This article is downloaded from

http://researchoutput.csu.edu.au

It is the paper published as:

Author: D. Jarratt
Title: Testing a theoretically constructed relationship management capability
Journal: European Journal of Marketing ISSN: 0309-0566
Year: 2008
Volume: 42
Issue: 9-10
Pages: 1106-1132

Abstract: Research Purpose The research objective was to test a theoretically derived representation of a Relationship Management Capability. The Relationship Management Capability architecture developed from the literature integrated theory on dynamic capabilities, the Resource-Advantage Theory of Competition, and prior capability research in innovation and information technology management. Research Design The second-order constructs of Relationship Infrastructure, Relationship Learning and Relationship Behaviour argued to represent a Relationship Management Capability (RMC) were assigned measures adapted from the literature, and pilot tested with industry consultants. The final questionnaire was sent to senior executives responsible for customer relationship management in manufacturing and business service firms in the UK. The structural model representing the RMC was shown to be robust with a Comparative Fit Index of 0.91. Findings Although the low response rate and the subjectiveness of respondents encourage caution in interpreting the research findings, the results suggest that relationship management systems, implemented through collaborative and flexible behaviours, and renewed through adaptive and generative knowledge derived from experience and challenging current relationship management assumptions, are key dimensions of a RMC. Value of the Research This framework advances and tests a new theoretical perspective of a Relationship Management Capability that incorporates a capacity for renewal. In addition, it provides managers with a tool to evaluate their organizations Relationship Management Capability at key stakeholder interfaces on attributes that define relationship infrastructure, relationship learning and relationship behaviour, as this capability is renewed over time.

Author Address: djarratt@csu.edu.au

URL: http://dx.doi.org/10.1108/03090560810891172
http://info.emeraldinsight.com/products/journals/journals.htm?PHPSESSID=mv21i5ps0bi6n7l0s6ve6shf5&amp;amp;id=ejm
http://researchoutput.csu.edu.au/R/-?func=dbin-jump-full&amp;amp;object_id=8155&amp;amp;local_base=GEN01-CSU01
http://bonza.unilinc.edu.au:80/F/?func=direct&amp;amp;doc_number=000099348&amp;amp;local_base=L25XX

CRO Number: 8155
Testing a Theoretically Constructed Relationship Management Capability

Denise Jarratt PhD

Professor of Marketing

Faculty of Business

Charles Sturt University

Bathurst 2795

Australia

Ph: #61 2 63 384 293

Fax: #61 2 63 384 769

e-mail: djarratt@csu.edu.au

Denise Jarratt is Professor of Marketing and Sub-Dean (Research) for the Faculty of Business at Charles Sturt University. She has worked extensively in industry and has owned and operated a retail business. While at CSU Dr Jarratt has undertaken a range of consulting projects in consumer behaviour, retailing and strategy for several private and public institutions. She has published in international journals and books in the areas of competitive strategy, capabilities, relationship marketing, trust and business networks.

Testing a Theoretically Constructed Relationship Management Capability

Abstract
Research Purpose

The research objective was to test a theoretically derived representation of a Relationship Management Capability. The Relationship Management Capability architecture developed from the literature integrated theory on dynamic capabilities, the Resource-Advantage Theory of Competition, and prior capability research in innovation and information technology management.

Research Design

The second-order constructs of Relationship Infrastructure, Relationship Learning and Relationship Behaviour argued to represent a Relationship Management Capability (RMC) were assigned measures adapted from the literature, and pilot tested with industry consultants. The final questionnaire was sent to senior executives responsible for customer relationship management in manufacturing and business service firms in the UK. The structural model representing the RMC was shown to be robust with a Comparative Fit Index of 0.91.

Findings

Although the low response rate and the subjectiveness of respondents encourage caution in interpreting the research findings, the results suggest that relationship management systems, implemented through collaborative and flexible behaviours, and renewed through adaptive and generative knowledge derived from experience and challenging current relationship management assumptions, are key dimensions of a RMC.

Value of the Research

This framework advances and tests a new theoretical perspective of a Relationship Management Capability that incorporates a capacity for renewal. In addition, it provides
managers with a tool to evaluate their organisation’s Relationship Management Capability at key stakeholder interfaces on attributes that define relationship infrastructure, relationship learning and relationship behaviour, as this capability is renewed over time.

**Keywords:** Organisational Capabilities, Relationship Management, Relationship Marketing

Research Paper
Introduction

Stakeholder relationships are becoming increasingly central to organisational strategy (Lorenzoni and Lipparini, 1999). Consequently, the capacity to build and manage relationships with client and other stakeholder organisations has been identified as an important strategic capability of organisations (Jarratt and Fayed, 2001). Particularly where organisations have extended their operational scope beyond their core assets, and created an extended organisational form or network to access assets integral to value creation, a relationship management capability provides the mechanism to leverage those assets (Sheth and Parvatiyar, 2000). In this extended organisation context, “relationships are likely to be complex and long-term” (Hakansson and Ford 2002, p. 133), “the strategy process is interactive, evolutionary and responsive” (p. 137) and value creation is dependent on the effectiveness of the organisation in leveraging relational equity, i.e. the wealth creating potential that resides in its network of stakeholder relationships (Sawhney and Zabin, 2002). Further, the capability of an organisation to integrate the resources residing within different network actors has been posited to be as important as its capability to innovate (Grant, 1996; Lorenzoni and Lipparini, 1999).

While an organisational customer stakeholder relationship has been defined as a market-based, relational asset (Srivastava, Shervani and Fahey, 1998) that spans participating firms, the capability to leverage this market-based asset, and consequently affect the value of the asset, remains within each participating organisation. A relationship management capability in which routines foster normative behaviour has been linked to decreased transaction costs resulting from bargaining and monitoring behaviour, increased innovation, building positional advantage and enhancing performance (Barney and Hansen, 1994).
However, Brennan’s (1997) investigation of business relationships in the UK automotive and telecommunications industries revealed a) a historical legacy of fear of openness limiting relationship development, b) relationship inertia c) the hidden costs associated with relationship building such as joint investments in reporting and knowledge sharing systems, and d) the ongoing investments associated with shared strategy development and problem solving. Thus, while reducing the number of suppliers and integrating systems between an organisation and selected suppliers were seen to simplify and accelerate the production process, cost improvement was not necessarily confirmed as a key relationship objective nor achievable, particularly short-term, once the total costs of relationship development were accounted for. Ongoing relationship monitoring against established cost, quality, innovativeness and speed to market objectives is therefore important to facilitate learning about relationship management and provide direction for relationship management systems and practice renewal.

