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**The effect on supply chains of the formation of alternate
structured/synergistic logistics networks**

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Master of Commerce and Management

at
Lincoln University
by
Nicole Timney

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Abstract of a thesis submitted in partial fulfilment of the
requirements for the Degree of Master of Commerce and Management.

The effect on supply chains of the formation of alternate structured/synergistic logistics networks from a New Zealand perspective

By Nicole Timney

This thesis was undertaken to explore and analyse the potential effect on New Zealand's supply chain of the formation of alternate synergistic logistics networks from a New Zealand perspective. In an attempt to create a more efficient and effective supply chain, a significant New Zealand company formed a logistics company partnership with a collaborative cooperative company. In response to this strategic move another large New Zealand exporter established an alternative supply chain structure. This study provided a unique opportunity to investigate mid-channel horizontal and vertical collaboration in New Zealand. This study gives smaller importers and exporters insight for better positioning to create value in their own supply chain if they adopt the same concepts.

This research takes a multiple discipline approach with a qualitative case study structure. It utilises value network analysis, a network approach and a resource based view approach as a framework to explain the new landscape that exporters and importers now face to compete globally. The purpose of the case study was to collect and interpret the reaction by providers, producers and exporters to the formation of the logistics company. Also to understand how and why they may or may not react and analyse the possible future effects. The research will look for and highlight any trends and forces as a guide for producers and exporters for future positioning in the supply chain to create value.

This study finds that there has been a significant change through the formation of the new logistics company. These changes include altering seaside links with global carriers and landside transportation links on road, rail and land. Critical infrastructure development and land use planning in regions around the country had a direct relationship to the network strategies employed to create change. The utilisation of competitive positioning and relational commitment, when applied to the concept of network strategies, appears to create value and enhance competitive advantage on a global scale. The limitation of the research was the small pool of New Zealand interviewees.

Keywords: Value Networks, Value Creation, Networks, Supply Chains, Logistics, Collaboration, Relationships, Power and Dependency, Trust

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It has been a wonderful experience and one I will always remember. The thrill of walking over the hollowed out front step of the main library building knowing your following in the footsteps of some amazing and intelligent people will stay with me forever and fills me with a great sense of pride. Lincoln University has been a place of learning for me, academically but also personally. Long may those challenges continue.

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Chapter 1

Purpose of This Research

1.1 Introduction

This first chapter will discuss the overall topic for the thesis and the case studies. Following the outline of the overall study, some detail of the significance of the framework will be discussed and the purpose for which the research was undertaken. The contributions of the work will be highlighted and a brief introduction at the end of this first section will outline the organisation of the research thesis.

The introduction of a new logistics company into the New Zealand supply chain by one of New Zealand's largest agribusiness exporters had the potential to alter the market and was clearly a significant change to the competitive landscape in the agribusiness industry in New Zealand. The exporter sought a solution to create a more efficient and cost effective supply chain, on-shore in New Zealand but also to enhance service to global customers. This was also driven by the need to secure supply routes and control costs. These have been at the mercy of free market distribution companies, especially international shipping lines, due to the distance to market for the New Zealand exporter. The newly formed logistics company invited two other powerful export companies to join the partnership on its conception; one agreed and the other declined.

Initially the intention was to co-ordinate the partners' purchase of shipping services, including storage, but also over time to extend the logistics to involve domestic road, rail and coastal shipping services (Synlait submission to Commerce Commission on the exporters Proposal, 2011). This was a form of cooperation in the agribusiness supply chain channel and provided a unique opportunity to investigate mid-channel horizontal and vertical collaboration by two powerful businesses. The new company intended to invite other importers and exporters to join the partnership once established.

During the initial stage of this research it became apparent that the company declining to join the new partnership had investigated the option thoroughly but opted to approach the situation by adopting a different strategy. The research investigates two of New Zealand's largest exporters and their respective strategic options in tackling the issue of exporting in a global economy. Their intention was to reduce costs and enhance their respective services. The research is in line with the initial concept to investigate the repercussions, if any, and the future effects to the New Zealand supply chain by the formation of the logistics company. This type of supply chain structure exists in the global market place but was new to supply chain channels in New Zealand. It was not known

how this would affect the working operations of the individual supply chains in the first instance, but more importantly, how this would affect other users and how or if they would connect with the combined new service offerings.

This study is based on two case studies that focus on supply chain strategy and is qualitative in nature. Relevant persons employed by companies and connected, in a business sense; to the New Zealand supply chain have been interviewed. A set of questions was developed to analyse and evaluate the information for thesis presentation and the results presented in a series of future scenarios that map the possible future states given a number of key variables.

In researching the drivers for collaboration based on concepts from value networks, network and resource theory, this paper sought to understand how and why companies may or may not react to the changes to the New Zealand supply chain but also how they would re position themselves in the new structure. This is in line with the overall research question, to understand the possible effects to the New Zealand supply chain. Utilisation of the suggested concepts guided the research to discuss the reaction by the company that did partner with the logistics company, the company that declined to join and other producers and exporters, to the formation of the logistics company. The essence of the research was to discover who would benefit from the strategic formation and why, how this would best serve the customer and the centrality of the customer to the strategic decision making process.

This thesis analysed the possible future effects to the New Zealand supply chain structure and will highlight any trends and forces as a guide for producers and exporters for future positioning in the supply chain.

In their paper Fawcett and Magnan, (2001) comment that for a supply chain to be successfully integrated, certain elements need to be considered and measured. These are performance, partnership design, people communication, alignment mechanisms, information systems and cross-functional process change. In basing the research on the concepts that inform the value network, network and resource theories, the elements discussed by Fawcett & Magnan, (2001) can be explored along with other relevant academic research in relation to this study. The competitive dynamics of supply chain management in the current climate dictate that members of a supply chain work together by bringing resources and competencies of the various actors together instead of competing as stand-alone entities (Barney, 1991; Eisenhardt & Martin, 2000). It can be said that collaboration brings together complementary competencies which enable enhanced customer value therefore competitive advantage for the firms involved (Fawcett *et al.*, 2008 and Nelson *et al.*, 1998).

There are driving forces from the market that push for change in supply chains. These include demanding customers, economic globalisation and new information technologies (Fawcett & Magnan, 2010). The research findings attempt to highlight what that change may consist of and how best to align with the changes.

If a supply chain is successfully integrated there will be positive performance outcomes. These are likely to include superior quality of service, cost competitiveness and enhanced delivery performance. There are challenges to this integration which need to be monitored and resolved for successful partnering. These can include such things as lack of top management support or blocking, inability or unwillingness to share information, lack of trust amongst supply chain members or resistance to change (Barney, 1991).

The significance of this study is in its findings and recommendations concerning the changes to the industry given the entry of a powerful player in the market. It is hoped that the results will form the basis of a guide for future positioning and collaboration in the New Zealand supply chain (road, rail and sea) for producers and exporters.

1.2 Significance of Value Networks

The importance of a value network and therefore the analysis of it to a firm is the ability to identify what is of worth through viewing the network as a whole. By utilising the lens of value to look at the connections and the benefit that occurs from the connections, a firm is able to tailor the linkages to suit the firm's strategy and its position in the business environment to create tangible monetary value (Porter, 1985; Allee, 2008; McGrath, 2010 & Greve, Rowley & Shipilov, 2013).

A value network in the context of a supply chain is a complex intertwined connection of customers and suppliers that conduct an exchange or transfer of a service offering or unit of business to create value. This research will utilise value network analysis (Allee, 2008; McGrath 2010 and Greve, Rowley & Shipilov, 2013). Value Network Theory is a well researched and established business model which enables a firm to view the network of connections within and around its boundaries allowing the firm to better understand its capabilities. Porter, 1985 comments that capabilities can be described as the tangible and intangible assets that make up a firm's primary and secondary activities, when combined they can transform a business or service offering into a form of monetary value.

Opportunities for a firm are frequently found in the unknown or hidden under-valued use of intangibles. These can be described as human knowledge, ways of working, business relationships and reputation, among others (Allee, 2008). The discovery and conversion of these intangible assets to negotiable forms of value is the key to any business endeavour that may therefore realise greater

value for the firm. Value network analysis focuses attention on the use of the firm's capabilities or resources in its connections and the composition of those connections with the customer and supplier. It also allows the assessment of whether those connections or networks are creating monetary value.

1.3 Significance of Networks

A network is overall frameworks made up of components that link and interact and connect horizontally and vertically across an entire network. A network is made up of individual nodes that link via a myriad of connections singularly or collectively between and amongst the nodes. Each node performs a function but is better able to succeed with the help of its linkages to other nodes. It thus becomes semi-dependant on and upon by other nodes for the betterment outcomes.

When applying the concept of a network to business in general, or supply chains in the case of this study, a consensus has emerged amongst theory scholars that a network plays a central role in sustaining a company's competitive advantage and vitality in their industry (Lin *et al.*, 2010). Network structures present critical avenues for companies to utilise external resources and now play a very dynamic role in the interactions between companies. The science of networks highlights the dynamic nature of the connections and how they co-evolve and trigger further reactions between networks (Pathak *et al.*, 2007). Connections are complex and adaptive systems with units that are affected by their environment and changes within and outside of their environment at different levels and cross-sectors of the network. Looking at a network from a purely economic stance there are subtle and powerful interplays between and within networks. With the right incentives, a firm can capitalise on the positive linkages to create economic benefits (Surana *et al.*, 2005).

Networks have an ability to change, evolve and adapt to circumstances within and outside of their environment, especially when uncertainty arises or resources become scarce. Ties between companies can be affected by scarcity of resources and lead to the creation or deletion of ties or connections as companies seek to realign for competitive advantage or to continue in business. Patterns of business change but may be moderated by a firm's strategic direction. Such change has an effect on the surrounding network creating positive or negative consequences (Wycisk, McKelvey & Hulsman, 2008). This change fragments and re-organises connections in a network structure thus re-energising the flow of business.

By utilising the definition of a networks as a complex and adaptive units which interact with their environment (Choi *et al.*, 2002) we begin to understand the more co-ordinated approach to supply chain networks. Complex and adaptive systems or Complex Adaptive Systems Theory (CAS) when applied to network supply chains have similar traits in that they display elements of emergence, self-

organisation, they are dynamic and are constantly evolving (Surana *et al.*, 2005). When applying concepts of network theory and elements of complex adaptive systems, the study will be able to highlight the possible effects of new structural formations which could include new emerging collaborations, dynamic and quick moving alliances and new avenues of supply chain connections.

1.4 Significance of Resources and Capabilities

Today's business world has shifted from being complicated to complex. Resources and capabilities have taken on a new dimension with the emergence of computerised networking through the use of information technology. Complexity has always existed in life, it is a natural by product of human interaction but information technology has allowed complexity to speed up and at every level of society including business (Pathak *et al.*, 2007). This is reflected in business systems that used to be separate but complicated which are now becoming more connected to other businesses. By definition they are becoming more complex (McGrath, 2013). Applying the concept of complexity to supply chains could help explain the shift from more traditional pipeline value chains that firm's operated to bring goods to market, to the more complex and interconnected structures that are now in operation due the nature of connectivity (Choi *et al.*, 2001; Choi and Hong, 2002 and Pathak *et al.*, 2007).

Resources and capabilities play an important part in the decision making process when firms enter negotiations on whether to collaborate or form alliances. The larger more powerful firms reshaping New Zealand's supply chain have developed strong capabilities and connections to resources through their need to interact globally. The use and strength of those assets can determine their position in the relationship, optimising the opportunity to gain more power.

Firms consist of bundles of resources forming a structure that combines primary and supportive assets that when activated are the essence of how a firm operates and generates value to bring the unit of business or service offering to market. Each firm has its own unique group of resources which are causally related to the competitive advantage that a firm generates and differentiates it from competitors (Barney, 1991; Cui & Hertz, 2011). A firm can have strategic resources that are hard to copy which are said to be scarce. Clearly, these are valuable and are not likely to have substitutability. Further, these can be described as intangible as they involve people, knowledge and service. These types of resources grant a firm competitive advantage and when combined effectively, create organisational capability (Barney, 1991).

Capabilities, in the context of resources of a firm, refer to the firm's ability to organise, deploy and integrate the resources to create competency and a competitive edge. A capability is thought of as a firm's effective management of integrating and consolidating these resources across all departments.

These can be considered competencies when they become valuable and hard to copy (Barney, 1991; Ray, Barney & Muhanna, 2004). Capabilities and competence are linked in this idea of consolidation of resources as they are organisational processes and routines (Ray *et al*, 2004).

The significance of resources and capabilities are their ability, when managed effectively, to create competitive advantage for a firm and to elicit other forms of value when they are able to be transferred from an intangible asset to a tangible one. As business becomes more complex as a result of the social phenomena of networks derived from the advent of information technology, businesses now interconnect more completely, both vertically and horizontally. This integration and the desire of firms to be effective and efficient to better serve a customer, has triggered the development of firm's corporate and strategic objectives to include the resources and capabilities of other firms in their networks. Clearly, this serves to enhance business objectives in a more collaborative way.

1.5 Purpose of the Research

The formation of a new logistics partnership presents a major change to the New Zealand supply chain as one of the companies involved is the biggest exporter and user of the supply chain in New Zealand. Joining forces with another significant user of the chain will change the distribution landscape; in particular, this partnership alters the competitive landscape in the agribusiness industry with particular relevance in logistics. In response to this manoeuvre, another significant user of the New Zealand supply chain examined its own logistics structure to discover if there was a place to combine resources with the others noted above, or to determine if an alternative partner was available, or to restructure to better its own position.

Given this apparent instability, the purpose of the study was to collect data about and interpret the reaction of the company that did partner with the logistics company, the company that declined to join and other producers and exporters to the formation of the logistics company. The essence of the research was to discover who benefits from the strategic alliance and why, how this best serves customer's (whoever they may be) and to examine the centrality of the customer to the strategic decision making process. This paper has analysed the possible future effects on the New Zealand supply chain structure and highlighted any trends and forces that may appear.

1.6 Contributions of the Research

The contribution of the study is in its findings and recommendations concerning the changes to the industry, given the entry of a significant player in the market. The results form the bases of a guide for future positioning in the New Zealand supply chain (road, rail and sea) for other producers and

exporters. The study sought to answer whether there would be an effect on the New Zealand supply chain, how big that effect would be and how other users of the supply chain may contend this effect.

The literature review explores the nature of interactions within supply chain structures drawing from previous academic research and alternate philosophical view points. The data collection utilises a multiple disciplinary approach to understand the phenomena of the new alternate structured/synergistic network in the supply chain. The framework explores supply chain management concepts of value creation through networking, collaboration and relationships, power and dependency, trust and resources and capabilities. The framework is based on a model of value network and network interaction. This seeks to link all the elements of a firm's resources and capabilities to the successful management of a supply chain, highlighting the importance of these connections to corporate strategy and customer centricity. This framework brings the fundamental elements of the requirements of a successful supply chain for the future together. It also works to explain the phenomena of networks at play with the interactions involved. The model proposed offers the opportunity for further empirical studies in this area of research around the idea of new complex structures which reject the traditional models of firms, and introduces the idea of complexity and a more transient dynamic nature of business and the importance of the centrality of the customer.

This study utilises a multiple case study approach, which lends itself to probing and exploration of a contemporary phenomenon in a real life context. As the subject was not able to be controlled and lines are blurred due to the nature of interactions, the use of a multiple case study approach covering the logic of design, data collection techniques, and specific approaches to data analysis is able to give a more compelling and robust analysis (Yin, 2003).

Interviews were conducted with a number of key informants from across the New Zealand supply chain and logistics structure including other producers and exporters. A set of questions was developed to analyse and evaluate the information and interpret it for thesis presentation. The results are presented in a series of future scenarios that map the possible future states given a number of key variables that have shaped the decision making processes to date, which include resources, operational efficiencies, structures of networks and rewards.

1.7 Organisation of the Research

The research in this thesis is presented as follows. Chapter 2 discusses a review of literature from several academic disciplines to support and connect collaboration, relationships, power and dependency and value created by resources and capabilities. These disciplines relate to the phenomena of complexity of business in a modern supply chain management. The chapter also

develops the concepts between these disciplines and how they relate to theory and each other. Chapter 3 introduces the model and research design, detailing the method of the research and its relevance to the study, how data has been collected, interpreted and then analysed with respect to the proposed model. Results of the data analysis are presented in Chapter 5. Chapter 6 presents a discussion of the findings of the research and implications, and proposes possible topics for further study. Limitations of the research are also being presented.

Chapter 2

Literature Review

2.1 Introduction

The effective and sustainable management of the supply chain function and logistics is essential for corporate survival in today's global market. At a strategic level companies are beginning to understand the significant value added opportunities and cost savings available by examining their supply chain end to end, taking a more holistic and business-wide approach across the chain. The focus has shifted to serving the customer and to a demand driven chain, which is a departure from the traditional push supply chains. By being sensitive to customer needs, firms focus on aligning resources and energies for serving the customer. These "best value supply chains", which are customer focused and driven, are the chains that are most likely to prosper in today's competitive global landscape (Ketchen & Hult, 2006; Gattorna, 2006).

Given that change is inherent in the industry, it is of some importance to think strategically and with a focus on the future, when designing supply chains. This requires a strategically focussed open mind approach. A clearly designed strategy must exist to deliver profits for a business, but the strategy must be aligned in all areas of the business, internally and externally, for full implementation.

Acknowledging the significant developments presented in academic and business journals, but also civil society perceptions, corporate strategy in servicing the customer, can no longer be only of self interest; it must embrace a wider group of interested parties (government, special interest groups and society as a whole), including the customer (Fearne & Martinez, 2012). This involves a more holistic and sustainable approach in designing, organising and executing core competencies end to end whilst keeping a focus on customer centricity. The modern supply chain can be thought of as a connection of networks or web of relationships which interconnect in a complex, dynamic way. It is this complex web that creates interaction on a tangible and intangible level. The tangible level is the exchange of activities aligned with monetary value whether they are contractual or mandated activities for economic gain. Intangible activities are harder to see and are usually aligned to human relationships and the sharing of experience and knowledge (Allee, 2008).

In the modern environment, organisations face sophisticated global customers who demand increasing product variety, lower cost, better quality, and a faster response (Vonderembse *et al.*, 2005). From this global perspective business now transcends traditional company boundaries, locally, nationally and internationally, and it also transcends supply chain boundaries between companies in the same way. It is the crossing of these boundaries that has created a new level of

interaction. The nodes and links intertwine at all levels, but they also need to be monitored and managed for successful business relations and sustainable value creation.

In order to compete strategically and develop cost effective supply chain structures, organisations are facing the fact that they have to work closely with suppliers, customers and other participants in a supply chain to integrate logistical practices (Morash & Clinton, 1997; Lambert & Cooper, 2000). The supply chain of the future will rely on successful partnering with other users of a chain from a local to national and international level. It is this successful cooperative behaviour involving working with your suppliers, your customers, your competition and your complementors in business, a term now coined “co-opetition”, which will result in a truly strategic supply chain (Brandenburger & Nalebuff, 1996). Brandenburger & Nalebuff (1996) in their book “Co-opetition” describe the new idea of combining competition with cooperation by utilising game theory as a way to achieve win-win solutions and increase the size of the business pie available to those in business together. By creating a value-net as a schematic map they connect the players and show the interdependencies among them. They also show why it is so important in this new era of business to utilise this strategic concept. This more collaborative approach is now required to coordinate and adapt to the new concept that a “customer” can be any number of connections now necessary for getting a product to market, upstream or downstream, including the end consumer.

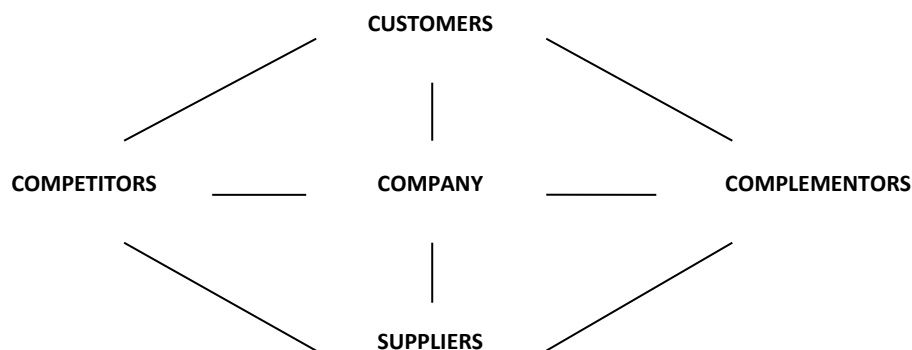


Figure 2.1 The Value Net, Brandenburger & Nalebuff (1996)

The purpose of this research is to present why and how value network analysis, network analysis and resource based view analysis are able to explain the business activity. Activity is created when the right combinations of relationships in supply chains, horizontally and vertically, intertwine and form value creating opportunities. It is this business activity, or core competence that forms, as a combination of people and resources are matched, apparently hidden until it is tapped. This new core competence between connections becomes a capability within a relationship which is hard to imitate and enables networks or firms on either side of the link to exploit the gains from the connection. It also enables firms to understand misalignment between the links and nodes connecting a supply chain horizontally and vertically.

A review of the current literature exposes the many facets of supply chain management. It addresses the important elements required for collaboration and relationship building for the sustained creation of value for the future of supply chain management. This research offers a framework that the researcher and future scholars can utilise and develop to analyse and explain the phenomena of value creation through network connections. The research offers tools to stimulate economic activity and remove barriers to create value between and through the myriad of connections.

2.2 Value Network Approach

The adoption of the value network approach to analyse supply chain management allows the idea of the dynamic interaction and exchange within the modern supply chain network to be more fully understood. Allee (2002) describes a value network as a set of roles and interactions that generate a specific kind of business, economic, or social good. Value Network Approach takes the business connecting roles performed within or outside of any type of business or social environment and separates them into tangible and intangible connections. It then links them to performance indicators that highlight whether they are creating value or not. The value created through this description of a supply chain is monetary, whether tangible or intangible. Depending on the business or strategic positioning, there are various models relating to value creation and value network which a firm can tailor to suit the requirements of the business (Stabell & Fjeldstad, 1998).

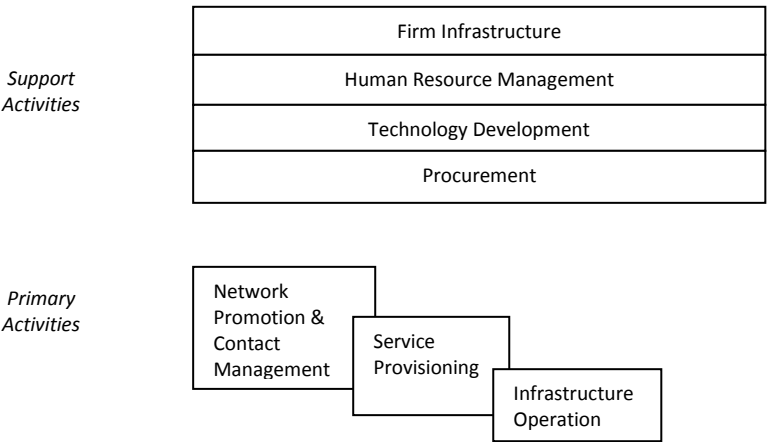


Figure 2.2 The Value Network, Baig & Akhtar, (2011) adapted from Porter (1985)

Value network modelling takes a more human centric approach to business activity and highlights how people come together to conduct business. All business is conducted by people for people, but supply chain studies in the past have not fully addressed the human element in regards to how value is created by this interaction. Supply chain management traditionally focused on pushing a product through a pipe line from manufacture to delivery to the end customer. This is carried out in the most cost effective and efficient way to the eventual satisfaction of the seller and buyer. This functional economic activity created value, derived from the connecting transactions. As Supply Chain Management research developed, the idea of a supply chain became much broader. This bigger

concept acknowledged and embraced the idea of a customer being any business connection, upstream or downstream, internal or external, who would be involved in bringing a product to market (Lambert *et al.*, 1998). This activity is now described as a “value chain” (Porter, 1985). Value network analysis recognises the hitherto missing element, human interaction, in the process of providing products, services and information, that leads to value for the customer (Lambert *et al.*, 1998, Madhani, 2012). Value is exchanged through the resources of a firm during transactions and deliverables; it is how the exchange connects with suppliers and customers.

