepting and

building appropriate mutually beneficial relationships with each customer (i.e., RM) through the use of technology in order to maximise value for each party.

2.8.2. CRM IT Operational Model

At the most rudimentary level CRM functionality consists of contact manager software that captures, stores and retrieves customer information in a stand-alone configuration (e.g., Microsoft Outlook – Contact application) (Zikmund et al., 2003). At the other end of the scale, CRM consists of a number of complex, integrated IT components including data warehouses, data marts, analytical tools and applications used to capture and analyse customer information from a variety of inbound touchpoints, and provides integration to outbound touchpoints (e.g., MySAP and Oracle) (Turban, McLean et al., 2003). The most highly sophisticated systems integrate other functional areas of the business (e.g., incorporates ERP) (Greenberg, 2002; O'Brien, 2004).

There are three main categories of CRM that can be implemented separately, phased in, or integrated from the beginning – analytical, operational, and collaborative CRM. Figure 2.4, adapted from the 2000 TDWI Study (The Data Warehousing Institute, 2000)

Figure 2.4: CRM IT operational model

Source: Adapted from The Data Warehousing Institute (2000).

shows the architecture and relationships between the various components in an analytical and operational CRM implementation. Another CRM variant – portal-based CRM creates common Internet based gateways for customers, partners and employees utilising user-specific access to vendor-customer information incorporating analytical, operational and collaborative CRM applications (O'Brien, 2004; Turban, McLean et al., 2003).

2.8.3. CRM Strategic Model

The CRM strategic framework is based on the view that effective and successful CRM is the result of coordinated cross-functional processes and activities within organisations (Payne & Frow, 2004, 2005, 2006). The five business processes (strategy development, value creation, information management, multi-channel integration and assessment of performance) work together in harmony to provide the greatest value to shareholders and customers. Figure 2.5 illustrates the relationship between the various business process, emphasising the iterative and interactive nature of CRM.

Figure 2.5: CRM strategic framework model

Source: Payne & Frow (2005)

2.8.4. CRM Process Model

This section describes a traditional CRM process and highlights the potential disconnect between the CRM process and a relationship marketing approach. CRM

systems are an integral component of the information technology growth to support and improve the business “front office” and the customer relationship (O'Brien, 2004; Turban, McLean et al., 2003). CRM technology is an IT application that consists of three basic subsystems – a collection (input) component, a data base component, and a delivery system (Goodhue et al., 2002; Zikmund et al., 2003). Other components may include (but are not limited to) analysis tools and campaign management tools (Ling & Yen, 2001; The Data Warehousing Institute, 2000). Some research literature differentiates between CRM and e-CRM (electronic CRM) (e.g., Fjermestad & Romano, 2003; Romano, 2000), while others view e-CRM as an extension of CRM technology into the e-commerce realm, rather than a different application or system (Greenberg, 2002; Turban, McLean et al., 2003).

Figure 2.6 depicts a process model of CRM, which involves (a) collecting customer information on an ongoing basis, (b) using that knowledge to manage customer contact through such activities as marketing campaigns and direct sales promotions, (c) developing business and marketing strategies, (d) developing marketing programmes, and (e) measuring success, while refining and enhancing the customer database (M. L. Roberts, 2003; Zablah et al., 2004). The underlying assumption for the model is that the firm conducts ongoing information collection, refines, enhances and applies the information appropriately. Knowledge about the customer is collected, stored and made available to customer contact personnel. As customer information is analysed, new information is created, stored, transferred and marketing programs created and enacted. Feedback is obtained from the marketplace, customer data is updated and refined, new information is created and new programmes created. This CRM process is iterative and

Figure 2.6: CRM process model

Source: Adapted from M. L. Roberts (2003)

ongoing, and has similarities with knowledge management systems (KMS) (e.g., Alavi & Leidner, 2001; Shoemaker, 2001; Zablah et al., 2004).

The model is similar to the underlying characteristics of market orientation discussed previously, in that an MO firm is characterised by (a) continuous (near real-time) customer data collection, (b) collecting competitor capabilities information, (c) sharing information across departments and (d) using the information to create customer value (Kerin et al., 2003; Kohli et al., 1993; Narver & Slater, 1990). However, the problems with this process model include no direct linkages into the other areas of the organisation (e.g., operations, finance and IT), and the fact that it is company focused, not customer driven (cf. Kapoulas, Ellis, & Murphy, 2004). This traditional marketing product focus, creating value propositions based on the 4P marketing mix model (i.e., process c in Figure 2.6), highlights a research gap. The traditional CRM process does not adequately take into account the wider perspectives of relationship value and the potential impact of the firm's MO discussed earlier (Grönroos, 1990).

2.8.5. Current CRM Use

Today CRM is used primarily by sales, sales support and customer service staff (including call centres and telemarketers) to portray a unified and coordinated point or points of contact to customers. It is also used as a marketing tool to segment and target customers, help develop marketing/sales programmes for targeted customers, and aid in keeping track of customer activities (Ling & Yen, 2001; Shoemaker, 2001; Speier & Venkatesh, 2002).

CRM requires the IT, and sales and marketing departments to work closely together if the benefits of CRM are to be properly realised. Yet this has not always been the case (Ryals & Knox, 2001; Yu, 2001). In addition CRM, by definition, and consistent with an underlying MO philosophy, collects, stores and utilises detailed customer information and hence is potentially a major potential contributor to organisational knowledge and knowledge management (Alavi & Leidner, 2001; Davenport & Klahr, 1998; Kerin et al., 2003; Richard, 2003; Zablah et al., 2004).

From the practitioner perspective, CRM technology adds value to the business by: (a) making it easy for customers to do business, (b) focusing on the end-customer for products and services, (c) redesigning customer-facing business processes from the end-customer's point of view, (d) designing a comprehensive, evolving electronic business

architecture, and (e) fostering customer loyalty (Turban, Rainer et al., 2003). CRM systems also have the potential to become an integral component of “business fulfilment,” adding customer value by integrating all the business components – from sales through distribution (fulfilment) to invoicing and even receivables (Markowitz, 2002).

However, as discussed in detail below, CRM system implementation has received mixed reviews in both the academic (e.g., Karimi et al., 2001; Ling & Yen, 2001; Speier & Venkatesh, 2002) and popular literature (e.g., Arnold, 2002; Casselman, 2003; Le Pla, 2002; Markowitz, 2002). The CRM industry suffers from “overpromising and underdelivering” says Craig Conway, PeopleSoft Chief Executive and President, hence CRM is seen as inadequately meeting today’s business needs let alone meeting their potential for strategic business value (Markowitz, 2002).

2.8.6. CRM Issues

Although CRM is in some important respects consistent with marketing theory (Abbott, Stone, & Buttle, 2001; Kotler, 2003; Ling & Yen, 2001), makes good business sense (Buttle, 2004; Greenberg, 2002; Zikmund et al., 2003) and is available today from a variety of suppliers (Turban, McLean et al., 2003), it has continued to face serious difficulties and implementation failures (Adebanjo, 2003; Arnold, 2002; Davids, 1999; Nairn, 2002; O'Brien, 2004; Raman & Pashupati, 2004; Rheault & Sheridan, 2002; Turban, McLean et al., 2003). A number of popular business magazines (Le Pla, 2002; Markowitz, 2002), as well as commercial research groups (IDC, 2002) have published scathing reviews on the implementation of CRM technology, focusing on the lack of commercial benefits gained from substantial CRM investment. Successful CRM technology implementation and adoption requires visible, concentrated and long-term senior management buy-in and significant organisational change if its full benefits are to be realised (Bohling et al., 2006; Casselman, 2003; Fleischer, 2002; Ling & Yen, 2001; Yu, 2001).

The underlying expectation of CRM technology is to deliver customer loyalty and enhanced corporate profitability, however the META Group states that “55% of all CRM projects don’t produce results” (R. Davis, 2002; Seligman, 2002). A survey of 1,500 companies found that 91% of businesses plan or have deployed CRM solutions, however 41% of the firms with CRM projects were experiencing serious

implementation problems (The Data Warehousing Institute, 2000). R. Davis (2002) stated that up to 70% of companies had not realised any benefit from CRM technology implementation or failed to meet basic company goals, such as ROI. This may in part reflect the difficulty in identifying and matching the appropriate CRM investments and returns (Ang & Buttle, 2002). Other studies indicate that 20% of senior executives reported that CRM initiatives had failed to deliver profitable growth and in some cases had even damaged existing customer relationships (Rigby et al., 2002a). In response CRM vendors have undertaken new development, focusing on adding additional features, benefits and value (Songini, 2002).

CRM “success” is not well defined in the IT or marketing literature. This can in part be attributed to the difficulty in agreeing on a CRM definition, as well as the different approaches to CRM research. The IT research focuses primarily on conceptualising and understanding CRM system implementation issues (e.g., Brown & Vessey, 2003; Goodhue et al., 2002; Plakoyiannaki & Tzokas, 2002), critical success factors (e.g., Bose, 2002; H.-W. Kim et al., 2002; Romano, 2000), and improving the use and adoption of CRM (Ahn, Kim, & Han, 2003). Other researchers have defined CRM success around the dimensions of systems quality, information quality and user satisfaction, following and adapting the DeLone and McLean IS Success Model (DeLone & McLean, 1992, 2003; H.-W. Kim et al., 2002). Brown and Vessey (2003, p. 66) defined the IT perspective of CRM implementation success most appropriately and succinctly as: “an up-and-running system with agreed-upon requirements delivered within schedule and budget.” There have been relatively few empirical studies attempting to link CRM success directly with business performance or relationship performance metrics such as market share and retention (e.g., Croteau & Li, 2003; J. W. Kim et al., 2004).

This is in contrast to the marketing research, which has primarily been focused on the impact of CRM on customer relationship measures (e.g., Day, 2000; Garbarino & Johnson, 1999; Lemon et al., 2002; Reinartz & Kumar, 2003). This does not imply that marketing researchers have ignored the potential business performance aspects of CRM, and they have found for example that CRM technology tends to positively influence business performance and customer satisfaction measures (e.g., Gummeson, 2004; Raman & Pashupati, 2004; Reinartz et al., 2004; Srinivasan & Moorman, 2005).

CRM marketing research attempts to link success more directly to business performance measures, while also investigating the interaction of RM implementation and IT efficiencies (e.g., Gummesson, 2004; Lemon et al., 2002; Peppard, 2000; Reinartz et al., 2004). The management literature appears to have a more general view of CRM “success” focusing on how to use CRM as a change catalyst to stimulate business growth (Rigby & Ledingham, 2004; Seybold, 2001) or support customer oriented business strategies (Reinartz & Kumar, 2002; Winer, 2001; Zeithaml, Rust, & Lemon, 2001). The extant literature suggests that CRM “success” is predicated on: successful CRM system implementation (Brown & Vessey, 2003; Ling & Yen, 2001), CRM’s ability to support the customer facing aspects of an MO business approach (Gummesson, 2004; Raman & Pashupati, 2004), and improving economic performance (Reinartz et al., 2004).

It is evident that the poor results reported for CRM implementation can be partly explained by the conflicting CRM models and related research. Some of the issues related to measures of CRM success include the inability to a) isolate, test and examine CRM technology factors apart from CRM strategic, organisational and business factors; b) correctly isolate and separate CRM investment; and c) identify and measure the dependent variable(s) (e.g., loyalty, retention or profitability) (Ang & Buttle, 2006; J. Kim et al., 2003; Reinartz et al., 2004). CRM research has tended to emphasise increased profitability, performance improvements and customer retention with little or no focus on measuring relationship development (Aspinall et al., 2001; Hirschowitz, 2001). The limited reports of CRM accomplishment have generally focused on project management success, improved data quality, management leadership and strategic readiness for CRM implementation (Bohling et al., 2006; Bose, 2002; Kennedy, Kelleher, & Quigley, 2006; Nguyen et al., 2007; Yu, 2001). Others consider the basis of CRM evaluation and success as a customer intimacy issue and that customers should be able to see some improvement in relationship measures from a successful CRM technology implementation (e.g., Payne, 2006).

The CRM implementation challenges have been compared to the early days of ERP implementation, implying that it may only be a matter of time before the factors which make CRM technology successful are understood and measurable benefits are more fully realised (Brown & Vessey, 2003; Sheng, 2002; Woodcock & Starkey, 2001; Yu, 2001). The majority of CRM IT research, although focused on what needs to take place

within an organisation to implement CRM successfully (Chalmers, 2006; Nguyen et al., 2007) does parallel the business philosophy and MO aspects discussed earlier. Some of the critical factors in CRM implementation, discussed in detail in the next few sections, include: a customer oriented culture; the IT management approach; executive commitment, and the integration of people, process and technology.

2.8.7. Customer (Market) Orientation

Both the marketing and IT literatures agree that a customer-centric focus (market orientation) is considered an essential theoretical foundation for CRM success (Davids, 1999; Ling & Yen, 2001; Lloyd, Scullin, Allora, & Fjermestad, 2001; Plakoyiannaki & Tzokas, 2002) and this is supported by case study research from both domains (Abbott et al., 2001; Goodhue et al., 2002; Wright et al., 2002). The case study research, primarily carried out in the U.S.A. and the U.K., emphasises that relationship marketing needs to be accepted as the core strategy across the company and highlights the importance of customer relationships at all levels of the organisation, with customer loyalty a high priority.

Fundamental to CRM strategy development and success, from a marketing outlook, is the need to embrace ongoing relationships with customers (Abbott et al., 2001). Reviews of existing CRM implementations, from both marketing and IT perspectives, highlight the need to develop customer focused business strategies before attempting to implement CRM (Lloyd et al., 2001; Rigby et al., 2002a). In addition the IT literature suggests, for CRM to deliver optimum benefit, this marketing focus must be a business strategy accepted throughout the firm (Ling & Yen, 2001). Furthermore, marketing research indicates that CRM adds value to the concept of customer orientation. Wright et al. (2002) examined how CRM has altered traditional marketing views. They concluded that CRM technology is only an enabler, while CRM itself is an attitude that must be cultivated in people, processes and management in order for “CRM” to be fully successful. Firms identified as not marketing or customer focused were found to be slow to adopt CRM (Abbott et al., 2001).

The customer centric philosophy that the IT literature discusses is similar to the market orientation concept found in the marketing literature, which highlights a research gap between the two research domains. That is, although the importance of a customer-oriented business philosophy has been cited as critical to CRM technology

implementation success, little empirical research is available in the extant literature linking MO to CRM technology implementation.

2.8.8. Information Technology Management

CRM technology implementation success may simply be the result of IT management practices. IT management sophistication describes the level of IT maturity within the firm (Karimi et al., 2001; Stefanou et al., 2003). In an empirical study investigating the role of IT steering committees and IT maturity Karimi, Bhattacharjee, Gupta and Somers (2000) found that IT management sophistication within a firm can be characterised by the degree, complexity and level of IT planning, control, organisation and integration.

A company's IT maturity refers to the focus and capability of the firm to involve (a) top-down planning process linking IT strategy to business requirements, (b) broad distribution of application technology transfer, and (c) effective exploitation of IT through technology integration (Johnston & Carrico, 1988; Karimi, Gupta, & Somers, 1996a, 1996b). Karimi et al. (2001), investigating the impact of IT management and leadership on CRM implementation developed a questionnaire to measure IT management sophistication and IT leadership with respect to CRM technology adoption, along with IT's potential for impact on marketing and operations. The authors identified IT-leader firms as having an above average potential for IT to positively impact marketing and operations. IT-enabled customer focused firms have the same potential to impact marketing, but not operations. IT-enabled operations firms have the same potential, as the IT-leader firms, to impact operations but not marketing. The IT-laggard firms have less than average potential for their CRM technology implementation to impact marketing and operations. The results indicated that IT management practices within a firm have significant implications for CRM technology adoption and success, but the authors did not compare the results against existing marketing management practices or the potential effect on customer relationships.

2.8.9. Executive Commitment

The IT literature indicates that senior level champions are necessary for IT systems' adoption and success, and CRM is no exception (Beath, 1991; Bose, 2002; Howell & Higgins, 1990; H.-W. Kim et al., 2002; J. Lee & Runge, 2001; Ling & Yen, 2001; Mirchandani & Motwani, 2001; Palvia & Chervany, 1995). CRM adoption needs to be

demonstrated throughout the organisation in order to obtain management and employee buy-in, create or maintain a customer-oriented culture and embrace a culture of change (Fjermestad & Romano, 2003; Hansotia, 2002; Plakoyiannaki & Tzokas, 2002). Clear communication and resource commitment from senior management facilitates IT system deployment (Gefen & Ridings, 2002), and acceptance within organisations; “commitment was needed from people at the top of the company” in order to make CRM “happen” (Abbott et al., 2001, p. 28).

Based on their studies of ERP projects over the last 10 years, Brown and Vessey (2003) found that top management must be “engaged in the project, not just involved” (p. 66) to achieve CRM system implementation success. Croteau and Li (2003) found, in their study of 57 large Canadian firms, significant relationships between senior management support and CRM impact, and also between knowledge management capabilities and RM impact. However the level of sponsorship required varied depending on the organisational level (i.e., departmental or corporate-wide) and sophistication (i.e., personal contact management or enterprise-wide integration) of the CRM system implemented (Gallivan, 2001; Goodhue et al., 2002). The focus, engagement and leadership from senior management plays an essential role in establishing and maintaining customer orientation, reducing resistance, and improving usability – all critical to CRM implementation success (Kennedy et al., 2006; Locander, Hamilton, Ladik, & Stuart, 2002; Markus, 1983).

The executive commitment factor reinforces the importance of IT management practices and the market orientation of the business firm in the adoption and successful implementation of CRM technology.

2.8.10. Integration of People, Process and Technology

Taking an integrative and balanced approach to people, process and technology is important. Speier and Venkatesh (2002) explored the role of the sales person in sustaining CRM practices since adoption is required to support CRM. Their premise was that sales force automation (SFA) provides salespeople with tools which enhance their knowledge of customers, providing the ability to generate better and more timely alternatives and decisions, improving customer relationships and hence productivity. Using a theoretical lens of technical diffusion and identity theory they studied two organisations in which SFA had been rejected in order to ascertain why SFA had failed.

They concluded that forcing technology sales tools onto an unprepared sales force might create significant conflict within sales people, to the extent that some become disgruntled and voluntarily leave the company. In a similar vein, Bush, Moore and Rocco (2005) found that sales force buy-in, to both the technology and any organisational change, was critical to the successful adoption of CRM.

Sathish, Pan, and Raman (2002) defined a CRM organisation as one that successfully implements a business strategy providing seamless customer touch points through integration of people, process and technology. Plakoyiannaki and Tzokas' (2002) proposed a building block approach to CRM encompassing people, process and technology: (a) create a customer oriented corporate view, (b) focus on customer value creation, (c) collect and transform data to gain customer insight, (d) introduce a knowledge management process for knowledge creation and dissemination, (e) segment markets and prepare profitable customer portfolios, (f) continually define, develop and deliver value propositions, (g) enhance the value proposition through innovative use of campaign and channel management, and (h) measure performance to help decision-making. Implementing CRM is thought to not only require significant business process changes, but also is considered a catalyst for business process re-engineering (Hansotia, 2002). A critical element of CRM deployment is understanding existing business processes before CRM is actually deployed (Buttle, 2004).

The impetus for CRM technology infrastructure efforts often comes from the IT group because IT professionals see not only the opportunities for enterprise wide systems, but also difficulties caused by non-standardized infrastructures (Goodhue et al., 2002). However Ling and Yen (2001) theoretically analysed CRM technology implementations and concluded that CRM technology success for firms arises from the successful and innovative utilisation of customer information formed around the effective collaboration of IT and marketing. Although the literature recognises the potential impact of IT to provide the basis for a sustainable competitive advantage (Bharadwaj, Varadarajan, & Fahy, 1993), it is imperative that IT and marketing departments work closely together on CRM system implementation (Ling & Yen, 2001; Yu, 2001).

Ling and Yen (2001) proposed a methodology for CRM implementation and suggested firm's need to resolve legacy systems issues and stand-alone product related processes and systems in order to: (a) become customer centric, (b) capture customer

interactions, (c) exploit knowledge, (d) maximise efficiency from technology, and (e) build flexibility. They suggested that customer profitability analysis, focusing on generic loyalty programs, implementing new IT systems and/or organising around customer segments would not automatically bring success to CRM implementation. They concluded that successful CRM implementation and adoption is not the sole responsibility of the marketing department but is a corporate wide ongoing practice.

Shoemaker (2001) viewed CRM technology as linking available IT applications to a firm's ability to develop market-relating capability. CRM (the customer-facing system) is used to create partnerships and relationships with customers at all touch points. She concluded that CRM, ERP and KM all play a role in the marketing capability of a firm. That is, Enterprise Resource Planning (ERP) provides the internal processes and efficiencies to fulfil customer needs, while Knowledge management Systems (KMS) create, synthesise and disseminate customer knowledge to the advantage of both the customer and the firm. Each system places different demands on management, sales, marketing and IT, and develops different customer expectations.

The people, process and technology focus provides additional support for a more holistic view of CRM technology implementation. Understanding and modifying existing business practices, utilising customer information, and integrating existing IT and manual business systems to provide value to users and customers reinforce the adoption of CRM technology. The impact of people, process and technology on CRM technology adoption has not been specifically investigated with respect to customer relationships.

2.8.11. CRM Technology Adoption (CTA)

Technology adoption reflects the willingness of users to accept and use IT technology positively in their environment (F. D. Davis, 1989). Although not specific to CRM technology adoption, the technology acceptance model (TAM) has been widely used to investigate and measure the acceptance of computer technology and applications within firms (Dishaw & Strong, 1999; Kloppe & McKinney, 2004; Venkatesh & Davis, 1996). The TAM is comprised of five key constructs; perceived usefulness, perceived ease of use, attitude toward using, intention to use and actual usage, which are considered key antecedents to technology acceptance (F. D. Davis,

Bagozzi, & Warshaw, 1989; Venkatesh & Davis, 2000). Although there is evidence that user acceptance is important and necessary for CRM technology adoption within a firm, there has been relatively little CRM specific research published in this area (Speier & Venkatesh, 2002). Wu and Wu (2005), using a modified TAM questionnaire with CIOs as respondents, found among other results, that a user's attitude to use CRM depends on the perceived usefulness and not on ease of use, and that the relative advantage of using CRM technology can predict attitudes to use CRM. In addition trust and perceived ease of use in the online world are intertwined and have been found to be positively related to the use of e-vendor web sites (Gefen, Karahanna, & Straub, 2003).

CRM technology offers the opportunity to add customer value (and perceived usefulness) through the knowledge management capabilities (Massey, Montoya-Weiss, & Holcom, 2001; Rowley, 2002; Zablah et al., 2004). Payne and Frow (2005; 2006) view value creation as part of the process involved in a comprehensive CRM strategy. They consider three elements as central to value creation: (a) what value the firm can provide to customers, (b) what value the firm can receive from customers, and (c) managing the value exchange.

Choosing functionality and integrating CRM technology with existing systems presents two of the most difficult and expensive undertakings and has led to perceived CRM failure and user discontent (Brown & Vessey, 2003; Goodhue et al., 2002; Ling & Yen, 2001). Raman and Pashupati (2004) asked respondents to identify their CRM system functionality. They found that CRM users categorised functionality as: Sales Force Automation (60.4%), Collaborative Communication (37%), Marketing Automation (33.3%), and Customer Service Functions (25.9%). In addition, four areas of CRM analytics were identified by the respondents: forecast customer preferences (33%), evaluate channel performance (28%), track customer loyalty (25%), and calculate retention rates (19%). The measurement technique the authors used allowed respondents to describe the use of CRM technology within their firm; however this technique was limited by the respondents' understanding of technology, their ability to communicate that functionality, and the researcher's interpretation of the respondent's written meaning of the CRM functionality.

Stefanou et al. (2003), in their CRM investigation of large Greek organisations, also collected information regarding the type of IT and CRM systems used. Only descriptive statistics were supplied, with 53.4 percent of the respondents reporting implementing

ERP systems, 21.9 percent using non-ERP systems and 24.7 percent employing customised or in-house systems. Of concern is that nearly 50 percent of the respondents did not answer this question, possibly reflecting their lack of specific IT system knowledge. Neither study (Raman & Pashupati, 2004; Stefanou et al., 2003) reported system functionality or integration as a potential independent variable linked to relationship quality or performance. Although there were indications that the level of CRM technology employed did reflect the level of customer-centricity within the firm, it was not related to customer-centric initiatives, such as customer satisfaction research (Stefanou et al., 2003).

The extent of CRM systems integration throughout the organisation has been raised as a potential source of concern for CRM adoption and success (e.g., Ling & Yen, 2001; Zeng, Wen, & Yen, 2003). Meyer and Kolbe (2005) identified a number of CRM technology integration layers (social, process, technical and organisational) and characteristics (resource collaboration or communication interaction), and suggested that successful CRM integration included inter-departmental and inter-organisational activities, spanning strategy, processes and systems within and outside the company.

Technology acceptance, functionality and integration, as outlined herein, appear to provide a sound basis from which to investigate CRM technology adoption and the effect on customer relationships.

2.8.11.1. CRM Influence on Relationships

Conceptually CRM technology adoption should enhance the ability for firms to influence and contribute positively to the antecedents and factors affecting trust, commitment and communication quality while helping to initiate, develop and sustain customer relationships (Berry, 1995; Kapoulas et al., 2004; Ling & Yen, 2001; Mitussis et al., 2006; Too, Souchon, & Thirkell, 2001). Peters and Fletcher (2004b) demonstrated that by introducing CRM technology responsibly and respecting data privacy issues, customers are more willing to provide additional, detailed and pertinent information to suppliers, which in turn permits suppliers to better satisfy and communicate with customers – gaining their trust and commitment (although this may not always be the case (Croteau & Li, 2003)). This “better” information and trusting relationship culminates in improved overall performance for the firm, as indicated by business performance and relationship performance metrics (Croteau & Li, 2003; Karimi et al.,

2001). Mithas, Krishnan and Fornell (2005), in their cross-sectional study of U.S. firms, found a positive effect between CRM technology use and customer knowledge and customer satisfaction. The J. W. Kim et al. (2004) study of 263 Korean appliance manufacturers and retailers found that CRM adoption does improve manufacturer-retailer relationship quality in terms of sales effectiveness, relationship strength and marketing efficiency.

Lang and Colgate (2003) demonstrated that customers' expectation and perception of IT significantly influenced their perception of relationship quality in the banking industry. The authors collected questionnaire data from 1,346 New Zealanders (55.5% response rate) focused on identifying IT gaps, that is, the difference between a customer's preferred usage of various IT mediums and what is available to them in the banking industry. A positive IT gap meant customers prefer to use more IT for business interaction, while a negative IT gap meant the customer would prefer to use less IT. The results showed that IT had a significant impact on relationships. Trust, satisfaction and conflict showed the most sensitivity to the IT gap, while commitment and social bonding were less so. Lang and Colgate concluded that customers with any perception of an IT gap view their relationship as weaker than those who are satisfied with the level of IT use. Furthermore, understanding how customers want to use IT to interact, and making it as easy as possible to do so, can enhance relationships. Karimi, Somers and Gupta (2001) identified that CRM systems can play a major role improving customer service (customer satisfaction and customer retention). They suggested that further research can be directed at examining integration of CRM technologies, how to use IT to delight, engage, entertain and energize the customer and create a personalised experience for customers. But again there was little mention how CRM technology can help relationships.

Other studies have found that the use of CRM technology and data base applications can build stronger relationship through cross-selling and up-selling (Kamakura, Ramaswami, & Srivastava, 1991; Kamakura, Wedel, de Rosa, & Mazzon, 2003). However, Cass and Lauer (2002) examined relationships in the light of CRM technology and concluded that firms manage customers through CRM according to the firm's plan – not the customer's plan. The whole customer (e.g., background, history and experiences) is not recognised through CRM technology, only pertinent transactional attributes (i.e., a reductionist view of the data and the customer) are

recognised, collected, analysed and dealt with, which may not reflect the actual customer as a person, nor necessarily lead to a mutually valued relationship. Cochran (2004) extended this view further and concluded that if companies did not provide real, tangible customer benefits information sharing will stop and only transactional relationships will persist. Sathish et al. (2002) suggested that considerable research is still required in order to fully understand the CRM phenomenon, but do not mention relationship development or maintenance.

2.8.12. Other CRM Considerations

In commercialising CRM applications little focus has been placed on existing RM theory and CRM's potential to develop stronger ties to relationship building at a fundamental level. For example, the CRM business process (refer to Figure 2.6) employs product, price, place (distribution) and promotion as fundamental elements of the business and marketing strategies, yet the current marketing literature views the 4Ps as insufficient to create, develop, sustain or enhance relationships (Grönroos, 1994a; Gummesson, 2002; Vargo & Lusch, 2004). Although Winer (2001) identified the need for a relationship component within his seven component CRM evaluation framework, he did not expand upon the necessary elements, techniques or applications to achieve or measure this component. Romano (2000) and Romano and Fjermestad (2001) do not specifically include a relationship component in their five areas for future CRM IT research:

1. Markets, consisting of participants, resource allocation, transactions and communications,
2. Business models, involving logistics, communication channels, intermediation, branding and portals and/or hubs
3. Knowledge management (KM), including repositories, ownership, transformation, KM process, and people management
4. Technology, for example user interface, media (voice/video) and virtual reality
5. Human factors including accessibility, usability, privacy, trust, behaviours, and attitudes.

CRM and customer support involves a high degree of data and information management involving a balance between human and computer-based knowledge (Davenport & Klahr, 1998). Knowledge management capabilities within the

organisation was found to be one of two key factors affecting CRM impact (Croteau & Li, 2003); while Shoemaker's (2001) work indicated an opportunity for IT and marketing departments to work together to build knowledge management systems alongside CRM systems to help develop sustainable competitive advantage.

In spite of the recognised high CRM technology implementation failure rate (e.g., Adebajo, 2003; Fjermestad & Romano, 2003; Rheault & Sheridan, 2002), the literature does indicate that CRM technology may provide long-term benefits for business and customers (Bohling et al., 2006; Gummesson, 2004; M. Meyer & Kolbe, 2005). However two underlying research gaps are apparent: (a) a lack of common CRM knowledge and understanding between technology (IT departments), users (Sales and Marketing departments), and senior management vision and direction; and (b) the lack of focus on the linkage between CRM technology adoption and customer relationships (Ling & Yen, 2001; Shoemaker, 2001).

2.9. Customer Relationship Orientation and Customer Expectations

A B2B relationship consists of two willing parties using relationship components such as mutual trust and commitment to initiate and maintain their relation (Gounaris, 2005; Yau et al., 2000). Yet the relationship process may not be completely reciprocal between the buyer and the seller; in any specific instance sellers may want a relationship while customers may prefer single transactions (Grönroos, 1991). Although there are models that identify the unique perspective of customers in an exchange, few studies have empirically investigated the effect of the customer's orientation toward B2B relationships (Pels, Coviello, & Brodie, 2000).

The customer's orientation towards initiating and continuing a relationship has an effect on the development of the relationship, and has been shown to moderate the impact of relationship investment and the subsequent outcomes (De Wulf, Odekerken-Schroder, & Iacobucci, 2001; Palmatier et al., 2006; Peters & Fletcher, 2004b). Ganesan (1994) found that the customer's relationship orientation played an important part in the development and continuation of relationships. For example, some customers considered short-term relationships advantageous and would pursue short-term gains (i.e., price reduction). Peters and Fletcher (2004b, p. 61) investigated "the relationship orientation exhibited by the respondent towards a company nominated by them [the respondent]" by measuring the customer's trust and commitment, on a seven-item

instrument. The sample consisted of 108 (22% response rate) questionnaires completed by customers who had received direct mail within the prior two days. The authors were interested in whether the customer's relationship orientation toward their nominated firm had any bearing on their: (a) information privacy concerns, (b) trust of the use of data collected by firms, and (c) receptivity to direct marketing. The findings suggested that the customer's relationship orientation may be positively influenced by responsible data use. Another study, using a series of four focus groups to investigate customer attitudes toward RM in the financial services industry, found that some customers "did not embrace RM themselves because of an overriding wish to limit and control the boundaries of the relationship" (Kapoulas et al., 2004, p. 41). Furthermore "several **e-customers** [bold in original] did not appreciate (nor desire) FSIs' [financial service firms'] attempts to move towards RM, whereas others favoured these latest moves" (p. 39).

In addition customers having a positive relationship orientation may be more inclined to view relationship performance positively, or alternatively imprint specific expectations as to what that relationship should entail (Garbarino & Johnson, 1999). A case study of an industrial chemical manufacturer found that customers do form additional expectations from a relationship after CRM technology is adopted by the manufacturer (Richard, Thirkell, & Huff, 2007). There was an expectation that CRM technology-enabled suppliers would understand and deal with customer issues better (e.g., reducing frequency of late deliveries, running out of stock, and improving supply chain management) and that suppliers would have a better overall understanding of the customers' business and therefore better meet the customer's specific needs. Customers also perceived more frequent and productive customer-supplier meetings.

The effect of a customer relationship orientation may moderate the relationship between suppliers and customers in a B2B environment. Similarly customers may develop expectations from a supplier's adoption of CRM technology, which may moderate certain aspects of the relationship performance.

2.10. Chapter Summary

The CRM research to date has focused on CRM technology implementation issues, identifying critical CRM success factors (process, management and stakeholders), and highlighting CRM benefit for sales, marketing and the firm (but rarely extended to the

customer, (cf. Kapoulas et al., 2004)). Market orientation (MO), relationship marketing (RM) and customer relationship management (CRM) are important concepts in current marketing theory and practice. Factors found in the IT and marketing literature that reputedly affect CRM adoption and success include:

1. Market orientation (Abbott et al., 2001; Davids, 1999; French, 2001; Goodhue et al., 2002; Ling & Yen, 2001; Lloyd et al., 2001; Plakoyiannaki & Tzokas, 2002; Reinartz et al., 2004; Rigby et al., 2002a),
2. IT management orientation (Karimi et al., 2000; Karimi et al., 2001)
3. The ability to build customer relationships (Fournier, Dobscha, & Mick, 1998; Pan & Lee, 2003; Rigby et al., 2002a).
4. People, process and technology issues, including CRM acceptance (Lloyd et al., 2001; Speier & Venkatesh, 2002).

The decision to implement CRM technology can be a change catalyst for business reengineering while refocusing the business on contemporary metrics such as customer lifetime value, retention rate, and customer satisfaction (Goodhue et al., 2002; Shoemaker, 2001). Common themes found in the CRM marketing and IT literatures include the impact of market orientation and the relationship between people, process, and technology. CRM research is also increasing in the areas of customer acquisition, development and retention (Kamakura et al., 2005; Ngai, 2005).

Fundamentally, CRM technology adoption is viewed by both IT and marketing academics and researchers, and portrayed by vendors and academics, as a practical approach to RM (Greenberg, 2002; Gummesson, 2004; Turban, McLean et al., 2003). However there are few empirical studies linking MO, CRM and RM (Tuominen, Rajala, & Möller, 2004). Additional empirical research linking CRM and market orientation is required in order to help focus the different perspectives and consolidate the current conceptualisations and theory (Helfert et al., 2002).

The level of IT management practices, reflecting the influence of IT management on business practices within a firm, has been shown to effect CRM performance outcomes with respect to customer satisfaction measures (Karimi et al., 2001). However the specific influence of such IT management practices on the adoption of CRM technology within the firm has not been fully investigated.

There are few CRM studies specifically investigating the impact of CRM functionality adopted or level of CRM system integration within the firm. Although some studies describe the CRM functional components in place at the time of the study (e.g., Abbott et al., 2001; Brown & Vessey, 2003; Goodhue et al., 2002), most do not. Stefanou et al. (2003) and Raman and Pashupati (2004) are two studies that do identify and collect CRM functionality and integration data from respondents, but give limited discussion to the impact. Another study found that the extent of CRM technology adopted (based on a hypothesised CRM process measured through formative indicators) did not have a significant impact on economic performance (Reinartz et al., 2004). However the impact of the extent of CRM acceptance within a firm on relationship strength and performance (i.e., customer satisfaction, loyalty and retention) has not been adequately investigated or detailed (Raman & Pashupati, 2004; Stefanou et al., 2003). Other than the more technical issues necessary for CRM technology adoption and success, knowledge utilisation has also been shown to be important to the adoption and success of CRM (i.e., a reflection of CRM usefulness) (Bose & Sugumaran, 2003; F. D. Davis, 1989).

Little empirical CRM-related research has been undertaken in the areas of initiation, development and sustaining customer relationships. It takes two for a relationship and the customer needs to view the proposal for a relationship and its outcomes positively as well (Fournier et al., 1998). Trust, commitment and communication between the parties have consistently been shown to help create, nurture and enhance customer relationships (Cochran, 2004; Duncan & Moriarty, 1998; Jutla, Craig, & Bodorik, 2001; Morgan & Hunt, 1994; Rosenbaum & Huang, 2002), and are fundamental for successful RM and CRM. Communication and trust are interlinked; good communications supports trust building, and trust facilitates two-way, open communications (E. Anderson & Weitz, 1989). Relationships flourish when there is a symmetry, or balance, between the core trust, commitment, and communication relational elements (Lewin & Johnston, 1997). These core relationship constructs have also been found to help predict relationship performance (Hausman, 2001; Wilson, 1995). Enhanced relationship performance represents outcomes that are efficient, productive and effective, and lead to cooperative behaviour between customers, individuals or partners (Berry, 1983; Morgan & Hunt, 1994).

CRM technology is viewed by some as a RM enabler with the ability to help create “relationships” (Almquist et al., 2002; Bose, 2002; Buttle, 2004; Doherty & Lockett, 2007; Ling & Yen, 2001; Zablah et al., 2004). Without technology RM implementation is expensive and time consuming but technological advances provide the ability for efficiency gains (Berry, 1995; Goodhue et al., 2002). Tracking, customising, integrating, communicating, minimising errors, augmenting core services and personalising can be implemented quickly and cost effectively through technology (Berry, 1995).

To help overcome Sheth’s (2002) concern that the IT focused CRM sales and marketing automation may marginalise marketing and diffuse customer focus, additional marketing and IT cross-discipline research is necessary. It is important for academics, researchers, practitioners and application developers to better understand, not only the impact of CRM technology adoption on relationship and business performance, but also the impact on relationship building since relationships are now considered key to customer retention, customer satisfaction and marketing success. Trust, commitment and communications have been heavily researched with respect to relationships, yet research gaps exist in the area of RM, CRM and relationship performance.

The gaps evident in the extant research include: (a) the discontinuity of CRM related research between the IT and marketing domains; (b) the role of market orientation and IT management orientation in the acceptance, adoption and subsequent success of CRM technology within the firm; (c) the impact of the degree of CRM technology adoption on creation, maintenance and enhancement of B2B customer relationships, and (d) the lack of empirical research linking CRM technology adoption with RM theory and practice (Stefanou et al., 2003). The lack of generalisable research in these areas may be a factor contributing to the high perceived CRM “failures” being cited in the literature. The question not answered is: What is the impact of CRM technology adoption on B2B customer relationships and relationship performance?

The next chapter addresses these gaps in the research by presenting and developing the research model more fully in order to investigate the CRM phenomenon and its affects on B2B relationship strength and performance.

CHAPTER 3. Research Model and Hypotheses

3.1. Introduction

Chapter 2 provided the literature review and background to the current research and the research model. This chapter formally introduces the conceptual model, outlines the relationships between RM and CRM, the significant research gaps, and presents the research model and hypotheses to be tested.

Relationship marketing (RM) is considered an emerging dominant marketing theory and CRM is an example of a RM application (Gummesson, 2004; Vargo & Lusch, 2004). However, as Gummesson states in his commentary on Vargo and Lusch's 2004 article discussing technology and marketing, "it has been observed how relationship marketing principles, transformed into customer relationship management software (eCRM), partially get lost by the neglect of human aspects" (Day et al., 2004, p. 21). This apparent disconnect between CRM technology adoption and RM, as well as the gap in knowledge and understanding between CRM application and RM theory is important for academics and practitioners (Helfert et al., 2002). The value and impact of CRM technology adoption on relationship strength and relationship performance requires better understanding and clarification. The research gap linking CRM technology adoption with the relationship side of RM is the focus of this study.

CRM technology and applications has evolved (and continues to evolve) primarily through IT capability and pragmatic business requirements, while the marketing and IT research literature has focused on uncovering and analysing the technical and more general managerial aspects of CRM (Ngai, 2005). There appears to be little published research focused directly on the antecedents and relationship factors that effect the creation and improvement of business relationships through CRM technology. In addition, the linkage between market orientation, IT management orientation and CRM technology adoption needs to be better understood. Understanding these gaps and the CRM application drivers will have implications for the managerial, technical implementation and application development dimensions of CRM technology.

3.2. The Conceptual CRM Model and Hypotheses

Central to the proposed CRM technology adoption – customer relationship (CTA – CR) model is the view that CRM technology plays a role in B2B relationships. Although there are few empirical studies in the research literature regarding CRM technology adoption and the effect on relationship strength, there is the implicit belief that CRM technology should positively affect relationships and provide tangible results (Buttle, 2004; Payne & Frow, 2006). A review of the extant relationship performance literature led to the choice of the key measures. The basic premise is that the customer perspective has been under researched, and that a successful CRM system should provide value to the customer side as well as the supplier side.

One measure of customer relationship success is the strength and performance of the partnership (J. W. Kim et al., 2004). Characteristics of CRM technology that may impact relationship strength and relationship performance include the adoption level of CRM technology within the firm, and the ability to provide timely, accurate and credible information through all customer touchpoints in a seamless and integrated manner (Ngai, 2005; Zikmund et al., 2003). The ability to provide rich multi-media, electronic and interactive communication to customers is another inherent advantage of CRM technology (Geissler, 2001; MacDonald & Smith, 2004). In addition investing in CRM technology may signal supplier commitment to customers and thus be considered a specific investment in the business relationship (Ganesan, 1994; Rokkan, Heide, & Wathne, 2003).

Figure 3.1: CRM technology adoption – customer relationship conceptual model

Each component of the conceptual CTA – CR model in Figure 3.1 will now be discussed in detail.

3.2.1. Market Orientation (MO)

The extant literature suggests that market orientation (MO) positively affects CRM adoption and customer relationships (Farrelly & Quester, 2003; Ling & Yen, 2001; Sanzo et al., 2003). Market orientation reflects a company culture focused on the customer (Day, 1994; Kirca, Jayachandran, & Bearden, 2005; Noble et al., 2002). In a highly market-orientated firm there is continuous and ongoing information collection and internal dissemination of customer and competitor data (Deng & Dart, 1994; Kohli & Jaworski, 1990). The orientation (culture) of the firm is considered to play a major role in the successful adoption, implementation and acceptance of CRM technology (Raman, Wittmann, & Rauseo, 2006; van Bentum & Stone, 2005). A number of marketing and IT researchers have highlighted that preparing the organisation with the right business and management culture and processes is paramount for the successful implementation of CRM technologies (J.-S. Chen & Ching, 2004; Goodhue et al., 2002; M. L. Roberts, Liu, & Hazard, 2005). “The presence of a customer-centric organizational culture makes the introduction of a CRM strategy much less threatening to the company’s people” (Buttle, 2004, p. 45). As Rigby et al. (2002a, p. 103) state, “installing CRM technology before creating a customer-focused organization is perhaps the most dangerous pitfall.”

Facets of the firm’s culture, particularly market orientation, have been demonstrated through case study to positively affect CRM implementation and performance results (Abbott et al., 2001; Goodhue et al., 2002). It is postulated therefore that the firm’s existing MO will have an effect on employee adoption of CRM technology, as well as the perception of relationship strength when CRM technology is implemented. This leads to the following two hypotheses:

H₁: The greater the level of market orientation of the firm the greater the CRM technology adoption within the firm

H₂: The greater the level of market orientation of the firm the greater the overall relationship strength between the firm and the customer.

3.2.2. IT Management Orientation (ITMO)

A firm's IT management orientation, reflecting the level of IT management practices, planning, organisation and control, has been demonstrated to influence the acceptance and adoption of information technology solutions (Karimi et al., 1996a; Karimi et al., 2001; Sabherwal & Kirs, 1994). The IT management responsibility has changed substantially over the years necessitating a broadening of skills in operations, strategy and management in order to understand the potential impact of IT on business (Applegate & Elam, 1992). IT executives now play a key role in business strategy development, identifying IT value for functional areas, and working closely with other senior managers to implement IT business solutions (Enns et al., 2003; Feeny, Edwards, & Simpson, 1992; Stephens, Ledbetter, Mitra, & Ford, 1992). This more strategic IT function necessitates both business nuance and IT sophistication in order for the IT executive to be effective (Enns et al., 2003; Sabherwal & Kirs, 1994). In addition, IT management within the organisation can play a major role with respect to what type of CRM technology and functionality is purchased, implemented and supported (F. D. Davis, 1989; Ling & Yen, 2001; Ngai, 2005; Romano & Fjermestad, 2001).

The firm's IT management sophistication and IT leadership position may reflect the technical orientation of the firm as well as the relative importance placed on the decision to implement CRM technology. IT management practices have been shown to affect the organisation's ability to utilise technology in support of marketing (Karimi et al., 2001). In particular, firms that have strong IT leadership and demonstrate IT management sophistication through technology use benefit more from technology (Karimi et al., 1996a). In the context of this study IT management orientation is considered to influence the functionality (analytical, operational, collaborative), user acceptance, and level of integration (departmental or enterprise-wide) of the CRM technology solution (Karimi et al., 2001; Ling & Yen, 2001). Hence IT management orientation is expected to play an important role in the implementation, utilisation and adoption of CRM within the organisation (Karimi et al., 2001). This factor is reflected in the IT management orientation (ITMO) construct and leads to the following hypothesis:

H₃: The greater the level of IT management orientation of the firm, the greater the CRM technology adoption.