Although theoretical arguments have been presented linking capabilities, knowledge and organisational learning to competitive advantage (Fiol, 2001; Wright, Dunford, and Snell, 2001; Besanko, Dranove and Shanley 2000; Hunt, 1999; Teece, Pisano and Shuen, 1997; Spender and Grant, 1996), few authors have contributed to the debate on how a capability that has the capacity for renewal might be described and measured (Jarratt, 2004; Makadok, 2001; Day, 2000; Helfat and Raubitschek, 2000; Verona, 1999; Brown and Eisenhardt, 1997; Helfat, 1997). This research seeks to contribute to this debate. The principal objective of this article is to test a theoretical representation of a relationship management capability within the context of the management of customer stakeholder relationships. In light of the increasing importance of multiple, organisation-wide, inter-firm cooperative relationships to organisational wealth creation, and the need of organisations to adjust and renew capabilities in line with emerging tacit and explicit capability knowledge, the two central theoretical
frames of reference selected to construct and define measurement of a relationship management capability are an empirically tested, capability architecture (Gold, Malhotra and Segars, 2001) and the Resource-Advantage Theory of Competition (Hunt, 1999). The proposed model is tested at an operational unit level, specifically, in the context of major organisational customer relationships.

Firstly, literature on dynamic capabilities is reviewed and the link between learning and capability renewal established. Then, the architecture, constructs and measures of a relationship management capability are proposed from a synthesis of literature on organisational capabilities and relationship marketing literature. Hypotheses are developed and components of relationship management infrastructure, behaviour and learning constructs described. Next, the method of data collection is presented and, finally, implications of the results for theory and practice are proposed.

**Dynamic Properties of Organisational Capabilities**

Capabilities have been defined by Day (1994, p. 38) as “complex bundles of skills and collective learning, exercised through organisational processes, that ensure superior coordination of functional activities” and are constantly adjusting to advance capability configuration and build efficiency and effectiveness (Verona, 1999; Brown and Eisenhardt, 1995). They are embedded in the organisation, are essential for the generation of profit from organisational resources (Kelly and Amburgey, 1991; Law, Wong and Mobley, 1998; Gold *et al*., 2001), and do so through the integration of knowledge, tangible and intangible assets, processes, human capital and learning (Plakoyiannaki and Tzokas, 2002; Grewal and Tansuhaj, 2001; Mahoney and Pandian, 1992).
The ‘dynamism’ in organisational capabilities emerges through the application of learning to routines and behaviour (Barney, 2001; Barney, Wright and Ketchen, 2001; Karim and Mitchell, 2000; Teece et al., 1997). Organisations adjust capability embedded routines and behaviour either reactively or proactively as they strive to respond to, or pre-empt, market conditions to retain or build competitive advantage (Nelson and Winter, 1982; Hunt, 1999). Routines that underpin an organisation’s relationship management capability have only started to emerge in the literature, although patterns of behaviour displayed as a result of those routines have been clearly documented (Hult, Hurley, and Giunipero, Nichols, 2000; Jarratt and O’Neill, 2002).

Evidence supporting a dynamic capabilities perspective (Teece et al., 1997) was provided in a longitudinal analysis of three inter-firm manufacturing networks (Lorenzoni and Lipparini, 1999) where it was revealed that lead firms made changes to interacting platforms and inter-firm connecting processes to facilitate communication and foster cross-network learning. The lead firm’s relationship management capability defined the nature of the network, and the resultant “interactive process among actors created a greater quantity of planned and spontaneous information” (p. 333). Deliberate initiatives were implemented to restructure processes so as to access additional competencies residing in network actors. Similar initiatives were observed by Brown and Eisenhardt (1997) in organisations that were successful in enhancing their new product management capability.

Integrating the resource-based view (RBV) and evolutionary economics with theories explaining the strategic behaviour of the firm, the Resource-Advantage Theory of Competition (Hunt and Morgan, 1995; Hunt, 1997; 1999; 2000) provides a theoretical foundation for these knowledge driven applications to advance capability behaviour and productivity. Consistent with other knowledge theories of the firm, organisational learning is endogenous to this resource-based competitive system, with the re-investment in capabilities
re-enforcing heterogeneity of the capability, and building comparative advantage (Hunt, 2000). Consequently, a relationship management capability will incorporate inter-firm knowledge sharing routines for exchange of information (explicit) and know-how (tacit), and knowledge of relationship history (Jarratt, 2004). Learning how to improve relationships will drive capability re-configuration and deployment (Barney, 1991; Barney, 2001; Eisenhardt and Martin, 2000; Fiol, 2001; Wright et al., 2001), thus facilitating efficiency and productivity gains in relationship management practice.

The need for capabilities to be reconfigured to retain competitive advantage (Fiol, 2001), places emphasis within a relationship management capability on knowledge generation about how relationships can be better developed and managed. Learning will enable new tasks to be performed better and faster, and may occur through imitation of others, and/or through collective contributions to solving complex problems. Constant surveillance of advances in information and communication technology and a willingness to adopt best practice are precursors to reconfiguring a capability to achieve competitive advantage (Teece et al., 1997).

A capability is a multi-level phenomenon, existing across firms, at the firm level and at the operational unit level. Some capabilities are built jointly with stakeholders, while others emerge in one area of the company and are transferred to other units (Jarratt, 2004; Birkinshaw, Bresman and Hakanson, 2000; Dyer and Singh, 1998). Thus, in addition to learning from current relationship dysfunction, current and prior relationship activity across all functional areas of the organisation, i.e. past experiences and expertise, are also likely to be important sources of learning. Thus, past relationship experiences residing in organisational memory and relationship management expertise are important infrastructure resources of a relationship management capability.

As relationship learning results from resolving issues associated with current inter-firm interactions and from general knowledge of innovation in relationship management practice,
both adaptive and generative learning are important for capability re-configuration and deployment (Barney, 1991; Barney, 2001; Eisenhardt and Martin, 2000; Fiol, 2001; Wright et al., 2001). Adaptive learning encourages changes that are consistent with current norms of thinking and practice, whereas generative learning results in changes that are discontinuous, such as the application of new systems, new processes, and new management forms (Baker and Sinkula, 1999; Lukas, Hult, and Ferrell, 1996).

Reflection on current relationship management experience, integrated with a synthesis of relevant ‘best practice’ information and prior learning located in organisational memory, may result in the development of new relationship governance mechanisms across an organisation with new performance criteria added, and new technology applied to facilitate interaction. Thus,

H1 Relationship Infrastructure is a function of Adaptive and Generative Relationship Learning

**Relationship Management Capability: architecture, constructs and measures**

Verona (1999) conceptualised a capability as a higher-order structure reflecting functions and integration. Within this higher-order architecture, functional capabilities were argued to deepen technical knowledge while integrative capabilities defined adsorptive capacity. A functional capability was assigned dimensions of expertise (lessons learnt residing in organisational memory), past experience (tacit knowledge of they way things are done), routines and processes (Helfat, 1997; Verona, 1999). Integrative capabilities were described through the managerial processes, structures and culture that facilitate the location, dissemination and application of new knowledge. Gold et al., (2001) drew on this architecture in defining and measuring an organisation’s knowledge management capability. The authors
empirically tested a capability that combined a functional capability (technical IT system) with two integrative capabilities. One integrative dimension described structures that facilitated the discovery of new knowledge, while the second integrative capability defined organisational cultural aspects that fostered collaboration and exploration.

