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**Networking for Gold: A multi-level analysis to explain network
organising dynamics**

A thesis presented in partial fulfilment of the requirements for the degree of
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Abstract

The primary aim of this research is to understand how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength. This is a significant contribution because previous research is based on network studies in which only one level is considered, most of the research is conceptually undeveloped in the area. The research also addresses the measurement of the strength of relationships rather than just their existence or non-existence. Furthermore, this study examines intentionally created networks – an area where there is currently very little research. Thus the study is significant because the new data contributes to the marketing research environment and can be presented to examine findings in other research contexts, including the social policy and not-for-profit sectors.

To address the aim and context of the study it was necessary to understand a national programme which had global objectives. The research involved a multi-method approach that utilised a single case-study strategy with multiple embedded cases consisting of three interdependent, intentionally formed networks, each with a central broker, in the elite and high-performance sport sector in New Zealand.

The overall contributions of the research were: (1) The identification of a new network type, termed here as a *structured* network. (2) The finding that networks that are intentionally created and managed can be durable and effective, and this is dependent on the role of the central broker. This finding has obvious implications for practitioners involved in such networks and for governments that are interested in creating them. (3) The finding that cross-level pressures influence network effectiveness. (4) The finding that relationships developed at the pre-network formation stage contribute to network effectiveness. (5) And finally, the identification of a new stage of intentional network formation. This stage was taken by the New Zealand government issuing a tender in order to gauge the level of interest and the resources available to provide a network of services before establishing it.

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Glossary of terms

Actor is the term used within this study to describe an organisation that is a member of a network (Brass, Galaskiewicz, Greve, & Tsai, 2004; Emirbayer & Goodwin, 1994; Wasserman & Faust, 1995).

Carded sport refers to National Sport Organisations (NSOs) that are supported by the New Zealand Academy of Sport (NZAS). The carded NSOs identify athletes who are then also 'carded'. Being a 'carded' athlete means the athlete has access to the range of services provided by the NZAS. Most NSOs have four carding levels: level 1 is world class, level 2 is international, level 3 is development, and level 4 is junior. Each level offers a different entitlement to the athlete in terms of the amount of support they can expect to receive in their development within that NSO (K. Sadleir, personal communication, May 11, 2004; NZAS – Central, 2003).

Central broker coordinates the tasks of the network, connects actors to other actors, mediates between actors, acts as a gatekeeper for information and chooses who to pass this information on to (Borgatti, Everett, & Freeman, 2002; Hanneman, 2001). Central broker in this research study is used to refer to NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc.

Core actor is an actor located centrally within the network (Gulati & Gargiulo, 1999; Van den Bulte & Wuyts, 2007).

Elite sport within this study is defined as the international level for that sport. *Elite sport system* includes the organisations and processes to develop elite-level athletes within a nation (K. Sadleir, personal communication, May 11, 2004; SPARC, 2005).

Focal actor is the specified actor in the network that is the main focus of the network activity. The network taken from the focal actor view point is referred to as its *ego net* (Mitchell, 1969; Van den Bulte & Wuyts, 2007; Wasserman & Faust, 1995).

High performance sport refers to national and international level of sport competition.

High-performance sport systems comprise the organisations and processes which include sports science, sports medicine and talent identification that develop athletes at a national and international level (SPARC, 2005).

National Sport Organisations (NSOs) are the organisations responsible for the governance, regulation and overseeing of a particular sport in New Zealand (SPARC, 2003c).

Network within this study comprises of organisations and the connections or links that exist between them that represent relationships (Emirbayer & Goodwin, 1994; Johannisson, 1987a; Mitchell, 1969).

New Zealand Academy of Sport (NZAS) is Sport and Recreation New Zealand's (SPARC's) branded high performance strategy comprising of three interdependent, intentionally formed networks and a national office responsible for the delivery of high performance sport in New Zealand. SPARC owns the brand name 'New Zealand Academy of Sport' and funds the three networks. Each network is coordinated by a specially set up organisation for this task, the organisations being NZAS – North Inc., NZAS – Central Inc. and NZAS–South Island Inc. Each is an incorporated society which acts as a focus organisation for the coordination of elite and high-performance sport delivery within a separate geographic area within New Zealand. Each of these incorporated societies has developed its own unique network for this purpose (NZAS - Central, 2003; NZAS - North, 2003; NZAS - South Island, 2003; SPARC, 2003a, 2006).

Olympic Games refer to the Summer Olympic Games unless otherwise stated.

Sport and Recreation New Zealand (SPARC) is the governing body responsible for sport within New Zealand (SPARC, 2002).

Regional Sports Trusts (RSTs) are sport and recreation education charitable trusts. There are 17 RSTs in New Zealand (at the time of this research). Their role is to promote healthy, physically active lifestyles and to provide sport and recreation expertise to the regions that they serve (Sport Canterbury, 2006c, 2006e; Sport Wellington Region, 2006c).

Chapter One
Introduction to the study

1.0 Introduction

This thesis is a theory-building study and is concerned with *understanding how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength*. This research is significant as there is currently a gap in this area of study within the network literature. Most prior research in network studies is based on networks in which one level is considered (Brass et al., 2004; Möller, Rajala, & Svahn, 2005). Also few studies have been conducted in a national not-for-profit organisation, making this particular study a relatively new context for network research. Because the objectives of the network researched in the study were socially constructed, the findings from this research are relevant and of interest to other not-for-profit and social policy sectors. To address the aim of the research it was necessary to understand a national programme which had global objectives, as this informed the context in which the study was based. The study was based on understanding the elite and high-performance sport sector in a New Zealand setting. A national view was necessary in order to fully comprehend the network approach taken and the influences acting upon it.

1.1 Background to the area of research interest

Networks play a critical role in the acquisition of resources necessary for organisation growth and survival in the global environment (Dyer & Singh, 1998; Ford et al., 2000; Gomes-Casseres, 1994; Gulati, 1998; Håkansson, 2006; Hite & Hesterly, 2001; Sadler & Chetty, 1999). Parkhe, Wasserman, and Ralston (2006) note that this critical role has given rise to the phenomenal impact of networks in global business. These networks have become increasingly important for the prosperity of a country (Wilkinson, Mattsson, & Easton, 2000), and this importance has placed both an increasing demand on networking skills and abilities, and on networks to be effective in what is today an ever-increasing and fast-paced economy (Ariño, de la Torre, & Ring, 2001; Milgate, 2001). Relationships created by the formation of networks are important tools in developing competitive strategy, and so organisations form networks to reduce uncertainty, to acquire resources necessary for production, to enable working towards collective goals, and to enhance the

legitimacy of their organisation to others (Brass et al., 2004; Hellgren & Stjernberg, 1987; Hoang & Antoncic, 2003). Network relationships provide access to:

... information, resources, markets, and technologies; with advantages from learning, scale and scope economies; and allow actors to achieve strategic objectives, such as sharing risks and outsourcing value-chain stages and organisational functions.

(Gulati, Nohria, & Zaheer, 2000p. 203)

Network relationships allow an actor belonging to the network to generate greater returns than those obtained solely from the individual organisation's resources (Coviello & Munro, 1995; Dyer & Singh, 1998; Gulati, 2007; Powell, 1990).

The network approach evolved from the study of how organisations in a business context seek to be more competitive by becoming more flexible through reorganising the nature of their production, and by the ways in which they cooperate with other organisations to leverage resources (Gomes-Casseres, 1994; Gulati, 1998; Gulati et al., 2000; Miles & Snow, 1992; Varadarajan & Cunningham, 1995). This is because hierarchal forms of organisation are no longer adequate to ensure organisation survival (Achrol & Kotler, 1999). Gomes-Casseres (1994) and Miles and Snow (1992) noted that networks arose out of a need in the 1980s and 1990s for smaller organisations to create group-based competition in order to be able to compete effectively in the global market place with larger US organisations. The phenomenon gave rise to the observation of the formation of relationships by naturally emerging networks referred to as 'organic' networks (Day, 1995; Dyer & Singh, 1998; Miles & Snow, 1992; Powell, 1987).

Interest among researchers and practitioners has now shifted from organically forming networks to the study and creation of networks that are intentionally formed and often coordinated by a central broker. The intentional creation of a network is of interest to practitioners as governments and organisations seek to induce the same benefits offered by organic networks in enabling smaller organisations to compete globally by joining together with others (Galaskiewicz, 1996; Powell, 1990). Examples of the formation of networks aimed at creating the same advantages as organic networks are cited in research undertaken

by Chetty and Blankenburg Holm (2000) and Chetty and Patterson (2002), who describe how the New Zealand government has actively promoted and provided incentives to manufacturing organisations to collaborate with others so that they can compete globally, and by Dyer and Nobeoka (2000), who note the benefits accruing to Toyota as a result of their network production system.

Researchers note the benefits of partnering with others, so it is important that networks are effective. Effectiveness is evidenced by the 'business development' of the networks (Mouzas, 2006) through the management of structures and relationships (Tuominen, Rajala, & Möller, 2000). However, little research has been undertaken to investigate whether the partnering has been effective. Instead, studies have examined either cost efficiencies or critical factors for success (or failure), rather than effective business development from networks (Campbell & Cooper, 1999; Mouzas, 2006; Parkhe et al., 2006). The importance of network partnering is discussed next.

There can be a dark side to belonging to a network because not all relationships are beneficial. In some cases the network can operate as a constraint for the organisation by preventing the organisation from developing relationships with others and by incurring costs when relationships fail and are terminated (Achrol & Kotler, 1999; Birkinshaw, Bessant, & Delbridge, 2007; Day, 1995; Gulati et al., 2000). An example of a network acting as a source of constraint is cited by Gomes-Casseres (1994): the network of a Silicon Valley start-up company, MIPS Computer Systems, experienced runaway growth which resulted in its effectiveness being hampered. Gomes-Casseres also cites Sun Microsystems which 'locked-in' important partners in Europe and Japan to gain early-mover advantages. Those organisations that were locked-in experienced a loss of power and their actions became dependent on their network partners. Such unexpected disadvantages may at some point limit an organisation's actions as they become subordinate to those of the network (Gomes-Casseres, 1994). Birkinshaw et al. (2007) provide an analysis of Apple Computers' problems in the late 1990s, which were as a direct result of their refusal to build relationships outside of their core allies. They contend this indicates that organisations which are slow to move in joining a network will end up with a choice of

forming relationships with less desirable partners, whereas Miles and Snow (1992) predict the benefits to network organisations will decline over time due to mistakes made by management.

The high failure rate of relationships is also a major concern (Elg & Johansson, 1996; Håkansson & Ford, 2002; Havila & Wilkinson, 2002; Wilkinson & Young, 2002). Costs incurred when relationships fail and/or are terminated include the time that management has spent in assessing performance before coming to this decision, opportunity costs that were not realised from the relationship, and loss of time in terms of gaining competitive advantage through a head start on the rest of the market. These costs may create other disadvantages, including scepticism by management of future relationships which may as a result not be pursued based on previous experiences (Campbell & Cooper, 1999; Day, 1995; Powell, 1990). Day (1995) argues that seven out of ten relationships built with other organisations will fall short of expectations and are ultimately disbanded. Noble, Stafford and Reger (1995) note the high reported failure rate for relationships and cite a Rubicon Group International study of Silicon Valley organisations partnered with Asian companies in which 95% of relationships failed to achieve their expected objectives. Ford and Redwood (2005) identify failure arising from attempts by actors to hold power over others in order to hold power over aspects of the network, which then limit the possibilities of partnering with others. These factors are important to understand as network demise incurs considerable cost for governments and for the organisations involved in them (Gulati & Gargiulo, 1999). However, Havila and Wilkinson (2002) also suggest relationships may dissolve for reasons emanating from external circumstances, yet these networks were able to reform and continue trading.

To summarise, networks are important and play a critical role in achieving benefits to an organisation, but they can also be ineffective and incur costs which end up constraining the organisation. It is therefore important to understand *how* the organising dynamics impact on the network. The next section examines the problem orientation for this current research.

1.2 Problem orientation

Examination of the network literature revealed that there has been a significant amount of research into the area of networks and the rationale for how they function, yet it is an area that is still being understood by researchers and has many unanswered questions (Brass et al., 2004; Gulati, 1998; Parkhe et al., 2006). For example, most of the research is conceptually undeveloped in the area of intentionally formed networks; these have not been given enough attention, especially as management interest in developing them is noted by a number of researchers (Galaskiewicz, 1996; Pihkala, Varamäki, & Vesalainen, 1999; Tikkanen & Parvinen, 2006).

Many (prior) network studies have been approached from a static one-point-in-time perspective which does not capture or explain the dynamic and complex nature of networks (Brass et al., 2004; Coviello, 2005; Halinen & Törnroos, 2005; Soda, Usai, & Zaheer, 2004). These studies have also tended to examine networks from a single level of analysis and this approach does not take into account the cross-level pressures or the different objectives of the multiple levels within the network that have been identified by Brass et al. (2004) and Möller, Rajala, and Svahn (2005). Studies have also focused on the existence or non-existence of a relationship between organisations, rather than on the strength of that relationship. The strength and content of relationships between organisations, rather than merely their existence or non-existence, have now become a concern for researchers because a deeper understanding of networks has led to increased interest in these relationships (Brass et al., 2004).

Other research states that both informal coordination mechanisms and structural aspects need to be jointly considered in order to understand networks, even though most prior studies focus on only one of these two aspects (Benson-Rea & Wilson, 2003; Coviello, 2005; Håkansson, 2006). The context of the network also needs to be understood for the data to be meaningful (Achrol, 1991; Anderson, Håkansson, & Johanson, 1994; Cook, 1977; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002).

Despite networks being studied extensively, there are still many unresolved theoretical and empirical questions (Parkhe et al., 2006). These are:

1. Network research has mainly focused on understanding and explaining organic networks; most of the research is conceptually undeveloped on intentionally formed networks. An understanding of these networks is essential and is an area that needs further research.
2. Networks are complex and dynamic and so to be understood need to be studied over time; many prior studies have taken only a static examination of networks. Research is needed which addresses the complexity of studying a network over time.
3. Networks consist of both structural and informal coordination mechanisms, and both need to be considered; prior studies have tended not to address both these dimensions in the same study.
4. To make sense of the network, its context also needs to be understood. Network theory has not been readily applied to the context of the sport industry, and no academic study has been carried out into networks in high-performance sport provision in a New Zealand context.
5. Networks are affected by cross-level pressures within them; prior studies have approached the study of networks at only one level.
6. The strength of relationships within networks is significant, although most prior studies have considered only the existence or non-existence of a relationship. There is a call for research into this area.

The current study addresses these unresolved concerns and builds theory by examining the organising dynamics within an intentionally formed network; furthermore, it does this by measuring tie-strength at multiple levels within these organisations. A mixed-method research approach for the study is used to address concerns about dynamics and is discussed later in this chapter. The secondary aim of the research is to understand the network context in which the study is based; this is discussed in section 1.4. The contribution of the study then is significant given the repeated calls for more enquiries into networks from a number of researchers (Brass et al., 2004; Galaskiewicz, 1996; Gulati,

1998; Håkansson, 2006; Hoang & Antoncic, 2003; Pihkala et al., 1999; Tikkanen & Parvinen, 2006).

1.3 Objectives and research method

This study develops insights that make a valuable contribution to understanding networks and builds theory by addressing a gap in the literature; this will, in turn, inform industry practice. *The aim of the research is to understand how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength.* The research is conducted within an intentionally formed network. This is a significant contribution because prior research has been based on network studies in which only one level is considered, the network is examined from a static point in time, and the measurement of tie strength is not taken into account. The study also investigates an intentionally created network in which the overall network objective socially constructed. This is significant because the new data obtained in this study can be used to examine findings in other research contexts, such as the not-for-profit and social policy sectors. A sport-sector context was selected to address the aim of the research, and then theoretical and empirical studies of the network literature and sport management literature were examined. The study has the following three objectives:

1. To develop insights that make a valuable contribution to network theory by progressing understanding of intentionally formed networks grounded in managerial practice.
2. To understand from a multi-level network perspective how the organising dynamics contribute to the operation of an intentionally formed network.
3. To investigate and understand how, from a managerial perspective, an intentionally formed network approach has been used for a national programme to achieve global outcomes.

A multi-method research approach was used for two reasons: First, the nature of the study is theory building since relatively little has been published in the areas of intentionally formed networks or networks in a not-for-profit context; thus a qualitative approach was

needed. And second, a quantitative approach enabled the measurement of structural aspects of the networks and of relational aspects between actors. As such, the case-study strategy was chosen as the most appropriate research approach as it offered a means of combining qualitative and quantitative techniques and is the best match with what was being investigated: “It is obvious that case strategy is most suitable for the study of business networks” (Halinen & Törnroos, 2005, p. 1286).

One particular aspect of the sport sector in New Zealand was selected as an appropriate context within which to base the study. It comprises a national programme with global objectives within which there are three distinct embedded cases, these being the three interdependent, intentionally formed networks that make up the New Zealand Academy of Sport (NZAS) system: NZAS – North network, NZAS – Central network and NZAS – South Island network, together with the client organisations of these network services. This is an appropriate context for the study as the three interdependent, intentionally formed networks were set up at the same time, under the same conditions, and with the same objectives.

The use of polarised cases affords a contrast and comparison between each, generating more powerful explanations (Eisenhardt, 1989a; Halinen & Törnroos, 2005; Yin, 1994). The approach adopted was a retrospective, longitudinal single embedded case study. The retrospective, longitudinal element of the research method captured the dynamic aspect of the networks over time. Some quantitative techniques are included in the research method to address calls for measurement of both structural and relational dimensions.

1.4 Context of the study

To address the aim of the research it was necessary to understand a national programme which had global objectives as it informed the context in which the study was based. The context chosen was the elite and high-performance sport sector in New Zealand. A national view was necessary to fully comprehend both the network approach taken and the influences acting upon it.

The elite and high-performance sport setting is unique as organisations within it serve different business sectors, have different mission statements, and have a different (business) focus and objectives from each other. This is in contrast to business networks which are comprised of organisations in similar business markets with similar mission statements and objectives to each other (Erickson & Kushner, 1999). It is, however, an appropriate setting in which to undertake the research as it is similar to other industry settings in terms of the flow of goods and services. The elite and high-performance sport sector can be a major revenue-earner for a country, evidenced by the deliberate staging of mass sports events to attract revenue and tourists. (For examples, see the studies of Dong, Droege and Johnson (2002), Gibson (2003), Higham and Hinch (2003), Hong (1997), Standeven and De Knop (1999), and Taks and Kesenne (2000)). The importance of events such as the Olympic Games for a country is demonstrated by successive governments being prepared to aggressively develop such opportunities for their nation. For example, both London and New York offered financial incentives when bidding for the 2012 Olympic Games – and both bids were subsequently investigated by the International Olympic Committee (IOC) as a result of concerns over those nations offering unfair financial assistance packages to the sports and athletes who would be taking part in these Games (*London and New York under IOC microscope*, 2005). The importance to the United Kingdom of winning the 2012 bid was seen in the tabloid newspapers: all carried front-page stories celebrating the achievement and, incidentally, also referencing cross-channel rivalry between England and France (*British media delight in London's joy*, 2005).

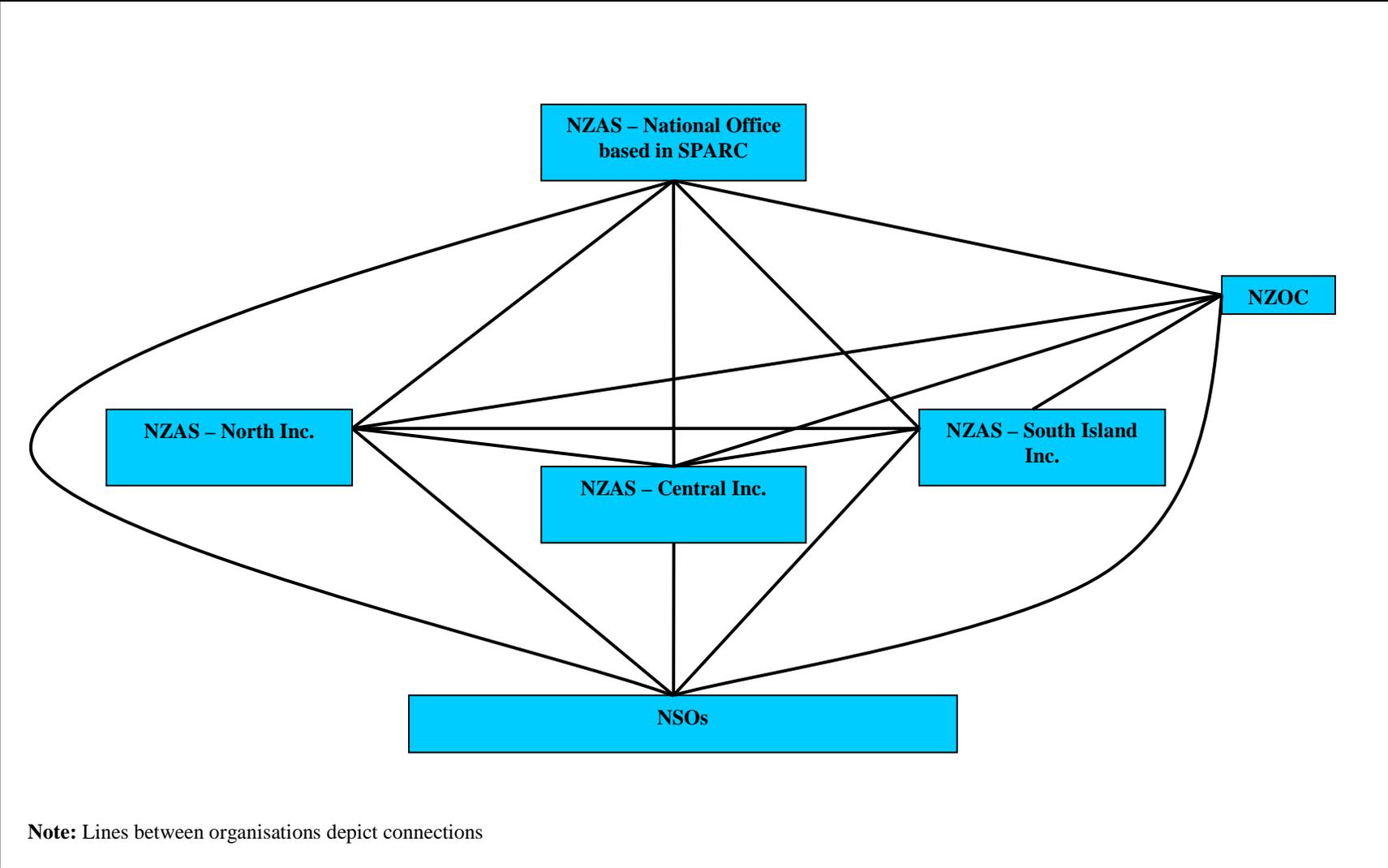
An intentionally formed network approach was adopted by the New Zealand government with the view of improving New Zealand athletes' success at the highest international level, the Olympic Games. What is new about the approach for the New Zealand sport sector is that one agency was created and charged with the sole task of being responsible for sporting success at a global level; previously this task had been shared by a number of organisations. The approach taken was initially based upon the creation of relationships, rather than the development of new facilities. It relied on leveraging a competitive advantage by bringing together a number of organisations to share resources under a national programme with global objectives. The intentionally formed network was

contractually created and relied on three interdependent parts of the network working together with their respective community partners. Each regional network is coordinated by a central broker. This is very different to approaches adopted by other nations as most countries' elite sport systems encompass specially built, designated training facilities. Figure 1.1 shows the structure and links between the embedded NZAS networks.

The approach and its development are the result of two factors: First, New Zealand's medal count at the Summer Olympic Games was in danger of being overtaken by other countries that were prepared to invest more heavily in the resources necessary to win at an elite level (T. Mallard, personal communication, May 26, 2005; K. Sadleir, personal communication, May 11, 2004; 1999; Whineray, 1995). The delivery model for the development of all sport in New Zealand, including high performance and elite sport, underwent major changes with the formation of a new sport agency in 2002.¹ Sport and Recreation New Zealand (SPARC) was formed in February 2002 and launched on 14 July later that year, following the merger of three organisations. It was established by the Sport and Recreation Act 2002, and reports to and advises the Minister for Sport and Recreation (T. Mallard, personal communication, May 26, 2005; SPARC 2003c). Part of the brief for SPARC was to take over the development of and support for elite and high performance sport; (a network approach had initially been developed by the New Zealand Sports Foundation). SPARC now delivers services through their branded high performance network: the New Zealand Academy of Sport (NZAS). The NZAS system has four parts to it: the high performance unit in SPARC, which is the NZAS – National Office, and the three regional networks each coordinated by a central broker, i.e. NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc.

¹ SPARC (Sport and Recreation New Zealand) replaced the Hillary Commission, the Office of Tourism and Sport and the New Zealand Sports Foundation, all previously responsible for this role.

Figure 1.1: Structure and links of NZAS network



A significant difference that separates this study from others is that the key area of investigation is focused on intentionally formed networks. Such networks formed by governments in other industries are created with the intention of the central broker handing over eventual power to the network member organisations (Chetty & Blankenburg Holm, 2000; Chetty & Patterson, 2002; Welch, Welch, Wilkinson, & Young, 1996, 2000); that is not the case within the industry context of this study.

Network theory has not been readily applied to the sport sector and it is an emerging area of study in which very little has been published (Cousens & Slack, 2005; Erickson & Kushner, 1999; Thibault & Harvey, 1997; Wolfe, Meenaghan, & O'Sullivan, 2002). Given the relative newness of both the creation of networks in the sport sector and the academic study of them, this study is especially relevant: it will help the understanding of intentionally formed networks in this sector, as well as contribute to the development of network theory through the uniqueness of this setting.

As this study focuses on the sport sector and organisations which are not financially driven (as opposed to sports which are financially driven e.g. the All Blacks), clearly this work will have relevance for the not-for-profit sector – for example, arts organisations, health care, and traditional charities – and also the social policy sector. Organisations in these sectors are facing challenges of reaching beyond their traditional markets because their environment is becoming more complex and competitive. Seeking collaborative arrangements with business to access corporate resources to form networks is an effective means of reacting to environmental changes given the increasingly important role these sectors have in providing their services (Barraket, 2008; Palakshappa, Bulmer, & Eweje, 2008; Zappalà & Lyons, 2008).

The challenge for the not-for-profit and social policy sectors is also one of organisations having to manage scarce resources in line with their objectives, which may not be financially driven (Hatten, 1982). The management of these scarce resources is critical because these sectors as a whole are experiencing growth and their services are becoming increasingly important; as a result, there is increasing competition to attract funding and to

develop services aligned with customer expectations (Barraket, 2008; Wolpert & Reiner, 1984).

Managers in the not-for-profit and social policy sectors face the same tasks and have a similar responsibility to serve consumers effectively as their counterparts in any profit-driven organisation. This means the manager of a not-for-profit or social policy service must also continually assess the strategies employed and effectively manage them, while considering the environment in which their organisation operates (Hatten, 1982). However, not-for-profit and social policy organisations are rarely structured adequately to meet the challenges in their environment due to a lack of administrative competence, professionalism and vision (Barraket, 2008; Hernández, 2002). Thus the current research may offer an alternative effective framework that could enable a not-for-profit and social policy organisations to respond to environmental changes and compete with others in their sector. Such an approach would enable the mobilisation of resources by creating network structures that combine business logic with the sectors' values (Barraket, 2008; Zappalà & Lyons, 2008).

1.5 Chapter summary and thesis structure

The contribution of this research study will be important and relevant to the not-for-profit and social policy sectors. Networks play a critical role in organisational growth in a global environment; however, there can also be a dark side to belonging to a network as not all network relationships are effective, and resulting costs can constrain an organisation. Most network studies investigate networks in which organisations belonging to them have similar over-arching objectives and the networks themselves are naturally forming. This research addresses a gap in the area of study within the network literature and builds theory by understanding how organisations with differing objectives, as well as the multiple levels within them, influence effectiveness in an intentionally formed network. The context for the research study is a national programme with global objectives: the elite and high-performance sport industry in New Zealand.

The research study is organised into seven chapters. Chapter One has provided an introduction to the significance and relevance of intentionally formed networks and the

context in which they are investigated. Also outlined are the research issues identified from within the network literature, and the research objectives and approach taken to address the gaps in the literature. Chapter Two reviews the literature on networks, explores the research issues in more depth, and presents a conceptual framework for the study. Chapter Three investigates the context for the study. Following on, Chapter Four gives a detailed discussion of the research method and design used in the study. Chapter Five presents the within-case analysis consisting of the three embedded, intentionally formed networks: NZAS – North, NZAS – Central and NZAS – South Island. Chapter Six presents the cross-case analysis and the themes and propositions emerging from this phase of the research process. Finally, Chapter Seven concludes with contributions to theory and methodology, and management implications. The final chapter also notes future research directions and implications for managers involved in network relationships.

Chapter Two

Review of literature on networks

2.0 Introduction

This chapter reviews prior literature on network studies with the intention of seeking to identify a gap in the area of research interest. To meet this purpose an examination of theoretical and empirical studies of networks was used to inform the study. These studies have also been used to inform and build the theoretical framework. The network form, role of central brokers and informal coordination mechanisms comprise the core of this framework. The first part of the literature review explores and identifies gaps in the literature from prior network studies, and the second part examines prior studies in order to understand aspects of network dynamics necessary to address the research question. Specifically, the review is set out by presenting (1) the research aims, (2) consideration of literature for the present study, (3) network context, (4) definitions and key network constructs, (5) forms of networks, (6) the role of the central broker, (7) informal coordination mechanisms and (8) the chapter summary and conclusions.

This review adopts an original approach on network theory: the network theory is used to examine theory in practice in a sport-sector context. From this review a need has been identified for an alternative perspective. The present study investigates network organisations in which the overall network objective is socially constructed. This new perspective is important because it can be utilised to examine findings in other research contexts, such as the not-for-profit and social policy sectors. The following section discusses the aims of the current research study.

2.1 Research aim

The aim of the current research project is to understand how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength. This research addresses a gap in the literature because while much research has been undertaken on organic networks, few studies have been done in the

area of intentionally formed networks (Galaskiewicz, 1996; Pihkala et al., 1999; Tikkanen & Parvinen, 2006).

The research is important as there is a need to understand intentionally formed networks; this is further demonstrated by government and organisational interest, which was discussed in Chapter One. The present study also answers a call for further research to identify and categorise both the different types of network structure and the important features of them; this call for further research was begun by Liu and Brookfield (2000) and continued by Håkansson (2006) and Möller and Rajala (2007). Also, few research studies have been undertaken into networks in the sport-sector context, making this study of interest to that particular sector (Cousens & Slack, 2005; Erickson & Kushner, 1999; Thibault & Harvey, 1997; Wolfe et al., 2002).

To address the aim of the research it was necessary to understand a national programme which had global objectives, as this was the context in which the study was based. Understanding the context is of particular importance as industry events can affect the shape of the network (Anderson et al., 1994; Madhavan, Koka, & Prescott, 1998). For this purpose the elite and high-performance sport sector in a New Zealand setting was chosen. The following section considers which literature is to be included in the present study.

2.2 Consideration of literature for the present study

There is a plethora of scholarly writing on networks, which clearly indicates the need to be selective in deciding what is to be included in – and what is to be excluded from – the literature review for the current study. A review of network literature is problematic because the literature is broad and extensive in nature. There are two reasons for this: First, network studies have attracted considerable interest across a variety of research fields including Industrial Marketing and Purchasing Group (IMP), Entrepreneurship, Strategic Management, Social Exchange Theory, and Information Technology – to name but a few. Network studies also appear in every aspect of organisational research (Gössling, Oerlemans, & Jansen, 2007). Second, the growth of published research from these different perspectives has led to a large range and diversity in meaning for key network constructs

(Hoang & Antoncic, 2003; Johnsen, Wynstra, Zheng, Harland, & Lamming, 2000). To deal with this complexity and to solve this problem for the current study, relevant aspects from the different research perspectives noted above are used to inform this research. However, it is not within the scope of this study to reconcile the different perspectives within the network literature; rather, by combining the literature on networks, it is intended that a fuller understanding of the phenomenon under investigation here is reached and a theoretical base developed for this study. To avoid confusion it was therefore important to carefully define the terms used in the study, and these are explained in section 2.4.

A number of prior research studies explicitly state that to fully understand a network both *structural* and *informal coordination mechanism* dimensions need to be considered jointly (Hoang & Antoncic, 2003; Mitchell, 1969) and that both are also required for understanding the organising dynamics of a network (Tuominen et al., 2000). (The term 'organising dynamics' is defined in section 2.4.1). What has tended to happen in the network literature is that only one or other dimension is considered; this has been noted by a number of researchers as a gap that needs to be addressed (Benson-Rea & Wilson, 2003; Coviello, 2005; Håkansson, 2006). To deal with the gap, both structural and informal coordination mechanism dimensions are examined in the current study.

