Validation Study of Intangible Business Relationship Value Measurement

A thesis submitted to Auckland University of Technology in partial fulfilment of the degree of Master of Business

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgements.

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Abstract

Both marketing researchers and practitioners realise that having customer relationships that enhance a firm's competitive advantage is an important strategic issue and that there is a need for relationship value measurement. But the research on relationship value measurement is limited, especially from a seller's perspective, despite numerous calls for it. The reason for the limited research might be that the nature of customer relationships is complex, largely intangible, and long-term oriented.

Baxter and Matear's (2004) study directly addresses the issue of the measurement of the intangible part of the value of a business-to-business relationship from a seller's perspective. Synthesising an intellectual capital model into the relationship marketing literature, Baxter and Matear (2004) propose an intangible relationship value (IRV) model for assessing the value of the intangible part of the resources that sellers gain through their relationships with their business buyers. The IRV model has been empirically tested and supported in New Zealand's manufacturing industry.

The current study replicated Baxter and Matear's (2004) study in order to further assess the validity of the IRV model and its scales. Exploratory factor analysis was used first to identify the dimensionality of the IRV. Then the four aspects of construct validity – reliability, and convergent, discriminant, and nomological validities – were examined.

The exploratory factor analysis of the focal relationship value items in the questionnaire found six first-order dimensions of the IRV. As expected, these six first-order value dimensions are the same as in the Baxter and Matear (2004) study: competence, attitude, intellectual agility, relationships, organisation, and renewal and development. Further exploratory factor analysis of the summated scales of these six first-order values found two higher-order value dimensions: the human intangible value dimension and the structural intangible value dimension. Thus the dimensionality of the IRV model is supported in the current study.

The exploratory factor analysis retained 36 out of the initial 42 measures developed by Baxter and Matear (2004). These 36 retained measures include 20 of the 22 measures in

Baxter and Matear's (2004) final purified scales. The validity of these 36 measures was then further investigated.

The reliability examination found that the measurements of the six first-order IRV constructs are reliable in the current study. Evidence was also found for the convergent and discriminant validities in the measurements of the human and structural intangible value, the convergent validity in the measurement of the IRV, and the nomological validity of the IRV construct. Thus, the 36 measures retained in the final results of the current study are valid for the respondents in the current study.

The findings suggest that Baxter and Matear's (2004) intellectual capital approach to measuring IRV is appropriate. It has potentially provided a way to assess intangible value in relationships. Based on the dimensions and the measures provided by the IRV model, sellers can systematically assess the potential IRV of their current and potential customer relationships, and make their strategic decisions on how to manage these customer relationships accordingly.

Chapter 1 Introduction

1.1 Background to the research

Marketing researchers argue that customer relationships are one of a firm's most important assets (Webster, 1992), and note that customer relationships contribute to a firm's shareholder value in the long term (Srivastava, Shervani & Fahey, 1998). However, building a customer relationship is a lengthy and costly process, and firms have to invest money, resources, and time to make relationships work (Awuah, 2001). Investing or building close relationships for every market, customer or firm is neither appropriate nor necessary (Day, 2000). Marketing researchers suggest that relationship marketing should only be adopted when it is profitable for the parties involved (Grönroos, 1994), when it offers some benefit that could not be achieved by the parties involved working independently (Wilson, 1995), and when it contributes to a firm's competitive advantage that is sustainable (Morgan & Hunt, 1999).

The profitability and sustainable competitive advantage issues believed to be inherent in relationship marketing therefore require marketers to build up systematic measures to assess relationship value. Some researchers further argue that marketing managers need to be able to illustrate the value created by marketing activities in terms of shareholder value so that the senior management team can treat marketing expenditures as marketing investments, and evaluate marketing investments as other investments of the firm, thus, the marketing expenditures could be secured from the firm's profit maximisation policy (Lukas, Whitwell & Doyle, 2003; Srivastava et al., 1998).

1.2 Research problem and research questions

As discussed above, there is a need to measure relationship value. However, relationship value measurement has been made difficult because relationship value has a long-term perspective (Wilson & Jantrania, 1994) and its measurement involves intangible value measurement (Barringer & Harrison, 2000). This might explain why there is only limited theoretical and empirical research in this area (Payne & Holt, 2001). Payne and Holt (2001) urge that more work needs to be done on value measurement in relationship marketing for each activity that creates value.

In addition, the majority of current research on business-to-business relationship value focuses on the value from a customer's perspective, and the research on relationship value measurement from a seller's perspective is scant (Walter, Ritter & Gemünden, 2001). The reason for such concentration on customer value might be that it is assumed that sellers can only succeed in the marketplace when they can deliver more value to their customers compared to their competitors (Anderson & Narus, 1999; Slater, 1997; Woodruff, 1997). However, as Walter, Ritter and and Gemünden (2001) argue, sellers also need to understand how value is created in their customer relationships so that they can survive.

Therefore, an important research issue is to find a way to measure relationship value from a seller's perspective that is generalisable. Baxter and Matear's (2004) study directly addresses this issue by focusing on the measurement of the intangible part of the value in business-to-business relationships. They build up an intangible relationship value (IRV) model to operationalise the intangible part of the resources gained in marketing relationships that are noted by Morgan and Hunt (1999). The IRV model uses constructs synthesised from the intellectual capital literature (Roos, Roos, Dragonetti & Edvinsson, 1997). The current study is a close replication of Baxter and Matear's (2004) study, and focuses on validating the IRV model and its scales. The reason why Baxter and Matear's (2004) IRV model is chosen is discussed as follows.

As noted in detail in the literature review chapter, there are five approaches in the relationship marketing literature that are relevant to business-to-business relationship value measurement from a seller's perspective. However, among these five approaches, there are only two approaches that have been operationalised and empirically tested and supported. One is Walter et al.'s (2001) supplier-perceived value approach, and the other is Morgan and Hunt's (1999) resource-based view approach to marketing relationships.

Walter et al. (2001, p.366) view relationship value from a seller's perspective as the "perceived trade-off between multiple benefits and sacrifices gained through a customer relationship by key decision makers in the supplier's organisation". They further propose a value-creating function model to predict supplier-perceived value. Their value-creating function model suggests that customer relationships have three direct value creating functions and four indirect functions for the seller. The three direct value-

creating functions are profit function, volume function, and safeguard function, and the four indirect value-creating functions are innovation function, market function, scout function, and access function. Their empirical results suggest that a substantial amount of the variance of supplier-perceived value is explained by these seven value-creating functions. However, the exact customers' inputs that lead to these value-creating functions is not explored. This leaves a gap in the knowledge about relationships because it would be hard for a seller to manage the relationship with a buyer without knowing the inputs or the sources of the value creation.

In an alternative conceptualisation, based on the resource based view (Barney, 1991; Wernerfelt, 1984), Morgan and Hunt (1999) view marketing relationships as resources that could contribute to a firm's competitive advantage. They categorise the resources gained from marketing relationships into seven groups: financial, physical, legal, human, relational, organisational, and informational resources. However, Morgan and Hunt's (1999) categorisation of relationship resources is primarily conceptual rather than operational (Baxter & Matear, 2004). To operationalise Morgan and Hunt's (1999) relationship resources, Baxter and Matear (2004) adopt Roos et al.'s (1997) intellectual capital model and propose their IRV model focusing on the value measurement of the intangible part of the relationship resources proposed by Morgan and Hunt (1999). Morgan and Hunt (1999) further suggest that the human, relational, organisational and informational resources gained in marketing relationships have moderate to high potential to contribute to a firm's sustainable competitive advantage. Thus, it is particularly important to measure the value of these intangible relationship resources.

In contrast with the Walter et al. (2001) model, the Baxter and Matear (2004) IRV model directly focuses on the exact customers' inputs that create value for the sellers in business relationships. The IRV model suggests that sellers could potentially gain access to, and thus benefit from, customers' human and structural intellectual capital through their relationships with customers. Sellers could potentially benefit from customers' employees' competence, their positive attitude towards business relationships, and their ability to use their competence at work. Sellers could also potentially benefit from customers' relationships intellectual capital, such as their organisational relationships with other external parties, their organisation intellectual capital, such as their intellectual property and organisational processes and procedures, and their renewal and development intellectual capital, such as training programme

development. By comparing the potential value that could be generated from customers' human and structural intellectual capital, the potential value of different relationships could be assessed and compared. Thus, strategic decisions can be made about whether or not to, and how to, commit to the relationships. Therefore, Baxter and Matear's (2004) IRV model is chosen for further investigation.

Both the resource-based view (Barney, 1991; Wernerfelt, 1984) and the intellectual capital literature (e.g., Bontis, 2002; Edvinsson & Malone, 1997; Roos & Roos, 1997; Roos et al., 1997) are derived from the work of Penrose (1959). This might explain why the categorisation of resources gained in marketing relationships proposed by Morgan and Hunt (1999) is very similar to the categorisation of intellectual capital proposed by Roos et al. (1997). Baxter and Matear choose the intellectual capital literature as the basis of their IRV model because the intellectual capital literature clearly differentiates between tangible and intangible resources and provides considerable information on how to operationalise intangible resources that a firm possesses.

As Baxter and Matear's (2004) IRV model is well founded on the resource-based view, the relationship marketing literature and the intellectual capital literature, and has been empirically tested in New Zealand's manufacturing industry, it is important to investigate further the validity, and thus the generalisability, of the IRV model and its scales. Therefore, the research questions for this replication study are developed as follows:

1. Do the underlying dimensions and the levels of the IRV Model remain valid with a different data sample?
2. Do the measures of the IRV constructs remain valid with a different data sample?

1.3 Justification for the research

Although Baxter and Matear's (2004) IRV model has been empirically tested and supported in New Zealand's manufacturing industry, it is possible that the results were captured by chance (MacCallum, Roznowski & Necowitz, 1992). Churchill (1979, p.70) argues that "if the construct is more than a measurement artifact, it should be reproduced when the purified sample of items is submitted to a new sample of subjects". He calls for a second study for further scale refinement. Flynn and Pearcy (2001, p.413) assert that researchers "must be careful of claims of a scale's performance where there have not been replications". Therefore the validity of Baxter and Matear's (2004) IRV

model and its scales need to be further examined with a different set of data to rule out the possibility that the results were arrived at by chance.

1.4 Methodology

As Baxter and Matear's (2004) study has never been replicated before, a close replication of their research is considered appropriate for the current validation study to examine the generalisation potential of the IRV model. Thus the survey is conducted in the manufacturing industry in New Zealand as was done by Baxter and Matear (2004). In addition, as the primary purpose of the current study is to examine the validity of the IRV model and its scales that have been previously identified and measured, rather than developing or exploring relationship value scales, quantitative research is deemed to be appropriate (Perry, 1998).

Exploratory factor analysis is selected for the model dimension and level analysis as exploratory factor analysis can identify the dimensions underlying data (Hair, Anderson, Tatham & Black, 1998). The higher-order constructs of relationship value are examined by the factor analysis of the first-order factors found in the factor analysis of the questionnaire items as suggested by Nunnally and Bernstein (1994). Oblique rotation is chosen as the factors or dimensions of the relationship value are expected to be correlated and to form higher-order factors.

Four requirements of the construct validity of the IRV constructs are investigated. They are reliability, and convergent, discriminant and nomological validities (Peter, 1981). The reliabilities of the constructs are measured by internal consistency examined by inter-item correlations, item-to-total correlations, and coefficient alpha. The convergent, discriminant and nomological validities of the constructs will be examined by way of correlations.

1.5 Definitions

The definition of relationship marketing adopted in this thesis is that of Grönroos (1994) as follows.

[Relationship] marketing is to establish, maintain, and enhance relationships with customers and other partners, at a profit, so that the objectives of the parties involved

are met. This is achieved by a mutual exchange and fulfilment of promises (Grönroos, 1994, p.9).

The definition of resources adopted in this thesis is defined by Hunt and Morgan (Hunt & Morgan, 1995, p.6) as follows.

Resources are tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some market segment or segments (Hunt & Morgan, 1995, p.6).

The evolution of the definition of resources is discussed in detail in chapter two (section 2.4.3).

1.6 Outline of the thesis

This thesis starts by reviewing the literature of relationship value in chapter two. Both the benefits and the costs involved in relationship marketing are discussed. Then the five approaches relevant to relationship value measurement from a seller's perspective in the relationship marketing literature are discussed and compared. Baxter and Matear's (2004) IRV model is chosen for further investigation. The model's theoretical background, Morgan and Hunt's (1999) resource-based view of marketing relationships, and the rationale for the adoption of the intellectual capital literature to operationalise the intangible part of the relationship resources noted by Morgan and Hunt (1999), are provided.

Chapter three introduces Baxter and Matear's (2004) IRV model, their research design, and their empirical results. The contribution and the limitation of their research are discussed. The research questions for the current study are thus formed and presented.

Chapter four discusses the methodological issues involved in this validation study, including how the research is designed, what method is chosen, and what data analysis techniques are used. The chapter also presents the initial research process of the current validation study, including data collection and data screening. Ethical issues are also discussed in this chapter.

Chapter five is the analysis of data. It presents the findings concerning research questions of the current validation study, including model dimension and level analysis and construct validity analysis. The subjects of the survey are briefly discussed. As the firm sizes in the current study are quite different from those in Baxter and Matear's (2004) study, the firm size effect on the IRV is examined.

The final chapter presents the conclusions on the research questions and the relationship value and its measurement based on the data analysis results of the current study. It also discusses the implications of the current study for the relationship value theory and practice. It then discusses the limitations of the current study, followed by the future research areas. Finally, the conclusions of the current study are presented.

1.7 Delimitations of scope

The study focuses on the customer relationship value for the seller in a dyadic business-to-business context. In addition, the key purpose is to examine the validity of Baxter and Matear's (2004) IRV model and its scales, that is, the dimensionality of the IRV, and the performance of the items developed by Baxter and Matear (2004) as indicators of the value constructs rather than IRV scale development.

1.8 Conclusions

This chapter laid the foundation of the thesis. It introduced the research problem and research questions. Then the research was justified. The methodology was briefly described and justified and the definitions were presented. The outline of the thesis was given and the delimitations of the scope were provided. On these foundations, a detailed description of the research can follow.

Chapter 2 Literature review

2.1 Introduction

Researchers have realised there are both advantages and disadvantages associated with business relationship building (Barringer & Harrison, 2000). Thus, how to select a set of relationships to commit to is seen as an important strategic issue for a firm to implement relationship marketing strategy (Wilson & Jantrania, 1994). Marketers need to understand the conditions and the purposes of entering into a relationship, how to manage and evaluate the performance of a relationship, and when to terminate a relationship (Sheth & Parvatiyar, 1995). To answer these questions, marketers need to understand how a collaborative relationship creates value for a firm (Sheth & Parvatiyar, 1995) and how to assess the value accurately (Hogan, 2001).

Researchers have made some progress in understanding how business relationships create value for a firm, such as through relationship development (Wilson, 1995), cost reduction (Kalwani & Narayandas, 1995), relationship management (Anderson & Narus, 1999), and enhancing and accelerating cash flows (Srivastava et al., 1998). However, as discussed in the introduction chapter, the research on relationship value measurement in business-to-business contexts is limited (Payne & Holt, 2001), especially from a seller's perspective (Walter et al., 2001). Therefore, more work needs to be done on value measurement in relationship marketing (Payne & Holt, 2001), especially from a seller's perspective (Walter et al., 2001).

This chapter firstly discusses the issues of the adoption of a relationship marketing strategy. It then compares five existing approaches relevant to relationship value measurement from a seller's perspective in business-to-business contexts in the relationship marketing literature. Baxter and Matear's (2004) IRV model is chosen for the further investigation, and its theoretical background – Morgan and Hunt's (1999) resource-based view of marketing relationships – is discussed. To operationalise Morgan and Hunt's (1999) relationship resources, Baxter and Matear (2004) adopt a model from the intellectual capital literature. The rationale for adopting the intellectual capital model is discussed in detail in this chapter. Finally, it is concluded that it is important to further investigate the validity of Baxter and Matear's (2004) IRV model and its scales.

2.2 The adoption of a relationship marketing strategy

In this section, the definition of relationship marketing is discussed first, and then the conceptual arguments and empirical studies of whether a firm should adopt a relationship marketing strategy are briefly reviewed. The focus of the review is the adoption of relationship marketing strategies in buyer-seller relationships rather than in other types of interorgansiational relationships, such as joint ventures, and from a seller's perspective rather than from a buyer's perspective.

Harker (1999) reviews 26 definitions of relationship marketing and concludes that Grönroos' (1994) definition of relationship marketing is the best throughout the relationship marketing "community". The definition is adopted in the current study and is provided as follows.

[Relationship] marketing is to establish, maintain, and enhance relationships with customers and other partners, at a profit, so that the objectives of the parties involved are met. This is achieved by a mutual exchange and fulfilment of promises (Grönroos, 1994, p.9).

The definition suggests that a relationship-marketing strategy should only be adopted when it is profitable for both of the parties involved in the relationship. Similarly, researchers argue that investing or building close relationships for every market, customer, or firm is neither appropriate nor necessary (Day, 2000), and relationship marketing should only be adopted when it offers some benefit that could not be achieved by the parties involved working independently (Wilson, 1995), and when it enhances a firm's competitive ability in the long-term (Morgan & Hunt, 1999; Wilson, 1995). Jackson (1985) suggests that firms should adjust their commitment to a relationship according to the customer firm's commitment to the relationship and should not invest substantial amounts of resources to win a customer commitment that will not last.

Based on a review of six widely used theoretical paradigms that explain interorganisational relationship formation, including transaction costs economics and resource dependency theory, Barringer and Harrison (2000) elaborate on ten potential advantages and seven potential disadvantages of participation in interorganisational

relationships. The potential advantages that are applicable to buyer-seller relationships are gaining access to a particular resource, economies of scale, gaining access to a foreign market, product and/or service development, learning, speed to market, and flexibility. The resources that firms gain access to include both tangible resources, such as capital and a modern production facility, and intangible resources, such as partners' employees' specialised skills and partners' intimate knowledge of a market. The potential disadvantages that are applicable to buyer-seller relationships are loss of proprietary information, risk of becoming dependent on the partner, and financial and organisational risks caused by the opportunistic behaviour of the partner.

Barringer and Harrison (2000) urge that the advantages and disadvantages of forming a relationship must be weighed and managed carefully. However, the assessment of that relationship formation is made complex because it requires the assessment of intangible elements, such as the measurement of reputation enhancement or damage, social network broadening, new skills learning, or loss of proprietary information or trade secrets. Similarly, Wilson (1995, p.342) notes that the "nonaccounting value" created in a relationship, such as concurrent engineering activities and technology improvement, is seldom measured as it is difficult to place a value on these high levels of value creation.

Empirically, Walter et al. (2001) find empirical support for the advantages of economics of scale and product and/or service development suggested by Barringer and Harrison (2000) in buyer-seller relationships. Walter et al. (2001) find evidence that sellers perceive that the collaborative relationships with their business customers have seven value creating functions. Three of these functions create value for the seller directly. These are profit function (creation of higher profits from the products and services offered), volume function (growth of trade volumes), and safeguard function (the possibility to sell, for example, over-capacity). The other four functions create value for the seller indirectly. These are innovation function (cooperative development of new products or processes), market function (assistance to attract new customers and to enter new markets), scout function (information about future developments in the customer's market), and access function (facilitation of access to important third party).

The profit function of business relationships is supported by Kalwani and Narayandas' (1995) study in supplier-manufacturer relationships. Based on longitudinal financial data, Kalwani and Narayandas (1995) find that suppliers using the long-term

relationships approach achieve higher profitability than suppliers using a transactional approach to servicing their manufacturing customers. This higher profitability is achieved through a greater reduction of the discretionary costs such as selling costs, general costs, and administrative overhead costs. However, the non-accounting value created in relationships is not measured.

On the other hand, Awuah (2001) finds evidence in his empirical case studies that developing a trust relationship that enhances the competitive abilities of both the supplier and the customer is a lengthy and costly process, which involves a lot of adaptations and investments over time.

Therefore, the conceptual and empirical research on relationship building suggests that, although customer relationships can potentially create value for a firm, building customer relationships that could enhance each other's competitive ability in the marketplace in the long-term requires significant inputs of resources. Therefore, a relationship marketing strategy should only be adopted when the relationship can create value for a firm. Firms should carefully assess the value of a relationship before they make further commitment to it.

However, the assessment of relationship value has been made difficult because the nature of customer relationships is complex, largely intangible, and long-term oriented. Therefore, techniques need to be developed to measure relationship value, especially the intangible part of the relationship value. Five existing approaches relevant to measuring business relationship value from a seller's perspective in the relationship marketing literature are discussed next.

2.3 Relationship value measurement approaches

Hogan (2001) argues that the way to measure value is driven by the way value is conceptualised in the context of business relationships. However, there is a lack of consensus about what constitutes value in business-to-business relationships (Hogan, 2001). The five existing approaches to what constitutes value for the seller in a business-to-business relationship and their relevant relationship value measurement models are summarised in Table 2.1. They are organised in the chronological order that the concepts were proposed.

The first approach views relationship value creation as a process that enhances the competitive abilities of the parties involved in the relationship (Wilson, 1995). From this approach, Wilson and Jantrania (1994) suggest that relationship value has three dimensions: (i) economic dimension, which includes cost reduction, value engineering, investment quality, and concurrent engineering, (ii) strategic dimension, which includes goals, time to market, strategic fit, and core competencies, and (iii) behavioural dimension, which includes social bonding, trust, and culture.

Table 2.1 Five approaches to relationship value for the seller and relevant models

Approaches	**Source**	**Relevant models**
Relationship value creation is a process that enhances the competitive abilities of the parties involved in the relationship.	Wilson (1995)	Wilson and Jantrania (1994) propose that relationship value has three dimensions: economic, psychological or behavioural, and strategic dimensions.
Relationships are part of a firm's market-based assets and can contribute to a firm's shareholder value.	Srivastava, Shervani and Fahey (1998)	Srivastava et al. (1998) propose a framework illustrating how market-based assets can enhance and accelerate cash flow, which can in turn lead to an increase in shareholder value.
Marketing relationships are resources for a firm, and these relationship resources can be grouped into seven categories: financial, physical, legal, human, relational, organisational, and informational resources.	Morgan and Hunt (1999)	Baxter and Matear (2004) synthesise a model from the intellectual capital literature to operationalise the intangible part of the resources gained in marketing relationships that are noted by Morgan and Hunt (1999).
Relationship value for the seller is the "perceived trade-off between multiple benefits and sacrifices gained through a customer relationship by key decision makers in the supplier's organisation".	Walter, Ritter and Gemünden (2001, p.366)	Walter et al. (2001) propose that a customer relationship has seven value-creating functions: profit function, volume function, and safeguard function, innovation function, market function, scout function, and access function. It is the fulfilment of these functions that create value for the supplier.
Expected relationship value – "the perceived net worth of the tangible benefits to be derived over the life of the relationship"	Hogan (2001, p.341)	Hogan (2001) developed a methodology for measuring expected value for a specific relationship in a specific firm

Wilson and Jantrania's (1994) relationship value model is the first one in the relationship marketing literature that explicitly describes the dimensions of relationship value. The model incorporates both tangible and intangible value of the relationship. They further point out that it would be difficult to assess the long-term values in the model, such as "the value of adding to a firm's core competency", "the value of reducing the time to the market on a firm's ability to compete", and "the value of the

culture to support and promote the relationship" (Wilson & Jantrania, 1994, pp.62-63). The model has not been operationalised and empirically tested.

The second approach listed in Table 2.1 views customer relationships as part of a firm's market-based assets, that can contribute to a firm's shareholder value by enhancing or accelerating cash flow (Srivastava et al., 1998). This approach focuses on how to quantify the value of market-based assets, which include customer relationships, in terms of shareholder value. Lukas, Whitwell and Doyle (2003) argue that the long-term approach of shareholder value is particularly useful in demonstrating the value of market-based assets, as these assets are largely intangible and create value for the firm in the long-term.