The dynamic capabilities perspective, discussed in the previous section, provides theoretical support for incorporating a learning dimension (i.e. the discovery of new knowledge) within a capability. Knowledge to enhance and develop a distinctive capability is inherent in Bharadwaj’s (2000) description of an IT capability, Day’s (2000) grounded research investigation of a market-relating capability and, implicit in Brown and Eisenhardt’s (1995) case examination of a product innovation capability. Bharadwaj (2000) identified organisational learning as key components of an IT capability, while, Day’s process integration and alignment dimension refers to human interrelationships that lead to knowledge sharing and generation identified in his market-relating capability.

Brown and Eisenhardt’s (1995) investigation of product innovation capabilities across five case organisations concluded that processes (for example, probing the future, capturing innovation relevant knowledge from stakeholders and across projects) and behaviour (flexibility to adjust in response to change requirements, scheduling multiple products and orchestrating transitions) were critical for product innovation efficiency and productivity. Neither adaptive nor reflective learning about how to enhance the integration of the new product development system were discussed in the research conclusions. The authors, however, reported that “managers frequently reassessed their transitions, fine-tuning their processes. For example, managers of one case organisation were considering shortening their project intervals to nine months to pick up the pace against competitors, while managers of another case organisation had recently elaborated their transition procedures to match their increasingly broad product line” (p. 23). Post-study, both case organisations demonstrated
substantial market success through growth from new products, providing empirical support for the link between learning, capability process renewal and competitive advantage.

In addition to a learning dimension, Verona’s architecture encouraged the integration of infrastructure (a functional capability comprising expertise, knowledge of past experience residing in organisational memory, routines and processes), and culture that support the creation and application of new knowledge (Helfat, 1997; Verona, 1999). Empirical research has captured infrastructure through processes (Brown and Eisenhardt, 1995), routines, experience and knowledge residing in organisational memory (Gold et al., 2001), hardware infrastructure, technical and operational skills and organisational memory (Bharadwaj, 2000) and experience, databases, management systems and routines (Day, 2000).

Cultural dimensions driving the implementation of capability processes have been captured empirically as flexibility (Brown and Eisenhardt, 1995), interaction, collaboration, exploration (Gold et al., 2001), and values, mind-set and norms (Day, 2000). In addition, flexibility and collaboration are organisational values captured within Day’s relationship orientation dimension. Flexibility is an organisational value associated with an adhocracy culture while collaboration is a value associated with a clan organisational culture and contingent upon cohesiveness, participation and teamwork (Deshpandé, Farley and Webster, 1993; Deshpandé and Webster, 1989; and Quinn and Cameron, 1983). These two organisational values have been identified previously as encouraging strategic integration between organisations and influencing, positively, relationship outcomes (Jarratt and O’Neill, 2002; Anderson and Narus, 1990; Johnson, 1999; Lusch and Brown, 1996; Mohr, Fisher and Nevin, 1996). Thus, the functional and integrative dimensions of organisational capabilities described by Verona, empirically tested by Gold et al., (2001) and evidenced in research by Brown and Eisenhardt (1995), Bharadwaj (2000) and Day (2000) are: *learning, infrastructure and behaviour*. 
Following Verona’s capability architecture and drawing on these empirical studies, in this research a relationship management capability is identified as: *infrastructure* i.e the relationship management system and processes; relationship memory; relationship experience; *learning* capturing both generative and adaptive learning; and *behaviour* that provides evidence of a cooperative culture and flexibility in relationship development and management, and the implementation of new relationship management knowledge (relationship collaboration, relationship flexibility and relationship innovation). Each of these capability dimensions is represented by the multiple constructs depicting systems, processes, intangible resources and actions (Figure 1).

**TAKE IN FIGURE 1 HERE**

It has been previously argued that the ‘dynamism’ in organisational capabilities emerges through the application of learning to routines and behaviour either reactively or proactively to retain or build market position (Barney, 2001; Barney *et al.*, 2001; Teece *et al.*, 1997; Hunt, 1999). In addition, collaborative behaviours, normative control mechanisms and the emergence of new practices (social influence theory, Friedkin and Johnson, 1999) will drive changes within the relationship infrastructure.

Thus, it is posited that:

H2  Relationship Behaviour is a function of Relationship Learning; and

H3  Relationship Infrastructure is a function of Relationship Behaviour

Consistent with the Resource-Advantage Theory of Competition, the three hypotheses linking the second-order constructs represent a dynamic system, with the dependent construct,
relationship infrastructure, becoming the input of a recurrent learning and learning application cycle (Figure 1).

Capabilities have generally been captured in research through measures that recognise human expertise and know-how, behavioural aspects, such as flexibility, ‘hard work’ and ‘rapid response’, and technical and/or operational excellence (Brown and Eisenhardt, 1995; Deshpandé and Farley, 1998; Bharadwaj, 2000; Grewal, Comer and Mehta, 2001; Saini and Jognson, 2005). Measures identified to capture the constructs representing a Relationship Management Capability follow these recommendations and, predominantly, are selected from the relationship marketing literature. Where this was not possible, scales developed and tested in other capability contexts were interpreted in a Relationship Management Capability context. Both of the accepted approaches to measuring organisational capabilities i.e. direct measurement of knowledge and skills, and the measurement of observable outcomes (in the form of behaviour), are employed (Moorman and Slotegraaf, 1999).

**Relationship Infrastructure**

Relationship Infrastructure is captured through the relationship management system, and the resources of experience and memory that support generative learning.

*Relationship Management System:* A dynamic capabilities perspective confirms routines as the fundamental infrastructure component. Dyer and Singh’s (1998) relational view of the firm identified inter- and intra- firm routines for knowledge-sharing as one of the primary sources of profit generation, while Gold *et al.*’s (2001) study of a knowledge management capability incorporated measures capturing routines that support knowledge capture, synthesis (mapping) and dissemination. In describing a relationship capability, Day (2000) spoke of organisational processes that underpin a co-ordinated relationship management system. Measures adopted to capture evidence of routines that comprise a relationship management
system are drawn from research focusing on inter-organisational linking structures that facilitate inter-organisational communication and knowledge transfer, and facilitate learning about the relationship, as these aspects have been linked to quality relationship management practice (Dyer and Singh, 1998). Relationship operating processes (Parikh, 2001; Henricks, 1991; Devlin and Bleackley, 1988 and adapted from Gold et al., 2001) are identified as: monitoring relationship progress; coordination of relationship management activities; routines to evaluate potential relationship partners; inter-organisational processes that increase interaction; systems designed to enhance relationship productivity.

**Relationship Experience:** Verona’s (1999) functional capability also embraces the ability of an organisation to build an effective integrated capability through experience. Those organisations experienced in relationships, and have credibility as a relationship partner, are more likely to be sought out as partners and are more likely to create value through the relationship (Day, 1995; Birkinshaw et al., 2000). Following Birkinshaw et al., (2000) and Day (1995), measures adopted to capture relationship experience are: effectiveness of inter-organisational knowledge sharing systems, effectiveness of relationship building and process skills and, comparison of relationship management ability with competitors.