Previous network research has been criticised for its focus on cross-sectional data taken at only one point in time (O'Donnell, Gilmore, Cummins, & Carson, 2001). Networks need to be understood over time because their *dynamic* nature means that they are constantly changing; this has been noted by a number of researchers (Brass et al., 2004; Coviello, 2005; Ford & Redwood, 2005; Halinen & Törnroos, 2005; Hite & Hesterly, 2001; Larson & Starr, 1993; Melin, 1992; Soda et al., 2004). To meet this criterion, prior studies concerning formation and subsequent development stages of networks were examined. However, this approach is problematic in two ways: First, by giving consideration to these key areas there is an overlap between the areas of formation and early initiation stages. Second, informal coordination mechanisms cannot be examined without considering structure, and both need to be considered when examining the *dynamic* aspect of networks. In order to overcome and solve these problems, the current literature review unravels and

presents these areas separately. By assessing the literature in this fashion it was possible to identify key constructs which link to the key aims of the research, i.e. to understand network dynamics within intentionally formed networks. These constructs provide the analytical boundaries for the study.

Understanding the network *context* is also important because the network responds and attempts to control the environment within which it is located (Achrol, 1991; Anderson et al., 1994; Cook, 1977; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002). Therefore context is also examined within this review – it is briefly discussed next and is then explored more in-depth within Chapter Three. By separating the literature into two distinct parts, Chapter Two focuses on network studies and Chapter Three on the sport context, primarily drawn from sport-management literature.

2.3 Network context

Network context is defined as the part of the network horizon comprising all the pertinent actors directly and indirectly connected with the actor, as well as the external business environment in which the network is located and to which it will respond (Anderson et al., 1994; Erickson & Kushner, 1999; Holmen & Pedersen, 2003). The *network horizon* is defined as all actors and relationships in the network (Holmen & Pedersen, 2003). The difference between the two terms is significant as it may not be possible for an actor to hold the complexities of all relationships, that may or may not be relevant, between all actors and the external business environment. This has implications for an actor as it indicates limitations in its strategic management capabilities (Holmen & Pedersen, 2003).

Actors seek to gain power over parts of this business environment and as a consequence a new environment emerges; therefore context is dynamic and changing (Erickson & Kushner, 1999). Changes in network context will either reinforce or loosen the network structure because events stimulate new links between actors as well as help to sever existing links; thus changes in network context affect an actor's networking abilities (Achrol, 1991; Anderson et al., 1994; Cook, 1977; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002). As a consequence, the shape of the network structure, although

stable, is not static because relationships between actors change in response to external events and through controlling resources, and also because changes in one relationship will impact on other connected relationships (Easton, 1992; Håkansson, 1992; Håkansson & Johanson, 1992; Smith & Laage-Hellman, 1992). Galaskiewicz (1996) comments, “Given the complexity of contemporary organizational life, any network analysis that ignores the ‘big picture’ will provide only partial explanation.” (p. 31).

An example of the effects of change in network context that highlights the need for actors to be aware of the environment in which the network exists is provided by Cousens and Slack (2005). They note that key legislative events in the external environment were responsible for reshaping the North American professional baseball network. These external events explain the change in the composition of the network and the entrance of ‘network raiders’ that have, in turn, led to a redefining of critical resources necessary for power over the network and a change in the ‘world view’ held by the network actors. The changes in the external environment resulted in the fostering of greater cohesion within the network, and transformed the network from one with a transaction-based approach to one with an emerging value-chain with proximal ties amongst actors. This has given the network strength and stability, with shared practices to reduce risk, enhanced information sharing, reduced uncertainty and improved efficiency, and strategic partnerships have become accepted practice.

The effects of external events on a sport network is also provided by Thibault and Harvey’s (1997) study into the Canadian sport-delivery system. Thibault and Harvey find relationships between actors in the network are driven by external factors of decreasing sources of government funding, increased competition for resources between organisations in the sport-delivery system, and the requirement for organisations to be more accountable for their own performance.

The studies by Cousens and Slack (2005) and Thibault and Harvey (1997) apply network theory to the sport-sector setting but do not seek to extend or develop network theory. These studies also need to be replicated and expanded because little empirical evidence

exists within the sport sector. Also required is further research into an understanding of actor strategic management as a consequence of network context because few studies have been conducted in this area (Holmen & Pedersen, 2003). Network context within a sport-sector setting is explored in more detail within Chapter Three. The next section discusses and defines key network constructs that are important for the current study.

2.4 Definitions and key network constructs

The key network constructs important for the present study are *organising dynamics*, *actor*, *focal actor*, *central broker* and *intentionally formed network*, and each of these will be defined and discussed in turn. A summary at the end of this chapter defines the area of research interest.

2.4.1 Organising dynamics

The term *organising dynamics* is used within this study to reflect and capture the changing dimensions of networks over time. The term *organising* refers to arrangement and order (Soanes & Stevenson, 2006). Specifically, the term *dynamics* within the study is taken to mean a process or system (in this case the network) that is subject to constant change (Soanes & Stevenson, 2006). This characteristic of networks is inherent and is noted by Larson and Starr (1993), Kogut (2000) and Hoang and Antoncic (2003). Networks change and are dynamic because they are relational, and relationships are dynamic and influenced by the environment in which they operate, as noted by Kogut (2000) and Coviello (2006). Networks are organised based on a match between actors and this creates specific capabilities of the network (Kogut, 2000). As a consequence, the need for networks to be studied over time is noted by a number of researchers (Brass et al., 2004; Coviello, 2005; Ford & Redwood, 2005; Halinen & Törnroos, 2005; Hite & Hesterly, 2001; Larson & Starr, 1993; Melin, 1992; Soda et al., 2004). However, there appears to be few studies that address this need to study the dynamic nature of networks (Coviello, 2006).

2.4.2 Key network constructs

There is a large range and diversity of current network constructs from different perspectives (Hoang & Antoncic, 2003; Johnsen et al., 2000). Thus clear definitions of

network constructs are needed in order to understand the nature and purpose of the network. What is required for this investigation, therefore, is a review of constructs in order to arrive at a consensus or commonality of themes that are the most useful or valid for this particular research question and context.

Within the present study the term *actor* is conceptualised to mean the *organisation* and this is an important distinction to note. The distinction is possible because the network literature describes a network as comprising of many nodes, with each node representing an actor. The network literature does *not* specify what a node consists of, and so a node may be individuals, work-units or organisations; this peculiarity is noted by a number of researchers (Brass et al., 2004; Emirbayer & Goodwin, 1994; Lane & Lubatkin, 1998; Wasserman & Faust, 1995). Geser (1992) argues that “Organizations can be conceptualized as social actors capable of interacting with each other ...” (p. 429). Geser’s (1992) argument is based on the reasoning that individuals cannot remove their basic actions from the influencing processes of belonging to various organisational levels which are dependent on the external environment for economic survival (Geser, 1992).²

The *focal actor* is the specified actor in the network that is the main focus of the network activity (Mitchell, 1969; Van den Bulte & Wuyts, 2007; Wasserman & Faust, 1995). The term *central broker* is used to describe an actor that coordinates the tasks of the network, connects actors to other actors, mediates between actors, acts as a gatekeeper for information and chooses to whom this information is passed (Borgatti et al., 2002; Hanneman, 2001). An *ego* is a term describing the focal actor viewed from the perspective of its own network, i.e. those actors that it has a connection with. Each actor may be examined from this perspective (Van den Bulte & Wuyts, 2007). The number of *connections* with others is the number of ties or direct contacts that an actor has in a network (Mitchell, 1969; Van den Bulte & Wuyts, 2007).

² Organisational levels within actors are examined within the present study and this is discussed in Chapter Four, section 4.3.5 *Multiple levels of data collection*.

The connections or links that exist between the nodes represent *relationships* (Emirbayer & Goodwin, 1994; Johannisson, 1987a; Mitchell, 1969) and shared resources and dependencies (Håkansson & Johanson, 1993). These relationships are based on social exchange between individuals within the organisations, and the organisations that form the network (Blankenburg Holm, Eriksson, & Johanson, 1996; Emirbayer & Goodwin, 1994; Mattsson, 1997; Powell, 1987; Uzzi, 1997). This social exchange occurs in a flexible environment with voluntariness and openness (Emirbayer & Goodwin, 1994; Johannisson, 1987a) in which the actor is informally connected to others in an identifiable structure (Emirbayer & Goodwin, 1994; Grieco & Hosking, 1987; Wasserman & Faust, 1995).

Actors may be connected by strong or weak links, reflecting the frequency with which the links facilitate social and/or business purposes (Emirbayer & Goodwin, 1994; Goyal, 1999; Granovetter, 1973; O'Driscoll, Carson, & Gilmore, 2000; Thorelli, 1986). These links between actors facilitate the flow of information or exchange of resources (Blankenburg Holm et al., 1996; Brass et al., 2004; Hellgren & Stjernberg, 1987; Mattsson, 1997).

The focus of a network approach is on understanding relational aspects between actors and the way in which actors are linked to define their role within their group. It is used to explain business relationships designed to give organisations market advantage (Håkansson, 2006). The key terms used to describe the way actors are linked are *embeddedness*, *interconnectedness* and *multiplicity*, and these terms are defined next.

The first of the key descriptors is embeddedness and this refers to the larger social or network structure that an actor is a part of (Granovetter, 1973, 1985; Håkansson, 2006). *Embeddedness* is a consequence of the development of social and economic opportunities underpinned by trust that cannot be copied or replicated by contracts, vertical integration, or by markets (Anderson et al., 1994; Brass et al., 2004; Granovetter, 1985; Grieco & Hosking, 1987; Johannisson, 1987b; Mattsson, 1997; McLoughlin & Horan, 2002; Thorelli, 1986; Uzzi, 1997). *Interconnectedness* is the extent to which an exchange is likely to occur between actors and is dependent on exchanges between others (Anderson et al., 1994; Granovetter, 1985; Grieco & Hosking, 1987; Johannisson, 1987b; Uzzi, 1997). There is

also a complex layering of exchange between actors within the same relationship; this is referred to in the literature as *multiplicity*.

Multiplicity is framed within the current study as the varied and multiple connections that exist between actors. This means that multiplicity is concerned with actors being connected by multiple ties with the same actor, and also the strength of those ties (Hoang & Antoncic, 2003; Mitchell, 1969; Van den Bulte & Wuyts, 2007). As a consequence, multiplicity may result in multiple perspectives of multiple realities within an actor or other actors and of markets (Holmen & Pedersen, 2003; Kjellberg & Helgesson, 2006). This is because each actor comprises of individuals who are involved in many different activities upon which many influences act. As a result, actors may appear to be inconsistent in their actions due to the tensions and conflicts that exist within them because they may not have a single market perspective. Understanding multiplicity is important in order to gain an understanding of actor motivations; multiplicity means that different levels and perspectives within that actor should be sought. As a consequence, seeking such an understanding will have methodological implications in terms of (1) the ontological approach and (2) single versus multiple use of research informants (Kjellberg & Helgesson, 2006). These methodological concerns are identified at the end of Chapter Two in a summary of research issues (see Table 2.1), and in Chapter Four in terms of the choice of research method for the current study.

The way that actors link to one another is also moderated by other factors that impact on their relationships. These concepts are important in this regard and these are trust, commitment and cooperation. *Trust* is an important concept within network studies because it underpins relationships between actors and leads to the long-term duration of these relationships (Achrol, 1991; Ariño et al., 2001; Håkansson, 2006; Ireland, Hitt, & Vaidyanath, 2002; Morgan & Hunt, 1994). A search of the literature shows that no single universal definition of trust exists. The difficulty in defining trust and the reason why so many network studies fail to provide a definition is because it has been clearly tied to outcomes, especially in context-specific situations (Blomqvist, 1997). While these difficulties are acknowledged, for the purposes of the current study trust is defined as an

actor's expectation of how another actor will perform at some point in the future; it is a subjective assessment, is based on experience of the other and develops gradually over time (Blomqvist, 1997). Closely related to trust are *commitment* and *cooperation* and these terms are discussed next.

Commitment between actors is defined as a long-term perspective for developing continuing business cooperation, and *cooperation* is defined as leading to mutuality based on common interests or goals (Bengtsson & Kock, 1999; Blankenburg Holm, Eriksson, & Johanson, 1999; Young & Wilkinson, 1997). These cooperative business arrangements rely on the mutual commitment of pledges as well as resources to the relationship, to the degree that each other actor responds in a like manner (Blankenburg Holm et al., 1999). Exchanges may evolve over a period of time, demonstrating commitment to the relationship and resulting in benefits and resources being accrued to the actors which, in turn, creates competitive advantage and value for the customers (Blankenburg Holm et al., 1999; Dyer & Nobeoka, 2000; Wilkinson & Young, 2002).

Within a network the actors perform purposeful related activities. These activities are the result of actors combining with others either to transfer resources from one to another or to transform resources by changing them in some way. Actors that transform resources usually retain power over them. Activities link actors in various degrees to other actors, either tightly or loosely, and these activities tend to be made more efficient over time (Håkansson & Johanson, 1992). Activities are designed to create economic gain in which actors give and receive from one another; this concept is referred to as *mutuality*. Mutuality may involve complex knowledge and value exchange (Blankenburg Holm et al., 1996; Easton & Araujo, 1992; Håkansson & Johanson, 1993).

Mutuality leads to *reciprocity* which relates to norms of behaviour in which individual actors feel they must reciprocate another's actions. *Norms of behaviour* is defined within the present study as the guiding values and routines that direct the pattern of activities between actors. These values are based on learning experiences built over time with other actors so that a mutual orientation between actors exists which lead to network capabilities

(Håkansson & Snehota, 2006; Kogut, 2000). An example of norms of behaviour is cited by Dyer and Nobeoka (2000) who examined the Toyota Production System network and found that established norms are used to motivate suppliers to openly share knowledge with other actors. The norms are taken seriously due to the threat of economic sanctions that may be imposed by Toyota in the case of transgressors. The norms also help actors identify strongly with the network.

The act of reciprocity may not be to the originator of this action but instead may be used to reward another actor in the future. This system relies on trust and on the belief that the giver will be reciprocated (Grieco & Hosking, 1987; Powell, 1987; Whestphal & Zajac, 1997). Håkansson and Johanson (1993) comment:

Every single activity within a network is dependent on other activities in the sense that the outcome of an activity is dependent on how other activities are performed. (p. 213)

Informal coordination takes place on a number of social levels within the organisations and is modified by the people within each level. These activities and resources will change over time due to learning and the intention of the actors themselves (Blankenburg Holm et al., 1996; Håkansson & Johanson, 1993). Johannisson (1987b) comments, “Reality is objectified by social interaction, culture is being built and diffused through social networks” (pp. 9-10).

The mutual orientation between the actors in the network enables knowledge of each other to be exchanged and trust to be developed based upon a framework of rules that are observed by those actors (Blankenburg Holm et al., 1996; Håkansson & Johanson, 1993; Johanson & Mattsson, 1987). There is an expectation that actors will interact with one another in a manner that respects the interests of the other (Johanson & Mattsson, 1987).

Power within this study is defined as influence over others for the performance of network tasks, and is based on centrality (Krackhardt, 1990). This is because actors are dependent on the resources of others in order to complete their task. The availability of resources for these tasks, gathered from a number of different sources, increases the power of an actor by

decreasing their dependence on others (Cook, 1977). In this way power accrues to actors who are better connected and hold a central position in the network. By holding a central position actors are also able to control information flows, which gives them power over others (Krackhardt, 1990). Power then is the result of structural position (Burkhardt & Brass, 1990). However, the concept of power is complicated by the resources that an actor controls. For example, Burt (1977) also includes in his definition of power the resources that an actor controls, and how they use these resources and the resources of others. The benefit being the more power an actor has, the more bargaining power it has in the relationship exchange with others (Cook, 1977).

In summary, for the purpose of the present study the network definition used is one in which organisations are referred to as actors and they may or may not have a strategic intent. The approach adopted by this definition is particularly useful given the interest in examining intentionally formed networks and the ties between actors that facilitate the flow of information, knowledge and business development. A network consists of all the actors, the social and economic exchange between them, and the structures that these form. Also relevant is the level of the actor, which is defined along with an explanation of how the level is operationalised within Chapter Four. The following quote provides a useful working summary for the purpose of the present study:

We define a network as a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes. We refer to the nodes as actors (individuals, work units, or organizations). The particular content of the relationships represented by the ties is limited only by a researcher's imagination. Typically studied are strategic alliances and collaborations, flows of information (communication), affect (friendship), goods and services (work flow), and influence (advice), and overlapping group memberships such as boards of directors. We consider ties that are maintained over time, thus establishing a relatively stable pattern of network interrelationship (Brass et al., 2004, p. 795).

Of particular interest to this research study are intentionally formed networks; this term is explained in the following section.

2.4.3 Intentionally formed and organic networks

Within the current study two types of network are identified and discussed: *organic* networks, which are informal and naturally evolving, and *intentionally formed* networks, which are intentionally created with a degree of formalisation (Birkinshaw et al., 2007; Blundel, 2002; Chetty & Agndal, 2008; Chetty & Patterson, 2002; Coviello, 2006; Lechner & Dowling, 2003; Pihkala et al., 1999). Ford and Redwood (2005) state “there are no new networks” (p. 648) because they contend that when a company emerges it does so into an existing network. However, Möller and Rajala (2007) note, in their conceptual paper, the recent rise in interest in the management of networks, and the intentional creation of them – thus implying there are indeed new networks. To date, studies of networks have tended to focus on *organic* networks with less attention on *intentionally formed* networks and the intentional management of them (Möller et al., 2005). It is anticipated that understanding how an intentionally formed network operates in the current study will enable new knowledge to be uncovered which can be applied to networks in general, and in particular to the field of sport and high performance sport, which is the context for this study.

Organic networks emerge slowly and are continually evolving. They are created through a dynamic process which is dependent on an exchange relationship that has value for the parties involved, is underpinned by trust and commitment, and is slowly developed and built over time (Brass et al., 2004; Mattsson, 1997; Powell, 1987; Uzzi, 1997).

Coordination of these relationships is not determined, but changes and evolves over time due to the influences of market forces and through norms of behaviour or power over one actor by another; relationships are also dependent on network position (Håkansson, 1992; Holmund & Törnroos, 1997; Johanson & Mattsson, 1987; McLoughin & Horan, 2000). Actors within the network are orientated towards increasing their power over the network activities to mobilise network resources for other purposes. This is achieved through relationships, either direct or indirect, by controlling resources; power is also based on knowledge of the network (Håkansson & Johanson, 1992).

Intentionally formed networks on the other hand are characterised by their intentional creation and the *relatively* formal management of the interorganisational relationships – relatively because it is not really possible to manage and control another actor’s resources completely (Möller et al., 2005). Intentionally formed networks are referred to in the network literature as value-creating networks, virtual networks, clusters, joint-action groups, or business nets (Anderson et al., 1994; Campbell & Wilson, 1996; Chetty & Blankenburg Holm, 2000; Galaskiewicz, 1996; Möller et al., 2005; Powell, 1990). Intentionally formed networks seek to gain the same advantages as organically formed networks by joining with others to gain capabilities and resources (Achrol & Kotler, 1999; Chetty & Blankenburg Holm, 2000; Galaskiewicz, 1996; Jarillo, 1988). These networks depend on a network catalyst or central broker to bring the network together and to facilitate action; this catalyst may be an organisation specifically formed for this purpose, and/or one that is entrepreneurial with a vision for how added value can be created (Campbell & Wilson, 1996; Chetty & Patterson, 2002; Pihkala et al., 1999). The shift towards organisations developing and managing intentionally formed networks is a result of the increasing need to deliver superior customer value (Anderson et al., 1994; Campbell & Wilson, 1996; Chetty & Blankenburg Holm, 2000; Galaskiewicz, 1996; Powell, 1990).

The benefit to actors within intentionally formed networks is based on actors learning to develop better relationships with others in the network; this facilitates the acquisition of superior assets and capabilities by the actors. At the formation stage, key actors start with selling the idea of the network concept to other potential actors and then working with these actors to integrate their activities and to minimise network costs. For this to happen actors should be committed, and bonds between them ought to be strong enough that external forces cannot weaken and dissolve them. Actors should also share value objectives and a belief that by sharing they will reap greater rewards. Trust ought to be present in order to foster loyalty, so that all actors feel there is fairness within the network. All actors should cooperate in order to minimise costs and maximise the network’s ability to add value. Consequently the intentionally formed network may need to be organised as a hierarchy based on actor contribution to the network task and dominated by a management function (Campbell & Wilson, 1996; Pihkala et al., 1999).

Campbell and Wilson (1996) define an intentionally formed network as having a purpose of creating strategic intent for the group where:

... a series of dyadic and tryadic relationships ... have been designed to generate greater customer value and build a sustainable competitive advantage to the creator and the manager ... (p. 127)

Galaskiewicz (1996) cites examples of this type of network as those occurring in the delivery of public services in the 1960s and 1970s. Chetty and Blankenburg Holm (2000) and Chetty and Patterson (2002) cite examples of the internationalisation of manufacturing organisations, a process that is actively promoted by the New Zealand government which provides incentives to organisations to collaborate. Welch et al. (1996) and Welch et al. (2000) note a similar arrangement for Australian-based organisations, whereas Dyer and Nobeoka (2000) cite the Toyota production network comprising of Toyota as the focal actor with direct ties to all others in the network.

In summarising this section, there would appear to be a difference between the two types of network, and this difference is sufficient to warrant separate investigation of intentionally formed networks. It is surprising, given the practitioner interest, that there are few studies of intentionally formed networks relevant to the area of research interest for the present study (also described in Chapter One) (Galaskiewicz, 1996; Pihkala et al., 1999; Tikkanen & Parvinen, 2006). In particular, an understanding of the organising dynamics within intentionally formed networks is important, as discussed in Chapter One, and needs to be understood; this is especially so given the level of investment required to create them. The section has also examined the development of a theoretical framework. The crux of this framework which consists of forms of networks, the role of the central broker and informal coordination mechanisms is considered next. These are important because: (1) The form of the network in which an actor is embedded will influence the opportunities and constraints for an actor and may determine the level of power that they hold within the network. (2) The role of the central broker may explain the dynamics and challenges faced within the network. (3) Informal coordination mechanisms deals with relational aspects that exist

between actors and these influence the network structure. The next section examines forms of network and their structural aspects.

2.5 Forms of networks

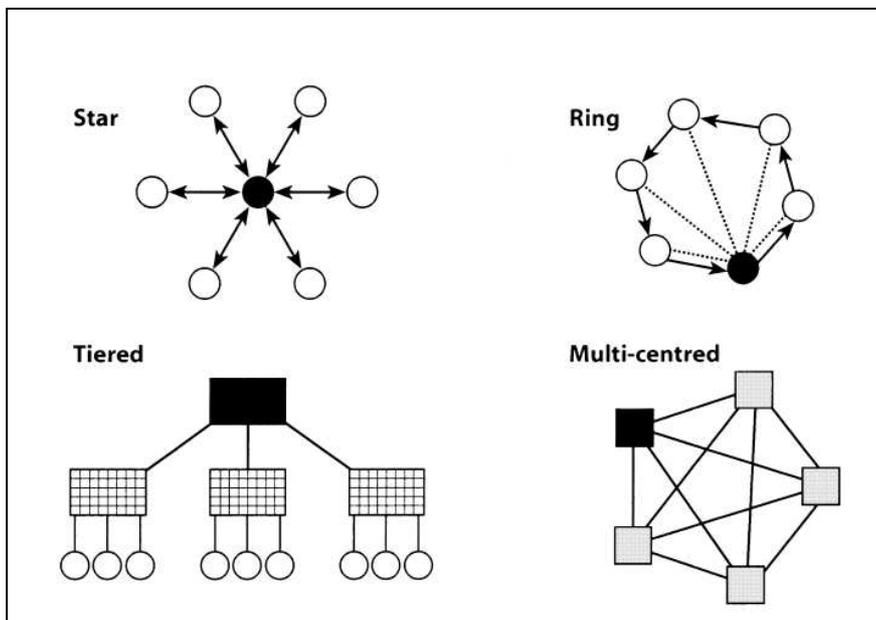
The form of the network is a consequence of relationships that exist between actors (Emirbayer & Goodwin, 1994; Kogut, 2000). Structural aspects are important to understand as these influence network functioning and need to be considered in order to fully comprehend a network (Cook & Emerson, 1978; Hoang & Antoncic, 2003; Holmund & Törnroos, 1997; Powell, 1990). The structure in which an actor is embedded will influence both actor characteristics and the pattern of relationships, encompassing both direct and indirect ties. Thus the structure has an important influence on both opportunities and constraints that arise, gives access to information and resource flows, and may determine the amount of power that an actor may exert over others due to their position in the network (Campbell & Wilson, 1996; Cook, 1977; Cook & Emerson, 1978; Emirbayer & Goodwin, 1994; Galaskiewicz, 1996; Granovetter, 1973; Gulati, 2007; Hoang & Antoncic, 2003; Wasserman & Faust, 1995). Also each network will be different due to the number of actors in the network, the number of connections that each actor has with others, and the different structural properties that each network has (Cowan, Jonard, & Zimmerman, 2007; Gibbons, 2004; Hanneman, 2001). *Structural change* is defined within this study as a significant difference over time (Madhavan et al., 1998).

Liu and Brookfield (2000) examined organic networks in the machine tool industry in Taiwan and identified four basic patterns: star, ring, tiered and multi-centred, as shown in Figure 2.1. Each network form is identified as having basic conditions and, as such, each offers advantages and disadvantages to actors. For example, a star form suits conditions when there is a minimum desire for coordination amongst suppliers, and when production volumes are low. Its advantage is the ease of quality control with a one-on-one management style, but its disadvantages include complicated material flows. In contrast, a ring form suits the condition of high production and stable orders of high-value items. The advantage of this structure is that it encourages communication amongst suppliers and has overall faster inspection time for production; however, its disadvantages include the need

for suppliers to work together, which means relations between them must be good, changes in suppliers are difficult, and managers overseeing production experience a large workload. The third network structure, the tiered form, is most suitable when volumes are high. Its advantages are that the central broker works with fewer actors and complexity of contracting is reduced, while its disadvantages include a strong desire for suppliers to work together and suppliers may not be easy to replace. Finally, multi-centred networks have no central broker; instead the role of leader may change depending on network tasks. Thus multi-centred networks are very flexible, but they do rely on cooperation between actors (Liu & Brookfield, 2000).

Figure 2.1 Ideal type network shapes

(Liu & Brookfield, 2000 p. 331)



The form and size of a network may change over time with most networks beginning as star structures which then emerge into ring structures as relationships between actors and complexities of tasks develop (Liu & Brookfield, 2000). Other changes in network form may be in response to a manager's actions within an actor, or as a consequence of industry events which may act upon the network. Although such events vary from industry to industry they may provide actors with an opportunity to improve their position within the

network and/or may improve the value of existing relationships. These events may either strengthen or loosen the structure of the network as well as explain how networks can become a strategic resource subject to managerial design (Madhavan et al., 1998; Toms & Filatotchev, 2004). However, as noted, further research is required into understanding the motivations for actors to improve their network position and how they may be managed (Madhavan et al., 1998).

At the pre-network-formation stage organisations are in business relationships to obtain knowledge critical to the organisation, knowledge which enables the achievement of strategic objectives and, as a by-product of this, identification of other opportunities for the organisation. These relationships are influential and essential in determining the basis for network formation and early stages for network evolution (Chetty & Blankenburg Holm, 2000; Coviello, 2006; Sadler & Chetty, 2000; Witt, 2004). Actors that fail to configure effective networks at start-up suffer consequences of resource scarcity (Baum, Calbreses, & Silverman, 2000; Gomes-Casseres, 1994). To ensure the formation of an effective network, actors should examine carefully the configuration of potential partners so that they do not form multiple alliances with similar actors, and they should also consider which potential rivals make the most beneficial partners (Baum et al., 2000). However, as partnering at the start-up phase of the network is dependent on past social ties, along with having a proven track record of partnering, this may well limit the number of potential associates for an actor (Ahuja, 2000; Baum et al., 2000).

New ties are influenced by the embedded social network of prior ties; these guide the network development but also transforms it at the same time. Social networks determine the ability to enter into new relationships, as the better the social network of individuals within an actor, the more opportunities presented for entering a network. Social network ties can be viewed as driving and determining an actor's actions because an actor does not exist solely in terms of economic actions. The process of entering new relationships is guided initially by the manager's social connections, and these are a personal, rather than economic, resource. The extent to which the actor is embedded within existing and past relationships is also guided by social connections, which can either restrict or enable the

process. However, over time an actor will depend less on individual relations within the network and more on the network itself (Gulati, 1998; Gulati et al., 2000; Lechner & Dowling, 2003). This means the network is dynamic over time and is dependent on embedded ties within the network to direct actors to others in order to form further relationships. It also has the effect of limiting partnering opportunities with other actors (Gulati & Gargiulo, 1999).

The strength of these ties is relevant and influences network evolution. The strength of ties will determine the retention of actors within the network in two ways. On the one hand, weak ties facilitate network entry and exit (Ahuja, 2000; Lechner & Dowling, 2003). Weak ties provide access to diverse resources, new opportunities, and knowledge acquisition by giving access to others outside the core network of actors. Thus weak ties can be a crucial bridge to other actors that would not be connected otherwise (Ahuja, 2000; Granovetter, 1973; Lechner & Dowling, 2003; Van den Bulte & Wuyts, 2007). On the other hand, strong ties bind actors and indicate the depth of a relationship; they can also give access to in-depth knowledge and facilitate the creation of knowledge (Ahuja, 2000; Lechner & Dowling, 2003).

Actors may initially seek out and develop strong ties based on one or two important network partners, then after this they develop breadth of relationships through the use of weak ties. Weak ties may later be developed into strong ties for value exploitation (Lechner & Dowling, 2003). Multiplicity develops between one actor and another; this is underpinned by trust. The next stage is the sharing of quality complex information and knowledge in which interactions become routine (Hoang & Antoncic, 2003).

The development of ties shapes the network, as do environmental influences (discussed in section 2.3 and Chapter Three) such as critical industry events and competition (Gulati, 1998). When a maximum number of ties (strong and weak) is reached, an actor may face a growth problem which could lead to network ineffectiveness for them. To circumvent this the actor may choose instead to sever redundant strong ties (Uzzi, 1997). Severing redundant strong ties frees up relational capability in order to gain access to other

opportunities. The network then expands rapidly from its initial formation; this increases the number of ties but reduces the density of them (Ahuja, 2000; Coviello, 2006; Lechner & Dowling, 2003). Failure to sever redundant ties results in over-embeddedness and may lead to ineffectiveness because actors are not connected to other opportunities and become locked in to perform certain activities (Gulati & Gargiulo, 1999; Uzzi, 1997). Actors are aware of their relational capabilities and the numbers of ties that they can maintain, and that severing of redundant ties can change the growth pattern and structure of the network slightly. Actors may maintain and develop strong ties, as well as maintain weak ties, to gain the benefit of both in-depth knowledge and access to new opportunities (Uzzi, 1997).

There is a lack of agreement over which network characteristics are most advantageous in the early stages of a network's evolution. One view is that socially embedded ties from family and friends enable new- and early-stage ventures to leverage resources (Chetty & Wilson, 2003; Coviello & Munro, 1997). These ties influence the development of the network (Sharma & Blomstermo, 2003). The opposing view is that socially embedded ties from family and friends act as constraints when the organisation's growth and needs become more complex because they comprise more formal relationships with other organisations that are managed and strategic in nature (Chetty & Patterson, 2002; Coviello & Munro, 1997; Gulati, 1998; Hite & Hesterly, 2001). The work of Coviello (2006) and Larson and Starr (1993) suggests that ties can be either social or economic but it is not easy to categorise them. Coviello (2006) goes on to note there is no one pattern of ties to explain network formation and early initiation stages, although economic ties would appear to dominate.

There are also conflicting theories concerning the evolution of networks forms. Larson and Starr (1993), for example, state a network will increase in density, whereas Hite and Hesterley (2001) believe a network will remain the same and/or contract after the early initiation stage. The development of a network should be further considered within the constraints of organising abilities, strategic gridlock and dependence (Gomes-Casseres, 1994). Therefore, in building new networks the problems are two-fold: (1) identifying the relevant partners, and (2) learning how to work with them. The problem for management

becomes one of engaging with potential partners, overcoming barriers, keeping the network current, and building trust and commitment (Birkinshaw et al., 2007).