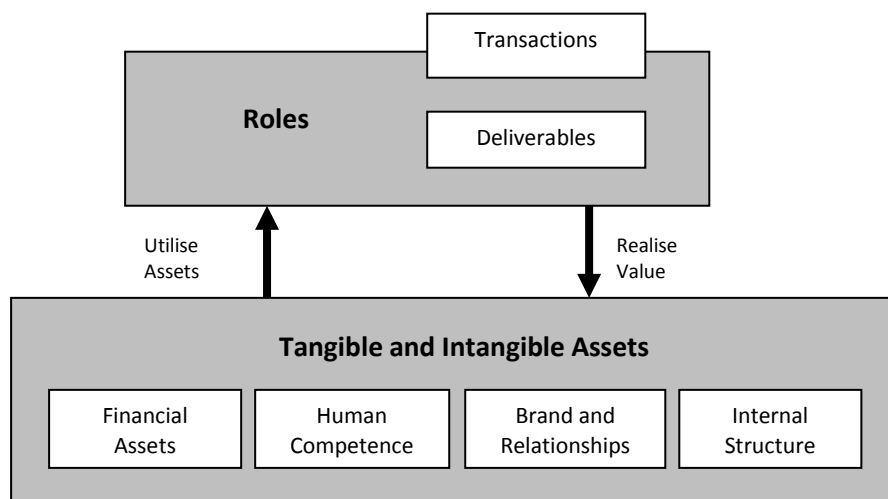


Figure 2.3 Value Conversion Model of Value Network Analysis. Source: Allee (2008)

There has been a shift in thinking from the traditional Porters (1985) value chain model. Porter thought of value as derived from products and competitive advantage. The concept now includes the understanding that value is derived from a network which enables exchange. Competitive advantage is gained when the network matches the needs of the group within the network (Fjeldstad & Ketels, 2006). Other researchers have developed models to explain the enhancement of value. The Netchain model is one such tool, which the authors have used to interpret supply chain network interactions with an emphasis on value creation and coordination mechanisms (Lazzarini, Chaddad & Cook, 2001). They discussed the tools available in network analysis, but concluded that it focused on horizontal connections and not on vertical connections.

They felt that applying the idea of supply chain analysis with its sequential chain type structure, then overlaying network analysis with its pooled and reciprocal interdependency structures highlighted the myriad of interdependencies. Sources of value stem from these three mechanisms combined in complex inter-organisational relations. They stop short of exploring the linkage between the nodes and developing their research further to explain what sorts of intangible assets create value along the linkages. For this study, the use of value network analysis coupled with network analysis took the research of Lazzarini *et al.*, (2001) a step further.

Economic activity in supply chains is an exchange of a service including title to goods, with the outcome being of monetary value. Traditional business has thought about economic exchange only in terms of goods, services, and revenue as the transactions of the value chain (Allee, 2002). Allee (2002) discusses business and enterprise from a living systems perspective. The network and the interactions produce patterns, some visible, some not. As companies come to realise that optimising value from these connections is sometimes hard to realise, they move from a functional focus to concentrating on a process which is better able to explain the social aspect of interaction. Gattorna (2006) also describes the modern supply chain as “living” and utilises a model built on dynamic alignment to meet the growing expectations of the customer. That model links the operational side of the business to changing customer demands, therefore allowing a company to quickly perceive and modify the fulfilment promise to their customer.

The use of value network analysis as part of a business strategy for value creation can be an effective tool to identify a firm’s undiscovered units of business or as an enhancement of the current offerings. A unit of business is described as “what is for sale” or a “choice of unit” for trading with another business for money (McGrath, 2010). By applying a value network model to the network of connections in place, a firm is able to discover if there are missed opportunities or redundant connections. The foundation of any business strategy is the creation of differentiation and the ability to maximise on the opportunity created by that advantage over competitors. To sustain this advantage a firm needs to identify what resource mix (tangible or intangible) creates the capability that is hard to copy and differentiates them in the market.

Capturing value and creating value in a supply chain now appears to call for a change in the way business units in a firm have traditionally operated. Business units have operated in a self-optimising and independent manner seeking to maximise returns. New literature suggests that a firm and its customer have an interdependent relationship, working with each other to create value (Vargo, 2007; Ertimur & Venkatesh, 2010). This interaction between the customer and supplier and the organisational functions is paramount to enhancing not just the idea of creating value but taking the next step of co-creating value (Matias & Lambert, 2001; Lambert & Garcia-Dastugue, 2006,). The idea of creating value has usually resided in business units like marketing, operating on the demand side of a firm. However, supply chain management now calls for cost reductions as well as revenue enhancement across the entire chain. This means that all business units, whether supply or demand focussed, now need to interact in order to add value to the chain.

To accomplish value creation, firms are beginning to understand the shared responsibility of all units across the business working with the customer. Cross-functional teams have been formed to manage the business relationships and interact with customers (Ryals & Knox, 2001). This

development has allowed a pathway for collaboration and relationship exchange between the supplier and customer which has deepened the understanding of customer needs on the supplier side. This understanding has enabled firms to better understand their customer's business requirements on several levels of business and opened up opportunities to create value in a win-win way for the collaborating actors. The inter-organisational exchange between the cross-functional teams and the customer can increase the capabilities for the partners in the relationship (Borys & Jemison, 1989). This can result in reduced costs, faster time to market, enhanced quality of products and greater productivity (Ellram & Edis, 1996; Ulaga, 2003; Fink *et al.*, 2006).

The co-creation of value in supply chains has necessitated further development of the governance of contractual relations. New financial models are now being developed to measure the value of business-to-business relationships (Matias & Lambert, 2001), justifying the linking of business units inter-organisationally. The new models form the basis of service contracts with upstream and downstream partners and are described in value network analysis as tangible assets.

2.2.1 Tangible Value

A value network can also be described as a "value conversion network" (Baig & Akhtar, 2011), a description which highlights the traditional idea of a value chain where monetary value is derived from a tangible exchange, normally in the sequential flow of goods along a chain. As goods move along the chain or transferred from one place or company to another, money is transferred from one business to another. Tangible value is monitored through what we traditionally call the value chain or business processes through contractual agreements. Money transfers from one company to another via the exchange of goods which is where value is converted along the network via a cost versus price structure. Tangible exchange is the formal structure or contractual connection which directly generates revenue. A tangible exchange is present in internal value networks, those inside a firm which are activity based between and within departments. It is also external, between organisations, business partners, investors, suppliers and across the traditional organisation boundary.

2.2.2 Intangible Value

Intangible value is more human-centric and is an essential element in regards to business operations. An intangible asset involves the hidden interaction between human knowledge, business relationships and the facilitation of business exchange efficiently and effectively by people in a network to add value to the transaction (Baig & Akhtar, 2001; Allee, 2009). As business networks begin to cross over organisational boundaries internally and externally, organisational performance now relies on the linkages to expand financial and non-financial asset realisation and how to convert

value in the process. There are now many studies by the likes of Fjeldstad & Ketels (2006); Allee (2008, 2009); Baig & Akhtar (2011) investigating how further value can be created by utilising and converting an intangible asset into a tangible asset capable of adding value in a revenue sense.

A good business operation takes the intangible asset, its people and their capabilities (support activities) and utilises them to add value or worth to a product or service (primary activity). The intangible asset is converted into a tangible asset, which is the income derived from the product or service. By utilising and strengthening the linkages or connections between primary and support activities a business is able to adapt its behaviour to what is a complex management phenomenon and take advantage of the opportunities that exist (Stacey, Griffen & Shaw, 2000; Barabasi, 2003).

2.2.3 Value Creation/Realisation

The need to increase value is challenging firms to move away from the strategic objective of creating entry barriers to competitors (Porter, 1980) to creating value as well as capturing value. Value creation can involve innovation that increases the consumers estimation of the benefit of a product (Priem, 2007 and Johannessen & Olsen, 2010). Value thus belongs on the demand side of supply. Supply chain management is in transition, as markets shift from being an industrial economy focus to a global knowledge economy focus. This transition has led to supply chain adaptation with firms restructuring to accommodate changes to market places, thus opening up innovative solutions to adapt and restructure to meet the new economy. Johannessen & Olsen (2007) state that we have to consider how today's connected and interconnected customers demand innovation and value creation, with their expectation of individualised feedback. This has led to radical new ways of organising and new cooperation based structures in the supply chain.

As noted earlier in this review, one of the traditional ways to evaluate and analyse supply chain business processes has been through value chain analysis. This type of analysis focuses on unit costs or the tangible assets which are relevant to performance measures. This form of analysis has its basis in a more formal operational industrial type of business analysis; Porter's (five-forces) competitive analysis framework (Porter, 1980). Value network analysis however focuses attention by breaking down all the aspects of firm's interactions through the lens of a network of linkages and how each linkage creates or detracts value for a firm.

Value network analysis is able to encompass the traditional idea of value chain analysis and its focus on unit costs or tangible assets. In addition, it also includes the intangible aspects of a firm's interaction with its customers. Recent studies (Stabell & Fjeldstad, 1998 and Allee, 2008) discuss how firms are able to leverage value, by deliberate intention through negotiation and transforming intangibles into deliverables, and how to measure the value that is created through this process.

2.3 Network Approach

There has been a lack of awareness, therefore research, on the role of networks in intercompany relationships. A network has the ability to grow or diminish, depending on the strength of the connections between members and how the connections are managed. There are also the impacts of external forces (Lin *et al.*, 2010). Research on dyadic connections has emphasised how networks evolve and what contributes to changes to these connections. However, there has been little investigation of vertical and horizontal connections, both in and between several networks. Researchers do appear to agree upon the importance of understanding the role that a network plays on intercompany relationships and how the network can be driven by environmental changes and company strategies (Pavlovich, 2003; Rudberg & Olhager, 2003 and Wycisk, McKelvey & Hulsmann, 2007).

A supply chain network can be a complex system; there are some identifiable elements to the science of complex adaptive systems (Wycisk *et al.*, 2007) thus linking it to the abundance of research on complexity theory. Wycisk *et al.*, (2007) compare complexity and supply chain management theories, finding similarities in how the logistics arrangements of supply chains mirror those of complex adaptive systems. This is also reiterated in the findings of other research work on networks in supply chains (Lambert *et al.*, 1998; Stacey *et al.*, and Bowersox *et al.*, 2002). Supply chains involve complex and multifaceted connections of processes and flows which need to be managed in a dynamic and flexible way to maximise results (Mentzer *et al.*, 2001, Choi & Hong, 2002). When viewed from a distance, the complexity of these chains begin to display clusters and nodes characteristic of complex systems. This interplay stimulates interaction and can enact change.

Change can be forced, created or in reaction to the behaviour of other network players or actors. The changes provide an opportunity for an actor to reposition themselves within the network from the formation of new alliances. For example, they could become more central, a hub of the spoke, within their network (Soda, 2011). This repositioning can have implications for innovation as the actor becomes the driver and re-connects externally to extract the use of otherwise untapped resources and capabilities, adopting a position of centrality. For other actors, it could mean more distance from the central hub and a loss of information flow and connectivity. This can however, have positive as well as negative consequences, as being at a distance enables an actor to form new associations or ties and a valuable stream of business.

2.3.1 Network Properties

As supply chains have become more complex, with dense and interwoven connections, it has become more important for firms to understand the structure of the network it is dealing with and

how it relates to business performance. Network theory examines the structure through position, density and tie connections (Pavlovich, 2003). The element of position identifies where a firm fits within the network. Centrality, the degree to which a business is positioned in or near the centre of a network, affords power and facilitates the use of that power between connections. The second element, density of connections, has a two-fold effect; first, a dense network allows quick dissemination of information but the second effect is less autonomy. The level of density is related to the degree of leverage a business has over others. In a less dense network, the opposite to a dense networks occurs, there is more freedom but reduced access to critical information. The third element, that of tie connections also takes two forms, weak and strong ties. A weak tie is a linkage within a network that reaches out past a firms traditional boundary and allows a company to bring in new information. A strong tie is the traditional network connection that exists between cohesive and structurally equivalent networks with frequent contact. It is the combination and strength or weakness of these elements that form the basis of collaboration in supply chains to enable value creation.

Albert-Laszlo Barabasi, in his book *Linked* (2003), describes the phenomena of clustering and nodes which enable connections between people or social situations. When a collection of nodes, where all members are known to each other and directly linked, is sufficiently large enough, a cluster is formed. Within this cluster, however, there will likely be one node with an indirect connection to another distant node in another cluster unknown to the other nodes in the initial cluster. This is described as a short direct link or connection, or a “small world” connection. In real life situations this allows quick movement through networks and is utilised unknowingly by many firms to conduct business (Watts & Strogatz, 1998).

Network analysis allows us to begin to understand the complex system of connections and thus understand how value in network connections is created. The structure of relationship collaboration is one of the ways that, through networks, that enables value. By adopting a network strategy linking traditional business units and utilising a teamwork approach, business units can take a more holistic approach to identify and enhance innovation and value, both internally and between firms.

Firms should understand that the internal business network must be connected to customer services to be effective. This access to the contractual basis for collaboration, as well as a detailed understanding of the respective companies overarching strategic goals and reasons for partnering, allows clarity and direction. In this way companies can move toward developing a customer focused strategy which will create superior customer value and change the role and power of relationships in the supply chain (Slater, 1997; Jaworski *et al.*, 2000).

The network approach outlined in the model (presented in Figure 2.4) introduces the idea of direct and indirect connections. It also represents relationships as intertwined, not just sequential linkages, suggested by the traditional view of a supply chain.

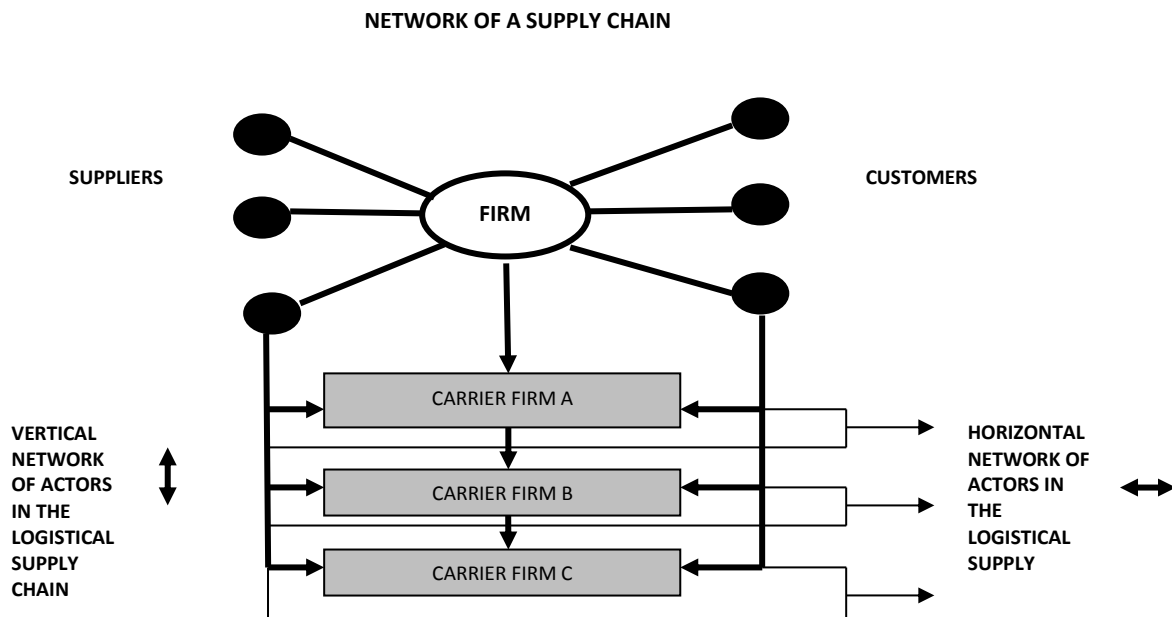


Figure 2.4 Firms Supply Chain Network of Interaction. Adapted from: Lianguang & Hertz (2001)

2.3.2 Power and Dependency

In the contexts of collaboration and relationships between actors involved in a supply chain, the discussion of power and dependency draws on different theories. These include power and dependency theory, relational exchange theory and resource dependency theory (Hunt & Nevin, 1974; Molm, 1997; Rokkan & Haugland, 2002; Ireland and Webb, 2006). Research has progressed in this area as the concept of Supply Chain Management (SCM) has developed. Collaboration between actors has become strategic in order to maximise the potential benefits of competitive advantage that may result from the formation of these relationships.

However, to be sustainable, the relationship has to be based on both stability and flexibility which could maximise the strengths that each actor brings to the table. Firms that become strategically, operationally and technologically integrated (Hult *et al.*, 2004) can be more firmly committed to supply chain efficiency and effectiveness (Ireland & Webb, 2006). The balance of power and dependency can have an impact on the quality of a relationship and the use of coercive and non-coercive forms of power are evident in supply chain relationships (Williams & Moore, 2007). It is important at this stage to acknowledge trust when aligned with power, see Section 2.3.3. Actors entering strategic supply chain partnerships need to resolve their differences. Divisive issues can be resolved and solutions incorporated into contractual arrangements. Such issues might include views

on resources, market share, expertise and skills, assets and investments and opportunistic behaviours. Resolution of these might enhance the development of higher levels of trust in the relationship. Deciding on whom, the why and the how in the relationship, allows each actor to operate effectively. Ideally, this would maximise the competitive advantage created from the formation of the partnership, for the good of all. As has been described in the literature review on network analysis, power and dependency do play a part in the success of network connections. If a stronger firm took a central position it could lead it to alter its position within the network and therefore the relationship.

Power in relationships is not normally found to be equal. As a consequence, the element of dependency comes into play. Dahl (1957) argued that power is created because of a scarcity of a resource. This can motivate others to do things they would not normally do, and can therefore be used to evoke desired change (Emerson, 1962). Power can be described as of five types: reward, coercive, expert, referent and legitimate (French & Raven, 1959). All five have elements of dependency to them. When exercised in a relational form between actors in a supply chain and if acknowledged and agreed upon, these power differentials can be positive for the partnership.

As collaboration, in the form of relationships has developed, the use of power in a more negative subversive way has dissipated. It has been brought out into the open with the introduction of open contractual relational governance (Keller, 2002) which better suits the more open interorganisational integration required for value creation. Power, however, is still applied in certain situations and dependent on the culture of the organisation. For various reasons this will have an impact on the quality of the relationship between the two collaborators (Williams & Moore, 2007). Firms in network connections, which also act like hub firms in a network, do take a central position within the network and are able to assert power on their connections. This hub-like structure appears to be characteristic of networks and can be described as a naturally occurring phenomenon in a complex adaptive system. The supply chain network is arguably one such system.

2.3.3 Relational Commitment

The formation of relationships in supply chains stems from a necessary interdependency. Clearly members of a chain influence the network in which they operate. They also influence each other. There have been many studies (Thibaut & Kelley, 1959; Kelley, 1979; Croxten *et al*, 2002; Boyer & Hult, 2005) that have looked at the way organisations and individuals influence each other and how they interact to obtain desired outcomes. The function of a relationship in a supply chain is to bring together elements required for value creation, linking activities together in a harmonious way (Anderson *et al*, 1994). These relationships bring together actors, activities and resources, which

could be described as the business' functional units. The chain's activities would be focussed on aligning them via the relationship to create improved efficiencies.

There are significant opportunities in collaborative relationships, through this alignment of activities, to create competitive advantages and therefore significant positive results (Hewitt, Money & Sharma, 2002). Elements associated with successful relationships are numerous. These will vary, depending on the type of relationship, from arm's length to vertical integration (Morgan & Hunt, 1994; Wilson, 1995; Lambert *et al*, 1996 and 1999; Barnes, 2001). They can be categorised as the attachment to a relationship, dependence, reciprocity, trust, satisfactory previous outcomes, communication, investment, opportunistic behaviour and reputation (Barnes, 2001).

The key to a successful relationship between actors in a chain is the achievement of effective integration of the business functions and of the channel members. This integration is necessary for processes to become aligned and thus achieve overall system objectives (Sahin & Robinson, 2002; Manuj & Sahin, 2009). The result is a complex and multifaceted connection of processes and flows. These need to be managed in a dynamic and flexible way to maximise results (Mentzer *et al*, 2001; Choi & Hong, 2002). Such management is dependent on the number of actors, facilities available, transportation links, flow of information and products involved, among other influences. Collaboration can occur without a deep relationship. However, the more complex the supply chain, the higher degree of internal, external and interactive behaviour is required to deal with the complexity of the chain. These coordinated behaviours are this way so as to not allow the complexity to become a barrier to agility and interfere with the purpose of collaboration (Christopher, 2000).

When developing a relationship with another actor in a chain, it is important to understand what type of relationship is required. This in turn determines the partnering step process required for each party to achieve their own desired value creation as well as the combined created value of the partnership (Sahin & Robinson, 2002). Collaborating in this way is hard work and requires supportive processes and practices and a systemised approach to eliminating barriers to successful relations (Richey *et al.*, 2010). Alignment of values, cultures and organisational functions into common goals should be a priority. There should be clear performance evaluation procedures; to help guide the relationship towards a long and successful partnership. Developing relational commitment is a priority in fostering a network that stimulates business activity and enables the creation of value (Lambert *et al.*, 1996; Naud & Buttle, 2000).

2.3.4 Trust and Collaboration

It appears that trust and commitment to collaboration in a relationship are paramount to success. It is unlikely that the partnership will endure without mutual commitment and a focus on the long-term status of the relationship. Trust has been defined as reliance on, and confidence in, another party (Knemeyer & Murphy, 2005). Trust can be described as a behavioural attitude. It is developed over time with consistent effort but also carries an element of risk. To open and share requires risking information, and risk can become a resisting force if trust is not consistently worked on. To dispel any lack of trust at different levels of partnering companies, channels of communication must be established to promote information sharing. This enables better senior-level interaction and sharing of technical expertise, which flows down and across the borderlines of each company. Creating alignment through establishing teams of people from each company also helps to develop trust and openness. Team work develops functional interdependency, which is likely to minimise resistance to cooperation. As each company begins to work towards common goals by sharing information and working in teams on issues and projects, trust in the expertise and sincerity of each company to the long-term goals of the relationship are brought to the fore.