**Relationship Memory:** Memory provides the infrastructure for capability learning (Verona, 1999). Moorman and Miner (1997, p. 93) defined organisational memory as collective beliefs, behavioural routines, or physical artefacts and identified memories as an important resource for change. Following this definition, Hult et al., (2000) established measures to capture organisational memory in studying organisational learning in global purchasing. Their measures have been adapted to reflect a relationship context for this study: organisational conversations keep relationship management lessons alive; audit unsuccessful relationship endeavours; share lessons learned; challenging currently held assumptions about relationship management.
**Relationship Learning**

Learning about how to enhance relationships between an organisation and its customers may occur as a result of current relationship management experience, lessons learned from the experiences of others, or engagement with relationship memory (Hult and Ferrell, 1997; Slater and Narver, 1995). Measures employed to represent generative learning about relationship management systems and practice were adapted from Hult et al., (2000). Generative learning is captured through: discussion of future relationship needs; seek new ideas to improve relationship management; discuss ideas for relationship improvement at interdepartmental meetings. Adaptive learning measures were drawn from Dickson’s (1992) notion of the need to learn and adapt quickly: quick to detect changes in relationship performance; quick to detect changes in relationship interactions; discussing ideas for potential relationship improvement with partners.

**Relationship Behaviour**

Behaviours that support relationship longevity are those that demonstrate that the relationship is important to an organisation, and that the organisation is open to new possibilities for relationship building. Behaviours demonstrating that the relationship is important are those that facilitate an understanding of the partner’s needs, skills, resources, and views on new opportunities, and behaviours confirming openness are those that demonstrate a willingness to adapt to meet those needs and address emerging opportunities (Day, 2000). As learning involves the development of new knowledge (Slater and Narver, 1995), a relationship behavioral capability will also exhibit behavioral practices that confirm the implementation of that new knowledge, thus facilitating capability renewal. Therefore, the behavioural dimension of a relationship management capability will be captured through behaviour that
facilitates learning and the dissemination of learning (collaboration), a cooperative culture (flexibility), and innovation in relationship management (innovation).

**Relationship collaboration:** “Collaborations are designed to expand the size of the joint benefit ‘pie’ and give each party a share of an incrementally greater pie that could not be generated by either firm in isolation” (Jap, 1999, p. 462). Collaboration is a reflection of relationship interconnectedness and a mechanism through which knowledge can be generated and distributed. Drawing on Jarratt and O’Neill (2002), Dahlstrom, McNeilly and Speh (1996), Morgan and Hunt (1994), and Weitz and Jap (1995), collaboration measures are: balanced representation on the management team, multiple inter-organisational links, collaborative decision-making, and idea exchange.

**Relationship flexibility:** “Adapting to an exchange partner’s unique needs and operations creates a dependency relationship and builds switching costs” (Cannon, Achrol and Gundlach, 2000, p. 182). Flexibility, i.e. the ability and willingness to adapt, is a meta-level capability, and is reflective of the culture of an organisation that has discarded its internal hierarchical form, linking with others to build unique value propositions (Birkinshaw et al., 2000). Flexibility was a key dimension of Brown and Eisenhardt’s (1995) “semi-structure” linked to the development of successful new product portfolios. Flexibility captures the notion that it is expected that the contractual relationship “will be modified as the market, the exchange relationship, and the fortunes of the parties evolve” (Cannon et al., 2000, p. 185). Following Jarratt and O’Neil (2002), Dahlstrom et al., (1996), Cannon et al., (2000) and Weitz and Jap (1995), flexibility is measured through: willingness of both parties to adjust the ongoing relationship, willingness to alter prior commitments, greater emphasis on normative control.

**Relationship innovation:** Relationship innovation reflects the implementation of adaptive and generative learning, confirming both the dissemination of new relationship management knowledge and resulting action. Measures of relationship innovation are adapted from Baker
and Sinkula (1999), Hurley and Hult (1998), and Vorhies and Harker (2000): setting standards in relationship management practice, being first to adopt innovative relationships management practices, and constant improvement in policies governing relationships.

**Research Method**

The research objective, *to test the robustness of a theoretical representation of a relationship management capability in a customer stakeholder context* encouraged a quantitative investigation. A cross-sectional design was selected as an appropriate approach to achieve the research objective, since, at a single point in time, an organisation’s relationship infrastructure will reflect a system that has adapted as a result of learning implemented through behaviours recognised to support successful relationship management, i.e. the current cycle of relationship management capability renewal. Cross-sectional data was collected from business enterprises on measures representing the three second-order constructs that collectively represent a relationship management capability renewal cycle.

The questionnaire contained measures described in the literature and previously tested with marketing or management personnel. The questionnaire was pilot tested to establish face validity with five academics who actively consult to industry and are knowledgeable in the area. Although all measures in the questionnaire had been derived from previous research, each item was discussed with the selected industry consultants to confirm face validity. When suggestions for change were made, the item was retested in the context of linked scale items to ensure clarity. For one item, “we have the experience to effectively implement knowledge sharing systems with our relationship partners” examples were added in parentheses (e.g. linked intranets, linked data warehouses) to enhance face validity. The questionnaire was able to be completed in the time specified and the final form retested to ensure questions were
assessed as clear in meaning, and were appropriate. Consistent with the view that the ability to leverage stakeholder-based resources remains within each firm (Srivastava et al., 1998; Sawhney and Zabin, 2002), those overseeing the management of key customer relationships for their organisation were the target population for the research.

The final form of the questionnaire was mailed to the marketing director or managing director (where no marketing director was nominated) of every second top 3000 manufacturing, business supply and business service firms in the UK (1500 questionnaires sent). Business services, business suppliers and manufacturing firms were included in the study, as prior qualitative research had established the importance of a relationship management capability to proactive firms in these sectors (Jarratt and Fayed, 2001). It is posited that successful organisations in these sectors are more likely to place greater emphasis on the management of relationships than unsuccessful firms.

The method of data capture provides a subjective opinion of only one participant in the business relationship. However, it is argued that the opinion of a manager responsible for the continued operation of a major relationship is in itself important. Such individuals will be knowledgeable about the learning that is applied to enhancing relations, the infrastructure supporting them and the level of collaboration, flexibility and innovation. The key informant technique (Mitchell, 1994; Phillips, 1981) has been widely used in similar studies. Further, there was very strong agreement by respondents with the statements: “my knowledge about our major customer relationships” is high (93.7%), “my involvement in the development or management of our major customer relationships is high” (94.2%), “my confidence in answering this questionnaire is high” (91.1%).