For this study an understanding of network form is important and is based on examining prior research specifically relevant to structure, i.e. *actor network position and power, reachability, range and density*. These structural aspects are discussed later in this chapter. The next section examines network position, which is used to indicate actor power within the network.

2.5.1 Network position

Centrality is a measure of position and importance within the network and is used to describe the position of actors in relation to the centre of the network (Emirbayer & Goodwin, 1994). It is also used to indicate power within the network, which may indicate a strategic advantage for that actor (Madhavan et al., 1998). The amount of power held by an actor is as a result of their position based on relationships with others within the network, not on any attributes that the actor might hold (Boje & Whetton, 1981; Cook & Emerson, 1978; Hanneman, 2001). Actors that are extensively involved with others have more ties and are more central, and so have a greater ability to mobilise resources (Boje & Whetton, 1981; Wasserman & Faust, 1995).

Power, which leads to actor centrality, arises from access to and relative control over resources, as well as brokerage of information. Actor centrality can be measured and compared with others in the network to uncover an actor's degree of centralisation, i.e. whether they are on the periphery of the network or are located centrally. The most influential actors within a network are located centrally in positions of strategic importance. Actors that are prestigious or have the most status within the network will have more incoming ties than outgoing ties and are preferentially chosen over other actors. Simply put, these actors are the most 'popular'; they hold favoured positions within the network. As a consequence of their structural embeddedness, i.e. their holding the most power based on information flows within the network, they also have better information on potential partners (Brass et al., 2004; Burkhardt & Brass, 1990; Van den Bulte & Wuyts, 2007;

Wasserman & Faust, 1995). Their central position expands their probability of potential partnering by increasing their visibility beyond their direct ties, and it expands the influence of the positional embeddedness that they have for the creation of new ties. It also gives them a comparative advantage over less active actors (Gulati & Gargiulo, 1999; Walker, Kogut, & Shan, 1997). Evidence of the effect of actor centrality on partnering is presented in the findings of Gulati and Gargiulo (1999) who comment that actors on the periphery of the network are more likely to build ties with core actors in central positions rather than with actors in similar positions to themselves. Also, core actors in central positions are more likely to build ties with other core actors rather than with actors on the periphery of the network.

An actor may hold a similar position within the network as another based on similarity of ties, although these ties might not be the same ties. An actor with a similar position and role to another in the network can be described as having *structural equivalence* (Emirbayer & Goodwin, 1994). Actors that are structurally equivalent compare themselves against each other to evaluate this equivalence (Burt, 1976; Van den Bulte & Wuyts, 2007; Wasserman & Faust, 1995). Actor attributes that indicate role might be their size, the resources that they control, or the geographic location that they occupy (Wasserman & Faust, 1995). These attributes all influence an actor's perceived value to other actors and affect their negotiating leverage for network exchanges (Erickson & Kushner, 1999). Actors use position as a competitive tool for individual reward, and so structure results from actors seeking a network position as part of their organisational strategy (Cowan et al., 2007).

Actors within the network are prepared to use their power to manipulate others to improve their individual position. Power is based on influence over others through relative control of resources (Hoang & Antoncic, 2003; Kodama, 2001; Walker et al., 1997). An example of power influencing actor network position is noted by Wolfe et al. (2002) in which the more attractive actors in a sport-industry setting were able to dictate terms to event sponsors whereas less attractive actors were not able to do this. As a result, less attractive actors lost revenue opportunities. Another example is cited by Dyer and Nobeoka (2000)

who, in their study of the Toyota Production system network, noted the threat of sanctions that might be imposed by the central broker for transgressors of the network norms.

A second view of actor centrality is based on 'closeness' or 'betweenness'. *Closeness* is the measure of distance between one actor and another. Actors that have closeness are able to interact directly with all others and not have to rely on going through an intermediary actor to reach another, i.e. they have minimum steps to reach others (Emirbayer & Goodwin, 1994). This closeness enables efficient interactions between those actors in which power can be used by direct exchange and bargaining (Hanneman, 2001; Wasserman & Faust, 1995). *Betweenness* occurs when actors that are not linked directly depend on another to link them; the actor that links others by brokering has power over the connection and, as a result, more influence and power. Actors performing as brokers may be able to charge for this service. They may also be able to prevent connections being made as well as to isolate actors. Being involved in many connections enables an actor to keep up with network developments and be included in information and resource flows. If the actor is essential to these resource and information flows they are also able to exert power over them. Measurements of centrality allow comparisons between one network and another, and between one actor and another in the same network. This enables an understanding of whether the network is built around a focal actor (Hanneman, 2001; Van den Bulte & Wuyts, 2007; Wasserman & Faust, 1995).

Connections between actors can either be direct or indirect. The benefit of having many connections is greater reliability and less likelihood of disruption. Actors with many ties have different alternatives for connecting with other actors and as a result are less dependent on others. Moreover, the more ties they have, the greater their potential to act in a brokerage capacity for others (Hanneman, 2001). The directionality of these ties indicates the tie flows from one actor to another. If the tie flows both ways there is reciprocity and mutual commitment between the two actors (Hanneman, 2001; Mitchell, 1969; Van den Bulte & Wuyts, 2007; Wasserman & Faust, 1995). Reciprocity is important as it is critical for sustaining positive relations amongst actors (Van den Bulte & Wuyts, 2007). Brass et al. (2004) note the effect of work groups with dense networks as being able to achieve

more than work groups with sparse networks. Work groups that are able to perform at high levels and finish projects early have more ties between their leaders, peer groups and higher managers as well as external ties. However, these work groups are also less likely to have access to new resources (Hoang & Antoncic, 2003). Furthermore, groups that are more central in the exchange process of resources tend to be more innovative (Brass et al., 2004). This is also supported by Ahuja (2000) who notes direct ties provide benefits of greater knowledge sharing to the actors involved through collaboration. Through joining complementary skills from each actor, economies of scale can be achieved without the investment required in resources should the collaboration not have taken place. This finding is also supported by Dyer and Nobeoka (2000) who note the multiplicity that exists between suppliers in the Toyota network, an attribute of the network that is actively developed by the central broker.

The more ties there are within the network, the denser the network. *Density* is the proportion of the possible number of ties that exist which connect actors to other actors in a network (Emirbayer & Goodwin, 1994). Networks with more weak ties are easier to maintain, are less dense, and have access to greater resources compared with denser networks that have more strong ties and are more time consuming to maintain. Strong ties are more likely between actors that are similar and who share similar values. The effect of strong ties is to develop cliques (Emirbayer & Goodwin, 1994) which may become closed and isolated, thus making the adoption of innovations and access to new information difficult and slow. Networks of strong ties may also limit the understanding of actors of their environment as they become dependent on their closely linked network actors for information. However, the benefit of strong ties is that these actors are more likely to be motivated to assist and be more readily available to other actors in need. Actors which are reliant on network resources are more likely to invest more time in developing strong ties than actors that are not wholly reliant on the network (Granovetter, 1973, 1983; Uzzi, 1997).

Network position based on relationships with others is an indicator of power held by that actor within the network. This concept along with density of the network may explain the role of the central broker within each of the three embedded NZAS networks.

2.5.2 Reachability and the effect of structural holes

As the network grows in size it will not be possible for all actors to reach or be connected to all other actors within the network. The result is *structural holes*, which Burt (1997) defines as disconnections or areas that have few connections between one part of the network and another. Structural holes leave actors unaware of market benefits (Brass et al., 2004; Burt, 1997; Emirbayer & Goodwin, 1994; Hanneman, 2001).

Actors that bridge structural holes are able to access different information and resources which may result in an important benefit to them. This is because the more connected an actor is, the more quickly information is received and the faster they are able to respond to the information. This makes it possible for that actor to play actors off against each other and to place themselves in a position of power (Brass et al., 2004; Burt, 1997; Granovetter, 1973; Van den Bulte & Wuyts, 2007). The ability of an actor to bridge structural holes within the network will also add value to that actor because they can meet others' needs in order to gain comparative advantages for economic benefit (Batjargal, 2003; Dyer & Nobeoka, 2000; Hite & Hesterly, 2001). The actor bridging the structural hole also determines who is to receive the benefit from the brokerage position (Burt, 1997). An actor can gain better returns when they are able to broker between disconnected actors than when they are a powerful actor connected within a connected network (Brass et al., 2004). Brass et al. (2004) note this "suggests that ties to resource-rich organizations carry costs unless ties to third parties are used to gain leverage" (p. 807). This is because when a network has dense ties and no structural holes, all actors are equal in terms of the information that they hold and receive and so no one actor can gain an advantage (Brass et al., 2004; Burt, 1997; Hanneman, 2001). According to Burt (2000), networks that are dense are substandard because they are rigid, whereas a network which includes the brokerage of structural holes provides more creativity, better ideas and more learning. Brokering of structural holes also develops and changes the shape of the network (Burt, 1992).

Although performance in the present is aided by structural holes, the benefits of brokerage to an actor may be eroded over time as other actors develop the same ties or have access to the same information. Therefore the bridging of gaps in a network needs to be considered in terms of short- rather than long-term benefits. In the short term, closure can aid performance – but only until the full effect of closure, i.e. diminished creativity, is felt. Networks also have a memory based on past accumulated relationships and this memory can influence present relationships (Soda et al., 2004).

Where an actor is able to play actors off against each other it may increase the propensity for unethical behaviour, as in the case of brokering a structural hole. However, where high closeness centrality and/or high density exist, unethical behaviour is unlikely to happen because visibility will also be high. This visibility could be through indirect ties from which other actors will hear about the behaviour, or through direct ties in which actors will see it occur. Where closeness centrality and/or density are low, there will be less to lose in terms of reputation for an actor. This would be the same within a network as for a sub-group (Brass, Butterfield, & Skaggs, 1998; Walker et al., 1997). However, the advantages to be gained in such a brokerage position from playing one actor off against another decrease over time as exchanges eventually balance out, and may lead to an actor changing the focus of exchange relationships in order to maintain power (Cook, 1977).

To summarise, effective networks are built by having many connections to others by the maximum number of weak ties, indirect links to others, and through (brokered) structural holes being present (Ahuja, 2000; Burt, 1992; Dyer & Nobeoka, 2000). By such a mechanism opportunities are realised both through unintended spill-over effects and through intended cooperation (Dyer & Nobeoka, 2000; Walker et al., 1997). Weak connections also allow for ties that are redundant to be discarded, thus maintaining the relational capability of actors (Burt, 1992). However, Cook and Emerson (1978) provide a cautionary note that just because an actor connects two others together, it does not necessarily follow that information from one will be passed on to the other.

Even so, the counter argument put forward by Coleman (1988) is one for closed networks, with cohesive ties being less risky for collaboration and, as such, facilitating sharing of complex knowledge and resources. *Closed* networks are where members are connected only to each other (Coleman, 1988). Collaboration in a closed network is underpinned and facilitated by shared norms of behaviour and trust which are the result of strong ties. This is not possible in networks that are ‘open’ or characterised by weak ties.

Open networks are where actors are not connected to each other extensively, as in the case of a network rich in structural holes (Coleman, 1988). Ahuja (2000) finds the expectation of actors having trust and shared norms of behaviour in networks rich in structural holes is contradictory and not possible. This is because within a network rich in structural holes it would seem logical to expect the threat of opportunistic behaviour to be present as ties would be indirect. Ahuja’s findings contrast with those of Burt (1992), who stated that open networks which combine skills, resources and knowledge can obtain scale economies and achieve collaborative projects, all of which are underpinned by trust and commitment that require direct ties. However, Ahuja (2000) does conclude that indirect ties offered by structural holes facilitate information flows, are easier to maintain than direct ties, and also extend the reach of the focal actor. Yet direct ties also facilitate the sharing of resources and knowledge – and so it would appear that there is no simple answer. Direct and indirect ties offer different advantages to actors, and deciding which to employ is dependent on those benefits sought and the context in which they are used. This is also the finding of Gargiulo and Benassi (2000) in their research in an Italian subsidiary of a multinational unit working in the IT industry. They found brokerage of structural holes provides an important asset as it is a valuable process for dealing with environmental change impacting on the network, whilst cohesiveness prevents the forming of new ties in response to this environmental change and is an unintentional dark side of cohesive networks.

It would appear there needs to be a balance between the effects of weak and strong ties (Uzzi, 1997) because networks with solely embedded strong ties and networks with solely weak ties are more likely to fail (Uzzi, 1996). The ideal situation may be to establish a ‘safe’ cohesive core where there is less risk, while also maintaining weak ties to facilitate

information flow (Gargiulo & Benassi, 2000; Hite & Hesterly, 2001). There is support for networks that are closed and for networks rich in structural holes, as both offer benefits. Uzzi (1996; 1997) and Soda et al. (2004) contend closed networks and networks rich in structural holes offer benefits at different times in the network's development and, as such, both should be considered. The contrasting findings indicate more research into this area is required. This literature review now moves to consider the impact of range on networks.

2.5.3 Range

The term *range* has been used to refer to the number of an actor's ties to other actors (Emirbayer & Goodwin, 1994) or to the number of different types of organisations that form the network (Van den Bulte & Wuyts, 2007). In this study range is defined as the number of different types of organisations in the network.

The range of organisations in a particular network needs to cover all the areas of importance needed for that network to successfully compete. The network should be designed to include organisations which bring resources to the group that are not currently accessible by members; these should complement existing capabilities and, as such, reflect the needs of the network (Gomes-Casseres, 1994). Prior network studies note there needs to be mutual benefit for each actor as well as alignment of actors in the network (Day, 1995; Gulati, 1998; Madhavan et al., 1998; Whipple, Frankel, & Frayer, 1996). Whipple et al. (1996) note where dissimilarities occur these should be addressed, otherwise relationships will not develop their full potential and conflict between actors will result. This would imply that the organisational objectives of the actors need to be similar: within the intentionally formed network, all actors still need to share a common business view, be aware of the common strategic objective which acts to bind the actors together, and be able to work in harmony. A prerequisite for effectiveness is recognition of the strategic advantage offered to all actors by participating in the intentionally formed network (Kodama, 2001; Madhavan et al., 1998; Mullen & Kochan, 2000; Pihkala et al., 1999).

By so doing, network-based advantages that assist in determining the competitive advantages of the network in relation to other networks are collectively built. A network

functions best when organisations complement each other and do not conflict, i.e. when there are incentives for cooperation. Incentives for cooperation depend on key characteristics of the actors and the network, including size of the actors, composition of the network in terms of the different types of actors and what they offer (including meeting actors' objectives), how the network is coordinated and intentionally formed, internal competition, and the process of growth (Gomes-Casseres, 1994; Madhavan et al., 1998; Young & Wilkinson, 1997). Erickson and Kushner (1999) describe the incentives to cooperate within a sports-sector network. All actors contribute to ensure the event that they are engaged in providing will be successful, but each actor is also dependent on each of the others and upon their ability to undertake network tasks. Failure to work together means the event will not be a success – its failure will be immediate and apparent to all, and will result in complete network failure.

Even though actors may cooperate with one another, conflict may also be present. Conflict may arise out of the type of relationship that exists between actors, the history of the relationship and how this is managed, and whether the relationship is of a long- or short-term duration, as well as if it is a close or arms-length one. Relationships between actors are therefore multi-dimensional and may include both competitive and cooperative components, and this is the result of how the relationships have developed as well as the context in which they have developed (Bengtsson & Kock, 1999; Medlin, 2006; Young & Wilkinson, 1997). It may also be as a result of actors pursuing self and collective interests which, when combined through successful joint action, motivate actors for relational joint performance. This would indicate that the better the fit between collective goals and self-interest, the more motivated and attractive an actor would become (Medlin, 2006).

Understanding the objectives and motivations of others, and whether these objectives are congruent, is an important aspect of relational success (Brass et al., 1998; Mullen & Kochan, 2000; Whipple et al., 1996). This is because there is a risk involved when cooperating if little is known about a potential partner's abilities and skills in maintaining a relationship. Prior knowledge through direct learning and the experiences of others who have partnered with that organisation helps to reduce this risk, and to build both trust and

the ability to understand and cooperate with each other (Gulati & Gargiulo, 1999; Powell, 1990). For the current study, understanding motivations of others is important given that the NZAS was created with the view of organisations working together for the benefit of New Zealand's athletes even though, in reality, these organisations also exist in a competitive environment and compete with each other.

Within the network there may be a level of internal competition depending upon the structure of the relationships and how many members perform the same tasks (Gomes-Casseres, 1994). Internal competition has one of two effects: either it increases group flexibility, encourages innovation and ensures supply, or it fragments the business to the point where it is not possible to reinvest in the development of the network. Competition within the network will benefit internal customers in the short term; however, long-term these competing organisations will want to opt for more order (Gomes-Casseres, 1994). As a result, actors may alter the way in which they work so that the overlap that has led to this competition of provided services is addressed (Gulati, 1998). Partnering with competitors, although not harmful, results in a weaker performance, whereas partnering with actors that are not competitors results in a stronger performance (Baum et al., 2000). Young and Wilkinson (1997) find in their research that relationships which may be ineffective are those that have a low level of cooperation and a high level of competition, with the opposite being true for effective or stable relationships.

The relevance of range of actors for the current study is one of providing a point of comparison between each of the three embedded NZAS networks. This may provide useful insights and be used to explain network organising dynamics. The next section examines density of the network.

2.5.4 Density

Density is defined in the current study as awareness of other actors in the network; as such, density is influenced by network size. When a network is small, it is easy for all actors to know of every other actor and so build up a relationship; however, networks in which all actors are connected to each other and where the number exceeds more than a few actors

are relatively rare (Hanneman, 2001). As the network grows in size, actors will have less resources and capacity for maintaining links with all others, and so density will decrease and parts of the network could become partitioned off. However, the larger the network, the more resources are potentially available for actors in that network (Anderson, 2002). This resource potential depends on how the actors are linked together (i.e. via the strength of their ties and whether the ties are direct or indirect) as it is these ties that provide access to network resources (Hoang & Antoncic, 2003).

Networks that exceed a certain size capability experience a decrease in density; as a consequence, they are likely to experience a decrease in the level of information flowing through the network which, in turn, negatively impacts on new partnering opportunities (Gulati & Gargiulo, 1999). Even so, the benefits of larger networks may still be realised through their construction with indirect ties; in this manner, the costs of relational maintenance through direct ties would not have to be met. However, this is dependent on the benefits to be gained from direct versus indirect ties. It also requires the identification of ties: is a tie indirect and facilitating information sharing of new ideas or problems so that awareness of events in other parts of the network are made apparent, or is the tie direct and facilitating information and resource sharing through the bringing together of the actors to share skills and expertise? The bringing together of skills and expertise results in actors benefitting from economies of specialisation and enhancing their knowledge without the investment required if they were to engage in this activity by themselves. Also of interest is the level of multiplicity that exists between each of the actors because this too affects the network's information- and resource-sharing abilities (Ahuja, 2000).

Differences in the size of networks reveal crucial information in the way they may operate because the larger the network, the more difficult it becomes for all actors to be connected to all other actors. This is one way in which small networks differ from larger networks: because size influences the ability to be connected with others, a large network may consist of a number of sub-groups, which may or may not be connected effectively to other parts of the network (Hanneman, 2001). Density is also an indication of the extent to which resources can be accessed by an actor, although this attribute has not been researched fully

due to the difficulty in gathering data from all actors within a network (Hoang & Antoncic, 2003). The next section examines informal coordination mechanisms within networks.

Network structure is based on the cognitive awareness of the relationships between the actors. So understanding a network requires understanding the relationships of the actors involved, i.e. their intentions and their connections between and dependencies on the other actors in the network (Ford & Redwood, 2005; Håkansson & Johanson, 1993; Mouzas, Henneberg, & Naudé, 2008).

The more readily the actors share understanding of the network, the more stable the network will be; in contrast, a cognitive network model which differs in perception between actors will result in a less stable network (Burkhardt & Brass, 1990; Håkansson & Johanson, 1993). Network cognition enables actors to form relationships with those that are less dominant, both within or outside of the network, to exploit an opportunity (Boje & Whetton, 1981; Håkansson & Johanson, 1993). However, network cognition is difficult as usually there is no organisational chart depicting the position of each actor in relation to others and the relationships that underpin the connections (Boje & Whetton, 1981; Mouzas et al., 2008).

Actors with an understanding of the network have a base of power different from structural conditions based on centrality. Knowing who else has power, what kind of power they have, and what the organisational landscape constitutes enables an actor to understand others in terms of support and resistance as well as coalitions that exist (Krackhardt, 1990; Mouzas et al., 2008). In a small network where everyone knows everyone there would be no advantage, but in a larger network actors are less likely to know all of the other actors (Krackhardt, 1990). Therefore, to influence a larger network an actor must have a cognitive model for understanding the network relationships (Brass et al., 2004; Håkansson & Johanson, 1993; Mouzas et al., 2008). However, this model is constantly changing due to the conflicts and opportunities that arise within the network, and it also changes at the different levels within the network, each of which may hold a different cognitive model. As such, the process of developing network pictures requires guidance (Mouzas et al., 2008;

Öberg, Henneberg, & Mouzas, 2007). It is therefore necessary to have factual knowledge based on understanding the actors' interactions; this will enable actors to develop network insight at each level, which then leads to a competitive advantage for the organisation. Thus a network requires a systematic, multi-level model for continually gathering knowledge. Such an approach allows for a better understanding of actors' positions and strategies (Holmen & Pedersen, 2003).

However, once a coping level of understanding is reached, the dynamic complexity of network change means that the model will not be developed further (Holmen & Pedersen, 2003; Mouzas et al., 2008). Although such a model could be important for developing actor strategy in maximising network opportunities, it implies actors should economise on the way that they go about collecting information due to resource constrictions that they face. Therefore actors are limited in their strategic management capabilities and will have to choose whom they seek to influence in order to maintain their own value within the network (Holmen & Pedersen, 2003).

The concept of density is important to understand in this study because comparisons between each of the three embedded NZAS networks may provide useful insights and could explain network organising dynamics.

2.6 The role of the central broker

This section explores the role of the central broker, the focal actor, actor motivation in forming a network and, lastly, consideration of partners.

The central broker has an important role to play in intentionally formed networks. Evidence suggests that within an intentionally formed network ties are not strong and activities are typically short lived rather than long term, and that this affects trust (Pihkala et al., 1999; Welch et al., 1996; Welch, Welch, Young, & Wilkinson, 1998). Trust in intentionally formed networks is based on the trustworthiness of the central broker because actors may not know each other. Trust exists but is dependent on the central broker and, by extension, on network membership. The development of a sense of trust is a role adopted by the

central broker and dissolves the need for formal contracts (Chetty & Patterson, 2002; Pihkala et al., 1999; Welch et al., 1998). This distinction is worth noting because within organic networks trust is gradually built up over time, and the long-term duration of these ties reduces the need for contracts (Blankenburg Holm et al., 1996; Håkansson & Johanson, 1993; Johanson & Mattsson, 1987). Nevertheless, Kodama (2001) notes that an intentionally formed network can, over the long term, lead to informal social networks developing. These informal social networks become more significant than formal ties as they build trust on an individual level and aid knowledge transfer.

However, studies of intentionally formed networks created by governments note the short-term duration of the role of the central broker, after which network management is handed over to network actors. Interestingly, these networks have not been durable (Chetty & Patterson, 2002; Welch et al., 1998). This is in contrast to the long-term duration of the Toyota Production System network which is coordinated by Toyota Group companies acting as the central broker (Dyer & Nobeoka, 2000). The durability of this network is attributed to superior interorganisational knowledge transfers with suppliers, and this is accredited to the central broker motivating network actors to participate and share knowledge that is valuable with others. Thus the central broker in this network prevents the problem of actors 'free riding' while also maximising the efficiency of knowledge transfers by reducing associated costs.

Another task of the central broker is to ensure positive rivalry by ensuring all actors share in the gains. Motivation for this stems from the possibility of the central broker dissolving partnerships quickly and/or through the threat of sanctions (Cowan et al., 2007; Dyer & Nobeoka, 2000; Kogut, 2000; Pihkala et al., 1999). In the case of the Toyota network, actors are also motivated to participate through experiencing that collective learning methods are far superior to operating by themselves, and that sufficient benefits are received by cooperating with others (Dyer & Nobeoka, 2000; Kogut, 2000). The central broker also prevents opportunism and exclusive relationship development between actors by ensuring numerous choices of potential partners for the project or task. Value and desirability of these relational opportunities is also dependent on whether there is

recognition of complementary resources: too much overlap of resources between actors means there may be no benefit, but if the resources are too distant they may not be understood by either actor (Cowan et al., 2007; Pihkala et al., 1999).

The role of central broker is a difficult one because other actors within the intentionally formed network may be capable of taking over this role and, as a consequence, act independently, especially if the central broker is unable to add value (Pihkala et al., 1999). An example of the central broker role being taken over is noted by Welch et al. (1998) and Welch et al. (1996) who cite one consortium member taking over network activities by forming an independent consortium and successfully bidding for the network business. Part of the reason for the occurrence was the breakdown in the formal network. This would appear to be the only case noted of such an incident in the literature but it does highlight the potential vulnerability of the central broker role.

The central broker role may benefit from the conceptual work of Möller et al. (2005) who identify a four-level classification framework for the management of intentionally formed networks. Their work is based on the value system of the network, and includes both the structure of the network and the goals of actors. They contend the framework captures the complexities and variety of emerging intentionally formed networks and the managerial challenges faced in each instance, concluding that the central broker will dominate in stable-value activities where hierarchal forms of management and power are more likely, whereas self-organisation of the actors is more likely in dynamic systems that have a looser management structure.

2.6.1 The role of the focal actor

In the early initiation stage of the network's formation the focal actors, around whom the network is constructed, are important as they influence the shape of the network. The focal actors are able to gain the maximum advantage and power for themselves by being early movers in forming the network because early movers have more time to form connections than do actors who enter the network later. In order to maintain a focal position, especially in highly competitive situations, the actors need to continually expand or renew

connections with others. Also, actors with more diverse connections with well-connected partners will be located centrally in the network and able to exert the greatest influence over the network's development to gain advantage for themselves (Powell, White, Koput, & Owen-Smith, 2005).

However, the actor that holds the most power within the network may not necessarily be the actor that founded the network. This is because the network changes over time as a result of the way in which information flows and is channelled through it in response to changing resource needs (Brass et al., 2004; Gulati, 1998; Hite & Hesterly, 2001). Over time some relationships will become less important and others more important, and so some ties will be severed while others made more dense – essentially an effect of opportunism and determinism by an actor (Coviello, 2006). The evolution of the network is the result of a dynamic process over time in which relational actions and structure are intertwined (Gulati & Gargiulo, 1999).

The relevance and importance of the role of the central broker and focal actor for the current study is to provide insights into understanding how they may influence network dynamics. It may also explain why conflict and/or cooperation might exist within the network. Understanding actor motivations for forming and/or joining the network is discussed next.

2.6.2 Understanding actor motivations

Motivations for network formation include insufficient organisational resources to meet market-place demands, to gain market access or greater market penetration, for cost reductions, to improve organisation performance, to improve stability for the organisation, to become more customer-focused, to gain expertise of others, or to benefit from the combining of all partners' core competencies (Dyer & Nobeoka, 2000; Glaister & Buckley, 1996; Lechner & Dowling, 2003; Whipple et al., 1996). Even so, individual motivations for partnering with others may still be based on actors operating on their own behalf and engaging in activities which best meet individual interests rather than those of the network. An example of this is noted by Håkansson (2006) who states if one actor is allowed to

dominate a network then the network will operate as a hierarchy and lose its effective and dynamic features. The reason for the loss of these features is because actors become separate from the environment, rather than being a part of it and responding collaboratively in a genuine way with others in joint actions (Astley, 1984; Walker et al., 1997).

Actors are also motivated by gaining power over others and gaining status for the actor, which signals perceived quality to others over their competitors (Cowan et al., 2007; Podolny, 1993; Whipple et al., 1996). In turn, gaining in status and credibility amongst stakeholders attracts other opportunities to that actor. For example, it might allow an actor to attract better quality staff and, as a result, enhance the actor's reputation. It also lowers perceived risk in doing business with that actor and positively affects the willingness of others to pay more for that business which, in turn, increases revenues for the actor (Chetty & Wilson, 2003; Mullen & Kochan, 2000; Podolny, 1993).

The motivations of individual actors and the underlying reasons of both those who formed and those who joined the network need to be understood because for relationships to be effective there must be a mutual value and alignment between each actor. Therefore, similarity in motivations affects the development and maintenance of relationships (Day, 1995; Gulati, 1998; Whipple et al., 1996).

The strategic and long-term intent of an actor is important in understanding the actor's competence and development needs. This is based on an understanding of the actor's internal resources and competencies, as well as the external environment in which they exist and from which they seek to position themselves within a network for maximum advantage (Coviello, Brodie, & Munro, 1997; O'Driscoll et al., 2000). This means the actor's reliance on the network will not be limited to just initial start-up activities as, with such an understanding, the network can continue to play a long-term role in providing access for the actor to business resources (Gulati, 2007; Hoang & Antoncic, 2003). Moreover, the network takes on a strategic importance for the actor and their behaviour becomes deterministic with a specific purpose (Gomes-Casseres, 1994; Gulati, 1998; Gulati et al., 2000). This behaviour influences the outcomes and patterns of behaviour of other

actors within the network, such as the sequence of decision-making based upon partner choice and the development of relationships over time (Gulati, 1998, 2007).

The underlying strategic motivations of actors lead to the formation of strategic network groups which are focused, with a specific aim, purpose and/or direction. They experience a pattern of growth that reflects their purpose and the critical stage they are in at that time (Chetty & Wilson, 2003; Gomes-Casseres, 1994; Hite & Hesterly, 2001; Varamäki & Vesalainen, 2003). As a result they do not cultivate an initial social network (Chetty & Wilson, 2003; Larson & Starr, 1993). They also seek to match opportunities with existing competence (Chetty & Patterson, 2002; Gulati, 2007; Gulati et al., 2000; Hoang & Antoncic, 2003).

Formation of the organic network can be viewed as the result of strategic action by an actor in order to gain profit, or increase performance or power, which means that actors take a proactive approach to building their relationships (Cowan et al., 2007; Lechner & Dowling, 2003). These actors form intentional relationships based on complementary strategic reasons for economic advantage rather than on symbolic affirmations of their social networks – although social networks help to identify relational opportunities and so there is overlap between social ties and economic ties (Gulati, 1998; Larson & Starr, 1993). This is similar to what occurs in intentionally formed networks as they are administered and managed by a central broker who adopts the role of strategic network manager (Kodama, 2001; Madhill, Haines, & Riding, 2004; Pihkala et al., 1999). Actors in intentionally formed networks come together for a specific project which is at the heart of the intentionally formed network: the project gives the network purpose and is the glue that binds the actors together. However, the purpose needs to come from within the intentionally formed network and be owned by the actors rather than be imposed from an outside organisation. The network purpose must also enable actors to meet their individual objectives (Biggiero, 2001; Dyer & Nobeoka, 2000; Mullen & Kochan, 2000). However, the reliance on a central broker for management purposes reduces the self-organising ability of members to zero – in contrast to organic networks where it is at a maximum. Yet, despite

the difference in the self-organising ability of actors, the benefit of intentionally formed networks is they have a specific focus (Biggiero, 2001; Dyer & Nobeoka, 2000).

The strategic focus of intentionally formed networks is also dependent on and influenced by the decision-making characteristics of the individual actors; these characteristics influence how each actor responds to initiatives from the network. Decision making by an actor is constrained by their manager's levels of trust and experience with other actors (Brass et al., 2004; Pihkala et al., 1999). In small- to medium-sized organisations this is influenced at the work-unit level. So if potential benefits are unable to be identified at the work-unit level then this may unintentionally inhibit that actor despite the intentions of the network (Chetty & Blankenburg Holm, 2000). Research by Rosenkopf, Metiu and George (2001) finds that organisations with no prior alliance formations identify suitable alliance partners through the use of joint technical committees at the work-unit level, whereas organisations with alliance experience gain knowledge of suitable partners through network ties. Also, the value of a relationship depends on recognising whether resources are complementary or overlapping, as complementary resources are more likely to ensure success (Varamäki & Vesalainen, 2003). When a relationship is formed an actor's properties are changed; this then impacts on the actor's abilities to form a relationship with others in the future (Cowan et al., 2007). There is also competition to form relationships with the best actor, as forming such a relationship provides the biggest return for the successful actor (Powell et al., 2005). In the case of the Toyota Production Systems network, Dyer and Nobeoka (2000) note the Toyota Group companies are instrumental in creating multiplicity within actors through a number of ways: by the facilitation of strong ties with actors by making well-trained consultants available to actors free of charge, by the creation of socialising opportunities between actors, and by the creation of sub-networks comprising of learning teams from actors in the network to facilitate tacit knowledge sharing. The effect of this multiplicity is to reduce the number of structural holes that might be present in the network.