There are many broad definitions of collaboration in supply chains (Singh & Power, 2009). Togar & Sridharan (2002) describe it as two or more chain members that work together to create a competitive advantage through sharing information. They make joint decisions, and share benefits as a result of the greater profitability gained by satisfying end-customer needs. Acting together, instead of alone, generates mutual benefits. However, there are different levels of collaboration (Spekman *et al.*, 1998), suggesting that relationships begin with cooperation, evolve to coordination, then moving into collaboration. Each phase is likely to have a different level of trust and commitment. Golicic *et al.* (2003) suggested that collaboration could be a higher magnitude (of relationship) between or among firms, while coordination and cooperation are lower levels of relationship magnitude. Collaboration can be said to be involved in many relationship type agreements. These include partnerships, alliances, outsourcing agreements and market agreements.

2.3.5 Organisational Culture

Organisational culture plays a significant part in the partnering of companies within and across firms (Anderson & Coughlan, 1978, Stock, 1996)). Elements that are required for successful relationships vary with each situation. The many literature papers on this subject focus on the alignment of the following attributes as inherent in each partnering firm which when explored form part of the culture:-

1. Attachment or a willingness to be close to the partnering relationship.

2. Broad and deep communication skills and the sharing of timely and meaningful information.
3. Achievement of goals by benefiting greater from being in the partnership than working alone.
4. Sharing of resources or investing in the relationship to achieve knowledge and capability enhancement (Borys & Jemison, 1989).
5. Elimination of opportunistic behaviour by operating in the relationship appropriately without misappropriation or broken promises on service delivery.
6. Reciprocity is an important element as what each party does for the other in the relationship, in the way of sharing resources and exchange of information helps to develop trust (Elram & Edis, 1996; Enz & Lambert, 2001).
7. Reliable and consistent behaviour and performance adds to the requirement of reputation as being an important element of partnering.
8. Concern for the betterment of the relationship by consistently performing in a business sense so as to deepen the credibility of the relationship in the business arena is seen as a satisfactory prior outcome element (Fink *et al.*, 2006; Fawcett *et al.*, 2010).

2.4 Resource Based Approach

Resources of a firm are linked to the internal process of operations and relationships, they are understood to be the characteristics of the firm and have an effect on how it performs (Yazdanparast, Manuj & Swartz, 2010). These characteristics are displayed in the level of expertise within the employees, how they communicate and collaborate with each other and outside of the firm. The collection of knowledge, use of software technology, systems and general cohesion within a firm are hard to replicate and form the firm's character. They play an important role in helping a firm to structure organisational capabilities to help create value. The importance of a firm's resources was first recognised by Edith Penrose (1959) as a means for achieving a firm's competitive position. Her paper emphasised that to contribute to a competitive position resources would need to be exploited in such a way that the valuable services were made available to the firm (Chee & Noorliza, 2010).

Further to this research two fundamental assumptions were put forward by Barney (1991) that resources and capabilities are heterogeneously distributed among firms and resources imperfectly mobile. It is the utilisation of the different resources available to a firm that over time create differences in performance. The resource based view approach alludes to the tangible and intangible assets of a firm and the utilisation of those assets to create value. By applying value creation analysis

and the connection and interplay of the assets in a network theory way, the competitive positioning that Penrose (1959) and Barney (1991) discussed can be clearly seen now as the previous hidden and hard to understand mechanism that formed competitive advantage. The science of nature at work by way of complex adaptive systems brought to light the interplay or energy between the linkages that form a network and when aligned explain the creation of value.

2.4.1 Resources and Capabilities of a Firm

It is difficult to provide a precise definition of “resource” for a firm. Whilst many specific examples can be provided (i.e. “personnel”), resources broadly fall into support and primary services or assets that constitute the structure of a firm (Wernerfelt, 1984). Each firm is different but will possess a combination of resources or capabilities that can be utilised to the benefit of the firm. Resources are thus organisational characteristics such as human, financial and technological assets that enable a firm to implement value creating strategies. When firms organise these to work together they create competitive advantage (Yazdanparast *et al.*, 2010). Capability comes from the firm’s ability to organise and piece together their resources to maximise their efficacy or create value. A resource based theoretical assumption is that competitive advantage is created when a firm implements a value-creating strategy that is not matched by a competitor. This is done utilising the resources of the firm to create capabilities that are hard to imitate (Wernerfelt, 1984; Barney, 1991). Such capabilities can be based on complex (internal) social phenomena. These might include relations among managers and employees, the culture of a firm, its reputation and its relationship with customers. This internal creation of value may thus be difficult for other firms to replicate.

2.4.2 Strategic Resources

Strategic resources are described as firm-specific. These are valuable, scarce, and hard to imitate or substitute (Barney, 1991). It is the capacity of a firm to carry out a specific task using its capabilities to create a competitive advantage; these are developed over time (Grant, 1991). Capabilities emerge from routines which a firm establishes as a working tool to enable the creation of value. Strategic resources are also thought of as core capabilities which are specific to a firm’s strategy that can span a variety of markets (Liang & Hertz, 2011). These core capabilities enable a firm to create new capabilities and further diversify into new markets. This happens when a firm is able to assess and define business direction from the strength of its success in existing markets. When applying the resource-based approach and considering strategic resources for supply chain management, it becomes apparent that the choice of partner and the quality of the linkages in a network are paramount to successful value creation. By joining with a firm in a relationship that enhances the resource utilisations of both, a competitive advantage can emerge. This type of relationship between

firms would be hard for another firm to replicate because of the nature of the relationship collaboration of the firms.

2.5 Chapter Summary

The volumes of research which focus on the study of supply chain management is vast. This includes mature chains and newly formed structures including positive and negative aspects of management. As much of this body is multi-disciplinary it is difficult to focus on a particular aspect of the chain, such as the mechanics of operation. The other aspect of difficulty is what is not able to be seen, what the barriers to successful supply chain cooperation are in newly formed structures. For all the positive sides of collaboration and cooperation there are also negatives if the right balance is not struck. Until there is maturity and depth within new structures in supply chains, it is difficult to establish what aspect of the elements that enhance relationship coordination are out of balance. However, for this literature review the focus of interest was narrowed to the concept of value network analysis, network analysis and the resource-based view. The three are proposed as the vehicle to explore tangible and intangible effects, value creation, trust and collaboration, relationships, power and dependency, which serve as the framework for the case study and lead to the development of a methodological approach.

Chapter 3

Research Design and Method

3.1 Introduction – Research Direction

This chapter outlines the reasons for the research, the research questions and hypotheses. The conceptual model is introduced which has been based on the literature review and will be used to answer the research questions. The research design is described along with a sample plan and the procedure for data collection. The chapter will close with a description of the process for analysing the data. Ethical consideration was applied to the research as per guidelines. This study did not involve interviewing respondents about their personal behaviour, it asked for their considered opinion of an independent world situation related to their field of expertise. As the area of study is also within a professional field known by the researcher it was agreed that this study did not require ethical clearance.

The literature review in the previous chapter discusses the interaction of a firm with suppliers and customers and thus the linkages or connections horizontally and vertically. Utilising value network analysis and network analysis as a base, along with the resource based view of a firm the review discusses how the network can create value and how the interaction of the linkages has the potential to unlock value. From a value network point of view, many interactions are thought of as intangible. These include human knowledge, reputation, and ways of working and business relationships for example. Though of some importance, it is difficult for a company to convert intangible assets into some form of monetary value (Allee, 2008). The value network approach discusses how firms, through converting an intangible asset to a tangible asset, can create a negotiable form of value. This value can then be utilised in their relationship exchanges along with tangible assets such as services, contracts, invoices and payments.

Traditionally, supply chains and networks have been treated as two different areas in the study of inter-organisational collaboration and creation of value. Companies are now operating in a more global arena, interacting with their upstream and downstream supply chains to maximise competitive advantage (Ireland & Webb, 2007). In order to maximise the competitive advantages and associated benefits (reduced costs, improved delivery, and enhanced customer service for example) companies have to connect at multiple levels on intra- and inter-organisational levels.

There are benefits, but there are also barriers to this interaction. However, it is this interaction that creates networks for the company, internally and externally, which requires prudent management for effective collaboration and value creation. The conceptual models proposed for this study

emphasise the concepts of value network analysis and a resource based approach. The study takes a combined approach to the analysis of supply chains and networks to look at how value may be unlocked (see Appendix 1). The concept of value network analysis is suitable for explaining the myriad of connections horizontally and vertically and the way in which these connections can create value. The combined concepts will be used to analyse the findings and support the research questions.

The research attempts to address the question of the affect of the formation of alternate structured/synergistic logistics networks on supply chains from a New Zealand perspective and what those effects may be. By applying a framework that addresses the structure and forms of relational exchanges within a network, the research can then explore and analyse the effects on the New Zealand supply chain and users of the chain. Any network involves parties collaborating and forming a relationship to achieve a desired outcome. There are, however, factors that work for and against relational exchange. Fawcett *et al.*, (2008) comment that knowing and understanding how, when, and why some supply chains succeed while others do not would be of interest to the managers of supply chains as they face the daily challenge of making a supply chain strategy a reality.

3.2 Conceptual Model Design and Description – Value Network Analysis

Value network analysis is applied in this research to explain the strategic development of an alternate solution to a firm's misalignment with its corporate strategy. By utilising the core competencies available and reaching out along network connections, a company can address the issue confronting its supply chain mechanism and how these affect the composition of its competitive position. Value network analysis is a tool that highlights linkages between nodes and how effective they are. It could also highlight missed links and therefore lost opportunities. The value network approach models the transactions and the available network connections which have strong implications for value creation and business strategy. It is an ideal tool for examining strategic positioning and gaining an understanding of value creation dynamics (Fjeldstad & Ketels, 2006). When a value network model and value conversion model are applied to the conceptual models of our case study supply chains, the dynamics of the business activity or the creation of core competencies unique to the linkage of the collaborating parties becomes apparent. It is this linkage between the collaborating parties, when the intangible assets are developed, that form the basis of true collaboration and that creates value.

3.3 Conceptual Model Design and Description – Network Analysis

This research also utilises the concept model of network analysis (Johanson & Mattsson, 1992) which was developed as a better approach to supply chain management and the creating linkages between

process activities and resources. The network approach recognises interdependencies which are involved in inter-organisational collaboration horizontally and vertically and which also unlock value through the activation of processes. Selviaridis & Spring (2007) suggest that the network approach better explains the different types of interdependencies and their sources of value and coordinated mechanisms, which enables the mapping of the activities and tracking over time.

Central to the network approach are three variables: actors, activities, and resources (Hakansson & Johanson, 2002). When the interconnections of the three variables are built on collaboration, trust and sharing of information then a more social interaction can be observed. A network change is brought about by this exchange (Axelsson & Easton, 1992). From this an intangible connection could be converted to a calculable monetary form and become a tangible connection thus unlocking value.

Conceptual Model

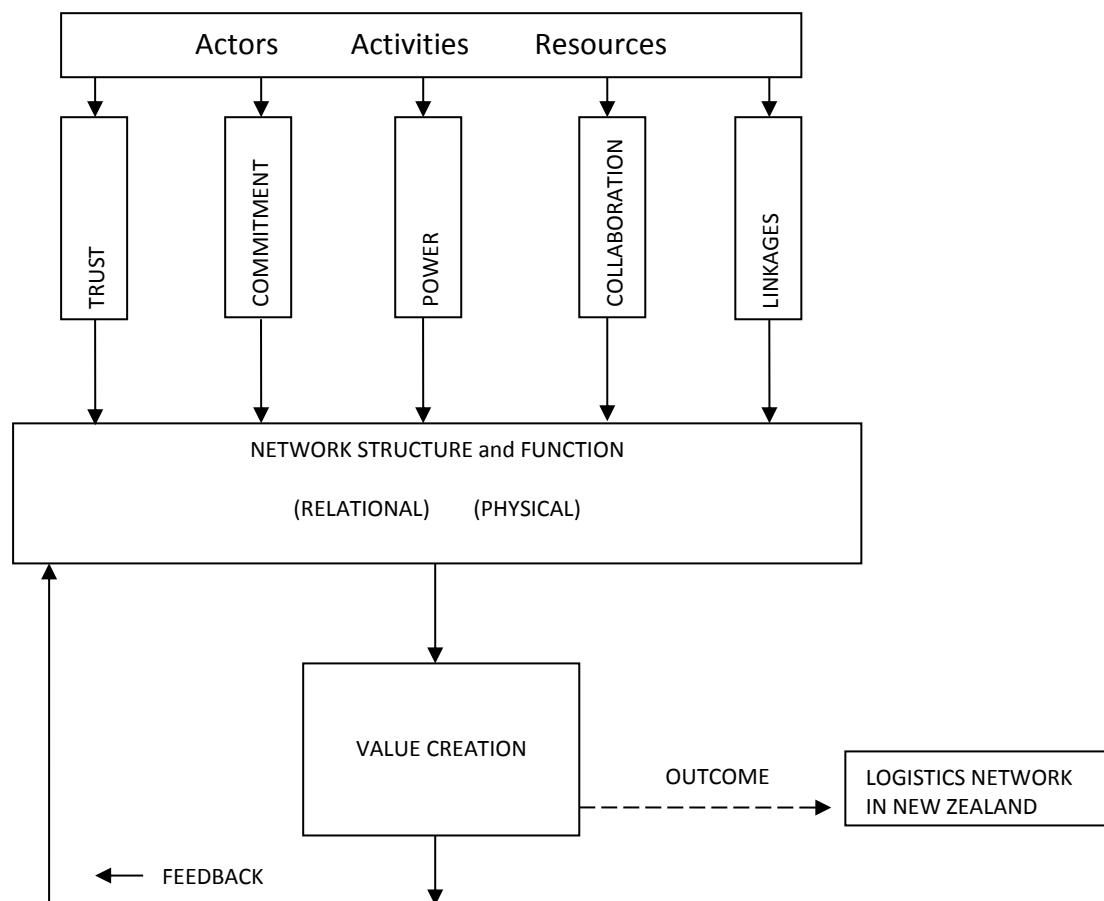


Figure 3.1 Conceptual Model

To support the network model, the research will explore how value is unlocked in a network situation from the utilisation of the resources (a resource-based approach to viewing the firm) that are connected to relational exchange. By applying the concept of value network analysis, supported by network and resource-based analysis, the research is able to explore new thinking in regards to organisations and business relations. Allee, (2008) comments that value network analysis links

specific interactions within the value creating network directly to financial and non-financial scorecards. It does this by providing a new perspective on tangible and intangible relational exchanges and how value can be realised through these exchanges.

3.4 General Research Questions

This research investigated the effect of the formation of alternate structured/synergistic logistics networks on supply chains, from a New Zealand perspective. The research explored if power imbalances and dependencies had an effect on the network. What the impact of relational commitment, trust, information exchange, barriers had within the network exchange. Finally, the realisation of value, any strategies that may have been employed and value propositions that may have come to light.

In particular the research attempted to answer the following questions:

1. What is the effect of power imbalances/dependencies within a logistics network in terms of:
 - a. Its ability to change the network structure internally and externally
 - b. Achieving competitive advantage over competing logistics networks
2. What is the impact of relational commitment within a logistics network in terms of:
 - a. Its ability to change the network structure internally and externally
 - b. Delivering performance improvements within the network
3. What strategies are employed within the logistics network to achieve:
 - a. Co-opetition
 - b. Creating barriers to entry to other logistics networks
 - c. Members entering and exiting the logistics network
4. What is the value proposition of proposed logistics networks in terms of:
 - a. Sharing costs and benefits within the network
 - b. Risk mitigation to the members of the logistics network
 - c. Value to the end customer

3.5 Hypotheses Development

Four hypotheses were developed for this research. Testing the hypotheses aims to answer the research question of the effect to supply chains of the formation of alternate structured/synergistic logistics networks and how great those effects would be.

This Thesis proposed to ascertain the level of perceived or actual power in a partnership. Based on activities linked to the strategic objectives of the firms involved, the work sought to understand the influence they exerted on their supply chain. Channel leadership is an important part of the value chain concept and enables a firm to hold a more powerful position. This power is useful in guiding strategic decisions, with the objective of controlling parts of the channel operations. This type of channel power can also be attributed to the size of the hub firm. A firm that is able to steer the partnership in areas of network connectivity and competitive positioning for value capture or creation is able to exert their perspective of business operations and directions on other partners. They are, therefore able to change the behaviour of the partners, forcing them to acquiesce to the new business structure. Questions relating to the elements (see Appendix 3) were asked of each actor in the chain to guide the research toward understanding the levels of power and leadership exercised, and to determine by whom, in each supply chain.

H₁: *Higher levels of power asymmetries lead to higher levels of leadership by the dominant player amongst members of a supply chain network.*

Relational commitment in the context of supply chains involves the depth of the sharing and exchange of tangible and intangible assets to create improved efficiencies and create value. In the bringing together of elements required for value creation, a harmonious connection of interdependencies is required for success. Relationships bring together actors, activities and resources which form the business functions of a firm; it is the attempt to align these elements that brings improved efficiency. Elements associated with successful partnerships are numerous and vary depending on the type of relationship. This can be arm's length or by vertical integration, but mainly these relationships can be described as attachments to a relationship that display dependence, reciprocity, trust, communication, investment and reputation. The research, by way of the questions utilising elements that support successful relationships, attempted to confirm the proposed hypothesis that higher levels of relational commitment lead to higher levels of performance in supply chains.

H₂: *Higher levels of relational commitment lead to higher levels of performance levels within a supply relationship network.*

Strategic objectives form the basis of business direction and goals for a firm to pursue. From a contemporary supply chain perspective the business environment of a firm can be said to be dynamic, requiring flexibility and connectivity. Current trends emphasise shorter product life cycles, mass customisation and increasing pressure from competitors. The need for a firm to quickly assess a market and change business direction requires an understanding of the objectives and goals of partners within a supply chain. Partnerships require open information sharing and a common view of what is to be accomplished in a partnership. It is the strength of the combined assets and an understanding of the strategic objectives of partners that enhances value creation and effectiveness within the partnership, creating a competitive advantage. Without this combined effort each party is acting alone with only the resources of their firm available to perform business. An alignment of firms with a shared strategic objective, clearly defined and measurable, outlining what each party will bring to the partnership will strengthen its position in the market place. This enhanced strength from combined resources allows a firm to develop a working relationship that effectively blocks or creates a barrier to entry for other actors within that sphere of business. Misalignment opens up an area of business opportunity for other actors who will exploit the weakness to create a business presence and therefore access to the markets and customers of an unsuccessful partnership. This research explored the hypothesis that misalignment of strategic objectives would have a negative effect on barriers of entry for other actors. Assessing the level of understanding and commitment by partners to value creation by way of their network connections and level of partnership structure, the research looked to answer the hypotheses.

H₃: *A misaligned goal between members in a supply network has a negative effect on entry barriers allowing other supply networks to compete.*

Value propositions, when defined and agreed between partners, create a stable footing for the partnership. They form part of the business contractual relationship and help guide the partnership in the way it conducts business between the firms and with external connections. By working towards the same goals and aspirations in a strategic sense, firms in a partnership are able to share knowledge and information that help build trust and collaboration. The communication flow that develops from this type of collaboration enables discussion to solve business issues that enable lowering of costs which bring benefits to the partnership. As more successes are created the flow-on effect to the combined firms becomes evident in a tangible, monetary way when linked back to the measurable and agreed upon, defined goals of the partnership at all levels of the business.

H₄: *An agreed upon ,defined list of the value propositions available to members of supply networks has a positive effect on lowering costs and increasing value for the end customer.*

3.6 Research Method Selection

When selecting a research method, Yin, (2003) suggested that it should be based on the type of questions to be answered. The nature of the study, as reflected in the research material, also dictates the choice of method to apply. The right choice of method will guide the researcher to move from an abstract concept or proposition to forming empirical variables and hypotheses which can then be tested and verified to be true or false. The final goal of research is to test the fact or theories presented, through the chosen method and present a conclusion to the reader.

3.6.1 Qualitative Method

A qualitative methodological approach to this study was the appropriate choice for exploring a complex phenomenon of inter and intra-firm relationships. In order to establish a balance between practical and theoretical understanding, a qualitative approach from an inductive view has been taken in the first instance. This addresses the complex phenomena described by Eisenhardt (1989) and Yin (2003) as the best method to approach a real life study. Nevertheless, further studies by Carters and Rodgers (2008) suggest that qualitative research can lead to both inductive and deductive theory testing. They further suggest that a collection of two or more interrelated propositions which explain an event or provide understanding, or even suggest testable hypotheses, would be sufficient to form a conceptual framework which can be established in the literature review.

This research explored the affects of changes to the New Zealand supply chain with industry participants by way of open ended “why” and “how” set of questions. From an inductive stance, this enabled the investigation of any other insights that could have been offered during the interview process. Inductive questioning in this instance, being the logical process of establishing a proposition from the observation of facts pertaining to the study in general, form the majority of the study. The study looked at primary data sources which included the initial conversations with participants which were recorded, industry journal articles and news articles. All the sources of data have been triangulated on the same set of research questions to provide reliability and robustness to the study.

3.6.2 Case Study Method

The research method chosen for this study is the multiple case study approach. Building theory from case study research is a tried and tested approach with which to explore a phenomenon when little is known about the subject and there is no previous empirical research to rely on (Eisenhardt, 1989). These are characteristic of the present research context.

Like most case studies, this one took a holistic approach to investigating a particular phenomenon, enabling the researcher to look at the entire picture and observe behaviour without being confined. Important variables that affect the behaviour of interest can be observed over time which enriches the study and the eventual outcomes (Eisenhardt, 1989; Lindgreen, 2001; Yin, 2003).

A multiple case study was chosen as it allows for the comparison of different results amongst the parties being studied. Patterns can be determined, which makes for a more robust study, especially if the evidence suggests a similar outcome. Yin (2003) further suggests that a case study approach is the most appropriate for exploratory research as it involves “how” and “why” questions which are open ended and allow the study to move fluidly. For this particular study, the effects on the New Zealand supply chain of alternate structured/synergistic logistic networks can be many and of varying degrees.

3.7 Case Study Design and Protocol

Reliability of the research is important for the robustness of the findings and the requirement to be faithful to the nature of true academic research (Yin, 2003). This study will follow the protocol outlined by Ellram (1996), which enabled the investigation to focus on the research questions when collecting data.

3.7.1 Unit of Analysis

A clear specification of the unit of analysis enables the researcher to focus on what the case study is about (Yin, 2003). Eisenhardt (1989) and Yin (2003) approach the unit of analysis from either the inductive or deductive approach respectively. Eisenhardt (1989) suggested that a well-defined construct should be used and that all evidence from the various sources should be filtered through the construct. This approach was taken from the view that the research evidence would then guide the eventual outcome or formation of hypotheses which could then be tested at a later date. Yin (2003) approaches the unit of analysis from the premise of the case study having already been established and the possible outcome or set of hypotheses already in mind. The evidence is then tested against the hypotheses, which suggests a deductive approach.

For this research, it was hard to establish if the actual logistics companies that had been formed or the associated parent companies had or would cause an effect. If they have or did cause an effect to the logistic networks, they would become part of the analysis. The research approached the study with this in mind so that the research evidence and findings could be subjected to an inductive method. This lead into a set of hypotheses formed at the end of the research to be tested as new supply chain formations took shape.

Construct Validity

Of importance to the study was the requirement for construct validity. Valid constructs establish the framework for measurement of the phenomena of focus in the study. Yin (2003) and Eisenhardt (1989) both extol the same method, though from different starting points, both stating that a clear definition of constructs and their measures are required. This depends on the examining of multiple sources of evidence in order that a chain of evidence can be established.