The response rate of 12.67% was disappointing, particularly as attention was given to personally addressing envelopes, personally signing the accompanying letter, using University letterhead, offering to send an executive summary, sending a reminder mailing and phoning
approximately one third of the sample population. Although the low response rate is a limiting factor of this study, it is consistent with that of other similar surveys. Hult et al., (2000) experienced a response rate of 10.7% in collecting data from external purchasing organisations located in different multinational corporations, in comparison with an internal SBU response rate of 85.3%; Grewal et al., (2001) reported a response rate of approximately 14%, while Farrell (2000) and Homburg and Pflesser (2000) a response rate of approximately 15 %. Homburg and Pflesser proposed that the length of a questionnaire required to investigate complex organisational phenomena and the level of respondent targeted limits the response rate, a factor also experienced by Diamantopoulos and Schlegelmilch (1996) and Harzing (1997).

Descriptive statistics revealed that the sample represented all targeted industry categories (manufacturers of consumer and industrial goods, R&D organisations, business service providers, technology organisations, raw material providers, office supplies). The sample included 33% business service firms, 34% manufacturing firms and 30% business supply organisations (R&D, technology and office supply companies), with 3% failing to record a category of operation. Thus, even through the response rate was low, the sample is diversified, containing representation from all targeted population groups and is therefore argued to support ‘robustness of the relational finding’ (Blair and Zinkhan, 2006 p. 6). All questionnaires were completed by a senior executive: marketing directors/managers or managing directors. Blair and Zinkham’s (2006) recommend testing for non-response bias through the systematic comparison on key attributes of those responding from an alternative communication mechanism. As those responses received last resulted from telephone requests to complete the survey following a second distribution of the questionnaire or from completion of a faxed survey following telephone contact, it was appropriate to employ Armstrong and Overton’s (1977) test for non-response bias, comparing the first and last thirty
responses on key attributes. No significant differences were found across the range of measures. The length of the questionnaire restricted the ability of the researcher to capture the data via telephone. Although some contacted by phone agreed to complete a faxed copy of the questionnaire or complete the copy already received, negative comments received during this third, telephone phase of data collection (“I have already indicated by not responding that I do not want to be involved”) discouraged further attempts to encourage survey completion. The lack of significant differences on key measures between those who responded first and those who completed the survey following phone contact indicates that non-response bias was not a problem in these data.

Construct validation was achieved through application of Confirmatory Factor Analysis (CFA). One construct, Relationship Experience, was found to be unreliable. Therefore, all items representing Relationship Infrastructure through the constructs relationship management system, experience and memory were subjected to exploratory factor analysis. A two factor solution (determined by examining eigen values and the scree plot) encouraged retaining relationship memory and collapsing relationship management system and experience within a single relationship management system construct. Items within this new construct with low correlations were deleted, however, taking care to retain the theoretical significance of relationship experience within the construct (Moorman, Zaltman, and Deshpandé 1992). Reliability coefficients of the remaining latent constructs reported by Cronbach’s α coefficients were all greater than 0.77. This approach is consistent with that adopted by Siguaw, Simpson and Baker (1998), Hurley and Hult (1998) and Farrell (2000), who employed analyses of item and item-total inter-correlations, EFA and CFA to validate scales and to eliminate poorly performing items. Table 1 provides the results of CFA on latent constructs tested, items contributing to their measurement, the strength of each item’s contribution to the construct, CFIs, and chi-square values with degrees of freedom. Goodness
of Fit measures (Comparative Fit Indices CFI) indicated high levels of model fit for these constructs (Hair Jr, Black, Babin, Anderson, and Tatham, 2006).

A principal component analysis using varimax rotation was conducted to determine the underlying relationships within the data. Relationship Management Learning, containing items representing both adaptive and generative learning, explained 48.9% of the variance across all constructs of the model, with an eigen value of 11.72. Collaborative behaviours contributed 5.7% of the variance, relationship management system offered 5.1%, flexibility 4.6%, practice innovation 3.7% and relationship memory 3.5%, with a cumulative variance of 71.8%.

________________________
TAKE IN TABLE 1 HERE
_____________________

Results

The first stage of measurement estimation comprised testing convergent and discriminant validity of each construct and the three second-order factors: Relationship Infrastructure, Relationship Learning and Relationship Behaviour. Confirmatory Factor Analysis (CFA) on all first and second-order constructs using EQS 6.1 indicated high levels of model fit (Hair Jr et al., 2006). Factor loadings were all higher than 0.4, with all Comparative Fit Indices falling above 0.92. Following recommendations of Anderson and Gerbing (1988), items were considered for deletion if they demonstrated several large residuals against other items in the construct, had an insignificant loading or shared common variance with items in other constructs. However, theoretical considerations played an important role in item deletion considerations. No items were deleted from the constructs at this stage. Path coefficients
between the three second-order constructs and each of their component factors were all significant at the $\alpha = 0.05$ level. Table 2 identifies the second-order factors, CFI’s, chi-squares with degrees of freedom and reliability coefficients.

---

**TAKE IN TABLE 2 HERE**

---

Each second-order construct was examined against criteria specified to assess formative or reflective characteristics. For example, the constructs Relationship Collaboration, Relationship Flexibility and Relationship Innovation each contain items that describe a similar theme and are manifestations of the construct Relationship Behaviour. A change in one indicator in these constructs is unlikely to cause changes in the construct they represent. Further, these constructs are highly correlated and thus meet Jarvis, MacKenzie and Podsakoff’s (2003) criteria of a Type 1 second-order factor (reflective first order and reflective second-order).

Discriminant validity of measures was assessed through both pairwise confirmatory factor analyses and comparing factor correlations to the variance extracted. Forcing items of different latent constructs into a single factor decreased model fit when compared to the two-construct solution for each pair of constructs. The chi-square difference for each pair of latent constructs was significant in each case, confirming discriminant validity (Anderson and Gerbing, 1988). A second test of discriminant validity involved comparison of the average of the sum of the squared standardized loadings on constructs to the squared correlation between constructs (Hair Jr et al., 2006, p. 778). The averages of the squared loadings were all found to be higher than the squared correlations except in three cases: Case 1 - Relationship Management System (RMS) and Relationship Memory (RM); Case 2 - Adaptive and
Generative Learning; and Case 3 - RMS and Relationship Innovation (RI). RMS and RM form the second-order construct Relationship Infrastructure, while Adaptive and Generative Learning also contribute to the variance in the same second-order construct, Relationship Learning. In Case 3 the squared correlation (0.608) between RMS and RI was lower than the average of the squared loadings for RI (.761), but marginally higher than that of RMS (.534). Removal of the item representing relationship experience from the revised construct Relationship Management System addressed this limitation, however, there was marginal change in overall structural model robustness and hypothesis support. The theoretical importance of relationship experience to a relationship management capability, the significance of the chi-square difference for each RMS and RI constructs, and the marginal change in structural model robustness and hypothesis support, encouraged retaining this item.