Based on this shareholder value approach, Srivastava, Shervani and Fahey (1998) propose a framework illustrating how market-based assets, such as customer relationships and partner relationships, accelerate and enhance cash flow through co-branding and co-marketing, and faster response to market efforts. The framework is based on the collective findings in different areas of marketing research, such as branding (Dacin & Smith, 1994; Smith & Park, 1992), and marketing and new product development literature (Robertson, 1993). While the framework conceptually provides a way of quantifying market-based assets, it "lacks detail about the nature of the relational processes that are associated with the core business processes" (Brodie, Glynn & Van Durme, 2002, p.16). No empirical work has been done to quantify customer relationship value in terms of shareholder value based on the framework.

The third approach listed in Table 2.1 to relationship value is based on the resource-based view (Barney, 1991; Wernerfelt, 1984). Morgan and Hunt (1999) view marketing relationships as resources that could contribute to a firm's competitive advantage. They further categorise the resources gained from marketing relationships into seven groups: financial, physical, legal, human, relational, organisational, and informational resources.

Morgan and Hunt's (1999) categorisation of relationship resources is primarily conceptual rather than operational. Baxter and Matear (2004) focus on the intangible part of the resources gained in marketing relationships (Morgan & Hunt, 1999), and operationalise them using constructs synthesised from the intellectual capital literature (Roos et al., 1997). Baxter and Matear (2004) propose in their intangible relationship

value (IRV) model that the intangible part of the value of a relationship for the seller is reflected in the customer's human and structural intellectual capital inputs to the relationship.

Human intellectual capital inputs are customer's employees' competence, attitude and intellectual agility. Structural intellectual inputs are (i) customer's relationships intellectual capital, such as their internal and external organisational relationships, (ii) their organisation intellectual capital, such as their intellectual property and their processes and procedures, and (iii) their renewal and development intellectual capital, such as their training programme development.

Baxter and Matear (2004) have developed a set of measures assessing these six dimensions of customer inputs: competence, attitude, intellectual agility, relationships, organisation, and renewal and development, and have found empirical support for their IRV model. The measures retained in their final study, if validated, could be used to evaluate the intangible part of the values of firm's existing or potential relationships. Thus, strategic decisions can be made on which relationship or relationships to commit to. Therefore, Baxter and Matear's (2004) IRV model should be further investigated.

The fourth approach listed in Table 2.1 views relationship value as the "perceived trade-off between multiple benefits and sacrifices gained through a customer relationship by key decision makers in the supplier's organisation" (Walter et al., 2001, p.366). Walter et al. (2001) propose a value-creating function model to predict supplier-perceived value.

As discussed in the earlier section (2.2.2), Walter et al.'s (2001) value-creating function model suggests that, for the seller firm, customer relationships have three direct value creating functions: profit function, volume function, and safeguard function; and four indirect value creating functions: innovation function, market function, scout function, and access function. Their empirical results suggest that a substantial amount of the variance of supplier-perceived value is explained by these seven value-creating functions.

A close examination of the indicators of the value-creating functions suggests that market function and access function are created through the access to the customer's relationships with other parties. The scout function is created through the access to the

customer's information system. Innovation function is generated by the customer's inputs in new product development. However, the exact customers' inputs that lead to innovation function is not discussed. Similarly, what provides profit function, volume function, and safeguard function is not discussed. Therefore, it would be difficult to manage the relationship without knowing exactly what the customer's inputs are in creating these functions.

The fifth approach listed in Table 2.1 views the value of a business relationship as "the perceived net worth of the tangible benefits to be derived over the life of the relationship" (Hogan, 2001, p.341), which is conceptualised as a new construct named "expected relationship value" by Hogan (2001). Hogan (2001) stresses that relationship value is determined by "benefit flow", which includes cash as well as other tangible benefits such as improved product quality, technology transfer, and increased process efficiency. The focus of the approach is on developing a methodology for measuring the "expected relationship value" for a specific relationship, in a specific firm, rather than developing a set of relationship value measures that are generalisable. When a specific relationship is investigated, the probability distribution of the net present value (NPV) of the tangible benefits can be estimated.

Therefore, among the above five approaches to relationship value measurement, Wilson and Jantrania's (1994) three-dimension model and Srivastava et al.'s (1998) cash flow framework model are conceptual and have not been operationalised. Hogan's (2001) "expected relationship value" approach focuses on assessing the value of a specific relationship rather than developing a set of measures that are generalisable. The remaining two models, Walter et al.'s (2001) value-creating function model and Baxter and Matear's (2004) IRV model, provide specific measures for relationship value assessment, and have been empirically tested and supported. However, the two approaches are quite different. Walter et al. (2001) find that a substantial amount of the variance of supplier-perceived value is explained by the value-creating functions of customer relationships, but the specific customer inputs that lead to these value-creating functions are not explored. This leaves a gap in knowledge about relationships, because it would be difficult to manage the relationship without knowing those inputs as the sources that create value. By contrast, Baxter and Matear's (2004) IRV model focuses on the exact customer inputs that create value for the seller in a business relationship. In addition, the IRV model directly addresses the measurement of the intangible aspects of

a relationship, which is a major concern in relationship value measurement. Therefore, Baxter and Matear's (2004) IRV model is chosen as the most promising model for further investigation. Thus, naturally, Morgan and Hunt's (1999) resource-based view of marketing relationships is chosen as the theoretical basis for the investigation, and is discussed next.

2.4 A resource-based view of marketing relationships

In this section, a resource-based view of marketing relationships is discussed first, followed by the categorisation of the resources gained in marketing relationships (Morgan & Hunt, 1999). Then the section discusses the criteria for a resource to become a source of a firm's sustainable competitive advantage. It then discusses the potential of the intangible relationship resources to contribute to a firm's sustainable competitive advantage. Thus, the importance of the IRV measured in Baxter and Matear's (2004) IRV model is further justified.

2.4.1 Relationships as resources

The traditional view of resources requires "clear ownership and control" of the resources (Grant, 1991, p.129). However, Wernerfelt (1984, p.172) suggests that "a firm's resources at a given time could be defined as those (tangible and intangible) assets which are tied semipermanently to the firm". Similarly to this "tied semipermanently" view, Barney (1991) requires only the controllability of resources in his definition of resources. He provides a definition that "firm resources include all assets, capabilities, organisational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Barney, 1991, p.101).

Thus, the emerging definitions of resources stress their "availability" rather than "ownership". Hunt and Morgan (1995) define resources as "the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some market segment or segments" (Hunt & Morgan, 1995, p.6). Hunt (1997) further stresses that resources do not need to be "owned" by the firm but just need to be "available" to the firm. Thus, firm's resources can be internal or external to the firm (Srivastava et al., 1998). Sanchez and Heene (1997) define the external resources available to the firm as "firm-addressable resources". Similarly, Dyer

and Singh (1998) argue that a firm's critical resources may extend beyond firm boundaries and may be embedded in interfirm routines and processes.

Therefore, Hunt and Morgan's (1995) definition of a firm's resources, which stresses the "availability" of the resources, is adopted in the current study. Based on this definition, Hunt (1997) concludes that when the relationships involved in relationship marketing improve a firm's efficiency and/or effectiveness in the marketplace, they constitute the firm's resources. Morgan and Hunt (1999) further categorise the types of resources gained in marketing relationships into seven categories. These seven types of relationship resources are discussed next.

2.4.2 Types of resources gained in marketing relationships

Morgan and Hunt (1999) categorise the resources gained in marketing relationships into seven categories: financial resources, legal resources, physical resources, human resources, organisational resources, relational resources, and informational resources.

Financial resources and physical resources are tangible. Financial resources refer to the capitalisation that the firm has at its disposal. Physical resources are defined as tangible assets, other than labour and cash, which are used by the firm to produce and market goods and services. Examples of physical resources are raw materials, machinery, land, and production, storage, distribution, service, and retailing facilities. (Morgan & Hunt, 1999)

Legal resources are "those assets the firm uniquely possesses because of government statute or a legally binding agreement between the firm and another party" (Morgan & Hunt, 1999, p.285). Examples of legal resources in marketing are contracts, exclusionary licenses and entitlements (Morgan & Hunt, 1999). Legal resources are normally considered as intangible (Baxter & Matear, 2004; Fernandez, Montes & Vazquez, 2000; Galbreath, 2002), although there are some established techniques for their valuation (Baxter & Matear, 2004).

The remaining four types of resources listed by Morgan and Hunt (1999), human resources, organisational resources, relational resources and informational resources, are intangible. Human resources refer to the employees' skills, knowledge, and vision. Organisational resources are defined as the assets a firm possesses that arise from the

organisation itself, such as organisational culture and structure, brand names, the administrative history of the firm, and organisational routines and processes. Relational resources are those relationships that the buyer has and which the seller gains access to as a result of its relationship with the buyer. Examples of relational resources are retailer-consumer relationships, wholesaler-retailer relationships, and manufacturer-employee relationships. Informational resources refer to the firm's collective knowledge and the process developed in the firm for inducing organisational learning.

Morgan and Hunt (1999) further propose the potential of these seven types of relationship-based resources to contribute to a firm's sustainable competitive advantage. The criteria for a resource to become a source of competitive advantage to a firm are discussed next. This is followed by a discussion of the relative potential of the relationship resources to contribute to a firm's sustainable competitive advantage.

2.4.3 The resource-based view and sustainable competitive advantage

The resource-based view has focused on developing a framework for understanding the crucial factors for a resource to become a source of a firm's sustainable competitive advantage (Morgan & Hunt, 1999). Once the resources that can contribute to a firm's sustainable competitive advantage are identified, the firm can design a strategy that makes the most effective use of these core resources (Grant, 1991).

There are many frameworks in the resource-based theory, but there is no consensus on which framework is most appropriate (Morgan & Hunt, 1999). However, there are some common requirements in these frameworks for the resources to be the source of a firm's sustainable competitive advantage. These common requirements are heterogeneity (Barney, 1991; Hunt & Morgan, 1995), imperfect imitability (Barney, 1991; Dierickx & Cool, 1989), imperfect substitutability (Barney, 1991; Dierickx & Cool, 1989), imperfect mobility (Collis, 1991; Dierickx & Cool, 1989), and efficiency and effectiveness (Hunt & Morgan, 1995).

The concept of heterogeneity lies at the heart of the resource-based view. It recognises that resources are in limited supply, and thus that firms able to acquire resources have advantages over others that are not able to do so (Morgan & Hunt, 1999). To sustain competitive advantage, resources should be imperfectly imitable and imperfectly substitutable. One major barrier to imitation and substitution is causal ambiguity of the

competitive advantage (Barney, 1991; Reed & DeFillippi, 1990). When competitors do not understand the competencies on which the advantage is based, they are not able to imitate or substitute the competencies.

Collis (1991) and Dierickx and Cool (1989) suggest that immobility is the most valuable characteristic of resources because it requires considerable time and cost to accumulate such resources. Examples of immobile resources in the marketplace are dealer loyalty, trust, reputation, and R&D capability (Morgan & Hunt, 1999). Finally, resources should continually, rather than in the short-term, contribute to the firm's ability to efficiently and effectively produce valued market offerings (Morgan & Hunt, 1999).

Based on above five criteria, whether or not the relationship resources noted by Morgan and Hunt (1999) have potential to become the source of a firm's sustainable competitive advantage is analysed next.

2.4.4 The relationship resources and sustainable competitive advantage

Financial resources gained in marketing relationships are widely available, and physical resources gained in marketing relationships can be substituted. Thus, both of these two types of relationship resources are unlikely to lead to sustainable competitive advantage for the parties involved in the relationship (Morgan & Hunt, 1999).

Legal resources gained in marketing relationships have limited potential as source of sustainable competitive advantage because of their imitability, substitutability, and limited longevity. Human resources gained in marketing relationships are valuable, but have only moderate potential as source of sustainable competitive advantage because of their mobility. By contrast, organisational, relational and informational resources have high potential as a source of sustainable competitive advantage because of the complexity, ambiguity and time dependence of their creation. (Morgan & Hunt, 1999)

Therefore, the intangible relationship resources – the legal, human, organisational, relational, and informational resources gained in marketing relationships – are more likely to contribute to a firm's sustainable competitive advantage than the tangible relationship resources: the physical and financial resources gained in marketing relationships. Thus, the assessment of the value of these intangible relationship

resources is important. However, Morgan and Hunt's (1999) categorisation of relationship resources is primarily conceptual rather than operational (Baxter & Matear, 2004). To operationalise the intangible part of the relationship resources proposed by Morgan and Hunt (1999), Baxter and Matear (2004) adopt the Roos et al. (1997) intellectual capital model. The rationale for this adoption is discussed next.

2.5 An intellectual capital model of relationship value

This section briefly reviews Baxter and Matear's (2004) justification of their adoption of the intellectual capital model to operationalise the intangible part of the relationship resources that are noted by Morgan and Hunt (1999). It starts with the discussion of the definitions of the Roos et al. (1997) intellectual capital categories. It then briefly discusses Baxter and Matear's (2004) justification of why the intellectual capital model could be used for relationship value measurement. The justification is achieved by a comparison between the Roos et al. (1997) intellectual capital categories and the Morgan and Hunt (1999) relationship resource categories. Further reasons for the adoption of the intellectual capital model are also provided.

2.5.1 Intellectual capital categories

Roos et al. (1997) divide the total value of the firm into two forms of capital: financial capital and intellectual capital. Financial capital includes all the physical and monetary assets while intellectual capital includes all the intangible processes and assets of a firm.

Intellectual capital has two dimensions: human intellectual capital and structural intellectual capital. Human intellectual capital is divided into three categories: competence, attitude, and intellectual agility; and structural intellectual capital is also divided into three categories: relationships, organisation, and renewal and development (Roos et al., 1997).

Competence is that attribute which generates value for the firm through its employees' knowledge, skills, talents and know-how. While employees' knowledge and skills are important, employees' willingness to use their skills and abilities to contribute to a firm's performance is also critical for a firm to reach its set goals. Attitude thus covers the value generated by the employees' correct behaviours on the workplace that reflect their willingness to contribute to a firm's success. Intellectual agility creates value for a firm through its employees' ability to apply knowledge and skills in different situations.

The application of knowledge and skills could be innovation, imitation, adaptation, and packaging, that is, to turn ideas into products or services (Roos et al., 1997).

Relationships mainly refer to the relationships a firm has with its customers, suppliers, allies, shareholders and other stakeholders. Organisation refers to a firm's organisational culture and structure as well as its intellectual property and processes. Examples of organisation attributes are databases, process manuals and internal networks. Renewal and development refers to all the projects that could impact on value generation of the firm in the future, but have not manifested that impact yet. Examples of renewal and development are training programme development, new product research and development, and work on restructuring (Roos et al., 1997).

2.5.2 Synthesis with the resource-based view of relationship resources

The synthesis of the conceptual frameworks of relationship resources (Morgan & Hunt, 1999) and intellectual capital constructs provides the justification for applying Roos et al.'s (1997) model as the basis of building an IRV model (Baxter & Matear, 2004). As discussed in Baxter and Matear's (2004) study, both the resource-based view and the intellectual capital literature are derived from the work of Penrose (1959). This might explain why the categorisation of intellectual capital proposed by Roos et al. (1997) is very similar to that of relationship resources proposed by Morgan and Hunt (1999).

The comparison of Morgan and Hunt's (1999) intangible relationship resources categories and Roos et al.'s (1997) intellectual capital categories is shown in Table 2.2. Baxter and Matear (2004) conclude that the overall domain coverage of the two categorisations is "essentially the same".

2.5.3 Further reasons for adopting the intellectual capital model

The key focus of Baxter and Matear's (2004) study is the measurement of the intangible resources gained in a marketing relationship. The intellectual capital literature is useful as it clearly differentiates between tangible and intangible resources, which means that the intangible value aspects of a relationship can be isolated for assessment.

The categorisations of intellectual capital in the intellectual capital literature (e.g., Bontis, 1998; Edvinsson & Sullivan, 1996; Peppard & Rylander, 2001; Roos et al., 1997) are very similar to each other. Bontis (1998) has in fact operationalised the

intellectual capital categories and empirically tested and found support for his categorisation of intellectual capital, which is very similar to Roos et al.'s (1997) categorisation. In addition, the studies in the intellectual capital literature have provided considerable information about each intellectual capital category (e.g., Bontis, 2002; Edvinsson & Malone, 1997; Roos & Roos, 1997; Roos et al., 1997), which provides a basis for the domain definitions of the IRV constructs and the development of the IRV measurements in Baxter and Matear's (2004) study. Therefore, the intellectual capital model is chosen as the basis for IRV measurement.

Table 2.2: Intangible relationship resources categories and intellectual capital categories

Intangible relationship resource categories (Morgan & Hunt, 1999)	**Intellectual capital categories** (Roos et al., 1997)
Human resources: Employees' skills, knowledge, and vision	**Human capital:** **Competence:** The knowledge, skills, and know-how of employees **Attitude:** Employees' behaviours on the workplace **Intellectual agility:** Employee' ability to use the knowledge and skills, to apply them in practice and to increase them through learning
	Structural capital:
Legal: The assets the firm uniquely and legally possesses, such as contracts, exclusionary licenses and entitlements. **Organisational:** The assets a firm possesses that arise from the organisation itself, such as organisational culture and structure, brand names, the administrative history of the firm, and organisational routines and processes.	**Organisation:** A firm's structure as well as its intellectual property assets, its processes, and culture. Examples of organisation are database, process manuals, culture, and internal networks.
Relational: Relational resources are those relationships that the buyer has and to which the seller gains access as a result of its relationship with the buyer.	**Relationships:** The relationships a firm has with its customers, suppliers, allies, shareholders and other stakeholders.
Informational: The firm's collective knowledge and the process developed for inducing organisational learning.	**Renewal and development:** All the projects that could impact on the value generation of the firm in the future, but haven't manifested that impact yet.

2.6 Conclusions

Customer relationships are one of the most important resources for a firm. However, building a customer relationship that can enhance a firm's competitive advantage in the long term requires significant inputs of resources. Thus, it is necessary to build up a system to measure the potential value of each existing or potential relationship so that strategic decisions can be made on which customer relationship to commit to.

However, the value of a customer relationship is hard to measure. In particular, the intangible elements of a customer relationship are difficult to measure, such as the measurement of reputation enhancement, social network broadening, or new skills learning. Therefore, techniques need to be developed to measure relationship value, especially the intangible elements of the customer relationships.

Five approaches relevant to relationship value measurement from a seller's perspective in the relationship marketing literature were discussed and compared. Baxter and Matear's (2004) IRV model was chosen for further analysis because it is the only model that explicitly focuses on the specific customer inputs that create value for the seller in a business relationship. In addition, the IRV model has been empirically tested and supported. The model directly addresses the issue of IRV measurement, which is the major concern in relationship value measurement.

As discussed in detail in this chapter, the IRV model is well founded on the relationship marketing literature, the resource-based view and the intellectual capital literature. It measures the value of the intangible part of resources gained in marketing relationships that are noted by Morgan and Hunt (1999). The intangible resources gained in marketing relationships include relational, organizational, and informational resources, which are inimitable. Thus, the competitive advantage created by these intangible relationship resources is likely to be sustained. Therefore, it is particularly important to measure the value created by these intangible relationship resources.

Therefore, it is important to further investigate Baxter and Matear's (2004) IRV model and examine its validity and thus generalisability. If the dimensions and the measures are validated, firms can systematically assess and compare the value of their current and/or potential business relationships, and make strategic management decisions

accordingly. The details of Baxter and Matear's (2004) IRV model and their research design and findings are discussed in the next chapter, which leads to the research questions for this replication study.

Chapter 3 Research questions for replication

3.1 Introduction

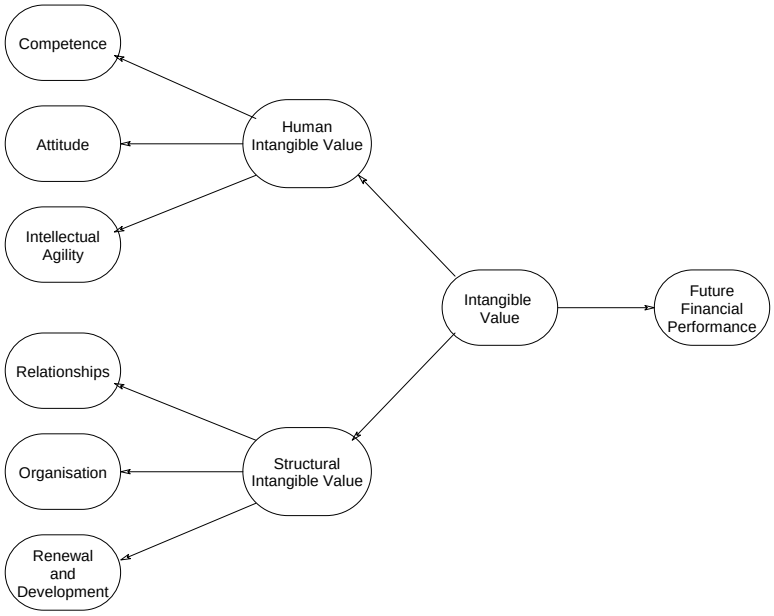
As discussed in Chapter 2, Baxter and Matear (2004) propose a theoretical model of IRV based on the resource-based view of marketing relationships (Morgan & Hunt, 1999) and the intellectual capital literature (Roos et al., 1997). This chapter discusses the model, and arrives at research questions for the study on which this thesis reports.

The chapter starts by discussing the details of the IRV model and the measurements for the value constructs. It then discusses Baxter and Matear's (2004) research design and their findings. The focus of the chapter then moves to discussion of the contributions and the limitations of Baxter and Matear's (2004) study. Based on the discussion, the research questions for the current study are raised. Finally, the conclusions of the chapter are provided.

3.2 Model introduction and the measurements

Based on the relationship resources categories of Morgan and Hunt (1999) and the intellectual capital literature (Roos et al., 1997), Baxter and Matear (2004) propose a theoretical model of IRV shown as figure 3.1.

Figure 3.1 Theoretical model of IRV



Source: Baxter and Matear (2004)

The IRV is reflected in two second-order dimensions – a human intangible value dimension and a structural intangible value dimension. Human intangible value is further reflected in three dimensions: buyers' employees' competence, attitude and intellectual agility. Buyers' employees' competence and intellectual agility could potentially generate value for the relationships and thus to the sellers. Their attitude could influence the value they generate.

Structural intangible value is also further reflected in three dimensions: buyer firms' relationships, organisation, and renewal and development. Sellers could potentially benefit from these structural aspects of buyers through their relationships with the buyers. Sellers could potentially get access to buyers' intra-organisational relationships (Morgan & Hunt, 1999) and inter-organisational relationships with external parties in their dealings with the buyers. They could potentially benefit from the buyers' organisational structure and their intellectual properties, their processes and procedures, and their culture through their relationships with the buyers. Finally, they could potentially benefit from the buyer's renewal and development work, such as training programme development, and restructuring planning.

Based on domain descriptions in the intellectual capital literature (Bontis, 19982002; Edvinsson & Malone, 1997; Roos et al., 1997), and seven interviews with the sales managers in the field, Baxter and Matear (2004) have developed 42 items to measure the six value constructs as shown in the questionnaire in Appendix 3.1.

A future financial performance construct is included in the model to test the nomological validity of the IRV scales (Baxter & Matear, 2004) as it is suggested in the literature that financial performance is an outcome of resource value (Morgan & Hunt, 1999; Srivastava, Fahey & Christensen, 2001). Four items are developed to measure the future financial performance construct as shown in the questionnaire (Appendix 3.1). If it is nomologically valid, the IRV value construct should have a positive correlation with future financial performance. Next, Baxter and Matear's (2004) research design and results are discussed.

3.3 Baxter and Matear's (2004) research design and results

In this section, the general information on Baxter and Matear's (2004) survey is provided first, then their data analysis and findings are discussed.

3.3.1 Conduct of the survey

Baxter and Matear's (2004) research was conducted in New Zealand's manufacturing industry in 2001. After a pilot study and subsequent minor modifications, 1407 questionnaires were distributed to the sales managers or marketing managers. The managers were randomly selected from the Kompass database and their names and addresses were verified over the phone. After the mailing of the postcard reminder, 318 responses were received, out of which 314 were usable. The response rate was 23 percent.