This was achieved by meeting and interviewing across the sector of providers and users of the New Zealand supply chain. Initially, general conversations and observations were made within the industry to form the basis of the research, concluding in planned research based interviews to a targeted group of qualified informants.

Internal Validity

In the deductive situation it is hard to establish if internal validity of a construct can determine causal relationships between constructs. The nature of deductive theory, starting out with pre-determined hypotheses, does not allow for other variables that emerge to be tested as to their effect. Inductive theory enables the researcher to be open with evidence and examine all the variables that emerge to establish a pattern or hypotheses from the information. It became evident during the study that many variables were emerging which did not immediately make sense or appear to connect with each other. The research suited an inductive enquiry because of these emerging differing levels of variables.

External Validity

External validity concerns the accuracy of a study and how it can be generalised to the larger population. If the study framework and concept can be replicated several times over researching similar phenomena or in another industry, then the research can claim to have strong external validity. This might then form a base for other researchers to replicate. Supply chains and networks are found in all areas of business, each displaying different levels of the constructs utilised by businesses to attain value creation. The structure of this study and the use of the conceptual model could be applied to another industry looking to analyse the level of value creation and where that value is created, in their respective supply chain.

Reliability

Reliability in the research process is an indicator of consistency. Reliability of research suits the deductive theory process as it addresses the issue of minimising errors and biases due to the

structure of the theory. Eisenhardt's (1989) method of inductive theory is even less structured as the researcher is guided by open ended questions. The analytic result of such questioning remains unknown until interviews are processed and analysed. In this respect a researcher following on from the initial research would probably end up with different findings and therefore conclusions. Effectively, reliability is connected to the empirical evidence of a study. As this study utilised open ended questions to study a phenomena that continues to develop and change, it is expected that the same study, even if in a similar context, would produce different conclusions. However, the conceptual model can still be applied in the same manner.

3.7.2 Sample Design

The initial stimulus for the study was the establishment of an alternate logistics network by one of the sample's companies. It was reasoned that this action had the potential to change the logistic environment within New Zealand. A second company was invited to join the partnership being formed with another smaller export company, but chose not to. It was for this reason that two of the exporters in New Zealand became the focus of the research and study.

The interviews were conducted with representatives of the two companies, associated logistics companies, and partners to those companies. Customers, other connected facilitators and users of the supply chain network in New Zealand were also interviewed. These included a variety of businesses that rely on road, rail and sea. Interviews were conducted with persons at the level of Chief Executive Officer, General Manager and Manager; those with direct influence on the New Zealand supply chain.

The sample size comprised ten interviewees from a cross section of the New Zealand supply chain. These included upstream and downstream members, including suppliers and customers to the chain. Table 3.1 below displays the informants, by industry and position in the company. Yin (2003) suggested that six interview cases would be enough to support or reject hypotheses; hence the sample size will follow the guidelines for pattern comparisons.

INTERVIEWEE	INDUSTRY	TITLE
1	Exporter/Importer	GM Global Supply Chain Strategy
2	Exporter	National Manager, Supply Chain
3	Exporter/Importer	Global National Manager, Supply Chain
4	International Logistics Company	CEO
5	National Rail	GM Strategy and Planning, National Freight
6	Exporter	GM Supply Chain
7	International Logistics Company	CEO
8	Shipping	CEO
9	Shipping	National Manager
10	Shipping	National Operations Manager

Table 3.1 Interviewees

A further six companies from the general export and import industry were involved in the first round of meetings but were unavailable for interview. The information collected from these initial interviews has been utilised, along with the ten main informants to provide the basis of the interview questions. Their observations, comments, and criticisms were used to further guide the lines of enquiry.

3.7.3 Data Collection Technique

Open ended questions were asked of the informants, within a structured process for interviewing. These questions had been previously emailed to each interviewee to allow time to contemplate the issues presented in the questions before the interview process. Each interview was open to the length of time each person was available and was audio recorded, then transcribed by the researcher.

Interviews were conducted face-to-face at the work place of each informant. This was done via either an internet telephone connection, or by landline, and scheduled for the availability of the interviewee. The audio tapes were dated, transcribed and coded using the constructs and elements as a guide.

3.7.4 Interview Process

The interview process was based on the research approach used in Zhang (2008). Guidelines for interview were as follows:

- Opening Session:
 - Introduction of interviewer and participant
 - Introduction of the study objectives
 - Confidentiality assurance
 - Approval to audio record the interview
- Discussion Session with open-ended questions:
 - Power Imbalances and Dependencies /questions
 - Relational Commitment Questions
 - Network Strategy Questions
 - Value Creation Proposition Questions
- Additional Unplanned Prompts:
 - Discussion on open questions in way of additional feedback

3.7.5 Interview Question Development

The questions were derived from the literature. These were formed to illicit reasons for agreeing to the partnering arrangement from the perspective of a supplier and a customer and to address the

four general questions. Questions were also developed to include the firm that chose not to partner but who may or may not become a customer. This also included questions for the supplier and also other customers that may or may not use the service offering. The questions were slightly altered to differentiate between supplier and customer. The questions focused on four major concepts: power imbalances and dependencies, relational commitment, network strategies and value creation propositions of the network. The opening of the interview sessions is described in Appendix 4 and the open interview questions in Appendix 5.

3.8 Data Collection and Analysis

The qualitative data collected was initially audio recorded. Once complete, each conversation was transcribed. The results from the thirty two questions were sorted, matching them to the twelve constructs of the conceptual model developed from the literature review. The information collected was discussed, the interpretations and findings highlighted, and presented alongside comments from the interviewees in the following pages.

Thus the data drawn for the case studies was taken from logistics companies, exporters, importers, land-side freight movers and shipping industry representatives.

3.9 Chapter Summary

This chapter discussed the overall research direction and reasoning for the research. The conceptual models utilised were derived from an extensive literature review focusing on network analysis, value networks and a resource based view of a firm. The design of the conceptual model against which the results were filtered was created to highlight the value proposition of networks in regards to the constructs and elements described above (and summarised in Appendix 3).

The questions were derived from the literature review. These were constructed to be open-ended and encourage from the interviewees their interpretation of the relationship with their partners and logistical freight movers. Hypotheses were formed based on the possible outcomes of the answers to the questions, and as if they might conform to findings in previous studies as outlined in the literature review. A qualitative method best suited this inductive type of enquiry due to the nature of the study and the exposure too many variables or forces at play in the real life situations studied.

Employees of ten companies were interviewed. These were drawn from the two primary case study companies, their respective logistic providers, and freight movers, shipping representatives, importers and exporters. Data was collected through direct interview via audio tape, transcribed and filtered through the conceptual model for further analysis, and tested through discussion against the hypotheses. The analysis of the findings is discussed in Chapter 4.

Chapter 4

Case Description and Analysis

4.1 Introduction

This chapter outlines the two case study supply chains and their position in respect to the New Zealand supply chain landscape. It also represents their reasons for the formation of alternate logistic/synergistic options. This is followed by an analysis of the individual supply chains and associated connections. Critical statements from interviewees will be presented to illustrate the reasons for change in the respective supply chains and the possible future effects from each perspective. This section will also include comments from other users of the New Zealand supply chain (including road, rail and sea trajectories) and how they view the new landscape and business offerings.

4.2 Description of Supply Chain 1

Supply Chain 1 is a partnership between Firms 1A and 1B, two major exporters in New Zealand's primary agribusiness industry. The creation of Logistics Provider 1C by the partnership intends to address the issues facing all of New Zealand's importers and exporters; getting goods from a producer to an end customer in the most expedient and efficient manner. Expediency and efficiency are central to the success of any business as it endeavours to service customers' need for "delivery in full and on time, in spec". This is a term widely used in the transportation industry and is commonly known as DIFOTIS (Delivery In Full On Time In Spec). DIFOTIS creates units of measure and has formed one of the tools or frameworks for analysis with which to compare different abilities or combinations of transportation solutions whilst aligning cost efficiencies.

Supply Chain 1 still has separate supply chains which service different components and products belonging to each partner. Firm 1A has a separate business unit that deals with landside transportation and logistics in regards to movement of raw products, as does Firm 1B. Each company in the first instance, combined its ability to procure slot or container space on shipping lines or carriers for export purposes in order to aggregate cargo. There are benefits to be derived from bulk volume, these include reduced prices, better shipping services to destination ports, on-port costs for storage and carrier movement. Part of the role of the supply chain is to work on landside movement of cargo to enhance the aggregation of cargo.

We don't want volume just for the sake of having volume... We want volume because it enables us to do stuff with volume in terms of finding areas of wastage and filling those gaps... CEO, Firm 1C

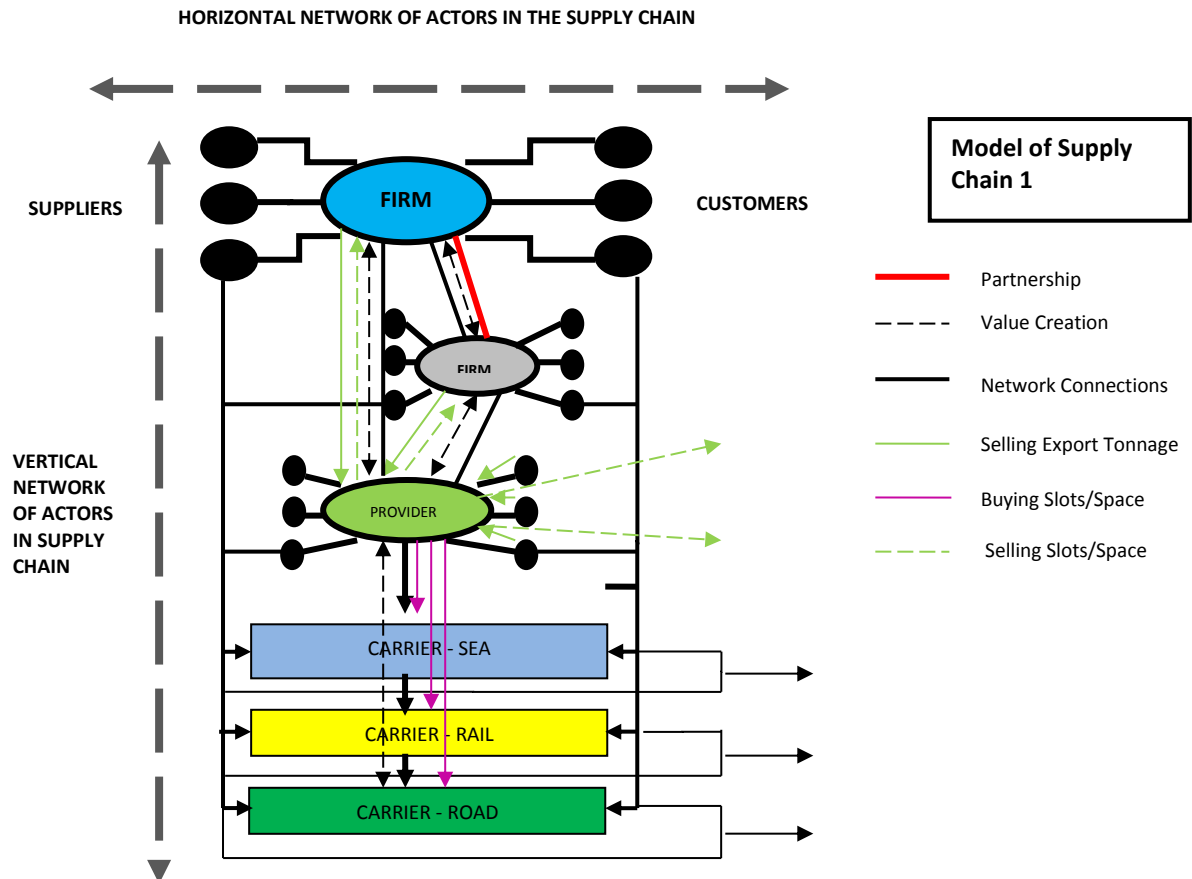


Figure 4.1 adapted from Lianguang & Hertz (2001)

In way of explanation of the motivation for changes to the Supply Chain 1, the GM Global Supply Chain Strategy for Firm 1A and Manager Supply Chain Firm 1B comment:

The reality is, as the world is changing, there is a lot of consolidation taking place around the world, scale is becoming more important and New Zealand's relative position in the world from a supply chain perspective is rapidly going backwards when it comes to scale. Your not going to get it on your own...Reality is for a lot of New Zealand companies, your supply chain is absolutely core to you... GM Global Supply Chain Strategy, Firm 1A

To try and gain some control over the shipping market and services on offer.... rate leverage, potential rate leverage and competitive advantage... Manager Supply Chain, Firm 1B

4.2.1 Description of Firm 1A

Firm 1A is New Zealand's largest primary agribusiness exporter. It has an international supply chain and exports products worldwide with an attention paid to new markets and avenues of distribution. The firm accounts for 25% approximately of New Zealand's exports and is New Zealand's biggest co-operative. It has over 10,000 shareholders, with dairy plants and factories all over the North and South Islands of New Zealand. Its operations can have an impact on the nation's GDP (Gross Domestic Product) indicators because of its size and dominance of the New Zealand agribusiness industry. Firm 1A optimises all forms of transport and until recently offered a broad range of 3PL services to its co-operative members. These included road, rail and sea offerings. It has an integrated end-to-end supply chain which utilises warehousing on factory sites, inland ports and purpose built warehousing facilities for distribution of its varied product lines. It also collaborates and enters joint ventures with suppliers of logistics offerings to maximise storage and transportation costs. It has a reputation for continual improvement strategies in this area of its business.

4.2.2 Description of Firm 1B

Firm 1B is New Zealand's largest primary meat exporter. It also has an international supply chain and exports worldwide with several thousand co-operative members. It has time sensitive markets and predominantly exports chilled meat at peak season. It ships frozen product out of the main season. Firm 1B has strong landside transportation systems servicing the co-operative members to bring product to factories in the North and South Island of New Zealand for production. Factories are located close to the dairying, beef and sheep producing areas. Transportation requirements for these industries are seasonal. The firm provides an in-house supply chain service for all trucking requirements due the requirement of close proximity to farmer-producers. Firm 1B negotiated all road, rail and sea freight for its export products internally until partnering with Firm 1A.

4.2.3 Description of Provider 1C

Provider 1C is a standalone business created by a joint venture between Firm 1A and Firm 1B with the aim of consolidating cargo and driving efficiencies in their respective supply chains. Provider 1C is based on a model of a logistics company providing a broad range of Third Party Logistics (3PL) services to Firm 1A and 1B. Provider 1C was created from the sea side logistics arm of Firm 1A and was set up to go to the global market with a sizeable export cargo volume sufficient to create change in the market place. The point of difference between moving to a traditional 4PL structure is that Provider 1C is not independent from the customer ownership of the freight. Provider 1C is owned by the customers whose freight it predominantly carries. The only time Provider 1C will move from this type of model will be handling an independent firm's freight where it will be aggregating products to fill left over slots and space not taken by Firms 1A and 1B.

Initially concentrating on sea freight for the first year of operation, the company has grown into the landside operations side of Firm 1A and 1B and their internal business units, as well as forming a joint venture with a North/South Island port consortium. Provider 1C has extended its operations and now offers cargo or slot space by road, rail and sea to other large New Zealand exporters having pre purchased space to secure reliable cost effective services. This effectively offers a 4PL service to larger independent firms wanting to move similar cargo en mass.

It will have to respond to its market like a business and it will. It has to keep its point of sustainable difference... it's not your normal 3PL business model... the cargo interests actually own it... CEO, Firm 1C

4.3 Reasons for Outsourcing Supply Chain 1

Both Firm 1A and Firm 1B agree that New Zealand is a long way from the markets in which it conducts business. As companies look to create efficiencies in their service offerings, the principle of lean management and the reduction of wastage have become primary concerns. The requirement to be cost effective and efficient drives strategy at the corporate board level for both firms. There is also an understanding that New Zealand has the longest transit times to market for all export goods. This makes it vulnerable to changes in shipping company schedules which could result in unprofitable trading lanes.

The drivers and direction are changing...those drivers are... the world is coming down to a large scale... the balance of trade and container flows has always disadvantaged New Zealand, always has and will continue to do so...the scales of economy on competing trade lanes are getting bigger a lot quicker than they are out of New Zealand... GM Global Supply Chain, Firm 1A

Firm 1A and 1B require stable and sustainable trade lanes to customers that enable their customers to gain cost savings and manage manufacturing processes without supply chain interruption. This is one of the key customer service requests.

By creating an arm's length company and outsourcing the supply chain functions Firm 1A and 1B were able to transfer internal divisions responsible for all logistical supply chain operations road, rail and sea to an independent company responsible for reducing costs on a more nimble financial footing. This also enabled the Provider 1C to test itself in the open market against other service providers. It enabled Firm 1A and 1B to re focus on their core business and to reduce costs without acting as warehousing, distribution and freight forwarders for their respective supply chains. This move created flexibility for both companies and their supply chains. It also enabled Provider 1C to

specialise its business in the logistics provider arena with larger export cargo volumes to maximise buying power.

The reasons outlined above are supported by comments below:

Fundamentally... New Zealand's international competitiveness is being eroded and unless you develop a sustainable solution that is going to better utilise the assets and better drive efficiencies and better drive scale then that gap won't necessarily get wider, not suggesting it won't get wider, it could still get wider because we're still very small but ultimately you want to make sure you do your utmost to keep the widening of the gap to a minimum... GM Global Supply Chain, Firm 1A

We are starting to see some traction with and influencing services...it's put us in a position where we will have a competitive advantage over our competition either because they won't get on board and will have a longer transit... Manager Supply Chain, Firm 1B

4.4 Interrelationships within Supply Chain 1

Interrelationships within supply chain 1 (S1) are structured and business orientated. This includes the specification of a set of key performance indicators and targets, which are discussed monthly by representatives of Firm 1A, 1B and Provider 1C. The joint venture set up Provider 1C to be a standalone company answerable to a board made up of top tier management and directors of each company. The role of the board is to set the strategy for Provider 1C in direct relation to the needs of each partner but also in relation to widening the business and allowing it to conduct business outside of the critical cargo mass that is created by the partners.

As a partner we are also a customer to them and we understand what they are doing... GM Global Supply Chain, Firm 1A

I am Provider 1C's customer.... I'm trying to get the best deal for Firm 1B and they are an unrelated service provider... Manager Supply Chain, Firm 1B

4.4.1 Key Dimensions of Service from Provider 1C

Key dimensions of service from Provider 1C are to aggregate cargo and thus create critical mass for the partners of the business. This is accomplished through collaboration in order to reduce costs in the supply chain. It also allows them to procure slots on multiple carriers' months ahead of need, locking down pricing and rates, which are key requirements to the existence of the business. Provider 1C's main aim is to create durable shipping relationships, contributing to a sustainable business model. This means longevity of service, to be able to offer a direct route for the longer

term. This would avoid being subject to inconsistent cargo flows and therefore unprofitability and cancellation of services which disrupt cargo flow. One of the key dimensions of customer service is reliability of the flow of goods to match manufacturing processes without disruption to the supply chain.

Delivering good service results for customers and suppliers... CEO, Provider 1C

Timeliness to market for Firm 1B is imperative for chilled goods in season. Thus the effective and timely shipping services direct to market are of the utmost importance. Firm 1A has non-critical time to market requirements. It also has bulk reliability to match efficient supply chain times for customers not wanting the expense of warehousing whilst managing their in-house productivity measures. After aggregation of cargo for road, rail and export shipping for both Firm 1A and 1B to reduce costs, the DIFOTIS model provides highly ranked results whilst delivering good customer service for key dimensions of service quality.

We are aiming for sustainability in shipping, we are aiming for every carrier here to have a sustainable business model...if we can manage costs and keep prices down... CEO, Provider 1C

4.5 Analysis of Supply Chain 1

Supply Chain 1 has a dominant larger company, Firm 1A that acted as the initiator of change. It did so by designing a strategic plan at the corporate level to re-align all areas of the supply chain side of the business. This was both internal and external, linking the customers, suppliers and the core processes of planning, sourcing, and making and delivering together. The task was to create tangible economic gain from end to end of the supply chain at a global level and meet the corporate strategic goal cost savings, sustainability and efficiency for the company. During this exercise it was apparent that a more sustainable model, long term and dependable, would involve a critical mass of cargo in which to go to market with globally. Added to this the New Zealand Government economic analysis and forecasts for manufactured export products, especially from the milk industry, are set to double over the next twenty five years. Our internal logistical structures required change to meet the task and allow New Zealand to compete on a global level.

We are aiming for sustainability in shipping, we are aiming for every carrier here to have a sustainable business model...if we can manage costs and keep prices down... CEO, Provider 1C

Firms 1A and 1B knew the only way forward to reduce costs and make the chain agile, whilst aggregating cargo, would be a change to the structure, including the infrastructure, of the New

Zealand supply chain. Discussions would be required at Board level and with the New Zealand Government to enact a strategy. Heavier loads to remove trucking and rail costs would be required. Changes to transportation rules and new wagons on our freight rail routes would support this. There would be a requirement for more freight train engines and better placed logistical hubs for movement and storage of freight close to ports, especially around busy freight corridors. Better infrastructure and services from ports would be needed to enable larger classes of vessels from global shipping companies. Each of these requirements would mean substantial change for provincial logistical companies in order to efficiently service the many New Zealand ports for importers and exporters. This change would mean choosing ports of significant interest due to positioning and current levels of services and creating tier 1 and tier 2 level ports. This move was supported by Firm 1A to enable a larger class of vessel for the critical cargo mass that was being created by the formation of Supply Chain 1.

To change the structure of the New Zealand supply chain Firm 1A had to change the structure of its own supply chain. By breaking down all critical components on the North and South Island and analysing how much cargo was moving from a manufacturing point to storage warehousing and finally to a port via rail and trucks, Firm 1A was able to determine which of its supply chains acted in a cost effective, nimble manner. The next task was to determine if this could be replicated from all major manufacturing points and, if not, determining which ones would serve as the main critical points and which could be secondary points. The re-positioning of empty containers for export played a big role in this plan, as the cost of moving empty containers to packing points is not cost negative. If Firm 1A were able to back fill with imports from point of entry in to the country and then place a container at the next point of packing, there would be significant tangible economic benefits.

There were two main drivers at a business level to initiate this change, cost of servicing the customer and efficiency. To enable value creation change was needed horizontally and vertically across Firm 1A's supply chains. A planned and systematic change began internally, redesigning the structure of the internal unit that serviced the seaside of the export of goods. This was done by creating a team of highly trained and qualified staff. As this team emerged, Firm 1A began changes to the landside of the business. These included connections with Firm 1B. Firm 1A and 1B have shared customers as a result of the synergistic nature of the two businesses. It became apparent that there would be benefits if Firm 1B added their export volume to Firm 1A's to create better buying power within the market at a global level. As Firm 1A was already operating at this level, this enabled Firm 1B to leverage off this association and network for gain. There was thus a natural motivation to work together, owing to the connections already formed between the two firms.