Convergent validity is established where all items are significantly related to their hypothesized factors (p<0.05) and where there are no high cross-loadings. The item “Constantly improving relationship policies” cross-loaded on relationship learning (0.485), however, the importance of retaining three items per construct and evidence from theory encouraged retaining this item. In addition, the average variances extracted were all equal to or higher than 0.5 (Hair Jr. et al., 2006). Table 3 identifies composite reliability and variance extracted for constructs included in the structural model. In using the approach to estimate composite reliability noted in Table 3 footnote b, no constructs incorporated in the structural model fell short of the recommended level of 0.60 (Bagozzi and Yi, 1988). In fact all were over 0.7, indicating adequate convergence (Hair Jr et al., 2006).

The proposed conceptual model was tested through structural equation modelling. The disturbances within each of the second-order factors were equally constrained within the structural model. Fit statistics of the model containing three second-order factors and one containing no second-order factors are compared (Table 4). The second-order factor model
was superior on all statistics and converged on 12 iterations. For the model containing the three second-order factors, a CFI of .91 (with chi-square of 534.86 based on 240 degrees of freedom indicating a high degree of malfit between the hypothesized model and the null model) was achieved. The RMSEA of 0.08 fell just within the acceptable range, however the parsimonious fit measure \( \chi^2/(df) \) at 2.23 fell just outside the recommended value. The path coefficients between the second-order constructs and associated t statistics provided evidence that the three hypotheses were supported.

______________________________
TAKE IN TABLES 3 AND 4 HERE
______________________________

Discussion and Implications

The principal objective of this article was to test a theoretical representation of a relationship management capability within an organisational stakeholder context, specifically, the customer stakeholder. A framework was constructed that drew on theory of dynamic capabilities, organisational capability architecture, learning theory and relationship management practice (Hult et al., 2000; Sinkula, Baker, and Noordewier, 1997; Verona, 1999).

An important theoretical contribution of this study is the identification and testing of measures representing constructs depicting a Relationship Management Capability. Previous research on organisational capabilities had incorporated measures of expertise and know-how, behaviour, and operational excellence. The relationship marketing literature was examined to identify appropriate measures to represent these dimensions. Where these were not available, measures contained in the broader capability literature (for example, Brown and Eisenhardt,
1995; Deshpandé and Farley, 1998; Bharadwaj, 2000; Grewal, et al. 2001; Saini and Jognson, 2005) were interpreted within a relationship management context. Although cross-loadings encouraged the removal of two items describing monitoring and coordination of relationship management activities from the construct Relationship Management System, alternative representations of these measures were captured within the Adaptive Learning Construct through items reflecting the speedy identification of changes in relationship interaction and relationship performance. As relationship inertia and lack of relationship monitoring had been previously identified as negatively affecting relationship performance and renewal (Brennan, 1997), it was theoretically important for these measures to be incorporated within constructs depicting a relationship management capability.

Confirmatory Factor Analysis revealed that the measures derived from research by Day (1995) and Birkinshaw et al., (2000) to measure ‘Relationship Experience’ contributed to less than 50% of the variance of the construct. A subsequent exploratory factor analysis of all items representing Relationship Infrastructure encouraged collapsing items measuring experience and relations management system into one construct. Thus, further qualitative research is required to establish a set of robust measures to represent ‘relationship experience’. All other constructs demonstrated acceptable validity and reliability, as evidenced through Cronbach’s $\alpha$ coefficients, composite reliability and variance extracted calculated from standardised loadings.

A second contribution of this study is testing the theoretical interrelationships between constructs depicting a relationship management capability. A second-order construct, Relationship Learning, representing Generative and Adaptive Learning was found to positively influence Relationship Infrastructure both directly and indirectly through Relationship Behaviour. The research has established that Generative and Adaptive Learning will add to the Relationship Memory Resource, and positively influence collaborative,

The structural model containing second-order constructs of Relationship Infrastructure, Relationship Learning and Relationship Behaviour was found to be superior to a model containing no second-order constructs and hypotheses developed from prior theory were supported. This finding is consistent with the view of Gold et al., (2001, p. 211) that second-order factor structures provide the “best empirical model for capturing the variances” among specific measures. The second-order constructs representing infrastructure, behaviour and learning capture the dimensions of capabilities contained in prior definitions i.e. knowledge, tangible and intangible assets, processes, human capital, learning, and the application of learning to routines and behaviour (Plakoyiannaki and Tzokas, 2002; Grewal and Tansuhaj, 2001; Barney, 2001; Barney et al., 2001; Karim and Mitchell, 2000; Teece et al., 1997; Mahoney and Pandian, 1992). It was anticipated that high performing organisations operating in the business-to-business sector would exhibit, to a varying extent, a relationship management capability that underpins on-going client organisation interactions and transactions. In this regard the research is confirmatory, with the findings exhibiting theoretical generalization (Blair and Zinkhan, 2006).

The architecture of a higher-order capability as recommended by Verona (1999) was shown to be valuable structure for understanding the key components of a relationship management capability and their interaction. Inherent in this model are three building blocks that are prerequisites of an organisational capability. Infrastructure, the first building block, is defined through the functional capability of Relationship Management Systems representing processes, system integration (experience) and knowledge of relationship management lessons. This is consistent with Dyer and Singh’s (1998) relational view of the firm that
relationship-specific investments, inter- and intra-firm routines for knowledge-sharing, complementary resource endowments and effective governance are important sources of additional profit for the firm.

However, in implementing a relationship management strategy, managers must recognise the cultural orientation required to energise inter-firm communication and knowledge sharing routines and build innovation and joint action. Infrastructure alone will not build relationship bridges with strategic partners nor leverage the resources that lie within those partners. Relational norms and values reflecting cultural dimensions of flexibility and collaboration (Day, 2000) facilitate knowledge generation, knowledge transfer, the collective definition of opportunities for further joint action, and a willingness to move beyond contractual agreements to meet changing market demands (Cannon et al., 2000).

The third building block is the generation of knowledge to enhance relationship management practice, through changing processes and behaviour. Dynamism in capabilities (Teece et al., 1997) is evidenced through learning how to enhance efficiency and productivity, and through, subsequently, implementing change. Both generative and adaptive learning were shown to be important components of a dynamic relationship management capability. Generative learning occurs through reconsideration of the assumptions residing in relationship memory and inherent in current relationship approaches, or reflection about actions accepted as appropriate at specific stages of relationship development (Dickson, 1996). Adaptive learning results in advances to current relationship systems, norms of thinking and behaviour. Learning about how to improve relationships will drive capability re-configuration and deployment. Thus, managers will need to ensure that processes are in place to stimulate new ideas about relationship management and to capture current knowledge about relationship practice and productivity. Organisations will need to continually re-invest in each of these foundation building blocks to ensure relationship processes, relationship intellectual capital,
relationship norms and relationship learning combine to create a relationship management capability that can continue to deliver a comparative advantage (Hunt, 1999).