3.2.3. CRM Technology Adoption (CTA)

Implementing CRM technology within a firm is thought to positively affect the initiation and development of relationships (Berry, 1995; Ling & Yen, 2001). However an organisation can implement a wide variety of CRM applications and systems (Abbott et al., 2001; Buttle, 2004; Computerworld, 2004; Goodhue et al., 2002). And although it is possible to determine whether a firm has CRM technology or not, the type, extent, sophistication, user acceptance, and integration of the CRM technology implementation within a firm is important to the effectiveness and utilisation (Karimi et al., 2001; Raman & Pashupati, 2004; Speier & Venkatesh, 2002; Stefanou et al., 2003). Although there may be strategic business reasons for CRM technology implementation, the purpose of the CRM technology adoption scale is not to address this aspect, but rather to focus on the technology adopted by the user of the CRM system.

A CTA scale is proposed in order to establish a standardised method of measuring the degree of CRM technology adoption within a firm. CRM systems are rarely explicitly defined operationally in the research literature, making it difficult to compare studies and results (cf. Raman & Pashupati, 2004). The academic and practitioner literature reports of implemented CRM technology range from databases, call centres, data analysis tools, e-mail, Internet and group support systems (i.e., Lotus Notes) to sophisticated SAP systems (Abbott et al., 2001; Computerworld, 2004). There is a need for a standardised CRM technology adoption scale reflecting:

1. Functionality (i.e., type of CRM technology) (Gefen & Ridings, 2002; Karimi et al., 2001; Ling & Yen, 2001),
2. The acceptance level (and extent of use) within the firm (F. D. Davis, 1989; Gefen & Ridings, 2002; Goodhue & Thompson, 1995; Speier & Venkatesh, 2002), and
3. The level of integration with existing organisational IT systems and processes (Buttle, 2004; Ling & Yen, 2001).

Based on the theoretical foundation that CRM is a special application of RM, the extent of CTA technology adoption is proposed to be positively linked to both relationship strength and relationship performance (Gummesson, 2004).

3.2.3.1. CRM Functionality

CRM functionality refers to the CRM applications introduced into the firm. CRM applications and systems encompass a wide range of products and services from a variety of suppliers (Computerworld, 2004).

Other than the Raman and Pashupati (2004) paper few other studies have focused on CRM functionality and the potential effect on outcomes. Due to the wide variety of CRM applications and functionality available, a CRM technology continuum is conceptually appropriate in order to determine where a firm “sits” relative to other firms. At the extremes of this continuum are “contact manager” applications (e.g., Microsoft “Outlook”) at one end, and CRM enterprise suites, highly sophisticated client/server applications, offering 360 degree views of the customer (e.g., MySAP, Siebel, PeopleSoft) at the other (Buttle, 2004; Greenberg, 2002; Turban, McLean et al., 2003; Zikmund et al., 2003).

3.2.3.2. CRM Technology Acceptance

User acceptance relates to the habitual use of the technology, as part of the job function to achieve results (F. D. Davis et al., 1989). The desired results in the case of CRM technology can be described as collecting customer information, accessing, and using that customer information on a regular basis to complete the job requirements (J. W. Kim et al., 2004). User acceptance can also be influenced by a number of factors including perceived ease of use, attitude toward the system, and usefulness (F. D. Davis et al., 1989; Frambach, 1993). As Speier and Venkatesh (2002) demonstrated user acceptance is necessary for CRM technology to be successfully adopted within the firm. Perceived use and usefulness of CRM technology within an organisation reflects the user’s utilisation of the CRM applications and technology. Due to the nature of the CTA construct, the higher the level of CRM technology acceptance within the firm the more likely perceived and measurable benefits will accrue to both users and customers.

3.2.3.3. CRM System Integration

The implementation of an enterprise wide CRM system is not generally a “turnkey” solution, due to idiosyncratic business processes, procedures and customer interfaces (Gefen & Ridings, 2002). However purchasing and implementing stand-alone CRM software such as ACT! requires little integration on a PC or in a small business

environment and is relatively simple. Organisations implementing CRM technology may incorporate any combination of operational, analytical and/or collaborative CRM, in any number of variations (e.g., ACT!, 2004; Epiphany, 2004; Microsoft, 2004; Oracle, 2004; PeopleSoft, 2003; SAP, 2004; SAS, 2004; Siebel, 2004).

A number of researchers have indicated the importance of system integration as a critical success factor of CRM technology implementation (Bull, 2003; Goodhue et al., 2002; M. Meyer & Kolbe, 2005; Plakoyiannaki & Tzokas, 2002). There are two aspects of systems integration that are pertinent to CRM technology adoption: first, integration into existing legacy systems and organisational applications; and second, integration across other functional customer touchpoints (Buttle, 2004; Payne & Frow, 2006). The ability to link the CRM system to finance, operations, distribution, and human resources provides additional value to users, and potentially to customers: customer queries and complaints can be handled more professionally with credible, accurate and timely information.

Similarly, integrating call centres, e-mail and websites through CRM technology provides the opportunity for seamless and transparent customer touchpoints. The extent of CRM integration within the firm should manifest itself in the customer's perceived relationship strength and performance and leads to the following two hypotheses:

H₄: The greater the level of CRM technology adoption within a firm the greater the overall relationship strength with customers.

H₅: The greater the level of CRM technology adoption within a firm the greater the relationship performance.

3.2.4. Relationship Strength (RS)

Although there are no strict definitions of relationship strength (RS) in the literature, RS has been considered a higher-order construct by most relationship researchers in both the business-to-consumer and business-to-business environments (Lages et al., 2005). For example, a number of studies have defined RS as consisting of a variety of dimensions including trust, commitment, communication quality, information sharing, conflict, long-term relationship orientation, satisfaction, opportunism and customer orientation (Crosby et al., 1990; Dorsch et al., 1998; Lages et al., 2005; Lang & Colgate, 2003; Storbacka et al., 1994; Wong & Sohal, 2002). Trust and commitment are central to most evaluations of relationships and can not be easily discarded (K. Roberts et al.,

2003). Similarly communication is generally considered a key antecedent or driver of relationships and relationship quality (Duncan & Moriarty, 1998; Lages et al., 2005; Morgan & Hunt, 1994). More importantly, CRM technology provides the potential for extensive, frequent and bidirectional communication beyond traditional communications media (i.e., telephony and postal service). Hence the communication aspect is considered an important aspect of RS within the CRM context. The other factors noted above have been shown to be dimensions of RS in specific circumstances. For example, information sharing in UK export industry (Lages et al., 2005) or conflict in consumer services (K. Roberts et al., 2003). Relationship strength in this study encompasses the dimensions of trust, commitment and communications quality expressed by the customer, and reflecting the influence of MO and CTA within the supplier firm. In addition it is proposed, based on prior research, that relationship strength is positively related to relationship performance (Lages et al., 2005).

3.2.4.1. Trust

It is not uncommon to define trust narrowly based on the theory being tested and the paradigm being used (McKnight & Chervany, 1996). Trust has been defined, used and studied extensively in the area of relationship initiation, development and maintenance (Berry, 1995; Morgan & Hunt, 1994). Elements of trust are considered to play a significant role in the initiation, development and maintenance of relationships and are central to the concept of RS (K. Roberts et al., 2003). Trust is just as important in the online environment, affecting customer's perceptions and willingness to participate and establish relationships with suppliers online (Gefen et al., 2003; E. Kim & Tadisina, 2003; Pennington, Wilcox, & Grover, 2004; Rosenbaum & Huang, 2002). Since CRM technology incorporates aspects of the online environment, the RS trust factor may be affected by CRM technology adoption.

The trust typology proposed by Sako (1992) incorporating contractual trust, competence trust and goodwill trust, is used to define trust in this study.

3.2.4.2. Commitment

Commitment is considered necessary for relationship continuation, an antecedent to customer retention, and to positively affect relationships (Helfert et al., 2002; Morgan & Hunt, 1994; Verhoef, 2003). However not all studies have demonstrated that commitment leads to customer retention (Gruen et al., 2000). Antecedents to

commitment include forming a psychological attachment or affective commitment, deploying superior resources compared to the competition, and working together to provide customer preferred solutions (Garbarino & Johnson, 1999; Lewin & Johnston, 1997). From this perspective the affective and calculative classifications of commitment provide a useful typology to study relationship commitment (Gounaris, 2005).

CRM technology adoption may be considered as committing resources toward the relationship in the form of a transaction specific investment (TSI) (J. W. Kim et al., 2004). Some TSIs has been demonstrated to improve relationships between retailers and suppliers by indicating commitment to customers (Ganesan, 1994). However the nature and perceived benefit of the TSI may dictate whether there is any improvement in relationship quality (J. W. Kim et al., 2004). The adoption of CRM technology by a supplier may be viewed as an instrumental component, or affirmative action, demonstrating customer commitment – that is, by collecting and utilising customer data to develop value congruence. Offering leading edge technology, like CRM, in order to provide superior customer solutions exhibits greater resource deployment. In addition CRM technology implementation may be interpreted as attempting to form affective bonds, through acknowledging the values and goals of customers (Gundlach et al., 1995).

3.2.4.3. *Communications Quality*

Some researchers consider communication as the basis for relationships or even as the foundation of a marketing model (Duncan & Moriarty, 1998; Lewin & Johnston, 1997). Effective quality communication aids relationship initiation and building, and is brought about through timeliness, frequency, accuracy, completeness and credibility (Mohr & Sohi, 1995; Mohr & Spekman, 1994). Timeliness of the information has been shown to be important in relationship building in that the more timely the information the greater the trust (Moorman et al., 1993). Mohr and Sohi (1995) also demonstrated that frequency (and feedback) were viewed as positive attributes of quality communication, while formal and informal sharing of meaningful and timely information has been shown to significantly contribute to relationship commitment and trust (J. C. Anderson & Narus, 1990; N. Sharma & Patterson, 1999).

CRM technology is considered by many as possessing the potential to develop improved bilateral communication (interactions) with customers, and implement one-to-

one marketing techniques to a broad customer base (Dibb, 2001; Gummesson, 2004; Ling & Yen, 2001; Winer, 2001; Yu, 2001). Therefore the adoption of CRM technology by a firm has the potential to improve the communications quality between the firm and the customer within a relationship.

As Sharma and Patterson (1999, p. 163) state “regular communications can help develop a sense of closeness and ease in the relationship, and be instrumental in building emotional and social bonds, thus making the relationship more resistant to the occasional problems that inevitably develop from time to time.”

This study views communication quality as a construct based on attributes such as communication frequency, openness, formality, and bidirectionality.

3.2.5. Relationship Performance (RP)

Financial business performance will not be addressed directly in this study for two reasons. First, Lages, Lages and Lages (2005) have already demonstrated that relationship strength has a positive effect on business performance. Second, traditional marketing metrics (i.e., market share) and business performance measures (i.e., sales growth) may not be appropriate to evaluate relationships and CRM (Payne & Frow, 2005). For example, an increase in market share (objective measure) may develop from new marketing and sales initiatives, not necessarily from the adoption of CRM technology. Similarly “objective” profitability measures would not demonstrate whether profitability was improved by enhanced business relationships or merely from the acquisition of a new major customer. As Parvatiyar and Sheth (2000, p. 24) indicate “if the purpose of a particular relationship marketing effort is to enhance distribution efficiencies by reducing overall distribution cost, measuring the program’s impact on revenue growth and share of customer’s business may not be appropriate”. Although a balanced scorecard approach has been used to measure RM performance, other measures such as relationship satisfaction and loyalty have also been successfully utilised (Parvatiyar & Sheth, 2000; Reichheld & Sasser, 1990). Therefore relationship measures were favoured over more “objective” market- or financial-based measures (Bharadwaj et al., 1993).

Compared to relationship strength, relationship performance considers the overall relationship behaviour and reflects the ongoing quality of the relationship and encompasses customer satisfaction in addition to relationship performance (J. W. Kim

et al., 2004). That is, one may trust the other party to behave in a certain manner, be committed to purchase from them due to price, and even communicate frequently, but yet not be a satisfied or loyal customer. Improvement in RP is considered a driver of CRM technology implementation in business, yet there are few CRM specific quantitative studies that investigate this linkage (Firth, 2001; J. W. Kim et al., 2004; Reinartz et al., 2004; Zeithaml et al., 2001). Relationship performance captures outcomes of the relationship through measures of customer satisfaction (Farrell & Oczkowski, 2002; Guo, 2002; Stefanou et al., 2003; Verhoef, 2003; Webster, 2000), customer retention (Croteau & Li, 2003; Jutla et al., 2001; J. W. Kim et al., 2004) and customer loyalty (Matear, Osborne, Garrett, & Gray, 2002; Sanzo et al., 2003; Webb, Webster, & Kreppa, 2000). Relationship performance is measured separately as a consequence of relationship strength (Hausman, 2001), and leads to the following hypothesis:

H₆: The greater the level of relationship strength the greater the relationship performance.

3.2.6. Moderator and Control Factors (secondary hypotheses)

A customer's preference for a relationship has been found to influence the desire and appreciation of relationships (Kapoulas et al., 2004; Peters & Fletcher, 2004b). Hence customer relationship orientation (CRO) was included as a potential moderator of customer perceived relationship strength and relationship performance. Similarly, customers have been shown to form expectations from a supplier's adoption of technology which may influence how customers perceive the relationship and the relationship performance (Garbarino & Johnson, 1999; Richard et al., 2007). Therefore customer CRM expectations (CXP) were also included as potential relationship moderators.

H₇: The greater the level of customer relationship orientation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance.

H₈: The greater the level of customer CRM expectation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance.

Market turbulence (MT) and technological turbulence (TT) within the business environment have been shown to interact significantly with key variables in marketing studies investigating MO and business performance (Pelham, 1999; Pulendran, Speed, & Widing, 2003), although not in all cases (Jaworski & Kohli, 1993; Subramanian & Gopalakrishna, 2001). Market turbulence reflects the relative stability or volatility of a firm's customer composition and preferences, as well as the rate of that change within the industry (Kohli & Jaworski, 1990). For example, a firm whose customers have rapidly changing preferences may require a higher level of market orientation (i.e., need to be more in tune with customer needs) in order to succeed. Technology turbulence refers to the rate of business technology innovation, as well as product innovation, in the industry (Appiah-Adu, 1997; Kohli & Jaworski, 1990). Firms competing in a extremely technology turbulent industry may not require as high a level of market orientation to succeed since early technology adoption is highly valued by customers in these industries (Appiah-Adu, 1997). Since market orientation (MO) and IT management orientation (ITMO) were considered antecedent variables, MT and TT were included as potential moderator factors in the research model. This leads to the following hypotheses:

H₉: The greater the level of market turbulence the stronger the market orientation effect on CRM technology adoption.

H₁₀: The greater the level of technology turbulence the stronger the (a) market orientation effect on CRM technology adoption, and (b) the IT management orientation effect on CRM technology adoption.

3.3. Research Model Summary

The initial CRM technology adoption – customer relationship (CTA – CR) research model, Figure 3.2, summarises the hypothesised linkages between the proposed constructs under investigation in this study. The hypothesised positive impact of a supplier firm's market orientation (MO) (H₁) and IT management orientation (ITMO) (H₃) on CTA are considered. Central to the model acceptance is the hypothesised positive effect of CRM technology adoption (CTA) on customer perceived relationship strength (RS) (H₄) and relationship performance (RP) (H₅). The two variables, customer relationship orientation (H_{7a} and H_{7b}) and customer CRM expectations, (H_{8a} and H_{8b}) believed to moderate CTA's effect on RS and RP are also considered and tested.

Figure 3.2: CRM technology adoption – customer relationship research model and hypotheses

In addition the research model considers the moderating effect of market turbulence (H₉) and technology turbulence (H_{10a}) on the effect of market orientation on CTA. The hypothesised moderating effect of technology turbulence on IT management orientation on CTA is also considered (H_{10b}). The direct effect of market orientation on relationship strength is also tested (H₂), as is the direct effect of relationship strength on relationship performance (H₆).

3.4. Chapter Summary

This chapter described the proposed research model under investigation in this study. The need for a CRM technology adoption measure and constructs for operationalisation was discussed. Each of the five major model components were discussed with respect to the linkages between each construct and ten hypotheses were proposed for testing. The study investigates the relationship between CRM technology adoption and key relationship constructs. Chapter 4 now discusses the research methodology that will be used to carry out the research to answer the research question.

CHAPTER 4. Research Methodology

4.1. Introduction

Following the development of the research model and hypotheses in Chapter 3, the purpose of this chapter is to discuss the methods used for refining, validating and testing the model. The chapter begins with an overview of the general research paradigms and approaches utilised in the research, followed by a description of the exploratory and explanatory research phases of the study. The procedures adopted for sample selection, data collection and data analysis are also discussed.

4.2. Research Paradigm

A research paradigm underlies the researcher's basic beliefs of inquiry, it is "a set of linked assumptions about the world which is shared by a community of scientists investigating that world" (Deshpandé, 1983, p. 101) and acts as "a criterion for choosing problems that . . . can be assumed to have solutions" (Kuhn, 1996, p. 37). The nature of the positivist paradigm is that there is a single reality that exists, objectively measurable, inherently understandable and outcome oriented. A post-modernist paradigm (e.g., constructivism, interpretivist, or participatory) considers reality as a social construct, interpreted by people based on their participation in events (Lincoln & Guba, 2000). The interpretivist paradigms tend to deeply explore, richly describe, and holistically understand the phenomenon in detail, while the positivist paradigm forms the basis of scientific tradition and, although not limited to, underlies most experimental and quantitative research methods (Deshpandé, 1983; Gummesson, 2003; Hirschman, 1986; Lincoln & Guba, 2000; Marsden & Littler, 1996). A post-positivist paradigm is not as extreme as the positivist view, in that it accepts an imperfect reality which is mostly perceivable and understandable, providing outcomes and research findings that are probably true (Hunt, 1990; Lincoln & Guba, 2000; Shrivastava & Kale, 2003).

Choosing a research method is generally based on (a) the researcher's view of reality (ontology), since this influences the choice of research methodology (Chung & Alagaratnam, 2001; Hirschman, 1986); and then (b) the requirements stemming from the central research question and the objectives of the research (Stake, 1994, 2000; Yin, 2003). CRM research in the marketing and IT domains have utilised both qualitative research methods for theory building (e.g., Abbott et al., 2001; Goodhue et al., 2002;

Kapoulas et al., 2004; Wells & Hess, 2002), and quantitative methods for theory testing (e.g., Croteau & Li, 2003; Karimi et al., 2001; Peters & Fletcher, 2004b; Reinartz et al., 2004; Rosenbaum & Huang, 2002). The CRM phenomenon under study includes both subjective and objective aspects of business outcomes (John & Reve, 1982). That is, the study includes objective measures as well as subjective perceptions of the people who form relationships within the B2B context (Medlin, 2003). The post-modernist paradigms are more subjective in nature, with constructed meaning or interpretation having more value than measurement and hence are not generally considered appropriate for survey or experimental research (Perry, Riege, & Brown, 1999). The post-positivist paradigm is suitable for both qualitative and quantitative research and is the perspective adopted by the researcher in this study (Chung & Alagaratnam, 2001; Lincoln & Guba, 2000).

In consideration of the objectives of the study and the phenomenon itself, a post-positivist paradigm is appropriate (Hunt, 1990; Perry, 1998). Next the research methodology is discussed, consisting of an exploratory phase and an explanatory phase.

4.3. Exploratory Research Phase

The exploratory phase of the research was conducted using the qualitative methodology described by Creswell (1998; 2003) and Yin (2003). This phase is used to explore and better understand how managers and customers perceive the specific business relationships, aspects and issues emanating from CRM technology implementation within organisations (Denzin & Lincoln, 2000).

4.3.1. Exploratory Phase Approach and Objectives

Qualitative research “help[s] the researcher to understand the potential survey respondents’ general perspective on the issues, frame of reference, way of thinking, and typical vocabulary” (Alreck & Settle, 2004, p. 386), thereby providing a detailed and rich understanding of the CTA – CR phenomenon. A dyadic multiple case design was chosen since it is considered superior to single-case design, in that it provides additional data points, more generalisable results, and more convincing conclusions (Yin, 2003). Multiple-case design has been used successfully by a number of CRM researchers (e.g., Abbott et al., 2001; Goodhue et al., 2002).

The scope of the qualitative phase is limited to refining the conceptual model, informing scale development and aiding interpretation of the subsequent quantitative research results. The purpose and objectives of the exploratory phase are to:

1. Determine if support exists for the proposed CRM technology acceptance – customer relationship (CTA – CR) model,
2. Explore and validate the proposed variables in the model, specifically the impact of CRM technology adoption on business relationships,
3. Gain additional insight into the motivation, attitudes and emotions influencing CRM technology adoption,
4. Identify relevant existing or previously unidentified variables (Creswell, 1998, 2003),
5. Ascertain practitioner familiarity with specific terms and expressions in the survey questionnaires (Hair, Bush, & Ortinau, 2003), and
6. Provide detailed contextual data so as to better interpret the research instrument data and results (Creswell, 2003).

The data obtained in this phase were used to help shape the conceptual model and develop appropriate scales before proceeding to the explanatory phase of the research (DeVellis, 2003; Rossiter, 2002; Spector, 1992; Stake, 1995).

4.3.2. Sample Selection

Since CRM technology adoption diversity was desirable, a maximum variation and purposeful sampling strategy was incorporated, where cases are selected on their potential contribution to theory and the demands of the research objective, in order to identify firms with different types of CRM systems (Aaker, Kumar, & Day, 2004; Eisenhardt, 1989; T. W. Lee, 1999; Narayandas & Rangan, 2004). Participating supplier firms were requested to nominate customers to interview, and it was considered more efficient and cost effective if firms and customers were in proximity to the interviewer, therefore convenience sampling was also included as part of the sampling strategy (Miles & Huberman, 1994).

4.3.2.1. Unit of Analysis

The unit of analysis, depicted in Figure 4.1, is the Supplier – Customer (business) dyad. Each supplier response was matched with the corresponding customer response.

Figure 4.1: Unit of analysis: Supplier – Customer dyad

4.3.2.2. Company Selection

In order for a case site to provide rich and relevant data representing the CRM technology phenomenon, specific criteria were developed as suggested by Creswell (2003) and Stake (1995).

The minimum criteria included having: (a) CRM technology implemented, (b) at least one of internal sales, marketing, or customer service departments, (c) an accessible senior executive (or equivalent) with regular customer contact, (d) a willingness to participate in dyadic research by providing customer relationship data, and (e) at least one accessible and willing customer. These criteria ensured that participating firms were able and willing to participate, and could provide valuable and relevant information.

The New Zealand Kompass database¹ and word-of-mouth (judgmental “snowball” sampling) was used to find organisations to interview (Aaker et al., 2004; Miles & Huberman, 1994). The Kompass database is available on CD, updated bi-annually and provides New Zealand business information including information on 17,000 business head offices, accounting for 80% of the New Zealand economy’s output, and 43,000 executive names and contact details (Kompass New Zealand, 2007). Excluded from the supplier firm sampling frame were government, hospitals, libraries and non-profit organisations, since they were unlikely to be able to provide adequate or appropriate business performance information in response to the interview questions.

Financial services and the service industry in general are more likely to involve IT in their strategic business and marketing activities (Bharadwaj et al., 1993; Christiaanse & Venkatraman, 2002; Colgate, 1998; Johnston & Carrico, 1988). However RM may be a

¹ The business database was a commercially available April 2006 CD product provided by Kompass New Zealand.

more dominant and important marketing mechanism in the manufacturing sector (Yau et al., 2000). Since relatively few CRM marketing studies have investigated multiple industries, a broadly representative sample of businesses was sought in order to aid generalisability (Croteau & Li, 2003; Raman & Pashupati, 2004; Reinartz et al., 2004). Ten firms meeting the criteria were chosen from the Wellington, New Zealand area.

4.3.2.3. Respondent Selection

The selection of participants was driven by the theoretical framework identified from the CRM and RM literature (Miles & Huberman, 1994). Given that CRM usage, and day-to-day relationship building and maintenance is generally within the domain of sales and marketing, the study focused on participants from this functional area within the supplier firm (Abbott et al., 2001; Speier & Venkatesh, 2002). In-depth interviews were conducted with a single senior management informant, responsible for customer relationships on a day-to-day basis, because (a) they are more likely to use CRM technology if it exists within the firm, (b) they tend to be more involved in the overall customer sales and marketing process, and (c) they would be familiar with their organisation's culture and IT strategy (Menon, Bharadwaj, Adidam, & Edison, 1999; Moorman & Miner, 1997). Although the use of multiple respondents is preferred to help overcome potential response bias and gain multiple perspectives (triangulation) (Creswell, 2003; T. W. Lee, 1999; Yin, 2003), it was considered too problematic to find knowledgeable second respondents in small and medium-sized (SME) businesses (Reinartz et al., 2004).

The nominated customers were recommended by supplier participants, knowledgeable in the business relationship and regularly conducted business with the customer. Keeping in mind the cost and time constraints, the research question, and the objectives for the exploratory stage of the research, single respondents, one from each supplier firm and one from each customer firm, were deemed appropriate.

4.3.3. Data Collection – Exploratory Phase

4.3.3.1. Contact

To increase acceptance, the most senior manager in each targeted organisation was contacted by telephone and asked to nominate the most appropriate sales or marketing person in their organisation to participate (Jobber & O'Reilly, 1998). Each nominated

person was contacted, agreed to a 60-minute interview and provided one customer contact potentially willing to participate in the study. The nominated customers were telephoned independently by the researcher to set up interviews, unless otherwise suggested by the supplier firm, in which case the researcher contacted the nominated customer after the supplier firm had gained the customer's approval. Initial interview durations with the nominated customers were set for one hour.

4.3.3.2. Interview Protocol

Interview protocols were developed, as recommended by Yin (2003), one for the supplier interviews and one for the customer interviews, and used to guide each interview (Miles & Huberman, 1994). These protocols ensured all the essential and necessary information regarding the proposed research model and associated research questions were collected and recorded. The customer protocol did not include any questions regarding CRM technology implementation. In addition to the protocols, a contact summary form, and interview follow-up forms were developed and used for data recording and later analysis (Stake, 1995).

A separate telephone interview protocol was developed (Fontana & Frey, 1994), and subsequently used for one customer telephone interview. The protocols and forms are provided in Appendix A1.

4.3.4. Participation Rate and Respondent Profile

Eleven companies were contacted and ten agreed to participate. The firm choosing not to participate stated a lack of time and interest. Eisenhardt (1989), and Miles and Huberman (1994) consider ten to be a sufficient number for exploratory case research. More important is the information richness derived from the cases rather than the

Table 4.1: Supplier Industry and CRM System Profile

Firm	Industry	CRM System
TecCo	Computer Services	ACT!
RecCo	Recruitment Services	Custom database
MarCo	Marketing Services	Inhouse build
FinCo	Finance	Custom build
TelCo	Telecommunications	Vantive FOCiS
BMSCo	Wholesale Trade	ACT!
DocCo	Document Services	CoWeb
ComCo	Telecommunications	Salesforce.com
CompCo	Computer Services	Siebel
BankCo	Finance	Certegy

sample size (Perry, 1998), and the sample cases provided a rich medium for analysis.

The supplier profiles shown in Table 4.1 indicate that these companies encompass a broad range of industries and utilise a variety of IT systems and solutions to provide CRM applications. Table 4.2 provides the respondent and firm profiles, indicating a good spread across the categories of small (2 – 20 employees), medium (50 – 190 employees) and large businesses (300+ employees).

**Table 4.2: Supplier and Customer Respondent Profile
(Exploratory Phase)**

Firm	R	ANZSIC	Informant title / position	Size
TecCo	S	L7834	Owner	Small
MgtCo	C	L7855	Owner	Small
RecCo	S	L7861	Account executive	Medium
GovDp	C	M8112	HR manager	Large
MarCo	S	L7853	Account manager	Small
InsCo	C	K7422	General manager - Marketing	Medium
FinCo	S	K7340	Manager – Investor Services	Small
FinAd	C	K7340	Owner – Investment advisor	Small
TelCo	S	J7120	Account manager	Large
PropCo	C	L7712	General Manager IT	Medium
BMSCo	S	F4539	Owner	Small
SupCo	C	F4539	Services manager	Small
DocCo	S	L7832	Strategic account manager	Medium
EdGvCo	C	M8112	Sales manager	Medium
ComCo	S	J7120	Corporate account manager	Large
UniCo	C	N8431	E-communications supervisor	Large
CompCo	S	L7834	Client Relations Executive	Medium
HlthCo	C	K7421	Commercial and business manager	Large
BankCo	S	K7321	General manager credit cards	Medium
NpoCo	C	Q9629	IT manager	Small

Note: R = Respondent; S = Supplier firm; C = Customer firm

4.3.5. The Interviews

The supplier firm interviews were conducted at the participating firms' offices in all cases. The customer interviews were also conducted at their places of business, except for two, one conducted over the telephone and the other conducted offsite. All interviewees agreed to be tape-recorded and were given the opportunity to review the written transcripts; in addition notes were taken during the interviews.

4.3.6. Exploratory Data Analysis Procedure

Miles and Huberman (1994, p. 10) stipulate that qualitative data analysis progress through parallel and simultaneous processes of “data reduction, data display, and conclusion drawing/verification.” To this end each interview transcript was analysed

through selection, summarising, and abstracting the data in order to uncover key themes and constructs from the text segments (Ryan & Bernard, 2000). The conclusions and verifying process involves a continuous process of “noting regularities, patterns, explanations, possible configurations, causal flows, and propositions” (Miles & Huberman, p. 11). Similarities and differences in perceptions of the relationship between the firm and the customer were identified and organised to simplify and understand the complex information. Leximancer 2.21 software was used to help structure and analyse the interview data (A. E. Smith, 2005; A. E. Smith & Humphreys, 2006).

Yin (2003) advocates cross-case synthesis for multiple case studies since cross-case analysis provides the possibility of replication and generalisation compared to single within-case analysis. Cross-case analysis was conducted by comparing and contrasting case-by-case, word tables and feature arrays in order to aggregate and examine common themes and findings shared by the participating companies, first separately by supplier and customer, and then combined (Eisenhardt, 1989; Miles & Huberman, 1994; Mohrman, Gibson, & Mohrman Jr., 2001; Yin, 2003). Since one of the primary purposes of the research was the development and validation of a generalised CTA – CR model, cross-case analysis was favoured over within-case analysis.

The results were compared to the research model and the extant literature in order to refine the CTA – CR model and help select items for the questionnaire. Appendix A2 provides a summary of the interviews, used to inform the scale development and subsequent interpretation of the survey results from the explanatory phase. Next, the methodology employed in the explanatory research phase is discussed.

4.4. Explanatory Phase of the Research

4.4.1. Explanatory Phase Approach and Objectives

This phase of the research tested and validated the research model, to thereby establish theory for better understanding and predicting the effects of the CRM phenomenon (Sekaran, 2003). First, an overview of the research design is presented, followed by questionnaire design, development of the research instruments, the survey implementation methodology, data screening and preliminary analysis, and finally the data analysis and hypothesis testing procedures.

4.4.2. Overview of Research Design

Given the potential difficulty in identifying and gaining access to businesses contemplating CRM technology adoption, a cross-sectional study was determined more appropriate than a longitudinal study. Longitudinal studies provide the ability to observe and test parameters over time with the same individuals or organisation. The advantage of longitudinal study is that complex variables and interactions that evolve over time (i.e., relationships) can be identified and causal linkages established more readily (Bowen & Wiersema, 1999). Hence cross-sectional research limits causal inference since timing effects may not be understood or captured (MacCallum & Austin, 2000; Pinsonneault & Kraemer, 1993). A cross-sectional design for this study was justified however due to cost and resource constraints, and because the study's primary purpose was to validate the proposed CTA – CR model, not to identify changes in relationships over time due to CRM technology adoption (King, 2001; Pinsonneault & Kraemer, 1993; Scandura & Williams, 2000).

In addition, since a number of CRM technology adoption construct measures were to be developed, a research design that facilitated measurement development was required (Churchill & Brown, 2004). Measurement development is highly dependent on respondents that are representative of the population for which the scale is intended (Alreck & Settle, 2004), since “sample non-representativeness can severely harm a scale development effort” (DeVellis, 2003, p. 90). Sample representativeness was obtained through an appropriate random selection procedure described in detail later in the Sample Selection section.

Although personal interviews are preferable for research dealing with relationships, the time and cost required to identify and interview a large, diverse sample of companies and customers made personal interviewing unfeasible (Aaker et al., 2004; Alreck & Settle, 2004). Telephone interviewing was also dismissed due to the length and detail of the measuring instrument (136 items for the supplier survey) (Aaker et al., 2004; Hair et al., 2003; Jobber, Allen, & Oakland, 1985). Internet surveys are becoming more popular, but suffer from a number of issues including (Couper, Kapteya, Schonlau, & Winter, 2007; Ranchhod & Zhou, 2001; Simsek & Veiga, 2001):

1. Sampling representativeness, and low response rate, due to user variability in e-mail use, Internet availability and familiarity,
2. Lack of professional image and design,

3. Perceived lack of anonymity, and confidentiality.

Direct mail surveys provide a number of advantages: relatively low cost, access to widely dispersed samples, minimal resource requirements, and allows time for thoughtful answers or consultation (Aaker et al., 2004; Hair et al., 2003). The anonymity provided by mail surveys may also help overcome any sensitivity surrounding the relationship between the two parties (supplier – customer) (Churchill & Iacobucci, 2005). Another advantage of the mail survey in the current research is that the supplier firm also received the customer questionnaire to forward on². This allowed the supplier firm to review and become comfortable with the questions their customers were being asked to answer. Limitations of mail surveys include the possibilities of low response rate, non-response bias and a loss of control once the survey is in the postal system (Aaker et al., 2004). Satisfactory response rates can be hard to forecast and difficult to obtain, however there are techniques and guidelines to help improve response rates (Dillman, 2000; Dillman, Sinclair, & Clark, 1993; Jobber, 1986; Jobber & O'Reilly, 1996, 1998), and non-response bias can be estimated (Armstrong & Overton, 1977; Assael & Keon, 1982).

4.4.3. Questionnaire Design

There are two primary objectives of questionnaire design related to data quality: first, to reduce non-response, and second, reduce or avoid measurement error (Alreck & Settle, 2004; Churchill & Peter, 1984; Dillman, 1998, 2000; Fink, 1995; Hair et al., 2003; McDaniel & Gates, 2005). In addition to the methods proposed by Dillman (1998; 2000), the nine-step procedure for developing a questionnaire, proposed by Churchill and Iacobucci (2005) guided the questionnaire design in this study.

4.4.3.1. Information Required

The research objectives, the CTA – CR model and subsequent hypotheses determined the information required from the research instruments. Five types of information were sought from the supplier firm; (a) market orientation, (b) IT management orientation, (c) CRM technology adopted (function, user acceptance and integration with other systems), (d) environmental characteristics (technology and marketing turbulence), and (e) personal and organisational demographic classifying

² The majority of firms preferred to review the customer questionnaire before agreeing to nominate or send out the customer survey; only five firms freely nominated a customer and provided contact details during the original telephone conversation.

information (gender, age, work experience, education, business industry, organisation size, length of relationship with nominated customer, and respondent title). In addition, relationship strength (trust, commitment, communications), and relationship performance (perceived performance, satisfaction, loyalty and retention) data were collected from the supplier respondents. Five types of customer information were similarly sought: (a) relationship strength, (b) relationship performance, (c) environmental characteristics, (d) customer characteristics (CRM expectations, relationship orientation), and (e) personal and organisational demographic classifying information. Appendix A3 provides the item construction details included in the two questionnaires.

4.4.3.2. Type of Questionnaire and Method of Administration

Since there was no reason to disguise the rationale or motivation of the study, and standardisation of questions and responses was necessary for comparison purposes to enable statistical analysis of the results, a structured-undisguised, self-administered questionnaire was selected (Alreck & Settle, 2004; Churchill & Iacobucci, 2005; Netemeyer, Bearden, & Sharma, 2003). Given that the questionnaire was mailed to supplier firms, with the majority of customer questionnaires forwarded on by the supplier firm, the self-administered questionnaire was an appropriate method of administration (McDaniel & Gates, 2005).

4.4.3.3. Form of Response

Rating scales are commonly used in social science research to measure latent (unobservable) constructs (Alreck & Settle, 2004; Netemeyer et al., 2003). All constructs in the measuring instrument used seven-point Likert-type scales, except for one semantic differential scale dealing with communications and a checklist (ranking-type scale) for one aspect of CRM system integration. Although a five-point scale is considered adequate, a seven-point scale provides a finer level of detail and does not place undue cognitive burden on the respondent (Lissitz & Green, 1975; Miller, 1956; Preston & Colman, 2000). In addition seven appears to be optimal for information processing purposes and scale reliability (Churchill & Peter, 1984; Cox, 1980; Green & Rao, 1970; Peter, 1979).

The majority of the scales were treated as interval, with demographic information fundamentally considered as nominal (DeVellis, 2003; Kirk-Smith, 1998; Nunnally,

1959; Nunnally & Bernstein, 1994; F. S. Roberts, 1994; Suppes & Zinnes, 1963; Traylor, 1983).

4.4.3.4. *Question Wording*

The literature on survey research methodology provides excellent guidelines for composing the questions (Alreck & Settle, 2004; Churchill & Iacobucci, 2005; Dillman, 2000; E. Lee, Hu, & Toh, 2004). Questionnaire items from previously published and validated questionnaires on information systems (Karimi et al., 1996a; Karimi et al., 2001; Venkatesh & Davis, 2000; Venkatesh, Davis, Morris, & Davis, 2003), marketing management (Avlonitis & Panagopoulos, 2005; Jayachandran et al., 2005), market orientation (Pelham & Wilson, 1996), trust (Ganesan, 1994), commitment (Gounaris, 2005; N. Kumar et al., 1995), communication (Z. G. Li & Dant, 1997; Mohr & Sohi, 1995), business relationship (Andaleeb, 1996; Z. G. Li & Dant, 1997), loyalty (Zeithaml et al., 1996), retention (Sin, Tse, Yau, Lee, & Chow, 2002), and technology and marketing turbulence (Jaworski & Kohli, 1993; Moorman & Miner, 1997) were adapted to the context of this study.

4.4.3.5. *Question Sequence*

The sequence of the questions, or even the order of two or more questions, may have a significant effect on the answers provided in a survey (Tourangeau, Rips, & Rasinski, 2000). Dillman (2000) and other researchers (Aaker et al., 2004; Churchill & Iacobucci, 2005; Parasuraman, Grewal, & Krishnan, 2004) provide guidelines to help order the question sequence appropriately. Applying the guidelines involved dividing the supplier questionnaire into eight sections, and the customer questionnaire into four sections. Details of the questionnaire construction can be found in Appendix A3.

4.4.3.6. *Physical Aspects of the Questionnaire*

The perception of questionnaire importance is reflected in its presentation, design and layout; the respondent's first impression is a lasting one (Churchill & Iacobucci, 2005; Jobber, 1989; Mayer & Piper, 1982; Sanchez, 1992), even "[t]he format, spacing, and positioning of questions can have a significant effect on the results" (Malhotra, 1999, p. 312). Following Dillman's (1978; 2000) recommendations, and to make the questionnaire appear shorter and less dense, the supplier questionnaire was formatted into a user friendly six page double-sided standard size A4 booklet. The 136 items in the

supplier survey were distributed across 11 sides of paper³. The customer questionnaire was similarly formatted into a four page double-sided booklet, with the 72 items distributed across six sides of paper.

Each questionnaire had a reference number hand written on the top right hand corner of the cover page to facilitate the matching of supplier and customer questionnaire returns. There is an argument that respondents may decline to participate or provide different answers if they believe they can be identified, although recent research is inconclusive as to the effect of anonymity on mail surveys (Jobber, 1986; Jobber & Saunders, 1993; Malhotra, 1999; Michaelidou & Dibb, 2006). Confidentiality, however, was promised in the cover letter and reinforced at the appropriate sections in the questionnaire.

Following the pre-test the final questionnaire was professionally printed in colour and stapled in booklet form by the Victoria University of Wellington printing department.

4.5. Development of Research Instruments

Following the exploratory phase, the construction and validation of the final research instrument was undertaken. Two versions of the final instrument were prepared – one version to be administered to the supplier firms (subtitled ‘Supplier Questionnaire’), another version for the customer firms (subtitled ‘Customer Questionnaire’). The supplier questionnaire consisted of scales to measure all of the previously outlined constructs – market orientation (MO), IT management orientation (ITMO), CRM technology adoption (CTA), relationship strength (RS), and relationship performance (RP) – including environmental moderating variables. The customer questionnaire included only the two specific construct measurement scales – RS, RP – and the environmental moderating variables. However, as additional control variables, the customer instrument also measured the customer’s CRM expectations (CXP) and their relationship orientation (CRO).

4.5.1. Overview of Research Instrument Development

Development of the two research instruments used in the explanatory phase of the study utilised existing scales and measures wherever possible (Menon et al., 1999;

³ In both cases the questionnaire cover page did not contain any questions; the customer questionnaire included page 7 intentionally blank.

Sudman & Bradburn, 1982). The recommendations for scale construction provided by Churchill (1979), DeVellis (2003), Netemeyer et al. (2003), and Nunnally and Bernstein (1994) were used to guide the instrument development.

Few instruments have been published for the purpose of empirically investigating the relationship between RM, CRM and business performance. A number of instruments have been developed in separate studies to investigate and measure the degree of market orientation, IT management orientation, and technology application adoption, as shown in Table 4.3. Existing scales were combined and modified (by adding and deleting specific items) to create scales for the three primary supplier based constructs; MO, ITMO and CTA.

Table 4.3: Instrument Development Sources for the Three Major Supplier Constructs and Sub-constructs

Construct	Sub-constructs	Primary Source of initial scales	Items
Market Orientation	Market Orientation	Pelham and Wilson (1996)	10
IT Management Orientation	IT Management control	Karimi, Gupta, & Somers (1996a), Karimi et al. (2001)	14
	IT Organisation maturity		
	IT Integration maturity		
CRM Technology Adoption	Acceptance	Avlonitis & Panagopoulos (2005); Venkatesh & Davis (2000); Venkatesh, Davis, Morris, & Davis (2003)	19
	Functionality (NEW)	Jayachandran et al. (2005)	20
	Integration (NEW)	Venkatesh, Davis, Morris, & Davis (2003)	13
			76

Table 4.4 shows the sources for the scale development of the two dependent variables, C_RS and C_RP (the customer based constructs) used in the questionnaire. The newly created scales provided fourteen sub-constructs used in the structural

Table 4.4: Customer Instrument Development Sources for the Two Major Dependent Constructs and Sub-constructs

Construct	Sub-constructs	Primary source of initial scales	Items
Relationship Strength	Trust	Doney and Cannon (1997)	7
	Commitment	Gounaris (2005); N. Kumar et al. (1995); Mohr, Fisher, and Nevin (1996)	15
	Communications quality	Li and Dant (1997); Mohr and Sohi (1995)	9
Relationship Performance	Perceived performance	Li and Dant (1997)	3
	Relationship satisfaction	Andaleeb (1996)	3
	Customer loyalty	Zeithaml, Berry, & Parasuraman (1993; 1996)	3
	Customer retention	Sin, Tse, Yau, Lee, & Chow (2002)	5
			45

equation model (Netemeyer et al., 2003; Sudman & Bradburn, 1982).

Appendix A3 details the alignment of the questionnaire items with the respective constructs. A CRM technology adoption (CTA) scale was developed since no adequate instrument currently exists in the published literature. It was created by combining two new measures, CRM functionality and CRM system integration, together with an existing measure of technology acceptance (TAM) (F. D. Davis, 1989). Additional items were added to the existing technology acceptance scale based on the research objectives and insights gained from the exploratory interviews. Wherever possible multi-item measures were adapted or developed in order to help reduce measurement error (Nunnally & Bernstein, 1994). The development of the individual scales is described in the following sections.

4.5.2. Dependent Variables

Relationship strength (C_RS) was chosen as the primary dependent variable in this study; relationship performance (C_RP) as a secondary dependent variable. The customer C_RS and C_RP scales were developed within the context of this study utilising wording to reflect the customer's perspective (i.e., interchanging supplier and customer in the statements as appropriate). The letter and number along side each item represents the section and line item in the respective questionnaire, see Appendix A4 for copies of the two questionnaires.

4.5.2.1. Relationship Strength (C_RS)

The customer questionnaire measured relationship strength (C_RS) through measures of trust, commitment and communications quality. Table 4.5 depicts the three key constructs and seven sub-constructs used in this study to define C_RS.