This economic activity was already creating value. By acknowledging and embracing the idea of deeper collaboration, there emerged the opportunity to create competitive advantage, especially for Firm 1B. At this point, Firm 1A still required a stronger critical mass of cargo in which to alter and enhance the global shipping export opportunity for New Zealand. This would also create a more sustainable suite of shipping services. This also meant smoothing out the demand curve across a calendar year to lessen the seasonal impact of cargo mass for Firms 1A and 1B. Firm 1A invited New Zealand's second biggest exporter, who also happens to be New Zealand's biggest importer to join the partnership. This third Firm conducted a thorough investigation into the merits of a strategic partner with Firms 1A and 1B, looking at resources, market share, expertise and skills, assets and investments and most importantly the balance of power between the three Firms. As a result of their analysis, they declined to join the partnership and instead created Supply Chain 2, which forms the second case study for this thesis work.

Provider 1C is a standalone company formed and owned by Firm 1A and 1B. It is in effect the amalgamation of their respective sea freight supply chain units. In the first year of operation, systems and processes were established and the two units began the joining of the two separate units. After initial testing and route establishment Provider 1C began to gain ground in the effectiveness of delivering good service results.

We are pretty much exactly where we thought we would be; actually a little further ahead of where I thought we would be...getting easier, the hard yards were definitely in the first twelve months. Yes delivering good service results for customers and suppliers... CEO, Provider 1C

The establishment of good relationships with carriers has been an important part of the service offering for Provider 1C. They facilitate approximately 40% of the export cargo volume going off shore from New Zealand; a lot of work has been put into matching demand and supply in order to maximise on the carrier relationships. The relationship between Firm 1A and 1B has been strengthened through the higher level of communication and information sharing that was required to establish the partnership and achieve common goals. As service level targets were attained Provider 1C broadened the supply chain offerings to the partners. They began collaborating with the landside of operations with internal units which continued to deal with trucking and rail. Over the two years of operations Firm 1A and 1B have now brought the majority of their New Zealand supply chain operations together under Provider 1C who now operates as a traditional 3PL logistics company organising the movement of goods through road, rail and sea. Provider 1C has continued to source extra cargo from other exporters and offered service contracts to other firms to participate in creating a mass of cargo. Provider 1C goes to market in July and August each year to establish

cargo contracts with shippers. During this process rates can be established and locked in ahead of time.

Provider 1C has actively widened the offerings available through the 3PL service, handling service contracts through road and rail to inland ports or directly to storage at prominent ports in New Zealand. Provider 1C has also taken the next step in forming a joint venture with a port and a large shipping company to help streamline cargo flow in New Zealand's South Island. This represents a significant shift in behaviour for the New Zealand supply chain.

4.6 Summary of Supply Chain 1

Supply Chain 1 exists to service its two principal partners first and foremost in retaining a selection of shipping carriers who service global markets and service their global customers without delays. Part of that strategy was to gain critical mass in New Zealand in the export shipping market, creating hubs for cargo and generating cost savings with carriers. The purpose of Supply Chain 1 is to deliver a sustainable service and a cost efficient transit to market for differing cargo owners, each with specific needs. Preliminary discussions revolved around the export seaside of each of their respective supply chains but have since expanded to New Zealand landside operations.

We want people to buy in to our NZinc story... by and large that is what we are about... we were setup to make New Zealand or enable New Zealand to make itself more efficient as opposed to making it more efficient for ourselves... GM Global Supply Chain, Firm 1A

Firm 1A being the larger exporter has bulk mass of seasonal export cargo. They required a more sustainable mass that was not locked in a seasonal cycle in which to negotiate better terms with global shippers. In order to smooth out the seasonal curve non seasonal cargo export companies were targeted as possible partners. Firm 1B had good export capacity but required a more agile and time sensitive export capability at certain times of the season. The two firms were already collaborating on different levels due to the synergy of their product, one being a customer of the other. Both firms had technical competence which could be combined to achieve more efficient operations. It made business sense to explore a joint venture but still required a joint strategy for dealing with non-seasonal mass. After a failed negotiation with a third company, Firm 1A and 1B formed a strategic partnership and created a 3PL logistics company, Provider 1C.

Provider 1C is an arm's length company owned in partnership by Firm 1A and 1B. Each company has contracted an amount of its export cargo to Provider 1C which must act as a standalone company in the market place. The company has been given a mandate and has a governing body comprising of Directors from each of Firm 1A and 1B.

We will continue to grow by offering services that make sense... a lot of the reason people join us is not because of a specific service we are offering now... but more the promise of what collaboration can deliver and we have got some runs on the board as to what collaboration can deliver in terms of service design and cost reduction... CEO, Provider 1C

Supply Chain 1 was put at arm's length as an independent company after strategic discussions at a corporate level. There was a requirement for both Firms 1A and 1B to enhance their service offerings and create more nimble and agile supply chains by acting in a more independent way. Both firms were already collaborating due to their synergistic business offerings. Each had a firm basis for trust in which to explore possible outsourcing opportunities. A 3PL structure benefited both parties; each had internal supply chain operations which could be combined to create a more win-win scenario and vested interests in warehousing and trucks. To combine the use of these hard assets and divest of unwanted waste in each of the supply chains was of interest to both parties.

Each firm had a strong common shared customer experience. There were established lines of communication and common structural elements between the two firms on which to base a firmer business partnership. Partnering and collaboration at this level requires trust and faith between firms. This depended on being open, having functions and processes in place to develop a shared model of understanding and business requirements. Each thereby knew how the other would behave. This level of interaction does not manifest easily and takes dedication and shared goals and values to produce value creating outcomes. Partnering at this level can bring both short and long term benefits if handled correctly. Short term benefits include the obvious immediate cost savings, but over the long term, a more sustainable and profitable model that will withstand the volatile and fragile nature of agile supply chains was needed.

Creating Provider 1C and putting the company at arm's length gave Firm 1A and 1B some control over the strategic outcomes for the 3PL provider. These controls consist of measureable and deliverable service outcomes. Provider 1C has to perform in the market place and create these outcomes for the partners in the road, rail and sea transportation corridors within and outside of New Zealand. To achieve this, a level of autonomy was required that would allow the company to move quickly in the market place and also align itself with other business outside of the core parent firms.

4.7 Description of Supply Chain 2

Supply Chain 2 is a fundamentally different model to Supply Chain 1 in that Firm 2A continues to operate two separate business units. These are Providers 2B and 2C, which provides for its supply chain service requirements. The model is different to Supply Chain 1, as Firms 1A and 1B moved

away from running their own internal business units by creating an external standalone company. The internal business units, Provider 2B and 2C, service New Zealand's second biggest exporter. The business units play an integral part in the entire supply chain for the company and are governed by a strategy set at corporate board level. This strategy is no different to that of Firm 1A and 1B; there is a requirement to reduce costs and create efficiencies for the company. Firm 2A declined the offer to become a partner with Firm 1A and 1B in Supply Chain 1.

We wanted to be in control of our own destiny...we've had 20 years worth of close relationships with our current carriers, current shipping lines and that works really well for us during tough times... National Manager, Provider 2B

Firm 2A has a mini Provider 1C already although we are not active in the external market but we are very focused on servicing Firm 2A... National Manager, Provider 2B

Firm 2A is New Zealand's second biggest exporter and has a critical mass of cargo of its own and is able to gain similar rates for shipping services as supply chain 1. Firm 2A's products are not exposed to seasonal fluctuations and steady, sustainable shipping services have been established over many years. Part of the strategy of Firm 2A was to form a service contract with an independent company, Provider 2D. Operating as a 4PL, Provider 2D undertakes part of the outsourcing of its road and rail logistical functions within New Zealand and performs a similar service to Provider 1C in the Supply Chain 1 model.

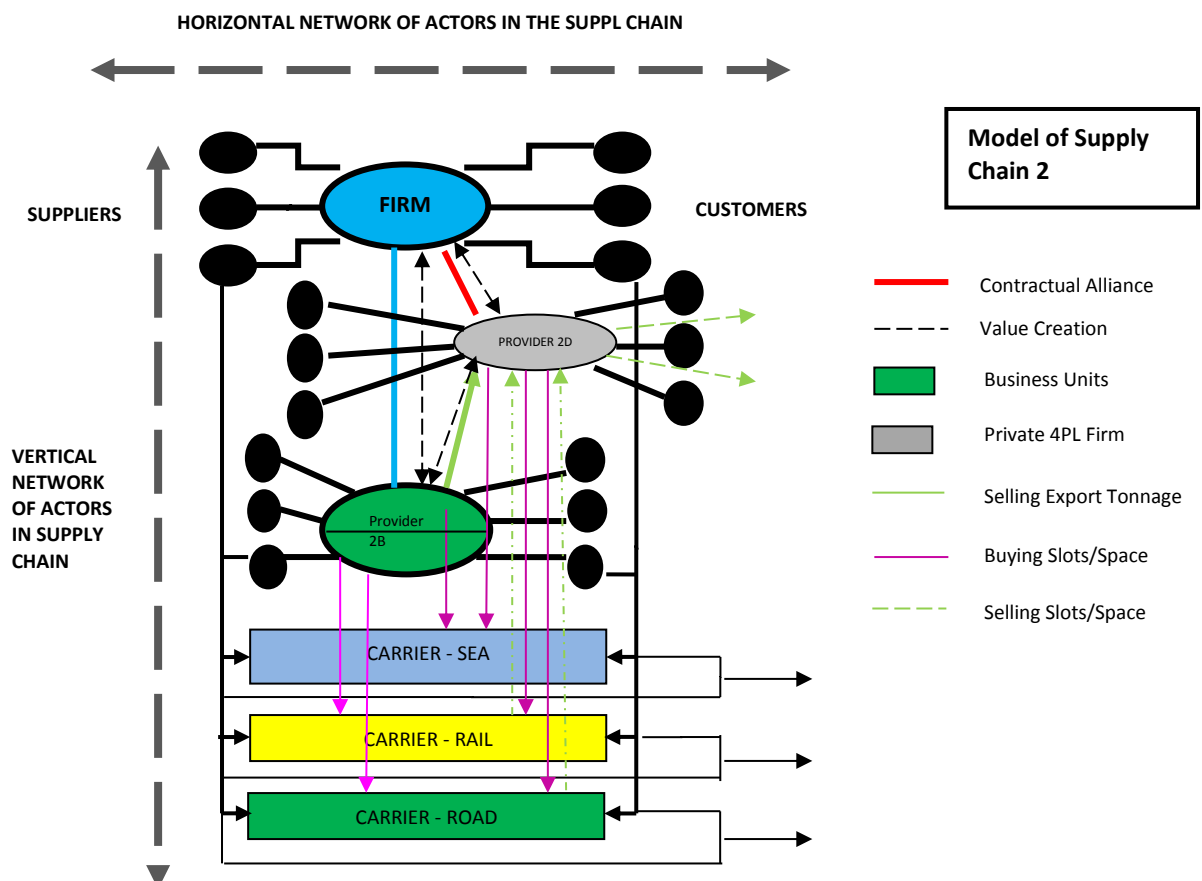


Figure 4.2 adapted from Lianguang & Hertz (2001)

In the work Provider 2B and 2C perform for the company, the purpose and core aims are the same as Supply Chain 1; to maximise efficiencies and to enhance the customer service provision.

Provider 2D is a privately owned company, operating under the model of a 4PL logistics company. It does not own any of the assets it works with and simply finds service solutions and transportation opportunities for its customers. They negotiate rates and services with independent carriers via road, rail and sea as part of their brief.

4.7.1 Description of Firm 2A

Firm 2A is New Zealand's second largest exporter of product in the primary industry sector, exporting wood from the majority of New Zealand's ports. Similar to Firm 1A, it can affect national GDP and is a major employer and contributor to the New Zealand economy. It has a very large footprint for the lease and storage of wood products within all regions of New Zealand and adjacent to ports, with large manufacturing plants converting wood into several different products for consumption overseas. The firm also services the New Zealand market with manufactured paper goods and wood products in three different major New Zealand markets. It has a long established record of business in New Zealand and also a large import record servicing all three of its market segments. The firm has strong networks and commercial relationships outside and within New Zealand for servicing the road, rail and sea transportation network of its market. The company has two internal business units within its structure. These manage all aspects of the logistical movement of its imports and exports via road, rail and sea.

One unit manages the sea side of import and export product. The other oversees the landside of road and rail. Each business unit works closely with the internal market segments of Firm 2A, these internal market and manufacturing operations are classed as customers for Providers 2B and 2C.

Firm 2A has established each of its manufacturing and retail units across its three market segments to act independently and work with market forces whilst utilising the business units which support the core corporate and business operational functions. This enables each manufacturing and retail unit to utilise the skills and capabilities of their highly trained and knowledgeable staff.

4.7.2 Description of Provider 2B

Provider 2B is an internal business unit belonging to Firm 2A. It operates outside of the company in an independent manner, guided by a strategy and set of guidelines mandated at board level.

Provider 2B classes the market segments of the larger company or firm as customers.

Yes, we have our own customers and our own customers are generally market segment A and we catch up with market segment A every month. We go through a logistics review with our

customers and they will demand things like they want response times from a shipping request within four hours. They will want it confirmed within 24 hours... National Manager, Provider 2B

Provider 2B services all the sea freight logistics for Firm 2A and works very closely with all manufacturing and operations market segments. This effort is focussed on maximising the efficiencies and responding to the customer service demands they face during day to day operations. Each part of Firm 2A acts as a separate business and must perform at optimum level, utilising and drawing on the skills and capabilities of each of its surrounding business units where possible.

The role of Provider 2B is similar to Provider 1C in Supply Chain 1 in that its function is to maximise the aggregation of Firm 2A's cargo freight. It also must deliver sustainable shipping services and freight rates on an international level servicing the Firms global markets.

4.7.3 Description of Provider 2C

Provider 2C is Firm 2A's internal logistics business unit. It handles all road and rail movements of products manufactured and distributed across the entire company within New Zealand, whether for export or import. This is a large business unit and again, like Provider 2B, is mandated to operate efficiently and act like an independent company, open to market forces. Provider 2C outsources part of this logistical operation to Provider 2D.

4.7.4 Description of Provider 2D

Provider 2D is an independent company that has a service contract alliance with Firm 2A. Provider 2D works with the internal business unit which is Provider 2C as described above. This is the internal New Zealand road and rail logistical arm of the Firm 2A. It is also required to operate in an independent manner.

Provider 2D does not own any of the hard assets required for the movement of goods and it does not own the cargo. In a true sense it is an independent 4PL provider. Its function is to provide freight logistic solutions for its customers for road and rail but also into containers with transport to ports of export. In the true sense of a 4PL operator, Provider 2D concentrates on the needs of the customer and works to optimise the transportation solution in the most efficient and cost effective manner utilising the hard assets of other providers.

We act in an independent role when it comes to the price and the cost and the service that the customer is taking. That can still be managed with good governance but those are minor things otherwise we are kind of in alignment with the service solution offered... CEO, Provider 2D

4.8 Reasons for Outsourcing Supply Chain 2

Firm 2B could see merit in the model created by Firms 1A and 1B. However, it already had the business structure in place internally and felt that they were well established in this area of business. There was acknowledgement of the opportunity for improvement within the New Zealand structure of the road and rail side of the chain which came from outsourcing to a truly independent 4PL logistics company. Firm 2A formed a contractual arrangement with Provider 2D to handle a significant percentage of the internal New Zealand movement of freight for import and export. They did so knowing that Provider 2D would be concentrating on cost of freight only with no distractions of owner of assets or cargo. The aim for outsourcing part of Supply Chain 2, as in Supply Chain 1, was to maximise efficiencies and enhance customer service internally and externally.

Provider 1C (in Supply Chain 1) is independent from the freight transport and from the transport ownership but is not independent from the customer ownership from the freight... firstly it can be a bit more biased towards rate negotiation when dealing with the customer that owns the freight... We have situations when Firm 2A has to pay a higher cost to actually meet the service requirements... we act in an independent role when it comes to the price and the cost and the service that the customer is taking... those still can be managed with good governance but those are minor things otherwise we are kind of in alignment with the service solution... CEO, Provider 2D

4.9 Interrelationships within Supply Chain 2

The internal business unit, Provider 2B operates the sea freight part of the logistical function for Firm 2A. This includes the export of raw products and negotiating freight rates for chartering of bulk vessels and also slots cargo space for the containerised products being exported by Firm 2B. Provider 2D, along with Provider 2C, provides the landside service to Firm 2A. This service involves all movement of freight via road and rail to and from manufacturing plants, storage and ports of entry and exit for all products requiring containerisation. Provider 2D also performs some sea side activities on the freight side of the transportation and logistics function. Similar to Supply Chain 1, Provider 2D has developed systems and protocols for communication and information sharing which has enhanced the services they provide. This was in responses to the problem solving collaboration and trust that built up during the first twelve months of operation. There is interaction between the internal business units of Provider 2B and 2C and the manufacturing and retail market segments of Firm 2B with the outside provider for timings of product movement and arrivals at port.

4.9.1 Key Dimensions of Service from Provider 2B, 2C and 2D

Similar to the key dimensions for Provider 1C, Provider 2B, 2C and 2D's goals are to improve the network, enhance the service to customers and maximise efficiencies whilst minimising costs. These drivers are not different between the two supply chains. There is acknowledgement of the sharing of risks and rewards as they work towards common goals, each supply chain dealing with different types of products destined for global markets and on a large scale.

Two key drivers for the customers and Provider 2C solution looks to work on these two areas of container sides...providing focus and management solutions with a focused investment plan for improving the whole freight network... National Manager, Provider 2B

Try to customise the solution from the individual manufacturing site or pick up point or drop off point... CEO, Provider 2D

4.10 Analysis of Supply Chain 2

Supply Chain 2 represents a different model compared to Supply Chain 1, but the strategic goal of each are in essence the same. Firm 2A was approached to partner with Firm 1A and 1B but declined due to its already significant size and scope. The firm felt that the service they were offering to their external customers was important and wanted to retain ownership of those connections.

Firm 2A has a mini Provider 1C already, although we are not active in the external market but we are very focused on serving Firm 2A... National Manager, Provider 2B

We already have the service offering that's not too different from Provider 1C through Provider 2B; I don't think we would get involved with Provider 1C under our current structure... National Manager, Provider 2B

Firm 2A felt that the connections between its carriers for sea freight had become partnerships with close connections between personnel. Firm 2A felt that this gave them leverage to get things done. They also felt that going through a 3PL or third party logistics offering would dilute that connection. The logistics spend was considered a critical part of the cost base of the business and there was great reluctance to outsource that area of the business. At the point of the formation of Supply Chain 1 there seemed to be confusion as to the purpose of the partnership and signals in the market were not clear. This was a distraction for Firm 2A who felt that they were not privy to the entire strategic purpose of the formation of Supply Chain 1 and Firm 1A and 1B's intentions.

At the crux of this decision making process lays the idea of perceived power or indeed exercised power and these outweighed any evident reward. Firm 2A already had market knowledge, the

strategic capabilities, upstream and downstream integration, and firm size. It thereby felt it had competitive positioning to continue as an independent business.

We are the second biggest in NZ, Provider 1C is by far the biggest but because we have some scale of our own we think we can get similar sorts of freight rates. We are not in need of joining forces with someone else to put pressure on carriers to lower the rate... I think Provider 1C has got a lot to offer but for us we have some of those similar attributes. Not necessarily any better, maybe even worse in a lot of areas but we have something similar so...
National Manager, Provider 2B

Because we are combining the customer's volume it is actually one of the largest networks in the country, import and export market network or domestic import export market. We believe that the synergistic value and service benefits because you can drive the investment certainty or you can underwrite certain asset investment or certain suppliers then they can come to the market... CEO, Provider 2D

With the acknowledgement that parts of the supply chain network were in some ways worse than Supply Chain 1, a different approach was discussed at corporate board level. The solution was to look at outsourcing, but from a more manageable position, a contractual arrangement to a company that owned no assets and so would purely look at the service from a customer aspect on all sides. Provider 2D matched the level of relational commitment that Firm 2B felt comfortable with. Firm 2B was able to be proactive in setting the agenda; it had resources and core competencies but wanted to create better competition within the company boundaries without exposing itself to outside forces on the same level of scale as itself.

Firm 2B was able to strategically set the business model to create a lift within its own service offerings utilising the strength of the current network and connections. By bringing in outside knowledge and information they were able to enhance the delivery and cost effectiveness of what was already in place. By entering into a service agreement with a fourth party provider, Firm 2B was able to optimise network solutions and share the benefits. From the fourth party provider's perspective, that arrangement gave incentives to find workable solutions for all parties.

If there is an optimisation benefit of 5% we can generate we can offer them some of that %. They can touch and feel the service offer. We can then lift our capacity, price benefits and better network services by aggregating cargo... Tactics or principles need to be evolved with the partner that you are looking at...risk aggregate sharing with lesser risk or taking more risk but at the same time taking more share of the value...it's a risk sharing model that we have adopted..." CEO, Provider 2D

Firm 2B has begun to feel the benefits of utilising a fourth party provider and can see the value configuration working through better product flow. The information exchange has also opened up areas of the business and there is more cross functional communication happening. This is challenging old organisation structures. These are positive outcomes from the deeper collaboration that is required for this type of service provisioning. Both Firm 2B and Providers 2B and 2D underestimated both the value of and the value creating capability of the utilising “people assets”. The combination allowed greater capacity that lifted and enhanced the customer service level. This in turn allowed all parties to work more closely together on committing or underwriting certain amounts of capacity across multiple carrier bases on a regular basis. The people assets allowed greater technology solutions to come to the fore, with optimisation tools applied via the knowledge sharing capacity this created.

The point of difference for Supply Chain 2 is that the main providers of logistical service remain as house business units that retain connections and links with customers both internally and externally. This is of great importance to Firm 2B and the main reason for declining the opportunity to partner outside of this business model. Through the offer, Firm 2B was able to scrutinise its internal operations and enhance the structure of its supply chain network. They then leveraged this utilising the skills of an outside provider.

4.11 Summary of Supply Chain 2

Supply Chain 2 supports the second biggest exporter and biggest importer in New Zealand for all internal and external logistical transportation requirements landside and seaside. The most important aspect of the continuance of Supply Chain 2 was the acknowledgement that it was already creating efficiencies for Firm 2A. There needed to be changes, but that was more focussed on exposing parts of the chain to market forces without losing control over the connections and network.

Supply Chain 2 is separated between two internal business units, Provider 2B and 2C, and an outside independent company with which it has negotiated a service contract, Provider 2D. Provider 2B operates an independent company from a separate site and is mandated to operate with market forces and provide an agreed level of service for all sea freight operations where possible. Provider 2C covers the landside of operations for road and rail. It also uses the services of Provider 2D, which allows Firm 2A to expose parts of its supply chain to the market under a contractual agreement that allows risk on either side. This also allows each party to share in the benefits of value that is created. Cost service levels are monitored and fixed by Firm 2A. Provider 2D is then able to go to market with top level and service benchmarks.

The key dimensions to this type of model remain the same as for Supply Chain 1; to enhance the service delivery for customers and maximise cargo mass for cost efficiency on sea cargo freight and landside logistical operations on road and rail. Though the drivers for Supply Chain 2 differ, retaining control over the supply chain was the main reason. Firm 2A already had systems and processes in place which offered the same service and outcomes as Provider 1C. The outcomes remain the same, along with cost efficient sustainable service levels. Firm 2A felt that retaining control of the logistical spend was a core critical component of the dollar cost base. Outsourcing that aspect of their internal business function would be a negative, not a value creating opportunity for them.