Understanding actor motivation is important and relevant for the current study as it may be used to explain how actors can affect the dynamic aspect of the network through their

strategic choices. It may also explain why some actors join the network and why others exit the network. The next section examines consideration of network partners.

2.6.3 Consideration of network partners

The dynamic process of network evolution shapes both the choice of future partners and cooperation between actors (Gulati, 1998; Gulati & Gargiulo, 1999; Gulati et al., 2000). Organisations with more networking and partnering experience, evidenced by their cooperative capabilities, are likely to become more attractive network partners as they gain knowledge in networking itself and also learn about the industry that they are in; they are better equipped for success in forming and sustaining relationships (Brass et al., 2004; Cowan et al., 2007; Gulati, 1998; Gulati et al., 2000; Uzzi, 1997). This is a cumulative process which develops over time and with experience (Powell et al., 2005). Capabilities to ensure success include the ability to identify valuable opportunities and good partners, the use of appropriate coordination systems, the development of interorganisation knowledge-sharing capabilities, and investment in relationship building (Gulati, 1998). Furthermore, actors that have more relationships tend to enter into new relationships more readily, and these actors tend to have more focused networks and be at the centre of the network itself (Brass et al., 2004; Gulati, 1998; Gulati et al., 2000).

Actors who have formed a relationship with another in the past are more likely to do so again in the future with the same actor if the relationship between the two is based on understanding specific skills, capabilities and objectives, whereas those that were previously unconnected are more likely to form a relationship based on common partners (Gulati, 1998; Gulati et al., 2000).

The ability to select the right partner to cooperate with is a precondition for network advantage (Lechner & Dowling, 2003). Choice of a suitable partner may be determined by availability of an actor to partner with and by the strategic importance that a relationship with that actor represents in response to the business environment. Actors must be aware of their environment and the needs of their partners in order to minimise the risks associated with forming relationships. Information on the partner's reliability and whether there is a

risk of opportunistic tendencies needs to be addressed; such information is accessed through the use of social networks. Hence social networks can be seen to influence composition of the network as they enable an organisation to enter into new partnerships (Dyer & Singh, 1998; Gulati, 1998; Gulati et al., 2000).

There is a risk involved when cooperating with others when little is known about a potential partner's abilities and skills in maintaining a relationship. Prior knowledge through direct learning and the experiences of others who have partnered with that organisation helps to reduce this risk, and to build trust and the ability to understand and cooperate with each other (Gulati & Gargiulo, 1999; Powell, 1990). Opportunism is moderated by the personnel within each actor because personnel hold expectations of ethical behaviour of others embedded within the network, which sets expectations for future encounters. Expectations of ethical behaviour are much higher when strong ties exist because strong ties build greater trust than do weak ties. Also, as multiplicity increases between actors, this too will reinforce ethical behaviour (Brass et al., 1998; Walker et al., 1997). Unethical behaviour is likely to manifest in asymmetric relationships in which one actor trusts the other more and/or in which the unethical actor holds more power. The role of personnel also influences the propensity to act unethically as personnel in higher positions have more opportunity and are under less surveillance than those in lower positions (Brass et al., 1998).

Understanding an actor's choice of network partners may provide useful insights into the current area of research interest and may explain network dynamics within each of the three embedded NZAS networks.

2.7 Informal coordination mechanisms

The term *informal network coordination mechanism* is defined as the complex nature of relationships based on social and economic aspects that exist between actors (Håkansson, 2006; Medlin, 2004; Turnbull, Ford, & Cunningham, 1996). Economic aspects include investments and financial resources, whereas social aspects are how people within organisations interact with one another and typically this includes trust, commitment and

behaviour in a relationship, as well as creating opportunities to learn of other organisations for potential partnering (Gulati, 2007; Holmund & Törnroos, 1997; Melin & Axelsson, 2004; Wilkinson & Young, 2002; Wynstra, Axelsson, & Vand der Valk, 2006).

Relationships are viewed as the combined experiences of both parties. This includes norms of behaviour and learned rules, as well as the interpersonal relationships that exist and are considered essential in establishing long-term commitments, leading to increased trust and improved communication. These relationships evolve over time: each interaction impacts on the relationship, leading to mutual adaptations, information exchange and increased commitment. The interactions enhance resources of both actors as well as enhancing the network position of both by improving their competitiveness (Metcalf, Frear, & Krishman, 1992; Turnbull et al., 1996). The content, intensity and frequency of interactions influence a number of dimensions within the network, these being power of individual actors over others, closeness or distance between actors, mutuality in terms of actors' expectations of one another, and the state of cooperation or conflict between actors (Easton & Araujo, 1992; Mitchell, 1969; Wynstra et al., 2006). Interactions between actors need to be viewed within the context of the network structure rather than be viewed individually (Håkansson, 1992) as these interactions define and limit network effectiveness (Lundgren, 1992).

For the current study, prior research specifically relevant to informal network coordination mechanisms was examined to identify relevant constructs (Dyer & Singh, 1998; Gomes-Casseres, 1994; Gulati, 1998; Turnbull et al., 1996). The constructs identified were *trust, commitment, cooperation, development of norms of behaviour, communication, adaptation of processes, sharing of resources and knowledge and information transfer*. These are discussed next.

2.7.1 Trust, commitment, cooperation and the development of norms of behaviour

Network relationship building is a cumulative process based on trust and commitment. These need to be demonstrated by all actors because relationships take time and effort to establish (Blankenburg Holm et al., 1996; Brass et al., 2004; Day, 1995; Dyer and Singh, 1998; Granovetter, 1973; Gulati, 1998; Gulati et al., 2000 Håkansson and Johanson, 1993;

Johanson and Mattsson, 1987). Relationships are significant to the network partners and are lasting; they are also informal in nature, although specific or single activities may be formalised. The relationships built are mutually orientated, which implies that each actor is interested and respectful of the other, and will have knowledge and be aware of the other's objectives. Mutuality results in actors becoming interdependent on other actors within the network in order to access and share resources for business transactions (Blankenburg Holm et al., 1996; Håkansson & Johanson, 1993; Johanson & Mattsson, 1987). The relational nature of transactions within the network provides both opportunities and constraints for an actor in terms of their development because it can reduce exchange costs, give access to other actors, and may result in gain of power over partners – although it may also result in loss of power over partners (Johanson & Mattsson, 1987).

Trust is an important antecedent for network effectiveness and is recognised by many researchers as important in building effective networks (Brass et al., 2004). Trust relates to the willingness of one actor not to exploit weaknesses in the other, and may result in referrals to other potential actors that may have the necessary skills to undertake the tasks required (Gulati, 1998; Gulati et al., 2000). This is because actors who are tied are more likely to understand each other and hold similar information, which in turn will diminish uncertainty and promote trust (Granovetter, 1973; Gulati, 1998; Gulati et al., 2000).

The formation of trust will aid the relationship through difficult moments, especially those experienced when starting up. Trust needs to permeate the actor at different levels and not be restricted to the CEO/Board level of both actors. Trust may be facilitated via equity swaps, sharing of knowledge and information to achieve objectives, developing links between the various levels of each actor, ensuring integrity, and formalising the relationship with defined responsibility and accountability (Day, 1995). Moreover, an environment that facilitates trust will ultimately encourage higher-than-normal returns on relational activities because lower transaction costs will be experienced by reducing negotiation costs and promoting better performance between actors (Brass et al., 2004; Dyer & Nobeoka, 2000; Dyer & Singh, 1998). However, it is difficult to measure trust and to assess its impact on performance between actors (Brass et al., 2004).

The success that comes with cooperating with partners is based on whether an organisation can be trusted and is also dependent on the extent to which work between actors is coordinated. There is a distinction between trust of personal ties and trust of an organisation – it may be possible to not trust an individual within an organisation yet still trust the organisation. Trust may reduce the extent to which conflicts occur (Brass et al., 2004). Cooperation between actors with dense ties provides stability because dense ties reduce uncertainty and provide a means for reducing risk. Cooperating also implies flexibility as well as participation that takes into account the needs of the other, resulting in a more richly connected network (Wilkinson & Young, 2002). Shifts in relationships between actors tend to be gradual and infrequent because most relationships remain in place long term (Gadde & Mattsson, 1987).

Social networks facilitate and enforce trust; they also motivate good behaviour (Uzzi, 1997). Actors are aware that they have much to lose from opportunistic behaviour, which in turn enhances confidence in the other actors. Predictability of potential actors based on understanding and awareness (knowledge-based trust), combined with concerns over their own reputation (deterrence-based trust), creates safeguards which substitute the need for a detailed contract. At the outset, a cautious approach resulting in the use of a detailed contract may be used; later this may be replaced by looser practices. The more experience an organisation has with its partners, the less it will rely on hierarchical structures in organising new relationships (Gulati, 1998; Gulati et al., 2000; Hoang & Antoncic, 2003).

Relational problems will still arise even though actors trust each other. However, these can be resolved through the learning of behavioural norms, where those that deviate from these are punished in some way. Punishment for transgressors is based on the potential of loss of reputation, repeat business and contact with that organisation. The network structure can also help enforce norms and punishments as information on uncooperative members may be circulated, resulting in other members withdrawing services or resources as sanctions against a party (Brass et al., 2004; Dyer & Nobeoka, 2000; Hoang & Antoncic, 2003; Young & Wilkinson, 1997). Information circulated within the network also provides a way of learning about other actors through their relations with other parties. The effect of third

parties is one of motivating cooperation between two actors who are connected (Brass et al., 2004; Hoang & Antoncic, 2003).

The relevance for this study of understanding trust, commitment, cooperation and the development of norms is that these concepts are informal and mutually orientated and may result in increased network returns. By investigating these constructs in each of the three embedded NZAS networks, relational capabilities may be explained between the central broker and core actors; these constructs could also be used to explain organising dynamics of the networks. The next section examines sharing of resources, communication, and knowledge and information transfer.

2.7.2 Sharing of resources, communication, and knowledge and information transfer

Networks are especially good for circumstances requiring efficient and reliable information transfer as they enhance the ability to learn new skills and knowledge (Dyer & Nobeoka, 2000; Powell, 1990). Reliable information and knowledge transfer is facilitated by the effective management of communication between actors and clients. Effective communication enables value-added business developments by developing connectedness, and this facilitates learning through knowledge and information transfer (Lindberg-Repo & Grönroos, 2004). Learning between actors is critical for developing a network's competitive advantage (Dyer & Nobeoka, 2000; Dyer & Singh, 1998). For this to occur there must be both actor self-interest and collective interest; this is not surprising given that competition and cooperation may coexist between the same actors (Bengtsson & Kock, 1999; Medlin, 2006; Young & Wilkinson, 1997).

Informational advantages for an actor accrue from the network, which creates opportunities for access to information about potential partners and their trustworthiness. This results in the structure for a relationship, having the right information at the right time in order to seek an attractive partner and/or being referred to a suitable partner by other partner organisations. These informational advantages arise because network ties are able to transmit trusted information and speed up the diffusion of it (Brass et al., 2004; Powell, 1990). Gulati (1998) notes that "... networks of prior ties not only influenced the creation

of new ties but also effected their design, their evolutionary path, and their ultimate success” (p. 294). The findings of Bell and Zaheer (2007) reveal institutional or industry ties are more beneficial for knowledge transfer and innovativeness when there is close geographical proximity with actors as the tie does not convey the required level of trust when distances are greater. In contrast, organisational ties are not affected by close or distant geographical proximity; rather, knowledge flows are greater when actors are geographically distant and friendship ties exist within the actors.

Informational benefits may be provided via structural embeddedness through the position that an actor holds in the overall network structure, or by relational embeddedness through the closeness of ties between actors that is likely to occur at similar levels across the network. This can indicate the types of patterns of behaviours of others at similar levels within the network (Gulati, 1998). An implication of social embeddedness for actors within the network is the generation of increased trust between other actors (Gulati, 1998; Gulati et al., 2000). However, the informational role can also be used as a source of power within the network. For example, if the actor is situated between two other actors they can play one actor off against the other to create greater tension and so create an advantage to generate favourable terms. Alternatively, it may be that the two other actors create a source of conflicting demands (Gulati, 1998).

Networks with superior knowledge transfer are more effective and innovative; they are able to out-innovate other networks with less-than-superior knowledge-sharing routines because superior knowledge transfer provides the most important source of new ideas and information. Superior knowledge transfer is based on the extent to which actors have overlapping knowledge bases and the extent to which they regularly interact. Knowing where this knowledge resides in another actor is important; so too is the design of interorganisation routines that facilitate sharing between actors. The greater the absorption of information by partners in the relationship, the greater the potential for higher returns through knowledge sharing (Dyer & Nobeoka, 2000; Dyer & Singh, 1998).

Knowledge sharing is also dependent on the incentives to motivate partners in a relationship to do so, because knowledge sharing is costly and a return needs to be received. Knowledge sharing costs in terms of resources deployed by that actor to ensure that it happens effectively; in contrast, the costs are less for the receiving actor. Knowledge sharing should be a transparent process based on trust and willingness not to engage in opportunistic behaviour and 'free ride' on the other. To facilitate knowledge sharing, the coordination mechanism needs to create an environment in which regular knowledge-sharing routines occur and may, for example, include formal financial incentives or informal reciprocal behaviour. The greater the partner alignment of incentives, the greater will be the return through knowledge sharing. The effect of knowledge sharing is the creation of dense ties between actors which, in turn, increase both the rate of knowledge absorption and the understanding of where and what knowledge is useful (Dyer & Nobeoka, 2000; Dyer & Singh, 1998).

Within the process of knowledge and information sharing there is contention over the effects of strong and weak ties. Weak ties facilitate information gathering when there is much to collect, and in a dynamic industry setting these increase effectiveness as they give access to new opportunities. In contrast, strong ties are valuable and increase effectiveness when organisations seek to reduce competitiveness in stable industries (Ahuja, 2000; Brass et al., 2004; Burkhardt & Brass, 1990). Focal actors also gain in the accrual of innovativeness to their firm through knowledge and informational flows derived from their network position (Bell, 2005).

Knowledge within networks may also be created which implies actors need to learn how to learn together. This is dependent on actors learning to reciprocate, interdependently specialise, and then co-experiment and discover with each other. Given the increasing competitiveness in business markets, reciprocal learning alliances for the creation of new knowledge are becoming more crucial (Lubatkin, Florin, & Lane, 2001). Although the findings presented by Lubatkin et al. (2001) are based on a conceptual model for alliance between two firms, they still provide insights into why firms may engage in reciprocal learning alliances in a network environment.

The constructs of sharing of resources, communication, and knowledge and information transfer are important to understand for the present research study. These constructs are thought to facilitate value-added business developments and lead to the development of competitive advantage. By examining each of these constructs, differences in each of the three embedded NZAS networks may be explained. The next section examines adaptations by actors within the network.

2.7.3 Adaptations

Adaptation within the network is dependent on actors leveraging the complementary resources of other actors to generate greater returns than are possible with just individual actor resources. These higher-than-normal returns are possible only when an actor brings distinctive resources which are indivisible from them, not able to be purchased elsewhere, and complementary to those of other actors within the network. However, not all resources within an actor are complementary, and so it is necessary to consider the amount of resources within an actor that can be used to generate higher-than-normal returns before entering into a partnership with them. Within this process the development of relational-specific assets is tempered by the fact that the more specialised the asset becomes, the lower its alternative value; thus a more specialised resource will expose the actor to greater risk of opportunism than a more general resource would. Actors will be unwilling to share valuable knowledge and assets with others who are not willing to safeguard these from competitors. This is difficult as each is operating within their bounded rationality and in an uncertain environment (Dyer & Singh, 1998).

Actors need to adapt to one another; the exchange process within a network develops adaptability with the possible elimination of areas that do not fit. Adaptations are important as they strengthen bonds and increase the extent to which actors rely on each other for network tasks. Even so, these adaptations may or may not be mutual. The investment in adaptation requires a financial return and there is a requirement for not losing individual identity and independence in this process. Adaptation leads to a mutual understanding of each other with shared knowledge of capabilities and resources, and this takes time to develop (Johannisson, 1987b). This mutual understanding, based on both previous

experience and future business exchange, leads to a better handling of uncertainties and potential opportunism (Blankenburg Holm et al., 1996; Johanson & Mattsson, 1987). As a consequence of adapting to others, conflict resolution becomes more important; this is because the time and resources that have been invested to build the relationship are great compared with the costs incurred in leaving the relationship. Thus, conflicts are typically handled in a more cooperative manner (Johannisson, 1987b).

Within the adaptation process, initial relational-specific investments subsequently lead to more specialised investments with those actors. These are primarily based on asset interconnectedness across boundaries spanning organisations, and the process occurs incrementally, having a cumulative effect. This means that actors may need to make continual investments in order to realise the full potential of their relational activities. In addition, partners may develop innovations which combine resources and/or joint capabilities in a way which makes them indivisible from the relational actors. Over time these relational assets serve as a preserver of higher-than-normal returns and become increasingly difficult to imitate by competitors. However, by becoming indivisible, there is also a potential for the relational assets to create a loss of flexibility (Dyer & Singh, 1998).

The relevance of understanding the adaptation process for the present study is one of recognising how and what forms of adaptation have taken place between actors within each of the three embedded NZAS networks. These adaptations may explain differences between each of the networks. Presented next is the summary discussion and conclusion for this chapter.

2.8 Chapter summary, discussion and conclusions

The literature review presents an examination of prior network studies relevant to the particular research interest of this investigation. The review is concerned with uncovering and understanding how the multiple levels within networks influence the organising dynamics in an intentionally formed network. To do this it is important to understand the network context in which the study is based. The prior research studies from the network literature did not provide substantive answers to the research objectives.

The first part of the review identified a need for future network studies to: (1) jointly consider *structural* and *informal coordination mechanism* aspects, (2) be longitudinal studies due to the dynamic nature of networks, (3) examine *context*, and (4) investigate the sport-sector setting. Furthermore, intentionally formed networks were examined and found to be an area that had not been considered fully within the literature. To develop a theoretical framework and understand the aspects of dynamics, context, structure and informal coordination mechanisms that might be relevant to this research study, the review of prior network studies was divided into: (1) context, (2) forms of networks, (3) the role of the central broker, and (4) informal coordination mechanisms.

The purpose of the second part of the review was to examine prior network studies in order to understand areas of importance to the organising dynamics of intentionally formed network – constructs that would be relevant to the present study. The construct areas within the role of the central broker are *understanding who the focal actors are, actor motivations and cooperation*; for forms of networks they are *density, reachability, range, position and power*; and for informal coordination mechanisms they are *commitment, motivation, trust, communication and frequency, cooperation, sharing of resources, knowledge and information transfer, and adaptations*. The findings from the review have been used to guide participant questioning and to help in the interpretation of data collected. (This is further discussed in Chapter Four which deals with the research method).

A summary noting the areas of research interest neglected in the literature is presented in Table 2.1 and is discussed afterwards.

Table 2.1: Summary of research issues

Research approaches	Key studies	Relevance for this thesis
1. Organic versus intentionally formed networks	Network research has mainly focused on understanding and explaining organic networks. Research into understanding intentionally formed networks needs to be undertaken (Håkansson, 2006; Möller et al., 2005; Pihkala et al., 1999; Tikkanen & Parvinen, 2006). Further research is also required into understanding the motivations for actors to improve their network position and how these networks may be managed (Madhavan et al., 1998).	Intentionally formed networks need to be examined because there is little literature in this area. Given practitioner and government interest in intentionally formed networks, this is an area which should be developed.
2. Networks are complex and dynamic and, to be understood, need to be studied over time.	Many prior studies have undertaken a static examination of networks which involves creating a snapshot in time. Research which takes into account the dynamic nature of networks needs to be undertaken (Brass et al., 2004; Coviello, 2005; Ford & Redwood, 2005; Gadde & Mattsson, 1987; Halinen & Törnroos, 2005; Hite & Hesterly, 2001; Hoang & Antoncic, 2003; Larson & Starr, 1993; Madhavan et al., 1998; Melin, 1992; O'Donnell et al., 2001; Powell et al., 2005; Soda et al., 2004).	Intentionally formed networks should be studied over a period of time from their inception in order to capture their dynamic aspect.
3. Networks consist of both structural and informal coordination mechanism dimensions. Studies have tended to focus on either one or the other.	Both structural and informal coordination mechanism dimensions need to be considered jointly in the same research study (Benson-Rea & Wilson, 2003; Coviello, 2005; Håkansson, 2006; Hoang & Antoncic, 2003).	Both structural and informal coordination mechanism dimensions need to be considered jointly.
4. Network context needs to be understood.	Networks seek to adapt to and influence their external environment, i.e. the context within which they are operating. Understanding this context enables a fuller understanding of the network (Achrol, 1991; Anderson et al., 1994; Cook, 1977; Gulati et al., 2000; Mattsson, 1997). Also the sport sector is an area that has few studies of networks (Cousens & Slack, 2005; Erickson & Kushner, 1999; Thibault & Harvey, 1997; Wolfe et al., 2002).	For this research study a sport-sector context will be examined.
5. Levels of network studies	Prior research has approached the study of networks at one level. However, networks are affected by cross-level pressures within them and there is a call for more research in this area (Brass et al., 2004; Day, 1995; Gulati, 1998; Möller et al., 2005; Parkhe et al., 2006; Powell, 1987). Multiplicity between actors results in multiple realities requiring an understanding of multiple perspectives from multiple levels within actors (Kjellberg & Helgesson, 2006).	It is apparent from examining the literature that the examination of cross-level pressures has not been done adequately.
6. Strength of relational dimensions	The strength and content of the relationships within networks, rather than merely their existence or non-existence, is emerging as an area of greater interest. There is a call for research into the measurement of relational strength (Brass et al., 1998; Brass et al., 2004).	The strength of relationships within the network needs to be understood.

Table 2.1 shows that this research study addresses a gap in the literature, i.e. the study seeks to explore intentionally formed networks because there is a lack of knowledge in the area of intentionally formed networks (Galaskiewicz, 1996; Pihkala et al., 1999; Tikkanen & Parvinen, 2006). The need to understand intentionally formed networks is further demonstrated by government and organisation interest, which was discussed in Chapter One. This research study also answers a call for further research, a call begun by Liu and Brookfield (2000) and continued by Håkansson (2006) and Möller and Rajala (2007), to identify and categorise both the different types of network structure and the important features of them. In addition, this study hopes to provide a contribution to the sport sector as little research, with the exception of Cousens and Slack (2005), Erickson and Kushner (1999), Thibault and Harvey (1997), and Wolfe et al. (2002), has been conducted in this field. Finally, the new data can be presented to examine findings in other research contexts, such as the not-for-profit and social policy sectors.

Important articles that are especially relevant are shown in *Appendix A: Key contributions from the literature that inform this study*. Although these articles were unable to provide answers to the research objectives because there is a gap in the literature dealing with intentionally formed networks, they did discuss a number of constructs that develop understanding of intentionally formed networks. These constructs have been discussed in this review and are used to inform the data-collection method, which is discussed in Chapter Four. Furthermore, the literature review has highlighted the fact that few exploratory studies, and even fewer quantitative studies, have been undertaken. Thus, research that seeks to generalise theory in the area of intentionally formed networks is an area of emerging interest, and a fuller understanding of the complex and dynamic nature of networks is still being sought by academics (Anderson et al., 1994; Håkansson, 2006; Halinen & Törnroos, 2005; Hoang & Antoncic, 2003; Möller & Rajala, 2007; O'Donnell et al., 2001), especially with regard to the measurement of tie strength (Brass et al., 1998; Brass et al., 2004). Finally, the literature review has highlighted that there is no single overarching network theory – further evidence of the emerging nature of this research area (Håkansson, 2006; Halinen & Törnroos, 2005; Johnsen et al., 2000; Turnbull et al., 1996).

The areas of research interest emerging from the review were used to develop the research objectives further; these objectives are detailed in Chapter Four. The areas of research interest are:

1. further understanding of intentionally formed networks and how they are managed, because few studies have been conducted in this area
2. the complex and dynamic nature of networks, because many prior studies have taken only a static examination of them
3. the consideration of both structural and informal coordination mechanism dimensions in the same study, because earlier studies have tended not to address both structural and informal coordination mechanism dimensions in one study
4. network context – this needs to be understood especially as network theory has not been readily applied to the sport sector, and no academic study has been carried out into high-performance sport provision in a New Zealand context
5. the effect that cross-level pressures have on networks, because prior research has approached the study of networks at only one level, and
6. the strength and content of the relationships within networks, because this appears to be more relevant than just the existence or non-existence of a relationship.

The areas neglected in the literature are in some cases due to methodological constraints because there is a lack of literature on the methodology of network research (Halinen & Törnroos, 2005). As a consequence of both the emerging nature of this research area and the complex nature of networks, a qualitative research approach is recommended (Hoang & Antoncic, 2003; O'Donnell et al., 2001). However, future research into networks would benefit from a combination of both qualitative and quantitative techniques; this is noted by Coviello et al. (1997) and Coviello (2005), who address the call for research into relational strength. As such, a case-study incorporating mixed methods would appear to be the most suitable approach for understanding networks (Coviello, 2005; Halinen & Törnroos, 2005).

The sport environment as context of the network is discussed in the next chapter, after which the methodology for investigating the research objectives is presented in Chapter Four.

Chapter Three

Context of the network

3.0 Introduction

This chapter presents the global emergence of elite sport systems in order to provide additional information and depth for understanding of the broader context within which the NZAS network system operates.

Network context is important to understand because it is the environment within which the network is located and to which the network will respond. Changes in the environment will impact on the network and, as a result, influence its shape and structure (Achrol, 1991; Anderson et al., 1994; Cook, 1977; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002). Galaskiewicz (1996) comments, “Given the complexity of contemporary organisational life, any network analysis that ignores the ‘big picture’ will provide only partial explanations” (p31). The external environment consists of all actors within the network and the enveloping structure within which it sits. As actors seek to gain power over parts of this environment a new environment emerges, and so environment is dynamic and changing (Erickson & Kushner, 1999). The network context for this study is the elite sport sector in New Zealand which is part of the global elite sport environment.

3.1 Influencing factors within the elite sport environment

Competitiveness within international elite sport has developed rapidly over the last decade; this development has involved more money being invested, higher standards and professionalism being the norm, and an increase in the numbers of competitors (Moreland, 1997; Sadleir, 1999). The following points demonstrate these developments:

1. Some nations are able to invest substantially more resources than other (smaller) nations into winning at elite levels. Examples of the level of approximate expenditure on Olympic athletes for the 2000 Olympic Games in Sydney include: Canada spending AU\$62 million (NZ\$66.5 million) to win a total of 14 medals; Great Britain spending AU\$238 million (NZ\$255 million) for 28 medals; and

Australia spending AU\$280 million (NZ\$300 million) for 58 medals³ – although Australia would have spent more as a result of being the host country (Mitton, Davies, & Donaldson, 2004). Similarly, 2003 budgets for high-performance sport expenditure in Australia were NZ\$64.2 million; Canada, NZ\$60.5 million; England, NZ\$170.7 million; and in New Zealand, NZ\$15 million (K. Sadleir, personal communication, May 11, 2004).

2. The number of countries taking part in elite sport at its highest level, the Olympic Games, has also increased steadily over the years: 14 nations took part in the first Games in 1896, compared with 199 nations (10,651 athletes) participating in 2000. In the 2008 Beijing Olympic Games 10,500 athletes took part in 28 sports for 958 medals. Similarly, the number of sports and events contested at the Olympics has risen: sports from 9 to 28, and events from 43 to 296. The number of medals contested in these sports at the 2000 Sydney Olympics was 928 and in 2008 Beijing Olympics was 958, but with the number of athletes taking part having risen from 245 in 1896 to 10,500 by 2008, this means the medals are harder to win (International Olympic Committee, 2008; Sport Industry Research Centre, 2003).
3. The number of events is likely to remain static or even decline because the International Olympic Committee (IOC) is seeking ways to reduce the scale of future Olympics. All of the current 28 Olympic sports need to survive a vote in order to be included in the 2012 Olympic Games, and any new sport will only be accepted if there is a gap to be replaced by an outgoing sport. (However, it is more than 70 years since the last sport was removed from the Games – polo in 1936). Even so, in 2002 the IOC put a limit of 28 sports, 301 events and 10,500 athletes on the Summer Olympics (*Sports face vote for 2012 Olympic inclusion*, 2005).
4. Increased competition will, therefore, come from better quality athletes rather than from increased competitor numbers. Competitive advantage for a nation will result

³ Calculated using the NZ National Bank buy cash rate of 0.9328 to NZ\$1.00 at 16 February 2005 for comparative purposes (National Bank, 2005).

from one of two actions: taking a strategic approach to the use of limited resources and targeting specific sports, or by improving the overall ability of that nation in a wide range of sports (Sport Industry Research Centre, 2003). However, the Sport Industry Research Centre (2003) comments from its research findings that success comes from consistent winning in the same events by different athletes, and that this is a function of that nation's ability to produce winners in selected sports. The Centre notes, "... even the most successful nations in terms of medal table terms excel in a minority of these sports on a regular basis ... it is clear that there is no evidence to support the notion of generic competitive advantage in the Olympic Games" (p. 109).

5. There is a targeting of 'softer' medals whereby a nation systematically seeks opportunities for success by training and developing athletes in a specified sport. This practice was introduced by Australia in the 2000 Sydney Olympics, and recently in the UK. This may well lead to an increasing diversity of sporting cultures for different countries (Green & Oakley, 2001).

6. The number of women participating in the Games has increased (Johnson & Ali, 2002; Sport Industry Research Centre, 2003) from 9% of the total competitors in 1948 to 38% in 2000 (Sport Industry Research Centre, 2003). It is probable that some nations are able to improve their overall medal tally by focusing on the development of female athletes and that this is likely to continue as a strategy (Green & Oakley, 2001; Sport Industry Research Centre, 2003). China was able to move their overall fourth-place ranking from previous Games to a third-place ranking in Sydney 2000 by their female athletes winning 16 gold medals, up from 9 at the Atlanta Games (Sport Industry Research Centre, 2003). This also demonstrates that higher-income nations are able to send more female athletes to the Olympics than can lower-income nations (Johnson & Ali, 2002). Johnson and Ali note a quadratic effect in relation to GDP: an additional \$1000 of per capita GDP raises a nation's female participation rate by two athletes. As an example of the

impact of this effect, they note that the United States will send 36 more female athletes than Nigeria.

3.2 Ensuring success through the emergence of elite sport systems

The philosophy behind the modern Olympic Games is one of participation rather than winning, and of competition between individual athletes and not between nations (IOC, 2005). However, the official International Olympic Committee's (IOC's) table of medals documents the Olympic success by nation, not by athlete. This method of reporting success at the Olympic Games is a move away from the Olympic ideal of individual athletes taking part. Sporting success at the Olympic Games is determined by the official medals table of the IOC and based on the number of gold medals won. The measure of success is determined by one nation's overall placing in relation to its competitors: coming first is what counts (Davis & Kay, 1990; dell'Osso & Szymanski, 1991). Most nations have an expectation of how their athletes will perform at each Olympic Games, and subsequently how many medals they are predicted to win, as shown by the reports in the media after each Olympic Games has been held and the medal tables totalled (Bernard & Busse, 2000).

A nation's sporting success at the elite level can be viewed as being dependent on two criteria. The first is the employment of an elite sport system characterised by a strategic approach which takes into account a nation's governmental and political systems as well as socio-cultural influences. The second is essentially a consequence of that nation's GDP and size of population: basically, a wealthy nation with a large population base and an interest in sport will do better than smaller nations. This implies top athletes in countries that have a large population but low GDP may be hindered by 'poverty' in their achievement of sporting potential and consequently medal success (Bernard & Busse, 2000; Johnson & Ali, 2002; Kuper & Sterken, 2005; Sport Industry Research Centre, 2003). Martin, Arin, Palakshappa, and Chetty (2005), using the original data set from Bernard and Busse (2000) with the inclusion of an elite sport system variable, found that this variable has a positive and significant result on elite sport systems' effect on Olympic success as measured by the total number of medals won. This is consistent with the findings presented by Bernard and Busse (2000) and Matros and Namoro (2004). However, when the effects of elite sport

systems on the number of gold, silver and bronze medals won was viewed separately, another interesting result was found: there is no statistically significant effect of elite sport systems on the number of gold medals won, only on bronze and silver. The authors propose this might be the result of extraordinary talent within the individual athlete that cannot be provided by external sources such as the implementation of an elite sport system. Alternatively it might be argued that gold-medal-winning athletes take a much longer time to develop and that this may not be reflected in the data set used.