The respondents were mainly sales managers (44.6 percent), marketing managers (21.0 percent), sales and marketing managers (13.7 percent), or CEO/GM/Director (8.6 percent). Others were in positions such as product manager or customer service manager who worked closely with customers, thus their responses were considered valid.

The employee numbers in the sample firms ranged from five to above 1000. Thirty two percent of the sample firms had 20 to 49 employees, followed by 19 percent having 50 to 99 employees and 16 percent having 10 to 19 employees.

As an outcome of Baxter and Matear's (2004) pilot study and the discussions with several sales managers in the field, the respondents were asked to choose their fourth largest customer as the subject for the survey to avoid the data being skewed to "good" relationships.

3.3.2 Data analysis and the findings

As the aim of Baxter and Matear's (2004) study was to test the hypothesised model of IRV and the scales for its assessment, confirmatory factor analysis was chosen and structural equation modelling was used. The statistical analysis results indicated that the model had a good fit with 22 items retained in the total for the six constructs, and the model paths were significant at $p < 0.01$ level. Each construct had three or four indicators. The coefficient alphas for all six scales were above the recommended lower level of .70 (Nunnally, 1978).

An additional exploratory factor analysis, with varimax rotation, of the retained items for the value constructs found that these items loaded clearly onto six factors representing six value constructs.

Three indicators were retained for the future financial performance construct. The coefficient alpha of this scale was .8063. Further, 29 percent of the variance of the future financial performance construct was found to be explained by the intangible value construct. Thus, the nomological validity of the IRV construct was supported.

3.4 Contribution of Baxter and Matear's (2004) study

As discussed earlier, marketing researchers have recognised that firms need to assess the value of a customer relationship before they adopt a relationship marketing strategy. But the relationship value measurement has been made difficult because there are intangible aspects involved in relationships (Barringer & Harrison, 2000). However, as Morgan and Hunt (1999) suggest, it is the intangible resources gained in marketing relationships, such as relational, orgnisational, and informational resources, that are likely to create sustainable competitive advantage for a firm because these resources are inimitable. Therefore, techniques need to be developed to measure the value of these intangible relationship resources.

Baxter and Matear's (2004) IRV model directly addressed the measurement of the intangible aspects of customer relationships. It is the only model in the relationship marketing literature that provides explicit measures of the value of the intangible resources gained in customer relationships, and has been empirically tested and supported. The model is well founded on the resource-based view of marketing relationships (Morgan & Hunt, 1999), and on the intellectual capital literature (Bontis, 19982002; Roos & Roos, 1997; Roos et al., 1997).

The value dimensions and the value paths in the IRV model were well supported by the data collected in New Zealand's manufacturing industry. Evidence was found that sellers do benefit from their relationships with their business buyers by gaining access to the buyers' human intellectual capital, that is, buyers' employees' competence, attitude, and intellectual agility. Sellers also benefited from their buyers' firms' structural intellectual capital, that is, buyers' relationships, organisation, and renewal

and development. Thus the IRV model has potentially provided a way to measure the intangible value of a relationship.

The model provides a framework to systematically examine the intangible value of different relationships, and thus their relative potential to be the source of a firm's competitive advantage. Morgan and Hunt (1999) argue that only relationships that could contribute to the firm's competitive advantage should be further developed. Thus, if a relationship has a high level of structural value, the competitive advantage created by the relationship is more likely to be sustained because the resources that create the competitive advantage include inimitable resources. Thus, firms should devote additional resources to develop the relationship. On the other hand, if there are only human values in a relationship, the competitive advantage created by the relationship value is less likely to be sustained because the resources that create the competitive advantage are mobile.

3.5 Limitation of Baxter and Matear's (2004) study

As Baxter and Matear (2004) suggest, there is a possibility that the analysis has capitalised on chance (MacCallum et al., 1992). Similarly, Churchill (1979, p.70) argues that "if the construct is more than a measurement artifact, it should be reproduced when the purified sample of items is submitted to a new sample of subjects". He calls for a second study for further scale refinement. Flynn and Pearcy (2001, p.413) assert that researchers "must be careful of claims of a scale's performance where there have not been replications".

Therefore, there is a need to further examine the validity of the IRV model and the validity of the measures of the constructs. The research question is thus developed in the following section.

3.6 Research questions

As discussed above, to claim that any model or scale is valid and can be put into use requires follow-up studies that provide consistent results. Thus Baxter and Matear's (2004) IRV model and its scales need to be further examined to rule out the possibility of chance. Therefore, the research questions are developed as follows.

1. Do the underlying dimensions and the levels of the IRV Model remain valid with a different data sample?
2. Do the measures of the IRV constructs remain valid with a different data sample?

3.7 Conclusions

Baxter and Matear's (2004) IRV model provides the dimensions of the relationship value that could be created by the buyer's intellectual capital. In addition, they provide specific measures to assess the value of these intangible relationship resources. Among the 42 items they initially developed, 22 were retained in the final value scales. The value dimensions and the model paths were well supported by the data collected in New Zealand's manufacturing industry.

However, the outcome might be the result of chance. Further analysis based on data from a new sample is required to support the validity of model and its scales. Therefore, the current study collected new data to investigate the validity of the model and its scales. The way in which the validation study was carried out is discussed in the next chapter, which includes the methodology of the research and the research procedures.

Chapter 4 Methodology

4.1 Introduction

This chapter focuses on the discussion of the methodological issues involved in the current validation study. Positivistic paradigm and quantitative research methodology (Perry, 1998) were chosen for the current study and construct validity of the IRV scales was selected to be examined.

The chapter starts with the justification of the methodology of the current validation study. It then discusses the validities of the measurements of the IRV constructs examined in the current study, followed by the discussion of the specific data analysis techniques chosen for the current study. The chapter then discusses the validation study process, which includes the domain examination of the IRV constructs, a discussion of the Likert-type scales adopted in the current study, and the data collection and data screening process for the current study. Ethical issues considered in the survey of the current study are discussed, followed by the conclusion.

4.2 Justifications for the methodology

The current study replicates the Baxter and Matear (2004) study in order to assess the validity of the IRV model and its scales. The primary purpose is to examine the dimensionality of IRV and to assess the performance of items as indicators of the six first-order value dimensions. As the purpose of the current study is to investigate the relationships between the variables that "have been previously identified and measured" rather than to explore "what are the variables involved", quantitative methodology is more appropriate than qualitative methodology (Perry, 1998, p.78).

The research was conducted within the positivistic paradigm, of which the basic beliefs are that "world is external and objective", and "the observer is independent" (Remenyi, Williams, Money & Swartz, 1998, p.104). Thus, the research focused on facts provided by analysis of data collected from the survey.

In addition, as Baxter and Matear's (2004) work had not been replicated in any context, a close replication (Hubbard & Armstrong, 1994; Raman, 1994), using a "similar context and methodology", was considered as more appropriate rather than choosing a

very different context, such as the service industry. This would help to examine the model's potential for generalisability to different contexts (Grayson & Ambler, 1999). The closest replication would be a survey of manufacturing firms in New Zealand, which was chosen for the survey of the current study.

4.3 Validities of the measurements of the IRV constructs

The second research question required the investigation of the validities of the measurements of the IRV constructs. As suggested in the literature (Churchill, 1979; Flynn & Pearcy, 2001; Peter, 1981), the four aspects of construct validity were investigated: reliability, convergent validity, discriminant validity, and nomological validity, which are in turn discussed as follows.

4.3.1 Reliability

Churchill (1979, p.70) suggests that, once the measures meet the criteria of reliability in their assessment, an "iteration" process based on a new sample of data is necessary "to rule out the possibility that the previous findings are due to chance". Thus, although Baxter and Matear (2004) have found satisfactory results of the reliabilities of their IRV scales measured by coefficient alpha, it is necessary to collect a new sample of data to investigate whether their results were achieved by chance. Therefore, the current study included the investigation of the reliabilities of the measurements of IRV constructs.

Reliability is commonly measured by internal consistency using Cronbach's alpha (Hinkin, 1995). The rationale for internal consistency is that the items of the same scale should all be measuring the same construct and thus be highly intercorrelated (Churchill, 1979; Nunnally, 1978). Internal consistency can also be measured by item-to-total correlations and inter-item correlations (Hair et al., 1998). In fact, researchers assert that coefficient alpha is an ambiguous and imperfect indicator of internal consistency because it essentially is a function of two parameters: the number of test items and the average intercorrelation (Clark & Watson, 1995; Cortina, 1993). Clark and Watson (1995) suggest using the straightforward item intercorrelation to examine scale internal consistency as the number of items will not influence the result. Therefore, all three factors, coefficient alpha, item-to-total correlations and inter-item correlations, were computed for the examination of scale internal consistency in this validation study. In addition, as suggested by Hair et al. (1998), item-to-total correlations should exceed

0.50, Cronbach's alpha coefficient should exceed 0.70, and inter-item correlations should exceed 0.30.

In addition, Churchill (1979, p.69) suggests that when a construct has some dimensions or components, coefficient alphas should be calculated "for each dimension" and item-to-total correlations should also be "based on the items in the component and the total score for that dimension". Under these circumstances, "[t]he reliability of the total construct would not be measured through coefficient alpha, but rather through the formula for the reliability of linear combinations" (Churchill, 1979, p.69). In Baxter and Matear's (2004) IRV model, the IRV construct has two higher-order dimensions, and each of these two higher-order dimensions has three (first-order) dimensions or components. Therefore, the current study only examined the reliabilities for the six first-order IRV dimensions. As suggested by Churchill (1979), once the measurements of these six first-order IRV constructs are reliable, the reliability of the overall IRV scale will be secured.

4.3.2 Convergent and discriminant validities

Churchill (1979, p.70) states that to answer "what the instrument is in fact measuring – what construct, trait, or concept underlies a person's performance or score on a measure", researchers should investigate construct validity of the measurement. He further argues that reliability is necessary but not sufficient for construct validity. He suggests that, to establish the construct validity of a measure, the analyst must also determine (1) "the extent to which the measure correlates with other measures designed to measure the same thing" (Churchill, 1979, p.70), which is referred to as "convergent validity" of a measure (Churchill, 1979; Flynn & Pearcy, 2001; Peter, 1981), and (2) "whether the measure behave as expected" (Churchill, 1979, p.70), which covers "discriminant validity" (Churchill, 1979; Flynn & Pearcy, 2001; Peter, 1981) and "nomological validity" (Flynn & Pearcy, 2001; Peter, 1981) of a measure. Therefore, the current study included the examination of convergent, discriminant, and nomological validities of the measurements of the IRV constructs. The convergent and discriminant validity are discussed in this section, and the nomological validity is discussed in the next section.

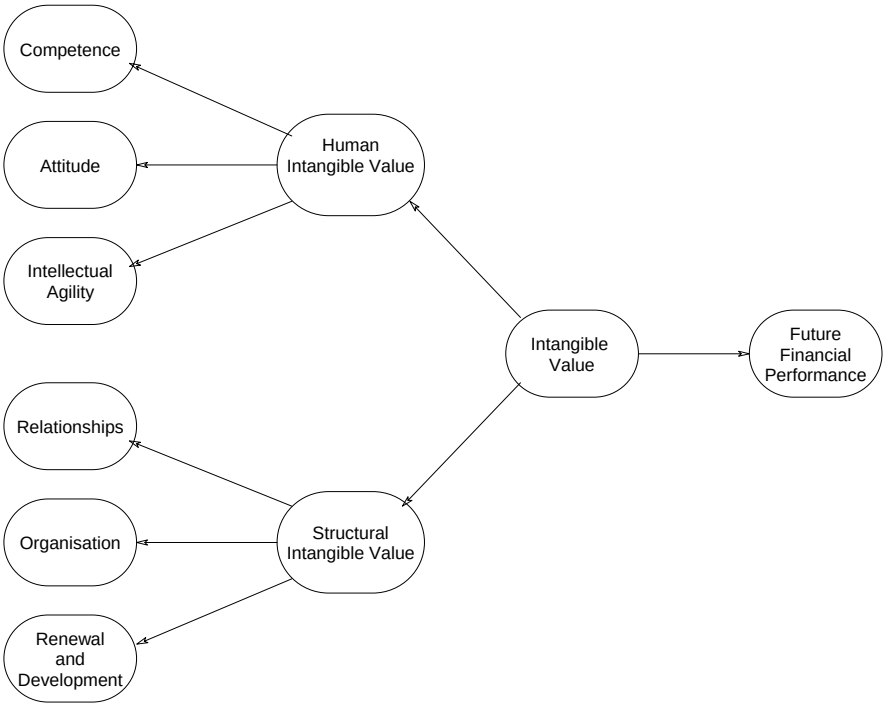
As the Baxter and Matear (2004) IRV model has two levels, the convergent and discriminant validities investigation in the current study adopted Sin, Tse, Tau, Lee and

Chow's (2002) approach to their investigation of the construct validity of the measurement of relationship marketing orientation (RMO), which has six dimensions or components.

Sin et al. (2002, p.666) define convergent validity as "the degree of agreement in two or more measures of the same construct". They assess the convergent validity in the measurement of RMO based on the degree of the correlations between the six components of RMO, and the degree of the correlations between the overall measurement of RMO and the six RMO components. High correlations suggest that the six components are convergent on a common construct – RMO construct.

Therefore, in the current study, the convergent validities in the measurements of the higher-order IRV constructs – the human and the structural intangible value constructs – were assessed by the degree of the correlations between the three components or first-order constructs of the human or the structural intangible value constructs, and the correlations between these two higher-order IRV constructs and their components. To explain it clearly, the Baxter and Matear (2004) IRV model is provided again in Figure 4.1.

Figure 4.1 Theoretical model of IRV



Source: Baxter and Matear (2004)

As shown in Figure 4.1, the convergent validity in the measurement of human intangible value was examined by the degree of the correlations between the three components of human intangible value: competence, attitude, and intellectual agility, and the degree of the correlations between the overall measurement of human intangible value and these three human intangible value components. High correlations would indicate that these three components of human intangible value are convergent on the human intangible value construct.

Similarly, the convergent validity of the measurement in structural intangible value was examined by the degree of the correlations between the three components of structural intangible value: relationships, organisation, and renewal and development, and the degree of the correlations between the overall measurement of structural intangible value and these three structural value components. To meet the requirement of convergent validity, the correlations should be high.

The convergent validity in the measurement of IRV was examined by the degree of correlation between its two components: the human intangible value component and the structural intangible value component, and the degree of the correlations between the overall measurement of IRV and these two higher-order IRV components. To meet the requirement of convergent validity, the correlations should be significant.

On the other hand, Sin et al. (2002, p.666) define discriminant validity as “the degree to which measures of conceptually distinct constructs differ”. Researchers further argue that the constructs for testing discriminant validity to be conceptually similar, yet distinct (Heeler & Ray, 1972; Peter, 1981). Sin et al. (2002) choose the measurement of the market orientation (MO) construct developed by Narver and Slater (1990) to assess the discriminant validity in the measurement of RMO. The MO construct is conceptually similar to the RMO construct, and it also has three dimensions or components. Sin et al. (2002) examine the discriminant validity in the measurement of RMO based on the results of the joint factor analysis of the subscales of RMO and MO, using principal component analysis. To meet the requirement of discriminant validity, the subscales of RMO should load on one factor and the subscales of MO should load on another factor.

Therefore, in the current study, the discriminant validities in the measurements of human and structural intangible values were investigated by the joint factor analysis of the summated scales of the three human intangible value components and the three structural intangible value components, using principal component analysis. To meet the requirement of discriminant validity, the three human intangible value components – competence, attitude, and intellectual agility – should load on one factor – the human intangible value factor, and the three structural intangible value components – relationships, organisation, and renewal and development – should load on another factor – the structural intangible value factor.

There were no conceptually similar constructs in existing marketing literature to investigate the discriminant validity of the overall measurement of IRV. Thus, the discriminant validity of the overall measurement of IRV was not investigated in the current study.

4.3.3 Nomological validity

Nomological validity refers to the construct's ability to correlate as expected with other theoretically related constructs (Churchill, 1999; Flynn & Pearcy, 2001). Peter (1981, p.135) states that "a measure of a construct must also be useful for making observable predictions derived from theoretical propositions before it can be accepted as construct valid".

It is suggested in the literature that financial performance is an outcome of resource value (Morgan & Hunt, 1999; Srivastava et al., 2001). Thus, in the current study, the nomological validity of the IRV construct was assessed by the degree of correlation between the IRV construct and the Future Financial Performance (FFP) construct which should be positive.

Therefore, four aspects of construct validity – reliability, and convergent, discriminant, and nomological validity – were included in the current validation study. The manner in which the dimensions and levels of the IRV model and the validities of the measurements of the IRV constructs were examined and what specific data analysis techniques were used is discussed next.

4.4 Analysis techniques

The first major purpose of the current study is to examine whether the dimensions and levels of IRV do exist as in the pattern proposed in the IRV model (Baxter & Matear, 2004). Exploratory factor analysis was chosen for the analysis. Exploratory factor analysis can identify the underlying dimensional structure of a set of measures (Churchill, 1999; Hair et al., 1998; Stewart, 2001).

In addition, Nunnally and Bernstein (1994, p.532) suggest that "correlated factors produce factor correlations which in turn may themselves be factored, providing higher-order factors". Thus, the levels of the model were examined by the factor analysis of the "first-order factors" (Nunnally & Bernstein, 1994, p.532) found in the factor analysis of the questionnaire items. It was expected that six first-order factors would emerge as the six dimensions of IRV – competence, attitude, intellectual agility, relationships, organisation, and renewal and development – during the first-order factor analysis. The factor analysis of the summated scales of these six factors should form two higher-order factors – human intangible value and structural intangible value. In addition, as the value constructs were expected to be intercorrelated, oblique rotation was used in exploratory factor analysis because oblique rotation is more appropriate when the factors are expected to be intercorrelated (Hair et al., 1998; Kim & Mueller, 1978).

Looking at more depth at the factor analysis technique chosen, Hair et al. (1998, p.110) suggest that "if the ultimate goal of the factor analysis is to obtain several theoretically meaningful factors or constructs, an oblique solution is appropriate". Similarly, Ford, MacCallum, and Tait (1986, p.306) claim that "since orthogonal rotation is a subset of oblique rotation, it is more sensible to rotate the factors obliquely and then determine the tenability of the orthogonality assumption", and the use of orthogonal or oblique rotation will have an impact on the conclusions drawn from data. Thus, in fact, oblique rotation should always be used firstly to examine the degrees of intercorrelation level between the factors. Kim and Mueller (1978, p.50) further suggest to choose "Direct Oblimin" method for oblique rotation. So this is the technique chosen for analysis.

The second major issue of the current study is to test the validity of the IRV scales. As discussed earlier, four aspects of construct validity – reliability, and convergent, discriminant, and nomological validity – were included in the current validation study.

The reliabilities of the IRV scales were examined by assessments of scale internal consistencies, which were measured by three factors: coefficient alpha, item-to-total correlations and inter-item correlations. Convergent and nomological validities were examined by the correlations between the relevant constructs. Discriminant validity was examined by exploratory factor analysis.

4.5 Domain examination

Researchers argue that internal consistency is a necessary but not sufficient condition for construct validity (Clark & Watson, 1995; Peter, 1981). Peter (1981) suggests that a scale that meets internal consistency requirement may, however, not include a fully representative sample of the characteristics of the construct. Similarly, Clark and Watson (1995, p.316) argue that "if the scale is narrower than the target construct, its validity is compromised". Churchill (1979, p.68) refers to this inadequacy in domain sampling as "a primary source of measurement error" for the domain sampling model, which was adopted in the IRV scale development in Baxter and Matear's (2004) study. Thus, the domains of the six first-order IRV constructs were examined to ensure that the key samples in the domain of the IRV constructs were included in the IRV scale.

Churchill (1979, p.67) suggests that "the literature should indicate how the variable has been defined previously and how many dimensions or components it has". Thus, the domains of the constructs were examined by reviewing the relationship marketing literature and the intellectual capital literature, based on which the Baxter and Matear (2004) IRV model is proposed. The definitions of the resources gained in marketing relationships provided by Morgan and Hunt (1999) and the definitions of intellectual capital categories provided by Roos et al. (1997) were compared with the 42 items included in Baxter and Matear's (2004) initial questionnaire. These 42 items served as the foundation for this domain examination work.

Roos et al. (1997) suggest that organisational capital has three aspects – infrastructure, culture, and processes. Morgan and Hunt (1999) also suggest that corporate culture is an important organisational resources gained in marketing relationships. However, "culture" was not measured in the organisation value scale in Baxter and Matear's (2004) study.

In addition, Roos et al. (1997, p.51) suggest that “investments in new plants and machines are part of renewal and development value as long as they are in the planning phases”. However, “development work on new plant and machinery” was not measured in renewal and development value scale in Baxter and Matear’s (2004) study.

It was not clear why Baxter and Matear (2004) did not measure these two aspects in their IRV scale. Therefore, these two aspects of IRV found in the literature were included in the questionnaire of the current study. Thus, the domain sample was extended with two new items: “buyer’s organisational culture” for Organisational Value measurement and “buyer’s development of new plant and machinery” for Renewal and Development Value measurement. Therefore, there were 44 items in the questionnaire for the current study, 42 from Baxter and Matear’s (2004) initial questionnaire and two new items. The unpurified scale for each dimension of value then contained between six and 11 items.

4.6 Likert-type scales

Likert-type scale are widely used in measuring opinions, beliefs, and attitudes (DeVellis, 1991). Thus they were appropriate for the current study as the study measured the participants’ opinions and beliefs concerning their customers and customers’ employees.

A key issue in using Likert-type scales is to generate sufficient variance among respondents for subsequent statistical analysis (Hinkin, 1995). Providing more response alternatives does not necessarily increase reliability or validity of responses because respondents might not be able to make more subtle distinctions that are required, and might respond randomly, which in turn would lead to invalid responses (Clark & Watson, 1995). Researchers have found that reliability of responses increases steadily from a 2-point scale to 5-point scale (Lissitz & Green, 1975cited in Hinkin, 1995) or 7-point scale (Cicchetti, Showalter, & Tyrer, 1985, cited in Rasmussen, 1989), and then levels off. Therefore, 5- or 7-point scale should be appropriate to generate sufficient variance of responses.

Baxter and Matear (2004) used 7-point Likert-type scale in their study and yielded satisfactory variance of responses for their statistical analysis. Therefore, this 7-point Likert-type scale remained unchanged in the current study.

4.7 Data collection

This section discusses how the questionnaire was designed and how the data were collected, that is, how the respondents were selected. The response rate of the current study is provided, and the reasons for the low response rate are discussed.

The questionnaire of Baxter and Matear's (2004) study was used as the basis of the questionnaire for the current study. The original questionnaire had ten pages because it included many questions in addition to those related to the six proposed value dimensions (Appendix 3.1). The current study only retained the questions relevant to the six proposed value dimensions and to the future financial performance of the relationship, and changed the font from Times New Roman size 12 to Arial size 8. Thus the questionnaire was shortened to four pages. It is suggested that shorter questionnaires are more likely to be completed (Dillman, 2000) and that a questionnaire of four pages would not have a negative impact on mail survey response rate (Churchill, 1999). The questionnaire for the current study is attached in the Appendix 4.1.

Specific categories were provided for two of the demographic questions to facilitate the questionnaire answering process and data analysis, whereas Baxter and Matear's (2004) questionnaire asked these questions in an open-ended format. One asked the respondent to tick the industry type of their selected customer from one of four industry types provided: manufacturing, service, agriculture, and others. The other asked respondents to indicate their positions by ticking one of the answers provided, which were sales manager, marketing manager, service manager, product manager, CEO, and others, rather than leaving the question to the respondents to fill in by themselves, as in Baxter and Matear's (2004) questionnaire. The choices provided were based on the answers received in Baxter and Matear's (2004) survey. By providing these choices, responses from different groups of industries or positions could be compared. These are discussed further in data analysis chapter.