Table 4.5: Relationship Strength Constructs and Sub-constructs Used in the Current Study

Relationship Strength (C_RS)
• Trust (C_RT)
• Commitment (C_CMT)
• Affective commitment
• Expectation of continuity
• Willingness to invest
• Calculative commitment
• Inclusive commitment
• Communications quality (C_CQ)
• Communications
• Communications ethos

4.5.2.1.1. Measurement of Trust (C_RT)

The seven-point Likert scale developed by Doney and Cannon (1997) was adapted and used to measure the customer's perception of trust with the supplier ($\bar{x} = 5.30$, $SD = 1.20$, $\alpha = 0.94$; as reported in the original study). Unless otherwise noted, the seven-point Likert response scale used in the current study ranged from "Strongly Disagree" to Strongly Agree". The eight items used to measure trust in the customer questionnaire:

- A2: This supplier keeps promises it makes to our firm.
- A3: This supplier is not always honest with us.
- A4: We believe the information that this vendor provides us
- A5: This supplier is genuinely concerned that our business succeeds.
- A6: When making important decisions, this supplier considers our welfare as well as its own.
- A7: We trust this supplier keeps our best interests in mind.
- A8: This supplier is trustworthy.
- A9: We find it necessary to be cautious with this supplier.

4.5.2.1.2. Measurement of Commitment (C_CMT)

The N. Kumar, Scheer, & Steenkamp (1995) nine-item, seven-point Likert-type scale measures a firm's affective commitment (C_AFC), propensity for relationship continuation (C_EOC), and willingness to invest (C_WTI) ($\alpha = 0.82$). The results of the in-depth interviews did not support the inclusion of a normative component of commitment. The scale items as adapted for this study are listed below:

- A10: Even if we could, we would not drop the supplier because we like being associated with them.
- A11: We want to remain a member of the supplier's network because we genuinely enjoy our relationship with them.
- A12: Our positive feelings towards the supplier are a major reason we continue working with them.
- A13: We expect our relationship with the supplier to continue for a long time.
- A14: The renewal of our relationship with the supplier is virtually automatic.
- A15: It is unlikely our firm will still be doing business with this supplier in two years.
- A16: If the supplier requested it, we would be willing to make further investment in supporting the supplier's line.
- A17: We are willing to put more effort and investment in building our business in the supplier's product.

A18: In the future we will work to link our firm with the supplier's in the customer's mind.

Calculative commitment (C_CLC) was measured adapting the Gounaris (2005) measurement scale ($\alpha = 0.87$):

A19: It would be difficult to break this relationship.

A20: There are no worthwhile alternative suppliers.

A21: There is a high cost to change suppliers.

The customer questionnaire also included three items to measure inclusive commitment (C_ICT) (a general commitment to the supplier) adapted from the Mohr, Fisher, and Nevin (1996) scale ($\alpha = 0.80$):

A22: We are very committed to carrying this supplier's products.

A23: We would like to discontinue this supplier's products.

A24: We have a minimal commitment to this supplier.

4.5.2.1.3. Measurement of Communications Quality (C_CQ)

Communications was measured by adapting Li and Dant's (1997) four-item, five-point Likert-type scale ($\alpha = 0.83$), while communications ethos was measured using Mohr and Sohi's (1995) five-item, five point semantic differential scale ($\alpha = 0.92$).

The customer questionnaire communication scale (C_CM) consisted of the following four items:

A25: We keep each other informed about events that affect each other.

A26: We often exchange information informally.

A27: We often exchange information beyond what is required by our formal agreements.

A28: We provide each other with information that may be of help.

The customer questionnaire communication ethos scale (C_CME) consisted of the following five semantic-differential items. The response scale consisted of a seven-point scale (1 to 7):

Please indicate the nature of your communication with this supplier:

A29: Untimely - Timely

A30: Inaccurate - Accurate

A31: Inadequate - Adequate

A32: Incomplete - Complete

A33: Not credible - Credible

4.5.2.2. Relationship Performance (C_RP)

Overall customer perceived relationship performance (C_RP) was measured independent of the C_RS measurement. For this study the C_RP scale was based on the work of Jutla, Craig, and Bodorik (2001) and Li and Dant (1997) and comprised of four sub-constructs: perceived performance, relationship satisfaction, loyalty intention and customer retention (see Table 4.6). Thirteen items were used to measure the four sub-constructs from the customer perspective.

Table 4.6: Relationship Performance Sub-constructs Used in the Current Study

Relationship Performance (C_RP)
• Perceived performance (C_PR)
• Relationship satisfaction (C_RSA)
• Customer loyalty (C_LY)
• Customer retention (C_RN)

4.5.2.2.1. Measurement of Perceived Performance (C_PR)

The perceived performance scale was adapted from Li & Dant's (1997) three item five-point Likert-type scale ($\alpha = 0.90$), based on input provided from the exploratory interviews:

- B1: Our relationship with them has been productive.
- B2: The time and effort we spent in the relationship with them has been worthwhile.
- B3: The relationship with them has been satisfactory.

4.5.2.2.2. Measurement of Relationship Satisfaction (C_RSA)

The relationship satisfaction scale used in this study was adapted from Andaleeb's (1996) three-item, seven-point Likert-type manufacturer-distributor relationship satisfaction scale ($\alpha = 0.95$); one additional item (A1) relating to perceived strength of the overall business relationship was added. The customer relationship satisfaction scale therefore included four items:

- A1: Our business relationship with *[name of supplier firm]* is strong.
- B4: The relationship between my company and this supplier reflects a happy situation.
- B5: The relationship between the two companies is very positive.
- B6: My company is very satisfied with this supplier.

4.5.2.2.3. Measurement of Loyalty (C_LY)

Loyalty was measured by adapting Zeithaml, Berry and Parasuraman's (1996) five-item, seven-point Likert-type organisational loyalty scale. The customer loyalty scale consisted of four items:

- B7: I say positive things about this supplier to others.
- B8: I encourage others to do business with this supplier.
- B9: I would recommend this supplier to someone who seeks my advice.
- B10: I expect to do more business with this supplier in the next few years.

4.5.2.2.4. Measurement of Customer Retention (C_RN)

A customer may continue to re-purchase products and services from a specific supplier, but that does not necessarily imply the customer is loyal. The customer retention scale consisted of one item (B11) based on the Zeithaml, Berry and Parasuraman (1996) scale, one item (B13) from the Gounaris (2005) scale and one new item (B12):

- B11: I consider this supplier our first choice to buy from.
- B12: We continue to purchase from this supplier more so than from other suppliers.
- B13: We are looking for alternative suppliers.

4.5.3. Independent Variables

Table 4.7 shows the three independent variables used in this study: market orientation (MO), IT management orientation (ITMO), and CRM technology adoption (CTA) (CTA is both a dependent and independent variable in the CTA – CR model). This portion of the survey instrument was only administered to the supplier firms; the customer survey did not include these items.

Table 4.7: Major Supplier Construct and Sub-construct Details Used in the Current Study

-
- Market orientation (MO)
 - IT management orientation (ITMO)
 - IT management planning
 - IT management control
 - IT organisation
 - IT integration
 - CRM technology adoption (CTA)
-

4.5.3.1. Measures of Market Orientation (MO)

Pelham and Wilson's (1996) nine-item, five-point Likert-type market orientation scale ($\alpha = 0.92$), based on Narver and Slater's (1990) MO operationalisation, was adapted to measure MO. Ten items on the supplier questionnaire, listed below, comprised the measure for MO:

- C1: All our functions (not just marketing and sales) are responsive to serving target markets.
- C2: All our functions are integrated in serving target markets.
- C3: Our firm's strategy for competitive advantage is based on a thorough understanding of our customer needs.
- C4: All our managers understand how the entire business can contribute to creating customer value.
- C5: Information on customers, marketing success, and marketing failures is communicated across the firm.
- C6: If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.
- C7: Our firm's market strategies are to a great extent driven by our understanding of possibilities for creating value for customers.
- C8: Our firm responds quickly to negative customer satisfaction wherever it may occur in the organisation.
- C9: Senior managers frequently discuss competitive strengths and weaknesses.
- C10: We frequently leverage targeted opportunities to take advantage of competitor's weaknesses.

4.5.3.2. Measures of IT Management Orientation (ITMO)

Karimi et al. (2001) developed an instrument to measure the level of IT management sophistication through 20 items reflecting IT Planning (IMP) (6 items, $\alpha = 0.88$), IT management control (IMC) (6 items, $\alpha = 0.86$), IT organisation (IMO) (4 items, $\alpha = 0.80$) and IT integration (IMI) (4 items, $\alpha = 0.78$) (Karimi et al., 2000; Karimi et al., 1996a). The nature of the ITMO construct focused on management practices, rather than technical IT issues, therefore it was anticipated that informed executives should be able to answer the questions posed in the questionnaire (Churchill & Iacobucci, 2005). However, in order to make this section less threatening a separate 'Do not know' (DNK) category was added to the Likert seven-point scale. Although adding this category may increase the percentage of DNK answers, the amount of guessing should

also decrease (Sudman & Bradburn, 1982). Karimi et al.'s (2001) original study surveyed IT executives in the financial services industry, therefore the survey instrument was adapted for sales and marketing executives in this study by ensuring appropriate context (e.g., replacing 'Our IT' with 'Our firm's IT'), key aspects were not changed (Sudman & Bradburn, 1982).

- B1: Our firm's IT projects support the business objectives and strategies of our company.
- B2: Our IT group continuously examines the innovative opportunities IT can provide for our competitive advantage.
- B3: Our IT group is well informed on the current use of IT by other firms in our industry.
- B4: Our IT group is well informed on the potential use of IT by other firms in our industry.
- B5: Our IT group has an adequate picture of the coverage and quality of our IT systems.
- B6: Our firm is content with how our IT project priorities are set.
- B7: In our organisation, the responsibility and authority for IT direction and development are clear.
- B8: In our organisation, the responsibility and authority for IT operations are clear.
- B9: Our firm is confident that IT project proposals are properly appraised.
- B10: Our IT group constantly monitors the performance of IT functions.
- B11: Our IT group is clear about its goals and responsibilities.
- B12: Our IT group is clear about its performance criteria.
- B13: In our organisation, user ideas are given due attention in IT planning and implementation.
- B14: Our IT specialists understand our business and the firm.
- B15: The structure of our IT group is appropriate for our organisation.
- B16: The IT specialist-user relations in our firm are constructive.
- B17: In our firm, top management perceives that future exploitation of IT is of strategic importance.
- B18: There is a top-down planning process for linking information systems strategy to business needs.
- B19: Some IT development resource is positioned within the business unit.
- B20: The introduction of, or experimentation with, new technologies takes place at the business unit level, under business unit control.

4.5.3.3. CRM Technology Adoption (CTA)

One purpose of the current study was to develop a CRM technology adoption (CTA) scale that can be used by academics and practitioners to help understand the type and extent of CRM technology implemented in firms and to differentiate between CRM technology adoption within firms. The scale is based on CRM attributes, functions, applications and characteristics obtained from (a) previous research (Jayachandran et al., 2005; Stefanou et al., 2003), (b) conceptualisations from the literature (Buttle, 2004; Freeland, 2003; Kincaid, 2003; V. Kumar & Reinartz, 2006), and (c) vendor literature and product descriptions (e.g., Oracle, 2004; SAP, 2004).

Based on the literature and findings from the exploratory phase of this study, CTA is conceptualised as a higher order construct with three independent scales as depicted in Table 4.8; measuring CRM functionality (e.g., type of CRM technology implemented) (Raman & Pashupati, 2004), CRM technology acceptance within the firm by the users (F. D. Davis et al., 1989), and CRM system integration reflecting the level of integration into the business processes and legacy systems (Ling & Yen, 2001).

**Table 4.8: CRM Technology Adoption Sub-construct
Details Used in the Current Study**

CRM Technology Adoption (CTA)
<ul style="list-style-type: none"> • CRM functionality (CFN) <ul style="list-style-type: none"> • CRM practice • CRM analytics • Relationship management CRM • Strategic CRM • Extended CRM • CRM acceptance (CRA) <ul style="list-style-type: none"> • Perceived ease of use • Perceived usefulness • CRM adoption • Attitude toward using CRM • Relative advantage • Intention to use • CRM system integration (CSI) <ul style="list-style-type: none"> • CRM compatibility • CRM integration

The quote below provides an example of the insight gained from the detailed interview data and used in the development of this portion of the survey:

[CRM technology is] primarily around accounts, or organisations and management. Contact management, sales opportunity right through the whole cycle, from awareness to an issue or problem, the whole cycle, basically right through to

closing it. Forecasting, activity tracking, tracking events, keeping track of meetings, presentations, workshops,[CRM technology is] a repository for customer information, and reports. Those sorts of things can be tied to the CRM system. Organisation charts. It's not used here for service; it is used for marketing, although I don't personally use it for marketing. Though marketing people use it worldwide it's not used in a service kind of way at all. There's no integration. Computer Company, Client Relations Executive (Supplier – CRM user)

Note: Where different Likert scale anchor points are used in this section of the questionnaire, they are italicized and shown in parentheses after the item.

4.5.3.3.1. Measurement of CRM Functionality (CFN)

CRM functionality has not been previously reported in published work as a key variable (or antecedent) in the adoption or success of CRM technology (Raman & Pashupati, 2004; Stefanou et al., 2003). A new scale to measure CRM functionality was based on the extant literature and feedback from the exploratory research interviews (Greenberg, 2002; V. Kumar & Reinartz, 2006; Payne, 2006; Payne & Frow, 2005). This new CRM functionality scale consisted of five dimensions; CRM Practice, CRM Analytics, Relationship Management CRM, Strategic CRM and Extended CRM.

CRM Practice (CPR)

CRM practice relates to functional aspects of the actual tools and applications within the firm used by the respondent and correspond to the operational aspects of CRM (Buttle, 2004). The four items listed below focused on sales tools, contact centre process, customer support process and functional linkages to measure this construct (Buttle, 2004; Goodhue et al., 2002).

- A2: The sales force tools available to me are (*The seven-point Likert-type scale for this item was anchored with: Manual – Fully automated*)
- A3: Our customer contact centre processes are (*Manual – Fully automated*)
- A4: Our customer support and service processes are (*Manual – Fully automated*)
- A5: All of our systems (e.g., Finance, Sales, and Operations) are linked and talk to each other. (*Not at all – Fully linked*)

CRM Analytics (CAN)

CRM analytics “involves the capture, storage, organization, analysis, interpretation and use of data created from the operational side of the business” (Payne, 2006, p. 23). The measurement of the construct investigates what information sources, types of

analysis and analysis tools are available to the respondent and how automated these functions are (Buttle, 2004; Goodhue et al., 2002). Three items - availability of customer information, data analysis, and analysis tools - were used to measure this construct:

- A6: Customer information sources available to me are primarily (*Manual card files – Online profiles*)
- A7: The customer analyses available to me give (*No insights – Detailed insights*)
- A8: The analysis tools that we use are (*Manual – Fully automated*)

Relationship Management CRM (RMC)

A central CRM concept is the ability for businesses to better manage customer relationships, leading to improved customer metrics (Mithas et al., 2005; Reinartz et al., 2004). The six items used to measure this construct dealt with the extent to which the CRM technology in place provided assistance to maintain customer relationships, customer information from customer contact points, a single view of the customer, a single source of customer information, Internet access to customer and product information, database updates.

- A1: To what extent does your information technology help you maintain relationships with your customers? (*Not at all – To a great extent*)
- A9: Our customer contact points provide me with (*No customer information – Complete customer information*)
- A10: Our processes provide me with a single view of the customer. (*No single view – Complete 360 view*)
- A11: To what extent is a single source for all customer information available? (*No single source – Single source*)
- A12: To what extent is the Internet / Intranet used to help find customer and product information? (*Not at all – All the time*)
- A13: To what extent is our customer database(s) updated? (*Infrequently – In real time*)

Strategic CRM (STC)

Retention, dissemination and strategic use of customer and competitor information within the firm were used to reflect the strategic CRM construct (Payne & Frow, 2005). Four items in the supplier questionnaire attempted to measure the extent each supplier firm engaged in knowledge retention, utilising customer knowledge for decision-making, dissemination of customer and competitor information within the firm.

- A14: To what extent is customer knowledge retained? (*No knowledge retained – All knowledge retained*)
- A15: To what extent does customer knowledge support decision-making? (*No support – Extensive support*)
- A16: To what extent is customer information disseminated throughout the firm? (*No information disseminated – Information widely disseminated*)
- A17: To what extent is competitor information disseminated throughout the firm? (*No information disseminated – Information widely disseminated*)

Extended CRM (EXC)

The Extended CRM construct investigates the customer value creation aspects of the firm. Payne and Frow (2005; 2006) identified that a comprehensive strategic framework for CRM should include the ability to create superior value with and for customers. Four items attempted to measure this construct. Two of the items gauged the extent to which the firm focused on product-based versus customer-based value. Another item explored to what extent the business dealings were transactional or relationship focused and the final item inquired to what extent the value propositions were broad based or tailored to each customer.

- A18: To what extent does your firm focus on product-based value creation? (*Not at all – Completely product-based*)
- A19: To what extent does your firm focus on customer-based value creation? (*Not at all – Completely customer-based*)
- A20: Business dealings with our customers are (*Transactional focused – Relationship focused*)
- A21: Our customer value propositions are (*Broadbased – Tailored to each customer*)

4.5.3.3.2. Measurement of CRM Technology Acceptance (CRA)

Since simply implementing CRM technology within the supplier firm would not necessarily mean that it was being used, it was considered important for CRM technology acceptance to form one of the dimensions of the overall CRM technology adoption construct. Based on the extant literature six constructs have been found to impact CRM technology acceptance; Perceived Ease of Use, Perceived Usefulness, CRM adoption, Attitude toward using CRM, Relative Advantage and Intention to Use. The scales used to measure these constructs are now discussed.

Perceived Ease of Use (PEU)

To measure PEU four items were adapted from Venkatesh and Davis (2000) ($\alpha = 0.86$). One new item - "I use CRM in my job", based on the Venkatesh et al. (2003) study - was added.

- A22 I use CRM in my job. (*The seven-point Likert-type scale for this item consisted of: Never; Once a month; Once a fortnight; Weekly; Twice a week; Daily; Hourly*)
- A23 My interaction with CRM is clear and understandable.
- A24 Interacting with CRM does not require a lot of my mental effort.
- A25 I find CRM easy to use.
- A26 I find it easy to get CRM to do what I want it to do.

Perceived Usefulness (PU)

Four items were adapted from the Venkatesh and Davis (2000) instrument ($\alpha = 0.86$) to measure the PU construct in this study:

- A27 Using CRM improves my performance in my job.
- A28 Using CRM in my job increases my productivity.
- A29 Using CRM enhances my effectiveness in my job.
- A30 I find CRM to be useful in my job.

CRM Adoption (CAD)

The CRM adoption construct, in the current study, was measured using two items adapted from the Avlonitis and Panagopoulou (2005) study ($\alpha = 0.75$):

- A31 Compared to my peers, I consider myself a frequent user of CRM.
- A37 I have fully accepted CRM in my daily work.

Attitude toward using CRM (ATU)

The four items used to measure attitude toward using CRM were adapted from Venkatesh, Davis, Morris and Davis (2003) ($\alpha = 0.86$):

- A32 CRM technology makes work more interesting.
- A33 Working with CRM is fun.
- A34 I like working with CRM technology.
- A40 Using CRM is a good idea.

Relative Advantage (RAD)

Two items were adopted from Venkatesh, Davis, Morris, and Davis (2003) to measure relative advantage:

A35 Inputting CRM data is time consuming.

A36 CRM makes my job easier.

Intention to Use (ITU)

People have a clear distinction between intention and estimation (forecasting) of future behaviour (Sheppard, Hartwick, & Warshaw, 1988). Two items were adapted from the Venkatesh et al. (2003) scale ($\alpha = 0.84$) to measure ITU:

A41 I intend to use CRM in the next 6 months.

A42 I predict I will use CRM in the next 6 months.

4.5.3.3.3. Measurement of CRM System Integration (CSI)

“IT’s importance as a source of SCA [sustainable competitive advantage] stems from its potential to impact the transformation of a service firm’s value chain... sometimes completely changing the basis of competition” (Bharadwaj et al., 1993, p. 93). For example the advantage of CRM technology to collect, store, process and provide faster communication of relevant information between departments and functional areas enables organisation to respond faster to customer needs. Stefanou et al. (2003) proposed a conceptual CRM development model, consisting of an x-axis denoting CRM integration stages (sophistication and integration of CRM technology use in the firm), and a y-axis relating to IT sophistication level (CRM integration into existing IT applications and services, and sophistication of customer information capture and use). However no valid or reliable instrument has been reported measuring the level of CRM technology integration or sophistication on either axis within a firm. Although a number of studies report that CRM technology integration is necessary for successful implementation and adoption of CRM technology (Zeng et al., 2003), it appears that few studies have yet empirically investigated or reported the impact of the level of CRM technology integration within a firm (Stefanou et al., 2003). The two dimensions of the CSI sub-construct are outlined below.

CRM Compatibility (CCM)

A two-item scale was developed, based on Moore and Benbasat’s (1991) work, to measure CRM compatibility with other IT systems and processes within the organisation (Ling & Yen, 2001; Nunnally & Bernstein, 1994).

A38 CRM is not compatible with other systems or applications I use.

A39 CRM is used throughout the enterprise.

CRM Integration (CRI)

An index of ten items, ranging from simple, stand-alone, single user applications (e.g., Contact Management) to complex, sophisticated, enterprise-wide, fully integrated, ERP systems (e.g., MySAP) was developed to measure the extent of CRM technology business integration within the firm (Buttle, 2004; Greenberg, 2002; Turban, McLean et al., 2003; Zikmund et al., 2003). This index is similar in nature to the measure used by Jayachandran et al. (2005) in their measure of CRM technology. The checklist was constructed to capture specific CRM linkages to other functional business areas and systems within the supplier firm. This conceptualisation was based on the accumulated work by Dyché (2002), Greenberg (2002), Kincaid (2003), Payne (2006) as well as the offerings of CRM system developers and suppliers (ACT!, 2004; Computerworld, 2004; Microsoft, 2004; Oracle, 2005; SAP, 2006; SAS, 2004; Siebel, 2004). Adding up the number of checked links produced a dummy variable, CRI_LINKS, which was used to indicate the level of CRM technology business integration within the firm.

A44: What other information systems is your CRM system linked to?

☐ Stand-alone, not connected to any other business system

OR

Linked to (please tick all that apply):

☐ Sales	☐ Logistics/delivery
☐ Customer Service	☐ Operations
☐ Marketing	☐ Executive Information Systems (EIS/MIS)
☐ Accounts Receivable	☐ Enterprise Resource Planning system (ERP)
☐ Finance	☐ Customer/partner (e.g., EDI)

4.5.4. Moderator and Control Variables

Measures of customer CRM expectations (CXP) and customer relationship orientation (CRO) constructs were included in the customer instrument. Based on the exploratory research, a three-item construct was developed to examine the customer perceived expectations of CRM technology when adopted by the supplier firm. The items stated:

C10: My supplier will be able to deliver the right product when I need it.

C11: My supplier will not allow me to run out of inventory.

C12: My supplier better understands my requirements and needs.

The CRO measure was also developed based on information extracted from the exploratory research and included three items:

C13: I think long-term relationships are good.

C14: If I had to choose I would choose a long-term relationship.

C15: Business relationships provide additional value to my firm.

Market turbulence (MT) and technological turbulence (TT) interaction with the key variables were measured in both questionnaires. The Jaworski and Kohli (1993) five-item, five point Likert-type scale was adapted and used to measure market turbulence ($\alpha = 0.68$).

G7/C5: In our kind of business, customers' product preferences change quite a bit over time.

G8/C6: Our customers tend to look for new products all the time.

G9/C7: We are witnessing demand for our products and services from customers who never bought them before.

G10/C8: New customers tend to have product-related needs that are different from those of our existing customers.

G11/C9: The nature of the market has changed significantly over the last few years.

Technology turbulence was measured using an adaptation of the Jaworski and Kohli (1993) four-item, five point Likert-type scale ($\alpha = 0.88$).

G3/C1: The technology in our industry is changing rapidly.

G4/C2: Technology changes provide big opportunities in our industry.

G5/C3: Many new product ideas have been made possible through technological breakthroughs in our industry.

G6/C4: Technological developments in our industry are rather minor.

4.5.5. Nominated Customer Contact

Mid-way through the supplier questionnaire (Section D), preceding the sections on relationship strength and relationship performance, supplier respondents were asked to nominate a customer, including the company name, contact person and phone number, email and/or address. This customer information was necessary in order to send out the customer surveys and follow up customer participation. The respondents were informed that this information would remain confidential. In addition the respondent was asked to indicate on a seven-point Likert scale the strength of the business relationship with the customer.

In order to control for potential bias caused by the nominated customer selection (J. C. Anderson & Narus, 1984; K. Kim, 2000; Rokkan et al., 2003), the statement requesting the information included the following: **“If you have not already done so, please provide customer contact details for either your third or your fourth most important customer.”**

4.5.6. Demographic and Classification Information

Section H requested background information of the respondent and the firm, including (a) gender, (b) industry, (c) annual gross revenue, (d) number of employees in the firm, (e) length of relationship with the nominated customer, (f) full-time work experience, (g) education level, (h) age and (i) position or title. These respondent profiles were collected partly to determine sample representativeness and response bias, and partly to determine whether some of these factors might comprise important covariates in later analysis. The last page of the questionnaire provided space to note any additional thoughts or comments on the issues raised and an opportunity to request a summary of the results.

4.5.7. Data Collection for Instrument Refinement and Verification

A pre-test was conducted with five CRM sales and marketing users, also considered CRM experts, and five academic colleagues from Victoria University of Wellington. Ten specifically chosen experts was deemed a sufficient number for a pre-test (Moorman et al., 1993; Spector, 1992). The questionnaire was reviewed by each of them to ensure adequate understanding, comprehensibility, face validity, and reliability of measures employed. The pre-test respondents focused primarily on content validity (the extent to which the items reflect the constructs), questionnaire response formats (appropriateness of item statements and scale points) and instructions (DeVellis, 2003; Diamantopoulos, Reynolds, & Schlegelmilch, 1994; Netemeyer et al., 2003). The respondents found that the questionnaires were easy to complete, easy to understand and generally were able to be completed within the suggested timeframe (25 minutes for the supplier questionnaire and 10 minutes for the customer questionnaire). The pre-test indicated that respondents were comfortable with the seven-point Likert scale format. Based on the feedback several modifications were incorporated into the questionnaires. Two questions were deleted, the wording of certain scale items was modified, extensive section explanations were removed, and the instructions were simplified and clarified.

Rearrangement of some questions was undertaken to improve the flow and sequencing of the questionnaire. In particular the first questions were revised to make them more salient and appealing, since, as Dillman (2000, p. 92) emphasises “no single question is more crucial than the first one” and may influence whether the questionnaire will be completed or discarded. A definition of CRM technology was added to the front cover; and the inside front cover and second page included a succinct definition of CRM technology highlighted in bold typeface, to ensure there was a common definition readily available in the sections relating to CRM.

4.5.8. Survey Implementation

Survey implementation should attempt to: (a) reduce the respondent response burden, (b) provide appropriate incentive to participate, and (c) build trust in the researcher-respondent interaction (Dillman, 1978). Therefore a modified Total Design Method (TDM) was used to guide the survey implementation, in order to improve data quality, and optimise the response rate (Dillman, 2000).

There are a number of reasons respondents may not participate in mail surveys, including time constraints, too many questionnaires, questionnaire length, and complexity (Baldauf, Reisinger, & Moncrief, 1999; Huber & Power, 1985). Organisational respondents may be prohibited from providing detailed or confidential information due to sensitivity issues surrounding the CRM implementation (Hair et al., 2003). Poor business relationship or confidentiality issues with customers may make asking for their customer participation problematic. In addition informants may submit inaccurate data since the linkage between self-reported attitude and behaviour is tenuous (Kirk-Smith, 1998). To help overcome non-participation by potential respondents, respondents were offered a summary of the completed study as a tangible benefit of their participation, confidentiality of the study was emphasised, the university connection was highlighted and the participant's process streamlined as much as possible (Gendall, Hoek, & Esslemont, 1995).

Although incentives, in general, are considered advantageous in generating higher response rates (Dillman, 2000; Jobber, Mirza, & Wee, 1991; Jobber, Saunders, & Mitchell, 2004), the current study was guided by Jobber and Saunders (1993) who found that the influence of incentives in a B2B context may be offset by simply making

additional quality contacts, and effective telephone and mail follow-up. Therefore the following steps were implemented:

1. Firms were contacted by telephone to verify current contact details. If there was no answer, or the appropriate person was busy or not available, the call was noted in the Call Back Log and two additional call attempts were made. On the third call a message was left briefly outlining the purpose of the call and asking for the contact person to call the researcher back.
2. A personal request was made to each CEO/MD/Sales/Marketing manager to participate.
3. A cover letter and questionnaire(s) were mailed to the appropriate informant with detailed information regarding purpose, due dates, benefits to their organisation, and researcher's contact details.
4. Self-addressed, free-post return envelope(s) were included in the mail-out (Jobber & O'Reilly, 1998).
5. Each firm was followed-up through the post and through telephone calls.

4.5.8.1. Sample Selection

Less than 20 employees is considered small business, while greater than 100 employees is considered large business in New Zealand (Locke, 2004; Statistics New Zealand, 2005). Small business are less likely to adopt extensive IT, due to their lack of readiness, little peer pressure and perceived benefit (Iacovou, Benbasat, & Dexter, 1995; J. Lee, 2004). Therefore companies with twenty or more employees were selected for the study. Based on New Zealand business census data this employee cut-off point represents 4,669 enterprises (see Table 4.9), 2.8% of the total enterprises in New Zealand (Statistics New Zealand, 2005).

The ANZSIC (Australian New Zealand Standard Industry Classification) divisions targeted for this research were Manufacturing (Division C), Wholesaling (Division F), and Services (Divisions J, K and L), shown in Table 4.9. Educational institutions, government bodies, hospitals and libraries were excluded since they are non-profit oriented and are less likely to utilise CRM practices.

A list of New Zealand companies in the manufacturing, wholesale and services industries was compiled from the Kompass (April 2006) database. The subset of New Zealand-based firms with contact details identified from the Kompass database and

Table 4.9: Target Enterprise (ANZSIC) by Employee Count

ANZSIC Division	Employee Count Size Group ⁽⁴⁾							Total
	0	1-5	6-9	10-19	20-49	50-99	100+	
C Manufacturing	9,720	6,130	1,953	1,973	1,292	432	353	21,853
F Wholesale Trade	8,835	4,905	1,358	1,134	661	174	121	17,188
J Communication Services	2,579	565	52	58	28	11	16	3,309
K Finance and Insurance	8,645	1,589	261	146	92	34	52	10,819
L Property and Business Services	95,407	13,475	2,284	1,663	899	271	233	114,232
Total Enterprises	125,186	26,664	5,908	4,974	2,972	922	775	167,401
Target population						4,669		

Source: Statistics New Zealand (2005)

meeting the ANZSIC and business criteria was 3,414. From this list 1,689 randomly selected companies were contacted by telephone in order to identify the appropriate person, gain agreement to participate, collect customer contact details and validate contact details in the database. This study employed a purposeful heterogeneous mix of industries in order to provide a greater opportunity to generalise the results (John & Reve, 1982).

4.5.8.1.1. Unit of Analysis

The unit of analysis is the same as described in the exploratory phase: the supplier - customer dyad. This type of dyadic relationship unit of analysis has been investigated previously by Medlin (2003), Gundlach, Achrol and Mentzer (1995) and K. Kim (2000).

4.5.8.1.2. Company and Respondent Selection

Well-informed and knowledgeable executives make good informants, providing as accurate and sound information as those collected from multiple sources (Menon et al., 1999; Zahra & Covin, 1993). There has been some controversy regarding single informant responses, however, studies have shown that key informants can supply reliable data given their role provides them with the required information and they are willing to participate (D. T. Campbell, 1955; John & Reve, 1982; K. Kim, 2000). However, “when dependent and independent variable data are collected from a single informant, common-method bias can be a potential problem” (Menon et al., 1999)⁴. Keeping in mind the research question, as to whether CRM technology adoption impacts business relationships and relationship performance, the lack of empirical

⁴ Measures used to address common-method bias are discussed in detail in Chapter 5.

dyadic research, and the requirement for matched customer data, a dual respondent approach – from the supplier and from the customer – was deemed appropriate. It was imperative that at least one customer be matched to each firm, agreed to participate in the study and returned a completed questionnaire.

J. C. Anderson and Narus (1990), in their study of working partnerships between manufacturers and distributors, found the collection of dyadic data difficult and problematic. One of the primary issues was that the first or second highest selling distributors had very uniform working relationships with the manufacturers – providing little variation. To overcome this issue, researchers asked the distributors to “specify as their manufacturer partner the firm that supplied the fourth-highest-selling product line *and* accounted for at least 5% of their total sales... or... third-highest-selling product line, and so on” (p. 46). K. Kim (2000), and Rokkan, Heide, and Wathne (2003), have used similar selection criteria to overcome potential respondent selection bias in their distributor-supplier dyad research. Following the approach taken by these earlier researchers, each potential supplier participant in the present study was asked to provide the contact details for a customer that they feel are representative of their “third or fourth most important” customer, and who may be willing to participate.

4.5.8.2. Initial Contact

Each CEO, marketing manager or sales manager was initially contacted by telephone to establish the identity of a key person responsible for customer relationships, determine survey eligibility, confirm details and gain respondent agreement to participate in the survey (Dillman, 2000; Jobber & O'Reilly, 1998; Schlegelmilch & Diamantopoulos, 1991). Appropriate survey questionnaire packages were sent to the contact person at the supplier firm, and also to the customer contact person if available, for the collection of data from the participating supplier firms and customers.

4.5.8.3. Cover Letter and Mail-out

Three different cover letters were necessary in order to provide an appropriate letter for each type of recipient (supplier firm, unknown customer, known customer). In the cases where the customer contact details were given over the telephone during the initial contact (known customer), a personalised customer cover letter was produced. The majority of supplier firms only provided the customer contact details once they had received both questionnaires, and forwarded the customer questionnaire themselves

(unknown customer). In this case the customer questionnaire package consisted of a generic customer cover letter. The body of the cover letter was similar in all three cases, see Appendix A5.

4.5.8.4. Follow-up Procedures

Follow-up procedures were especially important in this study since the methodology depended on completed survey responses from both the supplier and customer firms. Due to the potentially sensitive nature of the survey, dealing with interfirm and personal relationships, and the criticality of the customer to also return a survey, a follow-up procedure was standardised for this study. The follow-up procedure included a postcard mailer to the supplier firm after three weeks, followed by a telephone call two weeks later (Reinartz et al., 2004). During the telephone follow-up process two telephone attempts were made before a message was left which invited the potential participant to contact the researcher.

A follow-up process for nominated customers included a telephone call one week after receiving the completed supplier questionnaire. Customers continued to receive telephone follow-up until they returned a completed survey, promised to complete the survey, declined to participate or after three unsuccessful attempts. The overall follow-up process continued until the number of matched surveys (dyads) met the minimum sample size requirements and was considered sufficient by the researcher⁵.

Non-deliverable surveys were not considered a problem since (a) the database was developed using the latest Kompas CDROM (April 2006), (b) addresses and contact details were verified on the initial telephone contact, and (c) any returned surveys were re-verified with the original contact person, re-addressed and re-mailed. However one supplier followed-up did report that the survey was mailed back, but was never received by the researcher.

4.6. Data Analysis and Hypothesis-testing Procedures

4.6.1. Overview

Data was collected separately from both the supplier and the customer, and the returned surveys matched and coded. Data summaries using SPSS, factor analysis and

⁵ The minimum sample size requirements are discussed in the following PLS section and again in Chapter 5.

structural equation modelling (SEM) was used to analyse the data, validate the measurement model and test the hypotheses.

4.6.2. Structural Equation Modelling

Structural equation modelling (SEM) has a long history and is widely used in a number of disciplines, including marketing (Chau, 1997; Maruyama, 1998) and information systems (Rivard & Huff, 1988). SEM is a powerful second generation multivariate technique for analysing results that may have a number of variables, allowing the assessment of measurement properties and theoretical (structural) relationships, including unobservable latent variables with multiple relationships, simultaneously within the same analysis (Chin, 1998a, 2000). SEM uses a combination of multiple regression, factor analysis and path analysis techniques to simultaneously estimate measurement of, and the relationships between, a number of theoretically related constructs (latent variables) (Hoyle, 1995; Kelloway, 1998; Kline, 2005; Maruyama, 1998; Schumacker & Lomax, 2004).

SEM provides advantages over other multivariate analysis techniques. For example analysis of variance (ANOVA) and regression models assume error free measurement of the dependent variable and separate measurement models (Bagozzi, 1977). In contrast SEM determines measurement error, and tests measurement and structural models simultaneously. The SEM iterative analysis process allows the testing of complex and large-scale models in a systematic and comprehensive manner (Gefen, Straub, & Boudreau, 2000; Wilcox, 1998).

There are two fundamental SEM techniques; covariance based and principal component based. Covariance-based SEM assumes data to be multivariate normal, meeting the requirements of univariate normality, linearity, homoscedasticity, non-multicollinearity, scaled relative variance, and requires fairly large sample sizes (e.g., samples of 250 or more) (Hair, Black, Babin, Andersen, & Tatham, 2006; Kline, 2005; Schumacker & Lomax, 2004). Data distributions departing from these assumptions may not produce valid SEM results. Hence covariance-based SEM has difficulty coping with relatively small sample sizes when examining large numbers of interactions, non-linear relationships between variables and constructs, multicollinearity and heteroscedasticity (Gefen et al., 2000). Covariance-based SEM has also been shown to exhibit serious flaws when not applied properly with respect to: (a) data characteristics, (b) reliability

and validity, (c) evaluating model fit, (d) model respecification, and (e) equivalent models (Shook, Ketchen, Hult, & Kacmar, 2004).

Although SEM's strength is the ability to estimate both the measures of a latent variable, and a number of interrelated variables simultaneously, while allowing dependent variables in one equation to become independent variables in others, "[s]tructural equation modelling is inherently a confirmatory technique" (Kelloway, 1998, p. 7). SEM relies on theory in order to specify a model for testing.

Model specification includes two distinct components (a) a measurement model and (b) a structural model (Hoyle, 1995; Kline, 2005). Within the SEM analysis, confirmatory factor analysis is employed to validate the items (indicators) explicitly measuring the individual latent variables. The structural model on the other hand formally describes the causal relationship between the latent variables to be estimated and tested (Hoyle, 1995).

4.6.3. Partial Least Squares (PLS)

Partial least squares (PLS) is a specific variance-based (principal components) second generation SEM analysis technique that is appropriate for testing complex structural models with multiple constructs where latent variables (theoretical constructs), non-normal data, small sample size and multicollinearity exist (Fornell & Bookstein, 1982; Fornell & Cha, 1994; Hulland, 1999; Wold, 1985). Although the covariance-based methods (e.g., LISREL) has dominated the marketing literature PLS provides some unique advantages (Fornell & Bookstein, 1982; Fornell & Cha, 1994; Wold, 1982). Since PLS is conducted as a series of interdependent ordinary least squares (OLS) regressions, PLS does not (a) require large sample sizes, (b) assume any specified multivariate distribution, or (c) demand observation independence (Fornell & Bookstein, 1982; Fornell & Cha, 1994). Some researchers consider it to be a complementary alternative to the covariance-based SEM technique (Chin, 1995; Hair et al., 2006).

Social science data does not always meet the stringent requirements of multivariate normality, interval scaling or sample sizes required by covariance-based SEM techniques (Fornell & Bookstein, 1982). PLS uses an estimation procedure that only involves a part of the model in each step; measurement models are estimated separately construct by construct (block by block). Hence PLS only needs enough cases to estimate

the largest number of parameters for any one structural equation (Fornell & Cha, 1994). Chin (2000) suggests a minimum sample size of 30 cases or ten times the construct with the greatest number of structural paths going into it. The research model, discussed in Chapter 3 and evaluated in Chapter 5, indicates that the largest number of structural paths going into the CTA construct is four; therefore the minimum sample size required by PLS to evaluate the model is 40 dyads.

The aim of “PLS is to maximize variance explained” (Chin, 1995, p. 6) from observed or unobserved variables, whereas covariance-based SEM techniques (i.e., LISREL) attempt to account for observed covariance and provide the best fit to a theoretical covariance matrix (Fornell & Bookstein, 1982; Fornell & Cha, 1994). Hence covariance SEM techniques are better suited for theory *testing* while PLS is better suited for *explaining* complex relationships (Fornell & Bookstein, 1982; Fornell, Lorange, & Roos, 1990; Tobias, 1995). PLS iteratively minimises all residual variances until the parameter estimates stabilize. In particular PLS considers all path coefficients simultaneously, allowing analysis of direct, indirect and spurious relationships, and estimates the individual item weightings within the theoretical model rather than in isolation, (Birkinshaw, Morrison, & Hulland, 1995). PLS is most useful for exploratory research with little previous developed theory, many and complex variable interactions, and non-normal data distributions. PLS avoids indeterminacy (where factor scores cannot be calculated) and the occurrence of multiple solutions, both issues with covariance-based SEM techniques, by utilising component scores and explicitly defining the unobservable latent variables (Cool, Dierickx, & Jemison, 1989; Lastovicka & Thamodaran, 1991).

The social science disciplines where PLS has been used includes, information systems (e.g., Compeau & Higgins, 1995; Hwang, 2005; Karimi, Somers, & Gupta, 2004; Rivard & Huff, 1988; Wixom & Watson, 2001), strategic management (e.g., Birkinshaw et al., 1995; Cool et al., 1989; Delios & Beamish, 1999; Johansson & Yip, 1994), organisational behaviour (e.g., Howell & Higgins, 1990) and marketing (e.g., Arnett, Laverie, & Meiers, 2003; Ashill, Carruthers, & Krisjanous, 2005, 2006; Barclay, 1991; Grégoire & Fisher, 2006; Klemz, Boshoff, & Mazibuko, 2006; O'Cass, 2002; J. B. Smith & Barclay, 1997; Zinkhan et al., 1987).

PLS is considered particularly appropriate for this research since (a) the focus is theory development rather than theory testing, (b) the proposed CRM technology

adoption – customer relationship model conceptualisation is complex with latent variables constructs taking on both dependent and independent roles simultaneously, (c) there are a smaller number of cases than would be required were a covariance-matching method used, and (d) the data distribution is non-normal.

In practice SEM is conducted with computer software utilising a covariance-based (e.g., LISREL, EQS and AMOS) or component-based (e.g., PLS-Graph and SmartPLS) approach (Bentler, 2005; Byrne, 2001, 2006; Chin, 1998a; Joereskog & Soerbom, 1982; Ringle, Wende, & Will, 2005). SmartPLS version 2.0 M3 was chosen to conduct the PLS analysis (Ringle et al., 2005).

4.6.3.1. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is generally used to assist in the confirmation and validation of the unidimensionality of constructs used in a survey. Although there are differences of opinion among researchers regarding acceptable criteria, minimum factor component loadings of 0.70 or higher are normally considered significant for CFA purposes and are adopted in this study (Hair et al., 2006; Nunnally & Bernstein, 1994).

4.6.4. Exploratory Factor Analysis (EFA)

Factor analysis is a series of procedures primarily used for data reduction and summarisation. The relationships between large numbers of interrelated variables are examined and underlying factors are extracted based on correlation groupings. Factor analysis is also used to identify smaller sets of uncorrelated variables to be used in subsequent multivariate analysis (Malhotra, 2007).

Exploratory factor analysis (EFA) is used as a first step to identify and validate factor groupings reflecting underlying theoretical constructs. Since PLS is dependent to some extent on theory to guide the model development and construction, it is not appropriate for EFA. EFA considers the correlated factor loadings of all items related to a construct (and / or series of sub-constructs) simultaneously to determine appropriate independent factor components (Nunnally & Bernstein, 1994). To aid interpretation, factor loadings can also be rotated (e.g., varimax) in order to produce orthogonal or “clean” loadings on independent components. In this study, minimum factor component loadings of 0.60 or higher are considered significant for EFA purposes, while factors exhibiting cross-loadings of 0.45 and above should be considered for deletion (Hair et al., 2006).

4.7. Chapter Summary

This chapter outlined the research method to be used in this study. The research is divided into two phases. The exploratory phase of the research used a multiple-case design method in order to better understand the CRM technology adoption – customer relationship (CTA – CR) phenomenon within the business-to-business environment. The results from this phase were used in finalising the conceptual model and design of the research instrument. Instrument development utilised existing scales and measures wherever possible, however since measures did not exist for some constructs (e.g., CTA, CRO and CXP), scales were developed and tested specifically for this study. Two different instruments were developed – one for the supplier firm (independent variables), another for the customer (dependent variables).

The explanatory phase of the research consisted of a mail survey, the data subsequently used to validate the CTA - CR model and test the hypotheses. This involved distributing and collecting survey questionnaires from 1,689 New Zealand business firms in the manufacturing, communications, services and wholesale industries. The customer survey questionnaire was delivered to customers nominated by the participating supplier firms. Each participating supplier firm response was matched with the customer response to form a dyad. The unit of analysis in this study is the supplier – customer dyad relationship. Structural equation modelling (SEM) and other data analysis techniques were discussed. Due to the complexity of the CTA - CR model with latent variables taking on both dependent and independent roles, a small sample size, and non-normal data distributions, partial least squares (PLS) data analysis was selected to test the research hypotheses.

CHAPTER 5. Data Analysis and Results

5.1. Introduction

The purpose of this chapter is to reflect briefly upon the contribution of the qualitative (exploratory) phase, and present a full analysis of the relevant data collected from the quantitative (explanatory) phase of the research. The chapter presents key insights from the exploratory research, as well as the results from the questionnaire survey, including the multivariate analysis techniques undertaken, and the results of the hypotheses testing.