Elite sport systems employing a systematic strategic approach are based on a highly rationalised and formalised method that links sports science and sports medicine with specialised talent identification of athletes and development systems (Green & Oakley, 2001; Sport Industry Research Centre, 2003). There was a noticeable shift towards this approach post-1948 by communist countries – a move which proved very successful for those nations, in particular the German Democratic Republic and Union of Soviet Socialist Republics (Green & Oakley, 2001; Sport Industry Research Centre, 2003). The demise of these countries in the late 1980s and early 1990s left a sporting legacy of elite sport development that other countries have since drawn upon and developed (Green & Oakley, 2001; Kuper & Sterken, 2005). The most notable or well-documented of these modern approaches is the Australian model (Green & Oakley, 2001; Sport Industry Research Centre, 2003). This was launched on 26 January 1981 with the development of a centralised approach based at the Australian Institute of Sport (AIS). The model had been developed following a national outcry over Australia's poorest sport performance in 40 years at the 1976 Olympic Games in Montreal: Australia failed to bring back one gold medal and had won only one silver and four bronze medals (Daly, 1991; Denholm, 2000; Green & Oakley, 2001; Hogan & Norton, 2000; Shilbury & Deane, 2001). The development of the AIS was the major strategy utilised by the Australian government to enable their athletes to compete effectively with other countries that had adopted the use of sophisticated sports-science techniques to enhance athletic improvement and development (Shilbury & Deane, 2001). It demonstrates how early talent identification, a fully aligned sporting system, and early selection and specialisation in a particular sport benefits that country's sporting success (Balyi & Hamilton, 2000; Green & Oakley, 2001). The initial centralised approach is noted

by Cockersgill (2002) who cites Wally Foreman, Director of the Western Australian Institute of Sport, as saying that it would give Australia a quicker start than using a decentralised model. Eventually there was a 'rebellion' against this centralised approach which took the athletes away from their homes, families and local culture (Pyke & Norris, 2001). The Australian model has since integrated into its system an extensive network of sport academies across Australia which are supported by sports science and sports medicine (de Silva, 2002). However, the AIS still acts as a central hub for elite sport and the academies which grew in response to this decentralised approach.

3.3 Factors for the development of elite sport systems

The success of the development of the Australian elite sport model is attributed to two underlying key factors: political commitment and funding (Green & Oakley, 2001; Hogan & Norton, 2000). In terms of the level of investment, Hogan and Norton (2000) estimated prior to the Sydney Olympics in 2000 that each Olympic gold medal won by Australia would cost the country AU\$37 million (NZ\$39.6 million), and that each bronze and silver medal was valued at AU\$8 million (NZ\$8.6 million).⁴ They based this on funding amounts which they note had increased from AU\$1.2 million (NZ\$1.29 million) in 1976/7 to AU\$106 million (NZ\$113.2 million) in 1997/8. The amount allocated to elite athletes in this period was AU\$0.918 billion. Their study is based on estimated budgets for elite sport, as precise information is not available. A simple regression analysis is used for the period 1975 to 2000 which shows a significant linear relationship between the amounts invested in elite sport and the number of medals won. This direct correlation between the amount of funds invested by the Australian government, as well as the amount of increased funds that Australian sport is able to attract from private sources, and the increasing number of medals won by that country is also noted by Sport Industry Research Centre (2003). However, extending this linear relationship beyond 2000 would be unbelievable as one would expect a diminishing return on medals won from the level of investment over time given the finite number of potential medals and the impact of other nations' elite performance programmes.

⁴ Calculated using the NZ National Bank buy cash rate of 0.9328 to NZ\$1.00 at 16 February 2005 for comparative purposes (National Bank, 2005)

In creating an elite sport system, there are four characteristics that need to be taken into account: (1) Formal or legal monopolies, which in the case of elite sport is the distinction between amateur and professional at the Olympic Games, or any other form of restriction. (2) Architecture, which is the structure of contracts operated by a sport system. These personify the system and are not attributable to one individual. Collectively, this consists of the people and contracts, whether formal or informal. Contracts develop specific knowledge and cooperation between individuals so that they may understand implicitly the workings of the team. Members are able to function with greater commitment which reinforces this cooperation. However, if this is developed through the contributions of an exceptional individual rather than the team, then when the individual leaves the competitive edge will be lost. This is a typical scenario in team sport where a talented individual can lift the play of the team. (3) History and reputation, which requires a long-term investment. A good reputation develops trust and may attract the best personnel, and in so doing a competitive advantage is built. However, the advantage is lost over time if the team is unable to perform and succeed in the present. (4) Technology, usually from a long-term investment into research to develop skills or the most up-to-date information and resources. For instance, in the case of the America's Cup it would appear that investment and development into leading-edge technology means that the race is won before the boats are even launched (Davis & Kay, 1990; dell'Osso & Szymanski, 1991).

Should performance levels already be higher than those of rivals, it is likely that a system's success is attributable to one factor and that is architecture. Overall success is attributable to creating added-value from these contributing factors and in defending this added-value from competitors (Davis & Kay, 1990; dell'Osso & Szymanski, 1991).

The growth and refinement of elite sport systems is now more commonplace; they are also becoming increasingly similar with the emergence of a uniform model with slight variations employed by the different elite sport systems in each country (Green & Oakley, 2001). The methodology used by Green and Oakley (2001) to investigate this was a qualitative approach in which they interviewed key personnel in the French, Spanish and UK elite sport systems; an analysis of secondary data was also used. The authors also note

Australia and Canada have adopted policies for developing elite sport which are similar to those of the Soviet model. Green and Oakley's research suggests the intended development of a uniform global sporting elite model; however, a larger empirical study would be needed to either confirm or deny this. Green and Oakley (2001) list the similarities on which this model is based as:

1. a clear understanding about the role of the different agencies involved and an effective communication network which maintains the system;
2. simplicity in administration through common sporting and political boundaries;
3. an effective system for the statistical identification and monitoring of the progress of talented and elite athletes;
4. provision of sports services to create an excellence culture in which all members of the team (athletes, coaches, managers, scientists) can interact with one another in a formal and informal way;
5. well structured competitive programmes with ongoing international exposure;
6. well developed and specific facilities with priority access for elite athletes;
7. the targeting of resources on a relatively small number of sports through identifying those that have a real chance of success at world level;
8. comprehensive planning for each sports needs;
9. a recognition that excellence costs, with appropriate funding for infrastructure and people; and
10. lifestyle support and preparation for life after sport. (p.256)

They comment that it is the effectiveness of how each component of the model is applied that counts. The authors comment that Point 5 is based on a Eurocentric approach and reflects that most of the international sporting competitions occur in the northern hemisphere. Point 6 refers to designated elite training centres, but in many countries this is not possible as these facilities are shared with universities (Green & Oakley, 2001). The success of elite sport programmes is also dependent on the role of government and the traditions of government within that nation (Sport Industry Research Centre, 2003).

To ensure effective planning in the creation of an elite sport system, goals need to be identified and narrow objectives set, as well as all relevant data analysed (Green & Oakley, 2001). This would entail benchmarking best practice, and the implementation of a system to allow for this, thus enabling realistic improvements in performance to be measured using the criteria outlined by Green and Oakley (2001). Given that each nation's elite sport

performance model is aimed at developing core competencies in order to gain added-value, and aimed at protecting these in order to maintain a competitive advantage, benchmarking best practice may prove difficult: competitors are likely to keep the underlying factors and the specific knowledge and skills contributing to their success hidden from others. However, what is important is to understand why this success has occurred in particular sports.

More countries that can afford to do so are developing this strategic approach to medal success for their elite athletes, and as such have improved their capability to win medals (Green & Oakley, 2001; Sport Industry Research Centre, 2003). Nations employing this approach to develop their competitive advantage include Canada, China, Columbia, Ecuador, Finland, France, Ireland, Korea, New Zealand, Northern Ireland, Norway, Scotland, South Africa, Spain, Taiwan, the United States of America and Wales (International Forum on Elite Sport, 2005). Countries that do not adopt an elite sport system – in effect remaining at the same level of investment in terms of resources – can expect to be overtaken in medal success by other nations (Sport Industry Research Centre, 2003).

3.4 Summary

Olympic gold medals are becoming more difficult to win. For New Zealand, this is further complicated by the fact both its population base and economy are small when compared with other nations such as the United States of America, China, Canada and Great Britain. New Zealand is disadvantaged compared with richer nations which are able to invest more resources into elite sport with the development of elite sport systems.

In order for New Zealand to compete and maintain its standing on the world stage there is a clear need to strategically manage limited resources, target specified sports, benchmark best practice, and share information and knowledge as part of designing its own elite sport system.

Chapter Four

Research method

4.0 Introduction

As with any major research project, the researcher must build a platform from which to view the social phenomenon under study and this, in turn, requires a multitude of decisions, each impacting on the overall design and practical application of suitable data-collection methods. This chapter explains the research philosophy, the case-study strategy and the choice of specific qualitative and quantitative data-collection methods chosen to address the research questions. The chapter will firstly recap the research questions, and also discuss the epistemological considerations of the research philosophy that underpins this current study. The chapter will then justify the use of mixed methods and explain the case-study strategy in detail. This section includes an explanation of the case-study design used, consisting of a single case with multiple embedded cases incorporating the three interdependent, intentionally formed networks that comprise the NZAS system, as well as the three phases of research, and the specific methods used to generate data. The final sections of the chapter address validity, reliability and ethical considerations.

4.1 Research aim and questions

The aim of this research is to understand how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength. Prior network studies, discussed in Chapter Two, revealed that although networks have been studied extensively and offer rich findings, it is an area with still many unanswered questions. The literature review was unable to provide substantive answers to the objectives of the present study. A number of research issues were identified and these research issues are listed below, along with the research questions.

1. Network research has mainly focused on understanding and explaining organic networks; most of the research is conceptually undeveloped on intentionally formed networks.

What is different about intentionally formed networks?

2. Networks are complex and dynamic and so to be understood need to be studied over time; many prior studies have made only a static examination of networks.

How do intentionally formed networks change over time?

3. Networks consist of both structural and informal coordination mechanisms, and both need to be considered; prior studies have tended not to address both these dimensions in the same study.

What are the structural and informal coordination mechanisms of an intentionally formed network?

4. To make sense of the network, its context also needs to be understood.

What is the importance of context?

5. Networks are affected by cross-level pressures within them; prior studies have approached the study of networks at only one level.

What are the cross-level pressures within intentionally formed networks?

6. The strength of relationships within networks is significant; most prior studies have considered only the existence or non-existence of a relationship.

What is the strength of relationships within an intentionally formed network?

The research issues noted above are addressed in order to develop insights that make a valuable contribution to network theory. An overview of the research process is depicted in Figure 4.1. A thorough understanding of a national programme with global objectives was necessary in order to address the aims of the research. The programme providing this context is the elite and high-performance sport sector in NZ. The specific objectives of the study are:

- 1 To develop insights that make a valuable contribution to network theory by progressing understanding of intentionally formed networks grounded in managerial practice.
2. To understand from a multi-level network perspective how the organising dynamics contribute to the operation of an intentionally formed network.

- 3 To investigate and understand how, from a managerial perspective, an intentionally formed network approach has been used for a national programme to achieve global outcomes.

Addressing the aims and objectives requires a methodology that can encompass the complexities and dynamism of the network phenomenon. This is detailed in the next section.

4.2 Research design

4.2.1 Epistemology

The epistemological framework adopted for the present study is based on a philosophy known as pragmatism (Dewey, 1925). Pragmatism is concerned with what is practical, and implies that research methods are adopted because they are best suited to comprehensively address the research question. The pragmatic philosophy also ensures that the researcher is not constrained to one particular research approach thereby limiting the study (Dewey, 1925; Feilzer, 2009; Johnson & Onwuegbuzie, 2004; Leech, Dellinger, Brannagan, & Tanaka, 2009). Feilzer (2009) argues that pragmatism accepts “singular and multiple realities that are open to empirical inquiry and orients itself toward solving practical problems in the ‘real world’.” (p. 3). Such a philosophy is appropriate in this current project because the interrelated components of the intentionally formed networks require analysis from all directions if the research questions are to be answered.

The pragmatic stance allows the researcher to combine elements from the constructivist and positivist paradigms even through these philosophical stances are not inherently linked (Hanson, Creswell, Clark, Petska, & Creswell, 2005; Rocco, Bliss, Gallagher, & Perez-Prado, 2003). The distinctions between the two paradigms are important because the assumptions of each impact on how the data is collected and how the findings are interpreted.

The beliefs underpinning the constructivist paradigm are that the social world is comprised of complex variables that cannot be isolated from one another or from the context in which

they are studied. These beliefs are tied to the important assumption that multiple realities exist and are based on each research participant's construction of that reality. In addition, the researcher's role in the interpretation of participants' realities is accepted and acknowledged (Crotty, 2006; Guba & Lincoln, 2005; Perry, 1998). Constructivism uses inductive methods and is suitable for exploratory studies such as this. Because it requires the researcher to be a participant during the data collection (Denzin, 1994), the researcher needs to be involved in rigorous self-reflection and consideration of the impact of the research process in each data collection phase (Guba & Lincoln, 2005). Such reflection is achieved, for example, by allowing participants to read and discuss the researcher's interpretations of findings and this process is an important element in the research design.

The positivist paradigm, on the other hand, tests a 'truth' identified from empirically verifiable knowledge of the world; it assumes the world is experienced as a highly organised and regular place with universal laws that govern it in order to provide meaning (Crotty, 2006). This type of world view is interested in facts, measurements and analysis through statistical tests – with the assumption that a single truth is tested through deductive techniques which can then be generalised (Denzin, 1994; Eisenhardt, 1989a; Miles & Huberman, 1994). Another assumption of the positivist paradigm is that the researcher is capable of studying a phenomenon without influencing it or being influenced by it (Guba & Lincoln, 2005).

The pragmatic stance, by combining aspects of the constructivist and positivist paradigms, allows for the inductive development of themes to be taken from constructivism and deductive measurements about the strength and structure of networks from positivism. It also enables the selection of a range of methods most suited to address the specific research questions, while working within the case-study strategy recommended for network studies (Creswell, 2003; Halinen & Törnroos, 2005).

4.2.2 Methods

Before the case-study strategy is explained, it is important to highlight the advantages of applying the pragmatic philosophy and so being able to use mixed methods. The use of

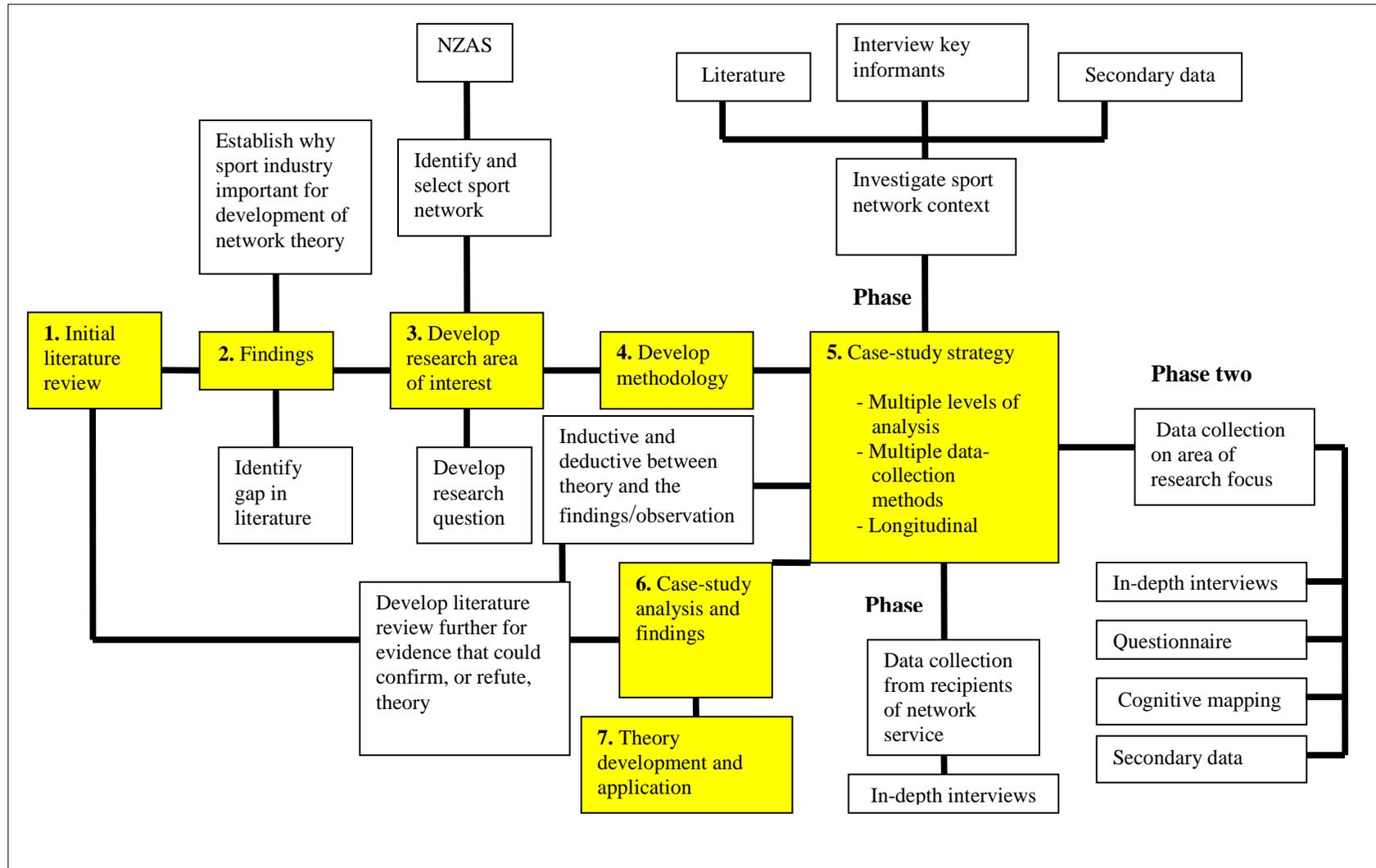
mixed methods allows the researcher to aim for greater breadth and depth of data in order to provide a solid basis for theory generation (Johnson & Onwuegbuzie, 2004; Miles, 1979; Miles & Huberman, 1994).

In this current study, the mixed-method approach not only added depth but provided triangulation to the research findings. The mixed-method approach was both qualitative and quantitative. As this study was exploratory, a qualitative approach was required to explore and generate themes. The quantitative approach, however, enabled the measurement of structural aspects of the networks and also the measurement of relational aspects between actors. The benefit of combining qualitative and quantitative data is that it provided multiple views from different sources and perspectives, which assisted in explaining and augmenting the complex phenomenon of networks.

By using a mixed-method approach, the weaknesses inherent in a single-method approach are restricted and a richer and deeper understanding is obtained from the convergence of data (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007). By considering both structural and informal coordination mechanisms together, this also addresses the concerns of Hoang and Antoncic (2003) and Tuominen et al. (2000) in their calls for fuller understandings of networks.

The mixed-method approach, the elements of which are the exploratory nature of the study and the measurement of the structural aspects and constructs, has enabled has the additional advantage of enabling triangulation and bringing together the observable patterns that produced the events (Creswell, 2003; Richards, 2005; Rocco et al., 2003). A case-study strategy was chosen as the most suitable research tactic as it offered a means of combining qualitative and quantitative data (Creswell, 2003; Perry, 1998); this strategy is discussed in the following section, while the specific details about the methods used in this current study, such as a retrospective approach which relied on research participant's memories, cognitive mapping, semi-structured interviews, questionnaires and the use of secondary data, are described in sections 4.3 and 4.4.

Figure 4.1: Overview of research design



4.3 Case-study

4.3.1 Case-study strategy

The case-study strategy was chosen as the most appropriate as it offered the best match with the research objectives under investigation. According to Halinen and Törnroos (2005 p. 1286) “it is obvious that case strategy is most suitable for the study of business networks”. Case study is a specific research strategy in its own right (Eisenhardt, 1989a; Yin, 1986) and offers a comprehensive research approach to a phenomenon that is both complex and dynamic (Halinen & Törnroos, 2005). This is evidenced by critical technical features of the case-study strategy that separate it from other strategies. These distinctive features include it being able to investigate real-life occurrences when the context of the study might not be readily apparent, and to use multiple sources of data obtained from both qualitative and quantitative techniques (Dubois & Gadde, 2002; Golafshani, 2003; Mason, 2002; Stake, 1994; Yin, 1986). On this, Yin (1986) comments:

A case study is an empirical enquiry that:

- investigates a contemporary phenomena within its real life context; when
- the boundaries between phenomena and context are not clearly evident; and in which
- multiple sources of evidence are used. (p. 23)

A case-study strategy is also appropriate because this study is investigating a relatively new area and a full understanding of important and relevant issues from the participants’ perspectives is needed (Golafshani, 2003; Ragin, 1994; Sutton, 1997; Yin, 1986). In addition, the case-study strategy has the distinct advantage of utilising a range of data-gathering methods (including documents, observations, field notes and interviews) which allows for a triangulation. Such triangulation for this particular study is further strengthened by the use of quantitative tools to measure relationship strength and to define structural dimensions of the intentionally formed networks. The combination of qualitative and quantitative data in this manner enriches findings (Eisenhardt, 1989a; Patton, 2002; Yin, 1986). Specific details of the strategy used are discussed next.

4.3.2 Single-case design

The strategy used was a single-case design with multiple embedded cases and follows the approach of Yin (1994). The embedded cases consisted of the three interdependent, intentionally formed networks that comprise the NZAS system: NZAS – North, NZAS – Central and NZAS – South Island. Each of these embedded cases was written up as a case and then a cross-case comparison made following the guidelines of Patton (2002). To enhance understanding of these three embedded cases and to provide triangulation, data was also gathered from the NZAS – National Office, to which each of the embedded cases reports, and also from the client organisations comprising of twenty national sport organisations (NSOs).

4.3.3 Retrospective longitudinal aspect

Networks are dynamic and constantly changing and this needs to be considered when a research process is designed (Coviello, 2005; Halinen & Törnroos, 2005; Hite & Hesterly, 2001; Melin, 1992). Because the time limitations of the research project meant that a true longitudinal method involving immersion in the organisation over an extended period of time was not possible, a retrospective approach which relies on the participants' memories was used, as recommended by Carson and Coviello (1996), and Medlin (2004). Employing a retrospective approach was reasonable because the intentionally formed network's creation was recent, having only been formed in 1999. It was therefore assumed that changes were expected to be minimal and research participants' memories reasonably accurate over this time span. A convergent approach was taken to ensure accuracy of events; this compared participants' stories and secondary data sources to confirm events, and follows the method outlined by Medlin (2004).

To further aid the retrospective strategy, a cognitive-mapping method was used to map the stages of development for each intentionally formed network. Research participants mapped the growth of the network, defined the network boundary, identified relevant historical events, and mapped the connections between actors. Research participants were asked to draw the intentionally formed network to which they belonged at its different stages and these were compared with other participants' drawings. The mapping stages

were at the discretion of the research participants and reflected the changes in the structure of the networks rather than a set time period. The approach of indentifying network events rather than imposing a time period follows the approach adopted by Madhavan et al. (1998). The mapping technique also acted as a trigger for the memory of participants, and is recommended for that purpose by Huff (1994).

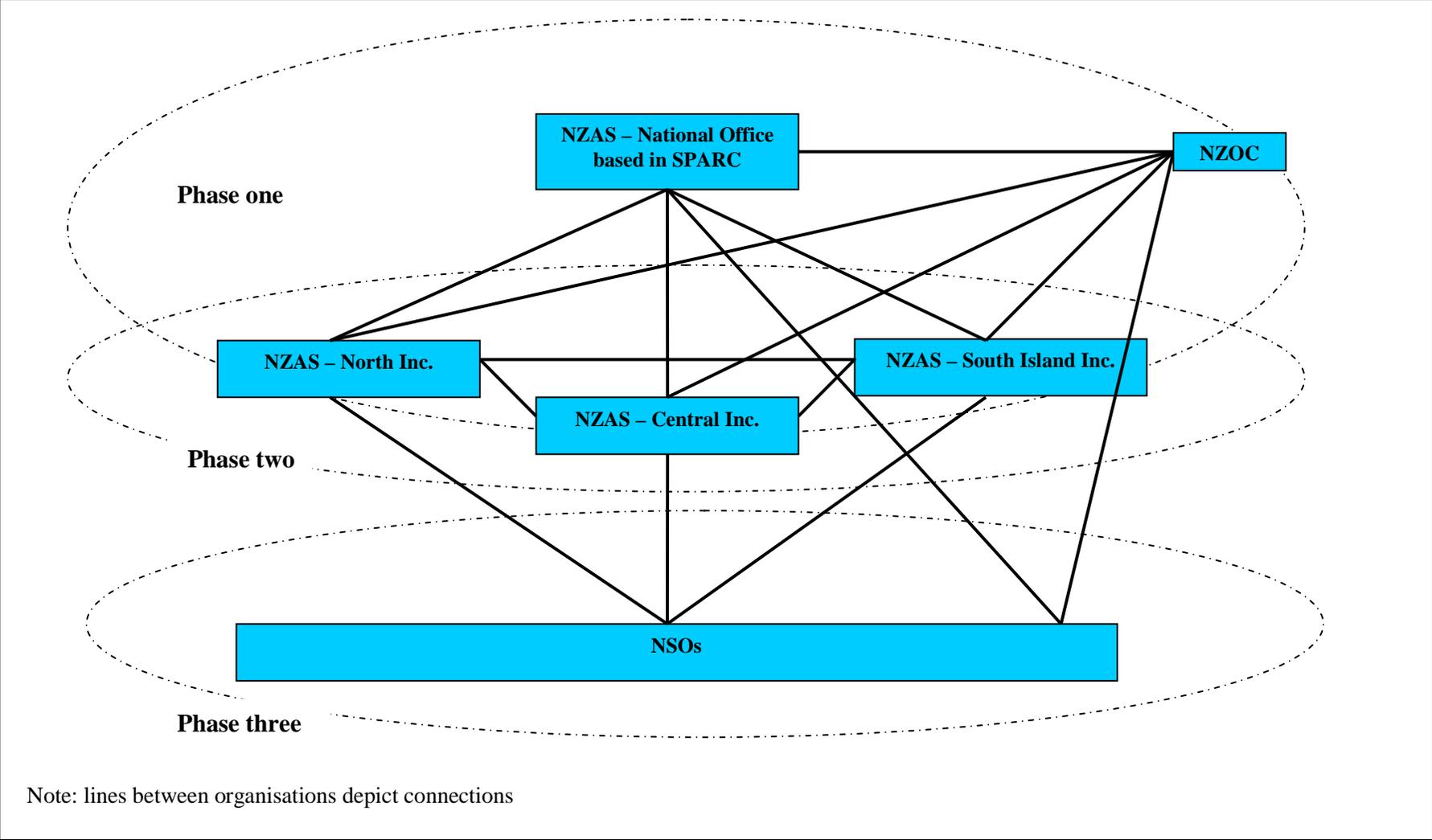
The cognitive-mapping method helps to identify the dynamic nature of the intentionally formed network by identifying aspects or activities that are important at a specific point in time, as noted by Coviello (2005), Madhavan et al. (1998), and Mouzas et al. (2008). Follow-up interviews with research participants for each intentionally formed network occurred to clarify understanding and to provide a triangulation of data. This approach was used to capture the contextual and contemporal dimensions of the network as it evolved, as recommended by Halinen and Törnroos (2005). Historical aspects prior to the network formation were also gathered from archival data and from interviews, as recommended by Patton (2002). This history forms an important part of the context for the research and is reported in Chapter Five.

4.3.4 Unit of analysis

The unit of analysis determines what the ‘case’ is, which means a distinction needs to be made from those who are to be inside the case and those who are to be outside the case. Boundaries also need to be specified in terms of when the case study begins and ends. These points determine the limits of the analysis and data gathering (Halinen & Törnroos, 2005; Miles & Huberman, 1994; Stake, 1994; Yin, 1986).

The unit of analysis was concerned with the space that exists between actors in each network. It has two components: (1) the social and economic relational component that occurs between actors in the NZAS network, and (2) the structural component of the NZAS network, which is defined by the relational component (Halinen & Törnroos, 2005; Young & Wilkinson, 1997). These are explained next. The focus of the study and research phases for the single-case design is depicted in Figure 4.2.

Figure 4.2: Research phases and focus for the study



For data-collection purposes the unit of analysis is SPARC's branded elite and high-performance intentionally formed network. This comprises the New Zealand Academy of Sport's (NZAS) three interdependent, intentionally formed networks: NZAS – North, NZAS – Central and NZAS – South Island. Each of the interdependent, intentionally formed networks is coordinated by a focal actor: NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc. The network boundary was determined by the research participants who were located in the network actors. The research participants identified the organisations in each network, identified other research participants, and identified the organisational level of each research participant (i.e. CEO/Board, work-unit or individual). The temporal boundary was taken from the formation of the intentionally formed networks in 1999 to June 2006, which was the end of the data gathering for the study.

4.3.5 Multiple levels of data collection

Selection of multiple levels for data collection offered a way of gauging the extent, understanding and support for both the network and its activities, and how these are shared at all levels within the intentionally formed networks (Bennis, 1989). This information is needed because a fuller understanding of network dynamics requires an understanding of cross-level pressures (Brass et al., 2004).

For this study the cross-level pressures were investigated at three levels: (1) The CEO/Board level was examined by interviewing at the CEO and director level of each of the embedded network actors. The CEO/Board level is concerned with strategic direction, leading, policy decisions and in setting the vision for the network (Bennis, 1989). (2) The work-unit level was examined by interviewing at the senior-manager level of the embedded network actors whose operations are directly involved in each intentionally formed network. The work-unit level is concerned with managing the tasks and activities to achieve the network objectives (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003). (3) The individual level was examined by interviewing staff responsible for the day-to-day operation of the network's business in each of the embedded network actors. These individuals carry out the tasks and activities managed by the work-unit level (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003).

4.4 Research phases and data collection

4.4.1 Research phases

The research was organised into three distinct phases: phase one was a scoping exercise, phase two involved collecting data from the area of research interest, and phase three provided a further substantiation of findings and triangulation of data. These phases and how they relate to the single-case design are shown in Figure 4.2. The total number of interviews is shown in Table 4.1. Information was continually written up during the data-gathering process, as recommended by Miles (1979).

Table 4.1: Summary of interviews and research phases of study

Research phase of study	Number of interviews conducted	Number of research participants	Number of organisations represented
Phase one	7	5	5
Phase two	45	37	21
Phase three	4	4	4
Total	56	46	30

To increase the likelihood that data collected was credible, a great deal of emphasis was put on developing close relationships with three key research participants in key organisations. Such relationships have been shown to allow trust to develop to ensure support for research studies of this nature, and is recommended by Fontana and Frey (1994), Patton (2002), and Seidman (1991).

First phase

The first phase of the study began at the end of 2003 and was mostly completed by mid-2004. The key reason for carrying out this phase was to ‘scope’ the networks. This was to ensure both the suitability of the intentionally formed networks for the study and that access to the actors comprising these networks was possible. Data collected from research participants in this phase was also used to further understand the context of the network. Findings from this phase are reported in Chapter Five.

For the first phase of the study seven interviews were conducted with five participants at the CEO/Board level from each intentionally formed network, from the NZAS – National

Office and from the National Olympic Committee (NZOC). This also included an opportunity which arose to speak to the Minister for Sport, the Hon. Trevor Mallard, at Massey University Albany Campus on 26 May 2005. Ultimately the Hon. Trevor Mallard was answerable to the New Zealand government for the NZAS network.

The NZOC was included in this part of the study as its purpose is to promote the ideals of the Olympic Games and to represent New Zealand to the Olympic movement. The NZOC also works closely with the NZAS, SPARC and the NSOs, which meant it was able to offer an impartial perspective of the work of the NZAS network for triangulation of data purposes. (This impartiality is possible because the NZOC is not government-funded.) Details of the NZOC's objectives and role within elite sport are reported in Appendix E.

Secondary data was collected from the websites of SPARC, the New Zealand Olympic Committee (NZOC) and the NZAS regional network actors, as well as from various reports and documents published by key industry organisations which include SPARC, the New Zealand Sports Foundation (NZSF), the Hillary Commission for Sport Fitness and Leisure, and the New Zealand government; these are all listed in the references section of this study and referenced in the text where appropriate. These data sources were used to inform the background and context for the present study.

The view of research participants at the CEO/Board level in each of the focal actors was used to define the network horizon for each of the embedded, intentionally formed networks, i.e. the extent or size of the intentionally formed network that they considered relevant. This horizon was then used to frame the overall study for case selection and to present a logical flow or story that could provide insights into the complex relationships that exist within the single case, as suggested by Anderson, Håkansson, and Johanson (1994), Coviello (2005), and Denzin (1994).