There was an understanding that parts of the supply chain required greater exposure to better market forces. They aligned with a service provider with better technology systems and knowledge and with no connections to ownership of hard assets or cargo. This company was better positioned to concentrate on finding the best possible solution to transportation freight corridors for product movement in a more cost efficient and expedient manner.

This has proved to be a value creating exercise for Firm 2A and Provider 2D as the effect to the network for Supply Chain 2 has been positive for both parties.

4.12 Chapter Summary

Both Supply Chain 1 and Supply Chain 2 are similar in their intent to aggregate cargo and service offerings to maximise on efficiencies and minimise costs for their respective internal customers. The structure of the models differ in that Supply Chain 1 set up an independent company to manage the sea freight side and over time the landside road and rail of its business. Supply Chain 2 has an internal business unit performing that task which also works with an independent firm.

Different models... couple of things, fundamentally different models. One is a self contained business unit and one is a standalone business with multiple shareholders that sit under a board of governance. So that's relative... If I was going to put my business in Firm 2A and Provider 2C I would have Provider 2C and Firm 2A running my business... If I was to put my business in Provider 1C I would not have Firm 1A running my business... General Manager Global Supply Chain, Firm 1A

The two models are essentially performing the same task. Supply Chain 1 has created a significant change to the structure of New Zealand's supply chain offerings. From the perspective of ports, railway network and trucking firms, the biggest change will come from the carrier services plying the New Zealand coast to take exports to global markets. Firm 1A and 1B of Supply Chain 1 often have time sensitive cargo and operate with seasonal goods. This creates masses of cargo at certain times of the year and relatively low levels of cargo out of season. This in turn affects the service contracts

for carriers during the off season. The low volume of exports results in higher charges to compensate for the level of cargo, as costs to service the call remain the same. This has the same affect on land, as the cost of running rail freight and trucks also remains the same.

Partnering with another firm with high levels of imports and exports that were not subject to seasonal variations became an obvious solution. Unfortunately matching two of New Zealand's largest exporters and their subsequent requirements from their supply chain connections became a stumbling block to one party. Behind this also sat a strategic plan that one party had not been involved in formulating. In order to create such a change to the New Zealand supply chain as a whole, high level discussion must have been held to enable elements to align and thus create the ability and drivers for change.

We would lose the direct contact with a very important part of our business that we would rather manage directly... we are not in need of joining forces with someone else to put pressure on carriers to lower the rate... Provider 2D is a really good model for us because it is independent of any other carrier...they are completely impartial about which contractors or which service providers they engage for and on behalf of Firm 2A and we have not had that before... National Manager, Provider 2B

Firm 1A, with its ability to alter the nations GDP, required an aggregation of product on the North and South Islands to achieve higher levels of efficiency and cost savings. Exporting to critical global markets with agile lean supply chains meant a change to its entire internal supply chain to enable the continuation of sustainable shipping services. This required the analysis of all current supply chains from manufacturing point to the end customer. There were many questions to be answered before the final strategy was set. This required the support of regions and national government to help regulate and set procedures that would be conducive in enabling change. In effect, a master plan was required with each step performed tactically in sequence.

The formation of Supply Chain 1 and Supply Chain 2 under their current individual models is still evolving. Change has been created and other unforeseen circumstances and opportunities have arisen with new joint ventures on either side. This has supported and cemented the individual paths each has taken to maximise their own particular supply chain requirements. Of note is the amalgamation of ports, enhanced service delivery on the rail networks on both islands, increases to coastal shipping services, larger vessels or carriers visiting fewer ports and streamlined logistical offerings for warehousing and trucking. The effect is still to trickle down to smaller users of the import and export chain, but tighter transportation corridors will mean fewer options for carrier service offerings in outlying regions. In some cases it could also mean an increase in costs from flow-on effects of fewer service calls due to larger carrier vessels maximising aggregation of cargo.

Chapter 5

Results and Discussion

5.1 Cross Case Comparisons

Qualitative data is challenging in that it requires interpretation of the meaning of what people say and do. This can be subjective and open to different interpretations depending on the readers' background knowledge or history with the subject matter. To enable the reader to form their own opinion of the data, it has been presented in a simple manner. It is difficult to categorise transportation in a defined manner when respondents come from different forms of the transportation industry. This includes road, rail and sea. Equally so, the customers in the survey have differing types of exports with different market expectations. The research concentrated on the common elements required by the transporters and customers. The groups were then separated, group one the two main supply chain companies and group two the rest of the users of the supply chain. The two groups or categories were then measured using the same concepts, constructs and elements, but from their industry perspective.

The results of the study will now be presented under each concept with the constructs and their constituent elements tabled. Each box, in the following two sets of tables, has been weighted to ten and then each response from the ten respondents for each set of tables given one point.

For the first set of tables the respondents were categorised in to two groups. The first group of five respondents being the main lead companies and associated logistics providers. The second group of five being service providers and other users of the New Zealand supply chain. Each group or category were colour coded, blue for the lead companies and their associated logistical providers and red for other providers and users of the New Zealand supply chain. Each respondents point was recorded and dependent on the number of responses for each of the element boxes, the box was coloured red or blue for the highest category response. This coding enabled the research to determine the level of response dependent on positioning within the supply chain structure compared to others and to which element and construct. The research also highlights the perceived view of each supply chain and category towards each other and whether that view is derived from an uninformed or actual knowledge base.

Of the highest scoring category each response to a construct and element was then noted as either positive or negative, determined by how they answered the question and described their relative position in the supply chain also compared to other providers and users. By separating the respondents and firstly noting how many from each category responded and then from either a

positive or negative perspective, the basis for discussion was formed as to their connection and relevance to each element and under which construct, against the proposed literature review models. With more subjective analysis of the written audio commentary for each category further analysis and interpretation against the models was undertaken with further consideration given to the positioning of the respondent within the supply chain structure. This coding and analysis seeks to verify how each respondent reacts to forces within the supply chain that form the basis for collaboration and partnership like trust, power, competition and linkages

The second set of tables looks at the level of responses regardless of their category and purely at whether they responded at all to the question relevant to the element box. This set of tables seeks to show the elements of importance overall for all respondents for this research which also highlights the level of maturity and sophistication of the change to the New Zealand supply chain.

Each concept has been formed from the literature review and the associated models combined to create the concept model or framework for the study. The constructs and elements are the building blocks of the framework and serve as a measure or template on which to overlay the findings and results. Comparisons of patterns or deviations are then able to be established and discussed compared to other relevant research work and any new patterns highlighted for future research.

Being a qualitative thesis, the results are subjective and open to interpretation by the author given a wider understanding and knowledge of each company and the overall market position at the time of writing. The results have also been triangulated with earlier meetings with the same respondents and comments and articles available in the public domain.

The summary highlights the constructs and elements within each concept that are of most importance for Supply Chain 1 and 2 providers and users when collaborating with another party at the current time of writing. The results also represent the stance of each respondent particular to their place and level of interaction within the New Zealand supply chain with positive and negative comments dependent on relative strength and market share.

5.2 Analysis of Supply Chain Study Findings

The following coding descriptions have been applied to each table and help to describe the way in which each table has been analysed and interpreted.

First Set Tables

BLUE MARKER

Higher response from Lead companies and the Supply chain service providers created by the lead companies

RED MARKER

Higher response from the mixed users of New Zealand's supply chain offerings (road, rail and sea)

GREEN MARKER

Equal response from both categories





The first part of table measures a match in the response to a construct and element for each concept within the two separate groups. Some companies answered some of the questions without any mention of the constructs or elements; neither did they allude to them. If there was a higher measured response from the group presenting the lead companies and supply chain, the box has been coloured blue. If there was a higher measured response from the group presenting the rest of the users of the chain, the box has been coloured red. If the response was equal from both groups, it was coloured green.

Following on from that, actual verbal responses from the audio tapes have been further interpreted by the author as positive or negative based on the knowledge of each respondent. This has been measured taking the mean of responses and whether they were positive or negative. Each box has been coloured dependent on whether the higher response was positive or negative.

This group of tables allows the researcher to determine the use of the elements and constructs within each grouping but also whether that use is positive or negative. The level of maturity of the two supply chains can be determined through this information. This also highlights their level of interaction and in what manner, with their customers, suppliers and business partners.

Second Set Tables

The second set of tables measured the actual number of responses to an element or construct. This included all the ten respondents regardless of what group they belonged to for the study. The top elements that elicited a response across the constructs were coloured coded per box as below.

	100% response to the questions across the constructs
	90% response to the questions across the constructs
	80% response to the questions across the constructs
	70% response to the questions across the constructs

Each box is given a weighting of ten points with each individual respondent given one point. This table highlights the collective total of respondents to a particular element regardless which of the group of five they were categorised to.

This group of tables allowed the researcher to measure the total use of elements and constructs within each construct. From a more global perspective, it highlights the overall maturity of supply chains within New Zealand and a better understanding of the forces at play.

5.2.1 Power Imbalances and Dependencies

Table 5.1 – The Power Concept

CONSTRUCT	COERSION	EXERCISED POWER	PERCEIVED POWER	REWARD
ELEMENT				
MARKET KNOWLEDGE		Negative	Negative	
DOWNSTREAM INTEGRATION		Negative	Negative	
STRATEGIC POSITIONING		Negative		
COMPETITIVE POSITIONING				
BRAND STRENGTH		Positive		Positive
KNOWLEDGE TECHNOLOGY				
FIRM SIZE				Positive
LEADERSHIP CAPABILITIES				

In this table the blue category features highly in their response to areas of coercion and perceived power. Not because they thought themselves to be strong in these areas but because they understood the concept and were able to verbalise their understanding. There was a clear picture of the elements within this construct but no outwardly spoken signs of the overuse of coercion or power to seek reward within the blue category.

However the red category displayed signs of wariness in these areas and were clear in their verbalisation of the use of power, whether there were direct signs in the market or not. The red category highlighted the lack of downstream integration from the blue category towards them and discussed the position of being users of the services on offer but not necessarily partners or collaborators. The red category was clear that they were able to leverage off the brand strength and size of the blue category firms. There is a lack of understanding by the blue category in how they are being perceived by other users of the New Zealand supply chain. Displays of a power imbalance favoured the blue category in what was not verbalised, more than by any negative response.

Leadership capabilities and firm size are noted by the blue category. Leadership capabilities did not rate for the red category as users of the supply chain, in how they perceived the use of leadership when power or dependency attributes are applied. Firm size and its relative unspoken influence on the structure of the supply chain by the red category was a surprising result given that Supply Chain 1 and 2 are operated by New Zealand's largest exporters. The relevance of their influence globally

possibly outweighs any negative effect which lends itself to further study as the new supply chain structure matures.

Table 5.2 – The Power Concept

CONSTRUCT	COERSION	EXERCISED POWER	PERCEIVED POWER	REWARD
ELEMENT				
MARKET KNOWLEDGE	6	10	9	10
DOWNSTREAM INTEGRATION	6	9	7	10
STRATEGIC POSITIONING	5	9	8	10
COMPETITIVE POSITIONING	5	6	8	10
BRAND STRENGTH	4	7	8	9
KNOWLEDGE TECHNOLOGY	4	8	8	8
FIRM SIZE	4	6	7	9
LEADERSHIP CAPABILITIES	3	4	6	5

































In this concept exercised power, perceived power and reward scored the highest responses from respondents. The strongest responses were for the rewards construct which scored highly across seven of the eight elements. All parties seemed to be in agreement that there were joint rewards for collaborating in areas of the seven elements.

This was followed closely by high responses to perceived and exercised power constructs, though the respondents were more negative in their outlook on these elements in the table 5.1. The more tangible elements that elicit immediate financial gain were the focus of respondents at this time but that is not to say that as the supply chain structure matures the intangible elements around coercion and leadership surface begin to influence decision makers when barriers and obstacles appear.

The results of this concept are understandable even predictable and display no new or differing signs of network patterns in how changes of structure, in this case the New Zealand supply chain, develop based on the literature review.

5.2.2 Relational Commitment

Table 5.3 – The Relationship Concept

CONSTRUCT	COMPETITION	INFORMATION	ENVIRONMENT	RESOURCES
ELEMENTS				
OPORTUNISTIC BEHAVIOUR	 Negative		 Negative	 Negative
COLLABORATION	 Negative	 Negative	 Negative	
CORE COMPETENCIES	 Positive	 Positive	 Positive	 Positive
KNOWLEDGE SHARING				
CORPORATE STRATEGY	 Positive	 Positive		
PROACTIVE BEHAVIOUR			 Positive	 Positive
TRUST				
INNOVATION				

There are definite signs of lack of trust within the red category as to the intent of one of the larger exporters. This was notable along the collaboration element but it may also be too early in the development of Supply Chain 1 and 2 for structures to be in place to display this level of relational commitment. Firm 1A being New Zealand's biggest exporter is in a clear position in regards to the dominance of the market place and their intent and depth of collaboration will only become evident over time and other users of the larger chain will watch. Any further collaboration between Firms 2A with Firm 1A will only gain traction dependent on the level of success of their own new supply chain structure. Clear demonstrable evidence by Firm 1A of their ability to successfully connect and partner with the current users of Firm 1A's supply chain offering will also affect the development of the chain.

Relational commitment comes from a mature level of understanding between companies when the more positive aspects of the concept like trust, knowledge sharing and proactive behaviour traits are displayed. Both supply chains are in their infancy and still setting up structures and processes around the immediate change within their own networks and connections.

The blue category consisting of the two major supply chain exporters are verbalising these intentions which is displayed in the positive responses noted by them across the majority of the elements of relational commitment. The blue category has strong core competencies built up over their history of trading. This may be the barrier to their successful partnering at this time due to reluctance to give ground to each other on their abilities to grow and develop successful supply chains.

Table 5.4 – The Relationship Concept

CONSTRUCT	COMPETITION	INFORMATION	ENVIRONMENT	RESOURCES
ELEMENTS				
OPORTUNISTIC BEHAVIOUR	9	4	9	9
COLLABORATION	3	9	9	10
CORE COMPETENCIES	4	8	8	9
KNOWLEDGE SHARING	3	7	9	10
CORPORATE STRATEGY	7	8	6	7
PROACTIVE BEHAVIOUR	3	7	8	9
TRUST	2	9	5	10
INNOVATION	5	7	8	6

































Resources had the strongest response across the elements for relational commitment followed by the environment. It was clearly understood by all respondents the relevance of resources and their importance to either use or protect, dependent on their position within the supply chain. Discussion amongst respondents was similar for the elements governing the environment. The use of resources within the environment when aligned with information showed a great deal of depth of understanding about their importance for successful supply chain outcomes.

Other constructs had a scattering of low response scores with some strong reactions negative and positive to competition, information and the environment coupled with the low response. The responses displayed a strong attitude towards the opposite category in these areas and demonstrate a truer picture of areas that will require work by both categories as the current supply chain structure matures. These areas are barriers to partnership and deeper collaboration which will block the importance of value creation that could be available should these areas align.

The early stages of the new structure will take time for the emergence of new logistic offerings to show their value and worth in the market place. There establishment, but more so there sustainability and longevity in the market place, will depend on the faith all parties put into finding workable solutions to obstacles that outweigh immediate gain.

5.2.3 Network Strategies

Table 5.5 – The Network Strategy Concept

CONSTRUCTS	HORIZONTAL LINKAGES	NETWORK SYNERGIES	VERTICAL LINKAGES	STRUCTURE OF NETWORK
ELEMENTS				
RELATIONSHIP CAPABILITIES				
SHARED VALUES		 Positive	 Positive	 Negative
INFORMATION FLOW				
INTEGRATION ABILITY		 Negative		 Negative
MUTUAL OUTCOMES		 Positive		 Positive
EMBEDDEDNESS				
STRATEGIC ALIGNMENT	 Positive	 Positive	 Positive	 Positive
LEADERSHIP CAPABILITIES				

Network strategies scored very highly in the elements for structure of networks, vertical linkages and network synergies. The blue category featured highly for many of the elements and positively in many areas especially for strategic alignment. There was a strong comment from the blue category that this element was of importance to aligning structures of the network. This area of the research is well understood by both of New Zealand's leading exporters and forms the basis of their catalyst for change, to continue to connect with their global supply chains and customers.

The red category showed a negative response in areas that they were out of balance with the blue category, displaying signs of a lack of shared values and mutual outcomes with the creators of the supply chains. This aligns with their perspective on trust and collaboration within the relational commitment constructs and elements. A pattern begins to form regarding the unspoken fear or demonstrable evidence of true intent to creating the New Zealand Inc supply chain for all parties gain.

Of the four concepts, network strategies featured very strongly and all respondents spoke at length of the importance of the structure of the network, the linkages and how these affected their capability to operate their supply chains effectively. The barriers for other smaller users and providers of the two new logistic offerings may well be in looking outside of New Zealand in how other similar size firms have overcome the immediate obstacles. This will broaden their network connections in areas of shared knowledge and skills. These more intangible elements will produce quick solutions to what seem insurmountable tangible obstacles.

Table 5.6 – The Network Strategy Concept

CONSTRUCTS	HORIZONTAL LINKAGES	NETWORK SYNERGIES	VERTICAL LINKAGES	STRUCTURE OF NETWORK
ELEMENTS				
RELATIONSHIP CAPABILITIES	8	10	9	10
SHARED VALUES	5	8	8	9
INFORMATION FLOW	6	5	9	10
INTEGRATION ABILITY	4	8	8	9
MUTUAL OUTCOMES	4	5	8	9
EMBEDEDNESS	5	3	7	10
STRATEGIC ALIGNMENT	3	5	7	9
LEADERSHIP CAPABILITIES	2	3	4	6

































Due to the relative size of the two lead firms in this study it is apparent that they have an awareness of horizontal linkages but no need or direct experience of this in a New Zealand context. It may also explain their reluctance at this stage to partner or work towards any joint venture or partnership platform. When the low responses are compared with the outcomes of either a blue or red category score for horizontal linkages and network synergies it becomes apparent that no real connections are happening in the areas of mutual outcomes, embeddedness and especially leadership capabilities.

This clearly displays leaders and followers in the New Zealand supply chain and an established and possibly entrenched pattern by some, including the lead firm. This may also stifle the shift required to create real change. The New Zealand supply chain has been forced to change by the actions of one of the lead firms; all other players are reacting and forming solutions around the change.

This is not to say that the eventual outcomes will be negative for New Zealand exporters and importers. The lead firm realised an absolute need to secure the future of its ability to service and also compete for customers on a global level or fail. This would have dire consequences for the New Zealand economy. This response to servicing global customers enacted a chain of events that required a solution at a national level to allow this company and other New Zealand manufacturers to compete within a global market. The New Zealand Government played its part in enabling this change.

5.2.4 Value Creation Proposition of Network

Table 5.7 – The Network Value Creation Concept

CONSTRUCT	KNOWLEDGE CREATION	COMPETITIVE ADVANTAGE	VALUE CONFIGURATION AND CONVERSION	OPERATIONAL EFFICIENCY
ELEMENT				
NETWORK EFFECTS – GLOBAL OR LOCAL				
SERVICE PROVISIONING				
PRODUCT FLOW	 Positive	 Positive		
INFRASTRUCTURE OPERATION				
COMPLEMENTARY MEMBERSHIP				 Positive
CONTRACT MANAGEMENT				
SIZE OF NETWORK INFRASTRUCTURE	 Positive	 Positive	 Positive	 Positive
EXCHANGE ENABLERS				

There were equal weighting of responses overall for this concept but predominantly blue category for the elements regarding knowledge creation and competitive advantage. This concept forms the basis of the functionality of most supply chains with key performance indicators and measurements in this area, the basis for contract management. When competing on a global scale firms will develop a level of business interaction on par with large overseas corporations which form their customer base. The changes we are witnessing with the New Zealand supply chain are a reaction by our two leading firms to the requirements of their customers.

All of the respondents had a clear understanding of the value proposition elements required for successful operation. This area of business when balanced and structured correctly enables a firm to be operationally efficient and create a sustainable business. Partnering and collaboration requires that firms are able to take these techniques and weave them together at every level of their respective businesses in an open and trustful manner. This type of partnership construction takes time and must be planned and monitored as each level of interaction is attained.

The level of equal responses from interviewees displays an understanding of the importance of these elements for successful operations. This bodes well for the maturity and sustainability of the changes to the supply chain logistic offerings as firms find avenues to connect and interact.

Table 5.8 – The Network Value Creation Concept

CONSTRUCT	KNOWLEDGE CREATION	COMPETITIVE ADVANTAGE	VALUE CONFIGURATION AND CONVERSION	OPERATIONAL EFFICIENCY
ELEMENT				
NETWORK EFFECTS – GLOBAL OR LOCAL	6	7	10	10
SERVICE PROVISIONING	8	6	10	10
PRODUCT FLOW	5	8	10	10
INFRASTRUCTURE OPERATION	6	4	10	10
COMPLEMENTARY MEMBERSHIP	6	7	7	9
CONTRACT MANAGEMENT	5	4	10	10
SIZE OF NETWORK INFRASTRUCTURE	4	6	8	9
EXCHANGE ENABLERS	4	4	6	10

There were high responses to the operational efficiency and value configuration and conversion constructs in this concept section from both categories. This area rates highly as value configuration and operational efficiency drive agile and lean supply chains and this area is of focus at all times especially for the firms of Supply Chain 1 and 2.

High responses to the operational efficiency and value configuration and conversion constructs in this concept section clearly connect with the tangible elements of power and dependences and also relationship commitment responses from all interviewees. There is a clear understanding of these basic elements which have been the building blocks of successful business operations for many years.

As with the three other concepts, the areas that scored lightly are of interest as they highlight areas which could be possible barriers to growth and development for successful partnering. These areas require a change internally within companies to embrace new technology and internal engagement and networking.

The nature of internal companies has changed from silo type operations to collective engagement horizontally and vertically within and outside of its own boundaries for personnel, executives and boardroom directors. This requires a different approach where information flow and exchange enablers must be more open and free. As with other concepts this is built on trust and good leadership, all areas which at the early stage of this new supply chain development are not high on the focus list of respondents, though there is an awareness of their requirement as building blocks.

5.3 Summary of Supply Chain Study Findings

Overall, there was a strong response from interviewees with regard to the concepts of relational commitment, network strategies and value creation. The results clearly show that the current basis of change revolves around agile and lean supply chains that focus on cost savings and efficiency in the first instance.

These have been the more important catalysts for change to New Zealand's supply chain structure. They are the functioning, money producing elements for exporters and importers both form the processes and structures for measurement of performance. They are also the immediate, tangible side to operations. The intangible elements include leadership capabilities, embeddedness, integration ability, connectedness, the unseen connection between the networks of people and how they link companies and structures at differing levels of companies. These are yet to be fully understood and utilised by firms.

As Supply Chains 1 and 2 develop and mature, they will be tested by interruptions and unaligned processes. It is likely they will display brittleness or lack of coordination between the tangible functioning elements and intangible unseen elements. This will become evident if the relationship side of the partnerships has not developed enough to display high levels of trust, collaboration and strategic alignment. The systems will then begin closure, lack of understanding or visibility and lack of information sharing. The people aspect of partnering must align at all levels of the strategic partnering process and continually worked on.

The study findings are consistent with early beginnings of partnership and collaboration techniques. They do show signs that there is an understanding of a more holistic approach to customer centricity and network linkage capability.

5.4 Analysis of Hypotheses

The four hypotheses that generated from the literature review in Chapter Two were assessed by the responses to the various questions comprising the interview schedule. Testing aimed to answer the research questions of the effect on supply chains of the formation of alternate structured/synergistic logistics networks and how great those effects would be.