5.2. Exploratory Analysis and Results

The ten supplier and customer interviews from the exploratory phase were analysed using the guidelines provided by Miles and Huberman (1994) and Yin (2003). Detailed summaries of the qualitative data analysis can be found in Appendix A2. Where available representative quotes from the interview data are presented to exemplify the results of the qualitative data analysis. The key insights gained include:

1. Overall support for the proposed CRM technology acceptance – customer relationship model. Both supplier and customer firm respondents agreed that CRM technology can play an important role in B2B relationships (see Appendix A2.1: Q14, Q22, Q25).

[I]t enables people who aren't good at relationships to at least have a reasonable level of performance.... it provides reminders of things they should be doing anyway, and consistency. HR Manager (Customer).

The most important word in CRM is relationships and CRM is to help that. Investor Services Manager (Supplier – CRM user).

2. Validation of the proposed variables and the impact of CRM technology adoption on business relationships. Supplier respondents indicated that the MO of the firm influenced CRM technology adoption (Appendix A2.5). Responses to the ITMO questions provided mixed responses from the supplier firms (Appendix A2.6), thereby providing support for its inclusion as a variable. The analysis results also corroborated the CTA, relationship strength and relationship performance constructs and sub-constructs (Appendix A2.1).

Once again I think as a customer you don't know if someone is using a CRM system. You just don't know that. Your relationship with them might be absolutely brilliantly, they're timely, their information is good and that maybe coming out of the CRM system but you don't know that. Supply Company Services Manager (Customer).

We're very market orientated...[but]... No I think it's totally accidental that [the implementation of CRM technology] happened and I think it's probably the other way round. We have the CRM system and I guess we're all realising that it could have a potential effect if we used it properly. Telco Account Manager (Supplier – CRM user).

3. Important insights into the motivation, attitudes and emotions influencing CRM technology adoption were identified. For example (see Appendix A2.1 for details):

- CRM technology provides a form of business advantage; either around the use of technology to better capture and use information about the customer, or to aid in documentation, time management and business reporting. Some respondents were cynical toward management's reasons for adopting CRM technology.

CRM itself to me is a tool to foster the relationship or to continue [to do] the small things which you need to do to keep building a relationship. Owner, Management Company (Customer).

CRM is used to record my relationship, it's to record my services – I can win or lose business particularly if I have opposition involved, by not recording the information correctly and not having that information readily retrievable. Owner, Technical Services Company (Supplier – CRM user).

- Expectations of CRM technology users centred around sales support and knowledge (information) management,

I think the majority of people actually in the sales side of the organisation would actually think it's a really important tool for them to do the job, learn to carry out the day-to-day forecasts, and upkeep of their territory basically. Strategic Account manager (Supplier – CRM user).

- Benefits of CRM technology included a common repository available to any interested and authorised internal party, as well as the ability to identify customer and product trends,

Related to the research side CRM provides you the ability to identify issues over geography, over time, and over a large number of stuff inside their head and of course different sorts of relationships where there can also be similar patterns going. HR Manager (Customer).

[CRM] enables a good handover of accounts from person to person. It enables virtual teams to function within accounts by being able to access information about that account on an as needed basis. It enable different people in the organisation to have a view of what's happening at an account level and a portfolio level and a regional level without having to keep reinventing the wheel. Corporate Account Manager (Supplier – CRM user).

- CRM systems are considered more as a business tool or enabler, and not necessarily helpful initiating B2B relationships, except perhaps by providing good leads. Some respondents considered CRM technology to play a critical role in relationships. Others indicated far less involvement of CRM technology to influence relationship dimensions such as customer satisfaction and loyalty.

Putting information into a database enables an organisation to, research is a very general term, find out what makes a good relationship, which bits of the ingredients are having more of an impact upon the relationships. HR Manager (Customer).

I think the majority of people actually in the sales side of the organisation would actually think it's a really important tool for them to do the job.... Strategic Account Manager (Supplier – CRM user).

I don't think it's that well received amongst the sales force. I think most people find it a bugbear. I think the management find it a bit of a bugbear. I think a lot of people have struggled to get to like it and get to understand it. Telco Account Manager (Supplier – CRM user).

4. Support for the existing variables used in the CTA – CR research model.

I think it's important because it's, it is about demonstrating, you know, a willingness or a desire to invest in the relationship, so commitment to me is around the resources being applied to the innovation.... Healthcare Commercial Manager (Customer).

So the communication you know I guess it's almost a, I don't know for want of a better term a high team issue there, if you can't communicate properly then there's going to be no trust. The commitment won't happen and none of them [relationship factors] will happen. IT General Manger (Customer).

5. Confirmation that practitioners were familiar with specific CRM terms and expressions.
6. Detailed contextual data used to help interpret the research results. The insights and contextual information provided additional perspectives and support when interpreting the results from the survey data (explanatory phase) in Chapter 6.

The detailed analysis and results from the explanatory phase of the research is discussed next.

5.3. Survey Response Analysis

5.3.1. Response Rate

Although 1,689 firms were contacted, 50 were discarded after the initial telephone call since the firms did not meet the business selection criteria, as discussed in Chapter 4. In addition ‘No Answer’ and ‘Busy’ contacts were dropped from the contact list after three telephone attempts (Frey, 1983; Groves & Lyberg, 1988). Tables 5.1a and 5.1b depict the details of the response rates obtained. Of the 526 supplier firms that agreed during the initial telephone call to participate in the survey (32.1%), 167 supplier surveys were returned (10.2% response rate), and 140 dyads collected, which constitutes an overall 8.5% response rate. Although these response rates appear low in comparison

**Table 5.1a: Supplier Response Profiles from Initial Contact
(n = 1,639)**

Overall Response (n = 1,639)	N	%
1) Initial agreement to participate (surveys sent to suppliers)	526	32.1
2) Telephone message left (no call returned)	469	28.6
3) No answer, wrong number or no contact (telephone)	135	8.2
4) Supplier refusals following additional email information	71	4.3
5) Supplier refusals (initial telephone contact)	438	26.7
a. No time, too busy	180	11.0
b. Not interested	71	4.3
c. No appropriate person available	59	3.6
d. Refuse to involve customer	32	2.0
e. Not appropriate for this business	27	1.7
f. Does not do surveys	25	1.5
g. No reason given	14	0.9
h. No B2B customers	10	0.6
i. Already completed similar survey	6	0.4
j. Already completed too many surveys	5	0.3
k. Survey too long	4	0.2
l. Confidential information	3	0.2
m. Business closing	2	0.1

Table 5.1b: Supplier Response Profiles from Questionnaires Sent (n = 526)

Response from Questionnaires Sent (n = 526)		N	%
1.	Supplier surveys returned	167	10.2
2.	No response (from questionnaire sent)	205	12.5
3.	Supplier refusals (from questionnaire sent)	154	9.4
a.	No time, too busy	61	3.7
b.	No reason given	30	1.8
c.	Not appropriate for this business	20	1.2
d.	No appropriate person available	16	1.0
e.	Refuse to involve customer	15	0.9
f.	Not interested	5	0.3
g.	Survey too long	4	0.2
h.	Business closing	2	0.1
i.	Already completed similar survey	1	0.1

to traditional mail surveys (e.g., Jobber & O'Reilly, 1996), the process of dyadic data collection requires multiple levels of agreement and participation from multiple firms (supplier and customer firms) and individuals within the firms.

Dyadic relationship survey research provides additional obstacles in obtaining initial agreement to participate and subsequent survey completion due to the inherent nature of the research (i.e., relationships) and the use of a sequential sampling approach (E. Anderson & Weitz, 1992; J. C. Anderson & Narus, 1990). In particular each supplier firm had to be contacted by telephone, agree to participate (not all contacted firms did finally participate) and nominate a customer firm. The customer firm then had to be contacted and also agree to participate and not all customer firms agreed to participate. However these results are similar to dyadic response rates obtained by K. Kim (2000). In that study 32.3% of firms initially agreed to participate and Kim obtained a 7.1% overall dyadic response rate.

Studies have shown that traditional telephone refusal rates for telephone interviews are between 20 – 28 percent (Frey, 1983). The results from this study compare favourably with 26.7%, 438 in total, refusing to participate from the initial telephone call. Other studies have indicated the reasons for non-participation in surveys include disinterest, inconvenient timing, privacy concerns, and not a priority (Churchill & Iacobucci, 2005; Frey, 1983). The telephone contacts refusing to take part in this survey provided similar reasons for their non-participation: lack of time, no interest in the survey, and no appropriate person available, accounting for the majority of reasons, see Tables 5.1a. A number of firms contacted refused to involve customers, a unique dyadic

research reason for non-participation. Some initial telephone contacts were extremely negative and vocal regarding the potential use of their customers in relationship research. Others were obviously not comfortable in approaching their customers to participate in this type of survey regarding the status of their relationship, see Tables 5.1a and 5.1b (47 stating outright they did not want to involve the customer).

There were also indications that the nature of the survey investigating B2B relationships was considered intrusive or sensitive. A large number of potential respondents who had reviewed additional email information or received the customer questionnaire to forward-on did not respond. The high number of non-respondents and refusals (430) may indicate a reluctance to involve their customer⁶, in which case the 'Refuse to involve customer' figure may understate the true reason for non-participation.

Given the known difficulty of gaining dyadic survey participation a number of tactics were employed to increase the response rate from the supplier firm (E. Anderson & Weitz, 1992; K. Kim, 2000), including the use of a pre-notification telephone call to screen potential participants and request cooperation (Schlegelmilch & Diamantopoulos, 1991); the use of Victoria University of Wellington official letter-head; the promise of confidentiality and personalisation; a copy of the results; a front cover coloured graphic to attract attention; use of closed-ended questions; a postage paid return envelope; and two reminders in the form of a follow-up postcard and a follow-up telephone call with a second questionnaire if necessary (Dillman, 2000; Jobber & O'Reilly, 1996). The process followed to increase customer questionnaire returns depended on the return of the supplier questionnaire. Once the supplier questionnaire was returned the nominated customer contact details were available. If after two weeks following the return of the supplier questionnaire, the customer questionnaire had not been received, a telephone call was made to the customer to (a) ensure they had received the questionnaire, (b) answer any questions they may have, and (c) determine a return date for the questionnaire. If the nominated customer had not received the questionnaire from the supplier, a customer questionnaire was either posted or emailed directly to them. After three days the customer was called again to ensure they had received the questionnaire and would complete it.

⁶ A total of 71 potential respondents receiving additional email information (see Table 5.1a) and 359 potential respondents receiving the customer questionnaire (see Table 5.1b) did not return the questionnaire.

The dyadic response profile is shown in Table 5.2, 146 customer surveys were returned. One customer refused outright to complete the customer questionnaire, another customer stated they had mailed the survey back, but it was never received, and two customers refused due to time commitments. Two customers returned their survey but could not be matched to a supplier survey⁷. Therefore a total of 140 matched dyads formed the basis for the analysis. Although the response rate was lower than hoped for the sample frame was unique in that, unlike the majority of dyadic research published to date (e.g., John & Reve, 1982), the focus was not specific to one industry (cf. J. C. Anderson & Narus, 1984; Farrelly & Quester, 2003; Medlin, 2003; Rokkan et al., 2003), and used only matched data (Deshpandé et al., 1993).

Table 5.2: Dyadic Response Profiles (n = 150)

Response	N	%
Usable supplier surveys	150	9.2
Customer surveys returned (from usable supplier surveys)	146	97.3
Completed matched questionnaires (dyads)	140	93.3

5.3.2. Respondent and Demographic Profiles

The respondent profiles, responding firms and participating customers are presented in Tables 5.3 and 5.4. The sample used in this study is broadly representative of the selected business population in New Zealand. Although the 100+ employee firm size is over-represented with 28.3%, this is most likely due to larger firms utilising CRM technology more than smaller firms, and therefore being more willing to participate in the survey (Iacovou et al., 1995). From the initial telephone contact it became apparent that smaller firms tended not to have CRM technology in place and therefore were less willing to participate in the survey. Larger firms tended to be more familiar with CRM technology, and therefore were also more inclined to participate in the study, which

Table 5.3: Participating Firms Employee Profile (n = 140)

	Employee Firm Size			Total
	20-49	50-99	100+	
Sample	53	28	32	140
Percent	46.9%	24.8%	28.3%	
Sample Frame	2,965	943	766	4,669
Percent	63.5%	20.2%	16.4%	

⁷ The two suppliers were repeatedly contacted, but never returned their questionnaire.

helps explain the over representation of Manufacturing (53.1%), Communications (3.5%) and Finance (7.1%) shown in Table 5.4.

Table 5.4: Participating Firms ANZSIC Profile (n = 140)

	Australia New Zealand Standard Industry Classification					
	C - Man	F - Trade	J - Comms	K - Finance	L - Services	Total
Sample	60	12	4	8	29	140
Percent	53.1%	10.6%	3.5%	7.1%	25.7%	
Sample Frame	50	23	1	4	34	4,669
Percent	44.5%	20.5%	1.2%	3.8%	30.1%	

Respondents were represented by Business Executives (42.5%), Sales (36.3%), Marketing (16.8%) and general business administrators (3.5%). Females comprised 12.4% of the participants. The majority of respondents reported more than 16 years work experience, were older than 36 years, and had at least some tertiary education. The average length of the reported customer supplier relationship was 10.3 years. See Appendix A6 for additional demographic details.

5.3.3. Non-response and Response Bias

Non-respondents may differ systematically from respondents in attitude, motivation, behaviour, personality, demographics or psychographics – any or all of which may affect the study result (Churchill & Brown, 2004; Malhotra, Hall, Shaw, & Oppenheim, 2006). Non-response and response bias was tested, using t-tests to compare relationship length, work experience, number of employees, education level, age, gross revenues and industry segment.

Late respondents can be used to represent non-respondents since they would probably have not responded had they not been extensively followed up (Churchill & Brown, 2004; Malhotra et al., 2006). Early and late respondents were compared using two-tailed t-test (Armstrong & Overton, 1977; Brennan, Turnbull, & Wilson, 2003; Heide & John, 1992). There were no significant differences with respect to general demographics, other than late respondents had relationships spanning a greater number of years (14.9 years vs. 9.7 years) ($t = 2.317, p < .022$) and greater work experience ($t = 5.035, p < .00$).

Comparing late supplier respondents' responses to the early supplier responses on the basis of the two CTA sub-constructs used in the final analysis, Customer Knowledge (CKN) and CRM Usefulness (USF), found no significant differences; CKN ($t = 0.063, p$

< .95), and USF ($t = 1.274$, $p < .21$). Appendix A7 provides the non-response and response bias statistical analysis details. The overall results indicate no significant concerns regarding non-response bias in this study.

5.4. Data Screening and Preliminary Analysis

5.4.1. Overview

The extent to which the data meets psychometric assumptions was addressed before the appropriate data analysis techniques were employed, since some of the criteria (i.e., data distribution, and sample size) have direct bearing on the choice of analysis techniques and tests.

5.4.2. Missing Data

Missing data is a concern of most researchers and can affect empirical research (Malhotra, 1999). Sixty-nine returned supplier surveys (41.6% of supplier surveys), and 55 (40.1%) of the customer surveys returned had missing data. Respondents who returned surveys with missing data were contacted by telephone and offered the opportunity to complete the survey over the telephone or via email. In all cases the participant either had not understood the original question requirement and needed clarification, or had simply overlooked that portion of the survey. The most common item of missing data in the supplier surveys was the first item of Section A on the second page asking the extent of CRM use. Thirty-seven respondents overlooked this item on the survey, accounting for 53.6% of the number of surveys with missing data. It was concluded that respondents simply overlooked the 'extent of CRM use' item due to the physical position of this item on the page. For the balance of the surveys with missing data the missing data was evenly distributed across 41 items.

In the customer survey, the very first item in Section A was most often omitted; 46 respondents (83.6% of the surveys missing data) failed to answer this item. This item referred to the strength of the relationship with the nominating firm. It was concluded that due to the declarative statement itself and the relative position of the item on the page the respondents simply overlooked this item. In all situations the requirements were appropriately clarified and the surveys completed over the phone (or email). In five cases of missed data, specific sections of the supplier survey were emailed to the

respondent and the surveys were completed electronically and returned. This follow-up process resulted in no missing data for the 140 matched surveys.

5.4.2.1. *Non-eligible Respondents*

Since the objective of the study was to investigate the effect of CRM technology adoption on customer relationships, response from suppliers who indicated they did not currently have or use CRM technology (or a CRM system) were discarded from further analysis. This resulted in the elimination of 25 dyads, leaving 115 dyads.

5.4.2.2. *“Do not know” Response – IT Management Orientation section*

As discussed in Chapter 4 the “Do not know” (DNK) option was included only in the IT management orientation (ITMO) section of 20 items. DNKs were anticipated in the ITMO section since it was considered that not all of the marketing and sales respondents would have the appropriate level of IT operational knowledge required to answer this series of questions (Durand & Lambert, 1988). Although the use of DNKs creates additional problems for data analysis (Poe, Seeman, McLaughlin, Mehl, & Dietz, 1988), DNKs are considered acceptable responses and should not be ignored (Leigh & Martin, 1987). The number of respondents choosing at least one DNK response in the ITMO section was 16 (10.7%).

In order to understand the effect of DNK responses in the ITMO section of the survey, the pattern of DNKs was analysed using SPSS Missing Value Analysis (MVA) and then the DNK's were treated as missing data. Based on MVA there was no overall discernable pattern to the DNK responses. DNK respondents were compared, using independent t-tests, to the balance of the supplier respondents with respect to the two sub-constructs of the CRM technology adoption (CTA) variable (CKN and USF scales). Table 5.5 shows no significant difference between the two group's responses to the CTA items. Refer to Appendix A8 for details of the DNK analysis.

Table 5.5: Comparing CTA Responses Between “Do not know” and General Respondent ITMO Responses (n = 115)

t-test for Equality of Means			
Construct	t-value	df	Sig. (2-tailed)
CKN	1.612	113	0.110
USF	-0.318	113	0.751

Since the overall number of DNKs was relatively small, and restricted to the ITMO section only, in order to preserve the data properties to allow full analysis of the data, the DNK responses were treated as missing values and were substituted using series means. Two cases were deleted from subsequent analysis since they exhibited extremely high DNK responses in the ITMO section at 70% and 100% respectively. This left 113 dyads as the final number of cases for analysis.

5.4.3. Assumptions Underlying Statistical Procedures

5.4.3.1. Normality of the Data

Normality of the data was assessed using the Kolmogorov-Smirnov (KS) test, visual examination of normal probability plots, and by computing skewness and kurtosis measures (Carver & Nash, 2005). Skewness ratings of ± 1 and kurtosis scores of ± 2 are considered mild and fall within the 'normal' range, while scores outside of this range have the potential to restrict the data analysis and subsequent interpretation of results (Heck, 1998; Kline, 2005). Considering the relationship strength (RS) and relationship performance (RP) questions related to relationships with a current supplier, it was anticipated that customers would tend to respond more positively than negatively toward their supplier, resulting in a skewed data distribution on these specific items. As expected, the data distribution from a number of customer items relating to relationship strength and performance was highly skewed with corresponding high kurtosis. (The survey criteria did specify that supplier firms nominate their third or fourth most important customers in an attempt to reduce or neutralise this effect.) Six items from the supplier data regarding CRM technology adoption (CTA) also exhibited similar distribution concerns (see Appendix A9 for survey data distribution details).

When confronted with non-normal data distributions for factor analysis, attempts should be made to normalise the data in order to conduct appropriate and valid data analysis (Rummel, 1970). However, the result of data transformations, although facilitating data analysis, can restrict and alter subsequent interpretation of the results and therefore should not be conducted unnecessarily (Hair et al., 2006; Rummel, 1970). Although many multivariate analysis techniques are known to be robust with respect to data distributions, (i.e., some deviation from normality is acceptable) (Hau & Marsh, 2004; Muthén & Kaplan, 1985; S. Sharma, Durvasula, & Dillon, 1989; Yanagihara & Yuan, 2005), as a precaution the CTA principal components exploratory factor analysis

was conducted twice, once using untransformed data, and a second time using transformed data. Both analysis approaches led to similar conclusions⁸, therefore only the untransformed data is reported in the exploratory factor analysis (EFA) results. Since PLS is not restricted or constrained by the distribution properties of the data, and for the sake of consistency with the factor analysis results, only the untransformed data was used to conduct the PLS analysis (Chin, 1995; Wold, 1985).

5.4.3.2. Sample Size and Power

Since little guidance is available from the SEM and PLS literature regarding statistical power, factor analysis criteria were adopted (Chin, 1998a). Hair et al. (2006) provide guidelines for identifying significant factor loadings for factor analysis dependent on sample size. Given a sample size of 113 cases, a factor loading of 0.55 or greater is considered significant, assuming a 0.05 significance level for a Type I error (α), and a power level of 80 percent (Cohen, 1992). (A Type I error is the probability of accepting a “false positive” as true.) For this study the more conservative 0.60 level was used as the minimum criterion for assessing factor loadings.

5.4.4. Common Method Variance

Common-method bias is recognised as a major source of measurement error and can have a substantial impact on observed relationships between the measured variables (Bagozzi & Yi, 1991; Nunnally & Bernstein, 1994). Although there are a number of sources of common method bias, including context and item characteristics, the use of the same respondent for independent and dependent measures is a common source and has been shown to produce significant artificial covariance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Podsakoff et al. suggest a set of procedures to control for common method bias and recommend in the first instance that “predictor and criterion variables [can] be measured from different sources....Additional statistical remedies could be used but in our view are probably unnecessary in these instances” (p. 897). The use of supplier respondents for the dependent variables and customer respondents for the dependent variables helped reduce common method bias (Reinartz et al., 2004).

Another potential source of common method bias, related to the general measurement context specific to this dyadic research, is the existing relationship between supplier and customer. There was the possibility that suppliers colluded with

⁸ A detailed comparison of the TD and UTD EFA methods and results are available on request.

customers in order to present their relationship in a more favourable light. Survey research assumes random measurement error across informant questionnaire responses (Nunnally, 1959; Viswanathan, 2005). In order to test for this possibility a correlation matrix was generated comparing supplier RS and customer RS responses, and again for supplier RP and customer RP responses, see Table 5.6 (J. C. Anderson & Narus, 1990). There was an expectation that the perception of the relationship would be similar between the two parties, but should not be in complete agreement. The *a priori* decision was that correlations between 0.00 and 0.40 would be an acceptable range of correlations, correlations beyond 0.70 would be suspect, while correlations between 0.40 and 0.70 would be subject to closer scrutiny. The results indicate no strong correlations between the relationship variables across the two respondent groups and therefore no apparent collusion on behalf of the two parties was evident.

**Table 5.6: Supplier and Customer RS and RP Correlations
(n = 113)**

Relationship variables	Correlation
Supplier & Customer RS trust	0.205
Supplier & Customer RS commitment	0.125
Supplier & Customer RS communication	0.269
Supplier & Customer RP performance	0.091
Supplier & Customer RP satisfaction	0.280
Supplier & Customer RP loyalty	0.182
Supplier & Customer RP retention	0.051

5.5. Measurement Refinement and Initial Analysis

Consistent with the recommendations found in the SEM and related literature a two-step model building approach was adopted (J. C. Anderson & Gerbing, 1988; Hair et al., 2006; Schumacker & Lomax, 2004). Step one involved EFA, for untested new scales, and confirmatory factor analysis (CFA), for pre-existing validated scales, to purify and validate the measures. The second step involved using PLS to build and test the structural model (Hair et al., 2006; Schumacker & Lomax, 2004).

EFA was used to identify, reduce and validate the underlying factors (sub-constructs) of the CRM technology adoption (CTA) construct, the customer CRM expectations (CXP) and customer relationship orientation (CRO) modifier constructs (scales developed specifically for this study) (Gerbing & Anderson, 1988; Malhotra, 2007; Proctor, 2005). The objective of the EFA was to prepare the data for subsequent multivariate analysis using PLS (Hair et al., 2006). CFA was used to confirm and

reduce the number of factors from the remaining constructs (MO, ITMO, C_RS, and C_RP) and modifier constructs (TT and MT). SPSS 14.0 software was used to perform the EFA, while SmartPLS software was used to conduct the CFA (Falk & Miller, 1992; Ringle et al., 2005).

To establish factorability a visual inspection of the correlation matrix was conducted to ensure a substantial number of correlations greater than 0.30, as well the Bartlett test of sphericity ($p < .05$), and the measure of sampling adequacy ($MSA > 0.50$) were examined (Hair et al., 2006). Criteria for the number of factors extracted included eigenvalues greater than 1 (latent root criteria), as well as factor conceptualisations based on theory, and scree plot analysis. Unrotated and rotated factor matrices were computed, factors loadings interpreted and factor models respecified as appropriate (Hair et al., 2006). Varimax (orthogonal) rotation was employed for interpretation of the factor matrices under investigation (Hair et al., 2006; Nunnally & Bernstein, 1994).

Each variable within each factor matrix was examined for significance and cross-loading. EFA variables found to have factor loadings of more than 0.45 across more than one factor were considered for deletion. Ideally variables load only on a single factor and have communality measures greater than 0.50. Communality represents the total amount of variance the specific variable shares with all other variables included in the factor analysis. Communality values greater than 0.50 indicate a strong relationship between the items; and provide the basis for good explanatory value. Communality values less than 0.50 indicates other extraneous sources of variance impact the relationship more than or equal to the identified measurement item, leading to less than adequate explanatory value.

In summary, to retain individual items measuring specific constructs the items had to exhibit; (a) a communality greater than 0.50, (b) a factor loading greater than 0.60 on a single factor and (c) for EFA, cross-loading less than 0.45 on any other factor.

5.5.1. Validity and Reliability of Measures

Content reliability considers whether the items actually measure the construct under consideration (Bagozzi, 1994a). Assessment of item reliability is conducted “by examining the loadings (or simple correlations) of the measures with their respective construct” (Hulland, 1999, p. 198). Convergent validity was examined through Cronbach’s alpha and the Fornell and Larcker (1981) composite reliability (CR)

measure (Hulland, 1999). Many authorities recommend a Cronbach's alpha loading benchmark of 0.70 (Nunnally & Bernstein, 1994) however some propose a less conservative level of 0.60 (Hair et al., 2006). This internal consistency measure represents how well the items converge to measure the construct. Well-formed items measuring a single construct will exhibit higher Cronbach's alphas, while low internal consistency measures of a construct (e.g., below 0.60) may indicate poor construct definition or a multidimensional construct. In the latter case the construct should be split into separate unidimensional constructs with respective items, or items should be eliminated until only a one-dimensional construct remains (Hair et al., 2006).

Discriminant validity was assessed using the AVE procedure described in Fornell and Larcker (1981), where they suggest that the squared correlations (shared variance between a construct and its measures) be less than the average variance extracted (AVE) by the items measuring the constructs. The AVE is the "average variance shared between a construct and its measures... This measure should be greater than the variance shared between the construct and the other constructs in the model" (Hulland, 1999, p. 200).

5.6. Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) explores data from an atheoretical perspective, allowing the data to load on factors independent of theory or *a priori* assumptions (Gerbing & Anderson, 1988; Ullman, 2006). Unlike CFA there is no fixed number of factors or loading assumptions. The item loadings and number of constructs are not predetermined through theoretical conceptualisation or previous empirical results (Hair et al., 2006). The following two sections describe the results of the EFA conducted on the items comprising the CTA, CRO and CXP constructs.

5.6.1. CRM Technology Adoption (CTA) - EFA

Since CTA is a new construct conceived specifically for this study, EFA and reliability analysis were used to assess the items measuring CTA. Table 5.7 lists all the CTA items used in the EFA. An inspection of the CTA correlation matrix indicated that (a) a number of correlations exceeded 0.30, (b) the Bartlett test of sphericity ($\chi^2 = 3,227.548$, $p < .000$) was significant, (c) the MSA = 0.818 was adequate, and therefore factor analysis was appropriate.

Table 5.7: Initial CTA Conceptual Factors, Constructs and Measurement Items

Factor/ Construct			Items	Label
CRM Technology Adoption (CTA) (43)	CRM Functionality (CFN) (21)	CRM Practice (CPR) (4)	CPR_CC	Contact centre process
			CPR_CS	Service process
			CPR_SYS	Systems Linked
			CPR_TLS	CRM Tools avail
		CRM Analytics (CAN) (3)	CAN_CST	Customer Analysis
			CAN_SRCS	Info Sources
			CAN_TLS	Analysis tools
		Relationship Management CRM (RMC) (6)	RMC_CDB	Customer DB updated
			RMC_CI	Single source cust info
			RMC_INT	Internet use
			RMC_IT	IT Effect on Rel'ns
			RMC_PR	Customer View
			RMC_PTS	Cust Contact points
		Strategic CRM (STC) (4)	STC_CK	Cust Knowledge retention
			STC_CMPID	Comp Info disseminated
			STC_CSTID	Cust Info disseminated
			STC_DM	CI use in Decisions
		Extended CRM (EXC) (4)	EXC_BSD	Business Dealings
			EXC_CSTV	Customer value creation
			EXC_CSVP	Value Propositions
			EXC_PRDV	Product value creation
	CRM Acceptance (CRA) (19)	Perceived Ease of Use (PEU) (5)	PEU_EFRT	Mental Effort to Use
			PEU_ETD	Easy to do
			PEU_ETU	Ease of Use
			PEU_NTR	Clear Interaction
			PEU_USE	Uses CRM
		Perceived Usefulness (PU) (4)	PU_EFT	Enhances Effectiveness
			PU_PRD	Increases Productivity
			PU_PRF	Improves Performance
			PU_USFL	Is Useful
		CRM Adoption (CAD) (2)	CAD_DALY	Fully Accepted CRM
			CAD_FRQS	Frequency of Use
		Attitude toward using CRM (ATU) (4)	ATU_GOOD	CRM is a Good Idea
			ATU_FUN	Fun to Use CRM
			ATU_LIKE	Like Working with CRM
		Relative Advantage (RAD) (2)	ATU_NTRS	Makes Work Interesting
			RAD_ESY	Job is Easier
		Intention to use (ITU) (2)	RAD_TIM	Time Consuming
			ITU_NTND	Intend to Use CRM
		CRM System Integration (CSI) (3)	CRM Compatibility (CCM) (2)	ITU_PRD
	CCM_CMP			System Compatibility
	CRM Integration (CRI) (1)		CCM_NTPRS	Used in Enterprise
		CRI_LINKS	CRM Linkages	

Under unrestricted EFA not all communalities met the 0.50 loading criteria, and there was considerable initial cross-loading making interpretation difficult. The scree plot indicated two factors as the most likely number of factors to extract (see Figure 5.1)

explaining 68.5% of the variance. The factor model was respecified deleting variables that did not meet the loading criteria. The extraction of two factors was reasonable, based on a combination of the scree plot results, eigenvalues and latent variable conceptualisation.

Figure 5.1: CTA scree plot

5.6.1.1. *Final CTA 2-Factor Construct*

Although the initial CTA conceptualisation consisted of a number of potential sub-constructs, as indicated from the EFA, only two strong factors emerged from the exploratory factor analysis; see Table 5.8. Following varimax rotation, the final CTA items split into two factors labelled Customer Knowledge and CRM Usefulness. The

Table 5.8: CTA Two-factor Varimax Rotated Results

Rotated Factor Matrix		
	Factors	
	USF	CKN
CRM Tools avail	0.161	0.705
Customer Analysis	0.102	0.809
Cust Contact points	0.153	0.765
Customer View	0.167	0.842
Single source cust info	0.031	0.792
Improves Performance	0.864	0.177
Increases Productivity	0.873	0.100
Enhances Effectiveness	0.896	0.147
Is Useful	0.875	0.130
Job is Easier	0.789	0.221
Fully Accepted CRM	0.729	0.267
CRM is a Good Idea	0.786	-0.061

first factor extracted, measured by seven items reflected the extent to which CRM technology is useful to the user and the job requirements and is termed CRM Usefulness (USF). The second factor, measured by five items, focused on the extent to which CRM technology helps accumulate and provide customer knowledge (CKN). Subsequent CFA showed that the average variance explained by the five CKN factors is 63.2%, and 71.2%, for the seven USF factors, both greater than the minimum 50% criteria. Tables 5.9 and 5.10 show that the communalities of the items are all greater than 0.50, the

Table 5.9: CTA CKN Factor Analysis Results

Customer Knowledge (CKN) 5 items		Loading	Com*	Cronbach's Alpha	AVE#
CPR_TLS	CRM Tools avail	0.723	0.523	0.847	63.15
CAN_CST	Customer Analysis	0.814	0.663		
RMC_PTS	Cust Contact points	0.788	0.622		
RMC_PR	Customer View	0.859	0.739		
RMC_CI	Single source cust info	0.782	0.611		

Note. * Com =Communality; # AVE = Average Variance Explained

individual factor loadings are strong (all greater than 0.70), and the respective Cronbach's alphas exceeds the minimum criteria of 0.60 for exploratory analysis (Hair et al., 2006; Nunnally & Bernstein, 1994). These two constructs and related items are used in further multivariate analysis and hypothesis testing using PLS.

Table 5.10: CTA USF Factor Analysis Results

CRM Usefulness (USF) 7 items		Loading	Com*	Cronbach's Alpha	AVE#
PU_PRF	Improves Performance	0.883	0.780	0.921	71.24
PU_PRD	Increases Productivity	0.878	0.770		
PU_EFT	Enhances Effectiveness	0.909	0.826		
PU_USFL	Is Useful	0.883	0.780		
RAD_ESY	Job is Easier	0.816	0.666		
CAD_DALY	Fully Accepted CRM	0.767	0.588		
ATU_GOOD	CRM is a Good Idea	0.760	0.577		

Note. * Com =Communality; # AVE = Average Variance Explained

5.6.2. Moderator Constructs: CXP and CRO

Customer CRM expectations (CXP) and customer relationship orientation (CRO) are new scales designed to measure moderator constructs within the CTA – CR model. In

particular, as outlined in Chapter 4, both CXP and CRO have been conceptualised as potential moderators of the effect of CTA on relationship strength (C_RS) and relationship performance (C_RP). The data distributions of two of the CXP items and three of the CRO items were moderately skewed, while one CXP item and two CRO items exhibited moderate kurtosis. Since there was no significant difference between the transformed data and untransformed data in the factor analysis only the untransformed data results are presented. Both the Bartlett test of sphericity ($\chi^2 = 268.673$, $p < .000$) and the MSA at 0.746 results indicate that there are sufficient correlations among the variables to conduct a meaningful factor analysis. EFA identified two distinct factors, based on the scree plot and eigenvalues (see Figure 5.2), supporting the original CXP and CRO construct conceptualisation. Table 5.11 shows the factor loadings obtained from the varimax rotation. All loadings exceeded the minimum criteria of 0.60 for EFA (Hair et al., 2006).

Figure 5.2: CRO and CXP scree plot

Summaries of the subsequent individual CFAs are shown in Table 5.12 for CXP and Table 5.13 for CRO. The communalities of all six items are all greater than 0.50, the factor loadings are strong (all greater than 0.70), and both Cronbach's alphas exceeds the criteria of 0.60 for exploratory analysis (Hair et al., 2006; Nunnally & Bernstein, 1994).

The average variance explained by the three CXP factors is 64.7%, and for the three CRO factors it is 75.6%, both greater than the minimum 50% criteria. The CRO and

Table 5.11: CRO and CXP Two-factor Varimax Rotated Results

Rotated Factor Matrix		
	Factors	
	CRO	CXP
Deliver Right Product	0.204	0.768
Inventory Stock	-0.018	0.840
Understand Requirements	0.433	0.754
Long term Rel'n are good	0.890	0.126
Relationship Preference	0.898	0.069
Value of Relationship	0.720	0.352

CXP moderator constructs will be used to investigate the interaction effects of these proposed moderator variables within the subsequent PLS analysis.

Table 5.12: CXP Factor Analysis Results

Customer CRM expectations (CXP) 3 items		Loading	Com*	Cronbach's Alpha	AVE[#]
C_EXP_PRD	Deliver Right Product	0.807	0.651	0.702	64.72
C_EXP_INV	Inventory Stock	0.749	0.561		
C_EXP_RQMT	Understand Requirements	0.854	0.730		

Note. * Com =Communality; [#] AVE = Average Variance Explained

Table 5.13: CRO Factor Analysis Results

Customer Relationship Orientation (CRO) 3 items		Loading	Com*	Cronbach's Alpha	AVE[#]
C_CRO_LTGD	Long term Rel'n are good	0.913	0.833	0.835	75.61
C_CRO_LTRL	Relationship Preference	0.905	0.820		
C_CRO_VLU	Value of Relationship	0.785	0.616		

Note. * Com =Communality; [#] AVE = Average Variance Explained

5.7. Confirmatory Factor Analysis and Measurement Model

SEM techniques such as PLS are used for CFA and the establishment of a correctly specified measurement model before evaluating the structural (theoretical) model (J. C. Anderson & Gerbing, 1988; Bagozzi, 1994b; Falk & Miller, 1992; Fornell & Yi, 1992; Jöreskog, 1993). Figure 5.3 shows the original measurement model including all items related to each construct, as well as the new CTA sub-constructs (CKN and USF). The yellow boxes represent individual questionnaire items (measurement items), the blue circles are latent variables, and the rose coloured circles represent moderating

Figure 5.3: Original measurement model used for confirmatory factor analysis

(interacting) variables. The dark blue circles represent the primary constructs under consideration in the research model.

Table 5.14 lists each item, related sub-construct and construct considered in the CFA,

Table 5.14: All CFA Model Factors

Factor/ Construct		Item	Label
IT Management Orientation (ITMO) (20)	IT Management Planning (IMP) (6)	IMP_BO	IT Projects Linked to Obj
		IMP_INV	IT Provides Comp Adv
		IMP_ITCS	IT Current Use
		IMP_ITPR	IT Priorities
		IMP_ITPS	IT Potential Use
		IMP_ITQL	IT Picture
	IT Management Control (IMC) (6)	IMC_ITAP	IT Properly Appraised
		IMC_ITDV	Clear IT Direction
		IMC_ITFN	IT Performance
		IMC_ITGL	Clear IT Goals
		IMC_ITOP	Clear IT Operations
		IMC_ITPR	Clear IT Criteria
	IT Organisation (IMO) (4)	IMO_BS	IT Understand the Business
		IMO_IDS	User Ideas Considered
		IMO_STR	Org Structure Appropriate
	IT Integration (IMI) (4)	IMO_USR	Good User Relations
		IMA_BCL	BU's Control IT Dev
		IMA_INF	IT Linked to Business
		IMA_ITDV	IT Dev. Linked to BUs
		IMA_STR	IT Strategy Important
Market Orientation (MO) (10)		MO_CMM	High Communications
		MO_CMPW	Leverage Competition
		MO_CR8VL	Understand Value Creation
		MO_CSND	Understand Customer Needs
		MO_CSTV	Create Customer Value
		MO_FN	Serve Target Markets
		MO_INT	Integrated Functions
		MO_RSP	Immediate Response
		MO_RSPQ	Respond Quickly to Neg CS
		MO_SW	Mgmt Discusses SWOT
Technology turbulence (STT) (4)		TT_BRKT	New Product Tech Breakthrough
		TT_CHG	Rapid Technology Change
		TT_MINR	Minor Technology Development (RC)
		TT_OPP	Tech Opportunity
Marketing turbulence (SMT) (5)		MT_CDM	Customer Demand
		MT_CHG	Changing Cust Preferences
		MT_MRKT	Market Changed
		MT_NDM	New Cust Product Demand
		MT_NPD	New Products - Cust Demand
Customer Relationship Strength (C_RS) (32)	Relationship Trust (C_RT) (8)	C_RT_BLV	Believe Information
		C_RT_CNCR	Rel'n Concern
		C_RT_CTN	Cautious with supplier
		C_RT_HNS	Rel'n Honesty
		C_RT_NTRS	Mutual Interest
		C_RT_PRM	Rel'n Promises
		C_RT_TRST	Trustworthy supplier
		C_RT_WLFR	Rel'n Welfare
	Commitment (C_CMT) (15)	C_AFC_DRP	Like the Association
		C_AFC_ENJ	Enjoy Rel'n
		C_AFC_FLN	Positive Feelings
		C_EOC_AT	Automatic Renewal
		C_EOC_BS	Continue Business
		C_EOC_TIM	Long-term Continuation
		C_WTI_CSCT	End Customer Link
		C_WTI_EFRT	Commitment Effort
		C_WTI_SPRT	Willing to Invest
		C_CLC_BRK	Difficult to Break Rel'n
	Communication Quality (C_CQ) (9)	C_CLC_CST	High Cost of Change
		C_CLC_NLT	No Alternative Suppliers
		C_CMT_CMT	Committed to supplier product
		C_CMT_DSCT	Discontinue supplier products
		C_CMT_MIN	Little Commitment
		C_CM_EVNT	Keep Each Other Informed
		C_CM_HLP	Helpful Communication
		C_CM_NFML	Informal Communication
		C_CM_RQ	Beyond Requirements
Customer Relationship Performance (C_RP) (14)	Perceived Performance (C_PR) (3)	C_CME_ACC	Accurate Communication
		C_CME_ADQ	Adequate Communication
		C_CME_CPLT	Complete Communication
	Relationship Satisfaction (C_RSA) (4)	C_CME_CRD	Credible Communication
		C_CME_TIM	Timely Communication
		C_PR_PRD	Productive Relationship
	Loyalty (C_LY) (4)	C_PR_ST	Satisfactory Relationship
		C_PR_WRTH	Worthwhile Relationship
		C_RS_HPY	Happy Relationship
	Retention (C_RN) (3)	C_RS_PS	Positive Relationship
		C_RS_REL	Business Relationship
		C_RS_ST	Satisfied with supplier
		C_LY_PR	Encourage Others to Use
		C_LY_RCD	Recommend Supplier
		C_LY_SYPS	Positive Word of Mouth

Note: The shaded area represents the items and constructs deleted from the original model to this point

excluding the CTA sub-constructs. Each construct, sub-construct and item was examined using PLS CFA, including the CTA sub-constructs, in order to establish a valid and reliable measurement model. Item reliability was evaluated by examining PLS item loadings from the outer (measurement) model. Item loadings represent the correlation coefficients between the indicator and the latent variable (construct) (Fornell et al., 1990). In order to compare relative strength, all coefficients are expressed in standardised form. All of the measurement items were evaluated for loadings on their specific constructs. Although there is no hard and fast rule regarding factor loadings in PLS, a loading of 0.70 is an acknowledged level used for retention, although loadings greater than 0.60 are acceptable, especially when new items or scales are involved (Hulland, 1999; Hulland, Chow, & Lam, 1996). Measurement items were generally deleted if loadings were less than 0.60 (Chin, 1998a; Fornell & Larcker, 1981; Hair et al., 2006; Hulland, 1999; Nunnally & Bernstein, 1994).

Table 5.15 shows the items deleted from the model due to loadings less than 0.60 on any single construct. In addition the SMT moderating variable was deleted since only one measurement item remained and the AVE remained below the 0.50 threshold, see Table 5.16. The measurement item criterion guidelines provided by Hair et al. (2006), which have been adopted in this study, suggest an appropriate AVE for measurement model items should equal or exceed 0.50. Anything less than 0.50 implies more variance is due to error than due to the construct itself. Items with minimal loadings and/or high cross-loadings for constructs with low AVE were systematically deleted from the model in attempts to improve the AVE. Constructs with AVE values less than 0.50 are candidates for deletion since they do not add much in the way of explanatory value.

Table 5.15: Items Deleted Due to Loadings Less than 0.60 on Any Single Construct (LV)

Items		Loading
Leverage Competition	MO_CMPW	0.544
Immediate Response	MO_RSP	0.568
Mgmt Discusses SWOT	MO_SW	0.590
Changing Cust Preferences	MT_CHG	0.356
Market Changed	MT_MRKT	0.398
New Cust Product Demand	MT_NDM	0.045
New Products – Cust demand	MT_NPD	0.327
Rel'n Concern	C_RT_CNCR	0.520
High Cost of Change	C_CLC_CST	0.480
Satisfactory Relationship	C_PR_ST	0.592

The shaded areas in Table 5.14 indicate the items and constructs deleted from the original model to this point. The result being that the remaining 14 commitment items and the two remaining perceived performance items were deleted, along with 11 assorted other items across five constructs.

Table 5.16: Interaction Variables Deleted

Interaction Variables		AVE Loading	Path Coefficients		
			CTA	C_RP	C_RS
CTA * CRO	CRM Technology Adoption *	0.288		0.000	
	Customer Relationship Orientation				
CTA * CRO	CRM Technology Adoption *	0.245			-0.006
	Customer Relationship Orientation				
CTA * CXP	CRM Technology Adoption *	0.251		0.000	
	Customer CRM Expectations				
CTA * CXP	CRM Technology Adoption *	0.226			-0.002
	Customer CRM Expectations				
MO * SMT	Market Orientation * Market Turbulence	0.174	-0.001		

Moderator (interaction) variables are assessed somewhat differently with PLS, since the moderator variables themselves are not under direct investigation. It is the interaction with the latent variable constructs that are the focal point of the analysis. The loadings of the interacting variables determine the significance of the moderator affects (Chin, Marcolin, & Newsted, 1996). In this instance the moderator interacting variables in the measurement model, CTA*CRO, CTA*CXP and MO* SMT, were well below the AVE loading criteria of 0.50, as shown in Table 5.16. Since CRO and CXP consisted of only three measurement items, AVE could not be improved significantly by deleting items. Similarly only one measurement item remained for SMT and the path coefficients were minimal and non-significant. Therefore the CRO, CXP and SMT moderator (interaction) constructs were deleted from the model and the model respecified without these three moderator constructs (Chin et al., 1996). Once the minimum AVE criterion was achieved for each construct, the model was assessed for convergent validity.