Second phase

The second phase of the case-selection process comprised the main focus of the research. It was concerned with choosing participants for the study and then exploring how and why the actors that comprise the embedded, intentionally formed networks of NZAS – North, NZAS – Central and NZAS – South Island came to be involved in the networks, how they work together, and the effectiveness of each intentionally formed network. For this part of the study, 45 interviews were conducted with 37 participants selected from the three embedded NZAS networks.

Prior to choosing participants for the study, a scoping exercise was undertaken in which information was gathered on each embedded, intentionally formed network from the focal-actor perspective, i.e. from the NZAS incorporated societies responsible for coordinating the network; this information was used to determine the network boundary. In order to develop the focal-actor (organisation) perspective, the CEOs of NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc. were asked to identify core actors within their networks. They were also then asked to identify potential research participants at each of the multiple levels from within their own organisation, and from within the core actors that they considered important for network tasks, as well as identifying the level at which these potential research participants operated. The potential research participants were invited to participate in the study and were then asked to identify other potential research participants for inclusion in the study from their own organisation at multiple levels, and to identify other actors within the network. This emergent ‘snowball’ approach follows the methodology design utilised by Doz (1996) and is noted by Seidman (1991) and Hanneman (2001) as appropriate for uncovering the full network from the focal-actor viewpoint. However, there was a danger the emergent approach could lead to a lack of focus and an unmanageable research load. Therefore care was taken to keep the number of interviews to a manageable amount in order to ensure a balance between the depth and breadth of data collected, as recommended by Dubois and Gadde (2002) and Seidman (1991). This was achieved by the number of participants being determined by the level of saturation where no new data was collected or uncovered (Miles & Huberman, 1994).

In some instances it was anticipated that there would be a duplication of roles with network actors which could result in only one or two interviews taking place from that actor. Also, some actors operated at more than one level within the network and this affected the number of interviews undertaken. In some instances the CEOs of each of the NZAS incorporated societies were interviewed more than once for clarification of findings – hence the difference between the number of interviews and the number of research participants (see Table 4.1).

Two events had the potential to impact on the second phase of the study, which began early in 2006. The first of these was the timing of the Commonwealth Games, held 15–26 March 2006 in Melbourne. This had an impact on the study because key people were unavailable prior to and during the Commonwealth Games because they were with the New Zealand teams. Some were also not available for up to two months after they had returned because they were involved in evaluating New Zealand’s performance as part of SPARC’s review of the Commonwealth Games. However, the timing of the data collection being either side of the Commonwealth Games is unlikely to have had a significant effect on this study because the research participants’ perceptions of a sport or actor was not being researched from a performance-perspective based solely on the outcomes of the 2006 Commonwealth Games.

The second event was a major review of the NZAS system by SPARC; this review commenced in 2005 and ended in 2006. At the time, the review was thought to potentially lead to a restructuring of the NZAS network at the end of 2006. However, the results of the SPARC review, expected to be announced at the end of May 2006, were delayed to August 2006 to allow for an analysis of New Zealand’s performance at the 2006 Commonwealth Games. Therefore, the SPARC review is not thought to have influenced this research because all data was gathered prior to the results of the review being announced.

An agreement to collaborate in the research project was obtained from the CEOs of NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc. responsible for each of

the NZAS intentionally formed networks, and from the CEO or appropriate representative from each of the actors from within the NZAS intentionally formed networks.

Third phase

The third research phase examined the twenty NSO organisations that are recipients of the networks' services; this allowed for a fuller understanding, from a different perspective, of network effectiveness. It also enriched the findings of the study and enabled triangulation. Information from the NSOs was used to inform both the within-case descriptions and cross-case analysis.

A purposeful sampling strategy was used to select four NSO organisations for the study from the twenty NSOs that are part of the NZAS system. The High Performance Managers from the twenty NSOs were invited to participate in the study; ten accepted, of which four NSOs were selected. The High Performance Managers hold the key position responsible for liaising and working with the NZAS system and are best placed to discuss how the NZAS network impacts on their organisation. This approach follows the methodology of Kale et al. (2000), i.e. the key officer with the best understanding of the operation of that aspect of the organisation is interviewed. Selection of the four NSOs was based on the decision to aim for case replication and follows the methodological design of Eisenhardt (1989a), Yin (1994) and Patton (2002). Key characteristics for case selection were the NSO being a carded sport and their ability to be effective by developing and providing resources and opportunities for their high-performance athletes in order to win medals at the international level.⁵ Effectiveness was determined by the NSO and by a panel of experts.

A self-selection questionnaire was used to identify the NSOs on a range of weak to strong in terms of effectiveness. The self-selection questionnaire used a rating scale that allowed for a midpoint to capture those respondents that were indifferent or undecided, as recommended by Sudman and Bradman (1983). This method of self-selection follows the approach used by Hoye and Auld (2001). Table B.1 shows the self-selection questionnaire (see Appendix B). Selection of the carded NSOs was based on calculating the average score

⁵ For an explanation of 'carded', see Footnote 7, p. 125, Chapter Five.

from the ten questions. The two highest (most effective) and two lowest (least effective) scoring NSOs were selected. The selection of polarised cases provided a contrast, allowing the limits of any conclusions drawn from each of these cases to be tested (Eisenhardt, 1989a; Miles, 1979; Miles & Huberman, 1994).

The self-selection questionnaire was a simplified version of the criteria set out in the 'high performance assessment tool' (HPAT) used by the NZAS to help the NSOs self-evaluate their performance across a number of areas considered by the NZAS as important for a sport organisation with athletes competing at the highest level. The questions were carefully constructed by the researcher to cover these areas of importance. To ensure the suitability of the questions in evaluating high performance capability of each of the NSOs, the self-selection questionnaire was checked and amended by two experts who work in this area. They are both employed at a high level within the NZAS. Drafts of the questionnaire were also checked as part of the supervision process for the study.

A panel of five experts with experience in high performance and elite sport was then recruited, in consultation with high-ranking staff from the NZAS. The use of an expert panel follows the methodology used by Chetty and Campbell-Hunt (2003; 2004). The panel helped to verify the self-selection process by identifying suitable carded NSOs for the study. They did this by rating as strong, medium or weak the ability of each carded NSO to develop and provide resources and opportunities for their high performance athletes in order to win medals. When compared, the results of the self-selection questionnaire and the panel's rankings were consistent with three of the NSOs. Following the self-selection process, four NSOs were identified and invited to become part of the research; all agreed to do so. Two effective and two ineffective NSOs had been chosen. One of the ineffective NSOs invited to participate in the study had a self-score lower than the rating given them by the panel of experts.

Bias in this process was reduced as there was no declared conflict of interest between members of the panel of experts and the respondents selected from the NSOs. Members of the panel of experts did not have an interest in the NSOs that were selected. Four interviews

were conducted for the third phase of the study. These interviews were with the High Performance Manager of each NSO.

After the interviews had been undertaken one carded NSO was excluded from further participation because it did not meet the replication requirements of being 'weak'. In the interview it became apparent that the High Performance Manager had rated the NSO lower than it actually deserved. Therefore, in total, data from two effective and one non-effective carded NSO was included in the current study. Unfortunately there was insufficient time to select and interview a replacement NSO.

4.4.2 Interview process

The focus for the interviews was on uncovering the participant's own experience with the network, and their involvement, understanding, commitment and feelings towards what they saw as important in the operation of the network. This follows the guidelines of Seidman (1991) and Eisenhardt (1989b).

Interviews for all three phases of the study were conducted in the same manner in order to capture the respondents' beliefs as accurately as possible, as suggested by Ragin (1994), and Schloss and Smith (1999). This involved listening to the research participants in a flexible manner in order to take advantage of any new occurrences and ideas that might develop during the interview (Eisenhardt, 1989a; Graziano & Raulin, 1997). Clarification was sought to ensure understanding of what was said and that nothing had been missed, as recommended by Seidman (1991) and Walsham (1995).

Interviews were conducted in private settings where interruptions were unlikely, as recommended by Morse and Field (1995). Confirmatory tactics were employed: data gathered using audio recording was transcribed and sent back to the research participant for checking of accuracy, along with a write-up of their organisation which included objectives. Note-taking was also used in case the research equipment malfunctioned, as recommended by Miles and Huberman (1994).

Field notes were made after each interview during the data-collection process. Typically these included my impressions of each participant, self-reflections on what was being learnt, and related thoughts throughout the process. The collection of field notes followed the methodology guidelines of Eisenhardt (1989a).

The boundary for the study was further defined as the study progressed by following the recommendations for in-depth interviews provided by Eisenhardt (1989b). The interviews were in-depth because most research participants were interviewed once only. The duration of the interviews did not exceed two hours and most were kept to 90 minutes. This follows the recommendations of Seidman (1991) because after 90 minutes there is a strong likelihood that no new information will be uncovered; this also follows the methodology of Eisenhardt (1989b) for in-depth interviews.

Interviews took place in Auckland, Wellington, Christchurch and Dunedin. For the six cases when it was not possible to meet face-to-face, the interviews were conducted over the telephone.

Interview structure for first phase of study

For the first part of the study a semi-structured interview approach was used to gain an understanding of the network context and to explore the structure and functioning of the network. The semi-structured approach aided understanding in two ways: first, by directing the research participants' responses to the area of interest for this study; and second, by allowing responses which are meaningful to the research participants. Prompts were used to ensure all details were explored (Morse & Field, 1995; Seidman, 1991). The questions and prompts are listed in Table B.2 (see Appendix B). Table B.3 (see Appendix B) lists the questions asked of the Minister for Sport, the Hon. Trevor Mallard.

Interview structure for second phase of study

The interview process for the second phase of the study combined multiple data-collection methods; this ensured that findings can be corroborated and strengthened (Eisenhardt, 1989a). The multiple data-collection techniques included the use of three methods: in-depth

interview, questionnaire survey and completion of a cognitive map. This enabled the research objectives to be addressed by allowing for the measurement of relational strength, and by capturing the dynamic situation of the three embedded NZAS networks.

The phase two interview process was designed around a structured time frame. The first sixty minutes were spent on the in-depth interview, followed by fifteen minutes for the cognitive mapping and, lastly, fifteen minutes for completing the questionnaire. The interviews concluded with an open question, “Is there is anything more that should have been asked?” because this is often when the most revealing information is given. This approach follows the suggestion of Morse and Field (1995). The research participant was also asked whether they could be contacted again if there were any other questions that arose, as recommended by Morse and Field (1995).

The in-depth interview is an inductive approach and this was considered appropriate because the research frame was known, but the answers that were likely to be given could not be predicted (Morse & Field, 1995; Ragin, 1994; Stake, 1994). The interview schedule and the questionnaire were informed by the prior network studies noted in Chapter Two. The interview schedule is presented in Table B.4 and the questionnaire in Table B.5 (see Appendix B). The purpose of the questionnaire was to gain further understanding of the strength of relationships that each actor has with other actors in the network.

My supervisor and I reviewed the phase two interview process after the first interviews, and made two changes. First, two additional prompts were added: “How did you find out about the other members?” (i.e. a probe for social/business connections), and “Why have you not mentioned other members on your website?” Second, a request was added for written information, memos, documents and publicity material, including press releases, magazines, TV and radio coverage concerning the NZAS network.

There were two separate instances during interviews where the interview tape broke. When this was discovered directly after the interview, the notes that were made during the interview were added to in order to ensure all information was captured. A transcript was

then sent back to the research participant for clarification. Fortunately one participant also agreed to a follow-up interview to recapture the information. The tape machine being used was found to be faulty and was replaced.

Interview structure for third phase of study

The interview schedule for the third phase of this study dealt with gathering data from NSOs. The schedule was based on Table B.4 and is listed in Table B.6 (see Appendix B). The similarity of structure allowed for a comparison of data with that collected in phase two. Typically interviews with the High Performance Managers from each of the selected NSOs were between 60 to 90 minutes duration.

4.5 Analytical procedures

This section describes the analytical procedures employed within the study to understand the data collected from primary and secondary sources. This was approached by first understanding the environment within which the NZAS network operates, what the network consists of, and how and why the NZAS network came about. Following on, an understanding of each of the embedded cases (a within-case description) was sought (Eisenhardt, 1989a), after which a cross-case analysis was undertaken, following the design recommendations of Miles and Huberman (1994). The following sections describe this process.

4.5.1 Understanding the context of the network

A comprehensive understanding of the NZAS network and the context within which it operates was developed from primary and secondary sources of data. Primary data was gathered from interviews (see Tables B.2 and B.3, Appendix B). Secondary data was gathered from websites, various reports and academic sources; these are referenced in the text where appropriate and appear in the reference section at the end of this research study.

The information gathered at this descriptive stage from convergent data sources was written up to develop further understanding and clarification of both the network environment and how the NZAS network operates. This procedure meets the case-study approach outlined

by Denzin (1994), Miles and Huberman (1994), Patton (2002), and Richards (2005). This information provided context for the study and presented a solid platform upon which to build the within-in case description. The main findings of this descriptive stage are listed in Chapter Five, and information on the elite and high-performance sport sector that provides context for the study as presented within Chapter Three. Information on the business purpose and objectives of each organisational member within each of the intentionally formed networks is reported in Appendix D. Information on the purpose and objectives of the NZOC is reported in Appendix E. Data on the *network context* was audited for accuracy by returning it to research participants at the CEO/Board level (for each of the NZAS incorporated societies, NZAS – National Office, and NZOC), and to confirm data accuracy and further clarify understanding, as recommended by Denzin (1994), Miles and Huberman (1994), Patton (2002), and Richards (2005).

4.5.2 Within-case description

When analysing data from the embedded cases, the first task is to describe each to demonstrate understanding of them before they can be compared and contrasted with each other (Eisenhardt, 1989a; Patton, 2002; Ragin, 1994). Information gathered from documents, websites and other sources about NZAS – North, NZAS – Central and NZAS – South Island was used to develop background information for each case; this also included network maps, drawn using PAJEK from data entered into UCINET 6 software, which show the various stages of network development (this method is explained later under *Use of quantitative techniques*). The descriptive stage of developing background data on each *NZAS network* was audited for accuracy by feeding each embedded case back to each of the CEOs of the NZAS incorporated societies to confirm accuracy and further clarify understanding (Denzin, 1994; Miles & Huberman, 1994; Patton, 2002; Richards, 2005).

Findings from the qualitative data were then added to the within-case descriptions to build a descriptive within-case summary of each network. Quotes from participants were added after this to illustrate important points. Quantitative data that captured the structural aspects of the networks and measured the strength of relational dimensions was also included. Integrating qualitative and quantitative data gives a richer understanding of the cases, and

follows the recommendations of Coviello (2005), Miles (1979), and Miles and Huberman (1994).

Each within-case description was conducted separately across multiple levels – CEO/Board, work-unit and individual – by the construct areas identified from prior network studies, as suggested by Brown and Eisenhardt (1997). These construct areas were *role of central broker, informal coordination mechanisms, forms of networks and context*. The within-case description formed the first level of analysis of the data and was reviewed as part of the supervision process.

The within-case descriptions meant emerging patterns could be more easily identified, and the descriptions also built familiarity with each case prior to the cross-case comparisons (Brown & Eisenhardt, 1997; Eisenhardt, 1989a, 1989b; Richards, 2005).

Management of data

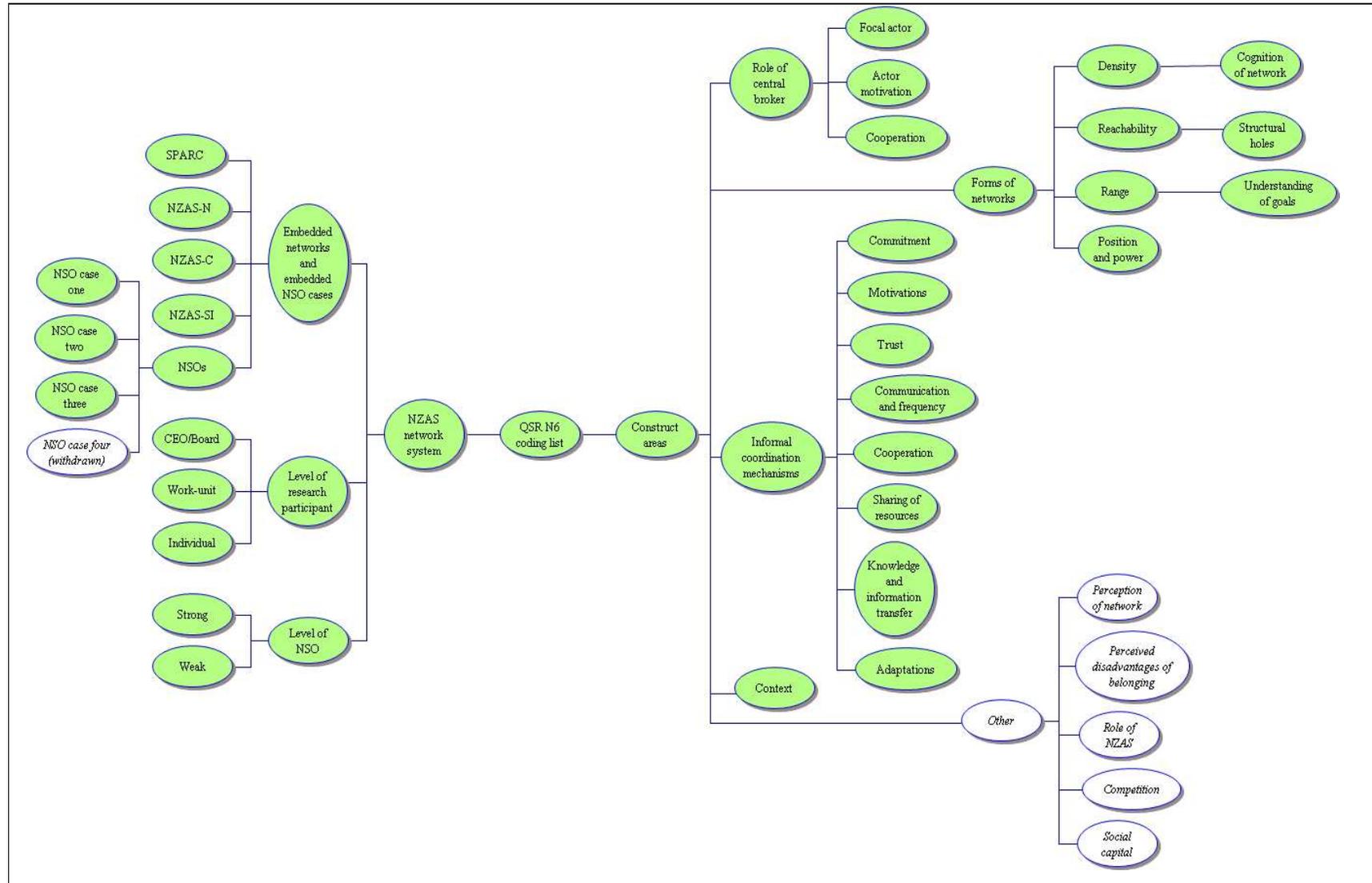
For the purpose of qualitative data management, QSR N6 (formerly known as NUDIST) software was used. Each transcribed interview was allocated an individual name that allowed for easy identification during the analysis. The interviews were entered into QSR N6, coded by embedded-case type, then by level of analysis, and finally by sentences and paragraphs against the construct areas (see Figure 4.3). This process allowed reports to be run off by level of analysis for each embedded case, and independently by construct area. The reports were then analysed for their embedded meaning.

The list of codes was first developed as part of a gradual process from the construct areas identified from prior network studies (see Chapter Two), and then developed further to include ‘commitment’ and ‘position and power’. This is why the initial coding diagram (see Figure B.1, Appendix B) is different from its final development, shown in Figure 4.3.

The coding scheme was amended and developed further once all interviews were completed and analysis had begun – hence ‘other’ being added as a coding category. Included in ‘other’ were emerging sub-categories from the data consisting of *perceptions of*

the network, perceived disadvantages of belonging, the role of NZAS, competition and social capital. These categories are clearly depicted in Figure 4.3. These categories emerged as a result of examining the data, with each consecutive interview informing and developing these categories. This illustrates the inductive process of the research, i.e. when being interviewed the research participants described what is meaningful and important to them (Miles, 1979; Patton, 2002; Ragin, 1994; Strauss & Corbin, 1994).

Figure 4.3: Final QSR N6 coding



Use of quantitative techniques

To enrich the understanding of the qualitative data and provide triangulation to strengthen findings, two software packages were used: SPSS for Windows, and UCINET 6. SPSS was used to analyse data gathered from completed questionnaires (see Table B.5, Appendix B) for strength of relational aspects between organisations and the measurement of cross-level pressures within each embedded network. UCINET 6 was used to analyse the structure of the networks and also to analyse the data gathered from the questionnaires for strength of relational aspects; this follows the methodology of Borgatti, Everett, and Freeman (2002).

For this part of the study 31 research participants were recruited from multiple levels from 18 organisations across the three embedded, intentionally formed networks. All were invited to complete questionnaires on organisations in their respective network. Questionnaires were completed by research participants on organisations that they had knowledge of. A total of 144 questionnaires were completed by the research participants: 44 questionnaires were completed by 11 participants from NZAS – North network from all five organisations; 35 questionnaires were completed by nine participants from NZAS – Central network from four organisations, and 65 questionnaires by 11 participants from NZAS – South Island network from nine organisations. There were no invalid questionnaires. The statistical tests are explained in the next section.

SPSS for Windows software

Due to the small sample size and the small number of questionnaires gathered for the quantitative part of this research, the following statistical tests were possible using SPSS for Windows: one-sample *t*-test on the means of all questions for the three networks, Levene test for homogeneity of variance between the three networks, and cross-tabulation analysis on the levels within each of the networks across each variable. There was insufficient data to run a factor analysis and multidimensional scaling technique.

It was not possible to gather data on all actors in each network due to the constraints of time for the study, the nature of the emerging data-collection method, and the lack of knowledge of other actors by research participants in the network.

Simple descriptive statistics showing frequency of responses for each question were not presented because more detailed information is produced by the one-sample *t*-test on the means of these questions. The procedure for the one-sample *t*-test is discussed next.

For each within-case description for NZAS – North, NZAS – Central and NZAS – South Island networks a one-sample *t*-test procedure was used to test if there was a significant variance from the midpoint of 5. The midpoint represents the average on the scale of 0 (worst/less) to 10 (best/highest) for each of the means of the variables listed in the questionnaire, with the null hypothesis being that there is no significant variance from the midpoint of 5. Significance was taken at the 0.10% level (90% confidence level) rather than the 0.05% level (95% confidence level) because the purpose of this study is exploratory rather than confirmatory. (A lower confidence level means a smaller difference may be detected as the sample size is small.) The purpose of calculating *t*-tests results was to provide a triangulation for qualitative data and to measure the strength of relational aspects. Results are presented in Chapter Five as part of each within-case description. More detailed reporting on this procedure along with the full results is presented in Appendix F.

A cross-tabulation using SPSS was carried out for each level (CEO/Board, work-unit and individual) in each network for each variable in the questionnaire to discover if there was any variance in the means between the three levels. The reason behind this analysis was to investigate cross-level pressures within each NZAS network. Results are presented in Chapter Five as part of each within-case description. More detailed reporting on this procedure, along with the full results, are presented in Appendix F.

UCINET 6 software

UCINET 6 software (Borgatti et al., 2002) was used to analyse the completed questionnaires from the research respondents and to analyse network structural aspects. Originally it was anticipated that UCINET 6 software alone could be used to analyse the questionnaires but there was insufficient data. To use UCINET 6 software for this purpose requires all research participants to rate all actors and that there be no missing data. Given the limited number of research participants, these criteria could not be met. Instead a

limited UCINET 6 analysis was conducted by entering data into this software from the actors selected from each of the three networks. Research participants rated other actors in their network on each of the eleven variables shown in Table B.5 (see Appendix B). Data for the question “How much does belonging to the network help you with your business?” was calculated manually and this is explained in Appendix H. Where data was collected from more than one research participant residing in the same actor (this may be because an actor operates at more than one level within the network), an average rating was calculated and used for that actor.

UCINET 6 was used to compute similarities and then cluster those similarities at two different levels, namely the network level and actor level. The aim of this analysis was first to determine which relationships the research participants within a network viewed in the same manner at the network level and, second, to ascertain which actors viewed other members of the network in a similar way in terms of these relationships. This analysis could indicate, for example, that if all but one member views the others as strongly committed it may be that the network is not working as well for the member with the divergent viewpoint. Similarly, when considering the network as a whole, some relationships may be seen as effective (narrow range, high ratings) or ineffective (narrow range, low-to-moderate ratings), whereas relationships with a wider range of ratings across the participating organisations may work well for some but not for others – indicating problem areas requiring attention by these organisations. A fuller explanation of this analysis along with the results is presented in Appendix H.

UCINET 6 uses mathematics in the form of graph theory or sociograms to analyse the structure of each of the networks at their various stages of development (Hanneman, 2001; Iacobucci, 1995; Wasserman & Faust, 1995). Therefore, this software was chosen to analyse the structural aspects of each network in this study. The analysis consisted of ego-network density, structural holes and brokerage. Again, the results from these calculations are presented in the within-case descriptions. An explanation of the terms used in the UCINET 6 calculations is presented in Appendix G and the methods for calculating network structural aspects follow the instructions of Hanneman (2001).

To enable the analysis, data was gathered from network maps drawn by the research participants (described in more detail below in *Cognitive-mapping technique*). From this data a matrix was constructed using binary data (0 and 1) to represent directionality of ties: if there is no tie, then 0 is used, but if there is a tie, it is represented by 1; if a tie is reciprocated, then 1 is used in the corresponding actor box, whereas if a tie is not reciprocated, then 0 is used. (See Table 4.2. for an example of this type of binary matrix.)

Table 4.2: Matrix second stage of network for NZAS – North

		Actor			
		WINTERC	MISH	AUT	UA
Actor	WINTERC	0	0	1	0
	MISH	0	0	1	1
	AUT	1	1	0	0
	UA	0	1	0	0
WINTERC = Waikato Institute of Technology MISH = Millennium Institute of Sport and Health AUT = AUT University UA = University of Auckland					

Cognitive-mapping technique

The cognitive-mapping technique was used to define the network structure over time, and the patterns of connections. This information was collated from each participant within each separate network and used to produce network maps or pictures using PAJEK software (see Figures 5.2 to 5.4, Chapter Five). Network pictures are the backbone to understanding interactions within networks and are a central concept for network management (Henneberg & Mouzas, 2006). The research participants were invited to draw the network by identifying the network organisations and then drawing the connecting lines between each organisation at the various stages of the network's development. Development stages were identified by the research participants.

A matrix of these connections for each network using this technique was also produced. A list of actors identified by participants was used to form each axis. Where a connection exists with another actor, a '1' was used to indicate this; a '0' indicated no connection. This enabled analysis of density (awareness of connections between actors) at the three levels of each of the three networks. (See Table 4.3 for an example of the matrix which can be

derived from cognitive mapping. This table reveals NZAS – North network is dense because all research participants at all levels know of all other actors in the network.) All results for cognitive mapping of density are presented in Appendix I.

Table 4.3: Cognitive mapping of NZAS – North network to show density by level

Level	Actor	Known actors in network				
		NZAS – N	MISH	UA	WINTEC	AUT
CEO/Board	NZAS – N	1	1	1	1	1
	MISH	1	1	1	1	1
	UA	1	1	1	1	1
	WINTEC	1	1	1	1	1
	AUT	1	1	1	1	1
Work-unit	AUT	1	1	1	1	1
Individual	NZAS – N	1	1	1	1	1
	MISH	1	1	1	1	1
	UA	1	1	1	1	1
	WINTEC	1	1	1	1	1
	AUT	1	1	1	1	1
Key 1 = know about 0 = don't know about NZAS – N = NZAS – North Inc. MISH = Millennium Institute of Sport and Health UA = University of Auckland UniSports Centre WINTEC = Waikato Institute of Technology AUT = Auckland University of Technology						

4.5.3 Cross-case analysis

A cross-case analysis took place after the within-case descriptive analysis of the networks. This analysis followed the guidelines set out by Eisenhardt (1989a), Miles and Huberman (1994), and Patton (2002). The purpose of the cross-case analysis was to develop a deeper understanding of causal events of organising dynamics of intentionally formed networks, and to find out under what conditions these events occurred and how they were related to network effectiveness. The process involved the comparison of the three embedded cases using both the qualitative and quantitative data and data gathered from the three NSOs. The NSO cases were analysed at one level by interviewing the high performance manager responsible for the interface between the NZAS system and their own organisation. The high performance manager operates at a CEO and work-unit level. The approach taken

made it possible to examine similarities and differences across multiple levels; findings were strengthened as one of the embedded cases and one of the NSOs represented polarised cases.

Quantitative data was also included in the cross-case analysis from questionnaires completed by the research participants. SPSS for Windows was used to compare relational strength between networks from actors rating other actors in their network. The analysis comprised of conducting a one-way ANOVA with multiple comparisons of variance in order to compare the three networks for each of the variables in the questionnaire. The questionnaire is shown in Table B.5 (see Appendix B). Following on from this a Levene test was used to test for homogeneity of variances in order to determine which post-hoc test, either Bonferroni or Tamhane, to use for each of the eleven variables. The null hypothesis that variance is homogenous (equal); the research hypothesis is that variance is heterogeneous (not equal). A small *p* value (under 0.10) would reject the null hypothesis and accept the research hypothesis that variance is heterogeneous. The full results from the analysis are presented in Appendix F.

The meta-matrix structure used for displaying the data for the cross-case analysis is shown in Table B.7 (see Appendix B). and follows the recommendation of Miles (1979), and Miles and Huberman (1994). Data was displayed for each embedded case and each NSO in the meta-matrix under the construct areas identified from the literature in Chapter Two, and used to inform the coding scheme displayed in Figure 4.3. Coding the data with the same scheme ensured data was comparable between the embedded cases and NSOs. Using the meta-matrix enabled the comparison of qualitative data, which was reduced to a manageable level without losing the embedded research participants' meaning.

Data displayed in the meta-matrix was refined further by clustering it into areas of distinct interest defined by similarities or contrasts. These areas of interest were then displayed in a summary table. Displaying the data in this format enabled the defining of concepts and exploring of causal connections between embedded cases in order to understand

effectiveness of the intentionally formed networks. This was done through the identification of multiple instances and the patterns that emerged.

Pattern-matching between cases is an inductive process (Strauss & Corbin, 1994). Where findings conflicted, a deeper examination and probing of the data took place to understand why this happened. It involved comparing occurrences across the embedded cases and NSOs to clarify and explain patterns. Field notes were analysed separately and this process aided in corroborating and strengthening findings, as suggested by Eisenhardt (1989a). Notes were made during the process to aid in the identification of themes and insights and why these occurred. Conclusions from the summary matrix were compared and checked against the data in the meta-matrix to ensure these had not been distorted, and also to confirm the accuracy of them.

4.5.4 Presentation of insights, themes and propositions

From the cross-case analysis insights and themes were developed. Initially the embedded cases and NSOs were compared and then a detailed examination was made to further investigate them by comparing the qualitative and quantitative data. Throughout this process conceptual-mapping that linked ideas and concepts with relationships between them was used to check coded data for causal links and emergent theory. This follows the guidelines set out by Denzin (1994), Miles and Huberman (1994), and Richards and Richards (1994). Causal events are viewed as being dependent on previous occurrences that relate to later events to produce new effects; they may also be influenced by the environment. Of interest was how and under what conditions these causal events appeared, and what facilitated them. Memos and notes of emergent understanding were also made during the research and analytical process. This was done to clarify thinking in order to aid analysis, and follows the guidelines set out by Denzin (1994) and Eisenhardt (1989a).

Throughout the process current theory was compared with the data to take advantage of new insights and to understand why these occur. This follows the recommendations of Brown and Eisenhardt (1997), and Dubois and Gadde (2002). By linking evidence back to the literature, insights were gained that contributed to the identification of themes. Themes

were then defined, and evidence was gathered from different sources employed in the data-collection process to measure the emerging propositions. This process involved going back and forth between the data and prior network studies, and was guided by the research objectives to identify what was found, and what was not, in the literature. This process follows the guidelines set out by Brown and Eisenhardt (1997), Miles and Huberman (1994), and Ragin (1994), and was used to establish both the validity of themes and the relationships between them. It also provided a theoretical understanding of why the relationships between themes occurred in order to build theoretical consistency, as noted by Eisenhardt (1989a). Short quotes from the research participants were used as summarising phrases to illustrate these themes.