No pilot study was considered necessary, as Baxter and Matear (2004) had conducted a pilot study and found no sequential effects in the questionnaire. The current study did not make any substantial changes in the questionnaire. Only two new value items were added. They were "culture" to Organisation, and "new plant and machinery development" to Renewal and Development. Most of the wording of the questions

remained unchanged in the current study with exception noted in the following paragraph.

The wording change made was for the renewal and development scale. The original question for the renewal and development question was “To what extent does your relationship with your chosen customer assist you in preparing for the future by helping with the following?” and the answer, for example, item 1 was “By helping to develop training programme”. It was not clear in this question which firm’s training programme development was the subject of the question. In fact, it should be the buyer firm’s training programme development. Thus the question was modified as “To what extent does your relationship with your chosen customer benefit you by giving you access to the following aspects of their development work?” and the answer, for example, item 1 was modified to “Training programme development ”. The modification clarified that the value to be measured was brought by “the buyer firm’s” renewal and development work to the relationship, and thus to the seller.

The respondents were asked to select their 4th largest customer in terms of revenue as the subject of the questionnaire in the same way as required by Baxter and Matear (2004), who had found in their pilot study that if the respondents were left to choose the subject of the questionnaire, they tended to choose a customer that they had good relationship with, thus skewing the data. That requirement of “the 4th largest customer in terms of revenue” was effective in avoiding the skewed effect in Baxter and Matear’s (2004) study.

4.7.1 Sampling frame

Baxter and Matear’s (2004) survey was of manufacturing firms that had five or more employees in New Zealand. As a close replication, the current study also selected this group as the target participants. The sample size of the survey was decided by the requirement of the exploratory factor analysis technique, which was chosen for the assessment of the dimensionality of IRV in the current study. It is suggested that the observation-to-variable ratio for factor analysis should be five or above (Hair et al., 1998). There were 44 items in the IRV scales, and the estimated response rate was around 20 percent. Thus, it was decided to survey 1,400 out of 3,670 (approximately) manufacturing firms in the Kompass database that are producing tangible products in

New Zealand. The detail of the sample and the Kompass database are further discussed in section 4.7.3.

4.7.2 Respondents selection

The 1400 manufacturing firms that were producing tangible products in New Zealand were randomly selected from the "producer" category in the Kompass database. The questionnaires were mailed out on the 10th of November 2003, addressed to "Sales Manager" of the firms with a covering letter explaining the purpose of the survey and a consent form of participation of the research. A follow-up reminder was mailed to the non-respondents on the 20th of November 2003.

An executive summary report of the research was offered as an incentive to participate in the research and the participants were asked to provide their email addresses for sending this executive summary if they wanted the summary. All the participants were assured that their responses would be kept confidential.

4.7.3 Response rate

The 1,400 questionnaires were mailed out and 26 questionnaires were returned uncompleted. Thirteen out of the 26 uncompleted questionnaires were returned because the addresses were wrong. The remaining 13 questionnaires were returned because the firms were not qualified for the study. For example, the firm did not have domestic business customers or was closing down at the time of the survey. The reasons for these returns were shown in detail in Table 4.1.

Table 4.1 Unqualified firms in the survey

Quantities of questionnaires returned	Reasons for the questionnaire returning
4	Customers were not business customers
3	The firm was closing down or not operating any more
3	The firm's customers were overseas
2	The firm's sales manager left the firm
1	Firm's policy did not allow participation in any survey

A total of 147 completed surveys were returned. The response rate was thus 10.7 percent. Of the 147 responses, 144 were usable. Three factors might have caused the

lower response rate of the current study compared with 23 percent in Baxter and Matear's (2004) study. Firstly, the questionnaires were addressed to the position title of the sales manager rather than to the specific personal name of sales manager in the firm as in Baxter and Matear's (2004) survey. This was particularly chosen for the firms that had more than one sales manager as it was considered that any sales manager could take the survey, thus could increase the chance of response. However, as Dillman (2000) suggests, surveys should provide rewards to the respondents, and personally addressing correspondence is a way of rewarding questionnaire recipients by showing positive regard for them. Thus addressing the questionnaires to the position title of sales manager might be a reason for the low response rate.

Secondly, an executive summary of the research was provided as an incentive of the participation of the current study, and no further monetary or tangible incentives were provided as was done in Baxter and Matear's (2004) survey. However, monetary incentives are suggested to be one of the most successful response inducement techniques in mail surveys (Churchill, 1999; Dillman, 2000). It is reported that studies achieve more than 12 percentage point increase in response rate with monetary incentives (Dillman, 2000). Therefore, the lack of a monetary incentive for participation in the current study might be another cause of the low response rate.

Thirdly, based on the comparison of the valid responses received in the two IRV surveys, it appeared that the current study had a much lower proportion of firms having 20 or more employees in the sampling frame than Baxter and Matear's (2004) study had. The comparison of the valid responses received from firms of different sizes in the two surveys is provided in Table 4.2.

As shown in Table 4.2, only 50 valid responses came from firms with 20 to 49 employees in the current study while there were 100 valid responses from this group in Baxter and Matear's (2004) survey. In addition, only 33 valid responses were from firms with 50 and above employees in the current study while there were 136 valid responses from this group in Baxter and Matear's (2004) survey.

In addition, the response rate from the firms with five to 19 employees was 8.16 percent while the response rate from the firms with 20 or above employees was 13.2 percent in the current study. The lower response rate from the smaller size firms combined with

the high proportion of small firms appeared to be a third reason for the low response rate in the current study.

Table 4.2: Firm size compositions in two surveys

Employee numbers	Valid responses received in Baxter and Matear's (2004) survey	Valid responses received in the current survey
5 to 9	28	29
10 to 19	50	32
20 to 49	100	50
50 to 99	60	16
100 to 199	28	8
200 to 499	35	5
500 to 999	10	3
1000 or more	3	1
Total	314	144

The difference in the proportions of sizes of firms in the two mail-outs was due to a change in the way the Kompass database was compiled. When Baxter and Matear (2004) randomly selected their survey sample from the database, they chose from the "manufacturing" category. When the current study randomly selected the survey sample from the Kompass database, there was only one category – "producer" category – that could be used for manufacturing firm selection. In this "producer" category, there were 64.7 percent of the firms having one to 20 employees when the current study randomly selected manufacturing firms from the database. Excluding the firms having one to four employees, it was estimated that there were around 56.0 percent of the "producers" in the Kompass database having five to 20 employees on the date the sample firms for the current survey were chosen. Therefore, the current survey sample had a high percentage (54.4 percent) of small size firms, who had five to 19 employees.

4.7.4 Issues of sample size

Different researchers have recommended a variable-to-observation ratio ranging from 1:4 to at least 1:10 for each set of scales to be factor analysed (Flynn & Pearcy, 2001; Hair et al., 1998). Larger sample size increases the likelihood of attaining statistical significance and enhances the confidence that the observed factor loadings accurately reflect the true population values (Flynn & Pearcy, 2001). When sample sizes are small

or the observation-to-variable ratios are low, researchers should interpret the findings cautiously (Hair et al., 1998).

However, Guadagnoli and Velicer (1988) have found that sample size requirements varied with the loading levels of the variables on the component and the number of the variables defining the component. “If components possess four or more variables with loadings above .60, the pattern may be interpreted whatever the sample size used. Similarly, a pattern composed of many variables per component (10 to 12) but low loadings (.40) should be an accurate solution at all but the lowest sample sizes (N<150)” (Guadagnoli & Velicer, 1988, p.274).

The current valid completed sample size was 144 and the variable-to-observation ratio was 1: 3.27 (44:144) at the first stage. Whether this sample size was big enough to yield significant factor loadings would depend on the intercorrelation levels of the variables, that is, the loadings of the variables and the number of the variables retained in each factor. It is suggested that at this sample size, only loadings of ± 0.50 or greater should be considered to be statistically significant (Hair et al., 1998). This issue is dealt with in more detail in the data analysis chapter.

4.7.5 Summary

In summary, based on Baxter and Matear’s (2004) questionnaire, the questionnaire for the current study eliminated some questions that were not relevant and made some minor changes to the wording of one of the questions and its items. Two new items were added, while the sequence of the questions remained unchanged. The current study required respondents to select their 4^{th} largest customer in terms of revenue as the subject of the questionnaire to avoid obtaining skewed data as required in Baxter and Matear’s (2004) questionnaire. As the current study is a close replication of Baxter and Matear’s (2004) study, no pilot study was considered as necessary. The sample size for the survey was decided based on the requirement of factor analysis, and 1400 manufacturing firms were randomly selected from the Kompass date database. In total, 147 completed questionnaires were received with 144 usable. The response rate was 10.7 percent. Whether this sample size was big enough for factor analysis is examined in the next section – data screening.

The data screening and data analysis in the current study used SPSS for Windows statistical package (version 11). The initial data screening is discussed next in this chapter, and the data analysis for the research questions is discussed in the next chapter.

4.8 Data screening

In this section, the non-response bias is examined first, followed by the exploratory examination of the data and the analysis of the data's suitability for factor analysis.

4.8.1 Non-response bias

Non-response bias was examined by the independent-samples *t* test of the early and late responses as suggested by Armstrong and Overton (1977). No significant differences were found at $p < 0.05$ level (2-tailed) between the first one third of the responses and the last one third of the responses for the focal 44 value measures in the questionnaire. Thus, it was concluded that non-response bias was probably not a serious problem in the current study.

4.8.2 Exploratory examination of data

The basic characteristics of the data were examined first to obtain a good understanding of the relationships underlying the data. The univariate distributions, correlations, outliers, missing data, and normality of the variables were examined in turn.

The shapes of the distributions of the 44 items included in the questionnaire as measures of the six IRV constructs were examined first and the histograms of these items or variables were plotted. The shapes of the 44 variables indicated that some of the structural value variables were not normally distributed. The descriptive statistics of the 44 variables were also computed and shown in Table 4.4.

As shown in Table 4.4, the mean values of human value variables on the 7-point scale ranged from 4.21 to 5.44, except for two negatively wording variables. These two variables were "difficult to please", which had a mean value of 3.33, and "not receptive to new ideas", which had a mean value of 3.72. The mean values of the structural variables on the 7-point scale ranged from 2.29 to 3.50. This again suggested that some of the variables were not normal. The normality of the data is further examined in detail later in this section.

A simple correlation matrix was computed for the 44 value measures to assess the "factorability" (Hair et al., 1998) of the data. The results showed that a substantial number of correlations were significant at $p < 0.001$ level (2-tailed), such as 0.455 (significant at $p < 0.001$ level, 2-tailed) between "technical skills" and "knowledge". This provided an adequate basis for further examination of the adequacy of the data for factor analysis (Hair et al., 1998), which is discussed in detail in the next section, section 4.7.3.

Table 4.4 Descriptive statistics of the 44 questionnaire items (variables)

No	Item	Mean	Std. Deviation
1	Personal relationship skills	5.17	1.097
2	Technical skills	4.87	1.198
3	Professional skills	5.30	1.011
4	Practical know-how	5.44	1.233
5	Knowledge	5.28	1.131
6	Training specific	4.40	1.314
7	Strong commitment	4.97	1.254
8	Fun	4.75	1.387
9	Enthusiasm	5.03	1.208
10	Share ideas	4.92	1.410
11	Difficult to please	3.33	1.647
12	Show vision	4.51	1.327
13	Create dynamic environment	4.21	1.311
14	Ethical	5.31	1.236
15	Professional in their dealings	5.44	1.108
16	Highly motivated	5.13	1.342
17	Leadership	4.83	1.379
18	Not receptive to new ideas	3.72	1.704
19	Innovative	4.74	1.289
20	Adapt ideas from one situation to another	4.79	1.251
21	Adapt product/services to new situations	4.80	1.269
22	Imitate existing concepts/products	4.89	1.250
23	Create new products/services	4.66	1.482
24	Product or service user group	3.29	1.699
25	Customer's network of contacts, customers and suppliers	3.50	1.775
26	Buying group	2.63	1.715
27	Other business units	3.13	1.729
28	Alliance or joint venture partners	3.22	1.819
29	Research and development partners	2.80	1.611
30	Key opinion leaders	3.16	1.765
31	Business networks	3.01	1.679
32	Internal networks	3.06	1.816
33	Processes and systems	3.08	1.689
34	Intellectual property	2.42	1.615
35	Brands	2.99	1.859
36	Information in the database	2.55	1.642
37	Culture	3.24	1.754
38	Training programme development	2.31	1.530
39	Research and development	2.74	1.741
40	Restructuring	2.50	1.656
41	Report and forecasting	3.33	1.843
42	New systems development	2.29	1.486
43	New plant and machinery	2.78	1.803
44	New networks or strategic partners	2.75	1.641

The z-scores for detecting univariate outliers, and the Mahalanobis distances for detecting multivariate outliers were computed. The highest absolute standardized value (z-score) was 3.74709 for “knowledge”, which was an intended indicator for competence construct. Hair et al. (1998) suggest that when the sample size is smaller than 80, the cases with z-scores exceeding ±2.5 would be identified as outliers. However, when the sample size is larger than 80, the guidelines for identifying outliers should increase to absolute z-scores of 3 to 4. Thus, nine cases that had absolute z-scores over 3.0 were checked. However, none of these nine cases had sufficiently large number of variables to be considered as unrepresentative of the population and thus needing to be eliminated. These nine cases were therefore retained. The Mahalanobis distance results showed that there were no multivariate outliers in the sample because the highest D^2/df value was 2.00 when all the 44 variables were examined together, which was much lower than 5.056 as recommended (Hair et al., 1998).

Missing data were examined next. The missing patterns were computed by using missing value analysis in SPSS. There were 18 cases that had a total of 45 values missing. Twelve out of these 18 cases had only one value missing. One case had two values missing and two had three values missing. Among the remaining three cases, two had eight values missing and one had nine values missing.

The missing patterns showed that the values missing in the three cases that had eight to nine values missing were concentrated in eight variables that were the intended measures for relationships value. Therefore, these missing values were considered as not missing at random, and these three cases were thus deleted as suggested by Hair et al. (1998).

The remaining 20 missing values in the remaining 15 cases were spread across 14 variables that were the intended indicators for five value dimensions: competence, attitude, intellectual agility, relationships and organisation. No systematic patterns were found. Thus these missing values were considered as missing completely at random, and were replaced by the mean value of the variable based on all valid responses.

The Skewness values of the variables were examined. Only three absolute Skewness values were above 1.000. They were “intellectual property”, which had a Skewness value of 1.016, “training programme development”, which had a Skewness value of

1.088, and “new system development”, which had a Skewness value of 1.029. The remaining Skewness values ranged from 0.007 to 0.994. Therefore, although some of the variables were not normal, they did not depart markedly from normal. Further, Hair et al. (1998) suggest that the effect of the departure from normality affects the use of factor analysis only when it substantially diminishes the observed correlations between the variables. The data suitability for factor analysis is therefore examined in detail in the next section.

4.8.3 Data suitability for factor analysis

Data suitability for factor analysis was examined by Barlett’s test and the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) test as suggested by Hair et al. (1998). The Barlett’s test results showed that, when taken overall, the correlations were significant at $p < 0.001$ level. This suggested that the correlation matrix had significant correlations among at least some of the 44 variables (Hair et al., 1998). The overall Kaiser-Meyer-Olkin MSA was 0.886. However, two individual Measure of Sampling Adequacy (MSA) values were lower than 0.70. One was “difficult to please”, for which the MSA was 0.635. The other was “not receptive to new ideas”, for which the MSA was 0.342. The remaining individual MSA values for the 42 variables ranged from 0.799 for “technical skills” to 0.929 for “culture”.

The Kaiser-Meyer-Olkin MSA values indicate the appropriateness of applying factor analysis for the entire matrix or an individual variable (Hair et al., 1998). Hair et al. (1998, p.99) suggest that the MSA “can be interpreted with the following guidelines: 0.80 or above, meritorious, 0.70 or above, middling; 0.60 or above, mediocre; 0.50 or above, miserable; and below 0.50, unacceptable”. Thus, the MSA for “not respective to new ideas” was unacceptable for factor analysis, and the MSA for “difficult to please” was mediocre for factor analysis. Further analysis showed that these two items did not meet the requirement for scale internal consistency and were deleted. The overall MSA of 0.886 indicated that the remaining data were suitable for factor analysis.

4.8.4 Summary

In this section, non-response bias, outliers, missing data, and data suitability for factor analysis were examined. It is concluded that non-response bias might not be a problem for the current study. No outlier was detected and the values not missing at random were deleted. Although some of the variables were not normal, they did not depart

markedly. In addition, the results of Barlett's test and Kaiser-Meyer-Olkin MSA test showed that the data were suitable for factor analysis. The factor analysis for the data is discussed in detail in the analysis of data chapter.

4.9 Ethical issues considered in the survey

The participants for the survey of the current study were sales managers, or marketing managers, or other managers who worked closely with the customer in the manufacturing industry and were knowledgeable about customer relationship management. They were given the information sheet and asked for informed consent in participation of the research (The ethical approval form as approved by Auckland University of Technology Ethical Committee for the survey of the current study is attached in Appendix 4.2).

At the questionnaire return stage, respondents were identifiable so that follow-up reminders could be made to non-respondents. After data entry, responses were no longer linked to a specific respondent. The names of the participants and their companies were neither revealed nor identifiable in any publication including this thesis.

The questionnaires were returned to Auckland University of Technology, and all data input and analysis was all conducted on the premises of AUT. Questionnaires are held in a secure place where only the researcher and her supervisor can access them.

4.10 Conclusions

The main purpose of the current research is to examine the validity of the IRV model and its scales. That is, the purpose is to investigate the relationships between the variables that have been previously identified and measured rather than to explore what are the variables involved. Thus, quantitative methodology is appropriate. Exploratory factor analysis was chosen to identify the dimensionality of IRV underlying the data, and thus to assess the validity of the IRV model. Four aspects of construct validity were included in the current validation study to assess the performance of the IRV scales: reliability, and convergent, discriminant, and nomological validities. The criteria for the assessment of these four aspects of construct validity were also provided. The research design was presented, and the data set was collected and screened. How the data were statistically analysed to examine the validity of the IRV model and its scales is discussed in the next chapter – analysis of data.

Chapter 5 Analysis of data

5.1 Introduction

This chapter discusses the data analysis process and presents the results for the current validation study. The major purpose of the current study is to test the validity of IRV model and its scales, that is, to examine the dimensionality of IRV and to assess the performance of items as indicators of the six value dimensions. Exploratory factor analysis was chosen for dimensionality analysis, and construct validity was chosen for assessment of items' performance.

Four aspects of construct validity were investigated: reliability, and convergent, discriminant, and nomological validities. Reliability was examined by assessments of internal consistency. The convergent and nomological validities were examined by the correlations between the relevant constructs, and the discriminant validity was examined by exploratory factor analysis of the relevant scales.

This chapter starts with a brief description of the subjects of the survey of the current study. It then focuses on the examination of the research questions. The dimension and level analysis section, section 5.3, presents the dimensions and levels of the IRV found in factor analysis, and the construct validity examination section, section 5.4, provides the analysis results of reliability, and convergent, discriminant, and nomological validities of the measurements of the IRV constructs. Additional analysis was performed to examine the effect of seller's firm size on their perceived IRV. Finally, the conclusion of the chapter is provided.

5.2 Brief description of subjects

This section firstly describes the composition of the sizes of the respondents' firms measured by employee number. It then provides the composition of the respondents' positions in their firms. Finally, it presents the composition of the respondents' firms' offerings measured by the service/product proportions. The comparisons of the compositions of the respondents' firms' sizes and the compositions of the respondents' positions in their firms between Baxter and Matear's (2004) study and the current study are provided.

5.2.1 The respondents' firm sizes measured by employee number

The compositions of the sizes of the respondents' firms measured by employee number in the two surveys are provided in Table 5.1. In both surveys, the highest percentage of the valid responses was from firms with 20 to 49 employees: 35.5 percent for the current study and 31.8 percent for Baxter and Matear's (2004) study. However, the responses received from firms with five to nine employees, 10 to 19 employees and 50 or more employees were significantly different when the current study was compared with Baxter and Matear's (2004) study.

The valid responses from firms with five to nine employees comprised 18.4 percent of the total in the current study, while the valid responses from this group was only 8.9 percent of the total in Baxter and Matear's (2004) study. Similarly, the valid responses from firms with 10 to 19 employees comprised 22.7 percent of the total in the current study, while the valid responses from this group was only 15.9 percent of the total in Baxter and Matear's (2004) study. By contrast, the valid responses from firms with 50 or more employees comprised 23.4 percent of the total in the current study, while the valid responses from this group was 43.4 percent of the total in Baxter and Matear's (2004) study.

Table 5.1 Composition of respondents' firm sizes in the two studies

Group	Employee numbers	Baxter and Matear's study		Current study	
		Valid responses received	Percentages of the total valid responses (%)	Valid responses received	Percentages of the total valid responses (%)
1	5 to 9	28	8.9	26	18.4
2	10 to 19	50	15.9	32	22.7
3	20 to 49	100	31.8	50	35.5
4	50 +	136	43.4	33	23.4
	Total	314	100	141	100

Therefore, the compositions of the sizes of the respondents' firms in the two studies were significantly different. Thus, it was thought necessary to examine whether the responses for the focal 44 value measures were significantly different between small firms and bigger firms in the current study. An independent-samples *t* test was thus computed to compare the responses in the current study from the firms with five to nine

employees and the responses from the firms with 50 or above employees. Only these two groups were chosen for comparison because it was considered that the inclusion of the middle size firms might dilute the effect of firm size on the responses to relationship value questions.

Significantly different responses at $p < 0.05$ level were found between the two groups for nine relationship value questions in this independent-samples *t* test. The nine items are provided in Table 5.2. As shown in Table 5.2, the nine items were "difficult to please", "other business units", internal networks", "processes and systems", "brands", "information in database", "training programme development", "research and development", and "report and forecasting". These differences are further examined in section 5.5.

Table 5.2 Items responded significantly differently between small and bigger firms

Item	Equal variance not assumed		
	Mean Difference	t value	Sig. (2-tailed)
Difficult to please	-.86	-2.135	.037
Other business units	-.96	-.2074	.043
Internal networks	-.96	-2.075	.043
Processes and systems	-.95	-2.272	.027
Brands	-1.53	-3.278	.002
Information in database	-.83	-2.377	.021
Training programme development	-.72	-2.077	.042
Research and development	-.84	-2.195	.032
Report and forecasting	-1.07	-2.379	.021

5.2.2 The respondents' positions in their firms

The compositions of the respondents' positions in their firms in the two surveys are provided in Table 5.3. As shown in Table 5.3, the respondents of the current research were mainly CEO/GM/Chairman/Owner/ Director/Business Unit Manager (59.0 percent), sales managers, marketing managers, and sales and marketing managers (27.1 percent). Others were in position such as product manager, customer manager, and other managers who work closely to the customer, and thus were qualified for the current research.

Comparing with Baxter and Matear's (2004) survey respondents, the percentage of the responses from the sales and marketing manager group was 52.2 percent lower in the current study, while the percentage of the responses from the CEO group was 50.4 percent higher in the current study. This might be the result of the higher percentage of the small firms in the sample of the current study. The percentages of the respondents in other positions, such as product manager or customer service manager, in the two studies were very similar. The valid responses from this group comprised 13.9 percent of the total in the current study, and 12.1 percent in Baxter and Matear's (2004) study.

As the percentages of the respondents from the sales and marketing group and the CEO group were significantly different between the two studies, an independent-sample *t* test was computed to compare the responses from the sales and marketing group and from the CEO group. One item was found to be significantly different between two groups: "processes and systems". The mean difference was 1.07 on the 7-point scale (significant at $p < 0.05$ level, 2-tailed), and the *t* value was 2.388. The sales and marketing managers rated the value from their customer firm's "processes and systems" significantly higher than the CEO group did. This is further discussed in implications (section 6.5).