5.7.1. Convergent Validity

Convergent validity was assessed using Cronbach's alpha and the composite reliability (CR) score (Fornell & Larcker, 1981; Hulland, 1999). A benchmark of 0.70 was used as the minimum acceptable Cronbach's alpha (Hulland, 1999; Nunnally & Bernstein, 1994). An acceptable CR is assessed similar to the Cronbach's alpha and a

Table 5.17: Summary of Measurement Model Quality – Convergent Validity

		Number of items	AVE	Composite Reliability	Cronbach's Alpha	Communality
CKN	Customer Knowledge	3	0.686	0.8672	0.77	0.686
CTA	CRM technology adoption	12	0.535	0.9152	0.89	0.535
C_CM	Customer communications	2	0.842	0.9142	0.81	0.842
C_CME	Customer communications ethos	3	0.770	0.9093	0.85	0.770
C_CQ	Communications quality	5	0.624	0.8919	0.85	0.624
C_LY	Customer loyalty	3	0.720	0.8853	0.81	0.720
C_RN	Customer retention	3	0.651	0.8448	0.72	0.651
C_RP	Customer relationship performance	8	0.538	0.9198	0.90	0.538
C_RS	Customer relationship strength	8	0.559	0.9100	0.89	0.559
C_RSA	Customer relationship satisfaction	2	0.870	0.9307	0.85	0.870
C_RT	Customer relationship trust	3	0.746	0.8978	0.83	0.746
IMC	IT management control	6	0.735	0.9433	0.93	0.735
IMI	IT management integration	4	0.592	0.8528	0.77	0.592
IMO	IT management organisation	4	0.779	0.9339	0.91	0.779
IMP	IT management planning	6	0.584	0.8925	0.85	0.584
ITMO	IT management orientation	20	0.521	0.9554	0.95	0.521
ITMO*STT	IT management orientation * Technology turbulence	80	0.638	0.9930	0.99	0.638
MO	Market Orientation	7	0.553	0.8961	0.87	0.553
MO*STT	Market Orientation * Technology turbulence	28	0.696	0.9846	0.98	0.696
STT	Technology turbulence	4	0.720	0.9112	0.87	0.720
USF	CRM usefulness	7	0.712	0.9452	0.93	0.712

value of 0.70 or greater is acceptable (J. B. Smith & Barclay, 1997). As shown in Table 5.17 all constructs exhibited acceptable Cronbach's alpha and CR scores, with values greater than 0.70. The AVE and communality result for each construct also exceeds the minimum criteria of 0.50.

5.7.2. Discriminant Validity

Discriminant validity is achieved if an item correlates more highly with items measuring the same construct than with items measuring different constructs (Churchill, 1979). As a first step, all of the individual items were scrutinised for acceptable cross-loading on other constructs. Discriminant validity was assessed using the Fornell and Larcker (1981) AVE criterion shown in Table 5.18. The results identified a number of constructs exhibiting evidence of strong correlations with other constructs. This apparent lack of discriminant validity was anticipated due to the nature of a measurement model with second order constructs. Where first order constructs are unidimensional, this is not a

serious concern (Bagozzi & Heatherton, 1994; Gerbing & Anderson, 1988). In particular:

1. CRM technology adoption (CTA) is expected to be highly correlated with CRM usefulness (USF), since USF is one of the dimensions of CTA.
2. Customer communications (C_CM) and customer communications ethos (C_CME) are expected to be highly correlated with customer communications quality (C_CQ) and customer relationship strength (C_RS), since they are both dimensions of both constructs.
3. C_CQ and customer relationship trust (C_RT) are expected to be highly correlated with C_RS, since they are both dimensions of C_RS. Customer loyalty (C_LY), customer retention (C_RN) and customer relationship satisfaction (C_RSA) are expected to be highly correlated with customer relationship performance (C_RP), since they are dimensions of C_RP.
4. IT management control (IMC), IT management integration (IMI), IT management organisation (IMO) and IT management planning (IMP) are expected to be highly correlated with IT management orientation (ITMO), since they are dimensions of ITMO.

Overall Table 5.18 confirms that discriminant validity is demonstrated in this model, in that unrelated constructs exhibit appropriately low correlations.

5.7.2.1. Final Measurement Model

The loadings and t-statistics for the fully assessed measurement model are shown in Table 5.19. All item loadings are greater than 0.60 with the majority of items exceeding 0.70, are significant at the $p < .001$ level, and demonstrate adequate convergent and discriminant validity. This measurement model is now ready to be used to assess the structural (theoretical) model and test the research hypotheses.

Table 5.18: Discriminant Validity Results Using AVE Approach

	ITMO																MO *				
	CKN	CTA	C_CM	C_CME	C_CQ	C_LY	C_RN	C_RP	C_RS	C_RSA	C_RT	IMC	IMI	IMO	IMP	ITMO	* STT	MO	STT	STT	USF
AVE	0.686	0.535	0.842	0.702	0.563	0.721	0.651	0.535	0.519	0.870	0.746	0.735	0.592	0.779	0.584	0.521	0.638	0.553	0.696	0.720	0.712
CKN	0.828																				
CTA	0.535	0.731																			
C_CM	0.234	-0.055	0.918																		
C_CME	0.218	0.116	0.482	0.838																	
C_CQ	0.260	0.050	0.812	0.903	0.750																
C_LY	0.219	0.079	0.517	0.437	0.545	0.849															
C_RN	0.202	0.015	0.437	0.277	0.399	0.638	0.807														
C_RP	0.275	0.098	0.564	0.492	0.604	0.897	0.851	0.732													
C_RS	0.324	0.105	0.779	0.816	0.926	0.619	0.495	0.702	0.720												
C_RSA	0.297	0.173	0.490	0.571	0.621	0.604	0.533	0.807	0.701	0.933											
C_RT	0.335	0.154	0.558	0.546	0.638	0.579	0.504	0.671	0.881	0.653	0.864										
IMC	0.181	0.179	0.108	0.012	0.061	0.074	0.190	0.125	0.106	0.053	0.137	0.857									
IMI	0.254	0.260	0.068	0.058	0.072	0.154	0.124	0.129	0.094	0.034	0.100	0.598	0.769								
IMO	0.252	0.270	0.211	0.101	0.171	0.173	0.195	0.179	0.198	0.076	0.187	0.796	0.626	0.883							
IMP	0.369	0.323	0.106	0.053	0.087	0.137	0.118	0.121	0.131	0.041	0.156	0.715	0.665	0.734	0.764						
ITMO	0.295	0.287	0.142	0.058	0.108	0.144	0.183	0.155	0.150	0.059	0.167	0.916	0.776	0.906	0.891	0.722					
ITMO * STT	0.344	0.310	0.020	0.041	0.037	0.106	0.076	0.089	0.072	0.037	0.099	0.587	0.717	0.658	0.752	0.756	0.799				
MO	0.481	0.364	0.154	0.055	0.112	0.128	0.082	0.112	0.178	0.069	0.222	0.299	0.555	0.452	0.455	0.473	0.487	0.743			
MO * STT	0.389	0.349	0.002	0.005	0.004	0.077	-0.007	0.037	0.042	0.014	0.082	0.262	0.593	0.402	0.495	0.465	0.853	0.714	0.834		
STT	0.200	0.213	-0.096	-0.019	-0.060	0.018	-0.035	-0.009	-0.042	-0.012	-0.009	0.122	0.410	0.218	0.357	0.287	0.820	0.258	0.848	0.849	
USF	0.343	0.977	-0.120	0.074	-0.010	0.032	-0.035	0.039	0.035	0.117	0.086	0.153	0.224	0.236	0.266	0.244	0.258	0.283	0.290	0.188	0.844

Note. CTA is expected to be highly correlated with USF, since USF is one of the dimensions of CTA.

C_CM and C_CME are expected to be highly correlated with C_CQ and C_RS, since both are dimensions of both constructs

C_CQ and C_RT are expected to be highly correlated with C_RS, since both are dimensions of C_RS

C_LY, C_RN and C_RSA are expected to be highly correlated with C_RP, since they are dimensions of C_RP

IMC, IMI, IMO and IMP are expected to be highly correlated with ITMO, since they are dimensions of ITMO

ITMO and STT are expected to be highly correlated with ITMO*STT and MO*STT, since they are an interactions of the two variables

Root AVE is shown along the diagonal

Table 5.19: Final Measurement Model Items, Loadings and Significance Values

Factor/ Construct		Item	Label	Loading	t-statistic	sig.
CRM Technology Adoption (CTA) (12)	Customer Knowledge (CKN) (3)	CPR_TLS	CRM Tools avail	0.785	13.442	p<0.001
		RMC_PR	Customer View	0.865	23.751	p<0.001
		RMC_PTS	Cust Contact points	0.832	21.858	p<0.001
	CRM Usefulness (USF) (7)	ATU_GOOD	CRM is a Good Idea	0.757	10.074	p<0.001
		CAD_DALY	Fully Accepted CRM	0.770	14.408	p<0.001
		RAD_ESY	Job is Easier	0.817	15.488	p<0.001
		PU_EFT	Enhances Effectiveness	0.908	56.921	p<0.001
		PU_PRD	Increases Productivity	0.877	28.196	p<0.001
		PU_PRF	Improves Performance	0.883	40.793	p<0.001
		PU_USFL	Is Useful	0.882	30.994	p<0.001
IT Management Orientation (ITMO) (20)	IT Management Planning (IMP) (6)	IMP_BO	IT Projects Linked to Obj	0.671	8.855	p<0.001
		IMP_INV	IT Provides Comp Adv	0.804	17.095	p<0.001
		IMP_ITCS	IT Current Use	0.849	26.422	p<0.001
		IMP_ITPR	IT Priorities	0.620	9.938	p<0.001
		IMP_ITPS	IT Potential Use	0.794	13.596	p<0.001
		IMP_ITQL	IT Picture	0.818	14.939	p<0.001
	IT Management Control (IMC) (6)	IMC_ITAP	IT Properly Appraised	0.821	25.298	p<0.001
		IMC_ITDV	Clear IT Direction	0.874	37.154	p<0.001
		IMC_ITFN	IT Performance	0.832	20.638	p<0.001
		IMC_ITGL	Clear IT Goals	0.891	36.329	p<0.001
		IMC_ITOP	Clear IT Operations	0.854	24.906	p<0.001
		IMC_ITPR	Clear IT Criteria	0.870	30.513	p<0.001
	IT Organisation (IMO) (4)	IMO_BS	IT Understand the Business	0.889	37.590	p<0.001
		IMO_IDS	User Ideas Considered	0.858	30.004	p<0.001
		IMO_STR	Org Structure Appropriate	0.884	32.601	p<0.001
		IMO_USR	Good User Relations	0.900	34.663	p<0.001
	IT Integration (IMI) (4)	IMA_BCL	BUs Control IT Dev	0.782	15.889	p<0.001
		IMA_INF	IT Linked to Business	0.807	22.705	p<0.001
		IMA_ITDV	IT Dev. Linked to BUs	0.746	14.814	p<0.001
		IMA_STR	IT Strategy Important	0.741	13.253	p<0.001
Market Orientation (MO) (7)		MO_CMM	High Communications	0.738	11.438	p<0.001
		MO_CR8VL	Understand Value Creation	0.722	10.958	p<0.001
		MO_CSND	Understand Customer Needs	0.778	10.520	p<0.001
		MO_CSTV	Create Customer Value	0.782	14.344	p<0.001
		MO_FN	Serve Target Markets	0.749	10.596	p<0.001
		MO_INT	Integrated Functions	0.755	12.316	p<0.001
		MO_RSPQ	Respond Quickly to Neg CS	0.674	8.427	p<0.001
Technology turbulence (STT) (4)		TT_BRKT	New Product Tech Breakthrough	0.853	4.809	p<0.001
		TT_CHG	Rapid Technology Change	0.826	3.850	p<0.001
		TT_MINR	Minor Technology Development	0.766	3.422	p<0.001
		TT_OPP	Tech Opportunity	0.900	3.950	p<0.001
Customer Relationship Strength (C_RS)	Relationship Trust (C_RT) (3)	C_RT_NTRS	Mutual Interest	0.911	47.718	p<0.001
		C_RT_TRST	Trustworthy supplier	0.832	20.929	p<0.001
		C_RT_WLFR	Rel'n Welfare	0.846	19.788	p<0.001
	Communication (C_CM) (2)	C_CM_EVNT	Keep Each Other Informed	0.931	56.136	p<0.001
		C_CM_HLP	Helpful Communication	0.904	27.972	p<0.001
	Communication Ethos (C_CME) (3)	C_CME_ACC	Accurate Communication	0.849	17.585	p<0.001
		C_CME_CPLT	Complete Communication	0.894	34.539	p<0.001
		C_CME_CRD	Credible Communication	0.888	45.276	p<0.001
Customer Relationship Performance	Relationship Satisfaction	C_RS_HPY	Happy Relationship	0.939	77.887	p<0.001
		C_RS_ST	Satisfied with supplier	0.927	55.652	p<0.001
	Loyalty (C_LY) (3)	C_LY_PR	Encourage Others to Use	0.866	22.342	p<0.001
		C_LY_RCD	Recommend Supplier	0.881	31.863	p<0.001
	Retention (C_RN) (3)	C_LY_XPT	Expect to do More Business	0.797	16.343	p<0.001
		C_RN_ALT	Look for Alternative supplier	0.608	8.409	p<0.001
		C_RN_FRST	First Choice Supplier	0.919	56.496	p<0.001
			C_RN_PR	Continue to Purchase More	0.860	18.567

5.8. Model Construction and Evaluation

5.8.1. Measurement (Outer) Model

The measurement model used in the PLS analysis is shown in Figure 5.4. Chin (1998b) suggests three or four measurement indicators per construct, since using a high number of items (greater than five) per construct will not provide acceptable SEM results (Bagozzi & Baumgartner, 1994). For constructs with more than five measurement items, Bagozzi and Baumgartner suggest “dividing the scale in half or thirds and use these sub-scales composites as multiple indicators of the construct”.

Figure 5.4: Composite scale measurement model

To achieve an acceptable number of indicators per construct, items measuring the same unidimensional construct were combined into a single composite indicator (Hair et al., 2006; Häubl, 1996). In the case of the USF construct, the seven individual measurement items were first split into two groups and then the individual items combined to form two composite indicators, USF1_SSC and USF2_SSC. Similarly the seven items measuring the MO construct were split and recombined into three groups of composite indicators, MO1_SSC, MO2_SSC and MO3_SSC (Bagozzi & Heatherton, 1994). Table 5.20 specifies each of the individual items used to construct the composite indicators for each construct.

Table 5.20: Constructs, Items and Composite Indicators

Factor/ Construct		Item	Label	Indicator
CRM Technology Adoption (CTA) (12)	Customer Knowledge (CKN) (3)	CPR_TLS	CRM Tools avail	CKN_SSC
		RMC_PR	Customer View	
		RMC PTS	Cust Contact points	
	CRM Usefulness (USF) (7)	ATU_GOOD	CRM is a Good Idea	USF1_SSC
		CAD_DALY	Fully Accepted CRM	
		RAD_ESY	Job is Easier	
		PU_EFT	Enhances Effectiveness	USF2_SSC
		PU_PRD	Increases Productivity	
		PU_PRF	Improves Performance	
		PU_USFL	Is Useful	
IT Management Orientation (ITMO) (20)	IT Management Planning (IMP) (6)	IMP_BO	IT Projects Linked to Obj	IMP_SSC
		IMP_INV	IT Provides Comp Adv	
		IMP_ITCS	IT Current Use	
		IMP_ITPR	IT Priorities	
		IMP_ITPS	IT Potential Use	
		IMP_ITQL	IT Picture	
	IT Management Control (IMC) (6)	IMC_ITAP	IT Properly Appraised	IMC_SSC
		IMC_ITDV	Clear IT Direction	
		IMC_ITFN	IT Performance	
		IMC_ITGL	Clear IT Goals	
		IMC_ITOP	Clear IT Operations	
		IMC_ITPR	Clear IT Criteria	
	IT Organisation (IMO) (4)	IMO_BS	IT Understand the Business	IMO_SSC
		IMO_IDS	User Ideas Considered	
		IMO_STR	Org Structure Appropriate	
		IMO_USR	Good User Relations	
	IT Integration (IMI) (4)	IMA_BCL	BUs Control IT Dev	IMI_SSC
		IMA_INF	IT Linked to Business	
		IMA_ITDV	IT Dev. Linked to BUs	
		IMA_STR	IT Strategy Important	
Market Orientation (MO) (7)		MO_CMM	High Communications	MO1_SSC
		MO_CR8VL	Understand Value Creation	MO2_SSC
		MO_CSND	Understand Customer Needs	
		MO_CSTV	Create Customer Value	
		MO_FN	Serve Target Markets	MO3_SSC
		MO_INT	Integrated Functions	
		MO_RSPQ	Respond Quickly to Neg CS	
Technology turbulence (STT) (4)		TT_BRKT	New Product Tech Breakthrough	TT_BRKT
		TT_CHG	Rapid Technology Change	TT_CHG
		TT_MINR	Minor Technology Development	TT_MINR
		TT_OPP	Tech Opportunity	TT_OPP
Customer Relationship Strength (C_RS)	Relationship Trust (C_RT) (3)	C_RT_NTRS	Mutual Interest	C_RT_SSC
		C_RT_TRST	Trustworthy supplier	
		C_RT_WLFR	Rel'n Welfare	
	Communication (C_CM) (2)	C_CM_EVNT	Keep Each Other Informed	C_CM_SSC
		C_CM_HLP	Helpful Communication	
	Communication Ethos (C_CME) (3)	C_CME_ACC	Accurate Communication	C_CME_SSC
		C_CME_CPLT	Complete Communication	
		C_CME_CRD	Credible Communication	
Customer Relationship Performance	Relationship Satisfaction	C_RS_HPY	Happy Relationship	C_RSA_SSC
		C_RS_ST	Satisfied with supplier	
	Loyalty (C_LY) (3)	C_LY_PR	Encourage Others to Use	C_LY_SSC
		C_LY_RCD	Recommend Supplier	
		C_LY_XPT	Expect to do More Business	
	Retention (C_RN) (3)	C_RN_ALT	Look for Alternative supplier	C_RN_SSC
		C_RN_FRST	First Choice Supplier	
		C_RN_PR	Continue to Purchase More	

All composite indicators were then evaluated for convergent validity by assessing item reliability, Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE). Unidimensionality, that indicators measuring a single construct are strongly related to each other, is a requirement and an underlying assumption in order to proceed with the creation of composite scales. Each indicator scale loads strongly with

corresponding items on their respective constructs⁹. Unidimensional scales, as indicators themselves, can be embedded within a higher order construct within a structural model (e.g., second-order construct) (Gerbing & Anderson, 1988). The unidimensionality of each sub-construct was previously assessed and reported through the PLS confirmatory factor analysis (CFA) refer to Tables 5.18 and 5.19. Before analysing the structural model, the measurement model, based on the composite scales, was re-verified. Reliability, the degree of internal consistency of each construct, was assessed using the AVE and communality criteria that values must exceed 0.50 to be retained. The composite reliability (CR) and Cronbach's alpha were assessed based on Nunnally and Bernstein's (1994) criteria of 0.70 (Hulland, 1999; J. B. Smith & Barclay, 1997). The resultant measurement model quality shown in Table 5.21 demonstrates strong reliability and validity results.

Table 5.21: Composite Indicator Measurement Model Quality Results

		Number of items	AVE	Composite Reliability	Cronbach's Alpha	Communality
CTA	CRM technology adoption	3	0.606	0.8209	0.73	0.606
C_RP	Customer relationship performance	3	0.702	0.8759	0.79	0.702
C_RS	Customer relationship strength	3	0.703	0.8763	0.79	0.703
ITMO	IT management orientation	4	0.742	0.9201	0.89	0.742
ITMO * STT	IT management orientation * Technology turbulence	16	0.753	0.9799	0.98	0.753
MO	Market Orientation	3	0.763	0.9060	0.85	0.763
MO * STT	Market Orientation * Technology turbulence	12	0.780	0.9769	0.97	0.780
STT	Technology turbulence	4	0.723	0.9126	0.87	0.723

Discriminant validity, the extent to which two conceptually similar constructs are distinct, was tested by reviewing the cross loadings, and calculating the discriminant validity (Fornell & Larcker, 1981), see Table 5.22 for results. The off diagonal values are less than the on diagonal values (the square root of the AVE), indicating acceptable discriminant validity. The next step is to assess the structural model.

5.8.2. Structural (Inner) Model

The initial CTA – CR structural model was constructed based on the extant literature, conceptualisation and theory. Each linked path between the constructs represents an explicit research hypothesis to be tested. In this case there are ten hypotheses to be

⁹ Individual indicator loading on the respective constructs can be found in Appendix A9.

Table 5.22: Composite Indicator Scales Discriminant Validity Using AVE Method

		CTA	C_RP	C_RS	ITMO	ITMO * STT	MO	MO * STT	STT
	AVE	0.606	0.702	0.703	0.742	0.753	0.763	0.780	0.723
CTA	CRM technology adoption	0.779							
C_RP	Customer relationship performance	0.233	0.838						
C_RS	Customer relationship strength	0.217	0.723	0.838					
ITMO	IT management orientation	0.360	0.119	0.136	0.862				
ITMO * STT	IT management orientation * Technology turbulence	0.365	0.077	0.063	0.798	0.868			
MO	Market Orientation	0.483	0.085	0.164	0.505	0.491	0.873		
MO * STT	Market Orientation * Technology turbulence	0.421	0.039	0.046	0.528	0.851	0.728	0.883	
STT	Technology turbulence	0.234	0.008	0.043	0.366	0.829	0.288	0.854	0.851

Note. MO*STT highly correlated with STT is not unexpected, since it combines with STT. (square root of AVE in the diagonal)

examined. The initial PLS structural model including path coefficients, calculated t-values, and variance explained (R^2) for each endogenous (dependent variable) construct is shown in Figure 5.5.

The path coefficients and calculated t-values from the bootstrap resampling

Note. t-statistics shown in parentheses, *** $p < .001$, * $p < .10$
 R^2 shown within each endogenous construct

Figure 5.5: Initial structural model path coefficients

procedure are summarised in Table 5.23. Bootstrapping is a resampling technique used to estimate a distribution's standard errors and confidence intervals for mean, median, correlation coefficient or regression (path) coefficient. Bootstrapping is not dependent on sample normality or sample size (Efron & Gong, 1983).

Table 5.23: Inner Model Path Coefficients and Significance Level

	Path Coefficient	Standard Error	t Statistic	Sig. Level 2-tailed
CTA → C_RP	0.080	0.070	1.144	ns
CTA → C_RS	0.180	0.128	1.410	ns
C_RS → C_RP	0.705	0.061	11.563	p < .001
ITMO → CTA	0.049	0.329	0.150	ns
ITMO * STT → CTA	0.154	0.542	0.285	ns
MO → CTA	0.376	0.338	1.112	ns
MO → C_RS	0.077	0.123	0.623	ns
MO * STT → CTA	0.025	0.620	0.040	ns
STT → CTA	-0.041	0.429	0.096	ns

* ns = not significant

The result of the bootstrapping indicated that the majority of path coefficients were not significant; the C_RS → C_RP path was the only significant path ($p < .001$). In any SEM modelling exercise there are a number of potential alternative, or equivalent, models that may fit the data. Therefore it is common to identify alternative models which may fit the data and theory better. The structural model was therefore respecified to improve parsimony and model fit (Fornell, 1982; Johansson & Yip, 1994).

To proceed with the model respecification, paths with non-significant t-values were deleted one at a time, based on theoretical relevance, loading weights and t-statistic value (O'Loughlin & Coenders, 2004). This led to removing the moderating variable paths in the first instance, since no specific effect was hypothesised (i.e., little theoretical relevance), and the loading weights were minimal ($MO*STT = 0.025$, $ITMO*STT = 0.154$). The non-significance of technology turbulence (STT) as moderating the effect of MO is consistent with a number of studies (Kohli et al., 1993). The potential effect of STT on ITMO has never been previously established, and the results from the current study indicate that technology turbulence does not moderate the effect of IT management orientation on CTA.

The MO → C_RS path coefficient was the next path deleted from the model. Although there are mixed views from the extant literature regarding the effect of MO on

relationship marketing and performance, the market orientation – customer relationship strength path was originally included based primarily on the literature (Kohli & Jaworski, 1990; Narver & Slater, 1990). The non-significant path coefficient is somewhat surprising but not totally unexpected, since an underlying premise of the current CTA – CR model is that MO works through CTA. Hence this path is not considered critical to the fundamental CRM technology adoption - relationship model conceptualisation, and in fact provides some support for the inclusion of the CTA component of the model itself.

The third path deleted was the CTA → C_RP path coefficient. Although the CRM technology adoption – customer relationship performance path was part of the original theory conceptualisation, this result is also not completely unexpected. There are a large number of external variables, which are not part of this model, that affect relationship performance. That the direct effects of CTA on loyalty, retention and relationship satisfaction (the C_RP indicators), are minimal and not significant is conceptually and theoretically understandable. This result may be indicating that an overly simplistic approach to CRM technology adoption (e.g., implementing CRM technology in an attempt to simply improve customer loyalty) may not provide the best solution for success. The model was respecified and the bootstrap resampling procedure recalculated after each path deletion and the model quality re-assessed.

5.8.2.1. Revised Model

The revised structural model (see Figure 5.6) indicates that after the two path deletions a number of hypotheses are supported; refer to Table 5.24 for details. The

Note. t-statistics shown in parentheses, *** $p < .001$, * $p < .10$
 R^2 shown within each endogenous construct

Figure 5.6: Revised structural model path coefficients

Table 5.24: Revised Structural (Inner) Model Results

	Path Coefficient	Standard Error	t Statistic	Sig. Level 2- tailed
CTA → C_RS	0.207	0.086	2.410	p < .05
C_RS → C_RP	0.714	0.064	11.153	p < .001
MO → CTA	0.391	0.089	4.396	p < .001
ITMO → CTA	0.166	0.084	1.989	p < .05

primary theoretical relationships in the CRM technology adoption- relationship model are significant. In particular the CTA → C_RS path coefficient is significant; indicating that customer relationship management technology adoption (CTA) does positively influence customer relationship strength (C_RS).

Path coefficients are interpreted equivalent to a standardised beta weight in a multiple regression model (Gopal, Bostrom, & Chin, 1992). Standardised path coefficients ideally should be between 0.20 and 0.30 to be meaningful (Chin, 1998a; Meehl, 1990). Kline (2005) however provides the following guidelines for new research with little theoretical or empirical basis from which to judge path coefficient effects: path coefficients less than 0.10 indicate a ‘small’ effect, values around 0.30 a ‘medium’ effect and values greater than 0.50 a ‘large’ effect (Bollen, 1989; Cohen, 1988; Pedhazur, 1982).

The results of this structural model analysis indicate that CRM technology adoption (CTA) has a significant effect on customer relationship strength (C_RS) ($t = 2.410$, $p < .05$), market orientation (MO) has a significant effect on CRM technology adoption (CTA) ($t = 4.396$, $p < .001$), IT management orientation (ITMO) has a significant effect on CRM technology adoption (CTA) ($t = 1.989$, $p < .05$) and customer relationship strength (C_RS) has a significant effect on customer relationship performance (C_RP) ($t = 11.153$, $p < .001$).

5.8.2.2. Model Fit

PLS models are not evaluated using traditional measures such as Chi-square (χ^2), goodness-of-fit (GFI), Root Mean Square Error of Approximation (RMSEA), or other variations of model fit indices (Bentler, 2005; Hu & Bentler, 1995; Hulland et al., 1996; Kline, 2005; Schumacker & Lomax, 2004). Instead, goodness of fit for PLS models is assessed using variance explained (R^2) and blindfolding techniques to determine predictive relevance (Q^2) (Chin, 1995). The fit of the model was evaluated using the R^2

for dependent constructs and the Stone-Geisser Q^2 for predictive relevance (Wold, 1982). Table 5.25 summarises the blindfolding results. The R^2 value (variance explained by independent variables) is interpreted, similar to regression analysis, as the proportion of variation in the variable that is explained by its relationship with the variables believed to impact it. There are no strict criteria to assess R^2 , since “meaningfulness is specific to a given research area” and can vary significantly between researchers, domains and phenomenon (Pedhazur, 1982, p. 25). Nevertheless some authors do provide guidelines. Falk & Miller (1992) suggest the R^2 for endogenous variables should be greater than or equal to 0.10 to be meaningful. However Cohen (1992) provides a convenient statistical power analysis using effect-size indices and statistical test tables which indicate that given multiple regression, three independent variables, $\alpha = 0.01$, and a medium effect size, an R^2 as small as 0.0196 is acceptable.

Table 5.25: Q2 and R2 Blindfolding Results

Construct	R^2	Omission distance = 7		Omission distance = 15	
		Communality Q^2	Redundancy Q^2	Communality Q^2	Redundancy Q^2
CTA CRM technology adoption	0.2521	0.228	0.120	0.263	0.118
C_RP Customer relationship performance	0.5164	0.422	0.341	0.419	0.342
C_RS Customer relationship strength	0.0515	0.399	0.024	0.395	0.024
MO Market Orientation	na	0.498	na	0.496	na
ITMO IT management orientation	na	0.581	na	0.582	na

na = not applicable

In this model, customer relationship strength (C_RS) explains 51.6% of the variance of customer relationship performance (C_RP), while market orientation (MO) and IT management orientation (ITMO) explain 25.2% of the variance in CTA. CRM technology adoption (CTA) explains 5.2% of the variance in C_RS and given the limited research in this area provides support for the overall model.

The Q^2 measures how well the observed values are reproduced by the model and parameter estimates (Geisser, 1975; M. Stone, 1974). Q^2 estimates utilise a blindfolding technique in which a part of the data is omitted for a particular block of indicators and the model attempts to estimate the omitted part using the estimated parameters. This procedure is repeated as often as the omission distance until every data point has been omitted and estimated, producing a generalised cross-validation measure (Chin, 1998b). The omission distance sets the number of resample procedures to be completed before

the jackknifed estimates of mean, standard deviation and standard error are calculated (Fornell & Cha, 1994; Sambamurthy & Chin, 1994).

There are two types of predictive relevance (Q^2) estimates. The cross-validated communality Q^2 is produced by predicting the omitted data points through the underlying latent variable. That is, some data points from cases and items of a construct are omitted, and the remaining items are used to estimate a PLS model. This PLS model, with the omitted data, is then used to estimate the omitted data points.

The redundancy Q^2 , on the other hand, tests how well antecedent constructs predict the omitted data. Of the two Q^2 measures, the redundancy Q^2 is the stronger test of the theoretical model to predict missing data at the item level. The estimation is repeated for all cases yielding an overall Q^2 measure of redundancy index, without a loss of degrees of freedom (Fornell & Bookstein, 1982). In either case an estimate larger than zero (0) indicates the model has predictive relevance, whereas a Q^2 less than zero (0) implies a lack of predictive relevance in the model (Fornell & Cha, 1994). As can be seen from Table 5.25 the Q^2 results are positive and similar across omission distances, indicating predictive relevance and stable model estimates.

To summarise, the CTA – CR model has been evaluated and validated through a number of processes. First, exploratory and confirmatory factor analysis were conducted to determine the appropriate construct measures. The final measurement item's loadings on the appropriate constructs were assessed based on minimum loading criteria of 0.60 (Hulland, 1999). Convergent validity was demonstrated using both Cronbach's alpha and the composite reliability measure (Fornell & Larcker, 1981). Discriminant validity was satisfactorily demonstrated using the AVE approach (Fornell & Larcker, 1981). The theoretical relationships between the constructs were evaluated by examining the weightings and significance of the path coefficients in the structural model using t-tests. The model was respecified, in an attempt to provide an improved and more parsimonious fit to the data. The revised model demonstrated satisfactory fit from the variance explained (R^2) and predictive relevance (Q^2) measures. The structural model results, from the revised model, are now discussed further.

5.8.3. Direct Effects

In the original model only two of the hypothesised paths, $C_RS \rightarrow C_RP$ and $MO \rightarrow CTA$, are significant at the 99.9% CI level, while $ITMO \rightarrow CTA$ is significant only at

the 90.0% level. The respecified model (refer to Table 5.24 and Figure 5.6) demonstrates that CRM technology adoption significantly and positively influences customer relationship strength (CTA $\rightarrow$ C_RS). This finding is consistent with the underlying theory and conceptualisation of the original model. The original model hypothesized that CRM technology adoption contributed positively to the relationship between supplier firms and customers. The result of the respecified model provides empirical evidence that CRM technology contributes to customer relationship strength, and, discussed below, indirectly to customer relationship performance. The market orientation of a company positively and significantly influences CRM technology adoption, supporting the concept that a market oriented firm is more likely to adopt CRM technology than non-market oriented firms. The IT management orientation of the firm also provides a significant and positive influence on CRM technology adoption within a firm, suggesting an increasing role for IT within the marketing and customer relationship arenas. In addition there is evidence that customer relationship strength positively and significantly influences customer relationship performance, which is consistent with the extant literature in this area (Z. G. Li & Dant, 1997).

5.8.4. Total Effects

The total effects considers not only the direct relations among the constructs, but also the indirect effects on the dependent (endogenous) variables (Cool et al., 1989). Indirect effects are manifest in the model and relevant in the evaluation, interpretation and understanding of the total impact of one construct on another within the CTA – CR model. For example, from Table 5.26, although CTA does not have a direct effect on relationship performance (C_RP), CTA does have a positive and significant effect on

Table 5.26: Total Effects

	Path Coefficient	Standard Error	t Statistic	Sig. Level 2- tailed
CTA $\rightarrow$ C_RP	0.148	0.064	2.325	p < .05
CTA $\rightarrow$ C_RS	0.207	0.086	2.410	p < .05
C_RS $\rightarrow$ C_RP	0.714	0.064	11.153	p < .001
MO $\rightarrow$ CTA	0.391	0.089	4.396	p < .001
MO $\rightarrow$ C_RP	0.058	0.029	2.016	p < .05
MO $\rightarrow$ C_RS	0.081	0.040	2.002	p < .05
ITMO $\rightarrow$ CTA	0.166	0.084	1.989	p < .05
ITMO $\rightarrow$ C_RP	0.025	0.016	1.579	ns*
ITMO $\rightarrow$ C_RS	0.034	0.021	1.620	ns*

* ns = not significant

C_RP through relationship strength (C_RS), ($t = 2.325, p < .05$). Similarly market orientation (MO) has a positive and significant effect on C_RP ($t = 2.016, p < .05$), and C_RS ($t = 2.002, p < .05$), through CTA, whereas IT management orientation (ITMO) does not directly or indirectly influence C_RP or C_RS ($t = \text{not significant}$).

The results from the total effects analysis demonstrate that CRM technology adoption does positively and significantly influence customer relationship performance, but only through customer relationship strength (CTA $\rightarrow$ C_RP). The results also show that market orientation positively and significantly influences customer relationship strength and customer relationship performance through CRM technology adoption. That market orientation influences RS and RP through CTA is interesting and may shed some light on the reasons for perceived CRM technology implementation failures. These results also provide empirical support for recent literature arguing that successful CRM technology adoption is more likely with a market oriented firm (Abbott et al., 2001; J.-S. Chen & Ching, 2004; Goodhue et al., 2002; Ling & Yen, 2001; Rigby, Reichheld, & Scheffer, 2002b).

5.8.5. Moderator Effects

Technology turbulence (STT) and market turbulence (SMT) were originally considered potential moderators of CRM technology adoption; however neither moderator resulted in any significant interactions within the model. Similarly the customer relationship orientation (CRO) and customer CRM expectations (CXP) moderators did not significantly influence customer relationship strength or performance. These results imply that the supplier's perceived level of technology turbulence and market turbulence does not play a significant role in the effect of the model antecedents to adoption of CRM technology. In addition the customer's perceptions of relationship strength and relationship performance are not dependent on the relationship predisposition of the customer, nor their CRM expectations.

5.9. Hypothesis Testing

Although hypotheses cannot definitively be proved as true, hypotheses are statistically accepted or rejected based on levels of significance and confidence intervals. Therefore, to 'accept' the hypothesis simply means that there is not sufficient statistical evidence to actually reject the hypotheses. In this study the test results were

based on a minimum probability level of 0.05, that is, the same results would occur 95% of the time.

The hypotheses in this research explicitly relate to the relationship between CRM technology adoption (independent variable) and the customer relationship. There are two dependent variables in the model, customer relationship strength (C_RS) and customer relationship performance (C_RP). It should be emphasised that the independent variables market orientation (MO), IT management orientation (ITMO) and CRM technology adoption (CTA) were measured by the supplier firm responses, while the dependent variables were measured by the customer responses. Each structural path in the model represents a potential relationship between the two variables (constructs) and can be tested for significance. The path coefficient may be considered equivalent to a regression coefficient (β) and measures the unidirectional relationship between two constructs, for example the effect of CTA on C_RP, but not the effect of C_RP on CTA (Fornell, 1982; Pedhazur, 1982). Each structural path was tested using the t-statistic, via blindfolding. The critical value for a two-tailed t-test with a 95% confidence interval

Table 5.27: Summary of Hypotheses Testing

Hypothesis	Accepted
H ₁ : The more market oriented the firm the greater the CRM technology adoption within the firm	Yes
H ₂ : The more market oriented the firm the greater the overall relationship strength between the firm and the customer.	Yes (indirectly)
H ₃ : The greater the level of IT management orientation of the firm, the greater the CRM technology adoption	Yes
H ₄ : The greater the level of CRM technology adoption within a firm the greater the overall relationship strength with customers.	Yes
H ₅ : The greater the level of CRM technology adoption within a firm the greater the relationship performance.	Yes (indirectly)
H ₆ : The greater the relationship strength the greater the relationship performance.	Yes
Secondary hypotheses	
H ₇ : The greater the level of customer relationship orientation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance.	No
H ₈ : The greater the level of customer CRM expectation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance.	No
H ₉ : The greater the level of market turbulence the stronger the market orientation effect on CRM technology adoption.	No
H ₁₀ : The greater the level of technology turbulence the stronger the (a) market orientation effect on CRM technology adoption, and (b) the IT management orientation effect on CRM technology adoption.	No

(CI) and a sample size of 113 is 1.983 (Lind, Marchal, & Mason, 2001).

As shown in Table 5.27, Hypotheses 1 and 3 are accepted: both market orientation and IT management orientation positively influences CRM technology adoption. The standardised path coefficients, however, indicate that MO has the greater influence ($MO = 0.391$, $ITMO = 0.166$), and a greater level of significance. Hypothesis 4 is also accepted, indicating the positive influence of CRM technology adoption on relationship strength between suppliers and customers. Not unexpectedly, relationship strength has a positive effect on relationship performance, providing evidence for accepting Hypothesis 6. The effects of the moderator variables customer relationship orientation (CRO) and customer CRM expectations (CXP) stated in hypotheses 7 and 8 were not significant, implying that the customer's predisposition to relationships or CRM is not a significant interacting variable. The level of market turbulence (H_9) and technology turbulence (H_{10}) are not significant moderators of market orientation or IT management orientation. Similar results have been reported in the literature and may simply reflect the types of industries represented in the sample or the minimal impact of these moderating variables on CRM technology adoption (Appiah-Adu, 1997; Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Subramanian & Gopalakrishna, 2001).

Interestingly, there is no empirical evidence from this data that market orientation directly affects the relationship strength between suppliers and customers, hence Hypothesis 2 is rejected. However, as noted previously, significant indirect effects, through CRM technology adoption, are evident. Hypothesis 5, that CRM technology adoption positively influences relationship performance, is also rejected, although, as Table 5.26 shows, there is evidence of significant indirect effects through relationship strength.

5.10. Chapter Summary

This chapter described the survey response data collected, the process of measurement refinement; established measurement validity and reliability, and presented the results from the exploratory factor analysis, PLS analysis and hypotheses testing. A respecified structural model provided a more parsimonious solution to the data. Four of the ten hypotheses were accepted as significant, while six hypotheses were not significant. The key finding is that CRM technology adoption positively and directly influences customer relationship strength. In addition there is empirical support that the

market orientation of a firm works through CRM technology to positively influence customer relationship strength and relationship performance.

Although the direct effect of the firm's market orientation on relationship strength (H_2) is not significant, there is a significant indirect effect through CTA. The effect of market orientation on business performance has been difficult to establish directly (Han, Kim, & Srivastava, 1998; Narver & Slater, 1990), however one characteristic of market orientation is the collection and dissemination of customer and competitor information (Slater & Narver, 1995). CRM technology may provide an appropriate medium from which to collect and disseminate such information. The second hypothesis not supported is that CRM technology adoption would positively affect relationship performance (H_5). Previous studies have shown CRM technology to positively affect customer satisfaction (Srinivasan & Moorman, 2005) and retention (Jayachandran et al., 2005), both are components of the relationship performance construct used in this study. Notwithstanding the non-significant direct effect, there is evidence of a significant indirect effect of CRM technology adoption on relationship performance through relationship strength. This indirect result provides a level of support for the positive effect of CRM technology adoption on relationship performance, consistent with the extant literature. Chapter 6 will discuss the implications of the results for practitioners and academics, and the contribution to the marketing and IT literatures.

CHAPTER 6. Discussion and Conclusions

6.1. Introduction

The primary objectives of the study were to determine the effect of CRM technology adoption on business-to-business relationships, and the impact of market orientation and technology orientation on that adoption. To this end the research drew upon the management, IT and marketing literatures from which a preliminary research model was conceptualised. The model was then refined and tested through a two-stage, cross-sectional research design, involving an exploratory, qualitative phase to inform the explanatory, quantitative approach. The exploratory phase, involving in-depth interviews with key informants from medium and large New Zealand businesses, helped refine and validate the conceptual model. Insights gained from these interviews were used to confirm and adjust the hypotheses, and informed the scale development for the explanatory phase. A mail survey was conducted using a dyadic approach, matching supplier and customer responses, with medium and large New Zealand businesses across a number and variety of industry sectors. The results of the nationwide survey were analysed using Partial Least Squares.

The purpose of this chapter is to discuss and draw conclusions from the results of the research. The central objective of this research was to develop and test an integrated conceptual model in order to understand the effect of CRM technology adoption on customer relationships. The study sought to extend previous research in the marketing and information technology areas by investigating the impact of market orientation (MO) and IT management orientation (ITMO) factors on CRM technology adoption (CTA), and the subsequent impact of these factors on customer relationship strength (C_RS) and relationship performance (C_RP). Two key findings are evident from the research results. The first is that market orientation works through CTA to influence and predict relationship strength and relationship performance. The second finding is that the extent of CRM technology adoption within a firm can help predict relationship strength.

6.2. Effect of CRM Antecedents

The results of this study clearly indicate that between the two antecedents, market orientation and IT management orientation, market orientation is the more important

factor predicting CRM technology adoption within a firm. The market orientation of a firm positively influences employee adoption of CRM technology within the firm. This finding provides empirical evidence for the CRM literature where market orientation has been conceptualised as a factor contributing to the success of CRM technology implementation (Ling & Yen, 2001; Lloyd et al., 2001; Wright et al., 2002).

6.2.1. Market Orientation

With respect to *H₁: The greater the level of market orientation of the firm the greater the CRM technology adoption within the firm*, the data demonstrate that market orientation significantly and positively impacts CRM technology adoption. That is, the greater the market orientation levels of the firm the greater the adoption of CRM technology. This result supports the view that market oriented firms, and their employees, are more likely to recognise and adopt the inherent market orientation advantages of CRM technology: (a) intelligence generation, (b) intelligence dissemination, and (c) responsiveness within the CRM technology framework (Kohli et al., 1993). The implication is that firms with little market orientation may not realise the full relationship value from the implementation of a CRM system. The finding underscores the importance of market orientation as a key factor in the successful implementation and adoption of CRM technology. In addition it shows that CRM technology adoption by a firm can provide value to customer relationships and that through the correct use of CRM technology customer relationships can be enhanced.

Of particular interest is the finding that market orientation influences and predicts relationship strength and relationship performance through CRM technology adoption (CTA). *H₂: The greater the level of market orientation of the firm the greater the overall relationship strength between the firm and the customer* hypothesised, based on the extant literature, that the firm's market orientation would directly influence relationship strength with the customer (Farrelly & Quester, 2003; Helfert et al., 2002; Sanzo et al., 2003; Yau et al., 2000). However, no significant direct relationship was found between market orientation of the supplier firm and customer relationship strength. This result supports studies where market orientation is not considered an accurate predictor of performance (Deshpandé et al., 1993; S. Henderson, 1998). Jayachandran, Sharma, Kaufman and Raman (2005) reported similar results between a firm's customer orientation and their relational information processes. One interpretation is that for the market orientation of a firm to manifest itself the firm

requires a medium which can satisfy the three key characteristics of market orientation: intelligence generation, intelligence dissemination, and responsiveness as found in CRM technology. These results support Gummesson's (2004) view that CRM is simply the practical application of relationship marketing principles, whereby both the appropriate orientation and the technical capability are required to enjoy success (Day et al., 2004).