5.4.1 Hypothesis H₁

H₁ : *Higher levels of power asymmetries lead to higher levels of leadership by the dominant player amongst members of a supply chain network.*

The construct of power imbalances and dependencies addressed the question of perceived or actual power in a partnership. Power in the channel was seen as expressed by activities linked to the strategic objectives of the firms involved in regards to the influence they exert on their supply chain. As discussed in Chapter 3, channel leadership is an important part of the value chain concept and enables a firm to hold a more powerful position for guiding strategic directions with the objective of controlling parts of the channel operations.

They are moving big volumes of freight from A to B so I guess we are all looking for those opportunities to leverage... we see those guys as big players and that's why we would want to join with them... GM Strategy and Planning, National Freight Carrier

This type of channel power can also be attributed to the size of the leading firm. A firm that is able to steer the partnership through network connectivity and competitive positioning is able to enforce their perspective of business operations and directions on other partners. This clearly can compel change in the behaviour of the partners.

This construct and its constituent group of observable elements elicited a high degree of commentary from all respondents. The constructs relating to exercised power and perceived power scored highly with negative responses to exercised power from users of the supply chain. Knowledge and downstream integration also scored high in the negative rating from users of the chain. The surprise factor was the largest response to the construct of rewards across majority of the elements with by all respondents. All commenting from a positive perspective, they all perceived a reward from the interaction.

We have prevented a negative so what is the positive?... we can participate in what should be the most efficient logistical chain to and from New Zealand... Manager, Supply Chain, Firm 1B

It allows them to manage the strategy from containers from source to destination without us interfering or complicating it... we will reap the benefit on the sidelines to that... CEO, National Port

The commentary documents that the H1 is supported, in that higher levels of power asymmetries lead to higher levels of leadership by the dominant player. Underlying this is the recognition, that power is due to size and place in the market rather natural leadership skills or capabilities.

This power-asymmetry was highlighted in the response to the open questions. Nearly all respondents did not offer much discussion of, or rate leadership qualities as being of significance in the development of Supply Chain 1.

Going rates, economies of scale, who takes the benefit? I think the likes of the big firms are capable of doing that...Some of the smaller players, probably some benefit but negligible in the whole scheme of things... GM Strategy and Planning, National Network Carrier

The rewards received by members of the supply chain play a more dominant role than the question of leadership. New supply chain offerings are still in the early stages of development with parties vying for position. The position is important as it will illicit return or reward via a cost saving or profit within the chain.

5.4.2 Hypothesis H₂

H₂: *Higher levels of relational commitment lead to higher levels of performance levels within a supply relationship network.*

Relational commitment in supply chains refers to the depth of the sharing and exchange of tangible and intangible assets to create improved efficiencies and create value. In the bringing together of elements required for value creation, a harmonious connection of interdependencies is required for success. Relationships bring together actors, activities and resources to perform the business functions of a firm. It is the attempt to align these elements that brings improved efficiency. Elements associated with successful partnerships are numerous and vary depending on the type of relationship e.g., arm's length or vertical integration. They can be described with varying terms, such as attachment to a relationship, dependence, reciprocity, trust, communication, investment and reputation.

With our key partners, we try and work in a partnership... We have a range of performance measures and principles that we are guided by with our own customers and then we have to share those with our suppliers... when we have agreed internally to be able to do something, we have to share that with the shipping lines and the trucking customers as well... National Manager, Provider 2B

We sit in the middle and we will make sure that the value sharing mechanisms are balanced between all parties...we look at service and cost measures and we calculate the safety service cost... we combine the legal compliance and all the rules and regulations compliance... CEO, Provider 2D

The research questions utilise elements that indicate whether relationships could be successful or not. Overall the elements of the construct for resources scored the highest response. Relational commitment was seen as a sharing of resources in the environment, with trust playing a role.

Opportunistic behaviour was apparent and parties utilising the supply network spoke negatively to this element.

Because we are combining the customers volume it is actually one of the largest networks in the country, import and export market network or domestic import market, then we believe that the synergistic value and service benefits because you can drive the investment certainty or you can underwrite certain asset investments or certain suppliers, then they can come to market... CEO, Provider 2D

First you must deliver value to survive... make sure that you have in any deals value... in that value delivery if it means significant exercising of your market cover to drive the prices down to an unsustainable level in the market... usually the big customers can do it...if you do this is a short term value, then there's a drop in the service and then your ability to service the customer diminishes... Operations Manager, Shipping Carrier

The research bears out the positive aspect of H2 that higher levels of relational commitment lead to higher levels of performance. All channel members agreed that communication and measurement around the combined use of resources was the key factor.

5.4.3 Hypothesis H₃

H₃: *Misaligned strategy between members in a supply network has an effect on lowering entry barriers allowing other supply networks to compete.*

As presented in Chapter 3, strategic objectives form the basis for business direction and generate goals for a firm to pursue. From a supply chain perspective the business environment of a firm can be said to be dynamic, requiring flexibility and connectivity. As trends emerge with shorter product life cycles, mass customisation and increasing pressure from competitors, the need for a firm to be able to quickly assess a market and change business direction requires an understanding of the objectives and goals of partners within a supply chain. Partnerships require open information sharing and a common vision of what is to be accomplished from a partnership. It is the strength of the combined assets and an understanding of the strategic objectives of partners that enhances value creation and effectiveness within the partnership that creates a competitive advantage. Without this combined effort, each party is acting alone with only the resources of the firm available to perform business.

I would have thought that they have thought of the strength of the relationship we have is pretty solid, they have to rely on us for their survival so they have to tread carefully... GM Strategy and Planning, NZ Freight Carrier

I don't think you are ever in control here, I think this is a dynamic, such a small and dynamic market, to argue that you are in control of all the moving pieces to be able to keep moving forward, that would be a big bold statement that I don't think we would be there to make...
CEO, Provider 1C

An alignment of firms with a shared strategic objective, clearly defined and measurable, outlining what each party will bring to the partnership and how they will perform if developed, brings strength to the partnership. This type of alignment can be felt in the market place. This combined strength of resources allows a firm to develop a working relationship that effectively creates a barrier to entry for other actors. Misalignment opens up an area of business opportunity for other actors who will exploit the weakness to create a business presence. This would allow them access to the markets and customers of the misaligned partnership.

It's all progress...change is progress...it's making the right changes and making the right choices... then you have to have the right strategies and they come back to creating opportunities... CEO, National Port

This research explored the hypothesis that misalignment of strategic objectives would have the effect of reducing barriers to entry for other actors. The research findings indicate a strong response to the elements that define the constructs of network structure, vertical linkages and network synergies. All respondents reacted strongly, commenting that relationship capabilities were the most important element in network strategy.

If I turned back the clock four or five years my answer would have been a resounding yes that relationships are very important and a key element of what you are doing...we need to build very strong relationships but you don't always end up being part of the strategy of another player... but you still need to maintain those relationships... GM Supply Chain, Exporter

Networking in the market with suppliers and customers is one of the key drivers of a model like this...a model like this will not survive or grow otherwise... CEO, Provider 1C

We've always been out trying to improve our network... GM Strategy and Planning, National Freight Carrier

In the New Zealand market, it was hard to ascertain whether there were barriers to others entering the market. The respondents were very clear on the need to communicate and build relationships. They argued that if they were not strong they would form a barrier to entry. The bigger companies perceived that their relative size and cargo volume precluded the entry of other players in the New

Zealand market. However, for a global one, with regard to exporting, their relative (small) size in the market was a barrier to entry.

I'm in alignment with people to customers and people to suppliers...the level of connectivity with them is driven by the capability within the customer... you can have a wonderful strategic decision about a service design but only if the customer understands or expresses a desire to have a wonderful conversation, so initially we do a lot of educating and up skilling the customer... CEO, Provider 1C

This hypothesis was not completely supported in this study. It may be that an understanding of the type and level of barriers to entry will remain unclear until the market matures through the changes of the last two years. This hypothesis therefore remains unsupported in the context of supply chain structure and study.

5.4.4 Hypothesis H₄

H₄: *A defined list of the value propositions available to members of supply networks has a positive effect (lowering) costs and increasing value for the end customer.*

When defined and agreed between partners, value propositions create a stable footing for the partnership. They form part of the business contractual relationship and help guide the partnership in the way it conducts business between the firms and with external connections. By working towards the same goals and aspirations in a strategic sense, firms in a partnership are able to share knowledge and information that helps build trust and enhances collaboration.

I think relationships where we have been working for a very long time, we know each other and are a little bit respectful of each other. They help when you're trying to create those efficiencies, they really do... National Manager, Provider 2B

The communication flow that develops from this type of collaboration enables discussions to resolve business issues. This enables the lowering of costs and brings other benefits to the partnership. As more successes are enjoyed, the flow-on effect to the combined firms becomes evident. This is realised in a tangible, monetary way when linked back to the measurable, defined goals of the partnership at all levels of the business.

If a service is introduced here, it's going to have an effect over there... we are actually quite open in sharing the strategy with our customers and bringing them along for the ride... we also have to do the same thing with our suppliers and bring them along for the ride and keep

things open and honest... if we don't and if we go and do it without network structure in place we won't get to do it again... CEO, Provider 1C

Respondents again were well aware of the tangible aspects of operational efficiency. Value configuration and conversion of that value to a tangible form featured strongly. The users of the chain were positive in their responses to the opportunities that alignment with the larger companies would bring them.

"One thing not mentioned has been their ability to manage volume over forecast... it's been really good... it's something they have definitely achieved that we were never able to..." Manager Supply Chain, Firm 1B

Value creation capability is mainly around the capability around the utilisation of the assets available in the market... CEO, National Port

You should never underestimate the value and the capability of the people and training that we provide to people and also the robust system and business rules and system data structure... CEO, Provider 2D

Our biggest asset is our people... and again for a number of reasons, one is obviously the relationships and networks that they have built up through their networking time with us and the efforts they have put in... and the second a good IT platform for our work, the level of technology available enhances our service offering... CEO, Provider 2D

The hypothesis that a defined list of value propositions has a positive effect on lowering costs and increasing values is supported by the volume of respondent comments and about operational efficiency, value configuration and conversion. They figured highly in this section, with positive agreement from all the respondents of their importance.

5.5 Chapter Summary

The general findings of this research still speak to the nature of the tangible outcomes from relationships and partnering. There is a strong focus on the areas of value creation and operational efficiency, vertical linkages and structure of networks in performance outcomes. Resources collaboration ranks highly under the relational commitment construct and the rewards available for all parties features highly in the area of power imbalance and dependency.

The intangible aspects of partnering were certainly present. They are almost silent, overshadowed by the requirement to put structures in place to manage relationships. As the partnerships mature over time it would be useful to test these ideas again to understand if there is a shift to the softer or

finer details of relationship management, once the basic structures have had time to develop. This would also be pertinent if any of the relationships ran into barriers, to see how these would be overcome by use of the capacities and behaviours contained in this research.

Chapter 6

Implications and Conclusions

6.1 Implications of Research

The research gives some indications of the level of maturity of the collaboration and partnering currently underway in the New Zealand supply chain arena. The creation of the new network structure has been in direct reaction to macroeconomic developments worldwide. How this will play out over time is unknown. What has been shown is the extent of the change to the New Zealand supply chain by our largest exporter and their direct influence on that change.

The change has resulted in other reactions, some understandable and some not. Competitive advantage appears to have been created and it would be fair to say that due to the modest size of New Zealand, it would be hard to compare the advantage over another network player.

The change has resulted in some major shifts in the way businesses think about relationships. Developments in the port industry have had an impact on attitudes towards partnering and asset purchase and enhancement. The rail network has responded and changed how it partners with customers in providing networks to ports via new logistic offerings. All these new changes initially appear to be delivering improvement within the network and are still on a growth trajectory, yet to reach their full potential.

Co-operation has certainly increased in the New Zealand supply chain network, with companies realising the improvements available to their profits via partnering in ways not contemplated before. The recent emergence of a large player in the market place that has been able to aggregate cargo and drive efficiencies has opened the door to new thinking in this industry. The current market is still too young to show signs of how well the barriers to entry into the New Zealand market. This is a small country, resulting in networks that are very strong. We may see logistics offerings change on the seaside of the equation, where these companies operate on a more global level with other shipping companies and competition is strong.

The new supply chain offerings described in this research have created the benefits of cost sharing and efficiencies for partners. Now that the relationship is on this track, it would seem appropriate to assume it would be very difficult to return to past arrangements. An amalgamation of staff and resources along with the intangible benefit that this deeper association has created would be hard to replicate if the parties took a back step to previous structures. The benefits of the new structure are evident. Supply chains of this nature are lean and therefore brittle. It would seem entirely

inappropriate for what is now required by global customers to return to slower more expensive structures.

The implications of the research suggest a positive outcome for continued collaboration and partnering within the New Zealand supply chain industry. The use of the concept model at the early stages of this research has shown the positive aspects of partnering. Applying elements of value network, network and resource based views in a real life situation enables an ability to create performance indicators that are measurable. Future study in this field following the research model outlined in this work could possibly highlight further changes which could include the appearance of barriers.

6.2 Research Limitations

As noted in Chapter 5, changes to the New Zealand supply chain (such as the new offerings described above) are still very new. As such, the industry has yet to test fully the constructs and elements that this study is based on. Due to the small size of the players in the market and the small number of respondents contributing to this project, the findings are biased, making generalisation to the larger context of distribution in New Zealand imprudent. This is a qualitative piece of work and is more concerned with the meaning of the orientations and activities to the firms providing the data than representation of the industry in the larger context.

6.3 Future Research

The research lends itself to further study of the firms involved over time as the new service offerings mature and as the New Zealand market continues to react to the changes itself.

In the area of power imbalances and dependencies, it would be useful to understand if coercion surfaced when targets are not met in the future for all parties. Further study in the area of relational commitment could look at how more intense competition could erode relationships and how the relationships would continue to function if resource levels drop.

Network strategies change. It would be useful to understand how the vertical linkages and network synergies would stay in alignment if one partner began to change their strategic view. This would also have a direct impact on how partners would achieve operational efficiencies and value conversion from a new configuration within an existing partnership. Will increased collaboration in the supply chain enhance its efficiency and profitability? How will the forecast doubling of exports affect the industry, and what will the effects of any changes be? Would partnering and collaboration of the current supply chain offerings continue consolidating and become one of NZ Inc or remain some forms of independence from each other?

6.4 Chapter Summary and Conclusions

The general conclusion of this study is that there has been substantial impact on the New Zealand supply chain with the introduction of a new logistical service offering by New Zealand's largest exporter. During the research sessions with respondents, it was clear from their views some had definite ideas of where the future was heading but others felt the change was too new with uncertain implications yet to play out. This also alludes to the position in the partnership that each respondent was in. The views of the more powerful players who were in a position to drive the collaboration or partnering process were stronger and more futuristic. The other users of the chain who sit further out of the decision making process were not clear as to their role or how they would interact at this point. They formed the more conservative view point discussed. The conclusions are based on those comments, collated and assessed by the writer to form the viewpoints discussed.

Whether that new service offering will lead to positive change is yet unknown. Certainly, its long term impact has yet to be felt. From the respondent commentary, it is clear that it has created positive changes in collaboration, partnering and relationship building. The companies involved are beginning to acknowledge accomplishments in operational efficiencies and cost savings. Looking back at the literature review and value network analysis, we can draw some correlation between the link of performance indicators, strategic positioning and business connecting roles with the positive changes discussed above. On a more general level in New Zealand, the supply chain has seen significant improvement across asset infrastructure and the partnering of critical players in transportation and logistics.

Has this been by accident or design, a question raised by one respondent, and where did the strategies and the tactical manoeuvres begin? It appears that Firm 1A was the instigator of this change, driven to find a solution to service global markets. Trade data and forecasting of trends have recently shown intent by the New Zealand Government to enable the doubling of export earnings via our manufacturing and primary export industries. As one of the largest export companies in New Zealand, with the ability to influence GDP, Firm 1A would have signalled to the government that freight corridors would not be efficient or sufficient to meet the needs of their future forecasts. The use of network analysis highlighted during the study the influencing effect of connects and nodes and how powerful clustering was to creating change in a positive direction for the firm or identity closest to the centre of the cluster.

A coordinated response to future needs was required. These would involve road, rail and sea, and necessitate better utilisation of those modes of transport. In service to this goal, direct analysis of supply chains from all manufacturing plants to point of exit through a port were examined throughout New Zealand. Each individual supply chain was measured for proficiency, efficiency and

cost effectiveness. It was determined that wastage was present in several areas of the chain. As a consequence, new strategies for the use of hard assets were established to minimise costs and free up capital that could be put to better use in more lucrative markets offshore. It was this process that formed the idea of the concept model for this study. By combining value network and network analysis, along with resources of a firm, the process being the tangible informed the intangible idea of collaboration and the outcomes became clear.

Warehousing was re-established and all chains monitored for storage time and usage. Agile supply chains were created with replenishment time frames balanced alongside sustainable and reliable shipping schedules. Trials were conducted on the North and South Island with the most nimble chains. Once operating and working to capacity, further supply chains were modelled from the two major chains chosen to monitor. Re leasing and cancelling warehousing arrangements was the beginning of the shift to consolidation. Customer chains and sales were directed through selected areas of the country based on the requirements of the customer and time to market specifications.

A business plan was mid 2000 to begin the systematic step process required to align critical infrastructure components. This included roads of national significance, the rail network and ports around New Zealand. These national and regional connections were paramount to the successful landside movement of freight. The alignment would contribute enormous savings for Firm 1A, whilst helping to produce revenue for regional and national government. The idea of “NZ Inc.” was formulated, with several arms of this wider network tasked with formulating a strategic plan to connect and align with the larger master plan. A coordinated approach was required for this level of change. Based on trend forecasting, land use was planned in and around major freight corridors. Ports were constrained, within tight footprints and rail providing linkage to ports with inland storage and warehousing, lately becoming known as inland ports.

Rail continued in its mandate to operate sidings and establish rail links from manufacturing points to inland port and port land areas. Firm 1A set a requirement to aggregate cargo at collections points on the North and South Island. This established a need for regular scheduled carrier calls of significant scale. This encouraged larger vessel calls, requiring that ports improve their internal operations and crane rate procedures. International carriers were used to quicken turnaround time in ports, vessels alongside is money lost when moving cargo from point A to point B. As New Zealand ports vied for business, the New Zealand Government continued its hands off approach, thus allowing market forces to prevail in the industry permitted the two major exporters to utilise the ports of their choice to service their supply chain requirements. This resulted in levels or tiers of ports that were able to rise to the challenges caused by these changes. They therefore freed up their internal operations to allow a global approach. This encouraged the larger vessel calls required by

their main customer, Firm 1A. Those regional councils that were asset rich and those that could see the benefits and were also in alignment with Firm 1A's logistical supply chain pipeline stood to reap the rewards of the change to New Zealand's supply chain offerings.

Effectively, this national master strategic plan formulated responded to global market trends. It utilised New Zealand's national freight corridors and major suppliers of movement for freight. It would not have succeeded without each region playing its part and building its own internal critical infrastructure. Central government steered the administration of the national road transportation network and the publically owned and operated rail network. Firm 1A did not quite have the critical mass of cargo to encourage deep water vessels from the more lucrative fast trade lanes to divert to New Zealand. At this point, Firm 1B was offered the opportunity to partner with Firm 1A, having already formed synergistic collaboration connections. Firm 1A also approached Firm 2A, New Zealand's second largest exporter and number one importer to join the partnership. After much deliberation Firm 2A declined to join but could see the benefits of the model that Firm 1A had created.

Firm 2A already operates a similar, smaller model and preferred to retain ownership of its supply chain connections, as they formed a core part of its cost structure. This power play at the national level has created a big improvement to hard asset infrastructure throughout the New Zealand supply chain, enabling it to future proof itself for increases in primary sector manufacturing and export. By following worldwide trends in the supply chain arena New Zealand embraced the partnering and collaboration process. This has seen the development of logistic companies, the partnering of North and South Island ports, and collaboration between independent private manufacturing companies and the rail network. This level of partnering and joint venture establishment is set to continue as New Zealand braces itself for visits by the largest carrier vessels in its maritime history.

These changes were necessary for New Zealand to continue conducting business on a global scale. They have created opportunities across the New Zealand supply chain, which will benefit smaller importers and exporters in time, though not necessarily on a monetary level at the beginning.

6.4.1 Conservative View

New Zealand's second tier logistic providers will see little change in the way they conduct business and will continue to operate in small regional areas under similar management structures. The market will continue to be hard to work in and will mainly consist of trucking companies. Regional logistic corridors not aligned with the two largest exporters will struggle to maintain viable operating ports and will have to fall back on bulk vessel calls serving the requirements of remote populations and primary industries.

The industry is now in a period of growth and change is happening in the top tier of logistic companies, ports and supporting infrastructure. Ports and local authorities will have to take a hard look at their operations. They must be realistic about their economic development outlook for the coming years, as critical mass aggregation of primary sector exports will drive new supply chain formations. Some smaller regional areas may not survive this change. Smaller exporters will find the expense of trucking goods to operational ports expensive and cost prohibitive in the long term and will look to their regional ports for assistance in this area.

6.4.2 General View

The larger second tier operators will begin to see opportunities. These will require an increase in their asset infrastructure or asset equipment. This will include large regional trucking firms and ports with their associated logistical offerings for road and warehousing. Opportunities will be centred on the main towns and cities, with better land use for primary industry manufacturing and production. Second tier operators will continue to service their regional constituents. Opportunities will exist around land use and planning for future expected growth.

It will be imperative for these regions to continue to lobby for improvements to road and rail infrastructure. They will need to both support and encourage their local manufacturing operations in order to succeed. Enabling the establishment and continuing growth of local firms will be a priority, requiring assistance with regional connections, environmental management, community interface and land use planning. The allocation of industrial land will be imperative to the survival of port and rail operations and need to be considered when land is selected for growth within and around districts.

6.4.3 Futuristic View

The two largest operators will converge on servicing offerings between three or four of the largest ports and begin to discuss ways of collaborating. The enticement for cooperation will be the rewards to be gained from pooling their resources in the local environments. This will likely be through working on the internal structure of their networks, including vertical linkages and network synergies. In a very small market like New Zealand, these will begin to overlap. The operational efficiencies and value conversion available to both parties will likely bring them into conversations with a third player, rail, and a possible fourth that focuses on coastal shipping in some form. Over time, rail and coastal shipping will become integral components of both supply chain structures. The first tier level ports will continue to grow as they are privatised. Available funds will be put back into local infrastructure and land utilisation to service the supply chains entering and exiting the port.

In order to compete globally the New Zealand supply chain needs to upgrade its asset base to bring goods to central points in a more efficient manner. This investment should not be limited to just the large players, with smaller firms profiting as well. The requirement of the large operators in New Zealand to upgrade their service to a global standard will enable a continued reliable service for all New Zealand importers and exporters.