Table 5.3 Respondents' positions in two surveys

Respondent's position	Percentages of the total respondents in Baxter and Matear's (2004) survey (%)	Percentages of the total respondents in the current survey (%)
Sales, marketing, and sales and marketing manager	79.3	27.1
CEO/GM/Chairman/Owner/ Director/Business Unit managers	8.6	59.0
Others (product manager, customer service manager, manager, assistant to GM)	12.1	13.9
Total	100	100

5.2.3 The respondents' firms' offerings

The composition of the respondents' firms' offerings measured by the relative proportion of product and service in the current study is provided in Table 5.4. As shown in Table 5.4, the valid responses from firms offering a higher proportion of product than service comprised 67.4 percent of the total in the current study. On the other hand, the valid responses from firms offering an equal or higher proportion of service than product comprised 32.6 percent of the total in the current study. The only firm indicated as pure service provider was a wool processor. It was included as the wool processing involved tangible product processing.

Table 5.4 Product/service mix of the sellers' offerings

The mix of products and/or services the seller provided (1 for "products only" to 4 for "an equal product/service mix" to 7 for "services only")	Number of firms responded	Grouping	Percentages of the total responses (%)
1	44	Group 1	67.4
2	32		
3	19		
4	25	Group 2	32.6
5	14		
6	6		
7	1		
Total	141		100

It was thought necessary to check whether or not firms providing a high proportion of product might respond differently from firms providing a high proportion of service. Thus, an independent-samples *t* test was computed for the focal 44 value measures to examine whether the responses from the firms providing pure product (product/service mix = 1 in Table 5.4) and the firms providing a higher proportion of service than product (product/service mix >= 5 in Table 5.4) were significantly different. These two groups were chosen on the basis that they were sufficient for valid *t*-tests, but not so many that any effect of service offering versus product offering might be diluted by the inclusion of the rest of the groups.

One item was found to be significantly different between two groups: "intellectual property". The mean difference was -1.090 on the 7-point scale (significant at $p < 0.05$ level, 2-tailed), and the *t* value was -2.283. The firms that provided pure product rated

the value from their customer firm's "intellectual property" significantly lower than the firms that provided a higher proportion of service than product did. This is further discussed in implications (section 6.5).

Next, the chapter focuses on the IRV dimension and level analysis, and on construct validity examination. The process of dimension and level analysis is discussed first.

5.3 Dimension and level analysis

As discussed earlier, the exploratory factor analysis technique with oblique rotation was chosen for the dimension and level analysis. This section discusses the item deletion process at the initial item purification stage, the item deletion criteria for exploratory factor analysis, and the first-order and the higher-order dimensions of the IRV found in exploratory factor analysis.

5.3.1 Item deletion at the initial item purification stage

Churchill (1979) urges that, before factor analysis is applied, coefficient alpha should be computed and the items not performing should be removed first. Otherwise meaningless factors might form. A low coefficient alpha suggests that "the sample of items performs poorly in capturing the construct" (Churchill, 1979, p.68). He also suggests deleting the items with item-to-total correlations near zero to improve alpha before factor analysis is applied. Hair et al. (1998) suggest that alpha should exceed 0.70.

Thus, before performing a factor analysis, the coefficient alphas and the item-to-total correlations of the measurements in the questionnaire for each of the six first-order IRV constructs – competence, attitude, intellectual agility, relationships, organisation, and renewal and development – were computed by using reliability analysis in SPSS. According to the two criteria noted above, two items were deleted. One was designed to measure the Attitude construct, "difficult to please". Its item-to-total correlation was -0.2848 when correlated with other items that were included in the questionnaire as indicators of the Attitude construct. Its deletion led to an increase in alpha of the Attitude scale from 0.8849 to 0.9363. The other item was intended as an indicator of the Intellectual Agility construct, "not receptive to new ideas". Its item-to-total correlation was -0.0072 when correlated with other items that were included in the questionnaire as indicators of the Intellectual Agility construct. Its deletion led to an increase in alpha of the Intellectual Agility scale from 0.7812 to 0.8963. In conjunction with the previous

individual measure of sample adequacy (MSA) results (section 4.8.3), the effect on item-to-total correlations and alphas of these two items indicated that they were not suitable for factor analysis.

The alphas of the measurements of the six first-order IRV constructs after the deletion of these two items are provided in Table 5.5. As shown in Table 5.5, all the alphas were above 0.70 as recommended (Hair et al., 1998). Therefore, after the initial item purification, 42 items were retained for further IRV dimension and level analysis. Exploratory factor analysis was chosen for the dimension and level analysis. The item deletion criteria for exploratory factor analysis are discussed next.

Table 5.5 Coefficient alpha after initial item purification

Construct	Alpha
Competence	.8487
Attitude	.9363
Intellectual Agility	.8963
Relationships	.9156
Organisation	.8887
Renewal and Development	.8881

5.3.2 Item deletion criteria for exploratory factor analysis

Three criteria were adopted for the item deletion in exploratory factor analysis in the current study. Firstly, the communality of the variable should be above 0.50. The communality for a variable represents the amount of variance accounted for by the factor solution for the variable. It is suggested that at least one-half of the variance of each variable must be taken into account (Hair et al., 1998). Thus variables with communalities less than 0.50 were considered as not having sufficient explanation and should be deleted.

Secondly, all items that did not have an absolute loading of at least 0.35 on any factor should be eliminated as suggested by Churchill, Ford and Walker (1974). Thirdly, items in a scale should meet the requirement of unidimentionality, that is, they should measure one factor or construct, and only this factor or construct (Clark & Watson, 1995). Thus, any item that had absolute loadings of 0.35 or above on more than one

factor (Churchill et al., 1974), and any item that had the loadings with the difference between any two loadings less than 0.25, should be deleted (Bristow & Mowen, 1998).

In addition, it is suggested that, at the current sample size of 141, loadings should be greater than 0.50 to be interpreted as statistically significant (Hair et al., 1998). Next, the model dimension analysis is discussed.

5.3.3 Model dimension analysis

The dimension analysis used the exploratory factor analysis technique. The 42 relationship value measures were factor analysed, using the principal components analysis and subsequently direct oblimin rotation (with DELTA value set at 0) (Kim & Mueller, 1978).

The initial factor solution resulted in seven factors with Eigenvalues greater than one. The initial Eigenvalue dropped from 1.134 for the seventh factor to 0.956 for the eighth factor. In addition, the variance explained by the eighth factor was only 2.277 percent, thus the seven-factor solution could be considered as appropriate. However, as noted below, the seventh factor was deleted for reasons discussed below.

The factor loading pattern matrix is shown in Table 5.6. The first six factors extracted were those, as expected, on which the majority of indicators were designed as measures of Attitude, Organisation, Relationships, Intellectual Agility, Competence, and Renewal and Development.

The seventh factor had only two items that have absolute loadings above 0.35: “research and development partners”, which was intended as an indicator of Relationships; and “research and development”, which was intended as an indicator of Renewal and Development. “Research and development partners” had a loading of -0.548 on the seventh factor and -0.486 on Relationships factor. As both of the absolute loadings were above 0.35, “Research and development partners” was deleted. “Research and development” had a loading of -0.526 on the seventh factor and 0.332 on Renewal and Development factor. As the difference between the absolute value of the two loadings was less than 0.25, “research and development” was deleted.

Table 5.6 Initial factor analysis results – Pattern Matrix

	Factor loadings						
	1	2	3	4	5	6	7
Enthusiasm	.846						
Fun	.814						
Strong commitment	.805						
Ethical	.794	.251				-.221	
Professional in their dealings	.746				.200		
Personal relationship skills	.697						.283
Create dynamic environment	.677						
Show vision	.652						
Share ideas	.620				-.219		
Leadership	.614			.213	.259		
Highly motivated	.552			.287			
Internal networks		.726					
Brands		.655			-.276	.219	
Processes and systems		.647					
Intellectual property		.645					
Information in the database		.529				.450	
Culture	.281	.457				.233	
New plant and machinery		.341					-.297
Product and service user group			-.849				
Customer's network of contacts, customers and suppliers			-.805				.252
Business networks			-.797				
Buying group			-.774				
Key opinion leaders			-.705			.255	
Alliance and joint venture partners			-.656				-.271
Other business units		.244	-.644				-.317
Adapt products/services to new situations				.845			
Adapt ideas from one situation to another				.836			
Innovative				.754			
Create new product/services				.746			-.261
Imitate existing concepts/products				.741			
Technical skills					.803		
Knowledge				.295	.626		.246
Professional skills	.436				.582		
Training specific					.578		
Practical know-how				.233	.558		.241
Report and forecasting						.830	
New system development						.686	
New networks or strategic partners			-.300			.685	
Restructuring		.234				.619	
Training programme development						.451	-.336
Research and development partners			-.486				-.548
Research and development		.238				.332	-.526

Extraction method: Principal Component Analysis.
Rotation method: Oblimin with Kaiser Normalization.
Absolute values less than .20 are suppressed.

Similarly, "information in the database" and "professional skills" were deleted because both of the items had severe cross-loadings (above 0.35) on two factors. "Culture" had two cross-loadings of 0.457 on Organisation factor and 0.281 on Attitude factor. As the difference between the loadings was less than 0.25, "culture" was also deleted. The

other item deleted was “new plant and machinery”. Its communality was 0.429, which was less than 0.50 as recommended (Hair et al., 1998).

One item that was retained with the difference of the absolute loadings on two factors less than 0.25 was “training programme development”. It had a loading of 0.451 on Renewal and Development factor and -0.336 on the seventh factor. Hair et al. (1998, p.113) suggest that the ultimate objective of handling cross-loading issues is “to minimize the number of significant loadings on each row of the factor matrix”. It was estimated that the deletion of the two items loaded heavily on the seventh factor (absolute loadings above 0.35) would solve the cross-loading problem of “training programme development”. Thus, it was retained. As noted below, the deletion of the two items loaded heavily on the seventh factor did solve the cross-loading problem of “training programme development”.

Therefore, six items were deleted, and 36 items were retained at this stage. These 36 items were factor analysed again, and six factors emerged with Eigenvalues greater than one. The pattern matrix of the factor analysis is shown in Table 5.7.

As shown in Table 5.7, 36 items loaded clearly on six factors as expected: 10 items that were intended as indicators for Attitude and one item that was intended as an indicator for Competence formed factor 1, seven items that were intended as indicators for Relationships formed factor 2, five items that were intended as indicators for Intellectual Agility formed factor 3, four items that were intended as indicators for Competence formed factor 4, four items that were intended as indicators for Organisation formed factor 5, and finally, five items that were intended as indicators for Renewal and Development formed factor 6. These factors were thus named Attitude, Relationships, Intellectual Agility, Competence, Organisation, and Renewal and Development.

An indicator intended to measure Competence that loaded on Attitude was “personal relationship skills”. Its loading was .759 (Table 5.7). Further analysis showed that its item-to-total correlation was 0.6652 with the other Attitude items (Table 5.13). Thus, “personal relationship skills” did belong to Attitude dimension and was an indicator of Attitude.

Table 5.7 Final factor analysis results – Pattern matrix

	Factor loadings					
	1 (attit)	2 (rela)	3 (agil)	4 (comp)	5 (org)	6 (rendev)
Enthusiasm	.833					
Fun	.818					
Strong commitment	.803					
Ethical	.802				.240	
Professional in their dealings	.779			.217		
Personal relationship skills	.759					
Create dynamic environment	.666					
Show vision	.654					
Leadership	.652			.266		
Share ideas	.603			-.235		
Highly motivated	.578		.257	.209		
Product and service user group		.856				
Business networks		.828				
Customer's network of contacts, customers and suppliers		.819				
Buying group		.782				
Key opinion leaders		.705				-.279
Other business units		.692			.247	
Alliance and joint venture partners		.686				
Adapt products/services to new situations			.831			
Adapt ideas from one situation to another			.819			
Create new product/services			.779			
Innovative			.749			
Imitate existing concepts/products			.739			
Technical skills				.717		-.249
Knowledge			.224	.690		
Practical know-how	.226			.631		
Training specific				.598		
Brands				-.283	.674	-.206
Intellectual property			.202		.651	-.242
Internal networks			.219		.649	
Processes and systems			.207		.595	-.256
Report and forecasting						-.772
New system development						-.756
Restructuring					.211	-.749
New networks or strategic partners		.300				-.649
Training programme development						-.626

Extraction method: Principal Component Analysis.
Rotation method: Oblimin with Kaiser Normalization.
Absolute values less than .20 are suppressed.

After removal of the six items that did not perform well, no items loaded heavily (greater than ± 0.35) on more than one factor, and no items had the loadings on two factors with a difference less than 0.25. The absolute loadings ranged from 0.578 to 0.833, and thus, were above the 0.50 as recommended to be statistically significant (Hair et al., 1998). The communalities ranged from 0.549 to 0.836, thus were above 0.50 as recommended (Hair et al., 1998).

As suggested by Ford et al. (1986), the initial Eigenvalues of each factor and the variances explained by each factor are provided in Table 5.8. The initial Eigenvalues for the first six factors ranged from 12.055 to 1.118, and then dropped to 0.996 for the seventh factor. The six-factor solution was considered appropriate as the six factors emerged as expected based on theoretical considerations, and the variance explained by the seventh factor was only 2.684 percent.

As shown in Table 5.8, Attitude explained 33.487 percent of the variance of IRV construct. Relationships explained 16.185 percent of the variance of the IRV construct. The remaining four value constructs explained 6.356 to 3.105 percent of the variance of the IRV construct. As indicated later in Table 5.9, the six first-order IRV factors found in this factor analysis were correlated. Thus, as noted below Table 5.8, sums of squared loadings could not be added to obtain a total variance.

Table 5.8 Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
(Factor)	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1 (Attit)	12.055	33.487	33.487	12.055	33.487	33.487
2 (Rela)	5.826	16.185	49.671	5.826	16.185	49.671
3 (Agil)	2.288	6.356	56.027	2.288	6.356	56.027
4 (Comp)	2.099	5.830	61.857	2.099	5.830	61.857
5 (Org)	1.352	3.756	65.613	1.352	3.756	65.613
6 (Rendev)	1.118	3.105	68.719	1.118	3.105	68.719
7	.996	2.684	71.402			
8	.867	2.408	73.810			

Extraction method: Principal Component Analysis.
Note: As the above six components or factors were correlated (Table 5.9), sums of squared loadings could not be added to obtain a total variance.

As suggested by Ford et al. (1986), the inter-factor correlation matrix is also provided in Table 5.9. As shown in Table 5.9, Attitude (factor 1), Intellectual Agility (factor 3) and Competence (factor 4) were intercorrelated. The correlations ranged from 0.320 to 0.443. On the other hand, Relationships (factor 2), Organisation (factor 5) and Renewal and Development (factor 6) were intercorrelated. The absolute correlations ranged from 0.312 to 0.387. On the other hand, the correlations between human value factors (Attitude, Intellectual Agility and Competence) and structural value factors

(Relationships, Organisation and Renewal and Development) were much lower. The highest correlation was 0.229 between Attitude (factor 1) and Relationship (factor 2).

Table 5.9 Inter-factor Correlation Matrix

Factor	1 (Attit)	2 (Rela)	3 (Agil)	4 (Comp)	5 (Org)	6 (Rendev)
1 (Attit)	1.000					
2 (Rela)	.229	1.000				
3 (Agil)	.443	.093	1.000			
4 (Comp)	.320	.128	.322	1.000		
5 (Org)	.076	.312	.092	.076	1.000	
6 (Rendev)	-.198	-.387	-.194	.020	-.329	1.000

Extraction method: Principal Component Analysis.
Rotation method: Oblimin with Kaiser Normalization.

The results suggested that the three human value constructs converged and the three structural value constructs converged. The convergent validities of the measurements of human and structural intangible values are further discussed in the next section and section 5.4.2. The inter-factor correlations between these first-order factors suggested that higher-order factors might exist, that is, the IRV model might have two higher-order dimensions. The levels in the IRV model are examined next.

5.3.4 Model level analysis

To test that the IRV model had two levels, the summated scales of the six value dimensions were factor analysed. The scores of the summated scales of Competence, Attitude, Intellectual Agility, Relationships, Organisation, and Renewal and Development were computed by using the mean scores of the items for each of the six dimensions, using those items that were retained in the final factor analysis results provided above.

Thus, six summated IRV variables were factor analysed using the principal components analysis and subsequently direct oblimin rotation (with DELTA value set at 0) (Kim & Mueller, 1978). The results are shown in Table 5.10. As shown in Table 5.10, two factors were formed. As expected, the three summated human value components loaded clearly on one factor with the loadings ranging from 0.816 to 0.915, and the three summated structural value components loaded clearly on the other factor with loadings ranging from 0.815 to 0.887. These two factors were thus named as Human Intangible

Value and Structural Intangible Value as this structure corresponded with the theory discussed in chapter 3.

Table 5.10 Pattern matrix – higher-order IRV dimension analysis

	Factor	
	1 (Structural Intangible Value)	2 (Human Intangible Value)
Organisation	.915	-.029
Renewal and Development	.888	.019
Relationships	.816	.017
Competence	-.035	.887
Intellectual Agility	-.066	.838
Attitude	.154	.815

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

The results also suggest that the three first-order human value constructs were convergent on a common construct, which was the human intangible value construct. Similarly, the three first-order structural value constructs were convergent on a common construct, which was the structural intangible value construct. In addition, these three human value constructs and these three structural value constructs were discriminant. The convergent and discriminant validities of the measurements of human and structural intangible values are further discussed in section 5.4.2.

The initial Eigenvalues and the variance explained by the variables are provided in Table 5.11. The initial Eigenvalue for the first two factors were 3.045 and 1.459, then dropped significantly to 0.542 for the third factor. As two factors emerged as expected based on theoretical considerations, the two-factor solution was considered as appropriate. The structural intangible value explained 50.752 percent of the variance of IRV construct and the human intangible value explained 24.314 percent of the variance of IRV construct. Again, as the two factors were correlated as shown in Table 5.12, sums of squared loadings could not be added to obtain a total variance.

The inter-factor correlation matrix is provided in Table 5.12. As shown in Table 5.12, structural intangible value and human intangible value were correlated, with a correlation of 0.333. This indicated that the human intangible value and the structural intangible value constructs were convergent on the IRV construct, which is further

discussed in section 5.4.3. The results suggested that human intangible value and structural intangible value were higher-order dimensions of IRV. Thus, the levels of the IRV model were supported.

Table 5.11 Total variance explained – higher-order IRV dimension analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
(Factor)	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1 (Struc)	3.045	50.752	50.752	3.045	50.752	50.752
2 (Hum)	1.459	24.314	75.066	1.459	24.314	75.066
3	.542	9.031	84.097			
4	.416	6.939	91.036			

Extraction method: Principal Component Analysis.
Note: As the two factors were correlated (Table 5.12), sums of squared loadings could not be added to obtain a total variance.

Table 5.12 Inter-factor correlation matrix – higher-order IRV dimension analysis

Factor	1 (Structural Intangible Value)	2 (Human Intangible Value)
1 (Structural Intangible Value)	1.000	
2 (Human Intangible Value)	.333	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

5.3.5 Summary

The exploratory factor analysis results indicated that the IRV had six first-order dimensions: competence, attitude, intellectual agility, relationships, organisation, and renewal and development, and two higher-order dimensions: human intangible value dimension with competence, attitude and intellectual agility as its components, and structural intangible value with relationships, organisation, and renewal and development as its components. Thus, the theoretically derived IRV model dimensions and levels were supported by the data analysis results of the current study.

5.4 Construct validity

In this section, four aspects of construct validity are examined: reliability, convergent and discriminant validity, and nomological validity.

5.4.1 Reliabilities of the measurements of the six first-order IRV constructs

As discussed in the previous chapter (section 4.3.1), only the reliabilities of the six first-order IRV constructs were examined in the current study: competence, attitude, intellectual agility, relationships, organisation, and renewal and development. The reliabilities were examined by assessments of internal consistencies, which were measured by (i) item-to-total correlations, which should exceed 0.50, (ii) Cronbach's alpha coefficient, which should exceed 0.70, and (iii) inter-item correlations, which should exceed 0.30 (Hair et al., 1998).

The corrected item-to-total correlations and alpha coefficients for the six IRV constructs are provided in Table 5.13. As shown in Table 5.13, the lowest item-to-total correlation was 0.5150 for "technical skills", which was above 0.50 as recommended (Hair et al., 1998), and lowest Cronbach's alpha was 0.8139 for Competence, which was above 0.70 as recommended (Hair et al., 1998).

In addition, the lowest inter-item correlation was 0.3694 between "personal relationship skills" and "share ideas", which was above 0.30 as recommended (Hair et al., 1998) (As there are 36 items in the total, the inter-item correlation results are not presented). Therefore, it was concluded that the reliabilities of the measurements of the six first-order IRV constructs were well supported in the current study.

The internal consistency for Future Financial Performance (FFP) was also computed and included in Table 5.13. The alpha for FFP was 0.8201 and the lowest item-to-total correlation was 0.5551 for "size of the business". The lowest inter-item correlation between four items measuring FFP was .3943 between "size of the business" and "return on investment". Thus, the reliability of the measurement of the FFP construct was also well supported in the current study.

Table 5.13 Scale Internal Consistency Results

Constructs	Corrected item-to-total correlation	Alpha coefficient
Competence		.8139
#2 Technical skills	.5150	
#4 Practical know-how	.6897	
#5 Knowledge	.7727	
#6 Training specific	.5765	
Attitude		.9391
C#1 Personal relationship skills	.6652	
#1 Demonstrate strong commitment	.7595	
#2 Fun to work with	.7429	
#3 Enthusiasm	.8484	
#4 Share ideas	.6387	
#6 Show vision	.7256	
#7 Dynamic environment	.7434	
#8 Ethical	.7364	
#9 Professional	.7349	
#10 Highly motivated	.7415	
#11 Show leadership	.8200	
Intellectual Agility		.8963
#2 Innovative	.7808	
#3 Can adapt ideas from one situation to another	.8113	
#4 Can adapt products/services to new situations	.8322	
#5 Can successfully imitate existing concepts/products	.6935	
#6 Can create new products/services	.6324	
Relationships		.9076
#1 Members of a product or service group	.7160	
#2 Customer's network of contacts, including their customers and suppliers	.7183	
#3 Members of a buying group	.7338	
#4 Other business units	.6912	
#5 Alliance and joint venture partners	.7289	
#7 Key opinion leaders	.6947	
#8 Business networks or other networks	.7789	
Organisation		.8328
#1 Internal networks	.6406	
#2 Process and systems	.7243	
#3 Intellectual property	.6910	
#4 Brands	.6026	
Renewal and Development		.8750
#1 Training programme development	.6607	
#3 Restructuring	.7320	
#4 Report and forecasting of market trends	.6950	
#5 New system development, including IT systems	.7525	
#6 New networks and strategic partnerships development	.6948	
Performance		.8201
#1 The sales revenue they provide to your company	.6711	
#2 The size of their business with you relative to your total business	.5551	
#3 The profitability of your organisation's business with this customer	.6894	
#4 Return on investment of your organisation's business with this customer	.6695	

5.4.2 Convergent validity in human and structural intangible value measurements

The convergent validity in the measurement of human intangible value was supported by the correlations between the relevant constructs in the current study. Spearman's rho correlations between the three summated scales of human intangible value components: competence, attitude, and intellectual agility, and between the overall measurement of human intangible value and these three summated scales are provided in Table 5.14. The Spearman's rho correlation was chosen because some of the variables were not normal in the current study (section 4.7.2). Thus, the nonparametric procedure was chosen.

Table 5.14 Correlations between human IRV constructs

Spearman's rho	Competence	Attitude	Intellectual Agility
Competence	1.000		
Attitude	.555***	1.000	
Intellectual agility	.578***	.564***	1.000
Human intangible value	.820***	.820***	.858***

*** Significant at $p < 0.001$ level (2-tailed)

As shown in Table 5.14, the correlations between three human intangible value components – competence, attitude and intellectual agility – ranged from 0.555 to 0.578 (significant at $p < 0.001$ level, 2-tailed), and the correlations between the overall measurement of human intangible value and these three components – competence, attitude, and intellectual agility – were strong, at 0.820, 0.820, and 0.858 (significant at $p < 0.001$ level, 2-tailed) respectively. The score of the overall measurement of human intangible value was obtained by using the mean score of the summated scales of competence, attitude and intellectual agility. Therefore, the three human intangible value components were convergent on the human intangible value construct, and thus the convergent validity in the measurement of human intangible value was supported.