The influence of market orientation working through CRM technology may help explain the divergent results from both CRM research and market orientation research. CRM technology implementation has not always demonstrated positive results or successful implementation (Arnold, 2002; Davids, 1999; R. Davis, 2002; Nairn, 2002; O'Brien, 2004; Raman & Pashupati, 2004; Rigby et al., 2002a) and market orientation is not uniformly viewed as valuable predictor of business performance (Deshpandé et al., 1993; S. Henderson, 1998; Langerak, 2003; Noble et al., 2002). The current results indicate that firms with a strong market orientation are more likely to successfully adopt and use CRM technology to deliver market oriented value to customers (i.e., improved information, response and communication), thereby improving relationship strength and performance (i.e., retention, loyalty and customer satisfaction). On the other hand, firms with weak market orientation are less likely to successfully adopt CRM technology to deliver customer value and improve customer relationship strength. The implication is that neither market orientation nor CRM technology is sufficiently valuable alone. It is the two working in concert that provides the greatest potential value.

From an alternate perspective, a firm with a strong market orientation, but without any medium (i.e., CRM technology) to collect, generate, or disseminate customer and competitor information would have difficulty demonstrating and leveraging the value of that market orientation to customers. As Wright et al (2002, p. 340) state "CRM [is] a concept that adds value to the meaning of customer orientation." The evidence from this study indicates that CRM technology can provide an appropriate medium, as well as offer a response channel to interact with customers, from which market orientation can successfully influence relationship strength and relationship performance.

6.2.2. IT Management Orientation

IT management orientation (IT management style and practices) has been demonstrated to influence the success of CRM technology adoption (Karimi et al.,

2001). The results of testing H_3 : *The greater the level of IT management orientation of the firm, the greater the CRM technology adoption* confirms that IT management orientation does play a role, albeit limited, in predicting CRM technology adoption within a firm. The IT management orientation of the firm's managers can provide a positive predisposition towards the adoption of CRM technology within the firm. Emphasising the usefulness and customer knowledge benefits appears to provide the greatest incentive for users to adopt CRM technology. One interpretation is that business management which provides and communicates clear IT direction, organisation, planning and control, aids both the firm's CRM technology decision making and subsequent employee adoption. Clearly positioning and communicating the CRM technology advantage, focusing on improved customer knowledge and CRM usefulness, improves the users' perception and adoption of the CRM technology. Users are more likely to adopt CRM technology provided they can appreciate the advantages (F. D. Davis, 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003). These results support and help explain other findings where clear direction and practices from management positively impact the successful adoption of CRM technology (Karimi et al., 2001; Ling & Yen, 2001).

However the IT management orientation factor is not as important as the market orientation of the firm in adding value to the firm and the customer.

6.3. Effects of CTA on Relationship Strength and Relationship Performance

Not only does CRM technology adoption provide a medium for market orientation to influence relationship strength and relationship performance, CTA also predicts relationship strength itself. That is, the two dimensions of CTA, customer knowledge and CRM usefulness provide valuable information and processes to benefit relationship building through trust and communications. Customer relationship orientation (CRO) did not appear to moderate the effect of CTA on relationship strength or relationship performance. Although the exploratory phase indicated that some customers have expectations from CRM implementation (CXP) (see Appendix A2, Q9), the survey results indicate that any such expectations do not play a significant role in the moderation of the CTA effect on relationship strength or relationship performance.

6.3.1. Relationship Strength

Trust is an essential attribute of relationships (Narayandas & Rangan, 2004; Sirdeshmukh et al., 2002), and is enhanced by two-way communications (E. Anderson & Weitz, 1989). The positive significant result of testing H_4 : *The greater the level of CRM technology adoption within a firm the greater the overall relationship strength with customers* provides further support for the prevailing view that trust and communication are necessary for strong relationships between suppliers and customers (Berry, 1995; Duncan & Moriarty, 1998; Dwyer et al., 1987; Fontenot & Wilson, 1997; Geyskens et al., 1998). An interpretation of this result is that, independent of the firm's market orientation, CRM technology provides a platform from which to collect and communicate relevant information between suppliers and customers, thus helping to build trust between the two parties. CRM technology applications collect customer data from multiple sources and can provide a complete view of the customer. The customer knowledge (CKN) and CRM usefulness (USF) dimensions provide a significant conceptual and tangible linkage between CTA and relationship strength. In particular, this aspect of CRM technology provides the capability for supplier – customer interaction consistency, relevancy and appropriateness (Zablah et al., 2004).

Reinartz, Krafft, and Hoyer (2004) recognized that consistency in the CRM process aids the identification and measurement of valuable customers. Consistency in actions and information can build and enhance levels of trust and relationship strength more generally (Pan & Lee, 2003; Rheault & Sheridan, 2002). Relevancy is an aspect of communication which is favoured by customers (Ansari & Mela, 2003; Postma & Brokke, 2002; Thorbjørnsen, Supphellen, Nysveen, & Pedersen, 2002). The right mix of communications can help develop and maintain trust in a relationship (MacDonald & Smith, 2004). Contractual, goodwill and competence trust is enhanced by a firm's knowledge, appropriate behaviour and communications; knowing what is required, delivering to the contract, and informing the customer accurately, credibly and completely is a fundamental requirement and basis of trust (Sako, 1992; Tellefsena & Thomas, 2005).

This means that CRM application developers, CRM system implementers and CRM users need to highlight and make use of the fact that CRM technology can help provide appropriate levels of relevance and consistency to relationships. CRM technology is a powerful medium for collecting, analysing and communicating relevant and useful

customer information. Through the consistent, relevant and appropriate use of customer knowledge relationships can be developed and improved.

6.3.2. Relationship Performance

Performance has multiple definitions, evidences considerable multidimensionality and is itself influenced by a number of external factors (Dess & Robinson, 1984; Venkatraman & Ramanujam, 1986). Therefore it is not completely surprising that *H₅: The greater the level of CRM technology adoption within a firm the greater the relationship performance* was not supported and that CTA did not significantly influence relationship performance directly. Reinartz et al. (2004) for example found that the level of CRM technology did not significantly improve economic performance through the CRM process. The results from this study demonstrate however that CTA does work through relationship strength to positively influence relationship performance. This is most likely due to the impact of trust and communication on the relationship satisfaction, loyalty and retention dimensions of relationship performance (Garbarino & Johnson, 1999; Moorman et al., 1993; Morgan & Hunt, 1994; Selnes, 1998). CRM technology provides the basis for interaction consistency, relevancy and appropriateness of behaviour and communication. Data from the exploratory interviews, particularly the customer perspective, lend weight to the interpretation that the CRM technology adds value to relationship strength and relationship performance by incorporating and enhancing not only trust building and communications functionality, but more importantly dependability and consistency (see Appendix A2, Q14, Q16, Q17 and Q22). It is the dependability (goodwill trust) dimension which contributes a higher level of relationship satisfaction, hence improved customer retention and loyalty (Bhattacharjee, 2002; Gounaris, 2005; Sako, 1992; Tellefsena & Thomas, 2005).

That *H₆: The greater the level of relationship strength the greater the relationship performance* was found to be significant is consistent with other studies and provides support for developing trust, commitment and strong communication channels in order to improve business and relationship performance (Z. G. Li & Dant, 1997).

6.3.3. Moderator and Control Factors

Neither of the two moderator variables, customer relationship orientation (CRO) and customer CRM expectation (CXP), included in the research model had a significant influence on CRM technology adoption's impact on relationship trust or relationship

performance. Contrary to existing studies the non-significance of H_7 : *The greater the level of customer relationship orientation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance* indicates that the orientation of the customer towards relationships may not be all that important to maintaining B2B relationships (Ganesan, 1994; Jayachandran et al., 2005; Kapoulas et al., 2004). This implies that a customer's predisposition to a supplier relationship does not materially affect CTA's impact on the supplier – customer relationship. However, the raw data were highly skewed (e.g., $\bar{x} = 6.63$, $SD = 0.82$) indicating that the majority of customers considered themselves relationship oriented and hence this dimension of relationships needs to be examined more thoroughly in future research (see Appendix A9.2 for additional detail).

Similarly, the results from testing hypothesis H_8 : *The greater the level of customer CRM expectation the greater the CRM technology adoption effect on (a) relationship strength and (b) relationship performance* was found to be non-significant. These results indicate that any pre-formed customer expectations, based on either previous experience or supplier promises, does not influence CTA's affect on customer relationship strength or performance.

Although market turbulence (MT) and technological turbulence (TT) have been shown to interact significantly with key variables in marketing studies investigating MO and business performance, this was not the case in this study (e.g., Pelham, 1999; Pulendran et al., 2003). Hypothesis H_9 : *The greater the level of market turbulence the stronger the market orientation effect on CRM technology adoption* was found to be non-significant, indicating that MT does not moderate the effect of MO on the adoption of CTA. This is somewhat counter intuitive; one would expect that high customer churn or a more volatile and competitive environment would positively influence the effect of MO on the adoption of business practices aimed at reducing customer churn and dealing with volatility. One interpretation of this result is that firms do not understand the potential application of CRM technology to add value to business relationships in a turbulent market environment. On the other hand firms may simply consider a turbulent market environment as normal.

Neither of the two versions of hypothesis H_{10} : *The greater the level of technology turbulence the stronger the (a) market orientation effect on CRM technology adoption, and (b) the IT management orientation effect on CRM technology adoption* provided

significant results. The lack of technology turbulence, across a variety of industries, to moderate MO and ITMO suggests the application of new technology itself does little to influence the general adoption of CRM technology.

6.4. Research Implications and Contributions

The results of the research provide a number of contributions to theory, research and practice.

6.4.1. Contributions to Theory

The development and empirical testing of the CRM technology adoption – customer relationship (CTA – CR) model, bringing together the IT and marketing research areas, is a key contribution of this study. The CTA – CR model establishes clear links between (a) CRM technology adoption and key relationship marketing components, (b) IT management orientation and CTA, and (c) market orientation and CTA.

In particular, three findings contribute to theory building in the marketing and IT domains. First, CRM technology adoption has been demonstrated to positively affect relationship strength and indirectly affect relationship performance. Jayachandran et al. (2005) demonstrated that relational information processes positively influenced customer relationship performance. The current study expands upon those findings and clearly demonstrates that it is the CRM knowledge management applications and usefulness aspects of the information that are important to the users of CRM technology. In addition the present study also provides empirical support to the Jayachandran et al. qualitative finding that communications (through relationship strength in the current study) plays an important role influencing relationship performance. This study shows that knowledge management plays a key role in CRM technology adoption (Romano & Fjermestad, 2003). This result supports a growing consensus that KM is a competitive advantage for companies with the ability and capability to tap into the customer and competitor information, analyse the information, use it and disseminate the knowledge appropriately throughout the organisation (Bose & Sugumaran, 2003; Bueren, Schierholz, Kolbe, & Brenner, 2005; H. Lee & Choi, 2003).

Second, and perhaps more importantly, market orientation influences relationship strength through CRM technology. The results of this study support the view that market orientation requires a mechanism, such as CRM technology, in order to manifest

itself appropriately (Wright et al., 2002). It may be that one of the underlying reasons for the mixed results and debate surrounding the impact of market orientation is simply the lack of an effective mechanism to deliver specific outcomes from a firm's market orientation (Gray et al., 1998; Langerak, 2003).

Third, IT management orientation positively influences CRM technology adoption, although it does not impact relationship strength and relationship performance directly. Although the results do not completely support Karimi et al. (2001) finding that IT management practices influence CRM technology adoption and customer service (i.e., relationship strength and relationship performance), they do support and extend Karimi et al.'s original study which was focused only on IT managers in financial services. In particular the results of the IT Management Orientation scale, successfully administered to marketing, sales and customer service executives was found to be generalisable, valid and robust across industries and functional areas. These results provide additional empirical evidence that IT management practice is a key component in the initial adoption and success of CRM technology (J. C. Henderson & Venkatraman, 1999; Ling & Yen, 2001; Ravichandran & Rai, 2000).

In addition, while the importance of determining the CRM technology adoption level within a firm has been identified, few studies have focused on understanding and measuring the level of CRM technology adoption by users (Jayachandran et al., 2005; Reinartz et al., 2004). This study introduces a new scale used to determine the level of CRM technology adoption within a firm. This scale measures customer knowledge and CTM usefulness and can be used to predict customer relationship strength and relationship performance. Previous studies attempting to measure CRM practice have not always measured technology adoption, emphasising instead strategic readiness (e.g., Bull, 2003; Payne & Frow, 2006), organisational preparedness (e.g., Liu, 2007; Sin, Tse, & Yim, 2005), systems and process (e.g., Bueren et al., 2005; Jayachandran et al., 2005) or performance benefits (e.g., Ang & Buttle, 2006). However a number of recent studies have focused on the level of IT or CRM investment and resources (e.g., Reinartz et al., 2004; Srinivasan & Moorman, 2005), IT architecture (e.g., Stefanou et al., 2003), and the extent of system integration (e.g., Ling & Yen, 2001; M. Meyer & Kolbe, 2005; Zeng et al., 2003).

The use of the technology adoption model (TAM) is extended into the CRM and marketing research context. TAM has been used extensively to explain and analyse

information systems usage behaviour (Venkatesh & Davis, 2000; Venkatesh et al., 2003), but has not been widely used to investigate CRM usage (cf. Robinson, Marshall, & Stamps, 2005; Wu & Wu, 2005). In particular the results from this study indicate that CRM usefulness, and not ease of use or attitude provides clear support for the applicability, robustness and generalisability of the TAM scales in the CRM technology context. The underlying TAM theory is that users adopt technology which provides some distinct and valuable advantage (F. D. Davis et al., 1989). The current study provides supports that view that implementing new technology and gaining user acceptance depends first and foremost on the usefulness of the application.

The research adds empirical support for the view that CRM requires a holistic conceptualisation; that both IT and marketing need to be involved and work together in order to be successful, and that the firm's business and market orientation needs to be relationship marketing focused and properly aligned with the CRM technology implementation (Mitussis et al., 2006).

6.4.2. Contributions to Methodology

The study reviews methodological issues and obstacles to be considered when conducting dyadic business relationship research. A CRM technology adoption measure was developed and verified. A number of scales have been developed attempting to measure CRM technology from a variety of perspectives. In particular Raman and Pashupati (2004) have attempted to measure the CRM functionality in use, Stefanou et al. (2003) considered the level of CRM technology employed, while Reinartz et al. (2004) developed an instrument to measure the CRM processes utilised within a firm Sin, Tse and Yim (2005) identified and measured the extent of CRM technology support available within firms. The CTA scale developed in this study measures two key value add outcomes of CRM technology adoption. First, from the CRM user's perspective, the extent to which CRM technology helps accumulate and provide customer knowledge (CKN) and second, based on the technology adoption model (TAM), the level of CRM usefulness (USF) to the user (F. D. Davis, 1989).

The use of PLS within a dyadic business-to-business marketing study including moderating variables was demonstrated. The use of PLS to test hypotheses within complex models is still relatively underutilised in marketing. However this multivariate analysis technique "is ideal for the early stages of theory development" and has been

demonstrated as a useful technique for small samples with non-normal distributions, such as found in dyadic research (Grégoire & Fisher, 2006, p. 38).

Traditionally the robustness of multivariate analysis techniques using non-normal data distributions have been demonstrated through Monte Carlo simulation (Hau & Marsh, 2004; Muthén & Kaplan, 1985; Yanagihara & Yuan, 2005). The current research provides a case study of the robustness of factor analysis with highly non-normal (extreme kurtosis and skewness) and transformed data (Rummel, 1970).

The utilisation of the relationship dyad overcomes a key weakness of many previous studies in CRM; specifically taking the research focus and perspective exclusively from the CRM user and not explicitly measuring the potential customer impact (e.g., Jayachandran et al., 2005; Reinartz et al., 2004). In a related sense insights from both the qualitative and quantitative research methods were gained that could only be obtained through the dyadic research model.

6.5. Managerial Implications

Given the uneven CRM technology implementation and adoption success rate, many companies and practitioners are concerned about the return on investment from CRM (Brown & Vessey, 2003; Croteau & Li, 2003; Gummesson, 2004; J. W. Kim et al., 2004; Lemon et al., 2002; Reinartz et al., 2004). This study provides evidence that the firm's level of market orientation will impact CRM technology adoption and relationship marketing outcomes. Providing clear processes for collecting, analysing, using and communicating customer knowledge is important in building better customer relationships. Managers need to spend time to ensure CRM users understand the usefulness of the CRM applications to add value to their jobs as well as the capability of CRM technology to identify and help meet customer needs. For those firms considering CRM adoption, it would be prudent to address the level of market orientation within the firm first. IT management involvement with CRM business decisions at the senior levels of the organisation benefits the extent of CRM technology adoption within the firm, although it does not appear to add any relationship marketing value in and of itself. IT managers need to provide clear communication of IT strategy, effective IT system integration, and quality IT management based on an understanding of the strategic direction of the business, and technology in order to positively impact CRM technology adoption within the firm. People need to understand how CRM technology

will be useful to them in their job and how the CRM system can provide improved customer information and knowledge. The key message here is to take time understanding how the CRM technology fits with the organisation's culture and business requirements, and how it will add value (Day, 1994; Karimi et al., 2001). IT management needs to provide and communicate clear and unambiguous implementation plans, focused on CRM usefulness to customers, users and business requirements. On the other hand implementing CRM technology, no matter how expensive or feature laden, will not by itself automatically deliver relationship benefits. CRM technology is not the silver bullet that can eliminate poor customer relationships, processes or business culture.

Companies looking to implement CRM technology need therefore to consider a balanced portfolio of action. This means cultivating and aligning a customer-centric market orientation, preparing and implementing a comprehensive IT implementation plan, identifying and implementing process change requirements, and communicating the expected CRM technology benefits. A balanced approach can provide a synergy where the whole is more than the sum of the individual parts.

6.5.1. CRM Technology Adoption

CRM technology provides a number of advantages including providing an interactive and broad-based medium for information collection and dissemination. The results of this study indicate that users consider the most important dimensions of CRM technology to be the organisation and provision of customer knowledge (CKN) and the CRM usefulness (USF) of the technology itself. As indicated from the items found to measure CKN, it is the customer knowledge gathering and information storage and retrieval applications that differentiate successful from less successful CRM technology adoptions. This is consistent with the interview data, which suggests both the suppliers and the customers perceive that CRM systems and technology provides better customer history, improved knowledge transfer, and facilitates data collection and data retrieval (refer to Appendix A2 Q12 and Q13 for additional detail).

The items found to measure USF demonstrate a focus on performance, effectiveness and productivity improvements. Other measures indicate that the attitude toward, and acceptance of, CRM technology is a differentiator for adoption. The perspective is again supported by the interview data, with users indicating that CRM system implementation

should provide better integration with other systems, improved knowledge management, and increased sales support (refer to Appendix A2, Q12 and Q13 for additional detail).

From both the survey and the interview data it appears that the users are not overly concerned regarding the specific CRM technology implemented. The responses suggest that customer information collection applications (e.g., knowledge management) and perceived data utilisation applications (e.g., information collection and retrieval) provide the most important advantages. These are deemed to be the applications which help build and sustain relationships.

6.5.2. CRM Application Development

This research provides some useful additional perspectives for CRM software and systems developers. CRM technology can genuinely be used to enhance relationships. In particular, developing applications that combine customer knowledge collection with trust building and appropriate communication tools benefits both customers and suppliers. CRM technology adoption influences customer relationship performance only through customer relationship strength. This implies that mechanisms to support building customer loyalty, improving relationship satisfaction and retaining customers should be strengthened through CRM applications. It is the communications and trust-building features of CRM systems that are most likely to result in performance improvements. CRM technology software and system developers need to look more closely at the features of their systems that can reinforce consistency, relevance, dependability, appropriateness, trust building and communications aspect of CRM.

Enhancements to CRM knowledge management applications can in addition help to smooth the effects of staff turnover and prevent the loss of corporate knowledge (Droege & Hoobler, 2003). CRM databases can provide a knowledge repository for customer information that can bolster the organisation's ongoing and continuous relationship effort (Bose & Sugumaran, 2003; Bueren et al., 2005; H. Lee & Choi, 2003).

6.6. Limitations of the Research Study

The present research focused on only a snapshot in time to test the hypothesised model and provide some general principles. CRM is an evolving process where some of the identified variables, such as market orientation, or customer satisfaction, would be

expected to change over time and vary across firms. That similar traits were exhibited across firms provides justification for the current design and hypothesised model. Since CRM is a dynamic phenomenon a longitudinal design would provide additional benefit; tracking the implementation and adoption of CRM technology over time could further test and refine our insights into the relationship between market orientation, CRM technology adoption and customer relations.

A potential methodological limitation was the small sample size due to the sequential data collection approach required by the dyadic research. The small sample size makes a Type II error more likely, that is, the statistical tests employed may fail to detect significant relationships. The measurement items and relationship constructs are imperfect; there are additional variables which might have been included in the measurement of relationship strength and performance. In addition, factors other than CRM technology are known to affect supplier – customer relationships, such as the strategic fit between organisations (Selnes & Sallis, 2003), inter-firm power asymmetry (J. C. Anderson & Narus, 1984; Iacobucci & Ostrom, 1996; Narayandas & Rangan, 2004), cooperation (J. C. Anderson & Narus, 1990) and commitment (Morgan & Hunt, 1994). Expanding the model to include additional relational factors could uncover additional CRM technology linkages and benefits, as well as provide a better understanding of CRM technology within a broader relationship context.

The CTA operational measures did not differentiate functionality or the integration of the actual CRM technology adopted. The result of the exploratory factor analysis (EFA) indicates that the scales did not adequately measure the functionality and integration constructs. The CRM scales were newly created for this study, and therefore there exists opportunity for further measurement refinement. The scope of the present findings contributes useful insights and the incorporation of additional factors is left for further research.

6.7. Directions for Further Research

The combination of marketing and information technology provides many opportunities for research and the results of this study open a number of avenues for further investigation. Although the results indicate customer relationship orientation showed no significant moderating effect on CTA, the customer data were highly skewed towards relationship orientation. Given the positive impact of CRO reported by

(Jayachandran et al., 2005) there is a need to investigate further and better understand the impact of the customer's perspective on relationships. The exploratory interview data, as well as the survey data, indicate customer expectations development and subsequent consequences is a promising research area, since suppliers adopting CRM technology, but not achieving (or managing) customer expectations may create customer dissatisfaction, to the detriment of their CRM implementation and relationship-building efforts.

The impact of market turbulence and technology turbulence on CRM technology adoption may be influenced by industry. Identifying and investigating CRM technology adoption in industries that are more susceptible to market and technology turbulence (i.e., technology based products and services) would be beneficial in understanding the potential differential effects of CRM technology adoption and impact between industry sectors. A portion of the reported CRM failures may simply stem from specific industries inappropriately implementing CRM technology as a proxy for a customer-centric business strategy.

A small number of interview participants indicated that customer expectations may be developed with the awareness that supplier firms have implemented CRM. If so, there is a danger that customer expectations may not be realised by supplier firms causing a relationship backlash. Research into this area, including the impact of CRM implied and explicit promises on relationships, may be a fruitful avenue of study. Similarly, from the dyadic-based interviews, a number of customers stated that the supplier firm was not market oriented, contrary to the supplier's perception. The inability for firms to accurately self-report their market orientation has been reported in the literature (S. Henderson, 1998). Therefore there may be some advantage to use the customer's perception of the supplier's market orientation in the CTA – CR model.

Another research approach is to investigate CRM technology adoption and the link to business performance measures of both the supplier and the customer sides. Is there a flow-on effect to the customer from a supplier firm adopting CRM? The current research attempted to provide generalisable results by aggregating a number of different industries, however, CRM technology adoption and relationship market orientation may have differential effect based on the type of industry (Yau et al., 2000). In addition firm size may impact the adoption, functionality and integration of CRM deployed, since

larger companies spend more on information technology than smaller firms (Mahmood & Mann, 1993; Mitra & Chaya, 1996).

6.8. Conclusion

The research brought together a number of domains and areas of marketing and IT, including technology adoption, customer relationship management, and relationship marketing. Market orientation and IT management orientation were considered and found to be antecedents to CRM technology adoption. A CTA measurement instrument was developed in order to provide a measure of CTA technology implemented and adopted by firms. The dependent variables were relationship strength and relationship performance measured from the customer perspective. The independent variables consisted of market orientation, IT management orientation and CTA. Data collection began with ten dyadic (matched supplier – customer) interviews used to inform the model and scale development. A mail survey, using matched pairs of suppliers and customer (supplier – customer dyads) provided the data which were analysed using PLS. The results were interpreted in light of the existing literature and the qualitative data captured in the exploratory phase of the research.

The results showed that greater CRM technology adoption improves relationship strength and consequently relationship performance. As expected, the level of IT management orientation (ITMO) within a firm positively influences CRM technology adoption. This suggests that companies which embrace IT as part of their business strategy more successfully adopt and benefit more from CRM technology.

More interestingly however, are the results which indicate that market orientation works through CTA to positively affect relationship strength, but does not directly influence relationship strength. This finding suggests that the firm's market orientation is leveraged through CRM technology, and that gaining maximum benefits from CRM technology depends on a firm's level of market orientation. The results also demonstrate that CTA can, itself, influence relationship strength and relationship performance through trust-building and communications functionality.

The outcomes of the research met the objectives set out in Chapter 1, which were to:

- ***Determine whether CRM technology adoption has a positive effect on business-to-business relationships and the extent of that impact.*** The results

of the PLS analysis show that CTA does have a significant and positive effect on B2B relationships.

- ***Determine whether the supplier firm's market orientation and IT management orientation has a positive effect on CRM technology adoption and the extent of that impact.*** The results demonstrate that market orientation and IT management orientation do significantly and positively influence CRM technology adoption within a firm.
- ***Contribute to the current marketing and IT literature on CRM technology and relationship marketing.*** This study adds to the growing CRM literature in the business-to-business context. The results complement a number of recently published studies and extend the research into new areas, methodologically by incorporating dyadic research techniques using PLS, and developing a CRM technology adoption measurement instrument. In addition the data provide support for the CTA – CR conceptualisation, and the link between CRM technology and relationship marketing has been empirically demonstrated.
- ***Inform CRM practitioners engaged in CRM implementation and software development.*** The study is of interest to businesses that currently have CRM systems or are considering CRM technology implementation - sixty-three supplier respondents requested a summary of the results. The findings benefit CRM vendors and software developers through an improved understanding how CRM technology adoption, products and applications affect customer relationships. This has the potential for improved CRM applications around B2B relationships.

6.8.1. Closing Remarks

In spite of the mixed reviews and variable levels of reported success regarding its effectiveness, companies continue to implement CRM and the associated technology in an attempt to improve business performance (Bohling et al., 2006; Boulding, Staelin, Ehret, & Johnston, 2005; Reinartz et al., 2004). There is a growing concern that the classical 4Ps of marketing are no longer sufficient for business success and that businesses need to focus more on long-term relationships with customers and partners (Day et al., 2004; Mithas et al., 2005). Companies generally invest in technology to achieve tangible results and CRM technology has been heralded as a vehicle for implementing relationship marketing (Jayachandran et al., 2005). This study provides

clear evidence that CRM technology adoption by a firm can significantly and positively affects customer relationships, thereby improving customer satisfaction, loyalty and retention. The extent of the effect is dependent on the level of market orientation within the firm. These findings support the view that a sufficient level of market orientation, coupled with CRM technology and supported by appropriate IT management positively affects customer relationship strength and relationship performance. The challenge to both the businesses implementing CRM technology and the CRM vendors themselves is properly developing and implementing all the customer facing, knowledge management and communications components comprehensively in order to gain more than simply what a 'sum of the individual parts' might suggest. This study provides guidance as to what areas of CRM technology need to be emphasised in order to improve customer relationships. It also provides insights to CRM vendors regarding application development areas to assist their customers in implementing successful CRM technology.

APPENDIXES

Appendix A1: Interview Protocols and Contact Summary Forms

Field Interview Protocol - Supplier

Section 1: Research and interview objectives

Overall research issues

The overall objectives of this research are to determine, by interviewing firms and their customers:

- Whether CRM technology adoption has any effect on business-to-business relationship development and the extent of that impact.
- Whether the firm's orientation (market orientation and technology orientation) has any effect on CRM technology adoption and the extent of that impact

Research questions

1. What is the impact of CRM technology on B2B customer relationships?
2. How does the market orientation of the firm affect the adoption of CRM?
3. How does the technology orientation of the firm affect the adoption of CRM?
4. Do different CRM functionality, adoption and integration affect the relationship strength between the firm and its customers?
5. What constitutes relationship strength within a B2B relationship?
6. How is relationship strength measured?
7. How do firms measure relationship performance?

Benefits

8. How does CRM technology adoption influence relationship strength and performance?

Interview objectives

- Determine whether respondents are familiar with and understand the constructs.
- Ensure that the terminology to be used in the questionnaire is understandable by practitioners and customers.
- Identify any new or obsolete variables.
- Identify problems managers have encountered implementing and adopting CRM technology.
- Identify how managers use CRM to accomplish relationship-building goals.
- Identify performance measures related to CRM adoption and relationship building.

Section 2: Introduction of project for participant

Thank you for taking your time to participate in this interview.

Description of project:

As outlined in the information brief my research concerns understanding the link between customer relationship management (CRM) technology use and customer relationship development and maintenance. Your firm has been identified as a user of CRM technology and therefore I would like to learn what you have experienced during and after your CRM implementation and adoption.

Format of questions and information sought during the interview

I have developed a set of open-ended questions in order to gain a deeper understanding of the CRM technology as adopted in your company and how you perceive the impact of CRM technology on customer relationships. Please feel free to talk about whatever comes to mind regarding these issues.

It would be appreciated if you could nominate and provide contact details for three of your customers. One or two of the nominated customers will be asked to participate in an interview to examine their perception of the relationship strength and performance between the two companies including the perceived impact of CRM technology.

Do you have any reservations nominating three customers? **Yes** **No**

Involvement of other companies in this study

Similar conversations have been or will be held with marketing executives and customers from other companies in a variety of industries. Based on what I learn from these conversations, a questionnaire will be developed and distributed to a large number of companies in 2005. Each participating company will receive a summary report of the study results at the end of the project.

Ethical issues

My university's ethics committee requires me to inform you that:

- Your answers will remain confidential and anonymous.
- You can refuse to answer questions or discontinue this conversation at any time.

- With your permission your answers will be taped. The tape will be transcribed for subsequent analysis, and destroyed at the end of the project. Taping the conversation allows me to stay focused on the conversation.

Do you have any reservations about me taping the conversation? Yes No

Do you have any questions before we start the interview?

Company name: _____ ANZSIC: _____

Time of Interview: _____ Date: _____

Place: _____ Interviewer: _____

Participant (Interviewee): _____ # of employees _____

Position: _____ Revenues: _____

Section 3: Interview questions

CRM – Relationship Model Firm Interview Protocol

General questions

- 1.) Tell me about your role in the company.
- 2.) How would you characterise your firm's customer relationships?
- 3.) Tell me about the CRM technology implemented in your company?

- 4.) What do you think prompted the company to adopt CRM technology?
(Who first brought it up – IT, Marketing, Sales, or Senior Management?
What was going on within the company at the time it was first discussed?)

Market and technology orientation characteristics

Market orientation can be characterised by the firm's gathering of market intelligence to help understand and react to current and future customer needs, taking into consideration competitive capabilities and response.

- 5.) Do you consider your company to be market oriented? Why or why not?

- a. In your opinion does this orientation have a bearing on the type and strength of your B2B customer relationships? How so?
- b. In your opinion does this orientation have a bearing on the functionality, integration and acceptance of CRM technology? How so?

Technology orientation can be characterised by the firm's IT management sophistication and leadership. Firms in which IT management and leadership hold senior positions and direct the firm's business tend to benefit more from technology.

- 6.) Do you consider your company to be technology oriented? Why or why not?

- a. In your opinion does technology orientation have a bearing on the functionality, integration and acceptance of CRM technology within your firm?

CRM adoption characteristics

- 7.) Can you tell me what CRM functions you have in place? What does the CRM technology actually do for you? The customer? The business?

- 8.) What CRM functions would you like to have?

- 9.) As far as you know what CRM functions are available?

- a. What functionality best describes the CRM technology implemented at your firm?

Stand-alone address book	Contact Management	Sales support	Integrated with customer support	Integrated with some departments	Enterprise-wide integration	Partner collaboration
1	2	3	4	5	6	7

- b. What functions does your CRM system provide? Choose that entire match.

Manual customer surveys	☐	Manual recording	☐
Data collection	☐	Analytics	☐
Campaign management	☐	Sales automation	☐
Data Mining	☐	Marketing automation	☐
Lead distribution	☐	Contact management	☐
Sales management	☐	Customer self-service	☐
Call centre integration	☐	Web-based self-service	☐
Collaborative communication	☐	Customer retention rates	☐
Measures customer loyalty	☐	Calculates customer lifetime value	☐
Handles multi-channel	☐	Synchronises customer interactions	☐
Derives customer value	☐	Forecast demand	☐
Provides relevant information	☐	Ad hoc queries	☐
Churn analysis	☐	Propensity scoring	☐
Other, please describe:	<input type="text"/>		

10.) Do you believe CRM technology is widely used within the company? By whom? Why?

11.) Is the CRM technology widely integrated with other IT systems (functional areas or process) within your company? [i.e., Finance, Accounts Receivable, Operations, Customer Service, etc]

12.) What are your expectations of CRM technology? What do the employees think of the CRM technology?

13.) What does CRM technology help you do better?

14.) How does CRM technology help initiate, develop and/or maintain Business-to-Business (B2B) relationships?

Relationship characteristics

15.) What terms would you use to describe B2B relationships?

16.) What do you consider to be the Key elements of a B2B relationship?

17.) In your opinion what are drivers of a strong B2B relationship?

- 18.) How would you prioritise each of the following within a B2B relationship?
- a. Trust
 - b. Power
 - c. Control
 - d. Commitment
 - e. Satisfaction
 - f. Cooperation
 - g. Performance
 - h. Conflict & conflict resolution
- 19.) What role does trust play in a B2B relationship?
- 20.) What role does commitment play in a B2B relationship?
- 21.) What role does communications quality play in a B2B relationship? How is communications quality improved?
- 22.) In your opinion how does CRM technology affect relationship building and relationship strength?

Measuring relationship performance

- 23.) From your perspective what is relationship performance? How is relationship performance generally measured?
- 24.) How would you prioritise these measures?
- 25.) In your opinion how does CRM technology adoption affect relationship performance?

26.) Is customer satisfaction important to you? Your firm? How do you measure customer satisfaction?

27.) Is customer loyalty important to you? Your firm? How do you measure customer loyalty?

28.) Is customer retention important to you? Your firm? How do you measure customer retention?

29.) In what ways do you see CRM technology affecting these elements of a relationship?

Thank you for your participation. All your responses are confidential. If requested a copy of the report will be available to you when the research is completed.

Field Interview Protocol - Customer

Section 1: Research and interview objectives

Overall research issues

The overall objectives of this research are to determine, by interviewing firms and their customers:

- Whether CRM technology adoption has any effect on business-to-business relationship development and the extent of that impact
- Whether the firm's orientation (market orientation and technology orientation) has any effect on CRM technology adoption and the extent of that impact

Research questions

1. What is the impact of CRM technology on B2B customer relationships?
2. How does the market orientation of the firm affect the adoption of CRM?
3. How does the technology orientation of the firm affect the adoption of CRM?
4. Do different CRM functionality, adoption and integration affect the relationship strength between the firm and its customers?
5. What constitutes relationship strength within a B2B relationship?
6. How is relationship strength measured?
7. How do firms measure relationship performance?

Benefits

8. How does CRM technology adoption influence relationship strength and performance?

Interview objectives

- Determine whether respondents are familiar with and understand the constructs.
- Ensure that the terminology to be used in the questionnaire is understandable by practitioners and customers.
- Identify any new or obsolete variables.
- Identify problems managers have encountered implementing and adopting CRM technology.
- Identify how managers use CRM to accomplish relationship building goals.
- Identify performance measures related to CRM adoption and relationship building.

Section 2: Introduction of project for participant

Thank you for taking your time to participate in this interview.

Description of project:

As outlined in the information brief my research concerns understanding the link between customer relationship management (CRM) technology use and customer relationship development and maintenance. Your firm has been nominated by a firm using CRM technology and therefore I would like to learn about your relationship experience with this firm.

Format of questions and information sought during the interview

I have developed a set of open-ended questions in order to gain a deeper understanding of the CRM technology effect on customer relationships. Please feel free to talk about whatever comes to mind regarding these issues.

Involvement of other companies in this study

Similar conversations have been or will be held with marketing executives and customers from other companies in a variety of industries. Based on what I learn from these conversations, a questionnaire will be developed and distributed to a large number of companies in 2005.

Ethical issues

My university's ethics committee requires me to inform you that:

- Your answers will remain confidential and anonymous.
- You can refuse to answer questions or discontinue this conversation at any time.
- With your permission your answers will be taped. The tape will be transcribed for subsequent analysis, and destroyed at the end of the project. Taping the conversation allows me to stay focused on the conversation.

Do you have any reservations about me taping the conversation? **Yes** **No**

Do you have any questions before we start the interview?

Company name: _____ ANZSIC: _____

Time of Interview: _____ Date: _____

Place: _____ Interviewer: _____

Participant (Interviewee): _____ # of employees _____

Position: _____ Revenues: _____

Section 3: Interview questions

CRM – Relationship Model Customer Interview Protocol

General questions

- 1.) Can you tell me a little about your role in your company?
- 2.) Tell me about your relationship with (company name).
- 3.) What do you think prompted that company to adopt CRM technology?
- 4.) What do you consider to be the key elements of a B2B relationship?

Relationship characteristics

- 5.) What terms would you use to describe B2B relationships?
- 6.) How do you measure relationship strength? How do you think relationship strength is generally measured?

7.) In your opinion what are drivers of a strong B2B relationship?

8.) How would you prioritise each of the following within a B2B relationship?

- a. Trust
- b. Power
- c. Control
- d. Commitment
- e. Satisfaction
- f. Cooperation
- g. Performance
- h. Conflict and conflict resolution

9.) What role does trust play in a B2B relationship?

10.) What role does commitment play in a B2B relationship?

11.) What role does communications quality play in a B2B relationship? How is communications quality improved?

12.) In your opinion how does CRM technology affect relationship building and relationship strength?

Measuring relationship performance

13.) From your perspective what is relationship performance? How is relationship performance generally measured?

14.) How would you prioritise these measures?

23.) In what ways do you see CRM technology affecting elements of a relationship?

24.) Do you consider yourself to be relationship oriented? Is your firm relationship oriented?

Thank you for your participation. All your responses are confidential. If requested a copy of the report will be available to you when the research is completed

Appendix A2: Interview Data Display Summaries

Table A2.1: Interview Questionnaire Summary

Firm	Cust		F1	C1	F2	C2	F3	C3	F4
Q4	Q3	What do you think prompted the company to adopt CRM technology?	Right product	No idea	Leverage growth	No idea	multiple contacts with multiple customers	Long-term relationships; Key Success Factor	Determined a Need
Q5		Do you consider your company to be market oriented?	Yes		Yes		Yes		Yes
	Q22	Do you perceive the supplier firm to be market oriented?		Yes		Yes		Yes	
Q5a		In your opinion does this orientation have a bearing on the type and strength of your B2B customer relationships?	Yes		Yes		Yes		Yes
Q5b		In your opinion does this orientation have a bearing on the functionality, integration and acceptance of CRM technology?	Yes		Yes		Yes		No
Q6		Do you consider your company to be technology oriented?	Yes		unknown		Yes		No
Q6a		In your opinion does technology orientation have a bearing on the functionality, integration and acceptance of CRM technology within your firm?	Yes		unknown		Yes		Yes
Q7		Can you tell me what CRM functions you have in place?	Yes		Yes		Yes		Yes
Q8		What CRM functions would you like to have?	known		unknown		known		unknown
Q9		As far as you know what CRM functions are available?	some		known		unknown		some
Q9a		What functionality best describes the CRM technology implemented at your firm?	3 - 4		6 - 7		2		3

Firm	Cust		F1	C1	F2	C2	F3	C3	F4
Q10		Do you believe CRM technology is widely used within the company?	Yes		Yes		Yes		No
Q11	Q21	Is the CRM technology widely integrated with other IT systems (functional areas or process) within your company?	Yes	No	Yes	Don't know	No	No	No
Q12	Q19	What are your expectations of CRM technology?	Better integration w/ other sys	None	KM	None	Not high; meets needs	Structured communications; consistency; persistence; instructional; change behaviours	sales support system; analyse sales
Q13		What does CRM technology help you do better?	customer service		reminders		manage information		automates; client history
Q14	Q20	How does CRM technology help initiate, develop and/or maintain Business-to-Business (B2B) relationships?	history; trends; customer needs	Purpose built system	big picture	Research ability; analytics	record; communications	Only a tool; combines DBs; assists, analytics	knowledge capture
Q15	Q5	What terms would you use to describe B2B relationships?	empathy; regular contact	Personal level	value; communication; understanding; knowledge	Value; understanding; communications; contracts; personalities	practical; deliver; needs focused	Performance; treatment; understanding; importance	different for different people
Q16	Q4	What do you consider to be the Key elements of a B2B relationship?	friendliness; contacts	Reliability; integrity; honesty	respect; performance	Value; flexibility; formal structure; trust	trust; respect	Competence; communication; flexibility; timeliness; speed; responsiveness	honesty; informed; forewarning
Q17	Q7	In your opinion what are drivers of a strong B2B relationship?	value	Mutual benefit	performance	Mutual value; personality	trust; respect	Personality; people; consistency; levels of engagement	people

Firm	Cust		F1	C1	F2	C2	F3	C3	F4
Q19	Q9	What role does trust play in a B2B relationship?	deliver	Vital	important	Assumption; Builds over time	essential	Fundamental	huge
Q20	Q10	What role does commitment play in a B2B relationship?	important	Vital	important	Low priority	important	Varies on nature of the relationship	huge
Q21	Q11	What role does communications quality play in a B2B relationship?	vital	Prevents misunderstanding	valuable	Initially very important	essential	Extremely important	huge
Q22	Q12	In your opinion how does CRM technology affect relationship building and relationship strength?	support role	Only a tool; does not create a relationship	continuity	Standardised practices; overcomes information & cultural boundaries	communications	Only a tool; enabler	support role
Q23	Q13a	From your perspective what is relationship performance?	Customer satisfaction; maintain relationship; not lose a client	Ranking; helps you grow the business; understand the customer business	Commitment; loyalty	Don't know; Quality of the relationship outside the value add	Nature of the relationship; More business; loyalty	Achieving outcomes that both parties want; task related; interpersonal	Trust level; share of mind; loyalty
Q23a	Q13a	How is relationship performance generally measured?	Not done	Not done	Measure commitment; winning tenders	Not done	Number of unique contacts per month	Volumes; revenues; costs incurred; quality of relationship	Not done
Q25	Q15	Does CRM technology adoption affect relationship performance?	Yes	Enhances	Yes	Knowledge transfer; benchmarking	Yes	Enabler; tool for face to face sales	only in support role

Firm	Cust		F1	C1	F2	C2	F3	C3	F4
Q26	Q16	Is customer satisfaction important to	Yes	No	Yes	Yes	Yes	Yes	Yes
Q26a	Q16a	Your firm?	Yes	No	Yes	Yes	Yes	Yes	Yes
Q27		Is customer loyalty important to you?	Yes		Yes		Yes		Yes
Q27a		Your firm?	Yes		Yes		Yes		Yes
	Q17	Is being loyal to your supplier important to you?		Yes		No		Yes	
	Q17a	Your firm?		Yes		No		Yes	
Q28		Is customer retention important to you?	Yes		Yes		Yes		Yes
Q28a		Your firm?	Yes		Yes		Yes		Yes
	Q18	Is staying with the same supplier important to you?		Yes		Yes & No		Yes	
	Q18a	Do you think customer retention is important to your supplier?		Yes		Yes & No		Yes	
Q29	Q23	Do you see CRM technology affecting these elements of a relationship?	somewhat	Yes	Yes	Standards; organisational memory; DB search capabilities	Yes	Enhancement tool	somewhat
	Q24	Do you consider yourself to be relationship oriented?		Yes		No		Yes	
	Q24a	Is your firm relationship oriented?		Yes		No		Yes	

Firm	Cust		C4	F5	C5	F6	C6	F7	C7
Q4	Q3	What do you think prompted the company to adopt CRM technology?	Keep up-to-date	customer conversions; paper trail	Data capture; sales churn	time management	Improve business efficiencies	Competitive advantage	Automate relationship management data
Q5		Do you consider your company to be market oriented?		Yes		Yes		Yes	
	Q22	Do you perceive the supplier firm to be market oriented?	Yes		No		Yes & No		Yes
Q5a		In your opinion does this orientation have a bearing on the type and strength of your B2B customer relationships?		Yes		Yes		No	
Q5b		In your opinion does this orientation have a bearing on the functionality, integration and acceptance of CRM technology?		No		No		Yes	
Q6		Do you consider your company to be technology oriented?		Yes		No		No	
Q6a		In your opinion does technology orientation have a bearing on the functionality, integration and acceptance of CRM technology within your firm?		No		No		Yes	
Q7		Can you tell me what CRM functions you have in place?		Yes		Yes		Yes	
Q8		What CRM functions would you like to have?		known		known		don't care	
Q9		As far as you know what CRM functions are available?		unkown		known		known	
Q9a		What functionality best describes the CRM technology implemented at your firm?		3 - 5		2		6	