Those organisations that have adopted an enterprise-wide Relationship Management Capability will have moved their relationship management practice from a stakeholder focus to a stakeholder orientation, drawing together, centrally, knowledge about the management of business relationships gained through practice, and from external sources (Birkinshaw et al., 2000). Further, they will be applying that knowledge through work practices, structures and decision support systems at each stakeholder interface (Parikh, 2001).

This current project tested a Relationship Management Capability in the context of organisational customer relationships. Given that capabilities exist across firms, at the firm level and at the operational unit level (Birkinshaw et al., 2000; Birkinshaw and Hagstrom, 2000), it is probable that capability systems, behaviour and learning will vary across operational units, with adaptive and generative learning bounded within the operational unit. To test the level of relationship management capability applied in managing upstream stakeholders, data will need to be captured from key upstream and downstream relationship managers within the same organisation.

What distinguishes an organisation with a Relationship Management Capability from one applying relationship marketing principles and practice is the existence of routines within processes that support learning about managing major stakeholder relationships, and the subsequent adjustments made to systems, support structures and norms of interaction throughout the stages of relationship formation, management and exit. The framework presented here provides managers with a tool to evaluate, over time, the development of a Relationship Management Capability within various functional areas of their organisation and across all key stakeholder relationships on attributes that define relationship infrastructure, relationship learning and relationship behaviour.
Research Limitations

An important limitation of this research is the low response rate. This study is a cross-sectional research design in which data was obtained through a self-reporting questionnaire. It has been argued that such approaches may lead to overestimation of investigated linkages and that longitudinal data should be used to establish causality (Ehrenberg, 1997; Verhoef, 2003). Although those responsible for relationship management (i.e. constantly assessing their customers’ levels of satisfaction and implementing change to enhance that satisfaction, as well as monitoring market performance and profitability) are in a position to provide information on the operationalisation of those relationships, it is possible that their subjective opinions will overestimate their own performance in anticipating and responding to customer relationship management needs. An initial trial of the questionnaire sought multiple responses from within each company to collect data on relationship management activity across multiple stakeholders from multiple perspectives. The low response rate from this trial encouraged the concentration of data collection on a senior executive responsible for important customer stakeholder relationship. However, the response rate from these executives, while an improvement on the initial trial response rate, still fell below that anticipated, and resulted in the ratio of the parameters to be tested to the number of cases (1:3) falling below acceptable limits (1:5) (Bentler and Chou, 1995).

Utilising an alternative analysis approach, second order factors were entered into separate simple regression models. Relationship Learning's contribution to the variance in Relationship Behaviour as a simple regression was 0.71 under SEM conditions and 0.81 (standardised coefficient) \(F = 351.84 \ p<0.05\) in a simple regression model. Relationship Behaviour’s contribution to Research Infrastructure was 0.77 under SEM conditions and 0.80 \(F = 320.57,\)
p<0.05) as a simple regression. A stepwise regression of Relationship Learning and Relationship Behaviour on Relationship Infrastructure as the dependent variable reveals Relationship Learning's contribution to the variance in Relationship Infrastructure as 0.28 (standardised coefficient) (0.27 under SEM conditions) and Relationship Behaviour’s contribution to Research Infrastructure as 0.57 (0.77 under SEM conditions) (F=178.89, p<0.05). This latter result is not surprising given that the indirect effect of Relationship Learning on Relationship Infrastructure is not simultaneously calculated in the regression. It is important to note that the standardised coefficients observed in the simple regressions are similar to those calculated through SEM (once an additional indirect pathway of Relationship Learning on Relationship Infrastructure through Relationship Behaviour is accounted for).

In addition, first-order factors formed the basis of seven separate regression models, i.e. two for each dependent construct representing Relationship Infrastructure (i.e. Relationship Management System and Memory) and three with Relationship Behaviour constructs as dependent constructs (i.e. innovation, collaboration and flexibility) and adaptive and generative learning constructs as independent constructs. All contributions to dependent constructs were significant (p<0.05) in all cases except one. When both adaptive and generative learning were entered into a stepwise regression with Relationship Management System as the dependent variable, both made a significant contribution to the variance in the dependent construct (0.231 and 0.444 respectively F = 62.385 p<0.05). When adaptive and generative learning were combined with flexibility, innovation and collaboration constructs with Relationship Management System as the dependent variable all constructs except for adaptive learning made a significant contribution to the variance in the dependent variable. Overall, however, findings from the separate regression models for both first- and second-order constructs support the conclusions drawn from the simultaneous regression solutions derived through SEM.
References


Figure 1. The Relationship Management Capability Renewal Cycle

Relationship Management System

Relationship Infrastructure

Relationship Memory

Relationship Learning

Relationship Generative Learning

Relationship Adaptive Learning

Relationship Collaboration

Relationship Flexibility

Relationship Innovation

H1

H2

H3

0.27

0.71

0.77

0.92

0.89

0.93

0.87

0.84

0.79

0.92
<table>
<thead>
<tr>
<th>Constructs</th>
<th>Variables</th>
<th>Variable Contribution (Standardised solution) **</th>
<th>CFI and reliability coefficient (α)</th>
<th>Independence model Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Management System</td>
<td>Better ability than competitors</td>
<td>0.50 (6.69)</td>
<td>CFI = 0.92</td>
<td>488.191 on 15 degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Experience of implementing knowledge sharing systems</td>
<td>0.57 (8.96)</td>
<td>α = .85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitor relationship progress</td>
<td>0.82 (12.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coordinate relationship activities</td>
<td>0.85 (13.10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support interaction</td>
<td>0.71 (11.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enhance productivity</td>
<td>0.72 (11.30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Memory</td>
<td>Conversation</td>
<td>0.65 (8.87)</td>
<td>CFI = 1.00</td>
<td>237.292 on 6 degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Audit problems</td>
<td>0.69 (9.00)</td>
<td>α = .81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Share lessons</td>
<td>0.77 (10.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Challenge assumptions</td>
<td>0.76 (10.15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Generative Learning</td>
<td>Discuss future needs</td>
<td>0.81(10.19)</td>
<td>CFI = 0.94</td>
<td>204.084 on 3 degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Seek new ideas</td>
<td>0.83(7.88)</td>
<td>α = .81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discuss change internally</td>
<td>0.74(7.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Adaptive Learning</td>
<td>Detect performance changes</td>
<td>0.93(9.04)</td>
<td>CFI = 0.98</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Detect interaction changes</td>
<td>0.95(19.73)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Discuss changes with partners</td>
<td>0.69(9.04)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Collaboration</td>
<td>Build multiple links</td>
<td>0.82 (15.40)</td>
<td>CFI = 0.98</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Balanced management</td>
<td>0.86 (16.48)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Collaborative decision-making</td>
<td>0.84 (17.47)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Idea exchanges</td>
<td>0.81 (17.09)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Flexibility</td>
<td>Normative control</td>
<td>0.61 (6.15)</td>
<td>CFI = 0.99</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Making adjustments</td>
<td>0.86 (6.14)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Willingness to accept change</td>
<td>0.68 (8.89)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Management Change</td>
<td>Set standards</td>
<td>0.91 (22.49)</td>
<td>CFI = 0.99</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>First to adopt</td>
<td>0.95 (22.49)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td>Constant improvement</td>
<td>0.73 (11.09)</td>
<td></td>
</tr>
</tbody>
</table>