The convergent validity of the measurement of structural intangible value was also supported by the correlations between the relevant constructs in the current study. Spearman's rho correlations between the summated scales of the three structural intangible value components: relationships, organisation, and renewal and development, and between the overall measurement of structural intangible value and these three summated scales are provided in Table 5.15.

Table 5.15 Correlations between human and structural value constructs

Spearman's rho	Relationships	Organisation	Renewal and development
Relationships	1.000		
Organisation	.552***	1.000	
Renewal and development	.550***	.662***	1.000
Structural intangible value	.824***	.861***	.849***

*** Significant at $p < 0.001$ level (2-tailed)

As shown in Table 5.15, the correlations between the three structural intangible value components – relationships, organisation, and renewal and development – ranged from 0.550 to 0.662 (significant at $p < 0.001$ level, 2-tailed), and the correlations between the overall measurement of structural intangible value and these three components – relationships, organisation, and renewal and development – were strong, at 0.824, 0.861, and 0.849 (significant at $p < 0.001$ level, 2-tailed) respectively. The score of the overall measurement of structural intangible value was obtained by using the mean score of the summated scales of relationships, organisation and renewal and development. Therefore, the three structural intangible value components were convergent on the structural intangible value construct, and thus the convergent validity in the measurement of structural intangible value was supported

As found in section 5.3.4, the joint factor analysis of the three human intangible value subscales (competence, attitude, and intellectual agility) and the three structural intangible value subscales (relationships, organisation, and renewal and development) found that the three human intangible value subscales (competence, attitude, and intellectual agility) loaded clearly on one factor, with the loadings ranging from 0.816 to 0.915, and the three structural intangible value subscales (relationships, organisation, and renewal and development) loaded clearly on another factor with loadings ranging from 0.815 to 0.887 (Table 5.10). Thus, as discussed in the previous chapter (section 4.3.2), the discriminant validities in the measurements of human intangible value and structural intangible value were supported.

5.4.3 Convergent validity of the IRV measures

The convergent validity of the overall measurement of IRV was also supported. As shown in Table 5.16, the correlation between the human intangible value construct and the structural intangible value construct was 0.288 (significant at $p < 0.001$ level, 2-

tailed). In addition, both of the human and the structural intangible constructs were significantly and strongly correlated with the overall measurement of IRV. The correlations were 0.712 and 0.854 (significant at $p < 0.001$ level, 2-tailed) respectively. The score of the overall measurement of IRV was obtained by using the mean score of human intangible value and structural intangible value. Therefore, the convergent validity of the human and the structural intangible value constructs on the IRV construct was supported.

Table 5.16 Correlations between IRV and Human and Structural Intangible Value

Spearman's rho	Human Intangible Value	Structural Intangible Value	IRV
Human Intangible Value	1.000		
Structural Intangible Value	.288***	1.000	
IRV	.712***	.854***	1.000

*** Significant at $p < 0.001$ level (2-tailed)

In addition, the correlation between the structural intangible value and the IRV construct was stronger than the correlation between the human intangible value and the IRV construct. This is discussed further in conclusions (section 6.3.3).

5.4.4 Nomological validity of the IRV construct

The nomological validity was examined by the correlation between the IRV construct and the future financial performance (FFP) construct. The correlation between the IRV construct and the FFP construct was 0.380 (significant at $p < 0.001$ level, 2-tailed). Therefore, the nomological validity of the IRV construct was supported as the IRV construct and the FFP construct were theoretically expected to be positively correlated with each other as discussed in the previous chapter (section 4.3.3)

5.4.5 Summary

This section, 5.4, examined the construct validity of the IRV constructs. It was concluded that the measurements of the six first-order IRV constructs: competence, attitude, intellectual agility, relationships, organisation, and renewal and development, were reliable. The convergent and discriminant validities in the measurements of human and structural intangible value were supported. Finally, the convergent validity of the second-order constructs on the IRV construct, and the nomological validity of the IRV construct, were supported.

5.5 Additional analysis of the effect of firm size on the perceived IRV

As discussed earlier, small firms with five to nine employees responded significantly differently from the bigger firms with 50 or more employees to nine relationship value items in the questionnaire (section 5.2.1). After factor analysis, three of these nine items were deleted and six were retained. The descriptive statistics of these six value items on the 7-point scale for the two groups of firms are provided in Table 5.17.

Table 5.17 Descriptive statistics for the items received significantly different responses

Item	Small firms		Bigger firms		Mean difference
	Mean	Std. Deviation	Mean	Std. Deviation	
Other business units	2.62	1.899	3.58	1.582	-.96*
Internal networks	2.62	1.791	3.58	1.733	-.96*
Processes and systems	2.65	1.672	3.61	1.499	-.95*
Brands	2.35	1.522	3.88	2.028	-1.53**
Training programme development	1.88	1.211	2.61	1.456	-.72*
Report and forecasting	2.81	1.833	3.88	1.556	-1.07*

* Significant at $p < 0.05$ level (2-tailed)
** Significant at $p < 0.01$ level (2-tailed)
Note: The mean values were based on 7-piont Likert-type scale

As shown in Table 5.17, “brands” received the most significantly different responses from two groups of firms. The mean value of “brands” on the 7-point scale was 2.35 for the small firms and 3.88 for the bigger firms. The mean difference was 1.53 (significant at $p < 0.01$ level, 2-tailed). The second highest mean difference was 1.07 (significant at $p < 0.05$ level, 2-tailed) for “report and forecasting”. For the remaining four items – “other business units”, “internal network”, “processes and systems”, and “training programme development”, the mean differences ranged from 0.96 to 0.72 (significant at $p < 0.05$ level, 2-tailed). These results are further discussed in conclusions (section 6.3.4).

In addition the descriptive statistics of the two groups of firms examined above, the correlations between the summated IRV constructs were also examined for these two groups of firms. The Spearman’s rho correlations between the six first-order IRV constructs for the firms with five to nine employees and with 50 or above employees are provided in Table 5.18 and Table 5.19. As indicated in Table 5.18, for the small firms with five to nine employees, the correlation between the attitude construct and the

intellectual agility construct was insignificant. In addition, no human value constructs correlated significantly with structural value constructs. This is further discussed in conclusions (section 6.3.4).

Table 5.18 Correlations between the six first-order IRV constructs for small firms

Spearman's rho	Comp	Attit	Agil	Rela	Org	Rendev
Comp	1.000					
Attit	.431*	1.000				
Agil	.565**	.284	1.000			
Rela	.360	.218	.172	1.000		
Org	.139	.056	.222	.547**	1.000	
Rendev	.142	-.028	.198	.486*	.598***	1.000

* Significant at $p < 0.05$ level (2-tailed)
** Significant at $p < 0.01$ level (2-tailed)
*** Significant at $p < 0.001$ level (2-tailed)

By contrast, for the bigger firms with 50 or more employees, the attitude construct and the intellectual agility construct were highly correlated (Table 5.19). The correlation was 0.549 (significant at $p < 0.01$ level, 2-tailed). In addition, the attitude construct was also significantly correlated with the relationship construct and the renewal and development construct. The correlations were 0.393 (significant at $p < 0.05$ level, 2-tailed) and 0.498 (significant at $p < 0.01$ level, 2-tailed). This is further discussed in conclusions (section 6.3.4).

Table 5.19 Correlations between the six first-order IRV constructs for bigger firms

Spearman's rho	Comp	Attit	Agil	Rela	Org	Rendev
Comp	1.000					
Attit	.543**	1.000				
Agil	.687***	.549**	1.000			
Rela	.273	.393*	.196	1.000		
Org	.173	.238	.264	.667***	1.000	
Rendev	.225	.498**	.327	.723***	.418*	1.000

* Significant at $p < 0.05$ level (2-tailed)
** Significant at $p < 0.01$ level (2-tailed)
*** Significant at $p < 0.001$ level (2-tailed)

5.6 Conclusions

This chapter presented the data analysis results for the research questions. The first research question was “do the underlying dimensions and the levels of the IRV Model remain valid with a different data sample?” The data analysis results indicated that Baxter and Matear’s (2004) IRV model, including its dimensions and its levels, was well supported. The six first-order dimensions of IRV, the competence, attitude, intellectual agility, relationships, organisation, and renewal and development dimensions, emerged as expected in the first-order exploratory factor analysis. Further exploratory factor analysis of the summated scales of these six first-order values found two higher-level dimensions of IRV: human intangible value and structural intangible value.

The second research question was “do the measures of the IRV constructs remain valid with a different data sample?” Four aspects of construct validity were investigated: reliability, and convergent, discriminant, and nomological validities. The measurements of the six first-order IRV constructs were found reliable. The convergent and discriminant validities in the measurements of human and structural intangible values were well supported. The convergent validity of the second-order constructs on the IRV construct, and the nomological validity of the IRV construct were also well supported.

As the respondents’ firms’ sizes of the current study was significantly different from those of Baxter and Matear’s (2004) study, additional analysis was carried out to investigate the difference of the responses of relationship value between small and bigger firms. This is further discussed in the next chapter, which is about the conclusions and implications that can be drawn from the study.

Chapter 6 Conclusions and implications

6.1 Introduction

As discussed earlier, although there are many potential benefits from long-term customer relationships, building a customer relationship that can enhance seller's sustainable competitive advantage is a lengthy process and requires significant investments of resources. Thus, it is necessary to develop a system to measure the potential value of each existing or potential customer relationship so that a strategic decision can be made on which customer relationship to commit to.

The five existing approaches in the relationship marketing literature that are relevant to relationship value for the seller in business-to-business contexts were discussed in the literature review chapter and the relationship value models were compared. In particular, two models that have been empirically tested and supported were compared. One is Walter et al.'s (2001) relationship value-creating functions model and the other is Baxter and Matear's (2004) IRV model.

Walter et al.'s (2001) model suggests that customer relationships have three direct value creating functions and four indirect functions for the seller. The three direct value-creating functions are profit function, volume function, and safeguard function, and the four indirect value-creating functions are innovation function, market function, scout function, and access function. Their empirical results suggest that a substantial amount of the variance of supplier-perceived value is explained by these seven value-creating functions. However, the exact customers' inputs that lead to these value-creating functions are not explored. This leaves a gap in knowledge about relationships because it would be hard to manage the relationships without knowing the exact source of value creation. By contrast, Baxter and Matear's (2004) IRV model, which is developed from Morgan and Hunt's (1999) resource-based view of marketing relationships, directly focuses on the exact customers' inputs that create value for the seller. Thus Baxter and Matear's (2004) IRV model was chosen for further investigation.

Based on the resource-based view, Morgan and Hunt (1999) suggest that marketing relationships are resources for a firm and can contribute to a firm's competitive advantage. They further categorise the resources gained in marketing relationships into

seven categories: physical, financial, legal, human, relational, organisational, and informational resources. However, their categorisation is primarily conceptual rather than operational (Baxter & Matear, 2004).

To operationalise these relationship resources, Baxter and Matear (2004) adopt an intellectual capital model as the basis of their IRV model. The rationale for adopting intellectual capital literature was discussed in detail in the literature review chapter. The importance of the measurement of the value created by intangible relationship resources was justified in the same chapter.

Although the IRV model has been empirically tested and supported, it is possible that the results were arrived at by chance. Researchers suggest conducting a second study for scale refinement before putting scales into use (Churchill, 1979; Flynn & Pearcy, 2001). Thus, further analysis based on a new sample data is necessary to further support the validity of the model and its scales. As suggested in the literature, four aspects of construct validity were investigated in the current study: reliability, and convergent, discriminant, and nomological validities.

As Baxter and Matear's (2004) study had never been replicated before, close replication was considered as more appropriate to test the validity of the model and the measures rather than choosing a significantly different context, such as services industry. Thus, the survey was conducted in the New Zealand manufacturing industry.

Based on the new data sample collected, the current validation study examined the validity of the IRV model and its scales. Exploratory factor analysis was used to examine the dimensionality of IRV, including the first-order dimensions and the higher-order dimensions of IRV. Reliability was examined by assessments of internal consistency. The convergent and nomological validities were examined by the correlations between the relevant constructs, and the discriminant validity was examined by exploratory factor analysis of the relevant scales.

This chapter presents the conclusions and the implications based on the research findings. The conclusions on the research questions are discussed first, followed by the conclusions on the relationship value. Then the chapter discusses the implications for

the theory and practice. The limitations of the research are discussed next, followed by the discussion of future research areas. Finally, the conclusions are provided.

6.2 Conclusions on the research questions

This section firstly presents the items retained in the final result of the current study, and compares them with Baxter and Matear's (2004) final purified scales. It then presents the conclusions concerning the research questions based on the data analysis results discussed in the previous chapter.

6.2.1 The IRV measures retained in the current study

There were 36 measures of intangible value retained in the current study after removal of eight items that did not perform well as described in the analysis chapter. The lowest absolute loading was 0.578 (Table 5.7). The items retained for each of the six first-order value dimensions: competence, attitude, intellectual agility, relationships, organisation, and renewal and development, ranged from four to 11.

Guadagnoli and Velicer (1988, p.274) suggest that "[i]f components possess four or more variables with loadings above 0.60, the pattern may be interpreted whatever the sample size used. Similarly, a pattern composed of many variables per component (10 to 12) but low loadings (0.40) should be an accurate solution at all but the lowest sample sizes (N<150)". Thus, although the sample size of the current study was 141, the factor loading results, that is, the dimensionality of the IRV found in the current study, could be interpreted as robust. In addition, as Hair et al. (1998) suggest, at this sample size, the loadings above 0.50 are statistically significant. Thus, all the loadings of the current study should be statistically significant.

Of the 22 items retained in Baxter and Matear's (2004) final purified scale, two items were deleted in the current study because they had heavy loadings on more than two factors. One was "information in customer's database", which had heavy loadings of 0.529 on the Organisation factor and 0.450 on the Renewal and Development factor (Table 5.6). The other was "professional skills", which had heavy loadings of 0.582 on the Competence factor and 0.436 on the Attitude factor (Table 5.6). Thus these two items did not meet the requirement of unidimensionality (Clark & Watson, 1995). Therefore, these two items were not valid measures for the IRV constructs for the respondents in the current study.

The other 20 items in Baxter and Matear's (2004) final purified scale were retained in the current study. The 36 items retained as measures of the six value dimensions in the current study are provided in Table 6.1, with the 20 items retained in the final purified scale of Baxter and Matear's (2004) study shown in bold.

Table 6.1 Items retained in the current study

Value dimension	Item retained as indicator of the value dimensions
Competence	**#2 Technical skills** **#4 Practical know-how** #5 Knowledge #6 Training specific
Attitude	C#1 Personal relationship skills **#1 Demonstrate strong commitment** #2 Fun to work with **#3 Enthusiasm** **#4 Share ideas** #6 Show vision #7 Dynamic environment **#8 Ethical** #9 Professional #10 Highly motivated #11 Show leadership
Intellectual Agility	**#2 Innovative** **#3 Can adapt ideas from one situation to another** **#4 Can adapt products/services to new situations** **#5 Can successfully imitate existing concepts/products** #6 Can create new products/services
Relationships	**#1 Members of a product or service group** #2 Customer's network of contacts, including their customers and suppliers #3 Members of a buying group #4 Other business units **#5 Alliance and joint venture partners** **#7 Key opinion leaders** **#8 Business networks or other networks**
Organisation	#1 Internal networks #2 Process and systems **#3 Intellectual property** **#4 Brands**
Renewal and Development	**#1 Training programme development** #3 Restructuring **#4 Report and forecasting of market trends** **#5 New system development, including IT systems** **#6 New networks and strategic partnerships development**

Items in bold were retained in the final purified scale of Baxter and Matear's (2004) study

The analysis techniques and aims of the two studies were different. Baxter and Matear (2004) used the structural equation modelling technique to establish a parsimonious scale for model testing, while the current study used exploratory factor analysis to establish dimensionality of IRV and to assess the performance of items as indicators of the six value dimensions. Despite the difference in data analysis techniques and the contexts of the relationships, 20 of the items retained in the Baxter and Matear's (2004) purified scale performed well as measures of the six value dimensions in the current replication study. This suggests that these 20 measures have a high potential for generalisation in the manufacturing industry in New Zealand, and in turn, may be applicable in other industries. The 36 items are further discussed in detail in section 6.3.1.

6.2.2 Conclusions on the research questions

The research questions of the current study were:

1. Do the underlying dimensions and the levels of the IRV Model remain valid with a different data sample?
2. Do the measures of the IRV constructs remain reliable and valid with a different data sample?

The data analysis results showed that the IRV model dimensions and levels did emerge in the pattern as proposed. Factor analysis of the questionnaire items found six first-order value dimensions: competence, attitude, intellectual agility, relationships, organisation, and renewal and development. Further factor analysis of the summated scales of these six value dimensions found two higher-order dimensions. As expected, competence, attitude and intellectual agility values loaded on one factor – the human intangible value factor; and relationships, organisation, and renewal and development values loaded on the other factor – the structural intangible value factor. Thus, the pattern of the IRV model was supported by the current study.

The validity of the measures of IRV constructs investigated four aspects of construct validity: reliability, and convergent, discriminant, and nomological validities. As the model has two levels, the reliabilities of the measurements of the six first-order value constructs – competence, attitude, intellectual agility, relationships, organisation, and renewal and development – were examined. As suggested by Churchill (1979), once the

measurements of the first-order dimensions or components of IRV construct are reliable, the reliability of the IRV construct can be secured.

The reliabilities of the measurements of the six first-order constructs in the current study were examined by assessments of scale internal consistency, which were measured by item-to-total correlations, Cronbach's alpha coefficient, and inter-item correlations. The data analysis results showed that all the item-to-total correlations were above 0.50 as recommended (Hair et al., 1998). The Cronbach's alphas for the measurements of the six constructs ranged from 0.8117 to 0.9370 (Table 5.12), thus, were above 0.70 as recommended (Hair et al., 1998). Finally, all the inter-item correlations were above 0.30 as recommended (Hair et al., 1998). Therefore, the reliabilities of the measurements of the six first-order value constructs were supported in the current study.

The second-order factor analysis results suggested that the three first-order human value constructs were convergent on the human intangible value construct, and the three first-order structural value constructs were convergent on the structural intangible value construct. In addition, the results also suggested that the three human value constructs and the three structural value constructs were discriminant as they clearly loaded on two different factors.

The convergent validities of the measurements of human and intangible value were further supported by the correlations between the relevant constructs. The three human intangible value components – competence, attitude, and intellectual agility – were highly correlated. In addition, these three human intangible value components also highly correlated with the human intangible value construct. Thus, the convergent validity of the three human intangible value components (competence, attitude, and intellectual agility) on the human intangible value construct was supported. Similarly, three structural intangible value components – relationships, organisation, and renewal and development – were highly correlated. In addition, these three structural intangible value components also highly correlated with the structural intangible value construct. Thus, the convergent validity of the three structural intangible value components (relationships, organization, and renewal and development) on the structural intangible value construct was supported.

Evidence was also found for the convergent validity in the measurement of IRV. The two higher-order IRV components – human intangible value component and structural intangible value component were significantly correlated. In addition, these two components were highly correlated with the IRV construct.

Finally, the nomological validity of the IRV construct was assessed by the correlation between the IRV construct and the future financial performance construct as it is suggested in the literature that financial performance is an outcome of resource value (Morgan & Hunt, 1999; Srivastava et al., 2001). The data analysis results showed that the IRV construct and the future financial performance construct were significantly and positively correlated. Thus, the nomological validity of the IRV construct was supported.

Therefore, it is concluded that the IRV model is supported for the respondents of the current study, and the 36 measures retained in the final result of the current study were reliable and valid for the respondents of the current study.

6.3 Conclusions on relationship value and its measurement

This section discusses the conclusions in four areas: (i) the IRV perceived by the respondents in the current study, (ii) the intellectual capital approach to measuring relationship value, and the resource-based view approach to marketing relationships, (iii) the competitive advantage created by relationship resources, and (iv) firm size effects on the perceived IRV.

6.3.1 The IRV perceived by the respondents in the current study

This section discusses how the respondents in the currents study perceived the IRV of their chosen customer relationships based on the 36 items retained in the final results of the current study (Table 6.1). The items retained in each of the six first-order dimensions of the IRV model are discussed in turn.

As shown in Table 6.1, four items were retained as valid indicators for the competence construct for the respondents in the current study. The results suggest that the respondents in the current study perceive that their chosen customers' employees' competence do create value for the respondents' firms. This value is reflected in these

employees' "knowledge", "technical skills", and "practical know-how", and the relationship-specific "training" that these employees received.

Eleven items were retained as valid indicators for the attitude construct for the respondents in the current study. The results suggest that the respondents in the current study perceive that their chosen customers' employees' positive attitude towards the relationships are valuable for the respondents' firms. The value is reflected in the way these employees behave in their work with the respondents' firms, such as "sharing ideas" with the respondents, "creating a dynamic environment" in their work with the respondents, "demonstrating strong commitment" to the relationship, and being "highly motivated" to reach the goals that are set in their work with the respondents.

Five items were retained as valid indicators for the intellectual agility construct for the respondents in the current study. The results suggest that the respondents in the current study perceive that they do benefit from their relationships with their chosen customers when the customers' employees are intellectual agile, that is, when these employees are "innovative", "can adapt ideas from one situation to another", "can adapt products/services to new situations", "can successfully imitate existing concepts/ products", and "can create new product/services".

Seven items were retained as valid indicators for the relationships construct for the respondents in the current study. The results suggest that the respondents do value their relationships with their chosen customers when they can gain access to "the product or service groups", "the buyer groups", and "business networks or other networks" to which customers belong, "customers' networks of contacts, including their customers and suppliers" and their "alliance and joint venture partners", "other business units" within customers' organisations, and "key opinion leaders" in customers' field.

Four items were retained as valid indicators for the organisation construct for the respondents in the current study. The results suggest that the respondents in the current study perceive that they do benefit from customers' "internal networks", their "processes and systems", and their "intellectual property" and "brands".

Five items were retained as valid indicators for the renewal and development construct for the respondents in the current study. The results suggest that the respondents in the

current study perceive that potentially they could benefit from their chosen customers' "restructuring" work, their "report and forecasting of market trends", and their "training programme development", "new system development", and "new networks and strategic partnerships development".

6.3.2 Intellectual capital approach and resource-based view of marketing relationships

As discussed above, the findings of the current research support Morgan and Hunt's (1999) resource-based view approach to marketing relationships. The results suggest that, through relationships, customers' resources potentially become available to sellers. When these resources improve sellers' efficiency and/or effectiveness in the marketplace, they become sellers' resources and can create value for sellers.

The findings also suggest that Baxter and Matear's (2004) intellectual capital approach to operationalising the IRV is valid in the current study. As discussed in detail in the previous section, most of the measures developed from intellectual capital literature (Roos et al., 1997) are valid for the respondents in the current study. The intellectual capital approach to the IRV measurement and the resource-based view of marketing relationships are further discussed in the implications for the theory (section 6.4).

6.3.3 Competitive advantage created by relationship resources

Morgan and Hunt (1999) suggest that the competitive advantage created by relational resources, organisational resources, and informational resources gained in marketing relationships have high potential to be sustained because these resources are inimitable. They further propose that the competitive advantages that are created only by human relationship resources are less likely to be sustained because the human resources gained in marketing relationships are mobile.

Baxter and Matear's (2004) study found that the path from IRV to structural intangible value was stronger than that from IRV to the human intangible value. This suggests that structural intangible value plays a more significant role than human intangible value in the IRV, thus confirming Morgan and Hunt's (1999) conceptualization. Baxter and Matear's (2004) finding was consistent with the data analysis results of the current study, which found that the correlation between the structural intangible value construct and the IRV construct was stronger than that between the human intangible value construct and the IRV construct (Table 5.17). The implications of the potential of

different types of relationship resources to contribute to a firm's sustainable competitive advantage are further discussed in implications for practice (section 6.5).