Firm	Cust		C4	F5	C5	F6	C6	F7	C7
Q10		Do you believe CRM technology is widely used within the company?		No; sales yes - reluctantly		Yes		Yes	
Q11	Q21	Is the CRM technology widely integrated with other IT systems (functional areas or process) within your company?	Don't care	No	No	No	Yes	Yes	Don't know
Q12	Q19	What are your expectations of CRM technology?	None	collect & retrieve customer info	Account history; understand what is important to me	collect & retrieve customer info; efficiencies	None	not high	None
Q13		What does CRM technology help you do better?		knowledge; customer service		collect & retrieve customer info; efficiencies		customer service queries	
Q14	Q20	How does CRM technology help initiate, develop and/or maintain Business-to-Business (B2B) relationships?	Formalise, timely responses; good info	a tool	KMS; customer management; coordination of customer data; availability of customer data	information organising tool	Marketing tool; good info; tracking	No; leads maybe	Can not initiate; reactive; efficiencies; automated reminders
Q15	Q5	What terms would you use to describe B2B relationships?	Performance; ethical; honesty; operations; records	open; honest; proactive; friendly; fun	Appropriate contact; reliability; performance; commitment	culture	-	honest; give and take	Partnership; give & take; honesty; marriage
Q16	Q4	What do you consider to be the Key elements of a B2B relationship?	Understand requirements; honesty	trust; understanding customer	Understand customer's business; what is critical	trust; communications; credibility; flexibility	Information sharing	trust; honesty; goodwill; reliable; good handshake	Honesty; communications
Q17	Q7	In your opinion what are drivers of a strong B2B relationship?	Matching of product requirements; honesty; fiduciary; ethics	knowing & buying-in to customer strategy	Trust; confidence; reliability; personal chemistry	regular interaction; information; solutions	-	trust; reliability	People; reputation; gut feel

Firm	Cust		C4	F5	C5	F6	C6	F7	C7
Q19	Q9	What role does trust play in a B2B relationship?	Industry depends on trust	Huge	Critical	critical	Very important	ultimate selling tool	Very important
Q20	Q10	What role does commitment play in a B2B relationship?	Industry depends on commitment	follows trust	Helps build trust; 2-way	stability	Very important	basis for best result	Delivery; degree of trust
Q21	Q11	What role does communications quality play in a B2B relationship?	Reasonably high	huge	Big role; necessary; nothing will happen without it	critical	Extremely high	understanding; same songsheet	Easier
Q22	Q12	In your opinion how does CRM technology affect relationship building and relationship strength?	Risk of depersonalising relationship		Add value; corporate memory; internal communications; can detract from 1:1 contact	reliability; context; credibility	Complete history at hand	None	Operationally; NOT face-to-face
Q23	Q13a	From your perspective what is relationship performance?	Commitment	Customer satisfaction; trust	Customer satisfaction; loyalty	Value the customer places on the relationship; added value	Timely information; timely delivery; customer satisfaction	How you feel about the relationship	Being professional; communication
Q23a	Q13a	How is relationship performance generally measured?	Customer satisfaction	Not done	Sales growth; complaints	Sales; profitability; mutual relationship value; keen ness to renew contract	Not done	Winning the business	Not done
Q25	Q15	Does CRM technology adoption affect relationship performance?	Potential to improve	No	Highlights issues; identifies problems	Yes	Timely info	No	Not sure

Firm	Cust		C4	F5	C5	F6	C6	F7	C7
Q26	Q16	Is customer satisfaction important to	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q26a	Q16a	Your firm?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q27		Is customer loyalty important to you?		Yes		Yes		Yes	
Q27a		Your firm?		Yes		No		Yes	
	Q17	Is being loyal to your supplier important to you?	No		Yes		Yes		Yes
	Q17a	Your firm?	No		Yes		Yes		Yes
Q28		Is customer retention important to you?		Yes		Yes		Yes	
Q28a		Your firm?		Yes		No		Yes	
	Q18	Is staying with the same supplier important to you?	No		Yes		Yes & No		Yes
	Q18a	Do you think customer retention is important to your supplier?	Yes		Yes		Yes		Yes
Q29	Q23	Do you see CRM technology affecting these elements of a relationship?	No	part of the mix	Take surprise out	quality; timeliness; consistency	Data tool only	retention only	Operationally
	Q24	Do you consider yourself to be relationship oriented?	Yes		Yes		Yes		Yes
	Q24a	Is your firm relationship oriented?	Yes		Yes		Yes		No

Firm	Cust		F8	C8	F9	C9	F10	C10
Q4	Q3	What do you think prompted the company to adopt CRM technology?	New people from IT; needed at sales level	Don't know	Internal focus; global reporting tool	Don't know	Competitive reasons	No idea
Q5		Do you consider your company to be market oriented?	Yes		Yes		Yes	
	Q22	Do you perceive the supplier firm to be market oriented?		Yes		No		No
Q5a		In your opinion does this orientation have a bearing on the type and strength of your B2B customer relationships?	Yes		Yes		Yes	
Q5b		In your opinion does this orientation have a bearing on the functionality, integration and acceptance of CRM technology?	Yes - long-term; No - now		No		Yes	
Q6		Do you consider your company to be technology oriented?	No		Yes		Yes	
Q6a		In your opinion does technology orientation have a bearing on the functionality, integration and acceptance of CRM technology within your firm?	Not sure		Yes		Yes	
Q7		Can you tell me what CRM functions you have in place?	Yes		Yes		Yes	
Q8		What CRM functions would you like to have?	known		known		known	
Q9		As far as you know what CRM functions are available?	known		known		unkown	
Q9a		What functionality best describes the CRM technology implemented at your firm?	2 - 3		5		2 + 5	

Firm	Cust		F8	C8	F9	C9	F10	C10
Q10		Do you believe CRM technology is widely used within the company?	No		No - within sales, marketing & sr. management only		No	
Q11	Q21	Is the CRM technology widely integrated with other IT systems (functional areas or process) within your company?	No	Don't know	No	No	No	No idea
Q12	Q19	What are your expectations of CRM technology?	don't see full value	None	efficiencies; not be a burden	None	service customers better	No
Q13		What does CRM technology help you do better?	sales management		sales process; planning; information		information; analysis	
Q14	Q20	How does CRM technology help initiate, develop and/or maintain Business-to-Business (B2B) relationships?	not much; helps drive internal behaviour	Better customer info; invitations to events	information	Capture stakeholder info & record; vehicle to provide process	understand & meet customer needs & wants	Knowledge; customer info
Q15	Q5	What terms would you use to describe B2B relationships?	trust; mutual beneficial; ethical; professional; long-term; reputation	Trust; confidence	outcomes; challenging; rewarding	Trust; value; contractual; meeting of minds; confidence	important; personal	Customer - supplier
Q16	Q4	What do you consider to be the Key elements of a B2B relationship?	trust; mutual beneficial	Understand each other's processes	trust; value add; mutually beneficial; understand goals	Don't know	service; advice	Contact; Value
Q17	Q7	In your opinion what are drivers of a strong B2B relationship?	mutual value add; rapport	Don't know	Face to face time; delivery; performance	Evidence of value; understanding; alignment; outcomes; cooperate	partnership; knowledge of customer business and products	Increase revenue

Firm	Cust		F8	C8	F9	C9	F10	C10
Q19	Q9	What role does trust play in a B2B relationship?	fundamental	Performance; will deliver	Significant	Certainty of supply; info sharing; quality; type of relationship	Vital	Required
Q20	Q10	What role does commitment play in a B2B relationship?	important; long-term	Takes care of problems	Paramount	Important; investment in relationship	strong	One-way only
Q21	Q11	What role does communications quality play in a B2B relationship?	helps	Important; need to understand each other	Very High	Important; clear messages; trust; governance framework; info sharing		Want limited contact; too sales focused
Q22	Q12	In your opinion how does CRM technology affect relationship building and relationship strength?	the more you know the better the communications	It can; pushing sales	None	No evidence	Information tool	Yes
Q23	Q13a	From your perspective what is relationship performance?	Help each other achieve goals; customer satisfaction	Acknowledging and understanding their role with the customer	Score card; Trust, commitment, delivery, value, ongoing contribution	Realising value proposition of both parties; confidence; trust	Successful partnering; provide solutions/tools to customer to help meet their goals	Sales
Q23a	Q13a	How is relationship performance generally measured?	Not done	Service level agreements	Surveys	Performance; communications	Subjectively; how the customer feels or thinks	Sales volume
Q25	Q15	Does CRM technology adoption affect relationship performance?	Yes	Yes	Yes	No evidence; help measure value	Yes	Yes

Firm	Cust		F8	C8	F9	C9	F10	C10
Q26	Q16	Is customer satisfaction important to	Yes	Yes	Yes	Yes	Yes	Yes
Q26a	Q16a	Your firm?	Yes	Yes	Yes	Yes	Yes	Yes
Q27		Is customer loyalty important to you?	Yes		Yes		Yes	
Q27a		Your firm?	Yes		Yes		Yes	
	Q17	Is being loyal to your supplier important to you?		Yes		Somewhat		No
	Q17a	Your firm?		No		Somewhat		No
Q28		Is customer retention important to you?	Yes		Yes		Yes	
Q28a		Your firm?	Yes		Yes		Yes	
	Q18	Is staying with the same supplier important to you?		No		No		Can't be bothered to change
	Q18a	Do you think customer retention is important to your supplier?		Yes		Yes		No
Q29	Q23	Do you see CRM technology affecting these elements of a relationship?	critical	Performance; will deliver	not strong	Tracking common issues; a tool	Strongly	No
	Q24	Do you consider yourself to be relationship oriented?		Yes		Yes		No
	Q24a	Is your firm relationship oriented?		Yes		No		No

Table A2.2: Summary of CRM Technical Functionality Provided

	RecCo	DocCo	BankCo	CompCo	Telco	FNC	BMS	Comtel	MarCo	TecCo	Total	Rank	Degree of CRM Use
Provides relevant information	1	1	1	1	1	1	1	1	1	1	10	1	High use
Contact management	1	1	1	1	1		1	1	1	1	9	2	
Data collection	1	1	1	1	1	1	1	1		1	9	2	
Manual recording	1		1	1	1	1	1	1	1	1	9	2	
Sales management	1	1	1	1	1	1		1	1	1	9	2	
Campaign management	1	1		1	1		1	1	1		7	6	Medium use
Collaborative communication	1	1			1	1		1	1		6	7	
Manual customer surveys	1	1	1	1	1		1				6	7	
Ad hoc queries	1	1	1	1		1					5	9	
Analytics	1	1	1	1	1						5	9	
Forecast demand	1	1	1	1				1			5	9	
Lead distribution	1	1	1		1		1				5	9	
Data Mining	1	1	1			1					4	13	
Derives customer value	1		1	1		1					4	13	
Measures customer loyalty	1		1	1		1					4	13	
Call centre integration	1		1				1				3	16	Low use
Churn analysis	1	1	1								3	16	
Customer retention rates	1	1	1								3	16	
Handles multi-channel	1	1		1							3	16	
Marketing automation	1	1	1								3	16	
Propensity scoring	1	1	1								3	16	
Sales automation	1	1		1							3	16	
Web-based self-service		1	1				1				3	16	
Customer self-service	0.5	1	1								2.5	24	
Calculates customer lifetime value	1		1								2	25	
Synchronises customer interactions	1	1									2	25	
Other, please describe:											0	27	
Total	24.5	21	21	14	10	9	9	8	6	5	128		
Rank	1	2	2	4	5	6	6	8	9	10			
Degree of CRM functionality	High			Medium			Low						

Note: Full functionality = 1; Partial functionality = 0.5; No functionality reported = blank

Table A2.3: Summary of CRM Functionality Implemented

Firm	Stand-alone address book	Contact Management	Sales support	Integrated with customer support	Integrated with some departments	Enterprise- wide integration	Partner collaboration	Average rating	Lowest rating	Highest rating	Average		
	1	2	3	4	5	6	7				Rating	No.	Firms
TecCo			x	↔	x			3.5	3.0	4.0	2.0	2	F3; F6
RecCo						x	↔	6.5	6.0	7.0	2.5	1	F8
MarCo		x						2.0	2.0	2.0	3.0	1	F4
FNC			x					3.0	3.0	3.0	3.5	2	F1; F10
Telco			x	↔	x			4.0	3.0	5.0	4.0	1	F5
BMS		x						2.0	2.0	2.0	4.5	0	
DocCo						x		6.0	6.0	6.0	5.0	1	F9
Comtel		x	↔	x				2.5	2.0	3.0	5.5	0	
CompCo					x			5.0	5.0	5.0	6.0	1	F7
BankCo		x			x			3.5	2.0	5.0	6.5	1	F2
	0	4	4	2	3	2	1	3.8	2.0	7.0		10	

Summary of Question 9a - What functionality best describes the CRM technology implemented at your firm?

Table A2.4: CRM Integration Rating and Relationship Impact

Firm	Integration rating	Relationship Strength	Relationship Performance
TecCo	3.5	Enabler	Positive
RecCo	6.5	KMS	Positive
MarCo	2.0	KMS	Positive
FNC	3.0	Enabler	Enabler
Telco	4.0	No effect	Enabler
BMS	2.0	Enabler	Positive
DocCo	6.0	No effect	No effect
Comtel	2.5	Enabler	Positive
CompCo	5.0	No effect	Positive
BankCo	3.5	KMS	Positive

Table A2.5: Market Orientation Influence on CRM Technology Adoption

Supplier perspective			CRM adoption	CRM functionality	CRM use	Comment
Firm	Industry	MO				
F1	Computer services	Y	Positive	Low	High	Right product MO & ITMO driven
F2	Recruitment	Y	Positive	High	High	Leverage info for sales, MO focused
F3	Marketing analytics	Y	Positive	Low	High	KMS use, ITMO focused
F6	Sales Agency	Y	Positive	Med	High	Promise fulfilment - MO
F7	Document Services	Y	Positive	High	Med	Competitive advantage, MO driven
F10	Financial services	Y	Positive	High	High	Competitive advantage, MO driven
F4	Financial Investment	Y	Negative	Med	Low	MO driven
F5	Telecommunications	Y	Negative	Med	Low	Management decision, ITMO driven
F9	Computer consultants	Y	Negative	Med	Low	Global reporting tool, ITMO driven
F8	Telecommunications	Y	Both	Low	Low	IT sales people, ITMO driven

The following table summarises the customer's view of the supplier market orientation

Customer perspective		Customer MO rating	CRM adoption	functionality	CRM use
Firm	Industry				
F5	Telecommunications	N	Negative	Med	Low
F9	Computer consultants	N	Negative	Med	Low
F6	Sales Agency	N	Positive	Med	High
F10	Financial services	N	Positive	High	High
F8	Telecommunications	Y	Both	Low	Low
F4	Financial Investment	Y	Negative	Med	Low
F1	Computer services	Y	Positive	Low	High
F2	Recruitment	Y	Positive	High	High
F3	Marketing analytics	Y	Positive	Low	High
F7	Document Services	Y	Positive	High	Med

Although suppliers consider themselves MO, they have different views as to its affect on CRM technology adoption. The majority believes MO affects CRM technology adoption positively. Those that believe MO does little to affect CRM technology adoption demonstrate the lowest CRM use, even though the CRM functionality is medium. High, medium or low functionality does not appear affected by

a perceived positive effect of MO on CRM technology adoption, yet usage appears to be greater.

Table A2.6: IT Management Orientation Influence on CRM Adoption

Firm	Industry	ITMO	CRM adoption	CRM functionality	CRM use	Comment
F10	Financial services	Y	Positive	High	High	ITMO and MO driven - strategic
F9	Computer consultants	Y	Positive	Med	Low	ITMO driven - low usage
F1	Computer services	Y	Positive	Low	High	More ITMO driven
F3	Marketing analytics	Y	Positive	Low	High	ITMO focused
F5	Telecommunications	Y	Negative	Med	Low	ITMO driven - low usage
F4	Financial Investment	N	Positive	Med	Low	MO driven
F6	Sales Agency	N	Negative	Med	High	MO driven
F7	Document Services	N	Positive	High	Med	MO driven
F8	Telecommunications	N	Uncertain	Low	Low	ITMO driven
F2	Recruitment	Uncertain	Uncertain	High	High	MO focused

Five firms view themselves as ITMO, four do not consider their firms ITMO and one is unsure. From this sample there are mixed results as to the potential effect of ITMO on CRM adoption. If we ignore F10 as being a unique hybrid, the remaining four ITMO firms show a distinct variance between CRM usage, whereas the four firms that do not consider themselves ITMO have a distribution of CRM usage. The CRM functionality also denotes a similar pattern. This indicates that ITMO may play a role in the functionality adopted and used.

Appendix A3: Scale Construction

Table A3.1: Supplier Questionnaire Construction

Factor/Construct			Variable	Questionnaire Items	α	Source			
				Participants code - prefix S = Supplier					
CRM Technology Adoption	CRM Functionality	Rel Mgmt CRM	RMC_IT	To what extent does your information technology help you maintain relationships with your customers?	NEW	NA			
		CRM Practice	CPR_TLS	The sales force tools available to me are	NEW	Buttle, 2004; Jayachandran, Sharma, Kaufman, & Raman, 2005; V. Kumar & Reinartz, 2006; Payne, 2006			
			CPR_CC	Our customer contact centre processes are					
			CPR_CS	Our customer support and service processes are					
		CPR_SYS	All of our systems (e.g., Finance, Sales, Operations) are linked and talk to each other.						
		CRM Analytics	CAN_SRCS	Customer information sources available to me are primarily					
			CAN_CST	The customer analyses available to me give					
			CAN_TLS	The analysis tools that we use are					
		Relationship Management CRM	RMC_PTS	Our customer contact points provide me with					
			RMC_PR	Our processes provide me with a single view of the customer.					
			RMC_CI	To what extent is a single source for all customer information available?					
		Strategic CRM	RMC_INT	To what extent is the Internet / Intranet used to help find customer and product information?					
			RMC_CDB	To what extent is our customer database(s) updated?					
			STC_CK	To what extent is customer knowledge retained?					
			STC_DM	To what extent does customer knowledge support decision-making?					
		Extended CRM	STC_CSTD	To what extent is customer information disseminated throughout the firm?					
			STC_CMPID	To what extent is competitor information disseminated throughout the firm?					
			EXC_PRDV	To what extent does your firm focus on product-based value creation?					
			EXC_CSTV	To what extent does your firm focus on customer-based value creation?					
		CRM Acceptance	Perceived Ease of Use	PEU_USE			I use CRM in my job.	NEW	Venkatesh, Davis, Morris, & Davis, 2003
				PEU_NTR			My interaction with CRM is clear and understandable.	0.86 – 0.98	Venkatesh & Davis, 2000
	PEU_EFRT			Interacting with CRM does not require a lot of my mental effort.					
	PEU_ETU			I find CRM easy to use.					
	PEU_ETD			I find it easy to get CRM to do what I want it to do.					
	Perceived Usefulness		PU_PRF	Using CRM improves my performance in my job.	0.86 – 0.98	Venkatesh & Davis, 2000			
			PU_PRD	Using CRM in my job increases my productivity.					
			PU_EFT	Using CRM enhances my effectiveness in my job.					
			PU_USFL	I find CRM to be useful in my job.					
	CRM Adoption		CAD_FRQS	Compared to my peers, I consider myself a frequent user of CRM.	0.75	Avlonitis & Panagopoulos, 2005			
	Attitude toward using CRM		ATU_NTRS	CRM technology makes work more interesting.	0.8	Venkatesh, Davis, Morris, & Davis, 2003			
			ATU_FUN	Working with CRM is fun.					
			ATU_LIKE	I like working with CRM technology.					
	Relative Advantage		RAD_TIM	Inputting CRM data is time consuming.	NEW	Avlonitis & Panagopoulos, 2005			
			RAD_ESY	CRM makes my job easier. (RC)	NA				
	CRM Adoption		CAD_DALY	I have fully accepted CRM in my daily work.	0.75				
	CRM System Integration		CRM Compatibility	ITU_NTND	CRM is not compatible with other systems or applications I use. (RC)	NA			
				ITU_PRD	CRM is used throughout the enterprise.	NEW			
	CRM Acceptance		Atitude toward using CRM	ATU_GOOD	Using CRM is a good idea.	0.80	Venkatesh, Davis, Morris, & Davis, 2003		
			Intention to use	CNT_CMP	I intend to use CRM in the next 6 months.	0.84			
		CNT_NTPRS		I predict I will use CRM in the next 6 months.					
	CRM System Integration	CRM Integration	CLK_SA	Stand-alone, not connected to any other business system.	NEW	Checklist; Aggregate measure, similar to Jayachandran et al., 2005			
			CLK_SLS	Sales					
			CLK_CS	Customer Service					
			CLK_MRK	Marketing					
			CLK_ACR	Accounts Receivable					
			CLK_FIN	Finance					
			CLK_LOG	Logistics/delivery					
			CLK_OPS	Operations					
			CLK_EIS	Executive Information Systems (EIS/MIS)					
			CLK_ERP	Enterprise Resource Planning system (ERP)					
	IT Management Orientation	IT Management Planning	IMP_BO	Our firm's IT projects support the business objectives and strategies of our company.	0.88	Karimi, Somers, & Gupta, 2001			
			IMP_INV	Our IT group continuously examines the innovative opportunities IT can provide for our competitive advantage.					
IMP_ITCS			Our IT group is well informed on the current use of IT by other firms in our industry.						
IMP_ITPS			Our IT group is well informed on the potential use of IT by other firms in our industry.						
IMP_ITQL			Our IT group has an adequate picture of the coverage and quality of our IT systems.						
IT Management Control		IMP_ITPR	Our firm is content with how our IT project priorities are set.	0.86	Karimi, Somers, & Gupta, 2001				
		IMC_ITDV	In our organisation, the responsibility and authority for IT direction and development are clear.						
		IMC_ITOP	In our organisation, the responsibility and authority for IT operations are clear.						
		IMC_ITAP	Our firm is confident that IT project proposals are properly appraised.						
		IMC_ITFN	Our IT group constantly monitors the performance of IT functions.						
IT Maturity Organisation		IMC_ITGL	Our IT group is clear about its goals and responsibilities.	0.8	Karimi, Somers, & Gupta, 2001				
		IMC_ITPR	Our IT group is clear about its performance criteria.						
		IMO_IDS	In our organisation, user ideas are given due attention in IT planning and implementation.						
		IMO_BS	Our IT specialists understand our business and the firm.						
		IMO_STR	The structure of our IT group is appropriate for our organisation.						
IT Maturity		IMO_USR	The IT specialist-user relations in our firm are constructive.	0.78	Karimi, Gupta, & Somers, 1996				
		IMA_STR	In our firm, top management perceives that future exploitation of IT is of strategic importance.						
		IMA_INF	There is a top-down planning process for linking information systems strategy to business needs.						
		IMA_ITDV	Some IT development resource is positioned within the business unit.						
			IMA_BCL	The introduction of, or experimentation with, new technologies takes place at the business unit level, under business unit control.					

Supplier Questionnaire (cont'd)

Factor/Construct			Variable	Questionnaire Items	α	Source	
Market Orientation			MO_FN	All our functions (not just marketing and sales) are responsive to serving target markets.	0.92	Pelham & Wilson, 1996	
			MO_INT	All our functions are integrated in serving target markets.			
			MO_CSND	Our firm's strategy for competitive advantage is based on a thorough understanding of our customer needs.			
			MO_CSTV	All our managers understand how the entire business can contribute to creating customer value.			
			MO_CMM	Information on customers, marketing success, and marketing failures is communicated across the firm.			
			MO_RSP	If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.			
			MO_CR8VL	Our firm's market strategies are to a great extent driven by our understanding of possibilities for creating value for customers.			
			MO_RSPQ	Our firm responds quickly to negative customer satisfaction wherever it may occur in the organisation.			
			MO_SW	Senior managers frequently discuss competitive strengths and weaknesses.			
			MO_CMPW	We frequently leverage targeted opportunities to take advantage of competitor's weaknesses.			
Rel'n Per	Relationship Satisfaction		RS_RL	Our business relationship with this customer is strong.	NEW		
Relationship Strength	Trust	Goodwill Trust	GWT_SCR	This customer has made sacrifices for us in the past.	0.76	Ganesan, 1994	
			GWT_WLF	This customer cares for my firm's welfare.			
			GWT_PRB	In times of delivery problems, this customer has been very understanding.			
		Contractual Trust	CNT_FRK	This customer has been frank in dealing with us.	0.8		
			CNT_PRMS	Promises made by this customer are reliable.			
		Competence Trust	CMT_KNW	This customer is knowledgeable about the product.			
			CMT_PSTN	This customer has problems understanding our position. (RC)			
	Commitment	Affective Commitment	AFC_DRP	Even if we could, we would not drop this customer because we like being associated with them.	0.82	N. Kumar, Scheer, & Steenkamp, 1995	
			AFC_ENJ	We want to keep this customer because we genuinely enjoy our relationship with them.			
			AFC_FLN	Our positive feelings towards this customer are a major reason we continue working with them.			
		Expectation of Continuity	EOC_TIM	We expect our relationship with this customer to continue for a long time.	0.82		
			EOC_AT	The renewal of our relationship with this customer is virtually automatic.			
			EOC_BS	It is unlikely our firm will still be doing business with this customer in two years. (RC)			
		Willingness to Invest	WTI_SPRT	If the customer requested it, we would be willing to make further investment in supporting this customer.			
			WTI_EFRT	We are willing to put more effort and investment into building our business with this customer.			
		Calculative Commitment	WTL_CSCT	If asked we would go so far as to work with this customer's customer.	0.87		
			CLC_BRK	It would be difficult to break this relationship.			
	Communication Quality	Communication	CLC_NLT	There are no worthwhile alternative customers. (RC)	0.83	Li & Dant, 1997	
			CLC_CST	There is a high cost to drop this customer.			
			CM_EVNT	We keep each other informed about events that affect each other.	0.92	Mohr & Sohi, 1995	
		CM_NFML	We often exchange information informally.				
		CM_RQ	We often exchange information beyond what is required by our formal agreements.				
		CM_HLP	We provide each other with information that may be of help.				
		CME_TIM	Please indicate the nature of your communication with this customer - Time				
		CME_ACC	Please indicate the nature of your communication with this customer - Accurate				
		CME_ADQ	Please indicate the nature of your communication with this customer - Adequate				
		CME_CPLT	Please indicate the nature of your communication with this customer - Complete				
		CME_CRD	Please indicate the nature of your communication with this customer - Credible				
Relationship Performance	Performance	PR_PRO	Our relationship with them has been productive.	0.90	Li & Dant, 1997		
		PR_WRTH	The time and effort invested in the relationship with them has been worthwhile.				
		PR_ST	The relationship with them has been satisfactory.				
	Relationship Satisfaction	RS_HPY	The relationship between my company and this customer reflects a happy situation.	0.95	Andaleeb, 1996		
		RS_PS	The relationship between the two companies is very positive.				
		RS_ST	My company is very satisfied with this customer.				
	Customer Loyalty	LY_SYPS	I say positive things about this customer to others.	0.94	Zeithaml, Berry, & Parasuraman, 1996		
		LY_PR	I encourage others to purchase from this customer.				
		LY_RCD	I would recommend this customer to someone who seeks my advice.				
		LY_XPT	We expect to do more business with this customer in the next few years.				
Customer Retention	RN_HIR	In general our customer retention rate is higher than our competitors'.	NA	Sin, Tse, Yau, Lee, & Chow, 2002			
	RN_NCR	Since we have implemented CRM our customer retention rate has increased compared to our major competitor.	NEW				
Technology turbulence			TT_CHG	The technology in our industry is changing rapidly.	0.88 - 0.84	Jaworski & Kohli, 1993; Moorman & Miner, 1997	
			TT_OPP	Technology changes provide big opportunities in our industry.			
			TT_BRKT	Many new product ideas have been made possible through technological breakthroughs in our industry.			
			TT_MINR	Technological developments in our industry are rather minor. (RC)			
Marketing turbulence			MT_CHG	In our kind of business, customers' product preferences change quite a bit over time.	0.68 - 0.70	Jaworski & Kohli, 1993; Moorman & Miner, 1997	
			MT_NPD	Our customers tend to look for new products all the time.			
			MT_CDM	We are witnessing demand for our products and services from customers who never bought them before.			
			MT_NDM	New customers tend to have product-related needs that are different from those of our existing customers.			
			MT_MRKT	The nature of the market has changed significantly over the last few years.			
Demographic Information			GENDER	Your gender: 1 = Male; 2 = Female		NA	
			INDUSTRY	Type of industry in which your firm is involved: 1 = Manufacturing; 2 = Wholesale; 3 = Services; 4 = Other			
			GR_REV	Your firm's annual gross revenues: 1 = <\$1M; 2 = \$1-\$10M; 3 = \$11-50M; 4 = \$51-\$100M; 5 = >\$100M			
			EMPLOYEES	Number of employees in your company: 1 = < 19; 2 = 20-49; 3 = 50-99; 4 = 100+			
			RELN_LGTH	Length of relationship with the nominated customer.			
			WORK_EXP	Your full-time working experience: 1 = <5yrs; 2 = 5-10yrs; 3 = 11-15yrs; 4 = 16-20yrs; 5 = >20yrs			
			EDUC_LVL	Your education level: 1 = None; 2 = School cert; 3 = Some tertiary; 4 = Tertiary; 5 = Post grad; 6 = Other			
			AGE	Your age: 1 = <26yrs; 2 = 26-35yrs; 3 = 36-45yrs; 4 = 46-55yrs; 5 = >55yrs			
			TITLE	Your position or title (text)			
Dummy Variable			CRI_LINKS	CRM Linkages - aggregate of the CRM Integration scores		NA	

Table A3.2: Customer Questionnaire Construction

Factor/Construct		Variable	Questionnaire items	α	Source
Rel'n Per	Relationship Satisfaction	C_RS_REL	Our business relationship with _____ is strong.	NEW	
Relationship Strength	Trust	C_RT_PRM	This supplier keeps promises it makes to our firm.	0.94	Doney & Cannon, 1997
		C_RT_HNS	This supplier is not always honest with us. (RC)		
		C_RT_BLV	We believe the information that this vendor provides us		
		C_RT_CNCR	This supplier is genuinely concerned that our business succeeds.		
		C_RT_WLFR	When making important decisions, this supplier considers our welfare as well as its own.		
		C_RT_NTRS	We trust this supplier keeps our best interests in mind.		
		C_RT_TRST	This supplier is trustworthy.		
		C_RT_CTN	We find it necessary to be cautious with this supplier. (RC)		
	Commitment	C_AFC_DRP	Even if we could, we would not drop the supplier because we like being associated with them.	0.82	Kumar, Scheer, & Steenkamp, 1995
		C_AFC_ENJ	We want to remain a member of the supplier's network because we genuinely enjoy our relationship with them.		
		C_AFC_FLN	Our positive feelings towards the supplier are a major reason we continue working with them.		
		C_EOC_TIM	We expect our relationship with the supplier to continue for a long time.		
		C_EOC_AT	The renewal of our relationship with the supplier is virtually automatic.		
		C_EOC_BS	It is unlikely our firm will still be doing business with this supplier in two years. (RC)		
		C_WTI_SPRT	If the supplier requested it, we would be willing to make further investment in supporting the supplier's line.		
		C_WTI_EFRT	We are willing to put more effort and investment in building our business in the supplier's product.		
		C_WTI_CSCT	In the future we will work to link our firm with the supplier's in the customer's mind.	0.87	Gounaris, 2005
		C_CLC_BRK	It would be difficult to break this relationship.		
		C_CLC_NLT	There are no worthwhile alternative suppliers.		
		C_CLC_CST	There is a high cost to change suppliers.		
		C_CMT_CMT	We are very committed to carrying this supplier's products.	0.8	Mohr, Fisher, & Nevin, 1996
		C_CMT_DSCT	We would like to discontinue this supplier's products.		
		C_CMT_MIN	We have a minimal commitment to this supplier. (RC)		
		C_CM_EVNT	We keep each other informed about events that affect each other.	0.83	Li & Dant, 1997
	Communication Quality	C_CM_NFML	We often exchange information informally.		
		C_CM_RQ	We often exchange information beyond what is required by our formal agreements.		
		C_CM_HLP	We provide each other with information that may be of help.		
		C_CME_TIM	Please indicate the nature of your communication with this supplier - Timely	0.92	Mohr & Sohi, 1995
		C_CME_ACC	Please indicate the nature of your communication with this supplier - Accurate		
		C_CME_ADQ	Please indicate the nature of your communication with this supplier - Adequate		
		C_CME_CPLT	Please indicate the nature of your communication with this supplier - Complete		
		C_CME_CRD	Please indicate the nature of your communication with this supplier - Credible		
Relationship Performance	Performance	C_PR_PRD	Our relationship with them has been productive.	0.9	Li & Dant, 1997
		C_PR_WRTH	The time and effort we spent in the relationship with them has been worthwhile.		
		C_PR_ST	The relationship with them has been satisfactory.		
	Relationship Satisfaction	C_RS_HPY	The relationship between my company and this supplier reflects a happy situation.	0.95	Andaleeb, 1996
		C_RS_PS	The relationship between the two companies is very positive.		
		C_RS_ST	My company is very satisfied with this supplier.		
	Loyalty	C_LY_SYPS	I say positive things about this supplier to others.	0.94	Zeithaml, Berry, & Parasuraman, 1996
		C_LY_PR	I encourage others to do business with this supplier.		
		C_LY_RCD	I would recommend this supplier to someone who seeks my advice.		
	Retention	C_LY_XPT	I expect to do more business with this supplier in the next few years.	NEW	
		C_RN_FRST	I consider this supplier our first choice to buy from.		
		C_RN_PR	We continue to purchase from this supplier more so than from other suppliers.		
		C_RN_ALT	We are looking for alternative suppliers. (RC)	NA	Gounaris, 2005
		C_TT_CHG	The technology in our industry is changing rapidly.		
		C_TT_OPP	Technology changes provide big opportunities in our industry.	0.88 - 0.84	Jaworski & Kohli, 1993; Moorman & Miner, 1997
	Technology turbulence	C_TT_BRKT	Many new product ideas have been made possible through technological breakthroughs in our industry.		
		C_TT_MINR	Technological developments in our industry are rather minor. (RC)		
		C_MT_CHG	In our kind of business, customers' product preferences change quite a bit over time.	0.68 - 0.70	Jaworski & Kohli, 1993; Moorman & Miner, 1997
		C_MT_NPD	Our customers tend to look for new products all the time.		
		C_MT_CDM	We are witnessing demand for our products and services from customers who never bought them before.		
		C_MT_NDM	New customers tend to have product-related needs that are different from those of our existing customers.		
	Marketing turbulence	C_MT_MRKT	The nature of the market has changed significantly over the last few years.	NEW	
		C_EXP_PRD	My supplier will be able to deliver the right product when I need it.		
		C_EXP_INV	My supplier will not allow me to run out of inventory.		
	Customer CRM expectations	C_EXP_RQMT	My supplier better understands my requirements and needs.	NEW	
		C_CRO_LTGD	I think long-term relationships are good.		
		C_CRO_LTRL	If I had to choose I would choose a long-term relationship.		
	Customer Relationship Orientation	C_CRO_VLU	Business relationships provide additional value to my firm.	NEW	
		C_GENDER	Your gender: 1 = Male; 2 = Female		
		C_INDUSTRY	Type of industry in which your firm is involved: 1 = Manufacturing; 2 = Wholesale; 3 = Services; 4 = Other	NA	
Demographic Information		C_GR_REV	Your firm's annual gross revenues: 1 = <\$1M; 2 = \$1-\$10M; 3 = \$11-\$50M; 4 = \$51-\$100M; 5 = >\$100M		
		C_EMPLOYEES	Number of employees in your company: 1 = < 19; 2 = 20-49; 3 = 50-99; 4 = 100+		
		C_RELN_LGTH	Length of relationship with the nominated customer.		
		C_WORK_EXP	Your full-time working experience: 1 = <5yrs; 2 = 5-10yrs; 3 = 11-15yrs; 4 = 16-20yrs; 5 = >20yrs		
		C_EDUC_LVL	Your education level: 1 = None; 2 = School cert; 3 = Some tertiary; 4 = Tertiary; 5 = Post grad; 6 = Other		
		C_AGE	Your age: 1 = <26yrs; 2 = 26-35yrs; 3 = 36-45yrs; 4 = 46-55yrs; 5 = >55yrs		
		C_TITLE	Your position or title (text)		

Appendix A4: Copies of Survey Questionnaires

Supplier Questionnaire

Customer Relationship Management (CRM) Technology Impact on Business Relationships

A New Zealand industry-wide study

Supplier Questionnaire

September 2006

Balancing technology and relationships

This survey is being conducted in order to better understand the link between customer relationship management (CRM) technology use and customer relationships. The results of this study will be used to help businesses better understand the adoption and use of CRM technology in sustaining and maintaining customer relationships.

Please answer all of the questions as accurately as you can. There are no right or wrong answers. It is your opinions and understanding that are important. If you wish to comment on any questions or qualify your answers, please feel free to use the space in the margins. Your comments will be read and taken into account.

For this study, CRM technology is considered to be any manual or automated information tool, process or application that aids in the management of customers, customer relationships or customer information. This could be as simple as a Rolodex card file or as sophisticated as integrated enterprise databases and applications.

Thank you for your help.

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Section A: Customer relationship management in your firm

For this study CRM technology is considered to be any information tool, process or application that aids in the management of customers, customer relationships or customer information.

It is your opinion that is important to this study. Please circle one number on each line which best represents your view.

To what extent does your information technology help you maintain relationships with your customers?	NOT AT ALL	1	2	3	4	5	6	7	TO A GREAT EXTENT
The sales force tools available to me are	MANUAL	1	2	3	4	5	6	7	FULLY AUTOMATED
Our customer contact centre processes are	MANUAL	1	2	3	4	5	6	7	FULLY AUTOMATED
Our customer support and service processes are	MANUAL	1	2	3	4	5	6	7	FULLY AUTOMATED
All of our systems (e.g., Finance, Sales, Operations) are linked and talk to each other.	NOT AT ALL	1	2	3	4	5	6	7	FULLY LINKED
Customer information sources available to me are primarily	MANUAL CARD FILES	1	2	3	4	5	6	7	ONLINE PROFILES
The customer analyses available to me give	NO INSIGHTS	1	2	3	4	5	6	7	DETAILED INSIGHTS
The analysis tools that we use are	MANUAL	1	2	3	4	5	6	7	FULLY AUTOMATED
Our customer contact points provide me with	NO CUSTOMER INFORMATION	1	2	3	4	5	6	7	COMPLETE CUSTOMER INFORMATION
Our processes provide me with a single view of the customer.	NO SINGLE VIEW	1	2	3	4	5	6	7	COMPLETE 360 VIEW
To what extent is a single source for all customer information available?	NO SINGLE SOURCE	1	2	3	4	5	6	7	SINGLE SOURCE
To what extent is the Internet / Intranet used to help find customer and product information?	NOT AT ALL	1	2	3	4	5	6	7	ALL THE TIME
To what extent is our customer database(s) updated?	INFREQUENTLY	1	2	3	4	5	6	7	IN REAL TIME
To what extent is customer knowledge retained?	NO KNOWLEDGE RETAINED	1	2	3	4	5	6	7	ALL KNOWLEDGE RETAINED
To what extent does customer knowledge support decision-making?	NO SUPPORT	1	2	3	4	5	6	7	EXTENSIVE SUPPORT
To what extent is customer information disseminated throughout the firm?	NO INFORMATION DISSEMINATED	1	2	3	4	5	6	7	INFORMATION WIDELY DISSEMINATED
To what extent is competitor information disseminated throughout the firm?	NO INFORMATION DISSEMINATED	1	2	3	4	5	6	7	INFORMATION WIDELY DISSEMINATED
To what extent does your firm focus on product-based value creation?	NOT AT ALL	1	2	3	4	5	6	7	COMPLETELY PRODUCT-BASED
To what extent does your firm focus on customer-based value creation?	NOT AT ALL	1	2	3	4	5	6	7	COMPLETELY CUSTOMER-BASED
Business dealings with our customers are	TRANSACTIONAL FOCUSED	1	2	3	4	5	6	7	RELATIONSHIP FOCUSED
Our customer value propositions are	BROADBASED	1	2	3	4	5	6	7	TAILORED TO EACH CUSTOMER

This section explores your use of customer relationship management technology (CRM) in your current position. **CRM technology is considered to be any information tool, process or application that aids in the management of customers, customer relationships or customer information.**

Please circle the extent you agree with each statement.

I use CRM in my job.

NEVER ONCE A MONTH ONCE A FORTNIGHT WEEKLY TWICE A WEEK DAILY HOURLY

If you answered '**NEVER**' to the above statement, follow the RED arrow;

otherwise continue to answer all the questions.

My interaction with CRM is clear and understandable.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Interacting with CRM does not require a lot of my mental effort.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I find CRM easy to use.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I find it easy to get CRM to do what I want it to do.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Using CRM improves my performance in my job.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Using CRM in my job increases my productivity.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Using CRM enhances my effectiveness in my job.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I find CRM to be useful in my job.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Compared to my peers, I consider myself a frequent user of CRM.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
CRM technology makes work more interesting.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Working with CRM is fun.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I like working with CRM technology.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Inputting CRM data is time consuming.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
CRM makes my job easier.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I have fully accepted CRM in my daily work.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
CRM is not compatible with other systems or applications I use.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
CRM is used throughout the enterprise.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Using CRM is a good idea.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I intend to use CRM in the next 6 months.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I predict I will use CRM in the next 6 months.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

Please continue.

What other information systems is your CRM system linked to?

Stand-alone, not connected to any other business system ☐

OR

Linked to (please tick all that apply):

Sales ☐

Customer Service ☐

Marketing ☐

Accounts Receivable ☐

Finance ☐

Logistics/delivery ☐

Operations ☐

Executive Information Systems (EIS/MIS) ☐

Enterprise Resource Planning system (ERP) ☐

Customer/partner (e.g., EDI) ☐

Section B: Information technology management practice in your firm

Another important part of this study is to understand the IT management practices in your firm. Please circle one answer on each line that best represents your viewpoint.

Our firm's IT projects support the business objectives and strategies of our company.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE DO NOT KNOW

Our IT group continuously examines the innovative opportunities IT can provide for our competitive advantage.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE DO NOT KNOW

Our IT group is well informed on the current use of IT by other firms in our industry.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE DO NOT KNOW

Our IT group is well informed on the potential use of IT by other firms in our industry.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE DO NOT KNOW

Our IT group has an adequate picture of the coverage and quality of our IT systems.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE DO NOT KNOW

Our firm is content with how our IT project priorities are set.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
In our organisation, the responsibility and authority for IT direction and development are clear.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
In our organisation, the responsibility and authority for IT operations are clear.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Our firm is confident that IT project proposals are properly appraised.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Our IT group constantly monitors the performance of IT functions.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Our IT group is clear about its goals and responsibilities.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Our IT group is clear about its performance criteria.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
In our organisation, user ideas are given due attention in IT planning and implementation.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Our IT specialists understand our business and the firm.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
The structure of our IT group is appropriate for our organisation.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
The IT specialist-user relations in our firm are constructive.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
In our firm, top management perceives that future exploitation of IT is of strategic importance.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
There is a top-down planning process for linking information systems strategy to business needs.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
Some IT development resource is positioned within the business unit.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW
The introduction of, or experimentation with, new technologies takes place at the business unit level, under business unit control.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE	DO NOT KNOW

Section C: Market orientation of your firm

Please circle the extent you agree with each statement.

All our functions (not just marketing and sales) are responsive to serving target markets.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

All our functions are integrated in serving target markets.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Our firm's strategy for competitive advantage is based on a thorough understanding of our customer needs.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

All our managers understand how the entire business can contribute to creating customer value.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Information on customers, marketing success, and marketing failures is communicated across the firm.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Our firm's market strategies are to a great extent driven by our understanding of possibilities for creating value for customers.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Our firm responds quickly to negative customer satisfaction wherever it may occur in the organisation.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Senior managers frequently discuss competitive strengths and weaknesses.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

We frequently leverage targeted opportunities to take advantage of competitor's weaknesses.

STRONGLY DISAGREE MODERATELY DISAGREE SLIGHTLY DISAGREE NEUTRAL SLIGHTLY AGREE MODERATELY AGREE STRONGLY AGREE

Section D: Nominated customer contact details

It is critical to this study that I am able to contact one of your customers in order to understand the effect of CRM technology on the relationship aspects from both the supplier and the customer perspectives.

If you have not already done so, please provide customer contact details for either your third or your fourth most important customer.

Please feel free to contact the customer beforehand, if you prefer. All information will be kept confidential.

Nominated customer

Company name: _____

Contact person: (First Name) _____ (Surname) _____

Phone number, email or address (if known): _____

Please circle the extent to which you agree with this statement.

Our business relationship with this customer is strong.