4.6 Validity and reliability

To ensure construct validity and reliability, the methodological process set out by Eisenhardt (1989a), Yin (1986), and Patton (2002) was followed. Validity and reliability are in effect quality judgements of trustworthiness concerning whether what is claimed to be measured is in fact being measured accurately and is repeatable (Denzin, 1994; Golafshani, 2003; Mason, 2002; Stake, 1994). There are three principles for establishing construct validity and reliability: use of multiple sources of evidence, creation of a case-study database, and maintenance of a chain of evidence. The opportunity to use multiple sources of evidence is a strength of the case-study method that exceeds that of other forms of research (Yin, 1986).

The approach taken ensured that reliability was demonstrated and followed the prescriptions set by Yin (1986) of:

- putting information into different arrays;
- making a matrix of categories and placing the evidence within such categories;
- creating data displays – flow charts and other devices – for examining the data;
- tabulating the frequency of different events;
- examining the complexity of such tabulations and their relationships by calculating second-order numbers such as means and variances; and

- putting information in chronological order or using some other temporal scheme. (p. 100)

To ensure reliability, a case-study database was created. This enabled the maintenance of a chain of evidence to allow the external observer to understand how the conclusions of the single-case design were reached. The case-study database included:

- notes from interviews, documents and tabular materials
- archival data which includes information and reports obtained from the offices of SPARC, NZAS – North Inc., NZAS – Central Inc., NZAS – South Island Inc., NZAS – National Office and the NSOs selected for the study
- information from organisations’ websites, media articles and from SPARC that related to the provision of high performance sport
- files created to contain the transcribed data and the quantitative data
- codes which were cross-referenced so that it is possible to both see where the data has come from and to link data, and
- files created which contained notes, memos and mind-maps to assist in examining the data.

Reliability of the study was also achieved by using multiple sources of evidence and a variety of analytical tools, and by showing how the evidence is linked and leads to the next point. Careful notes of the process have been kept so that the study may be replicated, as recommended by Miles and Huberman (1994), Patton (2002), and Yin (1986). This approach also helps the researcher to maintain a ‘neutral’ stance, as recommended by Patton (2002). The draft of the within-case study was reviewed by key research participants. All transcribed interviews were returned to research participants for their approval, checking of accuracy, and to provide an opportunity to add any other relevant data – again, as recommended by Miles and Huberman (1994), Patton (2002), and Yin (1986).

The single-case design with multiple embedded cases and the use of multiple data sources enables triangulation; this provides a more powerful substantiation for the findings and thus

meets construct validity. Data analysis was ongoing throughout the research process so that adjustments could be made to improve the richness of the data gathered from one case to the next, as advocated by Golafshani (2003), Patton (2002), and Yin (1986).

External validity can be demonstrated by a replication of logic, rather than subjectivity, from one embedded case to the next. Logic was used to ensure that generalisations could be made from one embedded case to the next within this current research project based on analytical skills rather than on statistical interpretation, as noted by Yin (1986). To ensure content validity in measuring the right constructs, a careful review of the literature was undertaken to identify these constructs. Construct validity was ensured by having more than one measure of the same construct, i.e. having both qualitative and quantitative data; this follows the advice of Churchill (1979).

4.7 Ethical considerations

The guidelines of the Massey University Human Ethics Committee (MUHEC) were closely followed within the research project to ensure that a sound ethical framework was maintained (Jankowicz, 2005). The first part of the research method was fully reviewed and approved by the Massey University Human Ethics Committee (ALB Protocol MUAHEC 04/004). The remaining two parts of the research method were reviewed and approved under the Massey University Ethics Committee low-risk notification procedure in January 2006. Both the MUHEC approval letters are shown in Appendix C.

Confidentiality forms and participant information sheets were compiled using the MUHEC guidelines; these explained the nature and purpose of the study, as counselled by Easterby-Smith, Thorpe, and Lowe (2002). Participants were recruited on the basis of informed consent, i.e. they had full knowledge of what their participation would involve. The recruitment approach, as outlined earlier in this chapter, follows the advice of Crano and Brewer (2002). All consent forms and information sheets are shown in Appendix C.

The main ethical concern for this research study was that of naming organisations and the risk of harm to the research participants involved by attributing quotes to them.

Confidentiality was maintained by not attributing quotes or comments to the research participants and organisations involved in the interview process unless a specific signed consent for the use of a direct quote was obtained from that participant. Permission was also obtained from those named in quotes for the inclusion of their name. Particular viewpoints were concealed by the coding process so that individuals would not be identified in the findings or mentioned to others in the research process. This approach follows the recommendations of Crano and Brewer (2002) and Jankowicz (2005). All data is stored in a secure place, as specified by Jankowicz (2005).

Interviews were taped and transcribed and then sent back to the participants to ensure the accuracy of data. This also allowed them to be involved in the research process and to have a voice in what was being included in the study. Regular contact was maintained with all participants to keep them informed of the research progress. Following the examination process for this thesis the two remaining networks will be offered the opportunity to attend a presentation of the research findings. The approach follows the guidance of Easterby-Smith et al.(2002).

4.8 Chapter summary

This chapter has discussed and explained the research methods employed in the study. A frank appraisal of previous network studies has guided the research design and led to the decision to use a single-case design to address the research objectives. A concerted effort has been made to develop a sound and robust design for the research, and the important aspects of this design are summarised in Table 4.4. The next chapter presents the within-case description for each of the embedded, interdependent, intentionally formed networks.

Table 4.4: Research design issues and approach taken

Research issue	Research design approach
Strength and content of the relationships within networks have become a concern rather than their existence or non-existence.	A rich qualitative approach with the use of quantitative measures has been employed. This enables the measurement of relational strength and is used to define the network structure.
Prior research has approached the study of networks at one level. However, networks are affected by cross-level pressures within them and there is a call for research in this area.	Multiple informants at three different levels have been sought to understand cross-level pressures within the networks.
Generation of more powerful explanations of occurrences is desirable.	The use of polarised cases has been used to compare and contrast findings.
There is a problem in the literature with how effectiveness is approached.	Effectiveness is defined and examined from the perspective of the participants in this research.
Networks are complex and dynamic and need to be studied over time.	A convergent approach with the use of participants' memories and archival data was used to identify the dynamic aspects of the networks over time.
Network context needs to be understood in order to make sense of the network.	A convergent approach with the use of participants' memories, archival data, and previous research studies was used to inform and develop an understanding of the context of the network.
Findings need to be interpreted rigorously.	Comprehensive within-case descriptions and a cross-case analysis were undertaken.
Network theory is still developing and there are research gaps that need addressing.	Prior research was used to guide this research.

Chapter Five

Within-case descriptions

5.0 Introduction

The study uses two analytical procedures: a within-case description and a cross-case analysis; both are explained in Chapter Four. This chapter focuses on the first procedure, and presents the network context and the within-case descriptions for the three embedded, intentionally formed networks. The within-case descriptions are an important stage in the development of theory as they provide evidence for how the new theoretical insights were arrived at. The findings from the cross-case analysis are presented in Chapter Six.

To understand the network context, seven interviews were conducted with five research participants at CEO/Board level from each intentionally formed network and from the NZAS – National Office and the New Zealand Olympic Committee (NZOC). Questions were also posed to the Minister for Sport, the Hon. Trevor Mallard. Secondary data was included and was gathered from various academic articles, business reports and websites of organisations involved in the delivery of high performance and elite sport.

Two strategies were required for gathering data for the within-case descriptions. The first was an emergent sampling strategy to identify core actors in each of the embedded, intentionally formed networks from a focal actor perspective, as well as the organisational level (CEO/Board, work-unit and individual) that these actors operated at. The emergent sampling strategy enabled the network boundary to be identified from the focal actor perspective and also acted as a check to ensure research participants were recruited from appropriate actors for the study. In total, 45 interviews were conducted with 37 research participants from 21 organisations. Interviews were conducted at three organisational levels: CEO/Board, work-unit and individual. To maintain confidentiality and to protect the identity of research participants, the names of organisations are not stated in the quotes presented for the within-case descriptions or the cross-case analysis.

Within the second phase of the study research participants were interviewed, invited to complete a questionnaire and to draw their network at the different stages of the network's

development. The questionnaire was used to measure strength of relational aspects between organisations. The quantitative tools employed to measure relationship strength and define structural dimensions of each network were a cognitive-mapping technique, and UCINET 6 and SPSS software. The use of these tools is explained in more detail in Chapter Four.

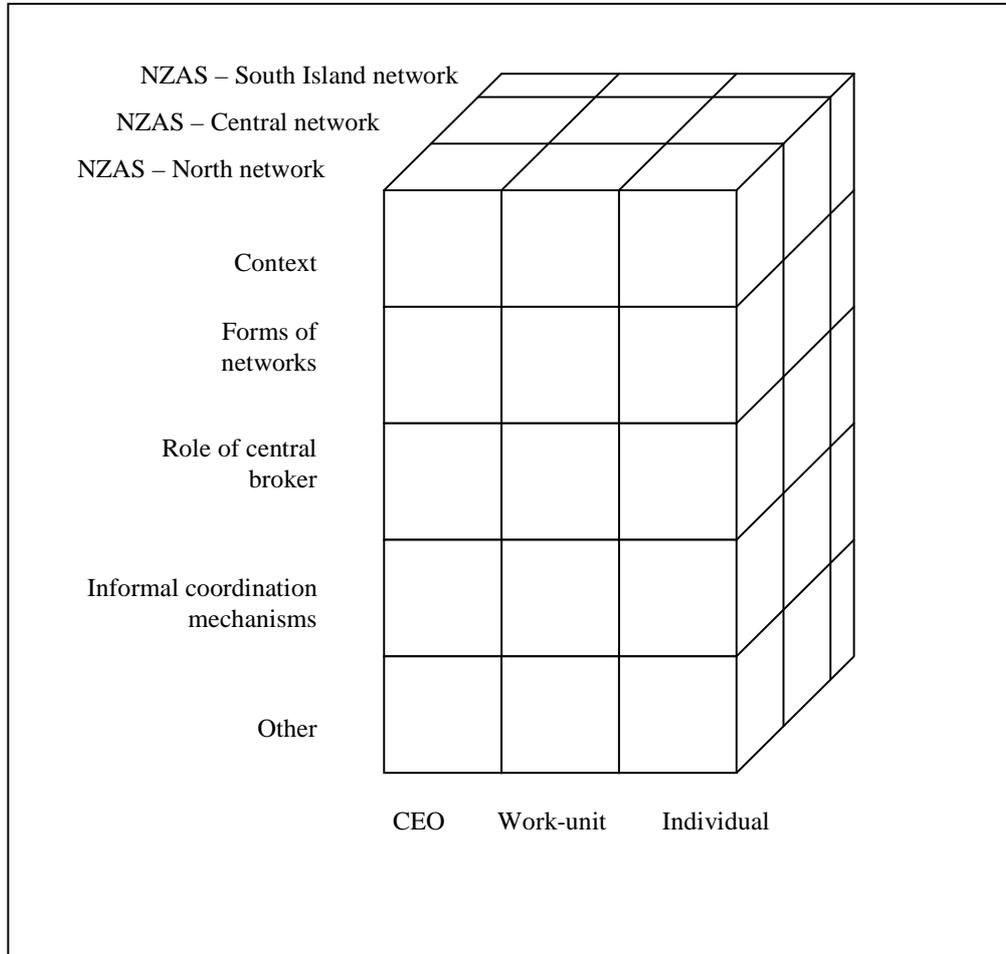
Second, a theoretical sampling strategy was used to identify two effective and two non-effective National Sport Organisations (NSOs) from the 20 NSOs that are clients of the intentionally formed networks. Interviews were conducted with the High Performance Manager of each NSO. One NSO was excluded from further participation in the study because it did not meet the replication requirements of being non-effective. The High Performance Manager of that NSO had rated that NSO lower than it actually deserved; this became apparent in the interview. Findings from the NSOs were used to inform each within-case description. The identities of the managers are hidden by not presenting background information on the NSO that they represented.

The description of each embedded, intentionally formed network begins with an overview, followed by the findings which are presented by key construct areas. The key construct areas were identified from prior network studies (see Chapter Two). The four key construct areas, and key constructs within each, that informed the data collection and analysis are: (1) context, (2) forms of networks – *density, reachability, range, position and power*, (3) role of the central broker – *understanding who the focal actors are, actor motivations and cooperation*, and (4) informal coordination mechanisms – *commitment, motivations, trust, communication and frequency, cooperation, sharing of resources, knowledge and information transfer and adaptations*. Findings which emerged during the data collection and analysis stage are presented under ‘other’ and include *perceptions of the network, perceived disadvantages of belonging to the network, role of the NZAS, competition and social capital*. Figure 5.1 helps understanding for the within-case descriptions and also for the cross-case analysis.⁶ The diagram depicts the three intentionally formed networks, the construct areas and the three levels of analysis. The within-case description involves taking

⁶ Idea for model developed from Jarvis (1987).

three separate slices from the diagram, as opposed to the cross-case analysis which involves examining each construct across the three embedded, intentionally formed networks.

Figure 5.1: Data analysis diagram



5.1 Network context

This section reports the findings for the network context from interviewing research participants from the focal actors of each network and from the NZAS – National Office, and from the use of secondary data sources. These findings give a context for the environment in which the network is situated and help familiarise the reader with the distinguishing characteristics of the sport sector in which the study is based. The sport sector was chosen for the study because it is a business sector that meets the research objectives posed in Chapter Four. Background information on the global network context is

presented in Chapter Three. The characteristics of the sport sector in New Zealand are described next.

The New Zealand government embarked on a network approach for providing support to high performance and elite sport in order to address concerns over New Zealand's sporting standards at the international level. This approach differs from those adopted by other nations, whose elite sport systems include funding for the development and building of designated training facilities and the employment of coaches, sports-science and sports-medical personnel. In comparison, the New Zealand approach seeks to leverage community resources for this purpose, rather than develop facilities or employ coaches or sports-science and sports-medical personnel. Instead these personnel are contracted to provide a service; this is a key difference from other nations.

A number of factors were responsible for driving New Zealand's network approach to providing high performance and elite sport. The key driving factor was New Zealand's outstanding success rate (given by the ratio of population to number of gold medals won at the Summer Olympic Games) was in danger of being overtaken by other nations that were prepared to invest more heavily in the resources necessary to win at the elite level. For the last 95 years New Zealand's success rate was second only to Finland (T. Mallard, personal communication, May 26, 2005; K. Sadleir, personal communication, May 11, 2004; 1999). Evidence of being overtaken by competing nations is demonstrated by New Zealand's position in the medal rankings at the Olympic Games: in the 1988 Olympic Games New Zealand was placed 15th, but by the 2000 Sydney Olympic Games New Zealand's ranking had slipped to 45th (K. Sadleir, personal communication, May 11, 2004). Examples of other nations' higher expenditure levels on Olympic athletes for the 2000 Olympic Games in Sydney include Canada which spent AU\$62 million (NZ\$66.5 million) to win a total of 14 medals,⁷ Great Britain which spent AU\$238 million (NZ\$255 million) to win 28 medals, and Australia which spent AU\$280 million (NZ\$300 million) to win 58 medals – although Australia would have spent more as a result of being the host country (Mitton et al., 2004).

⁷ Calculated using the NZ National Bank buy cash rate of 0.9328 to NZ\$1.00 at 16 February 2005 for comparative purposes (National Bank, 2005).

Further evidence of higher levels of expenditure can be seen in other countries' annual budgets for high performance sport which, in 2003, was NZ\$64.2 million in Australia, NZ\$60.5 million in Canada, and NZ\$170.7 million in England; these figures compare with New Zealand's budget of just NZ\$15 million (K. Sadleir, personal communication, May 11, 2004). The increasing levels of investment by other countries and the impact of this investment on New Zealand are noted by Whineray (1995):

The pursuit of success in international sport is an increasingly more expensive business and though New Zealand remains an internationally competitive sporting country over a wide range of sports, it is evident that other countries – our competitors – are committing substantial and increasing amounts of money.

New Zealand is in danger of lagging behind as the international sporting world moves ahead more rapidly than our capacity to cope. The summit of achievement in sport is the Olympic or World Championship level, the elite level, the level of high performance sport. (p. 2)

Other factors that were responsible for driving New Zealand's network approach were the result of a number of almost simultaneous events which prompted change and redevelopment within the elite and high performance sport sector in New Zealand. These factors included the 2000 Sydney Olympics being held in the Southern Hemisphere for the first time. Being so close to New Zealand, more New Zealanders followed the events, watching them as they happened in real time, and this added momentum and drive for change in the provision of elite sport in New Zealand.

There was a move away from the rigid amateurism that had previously characterised the provision of elite sport. This move was noted by the Hillary Commission, which had already commented on the effects in 1995 of the introduction of professional rugby and the America's Cup victory in San Diego – both contributed to a change in elite sport provision in New Zealand (Hillary Commission, 2000). This sentiment was also highlighted in the findings from the Winning Way Report (1995), which reviewed elite sport and advocated a change to the way in which the New Zealand Sports Foundation provided for this level of sport. The report made clear that to achieve a consistently high level of performance, athletes needed to have quality coaching, access to international competition, personal

development support, sport-science and sports-medicine support, plus a source of income that would allow them to focus on their sport (Sadleir, 1999; Whineray, 1995).

The result from the 1998 review of the seventeen sport-specific academies was also damning (NZSF, 1999a). These academies had been funded with either sums of NZ\$150,000 or NZ\$250,000 over a four-year period to develop high performance in particular sports. It was the first time that any significant investment had been made in high performance sport (K. Sadleir, personal communication, May 11, 2004). The review evaluated these academies and found that the sports were not making much progress for a number of reasons, including limited leadership, lack of awareness of models of best practice, no benchmarking for best practice or sharing of information with each other on best practice, and not enough coaches employed. This was further compounded by paying volunteers with the extra monies instead of developing new services. There was also no implementation of sports-science or sports-medicine techniques – which was one of the key factors that had made the Australian model so successful. The report concluded there was no significant competitive leverage gained from the seventeen sport-specific academies. The sports had not generated the results that were anticipated and, as a consequence, the sports themselves did not develop – although cricket was the exception. The emerging view in 1997/8 was that New Zealand was not doing enough in terms of keeping up with the rest of the world in providing for high performance sport (K. Sadleir, personal communication, May 11, 2004). Aligned with the growing concern over performance was the ending of the funding for the seventeen elite sport academies, which was due to run out in June 1999 at the end of the government's four-year funding commitment. This prompted the government to reconsider future funding for elite sport.

One of the outcomes from the NZSF review (NZSF, 1999a) was an examination of the factors that had contributed to the success of a number of other countries' models. It fuelled debate on how best to provide an elite sport system in New Zealand that would keep up with the rest of the world. At the same time, staff from the Australian Institute of Sport (AIS) were invited to help brainstorm ideas for a new method of elite sport provision and delivery in New Zealand. As part of the process, Australia, Canada, the US, France,

England, Scotland, Wales, Ireland and Norway were evaluated for best practice and how they had developed their systems. In terms of improving New Zealand's position, assessing its overall sporting strength by comparing it to competitors represented the first stage in developing a strategy response (Lee, Ching, & Wee, 1994).

As a consequence of the NZSF review, a number of options were explored from which the decision was made to devise a nationally coordinated programme that was administered on a regional basis. It led to the tender process for the creation of a high-performance network. The proposal was to create national training centres in northern, central and southern New Zealand, along with satellite centres (K. Sadleir, personal communication, May 11, 2004). A tender process to act as a high-performance sport centre was undertaken by the New Zealand Sports Foundation with expressions of interest commencing on 30 October 1999 and ending on 7 January 2000. The high-performance sport centre would be responsible for delivering a range of sport services to assist with training elite athletes and coaches and to meet the needs of the NSOs (NZSF, 1999b). Elite provision would then be driven by the NSOs, with the philosophy behind the strategy that each sport would control its own development and be accountable for its results. To ensure the system would work, high-performance sport directors were recruited centrally to challenge the high-performance sport programmes operated by each sport. At the time of the tender process, it was not known what the provision for elite sport would look like. The tender process provided a way to gauge what the provision of services would look like because it identified the key organisations and how they would network in order to operate. A key driving factor behind the process was the lack of funding available to develop new facilities and, as a consequence, leveraging community resources and developing a network was perceived to be the best strategy. In total, six tenders were received: two from Auckland, two from the South Island and two from the central North Island. Most of the tertiary institutions in New Zealand were involved in submitting a bid as part of the tender process.

The structure for the provision of all sport (including high performance and elite sport) in New Zealand underwent major changes as a result of the findings presented within the Ministerial Taskforce Report commissioned by the Hon. Trevor Mallard, Minister for Sport

and Recreation (T. Mallard, personal communication, May 26, 2005; Graham et al., 2001), although many of the decisions concerning elite sport provision had already been made as a consequence of extensive reviews conducted prior to the Graham Report.⁸ The vision put forward by the Review Committee was: “New Zealand sport consistently succeeding in world class competition” (Whineray, 1995, p. 5). The review identified structures and resources to achieve outcomes that mattered to New Zealanders. The Graham Report (2001) included the following criticisms: New Zealand lacked a clear vision for the development of elite sport; NSOs had not been assisted sufficiently by the Hillary Commission in the provision and development of high-quality services; there was no career path in New Zealand for elite coaches, and there was a lack of coaching standards in general with poor access to networking and resources; there was a lack of government support for high performance achievement in sport compared with overseas; and there was a gender imbalance in the coaching of elite sport and in sport administration.

The Report endorsed the support for elite sport, highlighting the need for clear structures and an integrated plan. It also suggested that the development of high performance sport should be a key concern for the central agency governing sport and recreation in the country, and that it should be resourced and monitored with accountability for results (T. Mallard, personal communication, May 26, 2005; Graham et al., 2001). The Report identified there was little coordination between the many sports organisations that operated locally and nationally within the sector at this time, and there was a lack of growth, with many of the sport organisations noting a reduction in participation numbers. The fragmented approach taken to developing sporting success was noted as being ineffective (T. Mallard, personal communication, May 26, 2005).

To implement the vision for sport in New Zealand for the next twenty-five years suggested in the Graham Report (2001), changes to the national structure were proposed and

⁸ The ‘Getting set for an Active Nation’ Ministerial Report is also known as the Graham Report as it was chaired by John Graham, a former New Zealand All Black and New Zealand Cricket Team Manager. (T. Mallard, personal communication, May 26, 2005; Graham et al., 2001). The Ministerial Task Force was commissioned by the Hon. Trevor Mallard, Minister for Sport and Recreation, and appointed by the Prime Minister in October 1993, “to ensure that a well coordinated strategic approach be adopted to maximise tourism, trade and sporting opportunities for New Zealand, leading up to and including the Olympic Games in 2000” (Whineray, 1995, p.4).

subsequently developed with the formation of Sport and Recreation New Zealand (SPARC) (T. Mallard, personal communication, May 26, 2005; Graham et al., 2001). This was a fresh start for the organisation of sport and recreation in New Zealand, and had far-reaching effects for the sport business sector. SPARC now recognises only one sport code for each sport and deals with each sport through the recognised national sporting organisations (NSOs) (T. Mallard, personal communication, May 26, 2005).

Three regional academies were set up, each comprising a network of organisations coordinated by a focal actor. The focal actor is an incorporated society and was formed specifically for this task in June 2000. The focal actors are separate legal entities from SPARC and are NZAS – North Inc., NZAS – Central Inc. and NZAS – South Island Inc. They are licensed to operate under a brand name which is owned by SPARC. The brand is a strategy which underpins SPARC’s strategy for high performance sport. The NZAS – National Office, located in the Wellington offices of SPARC, is responsible for the strategy design and its implementation, high-performance funding for the NZAS regional academies and carded NSOs,⁹ negotiation of contracts with the NZAS regional academies and carded NSOs, and coordination of the three regional intentionally formed networks. Each of the regional academies coordinates a network within their region and operates in synchronisation with the other regional academies. The main role of the regional academies

⁹ Sports that are supported by NZAS have been classified as performance sports and are referred to as ‘carded’. These carded National Sport Organisations (NSOs) identify athletes who are then also ‘carded’. Being a ‘carded’ athlete means the athlete has access to the range of services provided by NZAS. Athletes are awarded their cards by their NSO based on their standing in their chosen sport. Most sports have four levels: level 1 is world class, level 2 international, level 3 development and level 4 junior. Each level offers a different entitlement to the athlete in terms of the amount of support they can expect to receive in their development within that sport (NZAS - Central, 2003).

As at September 2003, the twenty-one carded sports were athletics, badminton, basketball, bowls, cricket, cycling, equestrian, golf (men and women), hockey, netball, Paralympics, rowing, rugby league, rugby union, shooting, softball, squash, swimming, triathlon and yachting (SPARC, 2003a). Of these, netball, equestrian, golf, cricket, rowing, rugby union and yachting were designated priority sports. The priority sports designation for these seven sports was explained by A. Snell (personal communication, December 5, 2003) to mean that new initiatives will be trialled with these sports first; however, the amount of funds that they receive is not influenced by them being a priority sport. Of the total medals won by New Zealand in Olympic Games, 80% were won in just four sports – rowing, equestrian, yachting and canoeing (K. Sadleir, personal communication, May 11, 2004).

is to provide services against a service-level agreement, which is then delivered and reported back to the NSO. NZAS – National Office negotiates the contracts with the NSOs.

The NSOs develop their own plans for a twelve- or twenty-four-month period, depending on their competition cycle. Once the terms of the plan are agreed with SPARC and contracts written that set expectations, then resources are allocated from SPARC so that the NSOs can access the services that are required. These contracts enable the allocation of scarce resources by SPARC, which is ultimately accountable for the results that it produces.

There are twenty-one sports in the NZAS system. Seven of these are designated priority which means they get more attention in terms of piloting new initiatives and a closer relationship with them is sought. The priority sports were chosen on the basis that they had the best potential to deliver medals, had high participation rates, and were sports that meant something to most New Zealanders. At the time of the research study there were 1,000 athletes within the NZAS system. The within-case descriptions for each of the embedded NZAS networks are presented next.

5.2 NZAS – North network

5.2.1 Overview

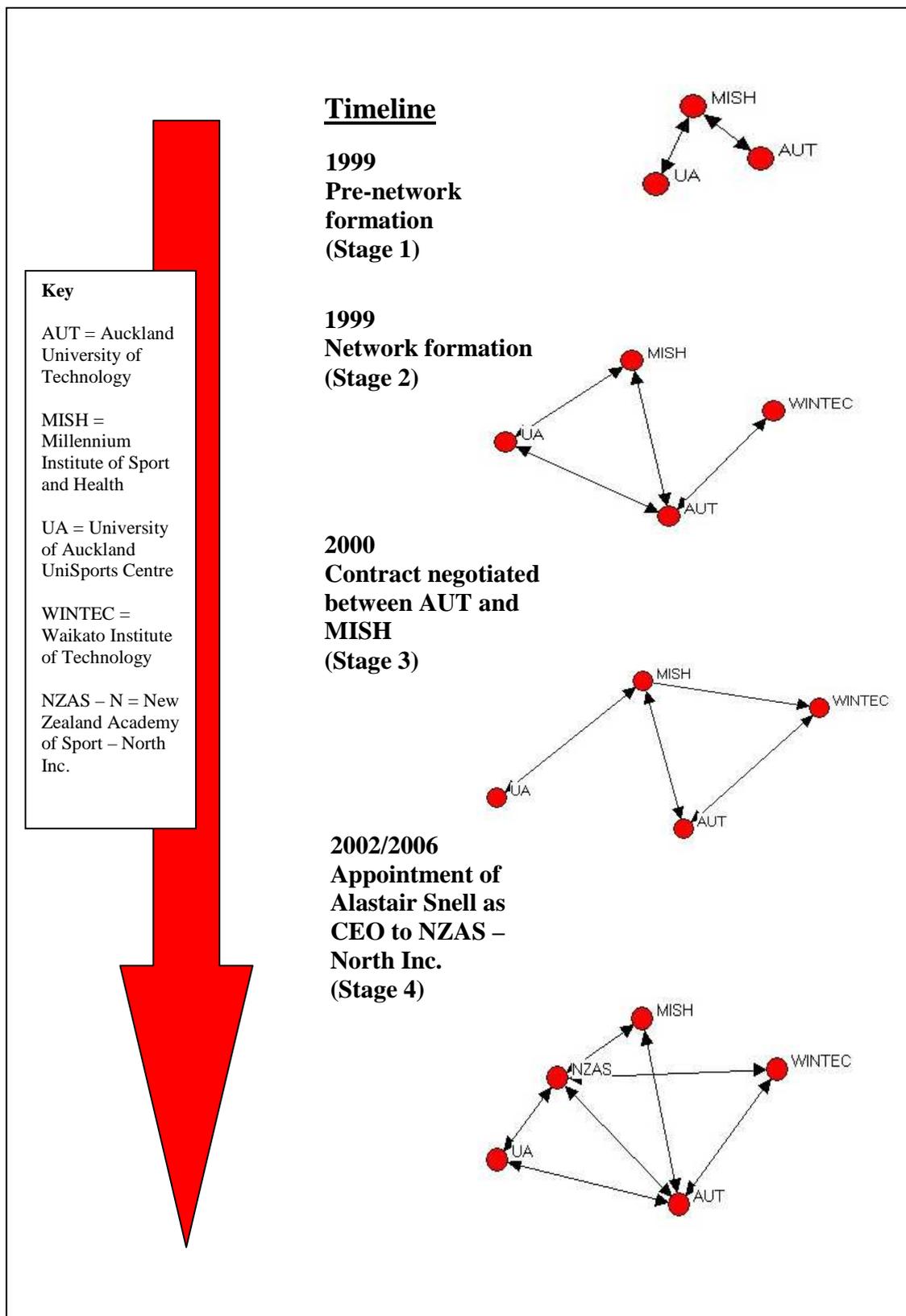
The NZAS – North network services athletes in an area covering the upper North Island from Taupo to Cape Reinga, and from Whakatane across to Te Kuiti (NZAS, 2003). NZAS – North network serviced 393 carded athletes in 2003; by 2006 the number of carded athletes was 500 (NZAS - North, 2006a). The NZAS – North network has 85 to 90% of its business funding related to the national strategy determined by SPARC (A. Snell, personal communication, October 24, 2004).

The CEO of NZAS – North Inc. up to December 2004 was Alastair Snell; Peter Pfitzinger is the current CEO. Prior to Snell's appointment, two other CEOs had been employed by NZAS – North Inc.; both left after no more than a few weeks and their departures are attributed to the dynamics caused by one actor attempting to hold the most power within NZAS – North network for their own purposes. Up until Snell's appointment, NZAS – North Inc. was generally not recognised as included in the North network; other actors referred to themselves as 'consortium partners' and the term excluded NZAS – North Inc. (see Figure 5.2.)¹⁰

The NZAS – North network is comprised of NZAS – North Inc., Auckland University of Technology (AUT), the Millennium Institute of Sport and Health (MISH), University of Auckland UniSports Centre and Waikato Institute of Technology (WINTER) (NZAS - North, 2004b, 2006b). The focal actor credited with forming the NZAS – North network is the Millennium Institute of Sport and Health. At the pre-network formation stage they were in discussion with two actors for the purpose of their own business development. The emergence from one stage to another within the network development is a gradual process which makes the exact date of change impossible to note. However, what can be noted are events or triggers attributable to these changes and these are identified on the network diagrams and discussed within this section

¹⁰ The network diagrams were produced from UCINET 6 matrices (Borgatti et al., 2002) using PAJEK software. The use of UCINET 6 is described in Chapter Four.

Figure 5.2: NZAS – North network stages of development



5.2.2 Network context

Within the NZAS – North network research participants have a limited awareness of the network context; awareness is perceived as a response to a government tender, demonstrating a limited understanding of the underlying rationale for the creation of the NZAS system. However, there is an exception at the CEO/Board level of the central broker because this research participant was involved with the review of elite sport as part of the Taskforce Report team and was also an advisor to the Minister for Sport and Recreation. Although the creation of the NZAS system was an answer to addressing concerns of New Zealand becoming less competitive in terms of international sporting success, the following comments demonstrate a limited awareness of this network context:

Government invited registration or SPARC invited registration of interest from interested parties who wanted to help establish the academy of sport network. SPARC itself doesn't have any facilities, it doesn't have any personnel so it needed both of those in order to be able to create a network for National Sport Organisations to receive services through it. (CEO/Board level)

Our philosophy has always been to lift the standard right across the country and one of the ways of doing that obviously is through the government initiative of SPARC and that's why we joined. We were already doing it ... (Work-unit level)

I believe it was probably a tender process or something similar ... (Individual level)

5.2.3 Forms of networks

The research participants within the NZAS – North network were aware of the different parts of the NZAS system and all knew of all other actors in the network. The strength of connections between actors was high and each was aware of the objectives of others. Actors are influential in the coordination of the network and perceive SPARC to have ultimate power, although within the network the most influential actors are the central broker and AUT. The following information describes these findings in more detail.