6.4.4 In Summary

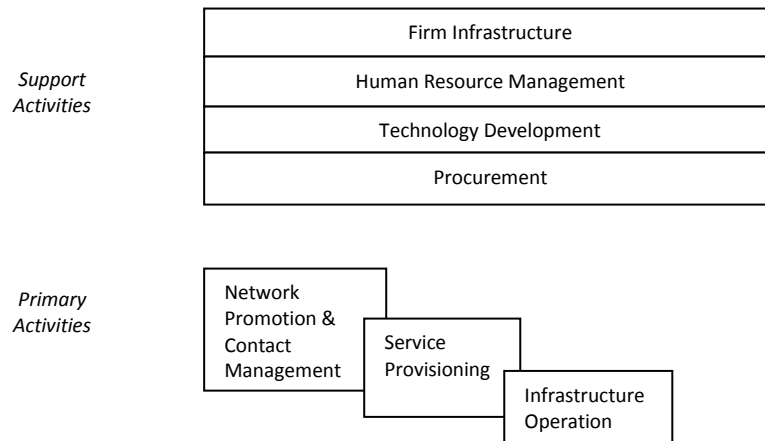
At this point in time the benefits of the strategic change are accruing for the two logistic providers who were created in answer to the requirement of operating at a global level. Associated benefits go to the parent firms but also to those in regional areas where they are fortunate to be geographically placed near the producers, manufacturers and logistical transporters of New Zealand's main primary sector goods.

The changes to the network serve the customer, the end user of the primary goods, as the product has been brought to market in the most efficient and lowest cost manner possible. Effective and sustainable creation of transportation logistics will allow products to continue to reach established and new markets. The improvements to the New Zealand supply chain also benefit those that derive an income in some form from the entire end-to-end process of producing, manufacturing and bringing a product to market. The sustainability and longevity of the manufacturing processes and goods is of benefit to New Zealand both regionally and nationally, as it introduces wealth at every phase of the economic cycle.

There are benefits and opportunities at all levels with the changes to the supply chain documented in this thesis. For example, the investment in local, regional and national transportation corridors benefits all users. New Zealand's continued economic development and wealth creation is crucial to this change. To compete on a global level our manufactured goods and service offerings must be able to be serviced from a global perspective to their customers. To do that, investment in people, infrastructure, land and transportation corridors and supporting industries is essential.

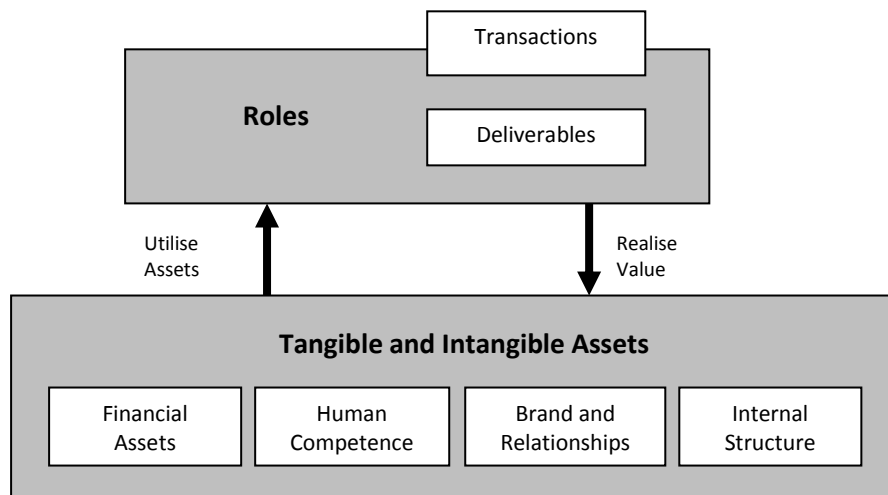
Appendix 1

Value Network Analysis



The Value Network, Baig & Akhtar, (2011) adapted from Porter (1985)

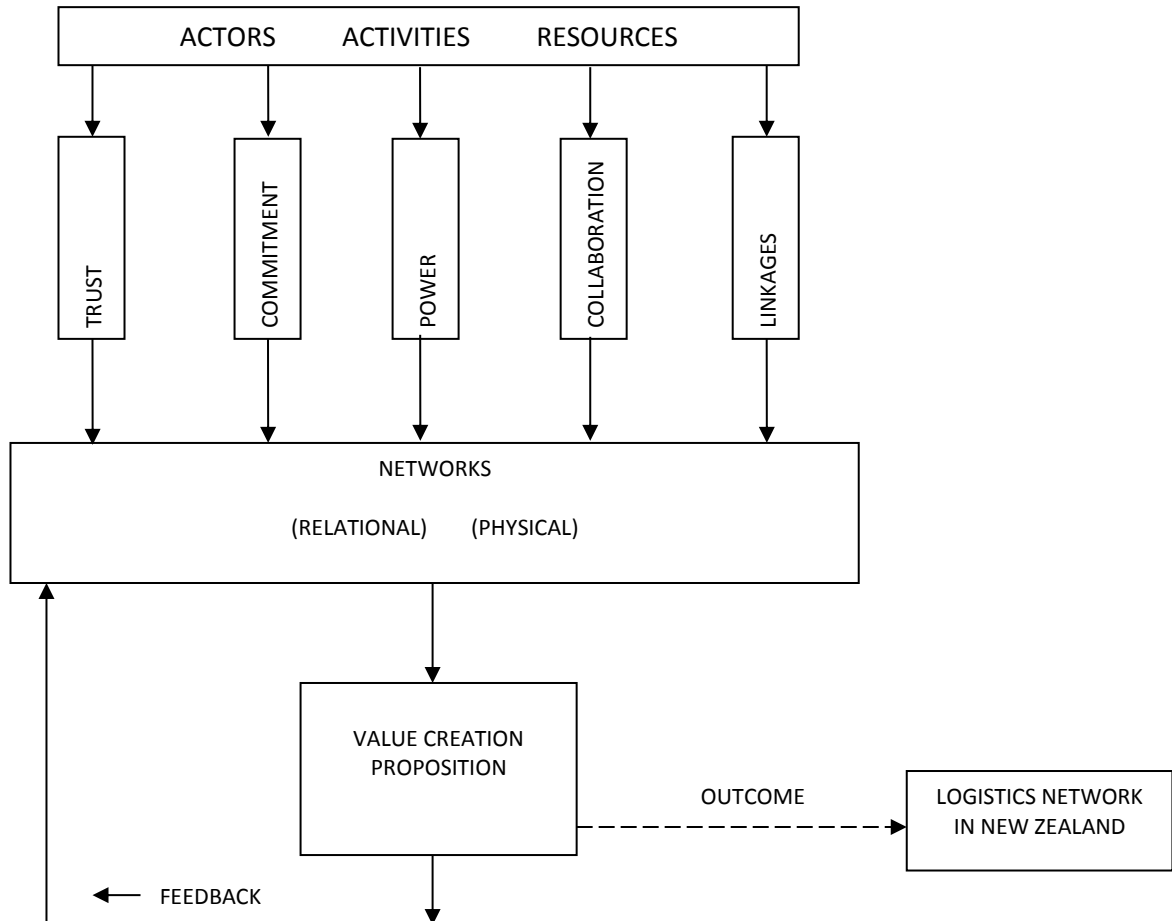
Value Conversion Model



Value Conversion Model of Value Network Analysis. Allee (2008)

Appendix 2

Conceptual Model



Appendix 3

Concepts, Constructs and Elements of Research

CONCEPTS	CONSTRUCTS	ELEMENTS
Power imbalances and dependencies	<ul style="list-style-type: none"> • Perceived Power • Exercised Power • Coercion • Reward 	<ul style="list-style-type: none"> • Competitive Positioning • Firm Size • Brand Strength • Downstream Integration • Market Knowledge • Knowledge Technology • Strategic Resources • Leadership Capabilities
Relational Commitment	<ul style="list-style-type: none"> • Competition • Information • Resources • Environment 	<ul style="list-style-type: none"> • Trust • Collaboration • Innovation • Core Competencies • Opportunistic Behaviour • Knowledge Sharing • Corporate Strategy • Proactive Behaviour
Network Strategies	<ul style="list-style-type: none"> • Vertical Linkages • Horizontal Linkages • Structure of Network • Network Synergies 	<ul style="list-style-type: none"> • Shared Values • Embeddedness • Information Flow • Leadership Capabilities • Relationship Capabilities • Integration Ability • Mutual Outcomes • Strategic Alignment
Value Creation Proposition of Network	<ul style="list-style-type: none"> • Knowledge Creation • Value Configuration and Conversion • Competitive Advantage • Operational Efficiency 	<ul style="list-style-type: none"> • Service Provisioning • Infrastructure Operation • Product Flow • Size of Network Infrastructure • Exchange Enablers • Network Effects – Global or Local • Complementary Membership • Contract Management

Appendix 4

Interview Questions – Open-Ended

Opening Session

- Introduction of the Interviewer
 - My name is Nicole Timney and I am currently a student at Lincoln University, Christchurch. I ask permission to formally interview you in regards to my research on the affect on supply chains of the formation of alternate structured/synergistic logistics networks from a New Zealand perspective. This interview should take approximately 60 minutes though not limited to that time.
- The Participant will be given a list of the open ended questions and the interview will be conducted as outlined above.
- At the end of the interview the Participant will also be asked for the completed survey questionnaire and will have an opportunity to impart any further thoughts re the questionnaire.
- The Participant will be informed of the time line for submission of the draft. Case Study Participants will be given a copy of the draft and comments welcomed before the final submission date, to be arranged between the Supervisor and Researcher.

Appendix 5

Open Ended Interview Questions

Power Imbalances/Dependencies

1. Why has your firm chosen to or chosen not to enter a partnership/alliance structure in regards to the new logistics offering or other similar service offerings?
2. What does your firm feel are the benefits of this type of structure, with or without being involved in this type of service offering, for yourself or other users?
3. What are the possible barriers to this type of structure for yourself and other users of this type of service offering?
4. How does the partnership intend to establish itself as a new market player within the existing supply chain network in NZ? What are the distinguishing features of the partnership from other companies?
5. How has your firm addressed possible power imbalances with your supply chain partners? How have you agreed to manage the possible imbalance?

Relational Commitment

1. How has the your firm developed a set of acceptable practices for cooperation with your supply chain partners? What are they?
2. How has your firm addressed the structure for developing, monitoring and maintaining the relationship with your supply chain partners?
3. How does your firm pursue and share common expectations with your supply chain partners, upstream and downstream? What are the common expectations?
4. Has your firm developed a system for sharing information and resources in collaborative relationships with supply chain partners, upstream and downstream? If so, what are they?
5. Has demand from customers affected the firm's strategic decisioning making stance in regards to forming relationships with supply chain partners? If so, what have been the drivers of change?

Network Strategies

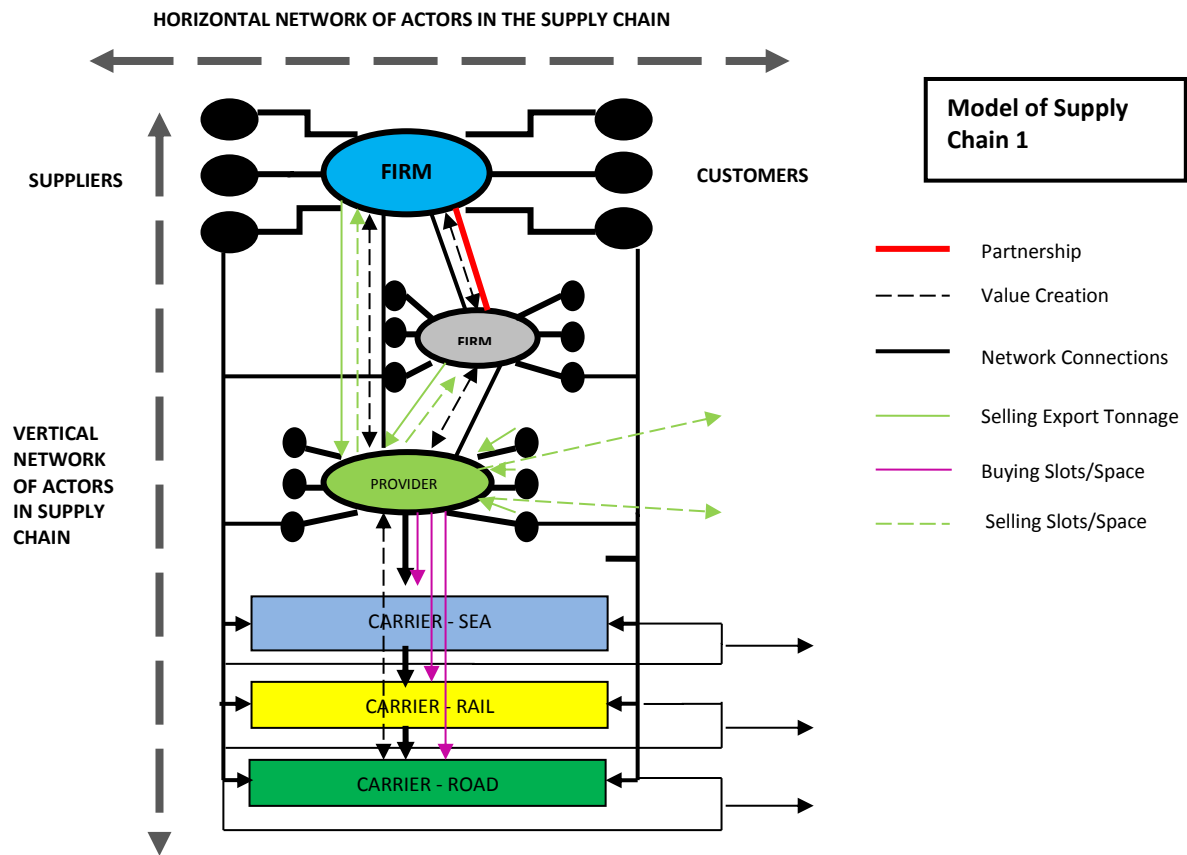
1. How does the firm view its network connections and are they paramount to conducting business? If so, how is this managed and what is the value to the firm?
2. How does the firm build its organisational strategy around its network, does it enhance or detract from the structural dynamics of the firm?
3. What form does the firms network structure take, is it dense or a streamlined network of connections? Explain the level of network connections and what is achieved by this type of structure?
4. How does the firm view its network, is it adaptive, diverse and does it offer the firm strategic capability? If so, what are capabilities that it offers?
5. What other business opportunities are available through the firm's network and does the firm have a strategy to identify and exploit those opportunities to create value?

Value Creation Proposition of Network

1. How does the firm view its value creating capabilities and what does it feel are the value creating assets within and outside of the company structure?
2. What other resources or assets does the firm feel would enhance its value creating opportunities in regards to primary and secondary activities?
3. How does the firm collaborate with its network to create competitive advantage?
4. How does the firms network connections affect operational efficiency and do they add or detract value? What are the value inputs and outputs of the connections?
5. How does the firm enable value exchange within its network and is it at a level or scale to match the needs of the company and its customers?

Appendix 6

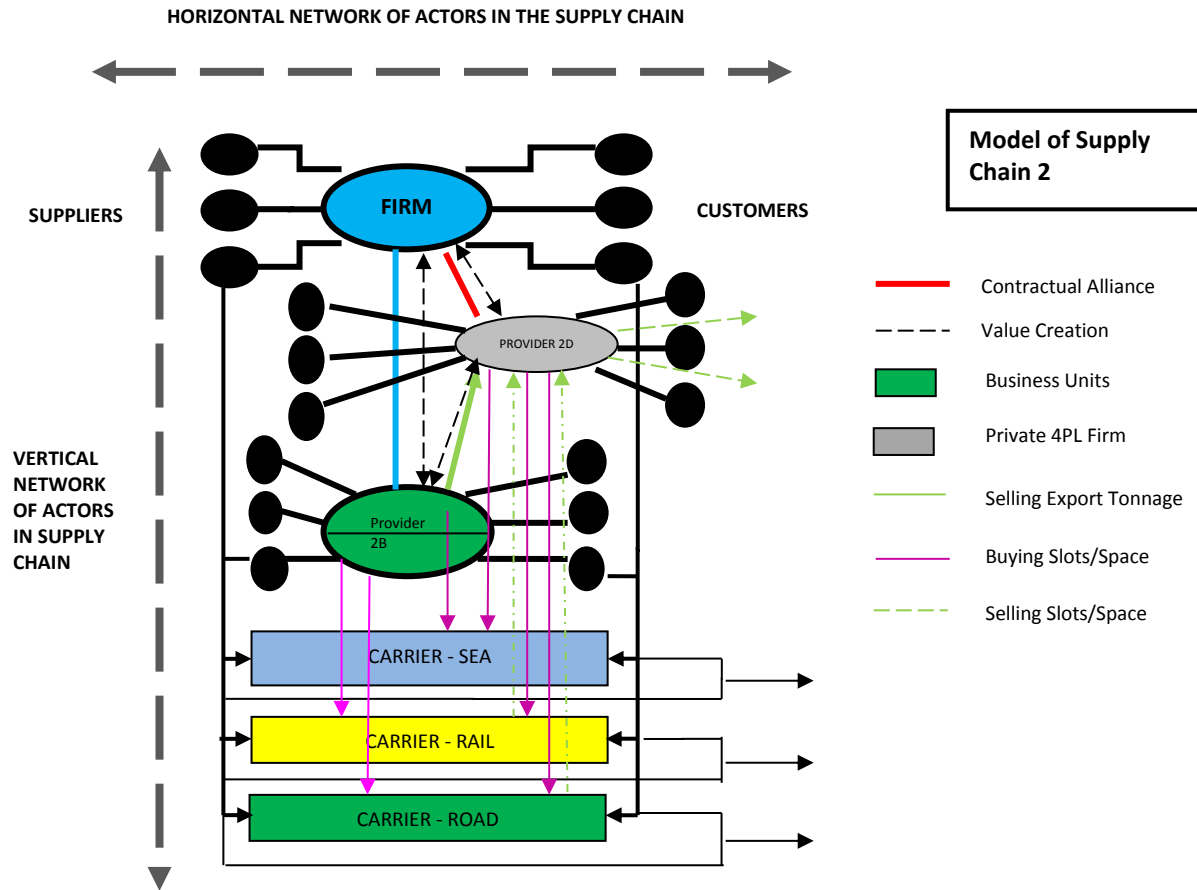
Supply Chain 1



Appendix 6 adapted from Lianguang & Hertz (2001)

Appendix 7

Supply Chain 2



Appendix 7 adapted from Lianguang & Hertz (2001)

Appendix 8

Table 5.1 – Power Imbalances and Dependencies – Responses

CONSTRUCT	COERSION	EXERCISED POWER	PERCEIVED POWER	REWARD
ELEMENT				
MARKET KNOWLEDGE		Negative	Negative	
DOWNSTREAM INTEGRATION		Negative	Negative	
STRATEGIC POSITIONING		Negative		
COMPETITIVE POSITIONING				
BRAND STRENGTH		Positive		Positive
KNOWLEDGE TECHNOLOGY				
FIRM SIZE				Positive
LEADERSHIP CAPABILITIES				

Table 5.2 - Power Imbalances and Dependencies - Respondents

CONSTRUCT	COERSION	EXERCISED POWER	PERCEIVED POWER	REWARD
ELEMENT				
MARKET KNOWLEDGE	6	10	9	10
DOWNSTREAM INTEGRATION	6	9	7	10
STRATEGIC POSITIONING	5	9	8	10
COMPETITIVE POSITIONING	5	6	8	10
BRAND STRENGTH	4	7	8	9
KNOWLEDGE TECHNOLOGY	4	8	8	8
FIRM SIZE	4	6	7	9
LEADERSHIP CAPABILITIES	3	4	6	5

Appendix 9

Table 5.3 – Relational Commitment - Responses

































CONSTRUCT	COMPETITION	INFORMATION	ENVIRONMENT	RESOURCES
ELEMENTS				
OPORTUNISTIC BEHAVIOUR	 Negative		 Negative	 Negative
COLLABORATION	 Negative	 Negative	 Negative	
CORE COMPETENCIES	 Positive	 Positive	 Positive	 Positive
KNOWLEDGE SHARING				
CORPORATE STRATEGY	 Positive	 Positive		
PROACTIVE BEHAVIOUR			 Positive	 Positive
TRUST				
INNOVATION				

Table 5.4 – Relational Commitment - Respondents

CONSTRUCT	COMPETITION	INFORMATION	ENVIRONMENT	RESOURCES
ELEMENTS				
OPORTUNISTIC BEHAVIOUR	9	4	9	9
COLLABORATION	3	9	9	10
CORE COMPETENCIES	4	8	8	9
KNOWLEDGE SHARING	3	7	9	10
CORPORATE STRATEGY	7	8	6	7
PROACTIVE BEHAVIOUR	3	7	8	9
TRUST	2	9	5	10
INNOVATION	5	7	8	6

Appendix 10

Table 5.5 – Network Strategies - Responses

































CONSTRUCTS	HORIZONTAL LINKAGES	NETWORK SYNERGIES	VERTICAL LINKAGES	STRUCTURE OF NETWORK
ELEMENTS				
RELATIONSHIP CAPABILITIES				
SHARED VALUES		 Positive	 Positive	 Negative
INFORMATION FLOW				
INTEGRATION ABILITY		 Negative		 Negative
MUTUAL OUTCOMES		 Positive		 Positive
EMBEDEDNESS				
STRATEGIC ALIGNMENT	 Positive	 Positive	 Positive	 Positive
LEADERSHIP CAPABILITIES				

Table 5.6 – Network Strategies - Respondents

CONSTRUCTS	HORIZONTAL LINKAGES	NETWORK SYNERGIES	VERTICAL LINKAGES	STRUCTURE OF NETWORK
ELEMENTS				
RELATIONSHIP CAPABILITIES	8	10	9	10
SHARED VALUES	5	8	8	9
INFORMATION FLOW	6	5	9	10
INTEGRATION ABILITY	4	8	8	9
MUTUAL OUTCOMES	4	5	8	9
EMBEDEDNESS	5	3	7	10
STRATEGIC ALIGNMENT	3	5	7	9
LEADERSHIP CAPABILITIES	2	3	4	6

Appendix 11

Table 5.7 – Value Creation Proposition of Network - Responses

































CONSTRUCT	KNOWLEDGE CREATION	COMPETITIVE ADVANTAGE	VALUE CONFIGURATION AND CONVERSION	OPERATIONAL EFFICIENCY
ELEMENT				
NETWORK EFFECTS – GLOBAL OR LOCAL				
SERVICE PROVISIONING				
PRODUCT FLOW	 Positive	 Positive		
INFRASTRUCTURE OPERATION				
COMPLEMENTARY MEMBERSHIP				 Positive
CONTRACT MANAGEMENT				
SIZE OF NETWORK INFRASTRUCTURE	 Positive	 Positive	 Positive	 Positive
EXCHANGE ENABLERS				

Table 5.8 – Value Creation Proposition of Network

CONSTRUCT	KNOWLEDGE CREATION	COMPETITIVE ADVANTAGE	VALUE CONFIGURATION AND CONVERSION	OPERATIONAL EFFICIENCY
ELEMENT				
NETWORK EFFECTS – GLOBAL OR LOCAL	6	7	10	10
SERVICE PROVISIONING	8	6	10	10
PRODUCT FLOW	5	8	10	10
INFRASTRUCTURE OPERATION	6	4	10	10
COMPLEMENTARY MEMBERSHIP	6	7	7	9
CONTRACT MANAGEMENT	5	4	10	10
SIZE OF NETWORK INFRASTRUCTURE	4	6	8	9
EXCHANGE ENABLERS	4	4	6	10

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