STRONGLY
DISAGREE

MODERATELY
DISAGREE

SOMEWHAT
DISAGREE

NEITHER AGREE NOR
DISAGREE

SOMEWHAT
AGREE

MODERATELY
AGREE

STRONGLY
AGREE

Section E: Relationship strength between your firm and your nominated customer

This customer has made sacrifices for us in the past.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This customer cares for my firm's welfare.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
In times of delivery problems, this customer has been very understanding.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This customer has been frank in dealing with us.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Promises made by this customer are reliable.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This customer is knowledgeable about the product.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This customer has problems understanding our position.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Even if we could, we would not drop this customer because we like being associated with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We want to keep this customer because we genuinely enjoy our relationship with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Our positive feelings towards this customer are a major reason we continue working with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We expect our relationship with this customer to continue for a long time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The renewal of our relationship with this customer is virtually automatic.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
It is unlikely our firm will still be doing business with this customer in two years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
If the customer requested it, we would be willing to make further investment in supporting this customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We are willing to put more effort and investment into building our business with this customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
If asked we would go so far as to work with this customer's customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
It would be difficult to break this relationship.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
There are no worthwhile alternative customers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
There is a high cost to drop this customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We keep each other informed about events that affect each other.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

We often exchange information informally.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We often exchange information beyond what is required by our formal agreements.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We provide each other with information that may be of help.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
Please indicate the nature of your communication with this customer.	UNTIMELY	1	2	3	4	5	6	7	TIMELY
	INACCURATE	1	2	3	4	5	6	7	ACCURATE
	INADEQUATE	1	2	3	4	5	6	7	ADEQUATE
	INCOMPLETE	1	2	3	4	5	6	7	COMPLETE
	NOT CREDIBLE	1	2	3	4	5	6	7	CREDIBLE

Section F: Relationship performance between your firm and your nominated customer

Our relationship with them has been productive.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The time and effort invested in the relationship with them has been worthwhile.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship with them has been satisfactory.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship between my company and this customer reflects a happy situation.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship between the two companies is very positive.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
My company is very satisfied with this customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I say positive things about this customer to others.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I encourage others to purchase from this customer.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I would recommend this customer to someone who seeks my advice.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We expect to do more business with this customer in the next few years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

Section G: Your business environment

In general our customer retention rate is higher than our competitors'.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Since we have implemented CRM our customer retention rate has increased compared to our major competitor.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The technology in our industry is changing rapidly.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Technology changes provide big opportunities in our industry.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Many new product ideas have been made possible through technological breakthroughs in our industry.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Technological developments in our industry are rather minor.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
In our kind of business, customers' product preferences change quite a bit over time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Our customers tend to look for new products all the time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We are witnessing demand for our products and services from customers who never bought them before.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
New customers tend to have product-related needs that are different from those of our existing customers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The nature of the market has changed significantly over the last few years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

Section H: General details about you and your company

Finally, we would like to ask a few questions about yourself and your company, to help us interpret the results. Please tick the appropriate box for each question. **Please note: ALL of the information collected is completely confidential.**

Your gender:

☐ Male ☐ Female

Type of industry in which your firm is involved:

☐ Manufacturing
☐ Wholesale
☐ Services
☐ Other

Your firm's annual gross revenues:

☐ Up to \$1M
☐ Between \$1M - \$10M
☐ Between \$11M - \$50M
☐ Between \$51M - \$100M
☐ \$100M+

Number of employees in your company:

☐ Less than 19
☐ Between 20 and 49
☐ Between 50 and 99
☐ 100+

Length of relationship with the nominated customer:

_____ years _____ months

Your full-time working experience:

☐ Less than 5 years
☐ Between 5 and 10 years
☐ Between 11 and 15 years
☐ Between 16 and 20 years
☐ More than 20 years

Your education level:

☐ No qualification held
☐ School certificate
☐ Some tertiary
☐ Tertiary qualification
☐ Post-graduate degree
☐ Other

Your age:

☐ Under 26 years
☐ Between 26 and 35 years
☐ Between 36 and 45 years
☐ Between 46 and 55 years
☐ Over 55 years

Your position or title:

Is there anything else you would like to tell us about CRM technology and its potential impact on business-to-business relationships? If so please use this space for that purpose.

Also, any comments you wish to make that you think may help us in future efforts to understand what business leaders want from CRM technology will be appreciated, either here or in a separate letter.

Your contribution to this effort is greatly appreciated. If you would like access to the summary of results, and a report of the results for your firm, please print your name, address and email on the back of the return envelope (NOT on this questionnaire). We will see that you are notified when the results are available on our web site.

Customer Questionnaire

Customer Relationship Management (CRM) Technology Impact on Business Relationships

A New Zealand industry-wide study

Customer Questionnaire

September 2006

This survey is being conducted in order to better understand the link between customer relationship management (CRM) technology use and customer relationships. The results of this study will be used to help businesses better understand the adoption and use of CRM technology in sustaining and maintaining customer relationships.

Please answer all of the questions as accurately as you can. There are no right or wrong answers. It is your opinions and understanding that are important. If you wish to comment on any questions or qualify your answers, please feel free to use the space in the margins. Your comments will be read and taken into account.

**Balancing technology
and relationships**

Thank you for your help.

James E. Richard

PhD candidate

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Section A: Relationship strength between your firm and the nominating supplier

This section explores the relationship between your company and your nominating supplier. Please circle one answer on each line indicating the extent to which you agree with each statement.

Our business relationship with _____ is strong.

	STRONGLY DISAGREE	MODERATELY DISAGREE	SOMEWHAT DISAGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT AGREE	MODERATELY AGREE	STRONGLY AGREE
This supplier keeps promises it makes to our firm.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This supplier is not always honest with us.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We believe the information that this vendor provides us	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This supplier is genuinely concerned that our business succeeds.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
When making important decisions, this supplier considers our welfare as well as its own.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We trust this supplier keeps our best interests in mind.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
This supplier is trustworthy.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We find it necessary to be cautious with this supplier.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Even if we could, we would not drop the supplier because we like being associated with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We want to remain a member of the supplier's network because we genuinely enjoy our relationship with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Our positive feelings towards the supplier are a major reason we continue working with them.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We expect our relationship with the supplier to continue for a long time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The renewal of our relationship with the supplier is virtually automatic.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
It is unlikely our firm will still be doing business with this supplier in two years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
If the supplier requested it, we would be willing to make further investment in supporting the supplier's line.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

We are willing to put more effort and investment in building our business in the supplier's product.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
In the future we will work to link our firm with the supplier's in the customer's mind.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
It would be difficult to break this relationship.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
There are no worthwhile alternative suppliers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
There is a high cost to change suppliers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We are very committed to carrying this supplier's products.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We would like to discontinue this supplier's products.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We have a minimal commitment to this supplier.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We keep each other informed about events that affect each other.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We often exchange information informally.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We often exchange information beyond what is required by our formal agreements.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
We provide each other with information that may be of help.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE		
Please indicate the nature of your communication with this supplier.	UNTIMELY	1	2	3	4	5	6	7	TIMELY
	INACCURATE	1	2	3	4	5	6	7	ACCURATE
	INADEQUATE	1	2	3	4	5	6	7	ADEQUATE
	INCOMPLETE	1	2	3	4	5	6	7	COMPLETE
	NOT CREDIBLE	1	2	3	4	5	6	7	CREDIBLE

Section B: Relationship performance between your firm and the nominating supplier

This section explores the relationship performance between your company and the nominating supplier. Please circle one answer on each line that best represents your level of agreement with each statement.

Our relationship with them has been productive.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The time and effort we spent in the relationship with them has been worthwhile.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship with them has been satisfactory.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship between my company and this supplier reflects a happy situation.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The relationship between the two companies is very positive.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
My company is very satisfied with this supplier.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I say positive things about this supplier to others.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I encourage others to do business with this supplier.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I would recommend this supplier to someone who seeks my advice.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I expect to do more business with this supplier in the next few years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I consider this supplier our first choice to buy from.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We continue to purchase from this supplier more so than from other suppliers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We are looking for alternative suppliers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

Section C: Your business environment

This section is interested in understanding your business environment. Please circle one answer on each line that best represents the extent of your agreement with each statement.

The technology in our industry is changing rapidly.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Technology changes provide big opportunities in our industry.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Many new product ideas have been made possible through technological breakthroughs in our industry.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Technological developments in our industry are rather minor.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
In our kind of business, customers' product preferences change quite a bit over time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Our customers tend to look for new products all the time.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
We are witnessing demand for our products and services from customers who never bought them before.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
New customers tend to have product-related needs that are different from those of our existing customers.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
The nature of the market has changed significantly over the last few years.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
It is important for us to understand your expectations of CRM and your relationship orientation.							
My supplier will be able to deliver the right product when I need it.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
My supplier will not allow me to run out of inventory.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
My supplier better understands my requirements and needs.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
I think long-term relationships are good.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
If I had to choose I would choose a long-term relationship.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE
Business relationships provide additional value to my firm.	STRONGLY DISAGREE	MODERATELY DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	MODERATELY AGREE	STRONGLY AGREE

Section D: General details about you and your company

Finally, we would like to ask a few questions about yourself and your company, to help us interpret the results. Please tick the appropriate box for each question. **Please note: ALL of the information collected is completely confidential.**

Your gender:

☐ Male ☐ Female

Type of industry in which your firm is involved:

☐ Manufacturing
☐ Wholesale
☐ Services
☐ Other

Your firm's annual gross revenues:

☐ Up to \$1M
☐ Between \$1M - \$10M
☐ Between \$11M - \$50M
☐ Between \$51M - \$100M
☐ \$100M+

Number of employees in your company:

☐ Less than 19
☐ Between 20 and 49
☐ Between 50 and 99
☐ 100+

Length of relationship with this supplier:

_____ years _____ months

Your full-time working experience:

☐ Less than 5 years
☐ Between 5 and 10 years
☐ Between 11 and 15 years
☐ Between 16 and 20 years
☐ More than 20 years

Your education level:

☐ No qualification held
☐ School certificate
☐ Some tertiary
☐ Tertiary qualification
☐ Post-graduate degree
☐ Other

Your age:

☐ Under 26 years
☐ Between 26 and 35 years
☐ Between 36 and 45 years
☐ Between 46 and 55 years
☐ Over 55 years

Your position or title:

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Is there anything else you would like to tell us about CRM technology and its potential impact on business-to-business relationships? If so please use this space for that purpose.

Also, any comments you wish to make that you think may help us in future efforts to understand what business leaders want from CRM technology will be appreciated, either here or in a separate letter.

*Your contribution to this effort is greatly appreciated. If you would like access to the summary of results, please print your name, address and **email** on the back of the return envelope (NOT on this questionnaire). We will see that you are notified when the results are available on our web site.*

Appendix A5: Cover Letters

Personalised Supplier Cover Letter

This cover letter was sent to the key participant at the supplier firm.

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

18 January 2007

Supplier Name
Business Name
Business Address
City
New Zealand

Dear Supplier,

Thank you for agreeing to participate in this customer relationship management (CRM) survey, please complete the enclosed questionnaire. If possible I would be delighted to have the questionnaire returned in the enclosed self-addressed envelope by [specified date], 2006.

For this study, CRM technology is considered to be any manual or automated information tool, process or application that aids in the management of customers, customer relationships or customer information.

The focus of the study is to better understand the link between CRM use and customer relationship development and maintenance. The information collected will be used to investigate benefits of CRM technology from the firm and customer perspectives.

Completing the questionnaire should take no more than 25 minutes.

Ethics approval has been obtained from Victoria University for this research. Participation is voluntary and all research findings reported, including individual and company names and documents, will be confidential. No other person besides my supervisors and me will see the original responses. The collected data will be destroyed three years after the completion of the project.

The results of this study will be used to help businesses make better-informed decisions regarding the adoption and use of CRM technology. These results are relevant for any manager in a leading role who wants to improve customer relationships and return on investment from CRM. Towards this end a summary of this study will be available on our website <http://www.vuw.ac.nz/smib/research/jrichardcrm.aspx> after July 2007. The results of the study will also be published in journals and presented at conferences.

If you have any questions or would like to receive further information about the research, please do not hesitate to contact me directly or visit our website.

Thank you very much for helping with this important study.

Sincerely,

James Richard
PhD candidate
04-463-5415

james.richard@vuw.ac.nz

SCHOOL OF MARKETING & INTERNATIONAL BUSINESS Te Kura Hokohoko, Pakihi ki te Ao
Level 11, Rutherford House, 23 Lambton Quay, PO Box 600, Wellington, New Zealand
Phone +64-4-463 5330 Fax +64-4-463 5231 Email marketing@vuw.ac.nz or international-business@vuw.ac.nz
Website www.vuw.ac.nz/smib

Generic Customer Cover Letter

This cover letter was used when the customer questionnaire was forwarded on by the supplier.

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

17 January 2007

Thank you for agreeing to participate in this survey.

You have been nominated by your supplier to participate in this customer relationship management (CRM) survey, please complete the enclosed questionnaire. I would be delighted to have the questionnaire returned in the enclosed self-addressed envelope by [specified date], 2006.

One of the unique characteristics of this CRM study is its focus on customer relationship value from the customer perspective, not many studies do this. It is important that the customer's voice be heard and understood in the application of technology. Therefore the information you provide is critical to the study.

The focus of the study is to better understand the link between CRM technology use and customer relationship development and maintenance. The information collected will be used to investigate benefits of CRM technology from the firm and customer perspectives.

Completing the questionnaire should take no more than 15 minutes.

Ethics approval has been obtained from Victoria University for this research. Participation is voluntary and all research findings reported, including individual and company names and documents, will be confidential. No other person besides my supervisors and me will see the original responses. The collected data will be destroyed three years after the completion of the project.

The results of this study will be used to help businesses make better-informed decisions regarding the adoption and use of CRM technology. These results are relevant for any manager in a leading role who wants to improve customer relationships and return on investment from CRM. As a customer completing the survey you will have access to the general survey results, giving you an indication of what to expect in a B2B relationship from suppliers that adopt and use CRM technology. Towards this end a summary of this study will be available on our website <http://www.vuw.ac.nz/smib/research/jrichardcrm.aspx> after July 2007. The results of the study will also be published in journals and presented at conferences.

If you have any questions or would like to receive further information about the research, please do not hesitate to contact me directly or go to our website.

Thank you very much for helping with this important study.

Sincerely,

James Richard
PhD candidate
04-463-5415
james.richard@vuw.ac.nz

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Website www.vuw.ac.nz/smib

Personalised Customer Cover Letter

This cover letter was used when the customer questionnaire was distributed directly by the researcher.

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

17 January 2007

Customer Name
Business Name
Business address
City
New Zealand

Dear Customer,

You have been nominated by Apotex NZ Ltd to participate in this customer relationship management (CRM) survey, please complete the enclosed questionnaire. I would be delighted to have the questionnaire returned in the enclosed self-addressed envelope by [specified date], 2006.

One of the unique characteristics of this CRM study is its focus on customer relationship value from the customer perspective, not many studies do this. It is important that the customer's voice be heard and understood in the application of technology. Therefore the information you provide is critical to the study.

The focus of the study is to better understand the link between CRM technology use and customer relationship development and maintenance. The information collected will be used to investigate benefits of CRM technology from the firm and customer perspectives.

Completing the questionnaire should take no more than 15 minutes.

Ethics approval has been obtained from Victoria University for this research. Participation is voluntary and all research findings reported, including individual and company names and documents, will be confidential. No other person besides my supervisors and me will see the original responses. The collected data will be destroyed three years after the completion of the project.

The results of this study will be used to help businesses make better-informed decisions regarding the adoption and use of CRM technology. These results are relevant for any manager in a leading role who wants to improve customer relationships and return on investment from CRM. As a customer completing the survey you will have access to the general survey results, giving you an indication of what to expect in a B2B relationship from suppliers that adopt and use CRM technology. Towards this end a summary of this study will be available on our website <http://www.vuw.ac.nz/smib/research/jrichardcrm.aspx> after July 2007. The results of the study will also be published in journals and presented at conferences.

If you have any questions or would like to receive further information about the research, please do not hesitate to contact me directly or go to our website.

Thank you very much for helping with this important study.

Sincerely,

James Richard
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04-463-5415

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Appendix A6: Summary of Supplier Respondent Demographic Information**Table A6.1: Respondent's Gender (n = 113)**

Respondent's Sex			
	Male	Female	Total
Frequency	99	14	113
Percent	87.6	12.4	

Table A6.2: Reported Gross Revenues (n = 113)

Gross Revenue						
	Less than \$1m	\$1m - \$10m	\$11m - \$50m	\$51m - \$100m	Over \$100m	Total
Frequency	2	50	40	8	13	113
Percent	1.8%	44.2%	35.4%	7.1%	11.5%	

Table A6.3: Reported Work Experience (n = 113)

Work Experience						
	Less than 5 years	5 – 10 years	11 – 15 years	16 – 20 years	More than 20 years	Total
Frequency	2	4	5	14	88	113
Percent	1.8%	3.5%	4.4%	12.4%	77.9%	

Table A6.4: Reported Education Level (n = 113)

Education Level		
	Frequency	Percent
No qualification	5	4.40%
School certification	15	13.30%
Some tertiary	24	21.20%
Tertiary qualification	44	38.90%
Post-graduate	18	15.90%
Other	6	5.30%
Total	112	

Table A6.5: Respondent Age (n = 113)

Respondent Age						
	Under 26 years	26 - 35 years	36 - 45 years	46 - 55 years	Over 55 years	Total
Frequency	1	10	42	40	19	112
Percent	0.9%	8.8%	37.2%	35.4%	16.8%	

Table A6.6: Reported Relationship Length (n = 113)

Relationship Length		
Years	Frequency	Percent
0.5	1	0.9%
1.0	1	0.9%
1.8	1	0.9%
2.0	4	3.5%
2.3	1	0.9%
2.5	1	0.9%
3.0	8	7.1%
4.0	3	2.7%
4.3	2	1.8%
5.0	15	13.3%
5.2	1	0.9%
5.8	1	0.9%
6.0	5	4.4%
7.0	4	3.5%
8.0	6	5.3%
9.0	1	0.9%
9.5	1	0.9%
10.0	16	14.2%
10.1	1	0.9%
10.6	1	0.9%
10.9	1	0.9%
11.0	1	0.9%
12.0	2	1.8%
13.0	1	0.9%
14.0	2	1.8%
15.0	8	7.1%
16.0	3	2.7%
18.0	1	0.9%
20.0	9	8.0%
25.0	3	2.7%
26.0	1	0.9%
26.4	1	0.9%
32.0	1	0.9%
55.0	1	0.9%
Total	109	96.5%

Table A6.7: Reported Work Activity (n = 113)

Work Position/Title		
Position	Frequency	Percent
AD	1	0.9%
Adm	1	0.9%
AM	2	1.8%
BD	1	0.9%
BDM	4	3.5%
BM	5	4.4%
BS	1	0.9%
CEO	3	2.7%
CFO	1	0.9%
Con	3	2.7%
CSM	2	1.8%
D	18	15.9%
FC	1	0.9%
GM	12	10.6%
KAM	3	2.7%
M	1	0.9%
MD	13	11.5%
Mgr	3	2.7%
MM	2	1.8%
MP	1	0.9%
OM	2	1.8%
Ptr	1	0.9%
RM	3	2.7%
S&M	3	2.7%
SD	3	2.7%
SE	1	0.9%
SM	18	15.9%
SMM	1	0.9%
SR	1	0.9%
Sv M	1	0.9%
AD	1	0.9%
Adm	1	0.9%
AM	2	1.8%
BD	1	0.9%
Total	112	

Table A6.8: Reported Work Position/Title (n = 113)

Work Position/Title		
Position	Frequency	Percent
Executive	48	42.5%
Sales	41	36.3%
Marketing	19	16.8%
Administration	4	3.5%
Total	112	

Appendix A7: Test for Non-response Bias**Table A7.1: Late Supplier Respondent Demographic Statistics (n = 113)**

		N	Mean	Std. Deviation	Std. Error Mean
Industry Segment	Late	14	2.21	1.05	0.28
	General	99	2.19	1.00	0.10
Gross Revenues	Late	14	2.86	1.03	0.27
	General	99	2.83	1.00	0.10
Number of Employees	Late	14	2.50	1.22	0.33
	General	99	2.74	0.91	0.09
Relationship Length	Late	14	14.94	7.65	2.04
	General	99	9.81	7.77	0.78
Work Experience	Late	14	5.00	0.00	0.00
	General	99	4.54	0.92	0.09
Education Level	Late	14	3.79	0.97	0.26
	General	99	4.68	9.65	0.97
Respondent Age	Late	14	4.07	0.83	0.22
	General	99	4.45	9.65	0.97

Table A7.2: Late Supplier Respondent CTA Response Statistics (n = 113)

		N	Mean	Std. Deviation	Std. Error Mean
CKN	General	14	99	4.535	1.179
	Late	99	14	4.514	1.186
Customer Knowledge	General	14	99	5.990	0.926
	Late	99	14	5.653	0.929
USF	General	14	99	5.990	0.926
	Late	99	14	5.653	0.929
CRM Usefulness	General	14	99	5.990	0.926
	Late	99	14	5.653	0.929

Table A7.3: Comparing Late Supplier Respondent Demographics (n = 113)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Industry Segment	Equal variances assumed	0.00	0.99	0.08	111.00	0.94	0.02	0.29	-0.55	0.59
	Equal variances not assumed			0.08	16.48	0.94	0.02	0.30	-0.61	0.65
Gross Revenues	Equal variances assumed	0.18	0.67	0.10	111.00	0.92	0.03	0.29	-0.54	0.60
	Equal variances not assumed			0.10	16.68	0.92	0.03	0.29	-0.59	0.65
Number of Employees	Equal variances assumed	4.72	0.03	-0.87	111.00	0.38	-0.24	0.27	-0.78	0.30
	Equal variances not assumed			-0.70	15.10	0.50	-0.24	0.34	-0.96	0.49
Relationship Length	Equal variances assumed	0.25	0.62	2.32	111.00	0.02*	5.13	2.21	0.74	9.52
	Equal variances not assumed			2.34	17.02	0.03	5.13	2.19	0.51	9.75
Work Experience	Equal variances assumed	17.69	0.00	1.89	111.00	0.06	0.46	0.25	-0.02	0.95
	Equal variances not assumed			5.03	98.00	0.00**	0.46	0.09	0.28	0.65
Education Level	Equal variances assumed	0.33	0.57	-0.34	111.00	0.73	-0.89	2.59	-6.02	4.24
	Equal variances not assumed			-0.89	108.40	0.38	-0.89	1.00	-2.88	1.10
Respondent Age	Equal variances assumed	0.31	0.58	-0.15	111.00	0.88	-0.38	2.59	-5.51	4.75
	Equal variances not assumed			-0.39	106.32	0.70	-0.38	0.99	-2.35	1.59

* Significant at $p < .05$ ** Significant at $p < .001$

Table A7.4: Comparing Late Supplier Respondent CTA Responses (n = 113)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CKN Customer Knowledge	Equal variances assumed	0.009	0.926	0.063	111.00	0.950	0.021	0.337	-0.647	0.689
	Equal variances not assumed			0.062	16.84	0.951	0.021	0.339	-0.694	0.736
USF CRM Usefulness	Equal variances assumed	0.028	0.867	1.274	111.00	0.205	0.337	0.264	-0.187	0.861
	Equal variances not assumed			1.271	16.87	0.221	0.337	0.265	-0.223	0.896

No significant differences between late respondents and general respondents

Appendix A8: Analysis of Supplier “Do Not Know” Answers

Table A8.1: Supplier “Do Not Know” Response Statistics (n = 150)

	CODE NAME	IMP _BO	IMP_ INV	IMP_ ITCS	IMP_ ITPS	IMP_ ITQL	IMP_ ITPR	IMC_ ITDV	IMC_ ITOP	IMC_ ITAP	IMC_ ITFN	IMC_ ITGL	IMC_ ITPR	IMO_ IDS	IMO_ BS	IMO_ STR	IMO_ USR	IMA_ STR	IMA_ INF	IMA_ ITDV	IMA_ BCL	"DNK"	% "DNK"
1	1006	7	5	5	5	6	1	2	2	1	3	2	5	3	2	1	3	8	3	2	6	1	5.0%
2	3113	7	6	6	6	6	4	6	7	5	6	6	4	6	5	3	5	7	6	6	8	1	5.0%
3	3278	5	3	2	2	3	8	1	1	1	1	1	1	1	1	5	1	2	2	2	2	1	5.0%
4	3322	5	2	2	3	3	8	2	5	4	3	4	4	5	3	2	3	6	3	4	3	1	5.0%
5	B2120	5	4	6	6	6	6	6	6	8	4	4	4	6	7	6	6	4	3	3	2	1	5.0%
6	B3153	6	3	4	3	5	3	4	4	3	8	3	5	2	4	4	5	6	6	2	3	1	5.0%
7	3189	7	7	6	6	7	6	7	7	5	6	6	6	6	7	7	7	7	8	7	8	2	10.0%
8	3035	5	3	4	4	6	6	6	6	5	6	8	8	5	6	7	7	4	4	5	8	3	15.0%
9	3121	6	1	5	5	7	8	6	7	8	7	7	7	2	6	2	7	8	7	1	2	3	15.0%
10	B1232	4	5	7	7	8	6	6	6	5	6	6	5	4	4	4	5	6	6	8	8	3	15.0%
11	B1064	6	6	7	8	6	8	6	6	7	8	6	6	7	7	7	7	7	8	7	7	4	20.0%
12	B1205	6	6	6	4	6	3	4	6	6	4	5	6	6	6	8	8	7	8	6	8	4	20.0%
13	1043	3	8	8	8	3	4	4	3	8	8	8	8	5	5	5	3	3	8	2	2	8	40.0%
14	3147	6	8	8	5	6	3	2	2	2	8	8	8	4	4	8	8	6	8	8	8	10	50.0%
15	1111	7	7	8	8	8	8	8	8	8	8	7	7	8	6	6	8	8	8	8	8	14	70.0%
16	B2022	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	20	100.0%

Table 5C.1 shows the frequency (16) and occurrence of “Do Not Know” responses from the Supplier survey (10.7%). Case numbers 1111 and B2022 (1.3%) were deleted from the final analysis due to the high number of DNK item responses.

Table A8.2: Comparing Supplier “Do Not Know” Respondent CTA Construct Responses (n = 115)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CKN Customer Knowledge	Equal variances assumed	0.023	0.880	1.612	113.00	0.110	0.552	0.342	-0.126	1.229
	Equal variances not assumed			1.574	15.02	0.136	0.552	0.350	-0.195	1.298
USF CRM Usefulness	Equal variances assumed	0.308	0.580	-0.318	113.00	0.751	-0.088	0.276	-0.635	0.459
	Equal variances not assumed			-0.321	15.29	0.753	-0.088	0.274	-0.671	0.495

No significant differences between “DNK” and non-DNK respondents.

Appendix A9: Survey Data Distribution

Table A9.1: Supplier Survey Data

	Mean	Std. Deviation	Skewness	Std. Error Skewness	Kurtosis	Std. Error Kurtosis
RMC_IT	5.25	1.44	-0.67	0.23	-0.24	0.45
CPR_TLS	4.56	1.42	-0.26	0.23	-0.04	0.45
CPR_CC	4.25	1.80	-0.21	0.23	-0.93	0.45
CPR_CS	4.29	1.71	-0.13	0.23	-0.84	0.45
CPR_SYS	4.63	1.96	-0.40	0.23	-1.08	0.45
CAN_SRC	5.23	1.36	-0.44	0.23	-0.61	0.45
CAN_CST	4.87	1.44	-0.42	0.23	-0.22	0.45
CAN_TLS	4.76	1.55	-0.59	0.23	-0.16	0.45
RMC_PTS	4.81	1.30	-0.27	0.23	-0.08	0.45
RMC_PR	4.22	1.41	-0.09	0.23	-0.46	0.45
RMC_CI	4.15	1.86	-0.24	0.23	-0.96	0.45
RMC_INT	4.72	1.63	-0.41	0.23	-0.83	0.45
RMC_CDB	5.02	1.47	-0.40	0.23	-0.37	0.45
STC_CK	5.02	1.43	-0.40	0.23	-0.60	0.45
STC_DM	5.28	1.17	-0.70	0.23	0.10	0.45
STC_CSTID	4.54	1.48	-0.09	0.23	-0.64	0.45
STC_CMPID	3.90	1.69	0.13	0.23	-0.69	0.45
CEX_PRDV	4.70	1.48	-0.58	0.23	-0.35	0.45
CEX_CSTV	5.25	1.30	-0.95	0.23	1.04	0.45
CEX_BSD	5.74	0.97	-0.67	0.23	0.24	0.45
CEX_CSV	5.17	1.28	-0.67	0.23	0.36	0.45
PEU_USE	5.17	1.61	-0.93	0.23	-0.40	0.45
PEU_NTR	5.43	1.43	-0.89	0.23	-0.07	0.45
PEU_EFRT	4.70	1.76	-0.56	0.23	-0.86	0.45
PEU_ETU	5.16	1.59	-0.89	0.23	-0.20	0.45
PEU_ETD	4.62	1.61	-0.51	0.23	-0.89	0.45
PU_PR	5.90	1.05	-1.01	0.23	0.54	0.45
PU_PRD	5.81	1.21	-1.12	0.23	1.02	0.45
PU_EFT	5.92	1.01	-0.83	0.23	0.32	0.45
PU_USFL	6.15	0.96	-1.40	0.23	2.80	0.45
CAD_FRQS	4.83	1.42	-0.49	0.23	-0.04	0.45
ATU_NTRS	4.97	1.41	-0.44	0.23	-0.51	0.45
ATU_FUN	4.50	1.40	-0.26	0.23	0.26	0.45
ATU_LIKE	5.08	1.38	-0.49	0.23	-0.35	0.45
RAD_TIM (RC)	2.82	1.48	0.93	0.23	0.65	0.45
RAD_ESY	5.86	1.11	-1.22	0.23	1.78	0.45
CAD_DALY	5.60	1.60	-1.08	0.23	0.15	0.45
CNT_CMP (RC)	4.32	1.78	-0.30	0.23	-0.98	0.45
CNT_NTPRS	4.68	2.02	-0.52	0.23	-1.09	0.45
ATU_GOOD	6.37	0.87	-2.00	0.23	5.68	0.45
ITU_NTND	6.37	1.20	-2.52	0.23	6.66	0.45
ITU_PRD	6.34	1.20	-2.27	0.23	5.40	0.45
CLK_SA	0.22	0.41	1.39	0.23	-0.07	0.45
CLK_SLS	0.65	0.48	-0.65	0.23	-1.61	0.45
CLK_CS	0.48	0.50	0.09	0.23	-2.03	0.45
CLK_MRK	0.36	0.48	0.61	0.23	-1.66	0.45
CLK_ACR	0.57	0.50	-0.30	0.23	-1.94	0.45
CLK_FIN	0.49	0.50	0.05	0.23	-2.03	0.45
CLK_LOG	0.36	0.48	0.61	0.23	-1.66	0.45
CLK_OPS	0.43	0.50	0.27	0.23	-1.96	0.45
CLK_EIS	0.24	0.43	1.21	0.23	-0.54	0.45
CLK_ERP	0.14	0.35	2.11	0.23	2.51	0.45
CLK EDI	0.16	0.36	1.92	0.23	1.70	0.45
IMP_BO	5.82	1.24	-1.30	0.23	1.87	0.45
IMP_INV	5.03	1.59	-0.67	0.23	-0.36	0.45

	Mean	Std. Deviation	Skewness	Std. Error Skewness	Kurtosis	Std. Error Kurtosis
IMP_ITCS	4.90	1.66	-0.56	0.23	-0.49	0.45
IMP_ITPS	4.85	1.63	-0.69	0.23	-0.16	0.45
IMP_ITQL	5.50	1.43	-0.98	0.23	0.38	0.45
IMP_ITPR	4.83	1.56	-0.59	0.23	-0.67	0.45
IMC_ITDV	5.05	1.67	-0.61	0.23	-0.82	0.45
IMC_ITOP	5.29	1.61	-0.89	0.23	-0.28	0.45
IMC_ITAP	4.99	1.51	-0.49	0.23	-0.48	0.45
IMC_ITFN	4.99	1.52	-0.71	0.23	-0.09	0.45
IMC_ITGL	5.05	1.58	-0.64	0.23	-0.40	0.45
IMC_ITPR	5.00	1.50	-0.72	0.23	-0.03	0.45
IMO_IDS	4.99	1.56	-0.76	0.23	-0.13	0.45
IMO_BS	5.40	1.53	-0.82	0.23	-0.22	0.45
IMO_STR	5.35	1.64	-1.04	0.23	0.39	0.45
IMO_USR	5.32	1.38	-0.85	0.23	0.21	0.45
IMA_STR	5.87	1.34	-1.50	0.23	1.98	0.45
IMA_INF	5.07	1.57	-0.50	0.23	-0.63	0.45
IMA_ITDV	4.55	1.81	-0.47	0.23	-0.73	0.45
IMA_BCL	4.66	1.71	-0.44	0.23	-0.60	0.45
MO_FN	5.54	1.31	-1.08	0.23	1.29	0.45
MO_INT	5.07	1.43	-0.71	0.23	0.16	0.45
MO_CSND	5.77	1.26	-1.24	0.23	1.60	0.45
MO_CSTV	5.54	1.32	-0.98	0.23	0.47	0.45
MO_CMM	4.88	1.61	-0.62	0.23	-0.51	0.45
MO_RSP	5.35	1.64	-0.70	0.23	-0.74	0.45
MO_CR8VL	5.74	1.19	-1.15	0.23	1.07	0.45
MO_RSPQ	5.96	1.19	-1.29	0.23	1.54	0.45
MO_SW	5.68	1.38	-1.19	0.23	1.14	0.45
MO_CMPW	5.15	1.65	-0.94	0.23	0.31	0.45
RS_RL	6.40	0.84	-2.71	0.23	14.02	0.45
GWT_SCR	5.28	1.31	-0.95	0.23	1.08	0.45
GWT_WLF	5.37	1.30	-0.65	0.23	-0.03	0.45
GWT_PRB	5.95	1.12	-1.22	0.23	1.63	0.45
CNT_FRK	6.38	0.85	-2.72	0.23	13.23	0.45
CNT_PRMS	6.23	1.01	-1.82	0.23	4.08	0.45
CMT_KNW	6.21	1.20	-2.26	0.23	6.09	0.45
CMT_PSTN (RC)	5.19	1.68	-0.91	0.23	-0.09	0.45
AFC_DRP	6.34	1.03	-2.32	0.23	7.14	0.45
AFC_ENJ	6.50	0.89	-2.74	0.23	11.84	0.45
AFC_FLN	5.72	1.45	-1.51	0.23	2.31	0.45
EOC_TIM	6.42	0.97	-2.84	0.23	11.12	0.45
EOC_AT	5.26	1.61	-0.85	0.23	-0.22	0.45
EOC_BS (RC)	6.35	1.27	-2.74	0.23	7.96	0.45
WTI_SPRT	5.80	1.19	-1.46	0.23	2.66	0.45
WTI_EFRT	6.18	1.00	-1.68	0.23	4.03	0.45
WTI_CSCT	6.17	1.17	-2.14	0.23	5.83	0.45
CLC_BRK	5.41	1.39	-0.77	0.23	0.06	0.45
CLC_NLT	2.71	1.66	0.81	0.23	-0.29	0.45
CLC_CST	5.14	1.89	-0.88	0.23	-0.42	0.45
CM_EVNT	5.92	1.03	-1.18	0.23	1.80	0.45
CM_NFML	5.87	1.04	-1.07	0.23	1.44	0.45
CM_RQ	5.73	1.21	-0.92	0.23	0.46	0.45
CM_HLP	5.83	1.10	-1.20	0.23	1.78	0.45
CME_TIM	5.79	0.93	-1.49	0.23	5.47	0.45
CME_ACC	6.00	1.03	-2.32	0.23	8.56	0.45
CME_ADQ	5.71	1.23	-1.43	0.23	2.53	0.45
CME_CPLT	5.83	0.98	-1.21	0.23	2.38	0.45
CME_CRD	6.25	0.91	-2.03	0.23	6.89	0.45
PR_PRD	6.49	0.61	-1.00	0.23	1.18	0.45
PR_WRTH	6.57	0.58	-0.99	0.23	0.00	0.45
PR_ST	6.37	0.98	-2.88	0.23	11.28	0.45
RS_HPY	6.40	0.76	-1.56	0.23	3.50	0.45

	Mean	Std. Deviation	Skewness	Std. Error Skewness	Kurtosis	Std. Error Kurtosis
RS_PS	6.50	0.72	-1.22	0.23	0.59	0.45
RS_ST	6.48	0.73	-1.58	0.23	3.48	0.45
LY_SYPS	6.50	0.73	-1.64	0.23	2.84	0.45
LY_PR	5.61	1.29	-0.38	0.23	-1.13	0.45
LY_RCD	6.35	0.86	-1.42	0.23	1.53	0.45
LY_XPT	6.35	1.01	-2.21	0.23	6.88	0.45
RN_HIR	5.49	1.26	-0.56	0.23	0.00	0.45
RN_NCR	4.65	1.19	0.20	0.23	0.71	0.45
TT_CHG	5.68	1.27	-1.06	0.23	0.69	0.45
TT_OPP	5.77	1.30	-1.31	0.23	1.39	0.45
TT_BRKT	5.28	1.50	-0.84	0.23	0.05	0.45
TT_MINR (RC)	4.58	1.82	-0.27	0.23	-1.13	0.45
MT_CHG	4.79	1.43	-0.78	0.23	-0.05	0.45
MT_NPD	4.79	1.44	-0.66	0.23	0.09	0.45
MT_CDM	5.03	1.34	-0.78	0.23	0.64	0.45
MT_NDM	4.16	1.54	-0.16	0.23	-0.69	0.45
MT_MRKT	5.45	1.38	-0.98	0.23	0.52	0.45

RC = Item reverse coded

Table A9.2: Customer Survey Data

	Mean	Std. Deviation	Skewness	Std. Error Skewness	Kurtosis	Std. Error Kurtosis
C_RS_REL	6.50	0.89	-3.07	0.23	13.71	0.45
C_RT_PRM	6.41	0.89	-3.20	0.23	15.79	0.45
C_RT_HNS (RC)	6.11	1.63	-1.98	0.23	2.84	0.45
C_RT_BLV	6.37	0.94	-2.15	0.23	5.76	0.45
C_RT_CNCR	6.31	1.13	-2.44	0.23	7.02	0.45
C_RT_WLFR	5.87	1.17	-1.27	0.23	1.36	0.45
C_RT_NTRS	6.21	0.97	-1.43	0.23	1.98	0.45
C_RT_TRST	6.57	0.83	-2.90	0.23	10.78	0.45
C_RT_CTN	6.20	1.35	-2.26	0.23	4.93	0.45
C_AFC_DRP	5.43	1.73	-1.24	0.23	0.55	0.45
C_AFC_ENJ	6.09	1.23	-1.86	0.23	3.75	0.45
C_AFC_FLN	5.89	1.28	-1.75	0.23	4.00	0.45
C_EOC_TIM	6.34	0.84	-1.26	0.23	1.08	0.45
C_EOC_AT	5.44	1.60	-1.04	0.23	0.30	0.45
C_EOC_BS (RC)	6.24	1.41	-2.34	0.23	4.93	0.45
C_WTI_SPRT	4.53	1.60	-0.30	0.23	-0.51	0.45
C_WTI_EFRT	5.17	1.43	-0.61	0.23	0.42	0.45
C_WTI_CSCT	4.66	1.66	-0.65	0.23	0.00	0.45
C_CLC_BRK	4.80	1.92	-0.55	0.23	-0.97	0.45
C_CLC_NLT	2.97	1.87	0.73	0.23	-0.70	0.45
C_CLC_CST	3.77	2.06	0.04	0.23	-1.39	0.45
C_CMT_CMT	5.37	1.63	-0.96	0.23	0.08	0.45
C_CMT_DSCT (RC)	6.50	1.06	-2.80	0.23	8.83	0.45
C_CMT_MIN (RC)	6.04	1.50	-1.79	0.23	2.36	0.45
C_CM_EVNT	5.99	1.19	-1.58	0.23	2.62	0.45
C_CM_NFML	6.00	1.12	-1.47	0.23	2.69	0.45
C_CM_RQ	5.73	1.37	-1.35	0.23	1.83	0.45
C_CM_HLP	6.08	1.22	-2.12	0.23	5.57	0.45
C_CME_TIM	5.87	0.98	-0.88	0.23	0.60	0.45
C_CME_ACC	6.15	0.90	-1.62	0.23	4.24	0.45
C_CME_ADQ	6.09	0.93	-1.83	0.23	6.86	0.45
C_CME_CPLT	6.09	0.90	-1.77	0.23	5.85	0.45
C_CME_CRD	6.38	0.85	-2.72	0.23	13.23	0.45
C_PR_PRD	6.50	0.82	-3.19	0.23	17.07	0.45
C_PR_WRTH	6.47	0.80	-2.32	0.23	8.50	0.45

	Mean	Std. Deviation	Skewness	Std. Error Skewness	Kurtosis	Std. Error Kurtosis
C_PR_ST	6.21	1.28	-2.49	0.23	6.76	0.45
C_RS_HPY	6.43	0.83	-1.60	0.23	2.19	0.45
C_RS_PS	6.50	0.88	-1.96	0.23	3.39	0.45
C_RS_ST	6.30	0.97	-2.07	0.23	5.33	0.45
C_LY_SYPS	6.39	0.94	-2.39	0.23	8.88	0.45
C_LY_PR	6.05	1.26	-1.64	0.23	2.73	0.45
C_LY_RCD	6.37	1.08	-2.54	0.23	7.74	0.45
C_LY_XPT	6.43	0.93	-1.89	0.23	3.32	0.45
C_RN_FRST	6.14	1.28	-1.76	0.23	2.97	0.45
C_RN_PR	6.14	1.39	-1.87	0.23	3.17	0.45
C_RN_ALT	2.49	1.68	0.81	0.23	-0.62	0.45
C_TT_CHG	5.77	1.37	-1.48	0.23	2.26	0.45
C_TT_OPP	5.75	1.31	-1.14	0.23	1.23	0.45
C_TT_BRKT	5.49	1.40	-0.59	0.23	-0.57	0.45
C_TT_MINR (RC)	4.91	1.93	-0.44	0.23	-1.29	0.45
C_MT_CHG	4.86	1.65	-0.68	0.23	-0.60	0.45
C_MT_NPD	4.66	1.74	-0.66	0.23	-0.60	0.45
C_MT_CDM	5.02	1.37	-0.97	0.23	1.03	0.45
C_MT_NDM	4.17	1.58	-0.37	0.23	-0.78	0.45
C_MT_MRKT	5.63	1.35	-1.28	0.23	1.74	0.45
C_EXP_PRD	6.21	1.04	-1.86	0.23	3.81	0.45
C_EXP_INV	5.32	1.45	-0.42	0.23	-0.72	0.45
C_EXP_RQMT	5.92	1.03	-1.18	0.23	1.80	0.45
C_CRO_LTGD	6.63	0.82	-2.68	0.23	7.50	0.45
C_CRO_LTRL	6.57	0.93	-2.50	0.23	5.86	0.45
C_CRO_VLU	6.58	0.65	-1.49	0.23	1.84	0.45

RC = Item reverse coded

Appendix A10: Measurement Item Loading on Composite Indicator Scales

	CKN_SSC	C_CME_SSC	C_CM_SSC	C_LY_SSC	C_RN_SSC	C_RSA_SSC	C_RT_SSC	IMC_SSC	IMI_SSC	IMO_S_SSC	IMP_SSC	MO1_SSC	MO2_SSC	MO3_SSC	USF1_SSC	USF2_SSC
ATU GOOD															0.850	0.629
CAD DALY															0.850	0.650
CPR TLS	0.784															
C CME ACC		0.846														
C CME CPLT		0.892	0.503			0.565	0.506									
C CME CRD		0.894				0.634	0.606									
C CM EVNT		0.574	0.933			0.525	0.569									
C CM HLP			0.902													
C LY PR				0.866												
C LY RCD				0.881		0.635	0.573									
C LY XPT				0.797	0.642											
C RN ALT					0.608											
C RN FRST				0.620	0.919											
C RN PR				0.510	0.860											
C RS HPY		0.577	0.515	0.590	0.538	0.939	0.590									
C RS ST		0.601		0.534		0.927	0.633									
C RT NTRS		0.594	0.549	0.533		0.617	0.911									
C RT TRST		0.547				0.619	0.832									
C RT WLFR							0.846									
IMA BCL									0.782							
IMA INF								0.596	0.807	0.572	0.560					
IMA ITDV									0.746	0.532	0.537	0.536				
IMA STR									0.741							
IMC ITAP								0.821	0.581	0.736	0.568					
IMC ITDV								0.874		0.709	0.652					
IMC ITFN								0.832	0.575	0.646	0.622					
IMC ITGL								0.891	0.536	0.671	0.653					
IMC ITOP								0.854		0.657	0.572					
IMC ITPR								0.870		0.673	0.606					
IMO BS								0.720	0.561	0.889	0.638					
IMO IDS								0.673	0.576	0.858	0.603					
IMO STR								0.651	0.522	0.884	0.678					
IMO USR								0.762	0.553	0.900	0.673					
IMP BO										0.508	0.671					
IMP INV									0.626	0.587	0.804					
IMP ITCS								0.569	0.523	0.547	0.849					
IMP ITPR								0.630		0.599	0.620					
IMP ITPS											0.794					
IMP ITQL								0.644	0.566	0.650	0.818					
MO CMM												0.852	0.622	0.566		
MO CR8VL												0.851	0.572	0.607		
MO CSND												0.665	0.917			
MO CSTV												0.622	0.919	0.534		
MO FN												0.634		0.874		
MO INT												0.553		0.859		
MO RSPQ														0.691		
PU EFT															0.712	0.948
PU PRD															0.693	0.912
PU PRF															0.699	0.918
PU USFL															0.723	0.901
RAD ESY															0.882	0.702
RMC PR	0.864															
RMC PTS	0.833															

* only loadings => 0.50 are shown

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