6.3.4 Firm size effects

As the firm sizes in the current sample were much smaller than those in Baxter and Matear's (2004) study, firm size effects were further examined. It was found that for the small firms in the current study, the correlation between the attitude construct and the intellectual agility construct was insignificant (Table 5.18). In addition, no human value constructs correlated significantly with structural value constructs. The results suggest that, for small firms, the value stemmed from customers' employees' attitude are perceived to be independent of the value created by customers' employees intellectual agility. Similarly, the value created by customers' structural aspects is perceived to be independent of the value created by customers' employees.

By contrast, for the bigger firms in the current study, the attitude construct and the intellectual agility construct were positively and significantly correlated (Table 5.19). In addition, the attitude construct was also positively and significantly correlated with the relationship construct and the renewal and development construct. The results suggest that bigger firms perceive that customers' employees' positive attitude towards the business relationships have a positive effect on the value created by the customers' relationships with other parties, and their renewal and development work.

The examination of the mean values of the items that received significantly different responses from the two groups of firms found that the bigger firms in the current study generally perceived that they benefit at a moderate level from their customers' brands, internal networks, processes and systems, training programme development, report and forecasting of market trend, and other business units in their customers' firms. By contrast, the small firms in the current study perceived a significantly lower level of value from these six structural aspects of their customers (Table 5.17).

6.4 Implications for the relationship value theory

Three areas are discussed in this section: (i) the intellectual capital approach to assessing relationship value, and (ii) the idiosyncratic and complementary relationship resources.

6.4.1 Intellectual capital approach to assessing relationship value

The intangible part of the value of the relationships in business-to-business contexts is important, but difficult to measure (Barringer & Harrison, 2000; Wilson & Jantrania, 1994). The consistent findings in Baxter and Matear's (2004) study and the current study suggest that Baxter and Matear's (2004) intellectual capital approach is appropriate in measuring the value created by the intangible part of the resources gained in buyer-seller business-to-business relationships, and thus makes a contribution to the literature. It potentially provides a way to assess the intangible value in a business relationship.

Based on the measures, the value of the intangible aspects of a business relationship could potentially be quantified in terms of shareholder value by assessing the contribution of each measure, and in turn each dimension, to enhancing or accelerating a firm's future cash flow as advocated by marketing researchers (Lukas et al., 2003; Srivastava et al., 2001; Srivastava et al., 1998; Srivastava, Shervani & Fahey, 1999). Based on the quantified value of each relationship, firms can evaluate the importance of each business relationship and allocate the resources accordingly. However, the quantification process could be very complicated and relationship specific, and requires further theory development and empirical testing.

6.4.2 Idiosyncratic vs. complementary relationship resources

The resource-based view suggests that resources lead to a firm's competitive advantage when they are heterogeneous (Barney, 1991), imperfectly imitable and substitutable (Barney, 1991; Dierickx & Cool, 1989), imperfectly mobile (Collis, 1991; Dierickx & Cool, 1989), and continually contribute to the firm's ability to efficiently and effectively produce valued market offerings (Hunt & Morgan, 1995). Based on these criteria, firms can identify the most important resources they possess and make strategic decisions on how to deploy their existing resources, and how to develop their resource base (Grant, 1991).

Lambe, Spekman and Hunt (2002) suggest that firms can develop their resource base by forming alliances, that is, collaborative relationships, rather than adversarial relationships. Through collaborative relationships, firms can acquire complementary resources from partners to eliminate deficiencies in their portfolio of resources, and

further develop idiosyncratic resources to facilitate the synergistic combination of partners' resources through the life of collaborative relationships. Examples of idiosyncratic resources are knowledge and capabilities unique to the relationship developed through the life of the relationship, and the irrevocable relationship-specific investments.

Baxter and Matear (2004) do not make it explicit in their IRV model whether they focus on idiosyncratic or complementary resources in their relationship value construct definitions and the subsequent scale development. Dyer and Singh (1998) suggest that interfirm routines, especially knowledge sharing routines, that developed through the life of collaborative relationships, employees' unique experiences developed through working together, and the specialised information, language, and know-how accumulated through the life of collaborative relationships are system resources for the parties involved in the relationship. These idiosyncratic resources allow relationship partners to communicate efficiently and effectively in a unique way. In Baxter and Matear's (2004) IRV scales, they only measure customer firm's processes and systems, and customer employees' knowledge and skills in general.

However, the functions of these two types of resources are quite different. Researchers argue that having complementary resources does not necessarily lead to value creation (Harrison, Hitt, Hoskisson & Ireland, 2001) although complementary resources are the foundation of the relationship and competence building (Lambe et al., 2002). Empirically, Lambe, Spekman, and Hunt (2002) have found that complementary resources have only an indirect effect on the success of a collaborative relationship through idiosyncratic resources.

As the functions of complementary resources and idiosyncratic resources are different, it is necessary to measure their values separately. Thus further research on the IRV should differentiate between these two types of relationships resources and develop measurements for them separately.

6.5 Implications for practice

The consistent dimensionality of the IRV found in two IRV studies suggest that sellers could potentially benefit from their relationships with their business customers in two dimensions: human intangible value dimension and structural intangible value

dimension. Human intangible value is further reflected in three dimensions: competence, attitude and intellectual agility, and structural intangible value is further reflected in three dimensions: relationships, organisation and renewal and development.

Based on the dimensionality provided by the IRV model, sellers could systematically examine the potential value that could be generated out of these six first-order value dimensions. Firms can further develop firm-specific or relationship-specific measures along these dimensions to assess, and thus to compare, the IRV of their current and potential customers. Based on this systematic approach to assessing relationship value, firms could make strategic decisions on how to manage customer relationships.

The measures provided in the two IRV studies could serve as a basis for further firm-specific or relationship-specific measures for the IRV. For example, “knowledge” and “intellectual property” were suggested as valid measures of the IRV for the sellers in the current study. Firms can further specify what knowledge of customers’ employees and what intellectual property of customers’ firms are valuable for the firm and could thereby be gained through the relationships.

The research also suggests that the respondents in the current study perceive that the positive attitude of their chosen customers’ employees towards their work with the respondents’ firms is valuable. The “dynamic environment” created by customers’ employees’ enthusiastic behaviour in their work with sellers, their “strong commitment” to relationships, and their willingness to “share ideas” with sellers might facilitate the efficient and effective communication between relationship partners, thus, creates value for firms in the relationships. Thus, how to educate and motivate firms’ employees to interact with customers’ employees in a correct way appears to be important for firms to maximise the outcome of the relationships.

In addition, the results in the current study suggest that the respondents in the current study perceive that “customers internal networks” and “processes and systems” are valuable aspects of their chosen relationships. This suggests that the efficient and effective internal information sharing systems in customers’ firms can to lead to efficient and effective information sharing with sellers, thus, is of benefit to sellers. It is interesting to note that the sales and marketing managers in the current study perceived a significantly higher level of value of their chosen customers’ “processes and systems”

than the CEO group did (section 5.2.2). The reason might be that sales and marketing managers tend to work closer with customers than the senior managers do, especially in day-to-day operations. Thus, sales and marketing managers are more likely to perceive the value created by customers' intra-organisational processes and systems.

The data analysis also showed that the bigger firms in the current study perceived a significantly higher level of value of their chosen customers' "other business units", "internal networks", "processes and systems", "brands", "training programme development", and "report and forecasting" of market trends than the small firms did. The reason might be that the amount of information flow is higher between bigger firms and their chosen customers than that between small firms and their chosen customers. Thus, the benefit of customers' "internal network" and "processes and systems" for bigger firms is more significant than that for small firms. The results suggest that these six structural aspects of customers are more important for bigger firms than for small firms to assess their customer relationship value.

It is also interesting to note that the firms that provided pure products perceived a significantly lower level of value from their chosen customer firms' "intellectual property" than the firms that provided a higher proportion of service than product did (section 5.2.3). The reason might be that, by providing the services that are necessary for the usage of the products offered, firms can gain access to their customers' intellectual property easily, thus can benefit more out of it.

Finally, customers' employees' intellectual agility, customers' relationships with other organisations, and customers' renewal and development work could potentially bring new business opportunities for sellers. Thus, identifying new business opportunities out of these sources at an early stage is crucial for firms to gain competitive advantage in today's competitive environment. Firms need to systematically examine the potential competitive advantage out of customers' employees, customers' relationship partners and their investments in renewal and development.

6.6 Limitations

There are several limitations of the current study. The first limitation is that the sample size was too small for structural equation modelling to further examine the data and

purify the scales effectively. The measures retained in the final result of the current study are therefore not parsimonious.

The small sample size also has led to another limitation of the current study. An important finding of the current study is that small firms responded significantly differently to some of the structural value questions from the bigger firms. However, the sample sizes for small and bigger firms were too small to do separate factor analyses or structural equation modelling analyses for these two groups of firms, and to examine the exact difference between their responses. In addition, the current study was conducted in New Zealand's manufacturing industry. The generalisation of the findings beyond this sample is limited.

The current study is the first validation study of the IRV model and its scales. However, researchers argue that construct validation is an "ever-extending" (Peter, 1981, p.135) or "never-ending" (Flynn & Pearcy, 2001, p.413) process of investigation and development. Thus, further validation study of the scales is required.

Another limitation of the current study is that the findings of the current study represent a cross-sectional approach to studying relationship value rather than longitudinal. A survey methodology measuring a single point in time limits the conclusions about causality of relationship value and performance.

6.7 Future research areas

Four future research areas are discussed in this section: (i) firm size effect, (ii) further construct validation study, (iii) associating the IRV constructs with other existing constructs in marketing literature, and (iv) measure development for complementary and idiosyncratic resources.

6.7.1 Firm size effect

As discussed earlier, small firms responded differently to the relationship value questions from the way in which bigger firms responded in the current study. Thus, more research needs to be done to investigate the difference of the perception of relationship value between small firms and bigger firms.

6.7.2 Further construct validation study

The validity of the IRV model is supported by the current study. In addition, 20 items out of the 22 items retained in Baxter and Matear's (2004) final purified scale were retained in the final purified scale of the current study. This suggests that these 20 items have potential for generalisation. Further study could investigate the validity of these measures in other industries, such as the service industry.

6.7.3 Associate intangible value constructs with existing relationship constructs

As the current study has provided support for the validity of the IRV constructs, further research could investigate how the IRV constructs relate to other widely researched relationship constructs, such as commitment, trust, and satisfaction, as suggested by Baxter and Matear (2004). Once the relationships between the IRV constructs and these widely researched relationship constructs are identified, the empirical research findings of the relationships between these widely researched relationship constructs and the outcomes of relationships can be used to predict the relationship between the IRV constructs and the outcomes of relationships.

6.7.4 Measure development for complementary and idiosyncratic resources

As discussed earlier, Baxter and Matear (2004) do not make it explicit whether they focus on idiosyncratic or complementary resources in their relationship value construct definitions and the subsequent scale development. But the functions of complementary resources and idiosyncratic resources reported on by Lambe et al. (2002) are quite different. Further research could differentiate between these two types of resources and develop specific scales measuring them.

6.11 Conclusions

Customer relationships are seen as one of the firm's most important assets, and can contribute to a firm's shareholder value in the long term. However, there are also disadvantages associated with customer relationship building. Thus, whether or not to commit to, or terminate, a specific relationship, and how much resources should be allocated to developing a relationship are important strategic issues for a firm. Such decisions can only be made based on a good understanding of how relationships create value for a firm, and an accurate assessment of relationship value. However, the assessment of customer relationship value has been made difficult as the nature of

customer relationships is complex, largely intangible, and long-term oriented. This might explain why the research in the area is scant. Thus, more work needs to be done in this area.

Five existing approaches relevant to relationship value measurement from seller's perspective, and their relevant models of relationship value measurement were discussed in detail in literature review chapter. Morgan and Hunt's (1999) resource-based view approach to marketing relationships, and Baxter and Matear's (2004) IRV model, which operationalise the intangible resources gained in marketing relationships noted by Morgan and Hunt (1999), were chosen as the most promising approach and model for further investigation.

Innovatively adopting an intellectual capital model, Baxter and Matear (2004) operationalise the intangible resources gained in marketing relationships noted by Morgan and Hunt (1999). Their intellectual capital model measuring IRV is based on a synthesis of the categories of resources gained in marketing relationships noted by Morgan and Hunt (1999) and the categories of intellectual capital proposed by Roos et al. (1997). Both Morgan and Hunt's (1999) resource-based approach to marketing relationships and Roos et al.'s (1997) intellectual capital categories are derived from the work of Penrose (1959). This might explain the similarity of the two categorizations as discussed in detail in the literature review chapter. Therefore, the IRV model is well founded on the resource-based view, the relationship marketing literature, and the intellectual capital literature.

The current study focuses on examining the dimensionality of IRV and assessing the performance of items as indicators of the six value dimensions. The data analysis results provide empirical support for the validity of Baxter and Matear's (2004) IRV model and its measures, and thus for their intellectual capital approach to measuring intangible value in relationships. The IRV model has potentially provided a way to measure the intangible part of the value of a business relationship, thus, it is an important contribution to marketing literature as the intangible aspect of relationship has made its measurement complicated and difficult. In addition, both of Baxter and Matear's (2004) study and the current study suggest that Morgan and Hunt's (1999) resource-based view approach to marketing relationships can serve as a foundation for further measuring the value of marketing relationships as resources.

For marketing practitioners, the IRV model provides the dimensions for firms to further systematically develop *relationship-specific* measures along these dimensions to assess potential value that could be created out of their customer relationships. They then could make strategic decisions on whether or not to commit to the relationships.

Apart from the support for Baxter and Matear's (2004) study, the current study found that firms of different sizes benefited differently from relationships. This aspect was not examined in Baxter and Matear's (2004) research. The bigger firms in the current study perceived a significantly higher level of value of six structural aspects – "other business units", "internal networks", "processes and systems", "brands", "training programme development", and "report and forecasting" – of their chosen customers than the small firms did. Morgan and Hunt's (1999) propose that competitive advantage created by inimitable resources gained in marketing relationships has a high potential to be sustained. Thus, for bigger firms in the current study, the competitive advantage created by their chosen customer relationships is more likely to be sustained because the resources that create the competitive advantage are customers' structural intellectual capital, which is inimitable. However, the sample size of the current study is too small for structural equation modelling analysis to further examine the effect of firm size. Thus, further research should be done to examine this difference.

Lamber et al. (2002) find that the idiosyncratic resources developed through the life of the collaborative relationships, such as knowledge and capabilities unique to the relationship developed through the life of the relationship, can facilitate the synergistic combination of partners' resources, and are more important than the complementary resources acquired from the collaborative relationships. Baxter and Matear (2004) do not make it explicit whether they focus on idiosyncratic or complementary resources in their relationship value construct definitions and the subsequent scale development. Thus, further research could differentiate between the two types of resources and develop specific scales measuring them.

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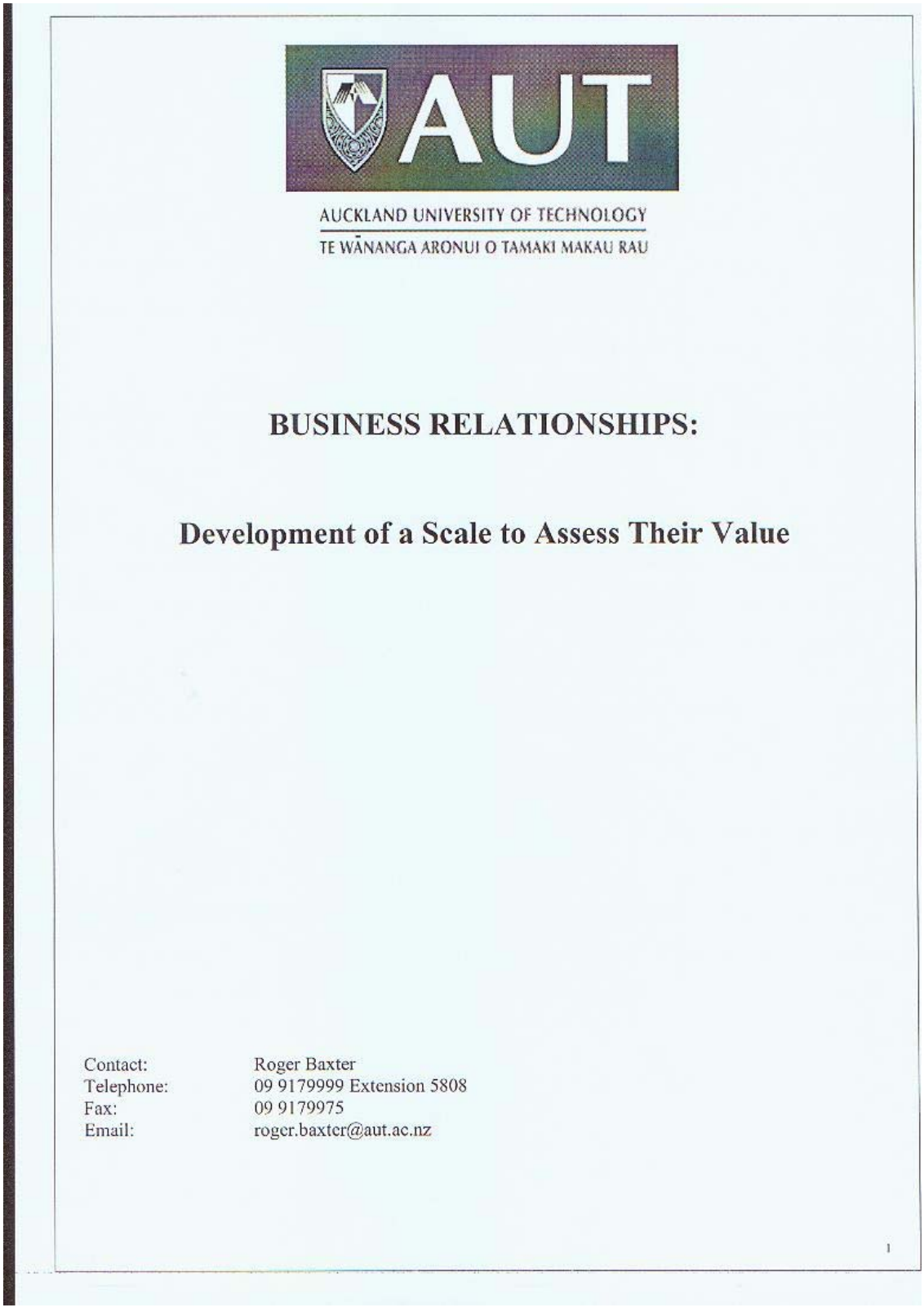
Appendix 3.1 Baxter and Matear's (2004) questionnaire



AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

BUSINESS RELATIONSHIPS:

Development of a Scale to Assess Their Value

Contact: Roger Baxter
Telephone: 09 9179999 Extension 5808
Fax: 09 9179975
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1

INTRODUCTION

Thank you very much for completing this questionnaire, which is divided into four sections. As the subject for Section A, would you please take your New Zealand based business to business customer that ranks fourth in terms of revenue. Section B is about your customers in general. Section C asks for some information about your own firm, and Section D for any feedback you have.

A scale for a rating or a space for an answer is provided for each question, usually to its right. I would be grateful if you can provide an answer to all questions.

When you are answering the questionnaire, would you please take the role of your firm's representative. This is because the design of this study concentrates on analysis of relationships between firms. I am trying to quantify aspects of these relationships and I am using your responses as a proxy for the firm's overall view of one of its relationships. Please complete all items in the questionnaire so that I can get a full picture.

Some questions will appear very similar to others. Please bear with us on this. It is deliberately done for more effective statistical analysis of the survey data.

CONFIDENTIALITY

All information you provide will be strictly confidential. Your responses will be presented only in aggregate and no individual firm's results will be highlighted. They will not be released to any third party. The demographic information on your firm that I ask you to provide at the end of the questionnaire will be used for comparative purposes only.

SECTION A:

In this section we look at a relationship that you have with one specific customer. Please answer the questions with respect to your firm's relationship with its fourth largest customer in terms of revenue. Please choose a New Zealand based business to business customer and do not choose a firm that is a supplier of goods or services to you.

1. **With respect to the customer you have taken as the subject of this questionnaire:**

Please write answer below:

- For how many years has your firm had a relationship with them? Years: .....
- What industry type are they in? Industry: .....
- Approximately how many employees do they have? Number: .....

GENERAL INFORMATION ABOUT THE RELATIONSHIP
Please indicate by circling the appropriate number.

2. **Please consider your own firm's relationship with your chosen customer at present and rate the following statements as they apply to the relationship:**

	Strongly disagree						Strongly agree
• The customer's personnel you work with are competent.	1	2	3	4	5	6	7
• The customer's personnel have a good attitude to their work with you.	1	2	3	4	5	6	7
• The customer's personnel you work with are intellectually agile (they are able to use their competence, apply it in practical contexts, and learn as they do that).	1	2	3	4	5	6	7
• The customer has a network of relationships that are very useful to your firm.	1	2	3	4	5	6	7
• The customer has attributes in its organisation (for example: knowledge; processes; structures) that are very useful to your firm.	1	2	3	4	5	6	7
• The customer's development work (for example, on products, processes, or markets) is very useful to your firm.	1	2	3	4	5	6	7

3. **Please again consider your firm's relationship with your chosen customer at present. How high is your organisation's level of input of the following resources into the relationship, compared with your other customers?**

	Very much lower						Very much higher
• Dollars your firm puts into the relationship.	1	2	3	4	5	6	7
• Physical items such as equipment your firm puts into the relationship.	1	2	3	4	5	6	7
• The amount of time that your personnel spend working on the relationship.	1	2	3	4	5	6	7
• Your intangible inputs, such as your knowledge, skills, ingenuity and your business contacts.	1	2	3	4	5	6	7

4. **The relationship that your firm has with the chosen customer:**	Strongly disagree						Strongly agree
• Is something you are very committed to.	1	2	3	4	5	6	7
• Is very important to your firm.	1	2	3	4	5	6	7
• Is of very little significance to your firm.	1	2	3	4	5	6	7
• Is something your firm intends to maintain indefinitely.	1	2	3	4	5	6	7
• Is very much like being family.	1	2	3	4	5	6	7
• Is something your firm really cares about.	1	2	3	4	5	6	7
• Deserves your firm's maximum effort to maintain.	1	2	3	4	5	6	7

5. **In your relationship, your chosen customer:**	Strongly disagree						Strongly agree
• Cannot be trusted at times.	1	2	3	4	5	6	7
• Is perfectly honest and truthful.	1	2	3	4	5	6	7
• Can be trusted completely.	1	2	3	4	5	6	7
• Can be counted on to do what is right.	1	2	3	4	5	6	7
• Is always faithful.	1	2	3	4	5	6	7
• Is someone that you have great confidence in.	1	2	3	4	5	6	7
• Has high integrity.	1	2	3	4	5	6	7

6. **To what extent do the following statements describe your relationship with your chosen customer?**	Not at all						Very much so
• The relationship of my company with this customer has been an unhappy one.	1	2	3	4	5	6	7
• My company is very pleased with its working relationship with this customer.	1	2	3	4	5	6	7
• Generally, my company is very satisfied with its overall relationship with this customer.	1	2	3	4	5	6	7

7. **Thinking now about the next 3 years, how do you expect your chosen customer's performance to rate? Please rate on the scale at the right according to the following criteria, as compared with your other customers.**	Very much lower						Very much higher
• The sales revenue they provide to your company.	1	2	3	4	5	6	7
• The size of their business with you relative to your total business.	1	2	3	4	5	6	7
• The profitability of your organisation's business with this customer.	1	2	3	4	5	6	7
• Return on investment of your organisation's business with this customer.	1	2	3	4	5	6	7

8. **Again, for the next 3 years, how effective do you expect the relationship with your chosen customer to be in giving your firm useful access to the following?**	Not at all effective						Very effective
• To your customer's network of relationships.	1	2	3	4	5	6	7
• To the capabilities in their organisation (e.g. the organisational knowledge, infrastructure, processes, and/or culture).	1	2	3	4	5	6	7
• To the capabilities of their personnel.	1	2	3	4	5	6	7
• To their capabilities for the development of new products or processes.	1	2	3	4	5	6	7

9. **Please consider again your firm's relationship with your chosen customer over the next 3 years. How high do you expect your firm's level of input of the following resources to be into the relationship, compared with your other customers?**	Very much lower						Very much higher
• Dollars your firm puts into the relationship.	1	2	3	4	5	6	7
• Physical items such as equipment you put into the relationship.	1	2	3	4	5	6	7
• Time input of your personnel.	1	2	3	4	5	6	7
• Your intangible inputs, such as your knowledge, skills, ingenuity, relationships.	1	2	3	4	5	6	7

HUMAN ASPECTS OF THE RELATIONSHIP

10. **Please think about your chosen customer's personnel whom you encounter in the relationship. Using the scales at the right, how would you rate their competency on the following aspects in their work with your firm?**	Very low levels						Very high levels
• Personal relationship skills.	1	2	3	4	5	6	7
• Technical skills including IT skills.	1	2	3	4	5	6	7
• Professional skills.	1	2	3	4	5	6	7
• Practical know-how in the work they do with you.	1	2	3	4	5	6	7
• Knowledge that they apply to the work they do with you	1	2	3	4	5	6	7
• Training which is specifically applicable to the work they do with you.	1	2	3	4	5	6	7

11. Now thinking about the attitude of your chosen customer's personnel whom you encounter in the relationship, to what extent do you disagree or agree with the following statements about them?