** T values in parentheses – ROBUST statistics ROBUST performs better than uncorrected statistics where the normal distribution is false
Table 2. Second–order Factors – CFA Measurement Model

<table>
<thead>
<tr>
<th>Second-order Factors</th>
<th>Constructs</th>
<th>Variable Contribution - Standardized solution **</th>
<th>CFI and reliability coefficient (α)</th>
<th>Independence model</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td>Relationship management system</td>
<td>0.91 (6.44)</td>
<td>CFI = .92</td>
<td></td>
<td>804.682 on 36</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Relationship memory</td>
<td>0.85 (5.50)</td>
<td>α = .87</td>
<td></td>
<td>degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Relationship learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationship generative learning</td>
<td>0.93 (9.21)</td>
<td>CFI = 0.98</td>
<td></td>
<td>1044.17 on 21</td>
</tr>
<tr>
<td></td>
<td>Relationship adaptive learning</td>
<td>0.85 (11.76)</td>
<td>α = .90</td>
<td></td>
<td>degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Relationship behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationship collaboration</td>
<td>0.90 (7.02)</td>
<td>CFI = .94</td>
<td></td>
<td>1217.313 on 45</td>
</tr>
<tr>
<td></td>
<td>Relationship flexibility</td>
<td>0.78 (5.56)</td>
<td>α = .90</td>
<td></td>
<td>degrees of freedom</td>
</tr>
<tr>
<td></td>
<td>Relationship innovation</td>
<td>0.67 (7.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** T values in parentheses – ROBUST statistics - ROBUST performs better than uncorrected statistics where the normal distribution is false
Table 3. Latent Constructs – Structural Model

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Variables</th>
<th>Variable Contribution-Standardized solution (a)</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Management System</td>
<td>Experience knowledge sharing</td>
<td>0.58</td>
<td>0.80</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Support interaction</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enhance productivity</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Memory</td>
<td>Conversation Audit problems</td>
<td>0.70</td>
<td>0.79</td>
<td>55.3%</td>
</tr>
<tr>
<td></td>
<td>Share lessons</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Challenge assumptions</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Generative Learning</td>
<td>Discuss future needs Seek new ideas Interdepartmental meetings to discuss change</td>
<td>0.81</td>
<td>0.76</td>
<td>61.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Adaptive Learning</td>
<td>Quick to detect performance changes Detect interaction changes Discuss relationship with partners</td>
<td>0.93</td>
<td>0.82</td>
<td>72.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Build multiple links</td>
<td>0.83</td>
<td>0.84</td>
<td>67.2%</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Balanced management</td>
<td>0.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Collaborative decision-making</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Idea exchanges</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Normative control</td>
<td>0.68</td>
<td>0.70</td>
<td>54.4%</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Making adjustments</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Willingness to accept change</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Set standards</td>
<td>0.91</td>
<td>0.82</td>
<td>76.1%</td>
</tr>
<tr>
<td>Innovation</td>
<td>First to adopt</td>
<td>0.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Constant improvement</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*removal of low loading measures to enhance variance extracted*

a: Standardized loading. Squared multiple correlations for each measure can be calculated by squaring the standardized solution for the item

b: Composite reliability: (sum of standardized loadings)²/ 

{(Sum of standardized loadings)² + Sum of indicator measurement error}

c: variance extracted: sum of squared standardized loadings/no of items
### Table 4. Goodness of Fit Indices and Structural Model Linkages

<table>
<thead>
<tr>
<th>Absolute Fit Measures</th>
<th>Fit Criteria</th>
<th>Model containing three second-order factors</th>
<th>Model containing no second-order factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td>Low $\chi^2$ with high df</td>
<td>534.868 (240df)</td>
<td>615.529 (238df)</td>
</tr>
<tr>
<td>CFI</td>
<td>$&gt;0.9$</td>
<td>0.91</td>
<td>0.87</td>
</tr>
<tr>
<td>RMSEA</td>
<td>$&gt;0.05$ and $&lt;0.08$</td>
<td>0.08</td>
<td>0.092</td>
</tr>
</tbody>
</table>

**Incremental Fit**

| NNFI | Highest | 0.89 | 0.85 |

**Parsimonious Fit**

| $\chi^2/(df)$ | $> 1$ and $<2.0$ | 2.23 | 2.58 |

**Model Linkages**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Standardized Solution</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM Learning $\rightarrow$ RM Infrastructure</td>
<td>H1</td>
<td>0.27</td>
</tr>
<tr>
<td>RM Learning $\rightarrow$ RM Behaviour</td>
<td>H2</td>
<td>0.71</td>
</tr>
<tr>
<td>RM Behaviour $\rightarrow$ RM Infrastructure</td>
<td>H3</td>
<td>0.77</td>
</tr>
</tbody>
</table>
Appendix

Measures Contained in the Questionnaire

1. **Relationship experience of this company**

   *We have the experience to implement effective knowledge sharing systems with our relationship partners (e.g. linked intranets, linked data warehouses)*

   *We lack the relationship building and process skills necessary for effective relationships*

   Few of our competitors can match our ability to manage business-to-business relationships

2. **Relationship management system**

   *We actively monitor our relationships’ progress*

   *We co-ordinate all our relationship management activities*

   We structure our inter-organizational systems to enhance our ability to jointly acquire and create knowledge

   Inter-firm routines increase electronic and/or personal interaction

   Our systems are designed to enhance the productivity of our relationships, no matter what the scale or scope of transactions

3. **Relationship Memory**

   Organizational conversation keeps alive the lessons learned from relationship history

   We always audit unsuccessful or problematic relationship endeavours to understand how we can improve

   Through discussions and/or circulating reports we share lessons learned from current and past relationships

   We are willing to challenge currently held assumptions about our relationships and their management

* items removed as a consequence of poor or cross loading
**Relationship management knowledge generation**

We spend time discussing future relationship needs

We search in-house to find information to enhance our relationships

We actively seek new ideas that will improve the management of our relationships

We are fast to detect changes in the performance of our relationships

We are fast to detect changes in the way we interact with our partner organizations (e.g. increasing conflict)

We meet regularly with our partners to find out how our business relationships might be improved

---

4. **Relationship management Behaviour**

Our approach to relationship management supports.....

- Various divisions of partners collaborating on projects
- A balanced representation on the management team between the partners
- Collaborative decision making
- Extensive opportunity for idea exchange

As our relationships progress there is less emphasis on contractual control and greater emphasis on control through agreed principles

When required, we are willing to alter prior commitments

We expect that our relationship partners will be willing to adjust ongoing relationships to cope with change

In our industry, we set the standard in relationship management practice

We are first to adopt innovative relationship management practices

We are constantly improving the policies that govern our relationships