	Strongly disagree						Strongly agree
• They demonstrate a strong commitment to their relationship with your firm.	1	2	3	4	5	6	7
• They are fun to work with.	1	2	3	4	5	6	7
• They show enthusiasm for their work with you.	1	2	3	4	5	6	7
• They share their ideas with you.	1	2	3	4	5	6	7
• They are difficult to please.	1	2	3	4	5	6	7
• They show vision in their work with you.	1	2	3	4	5	6	7
• They create a dynamic environment in their work with you.	1	2	3	4	5	6	7
• They are ethical in their dealings with you.	1	2	3	4	5	6	7
• They are professional in their dealings with you.	1	2	3	4	5	6	7
• They are highly motivated to reach goals that are set in their work with you.	1	2	3	4	5	6	7
• They show strong leadership in their work with you.	1	2	3	4	5	6	7

12. And how would you rate your chosen customer's personnel in their work with you in terms of the following statements?

	Not at all						To a very great extent
• They are not receptive to new ideas.	1	2	3	4	5	6	7
• They are innovative in their approach.	1	2	3	4	5	6	7
• They can adapt ideas from one situation to another.	1	2	3	4	5	6	7
• They can adapt products /services to new situations.	1	2	3	4	5	6	7
• They can successfully imitate existing concepts/products.	1	2	3	4	5	6	7
• They can create new products/services.	1	2	3	4	5	6	7

ORGANISATIONAL ASPECTS OF THE RELATIONSHIP

13. **To what extent does your relationship with your chosen customer allow you to utilise the relationships your customer has with the following? Please rate these statements using the scales to the right.**	Not at all						To a very great extent
• Members of a product or service user group to which your customer belongs.	1	2	3	4	5	6	7
• Your customer's network of contacts, including their customers and suppliers.	1	2	3	4	5	6	7
• Members of a buying group to which your customer belongs.	1	2	3	4	5	6	7
• Other business units within your customer's organisation.	1	2	3	4	5	6	7
• Your customer's alliance or joint venture partners.	1	2	3	4	5	6	7
• Your customer's research and development partners.	1	2	3	4	5	6	7
• Key opinion leaders in your customer's field.	1	2	3	4	5	6	7
• Business networks or other networks to which your customer belongs.	1	2	3	4	5	6	7

14. **To what extent does your relationship with your chosen customer allow you to gain benefits from the following in their organisation?**	Not at all						To a very great extent
• Their internal networks.	1	2	3	4	5	6	7
• Their processes and systems.	1	2	3	4	5	6	7
• Their intellectual property, including patents, trademarks and copyrights.	1	2	3	4	5	6	7
• Their brands.	1	2	3	4	5	6	7
• Their information in databases and other documentation.	1	2	3	4	5	6	7

15. **To what extent does your relationship with your chosen customer assist you in preparing for the future by helping with the following?**	Not at all						To a very great extent
• By helping to develop training programmes.	1	2	3	4	5	6	7
• By helping with research and development work (for example on products and processes).	1	2	3	4	5	6	7
• By helping with the restructuring that is needed to prepare for the future.	1	2	3	4	5	6	7
• By reporting and forecasting the trends in their markets.	1	2	3	4	5	6	7
• By helping to develop new systems, including IT systems.	1	2	3	4	5	6	7
• By helping to develop new networks or strategic partnerships.	1	2	3	4	5	6	7

16. How much do you agree with the following statements about your firm's relationship with the chosen customer, as compared with other customers?	I do not agree at all						I fully agree
• We have strong social bonds with people in the customer organisation.	1	2	3	4	5	6	7
• This relationship currently is of great value to my firm.	1	2	3	4	5	6	7
• This relationship will be of great value to my firm in the next 3 years.	1	2	3	4	5	6	7
• There is a lot of intangible value in this relationship.	1	2	3	4	5	6	7
• There is a lot of conflict between us and the customer.	1	2	3	4	5	6	7
• Our firm shares a lot of goals with this customer.	1	2	3	4	5	6	7
• We make a lot of specific investments in this relationship.	1	2	3	4	5	6	7
• The customer makes a lot of specific investments in this relationship.	1	2	3	4	5	6	7
• This relationship is very profitable for us.	1	2	3	4	5	6	7

SECTION B:

The following questions are about the way you assess the value of your customer relationships. They are about your customer relationships in general, rather than for the specific customer you chose as the subject for Section A.

17. To what extent do you use the following criteria to assess the value to your firm of your relationships with your customers?	Not at all						To a very great extent
• Sales revenue of individual customers.	1	2	3	4	5	6	7
• The size of an individual customer's business with you relative to your total business.	1	2	3	4	5	6	7
• Profitability of individual customers.	1	2	3	4	5	6	7
• Return on investment of individual customers.	1	2	3	4	5	6	7
• The access the relationship gives you to capabilities of your customer's organisation (for example, its information and its organisational skills).	1	2	3	4	5	6	7
• The access the relationship gives you to the capabilities of your customer's personnel.	1	2	3	4	5	6	7
• The access the relationship gives you to your customer's relationships with other people or organisations.	1	2	3	4	5	6	7
• The access the relationship gives you to your customer's development capabilities (for example, product or process development capabilities).	1	2	3	4	5	6	7

18. **How formally does your firm assess the value of its relationships with its customers? (A formal system would be one where you use a standard set of measures to calculate customers' value in dollars or as an index).**

Very informally						Using a very formal system
1	2	3	4	5	6	7

SECTION C:

Finally, we have some questions about <u>your own</u> firm. These are primarily to assess the cross-section of companies we have in our survey.

19. How long have you worked in your firm? .....years

20. What is your position in the firm? Please write in full. If you are a manager, what do you manage?

.....

21. How long have you been in this position? .....years

22. Do you work closely with business customers in your job? YES ☐ NO ☐

23. Annual revenues of your firm in New Zealand - please tick one box:

Under $5 million	☐	$5 million to under $10 million	☐
$10 million to under $50 million	☐	$50 million to under $100 million	☐
Over $100 million	☐	Prefer not to say	☐

24. Approximately how many employees does your firm have? Number.....

25. What is the type of industry that your firm operates in? Please be specific.

.....

.....

26. What is your SIC code, if you know it? Code: .....

27. Please circle the number that best shows the mix of products and/or services your firm offers:

Only products		An equal product/service mix				Only services
1	2	3	4	5	6	7

Below is the address label we used to send you this questionnaire. To enable us to send you a report on the research project, please check the details and amend if necessary.

Name: _____

Title: _____

Organisation: _____

Address: _____

City: _____

SECTION D:

Please provide any feedback on the questions, the questionnaire in general, or the relationship value project here.

Thank you very much again for your assistance with our research project by completing this questionnaire.

Appendix 4.1 Total survey documents of the current study

AUT
AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Date

Dear Manager,

Validation Study of Intangible Business Relationship Value Measurement

Customer relationships are important intangible assets of a firm. However, their management is made difficult due to the lack of effective measures of their value. We are conducting a study to test the validity of a set of measures of the **intangible value of a customer relationship**, developed by an earlier study in New Zealand manufacturing industry.

Your contribution in completing the enclosed questionnaire will be highly appreciated because it will give us data for our study. Based on this data, we can extend both managers' and researchers' knowledge of how to measure customer relationship value and thus how to manage customer relationships.

We need about 20 minutes of your time to fill in this questionnaire. Would you please also fill in the consent form at the end of the questionnaire and return it to us. All information you provide will be kept strictly confidential, as explained in the information sheet on the next page.

An executive summary of the results of this research will be sent to you by email upon request.

Please provide your name and your email address in the consent form at the end of the questionnaire.

Thank you very much for your time and help in making this study possible. If you have any concerns or queries, please feel free to contact us at the following addresses. The project supervisor is:

Roger Baxter
Senior Lecturer
Faculty of Business
Auckland University of Technology
Private Bag 92006
Auckland 1020
Tel: 09 9179999 ext 5808
Fax: 09 9179629
E-mail: roger.Baxter@aut.ac.nz

Yours sincerely,

Annie Liqin Zhang
Faculty of Business
Auckland University of Technology
Private Bag 92006
Auckland 1020

Participant Information Sheet

AUT
AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Date Information Sheet Produced: 25th of August, 2003

Project Title: Validation Study of Intangible Business Relationship Value Measurement

Invitation
I would like to invite you to participate in this study, which is a part of a larger project to find ways to assess the value of customer relationships. We are particularly interested in the intangible part of relationship value.

What is the purpose of the study?
We have identified six dimensions of intangible value in buyer-seller relationships from a seller's perspective and have established a model for measuring this intangible value. We want to further our knowledge of how to measure this intangible value in this study and need your help to check the validity of the measurement scales and the model. This study fulfils part of the requirements for my Master's Degree of Business study.

How are people chosen to be asked to be part of the study?
We have chosen randomly from a commercial database a list of managers in sales, marketing or related positions in manufacturing firms, for which a substantial part of their business takes place in business-to-business relationship.

What happens in the study?
We have enclosed a questionnaire. We will be very grateful if you can complete this questionnaire and return it to us. We will then enter your data along with others respondents' data in statistical analysis software and analyse it to test the validity of our proposed value dimensions and their measures. We will use the results of the analyses to continue our work on measuring intangible relationship value.

What are the benefits?
The findings will contribute to the extension of the knowledge of managers and researchers of how to measure customer relationship value and thus how to manage customer relationships.

How will my privacy be protected?
All information you provide will be strictly confidential. Your responses will be presented only in aggregate after analysis and no individual firm's results will be highlighted. They will not be released to any third party. The demographic information of your firm that I will ask you to provide at the end of the questionnaire will be used for comparative purposes only.

What are the costs of participating in the project?
We need about 20 minutes of your time to complete this questionnaire.

Opportunity to receive feedback on results of research
An executive summary of the research result will be provided upon request by email. Please provide your email address in the consent form at the end of the questionnaire.

Participant Concerns
Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor.

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, madeline.banda@aut.ac.nz , 917 9999 ext 8044.

Researcher Contact Details: Annie Liqin Zhang: liqzha73@aut.ac.nz.

Project Supervisor Contact Details: Roger Baxter: roger.baxter@aut.ac.nz, 917 9999 ext 5808

Approved by the Auckland University of Technology Ethics Committee on 16/09/03, AUTEC Reference number 03/138.

Validation Study of Intangible Business Relationship Value Measurement

AUT
AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TĀMAKI MAKAURAU

Thank you very much for completing this questionnaire, which is divided into three sections. Section A covers the relationship value we are measuring, section B asks for some information about your own firm, and section C asks for any feedback you have for this survey. A scale for a rating or a space for an answer is provided for each question, usually to its right.

We are trying to assess the intangible value in a **business-to-business** relationship between a buyer and a seller **from the seller's perspective**, and we are using your responses as a proxy for the firm's overall view of one of its business customer relationships. We would be grateful if you can provide an answer to all questions in our questionnaire so that we can get a full picture of this relationship value.

SECTION A:
In this section we look at a relationship that you have with one specific customer. Please answer the questions with respect to your firm's relationship with its fourth largest customer in terms of revenue. Please choose a New Zealand based business-to-business customer and do not choose a firm that is a supplier of goods or services to you.

1	With respect to the customer you have taken as the subject of this questionnaire:	Please write answer below:
	For how many years has your firm had a relationship with them?	..... Years:
	Which industry type are they in? (Please tick one on the right.)	Manufacturing ☐ Service ☐ Agriculture ☐ Others ☐
	Approximately how many employees do they have?	Number: .....

GENERAL INFORMATION ABOUT THE RELATIONSHIP
Please indicate by circling the appropriate number on the scale in the right hand column.

2	**Please consider your own firm's relationship with your chosen customer at present and rate the following statements as they apply to the relationship:**	Strongly disagree						Strongly agree
	• The customer's personnel you work with are competent.	1	2	3	4	5	6	7
	• The customer's personnel have a good attitude to their work with you.	1	2	3	4	5	6	7
	• The customer's personnel you work with are intellectually agile (they are able to use their competence, apply it in practical contexts, and learn as they do that).	1	2	3	4	5	6	7
	• The customer has a network of relationships that are very useful to your firm.	1	2	3	4	5	6	7
	• The customer has attributes in its organisation that are very useful to your firm.	1	2	3	4	5	6	7
	• The customer's development work is very useful to your firm.	1	2	3	4	5	6	7
3	**The relationship that your firm has with the chosen customer:**	Strongly disagree						Strongly agree
	• Is something you are very committed to.	1	2	3	4	5	6	7
	• Is very important to your firm.	1	2	3	4	5	6	7
	• Is of very little significance to your firm.	1	2	3	4	5	6	7
	• Is something your firm intends to maintain indefinitely.	1	2	3	4	5	6	7
	• Is very much like being family.	1	2	3	4	5	6	7
	• Is something your firm really cares about.	1	2	3	4	5	6	7
	• Deserves your firm's maximum effort to maintain.	1	2	3	4	5	6	7
4	**In your relationship, your chosen customer:**	Strongly disagree						Strongly agree
	• Cannot be trusted at times.	1	2	3	4	5	6	7
	• Is perfectly honest and truthful.	1	2	3	4	5	6	7
	• Can be trusted completely.	1	2	3	4	5	6	7
	• Can be counted on to do what is right.	1	2	3	4	5	6	7
	• Is always faithful.	1	2	3	4	5	6	7
	• Is someone that you have great confidence in.	1	2	3	4	5	6	7
	• Has high integrity.	1	2	3	4	5	6	7
5	**To what extent do the following statements describe your relationship with your chosen customer?**	Not at all						Very much so
	• The relationship of my company with this customer has been an unhappy one.	1	2	3	4	5	6	7
	• My company is very pleased with its working relationship with this customer.	1	2	3	4	5	6	7
	• Generally, my company is very satisfied with its overall relationship with this customer.	1	2	3	4	5	6	7

6	Thinking now about the next 3 years, how do you expect your chosen customer's performance to rate? Please rate on the scale at the right according to the following criteria, as compared with your other customers.	Very much lower						Very much higher
	• The sales revenue they provide to your company.	1	2	3	4	5	6	7
	• The size of their business with you relative to your total business.	1	2	3	4	5	6	7
	• The profitability of your organisation's business with this customer.	1	2	3	4	5	6	7
	• Return on investment of your organisation's business with this customer.	1	2	3	4	5	6	7
7	Please consider again your firm's relationship with your chosen customer over the next 3 years. How high do you expect your firm's level of input of the following resources to be into the relationship, compared with your other customers?	Very much lower						Very much higher
	• Dollars your firm puts into the relationship.	1	2	3	4	5	6	7
	• Physical items such as equipment you put into the relationship.	1	2	3	4	5	6	7
	• Time input of your personnel.	1	2	3	4	5	6	7
	• Your intangible inputs, such as your knowledge, skills, ingenuity, relationships.	1	2	3	4	5	6	7

HUMAN ASPECTS OF THE RELATIONSHIP								
7	Please think about your chosen customer's personnel whom you encounter in the relationship. Using the scales at the right, how would you rate their competency on the following aspects in their work with your firm?	Very low levels						Very high levels
	• Personal relationship skills.	1	2	3	4	5	6	7
	• Technical skills including IT skills.	1	2	3	4	5	6	7
	• Professional skills.	1	2	3	4	5	6	7
	• Practical know-how in the work they do with you.	1	2	3	4	5	6	7
	• Knowledge that they apply to the work they do with you	1	2	3	4	5	6	7
	• Training which is specifically applicable to the work they do with you.	1	2	3	4	5	6	7
8	Now thinking about the attitude of your chosen customer's personnel whom you encounter in the relationship, to what extent do you disagree or agree with the following statements about them?	Strongly disagree						Strongly agree
	• They demonstrate a strong commitment to their relationship with your firm.	1	2	3	4	5	6	7
	• They are fun to work with.	1	2	3	4	5	6	7
	• They show enthusiasm for their work with you.	1	2	3	4	5	6	7
	• They share their ideas with you.	1	2	3	4	5	6	7
	• They are difficult to please.	1	2	3	4	5	6	7
	• They show vision in their work with you.	1	2	3	4	5	6	7
	• They create a dynamic environment in their work with you.	1	2	3	4	5	6	7
	• They are ethical in their dealings with you.	1	2	3	4	5	6	7
	• They are professional in their dealings with you.	1	2	3	4	5	6	7
	• They are highly motivated to reach goals that are set in their work with you.	1	2	3	4	5	6	7
	• They show strong leadership in their work with you.	1	2	3	4	5	6	7
9	And how would you rate your chosen customer's personnel in their work with you in terms of the following statements?	Not at all						To a very great extent
	• They are not receptive to new ideas.	1	2	3	4	5	6	7
	• They are innovative.	1	2	3	4	5	6	7
	• They can adapt ideas from one situation to another.	1	2	3	4	5	6	7
	• They can adapt products /services to new situations.	1	2	3	4	5	6	7
	• They can successfully imitate existing concepts/products.	1	2	3	4	5	6	7
	• They can create new products/services.	1	2	3	4	5	6	7

ORGANISATIONAL ASPECTS OF THE RELATIONSHIP								
10	To what extent does your relationship with your chosen customer allow you to utilise the relationships your customer has with the following? Please rate these statements using the scales to the right.	Not at all						To a very great extent
	• Members of a product or service user group to which your customer belongs.	1	2	3	4	5	6	7
	• Your customer's network of contacts, including their customers and suppliers.	1	2	3	4	5	6	7
	• Members of a buying group to which your customer belongs.	1	2	3	4	5	6	7
	• Other business units within your customer's group.	1	2	3	4	5	6	7
	• Your customer's alliance or joint venture partners.	1	2	3	4	5	6	7
	• Your customer's research and development partners.	1	2	3	4	5	6	7
	• Key opinion leaders in your customer's field.	1	2	3	4	5	6	7
	• Business networks or other networks to which your customer belongs.	1	2	3	4	5	6	7
11	To what extent does your relationship with your chosen customer allow you to gain benefits from the following in their organisation?	Not at all						To a very great extent
	• Their internal networks.	1	2	3	4	5	6	7
	• Their processes and systems.	1	2	3	4	5	6	7
	• Their intellectual property, including patents, trademarks and copyrights.	1	2	3	4	5	6	7
	• Their brands.	1	2	3	4	5	6	7
	• Their information in databases and other documentation.	1	2	3	4	5	6	7
	• Their culture.	1	2	3	4	5	6	7
12	To what extent does your relationship with your chosen customer benefit you by giving you access to the following aspects of their development work?	Not at all						To a very great extent
	• Training programme development.	1	2	3	4	5	6	7
	• Research and development work on products or processes.	1	2	3	4	5	6	7
	• Restructuring that is needed to prepare for the future.	1	2	3	4	5	6	7
	• Reporting and forecasting the trends in their markets.	1	2	3	4	5	6	7
	• Development of new systems, including IT systems.	1	2	3	4	5	6	7
	• Development of new plant and machinery.	1	2	3	4	5	6	7
	• Development of new networks or strategic partnerships.	1	2	3	4	5	6	7
13	How much do you agree with the following statements about your firm's relationship with the chosen customer, as compared with other customers?	I do not agree at all						I fully agree
	• We have strong social bonds with people in the customer organisation.	1	2	3	4	5	6	7
	• This relationship currently is of great value to my firm.	1	2	3	4	5	6	7
	• This relationship will be of great value to my firm in the next 3 years.	1	2	3	4	5	6	7
	• There is a lot of intangible value in this relationship.	1	2	3	4	5	6	7
	• Our firm shares a lot of goals with this customer.	1	2	3	4	5	6	7
	• We make a lot of specific investments in this relationship.	1	2	3	4	5	6	7
	• The customer makes a lot of specific investments in this relationship.	1	2	3	4	5	6	7
	• This relationship is very profitable for us.	1	2	3	4	5	6	7

SECTION B:

Finally, we have some questions about <u>your own</u> firm. These are primarily to assess the cross-section of companies we have in our survey.

14 What is your position in the firm?

Sales Manager ☐ Marketing Manager ☐ Product Manager ☐ Customer Service Manager ☐

CEO ☐ Other (Please describe): .....

15	How long have you been in this position? ..... Years.						
16	Do you work closely with business customers in your job?					YES ☐	NO ☐
17	Annual revenues of your firm in New Zealand - please tick one box:						
	Under $5 million	☐	$5 - $10 million	☐	$10 - $50 million		☐
	$50 - $100 million	☐	Over $100 million	☐	Prefer not to say		☐
18	Approximately how many employees does your firm have? Number						
19	Please circle the number that best shows the mix of products and/or services your firm offers:						
	Only products		An equal product/service mix			Only services	
	1	2	3	4	5	6	7

SECTION C:
Please provide any feedback on the questions, the questionnaire in general, or the relationship value project here.

Thank you very much again for your assistance with our research project by completing this questionnaire.

Consent to Participation in Research

AUT
AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: Validation Study of Intangible Business Relationship Value Measurement

Project Supervisor: Roger Baxter, Senior Lecturer, Postgraduate Group

Researcher: Annie Liqin Zhang

- I have read and understood the information provided about this research project (Information Sheet dated 25th of August.)
- I have had an opportunity to ask questions and to have them answered.
- I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- I agree to take part in this research.

Participant name: ..... Participant signature : .....

Participant email address (if the executive summary of this research is required): .....

Participant contact details: .....

.....

Date: .....

Approved by the Auckland University of Technology Ethics Committee on 16/09/03 AUTEC Reference number 03/138.
Note: The Participant should retain a copy of this form.

Appendix 4.2 Ethical approval form

MEMORANDUM

Student Services Group – Academic Services

To: Roger Baxter
From: Madeline Banda
Date: 16 September 2003
Subject: 03/138 Validation study of intangible business relationship value measurement

Dear Roger

Your application for ethics approval was considered by AUTEC at their meeting on 08/09/03.

Your application was approved for a period of two years until 8/09/05.

You are required to submit the following to AUTEC:

- A brief annual progress report indicating compliance with the ethical approval given.
- A brief statement on the status of the project at the end of the period of approval or on completion of the project, whichever comes sooner.
- A request for renewal of approval if the project has not been completed by the end of the period of approval.

Please note that the Committee grants ethical approval only. If management approval from an institution/organisation is required, it is your responsibility to obtain this.

The Committee wishes you well with your research.

Please include the application number and study title in all correspondence and telephone queries.

Yours sincerely

Madeline Banda
Executive Secretary
AUTEC
Cc: Annie Zhang

From the desk of ...
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Academic Services
Student Services Group

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