There are four parts to the NZAS network structure: the National Office in SPARC, and three regional academies each coordinated by a central broker. Within the NZAS – North network all research participants know of all other actors and are aware of who the key

individuals are within each at the different organisational levels (CEO/Board, work-unit and individual). This is illustrated in Appendix I by the results from cognitive mapping which show 100% of ties are known about at each level between actors. Research participants think of the NZAS – North network as comprising AUT, University of Auckland UniSports Centre, MISH and WINTEC, but there is a resistance to acknowledging the central broker, NZAS – North Inc., as part of the North network. The resistance was especially so prior to Snell’s appointment and is apparent by the reporting of the network development by research respondents: as depicted in Figure 5.2, the network development does not include the central broker until 2002 despite the central broker being formed in June 2000. Since Snell’s appointment, and the subsequent appointment of Pfitzinger as CEO, the network has remained stable. The following representative quote illustrates the research participants’ concept of network membership and shows the network to be dense: “...the four members are MISH, AUT, WINTEC and UniSports”.

Within the NZAS – North network the strength of relationships between actors at each organisational level (CEO/Board, work-unit and individual) is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 8, presented in Table 5.1. The result from the cross-tabulation routine for strength of relationship shows there is no association between the three organisational levels (CEO/Board, work-unit and individual) and the levels of strength of relationship. This result is confirmed by the UCINET 6 statistics routine as generally the strength of relationship between actors is moderate to high. However, WINTEC and University of Auckland UniSports Centre are perceived by the others to be not as strongly connected to actors within the network.

Table 5.1: Summary of strength of relationship measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
8. How strong is the relationship between your organisation and theirs?	<p>There are significantly higher-than-average levels of relationship strength.</p> <p>Full results are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of relationship strength (low, medium or high).</p> <p>Full results are presented in Appendix F.</p>	<p>Overall, for the NZAS – North network, the results are moderate to strong for strength of relationship to others in the network. However, the data may indicate that MISH is poorly connected to both WINTEC and University of Auckland UniSports Centre. The data also suggests that University of Auckland UniSports Centre and WINTEC both need to work on improving the strength of their relationships with each other as the perception between the two does not match. (For WINTEC the perception is that a strong relationship exists with University of Auckland UniSports Centre but for University of Auckland UniSports Centre the perception is that only a moderate level of strength of relationship exists).</p> <p>Full results are presented in Appendix H.</p>

Network actors have a representation on the governance board of NZAS – North Inc. and each of the three levels within the network meets regularly to discuss network business. The meetings are facilitated by the central broker, which also has office space at each actor. At all levels of each actor there is an awareness of the objectives of the NZAS system and the objectives of other actors in the network.¹¹ This awareness is illustrated by the following comments:

They are very focused ... on getting bums on seats in their tertiary institutions, that's one of their main goals. Because that is where the funding model has been. Now there are these PBRFs, the research outputs that they've got to have ... Those two things have been organisational drivers ... that is going to attract enough student numbers and the quality research outputs ... AUT's justification...it helps them inform their teaching. So there is a flow of information back into their teaching so their teaching is of a higher quality so they can attract better students and research outputs so they can justify being a member ... I think [about WINTEC] they have a very similar

¹¹ Comments made by research participants about the objectives of actors and the NZAS system were compared with the stated objectives for each actor reported in Appendix Five.

view of things ... I think they just don't have the same scale in their area but they see the same thing happening for them in the WAIKATO region ... UniSports, yeah, because they have gone into a different area of their research I don't think they see the same level of informing their teaching in their research through the Academy at the moment ... they have gone into the medical side of things much more and therefore it is not quite the same driver for them.

(CEO/Board level)

It was never going to be a cash cow, ok. You're not going to make money out of elite sport – that's what Millennium thought was going to happen but they've had to diversify and get most of their cash elsewhere but I would say ... AUT ... to contribute to the development of New Zealand sport and also it's being a consortium partner; a point of difference to other universities, a point of marketing...a point of national reputation ... Auckland University doesn't put a lot of emphasis on ... they're more into the research side of things.

(Individual level)

Power over actors within the network is perceived by all organisational levels (CEO/Board, work-unit and individual) to be held by SPARC and is based on SPARC controlling the funding for the network. There is a perception at all levels that the North network is coordinated by the central broker, and AUT is perceived as being the most influential in the network due to the size of the network contracts that AUT manages. The following quote illustrates these two points:

The balance of power actually sits in the management of the Academy, so and inevitably in AUT because they do the most work and are the most involved party so. But the office [about the central broker] has an independence of its own ...

(Work-unit level)

The holding of power within the network is confirmed by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage (see Appendix J). These calculations indicate at the early stages of the network the most powerful actor was MISH. However, the central broker and AUT held the most power at the later stages of the network's development, with the least powerful actors being WINTEC and University of Auckland UniSports Centre. The shift in power is based on these actors' ability to bridge structural holes and connect parts of the network together (see Figure 5.2). This is confirmed by the findings of the UCINET 6 statistics routine for Question 8, presented in Table 5.1. Although the results from the one-sample *t*-test for Question 5, presented in

Table 5.2, show power of actors in the network is significantly higher than average, it may be due to actors having representation on the board of NZAS – North Inc. and therefore being able to influence the network. The cross-tabulation routine shows that the level of power has no significant association across all organisational three levels within the network.

Table 5.2: Summary of power measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
5. How much power does this organisation have in the network?	There are significantly higher-than-average levels of power. Full results are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of power (low, medium and high). Full results are presented in Appendix F.	Overall, the balance of power is reasonably distributed across the network and is moderate to strong. However, the data may indicate NZAS – North Inc. as holding the most power within the network along with MISH and AUT, which also hold strong levels of power, while the weaker actors are WINTEC and University of Auckland UniSports Centre. Full results are presented in Appendix H.

There is an over-arching relationship with SPARC which sets expectations for the network and this is perceived to be the case at all levels within the network. The relationship with SPARC is formal in that SPARC retains and controls the contracts. Power over the network is derived from the bulk contract from SPARC and from a Memorandum of Understanding between the central broker and actors within the network. However, the contracts and Memoranda of Understanding (MoUs) between actors are used to provide direction for actors and are not referred to on a working basis. Comments regarding this informal coordination through the use of a Memoranda of Understanding include:

... it's a heads of agreement or a memorandum agreement but it's like, sort of ties it in, but pretty informal arrangement.
(CEO/Board level)

If you have to refer closely to the contract you've probably lost the plot. There should be these networks and collaborative interactions all of the time and what the contract does is it gives you a priority focus of strategy so that you are not pulling against each other so that you are all working for the same collective good. (Work-unit level)

... at our level it's pretty informal. (Individual level)

5.2.4 Role of central broker

The focal actors responsible for the formation of the network were MISH, AUT and University of Auckland UniSports Centre. At a later date WINTEC was invited to join the tender for the NZAS – North network bid (see Stages 1 and 2 in Figure 5.2). All levels of the network were aware of who the focal actors were and how the network was formed, as illustrated by the following quote:

... there were several organisations in Auckland all of whom would be very interested in that. Among those being the University of Auckland which had a sports-science business up and running, AUT which has a sports-science business up and running, the Millennium Institute which was not yet built but which had a concept of a multi-sport multi-disciplinary centre for high performance sport ... The Millennium Institute and AUT had discussions about getting together and putting in a joint tender. Then the University of Auckland joined them as well ... And then in the process of putting together the tender it became clear that if this was going to cover the top half of the North Island we needed a strong representative in the Waikato. So a decision was made to invite WINTEC to join in as the fourth consortium member and it was exactly that, basically an invitation and they accepted that invitation. (CEO/Board level)

At the pre-network formation stage MISH was motivated to form an alliance with a tertiary institute in order to develop their own business. MISH was privately funded and intended to be the New Zealand equivalent to the Australian Institute of Sport. Motivations for joining the network for other actors were based on strategic self-interest in terms of additional revenue building and protecting their market. Actors were also motivated by a desire to benefit New Zealand elite sport. All levels of the network were aware of these actor motivations as illustrated by the following quote:

... recognised they couldn't do it by themselves. They needed to collaborate with other parties ... they wanted to keep others out. So there was a protectionism driver which probably was more so led by the tertiary's, particularly AUT and University of Auckland. They didn't want the other universities that were encroaching on the Auckland patch, Massey in particular, to essentially steal student numbers, their own student numbers. So they want to protect their business and academic interest by having them being part of a chunk of work that was being resourced by government. And the other was they wanted to validate their own institutions by being associated with something that is important to New Zealand: being high performance sports and be able to say that they play a role or a part of that network. (CEO/Board level)

There were problems at the formation stage in the network as actors did not trust MISH. It was based on incongruence between what was said by a key individual in MISH and subsequent actions. Despite this, actors cooperated with each other as they realised that not to do so would mean that their bid might be unsuccessful. This representative comment demonstrates the lack of trust with MISH experienced by all levels of the network:

There was just certain personnel that were there at the time that were writing one thing and saying other things and as a result you could not trust them [about MISH], you would not trust the relationship at all, you know? And as a result for the first couple of years there was just let's compete against each other, you know, or do this and that ... even though there was a memorandum of understanding there was still a lot of mistrust. (Individual level)

5.2.5 Informal coordination mechanisms

The actors within the NZAS – North network have high levels of commitment, although the University of Auckland UniSports Centre is perceived to be less committed than others. CEO/Board and work-unit level are motivated by their own strategic interest of gaining business and profile for themselves, whereas motivations are based on personal development at the individual level. Trust between all actors within the network is high, although MISH and the University of Auckland are trusted less by the other actors. The frequency of communication is perceived as being high, with the central broker facilitating this. Actors cooperate well together on an informal basis while the central broker has a role of policing the network's business. Cooperation is aided by the central broker having office space at each actor and by staff exchange. Knowledge and information sharing occurs only at the individual level within the network. The NZAS – North network has not developed business outside of the SPARC contract and is more concerned with operating-cost efficiencies. The following information describes these findings in more detail.

Within the NZAS – North network, high commitment towards the NZAS is reported at all levels. AUT is perceived as being the most committed, with University of Auckland UniSports Centre as the least committed. The high level of commitment between all actors, with the most committed actor being AUT and least committed being University of Auckland UniSports Centre, is noted by research participants:

I would say that the commitment is still firm [about all actors].
(Work-unit level)

I would say we are as committed as each other for the most part [about all actors]; it's just that I think the two organisations that have invested more time, more effort would be WINTEC and AUT. If you have a look at the size of the organisation in Auckland Uni, it's much smaller. It's much smaller, much less emphasis placed on them. The commitment – great from the people that are doing the job, there's no doubt about their commitment, it's just that it's down-sized compared to both the other organisations.
(Individual level)

The strength of commitment is significantly higher than average across all three organisational levels in the network, as seen by the findings of the one-sample *t*-test for Question 1, presented in Table 5.3. The cross-tabulation routine shows there is no significant association between the level of commitment and the three organisational levels (CEO/Board, work-unit and individual). However, the UCINET 6 routine indicates University of Auckland UniSports Centre as the least committed.

Table 5.3: Summary of commitment measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	There are significantly higher-than-average levels of commitment. Full results are presented in Appendix F.	There is no significant association between organisational level (CEO/board, work-unit and individual) and the level of commitment (low, medium and high). All organisational levels show high levels of commitment. Full results are presented in Appendix F.	Overall levels of commitment in the network are strong. However, results also indicate University of Auckland UniSports Centre and WINTEC need to work on improving how others perceive them in terms of their level of commitment. Full results are presented in Appendix H.

At all organisational levels (CEO/Board, work-unit and individual) there is a shared understanding of wanting what is best for New Zealand athletes. Actors are also motivated to belong to the network for strategic business purposes, i.e. to gain a profile and reputation for themselves and to develop their own business. The motivations at the different levels are illustrated by the following quotes. The first two quotes note the importance of strategic direction and commercial development for actors at CEO/Board and work-unit level, while

the last recognises that individual-level motivations are concerned with professional development and self-interest, i.e. helping with one's own research and improving one's individual skills.

There's a number of reasons ... We had an organisation that was already set up which we were trying to run on a commercial basis and here was an opportunity to develop it and hopefully make it more commercial; that is number one. Number two was that there was a marketing opportunity for students, which has subsequently come to pass with the Prime Minister's scholarships and things ... We had a new sport and exercise science department which was most likely more science-based than a lot of sports departments around the place and we were hoping that there would be spin-offs; that the students could become involved in course work and involved in some of the experimental type of work. And then, fourthly, primarily because there's ... amongst the senior staff of the University there're some pretty keen sports people with a real interest in sport and that for a university it needs to be involved in things other than straight academia and research, it does need to be involved in a public area, it needs to be involved in sport, it needs to be involved in culture.

(CEO/Board level)

Yes, and the Academy brand, both are equally important. By enabling a body of AUT staff and students to remain as service providers; by actually building a strong replacement of service providers.

(Work-unit level)

I like it for a number of reasons ... 1) in that you are actually reading in your area and you know your area and to know your area you teach about it and then you can consult in it and as a result you are generally a lot more well-informed ... Also to have all your eggs in one basket, like for me for example. I've just given up my consultancy. To be a consultant full-time, you're not going to be a consultant all your life it's too hard. You're working with athletes till 9 at night. It's just not a good life style. So to have some other things to fallback on like a teaching career, I think it's really good for the consultants ...

(Individual level)

There is a shared understanding that high levels of trust exist now. The high level of trust is the result of hard work because problems had been encountered at the network formation stage. There is a belief at all levels in all actors that open and honest interactions occur between all levels and all actors, as illustrated by the following quotes:

I think the trust is pretty good right now ... When it started off it took some time. There were suspicions ...

(CEO/Board level)

It's huge [about trust] ... it could be a real bun fight, you know, like ... we want those athletes and we'll offer them this and that ... that

type of thing could happen, and I've just got to say no, it doesn't happen, it's more about us all working together and trusting each other and doing it that way. (Individual level)

The strength of trust reported between actors is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 4, presented in Table 5.4. The cross-tabulation routine shows there is no significant association between the three organisational levels and levels of trust. The UCINET 6 routine reveals that University of Auckland UniSports Centre and MISH both have a moderate level of trust. This may be because University of Auckland UniSports Centre is not so active in the network, while MISH's level of trust may reflect initial concerns experienced at the network formation stage.

Table 5.4: Summary of trust measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
4. How much do you trust this organisation?	There are significantly higher-than-average levels of commitment. Full results are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of trust (low, medium and high). All levels show high levels of trust. Full results are presented in Appendix F.	Overall levels of trust within the network are strong. However, the data may indicate University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of trust, which is at a moderate level. Full results are presented in Appendix H.

The frequency of communication is perceived to be good. At all levels there is a shared understanding that regular meetings occur. There are six-weekly meetings at CEO/Board and work-unit level, and a weekly meeting at the individual level. Actors have representation on the board of NZAS – North Inc. which allows them to have a say in the network business. There is also an annual meeting for all levels of the NZAS – North network actors. A high level of informal communication exists between all levels and all actors. The informal and formal communication is facilitated by NZAS – North Inc. which has offices in all actors. The NZAS – North Inc. staff are credited as the glue that binds actors together in the network. There is also daily communication between all central brokers. Comments demonstrating regular communication between all actors include:

We tend to meet about every couple of months [about the board of NZAS – North Inc.] ... either by email or by telephone, we would be in contact three or four times a week [about the CEO of NZAS – North Inc.] ... and the others [about work-unit level] ... that's much more irregular ... would be about once a month. But I suppose, the other thing is that once we've got something on like we've had just recently with this review, the great advantage is that we bring them all in together and the attitude is to be inclusive rather than exclusive.
(CEO/Board level)

We are trying to meet at least quarterly or every other month.
(Work-unit level)

Management level would be two to three times a year, the providers [about individual level] would be pretty much the same; two or three times a year ... Monthly sometimes ...
(Individual level)

Cooperation between actors is guided by a Memorandum of Understanding (MoU) and contracts, although the contracts are not referred to on a working basis. Only information on NZAS matters is shared between actors. Sharing of resources occurs at the individual level only. At the individual level workshops, training sessions and resources are shared between actors in order to improve service levels to the athletes. There is a shared understanding at all levels that informal knowledge and information sharing occurs at the individual level only between all actors. A number of key staff are contracted from actors to work for the central broker. The lack of cooperation and information sharing at the work-unit level, in contrast to the individual level, is illustrated by the following quotes:

... the Department of Sport and Exercise Science [about University of Auckland UniSports Centre] here at Tamaki and the Division of Sport and Recreation at Akoranga [about AUT] would I say the two Heads of Department talk a lot? Probably not. In fact to a degree they probably view themselves as being competitors ... (CEO/Board level)

We don't bare our souls, we have significant business that we do outside of the Academy... [sharing of information, knowledge and resources] probably happens to a lower level, at the service provision level [about individual level]. And they have a number of ... training sessions, they run up-skilling sessions, they run discussions; they talk about the practical training techniques and policies and so on.
(Work-unit level)

... I would gather the conditioners together once a month also. So we would have a general meeting where it would be just ... this is what we've been doing, here's some of the new clients ... And then you go to our discipline specific and I try to get the conditioners together once every month just to talk about things as conditioners. At an

AUT level we would meet one to two times a month. At a regional which is New Zealand Academy of Sport North, as providers we would meet once to twice a year ... and then as a national body we meet once a year [with NZAS – Central and NZAS – South Island individual level] ... but it's voluntary so as part of the Sport and Exercise Science New Zealand conference, the day before it was devoted to New Zealand Academy of Sport sports science providers to get together in their disciplines and the various leaders of the disciplines would work out what the format for the day was ... and they would have the format of the day for professional development and education. (Individual level)

The strength of cooperation and information sharing reported between actors is significantly higher than average, as seen by the findings of the one-sample *t*-tests for Questions 2 and 3, presented in Table 5.5. The cross-tabulation routine shows there is a variance in the levels of cooperation and information sharing between the three organisational levels (CEO/Board, work-unit and individual). At the individual level the level of cooperation between actors is very high, whereas the level of information sharing is lower at the work-unit level compared with the CEO/Board and individual levels, which are both high. The UCINET 6 routine reveals that perceptions of cooperation and sharing of information is strong. However, University of Auckland UniSports Centre and MISH have a lower perception of both cooperation and sharing of information. This may be because University of Auckland UniSports Centre is not so active in the network, and the perception of MISH having lower levels of cooperation may result from their position in the network in terms of fewer connections with others, as well as previous perceptions of trust at the formation stage.

Table 5.5: Summary of information sharing and cooperation measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine.
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	Levels of information sharing have a significant association with organisational levels (CEO/Board, work-unit and individual): at the work-unit level there is a lower perception of information sharing compared with the other two levels.	Overall levels of sharing of information are moderate to strong, although MISH and University of Auckland UniSports Centre were seen to have a lower level of sharing information (i.e. rating ranged from 5–8 for University of Auckland UniSports Centre, and 5.5– 8 for MISH). These results indicate that University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of sharing of information.
3. How well do they cooperate with your organisation?	There are significantly higher-than-average levels of cooperation. Full results for Questions 2 and 3 are presented in Appendix F.	Levels of cooperation have a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a higher perception compared with the other two levels. Full results for Questions 2 and 3 are presented in Appendix F.	Overall levels of cooperation within the network are strong. However, the data may indicate University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of cooperation. Full results for Questions 2 and 3 are presented in Appendix H.

The NZAS – North network does not develop additional business outside of the contract with SPARC. Any developments that have occurred have focused on improving the cost efficiencies of systems currently in place, as illustrated by the following quote:

... the perception of how we are doing is high, both from our people we work with in regards to efficiency. We've also, in regards to the dollars spent in administrating the services to how much gets to actual servicing for the athletes, is a very high percentage as well. So the efficiency of our organisation in the North is very, very high and that does differ within regions as well. (Individual level)

All actors at all levels recognise a relationship exists between MISH and AUT, and that the relationship is becoming stronger as a result of significant jointly planned projects. However, MISH lacks the required funding to realise the potential of this relationship at

present. The relationship between MISH and AUT has had the effect of severing ties between MISH and other actors because the MISH–AUT relationship is contractually based and makes AUT the preferred provider for MISH. This is evident in Figure 5.2. The following quotes demonstrate a lack of business development outside of the NZAS contract, although two actors, MISH and AUT, are working collaboratively on their own projects:

... but for us 85-90% of our business is related to the national strategy as determined by SPARC... (CEO/Board level)

... we have a separate relationship with the Millennium in terms of the utilisation of space and merging of brands, which would work with those things outside carded athletes or the Academy. Sort of things like service provision for the general public, health-related programmes, research topics and so on that aren't specifically related to high performance but more to the recreational need and health need. So we have a stronger relationship with them than we do with the other members. (Work-unit level)

Obviously we don't care about the major business of Auckland Uni; in fact, Auckland Uni would not tell us that, we're not going to tell them our major business. But at this, New Zealand Academy, we are interacting quite well... (Individual level)

The lack of network business development between actors can be seen by the findings presented in Table 5.6. Specifically, lack of business development is supported by the average results of the one-sample *t*-test for Questions 7 and 10. The cross-tabulation routine showed that all three organisational levels (CEO/Board, work-unit and individual) feel the same way. The UCINET 6 routine reveals overall the level of adaptation of processes to other actors is weak with the exception of NZAS – North Inc. Finally, the results for 'organisations helping with your business' indicate that all actors work at developing their own business more than they do with each other for developing the NZAS – North network business.

Findings for Question 9, also presented in Table 5.6, show the self-interest of actors in developing their own business. Specifically, the one-sample *t*-test reports a higher-than-average level of the network helping with an organisation's business. The cross-tabulation routine shows there is no variance between the level of this relational aspect and the three

organisational levels (CEO/Board, work-unit and individual), meaning all organisational levels feel the same way. The UCINET 6 routine reveals actors believe their business benefits from belonging to the NZAS – North network. Findings for Question 6 indicate that actors believe all other actors are important for the NZAS – North network.

Table 5.6: Summary of importance of resource, adapted processes, belonging measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average ratings for the importance of resources.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the ratings for the importance of resources: all organisational levels rate the importance of resources highly.	Overall, the members' rating of the importance of resources is strong for all actors. However, the data may indicate University of Auckland UniSports Centre needs to work on improving the perception held by MISH of the level of importance of their resources, as MISH perceives University of Auckland UniSports Centre's resources to be only moderately important for the network.
7. How much have you adapted your processes to theirs?	Adapted processes is not significantly different than average.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of processes adaptation: all organisational levels have low-to-medium levels of adaptation processes.	Overall, the level of adaptation of processes is weak to moderate. The data may indicate that actors within the network are adapting their processes to those of NZAS – North Inc. but not to the other actors within the network.
9. How much does belonging to the network help you with your business?	There are significantly higher-than-average ratings for belonging to the network helping with business.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and their ratings of how belonging to a network helps with business: all organisational levels rate the importance of the network to their business highly.	Overall, most members strongly believe that belonging to the network helps with their business. However, MISH and University of Auckland UniSports Centre are exceptions, because both perceived their membership of the network to be only moderately important to their business.
10. How much does _____ belonging to the network help you with your business?	A particular organisation belonging to the network helping with business is not significantly different than average. Full results for all these questions are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and their ratings of how others belonging to the network helps with business: all organisation levels rated this highly. Full results for all these questions are presented in Appendix F.	Overall results may indicate NZAS – North Inc. needs the other actors in the network as equally as they need NZAS – North Inc. The perception that other actors belonging to the network helps with an actor's business is strong. However, there is one exception and that is with MISH which rates NZAS – North Inc.'s membership as only low-to-moderately helpful to their business. For the other actors there is generally a perception that others belonging to the network is moderately helpful to their business. However, again there is an exception with WINTEC being perceived as adding little value to others in the network in terms of their business. These results would generally tend to indicate that all actors work with others in developing their own business but at a lower level compared with working with NZAS – North Inc. Full results for all these questions are presented in Appendix H.

5.2.6 Other

All actors believed the NZAS – North network was working well – and in part this is credited to the network being far enough away from Wellington that SPARC is unable to become involved in the day-to-day running of the network’s business! However, tensions exist between actors and the central broker over perceived low levels of remuneration for network services. Actors also perceive the central-broker role to incur additional cost to the network and that the central broker is not needed. The social capital held by the central broker is noted by all actors and is credited as contributing to the network. The following information describes these findings in more detail.

The NZAS – North network is believed by all levels within all actors to be working well and that all actors within it are working jointly, rather than pursuing their own agendas. There is a perception that the NZAS system is integrated between the central broker’s high performance manager and the NSOs. Comments illustrating the NZAS – North network working well include:

Auckland [NZAS – North network] seems to be working better with the other regions, seems to be working better with [SPARC], Wellington ... I think it’s conceptually a good idea but how it’s working at the moment isn’t the most efficient and that’s the whole structure [about NZAS – Central] ... (CEO/Board level)

I think in the Northern region there is a reasonable interaction at the service delivery level and at a management level. And it works quite collaboratively. I think each member still probably guards itself a little bit about what they do. (Work-unit level)

I think for the most part it’s working pretty well ... and so at that management level I think it’s working fairly well. At a provider level, particularly up here in Auckland I think the Millennium Institute ... we’ve got a memorandum of understanding with Millennium ... and then also we’ve got a very close relationship with the Auckland Uni providers and that seems to be working really well ... So, yeah, I think that in terms of the network functioning, it’s functioning pretty well up here. (Individual level)

The perception of the NZAS – North network working well is also evidenced by the two strong NSOs who state they have a good working relationship with the central broker at different levels. Both these NSOs also have multiple contact points across the whole NZAS system. The following comment from one of these NSOs illustrates the perception that the

NZAS – North network is working well and that this is the result of the CEO of NZAS – North Inc.:

Pete Pfitzinger has a background in exercise physiology. He has been to the Olympics twice, he's a sharp businessman. He is great to deal with, good quality person, and a classic example of why the system works. He can clearly understand. Networks are about people; if you have a dickhead in charge then the response to what works well would be different. (High Performance Manager)

Even though at all levels within all actors there is a shared understanding that actors are not being hindered by their membership of the network, there are also some perceived disadvantages from belonging to the NZAS – North network. Tensions exist between actors and the central broker over remuneration for services that actors provide – all actors feel the remuneration is too low. The following comments illustrate the tension between actors and SPARC that are based around appropriate remuneration for the use of services and facilities:

Therefore why shouldn't SPARC be paying more on that front than they are now? See the argument is that this whole academy has been built up right through New Zealand by millions of dollars being spent on facilities which they're utilising. The facilities are certainly for other purposes as well, but there has been no money put into facilities by SPARC ... SPARC don't appropriately recognise the facilities that are available to the athletes. (CEO/Board level)

SPARC does not pay the cost of recovery rates for meetings or activities conducted by providers. These costs are written off in the contract ... It is a typical government/bureaucracy situation of getting more for less ... It does not make sense as it doesn't provide for the overheads of providing this service so it is subsidised ... (Work-unit level)

The central broker plays a price-negotiating role for the supply of services from actors. Actors perceive the NZAS – North network as being more cost-efficient than either the NZAS – Central or NZAS – South Island networks. However, there is a contention that the role of the central broker is invalid and adds costs as the 'consortium partners' can run NZAS – North network without the central broker:

The NZAS – N should be administrators rather than a CEO. All this adds to the administrative cost. (Work-unit level)

At all levels there is a shared understanding that actors are competitors with each other, but are able to collaborate on NZAS business. Collaboration between actors is facilitated by MoUs and by the central broker, who defines the boundaries for an actor to operate in. However, at the individual level, actors share resources and knowledge, and work much more closely together. The following quotes illustrate the role of the central broker in ensuring collaboration between actors, and the way in which actors work together by sharing resources at the individual level:

Well we agree that there would be centres for instance, Karapiro is down there so rowing becomes a focus [for WINTEC]. Clearly swimming sits at MISH. Tennis and other things like that again different disciplines sit over at UniSports and even though we do the sport science for the swimmers it's sited at MISH and we work collaboratively with them on ... So there is that ongoing cooperation so that we don't go out and try and take over swimming or rowing or whatever ... Had we broken into tribal warfare in Auckland it would have had quite a detrimental effect ... But because four quite forceful organisations in their own right eventually worked together and survived for six years, and in fact improved and done well and been coordinated by Pete's office says hey it can work in a collaborative way.
(Work-unit level)

... there's no sense of competition. In fact it's quite the opposite. It's hey, we're all here for the betterment of the athletes; it's not about this organisation screwing that organisation. I think, again, the people like Marty and Peter [the central broker] are working that side really well. It's not competition between consortium partners, in fact it's very much the other. It's to cooperate and help each other out and sharing of equipment and that type of thing ... Well like for example if we are running tests ... well, we've got a contra agreement. We can go over and use their gyms, they can come over and use ours. So if they've got some athletes over here that live on the North Shore and they don't want to travel, the sports-science providers from these various institutions can come in and use the gym and our equipment free of charge. That type of thing ... that sort of like contra deal is happening. Also like if we're running some testing over here and they've got some better equipment that us they'll bring the equipment over and vice versa so sharing of equipment, sharing of resources, sharing of knowledge. There's a lot of sharing of knowledge also.
(Individual level)

At all levels there is a shared awareness that the CEO and key staff within the central broker have been involved with elite sport performance; this experience was perceived to be essential for a central broker:

... Pete's [the CEO of the central broker] got that ... I think it's most important. It's knowledge, to head this is not an administrative ... it's

not a CEO-type job. It's not somebody where you could bring somebody in from Air New Zealand or somewhere and put them in charge and say, right ... you've got to earn the respect, and in sport you earn the respect by being right there with sports people at the highest level...Pete's got that ability and he's just non-political.

(CEO/Board level)

Many of the staff of the central broker have also worked in different actors in the NZAS – North network. Sport-science staff working within the NZAS – North network obtained their qualifications from University of Otago and so they have a social network across all actors in the network.

5.2.7 Summary

This embedded case demonstrates an intentionally formed network which is efficient. The NZAS – North network is a dense network consisting of five actors. All actors understand the objectives of all other actors, and all organisational levels of the network (CEO/Board, work-unit and individual) are engaged in the network activities. The objectives of the different levels are met. The network has high levels of trust, commitment and cooperation at all organisational levels. However, sharing of knowledge and of resources occurs only at the individual level.

The NZAS – North network is efficient in reducing costs. This is, in part, due to two factors: First, actors are competitors in the same market for the same client group which has led them to become cost-efficient in order not to be priced out of the market place. Second, the central broker negotiates service-pricing to a low level and polices network activities to ensure actors honour the MoUs. However, there is a resistance to the role played by the central broker; actors feel the role adds to administration costs and that they can perform this task on their own. Despite this, the elite-sport experience held by the central broker is acknowledged as essential for running the network.

The embedded case of the NZAS – North network also demonstrates how motivations of actors in joining the network (i.e. strategic self-interest) have been allowed to impact on the network business. This has been possible by actors being actively involved in holding power over the network to the extent that they are able to block potential new entrants from

joining. Network business has been impinged on as no new significant developments have occurred outside of the SPARC contract. This embedded case also demonstrates that when trust is damaged between actors it takes much effort and time to rectify on behalf of all actors. Finally, findings have shown that there is a limited awareness of the network context by actors in the NZAS – North network.

5.3 NZAS – Central network

5.3.1 Overview

The NZAS – Central network serviced athletes in an area covering the lower North Island from New Plymouth across to Gisborne and down to Wellington. NZAS – Central network serviced 130 athletes in 2003; by 2006 the number was 174. The formation of NZAS – Central network is credited to Sir Ron Scott and Paul Cameron (CEO of Sport Wellington Region), after which the running of the network was taken over by NZAS – Central Inc. The CEO of NZAS – Central was John Dyer (NZAS - Central, 2003) until mid-2005 when John Freer was appointed in his place. Dyer had come from a military background and had no previous sport-industry experience, unlike Freer who had extensive sport-industry experience and had also worked for Sport Wellington Region (a key actor in the Central network). NZAS – Central Inc. offices were located at the Westpac Stadium in Wellington. However, for the first three to four months of operation these offices were located at CIT.

The core actors comprising NZAS – Central network were NZAS – Central Inc., Wellington City Council and Sport Wellington Region, with representation from a Wanganui consortium of organisations. NZAS – Central Inc. also worked with the Regional Sports Trusts in their area (Sport Taranaki, Sport Manawatu, Sport Gisborne, Sport Wanganui and Sport Hawkes Bay) and Regional Sports Organisations. More recent links were established with Eastern Bay of Technology (EIT), the Universal College of Learning (UCOL) at their Palmerston North and Wanganui campuses to provide sports conditioning, and Massey University at their Palmerston North and Wellington campuses to provide sports-science services. The development of the network is depicted in Figure 5.3.¹²

Originally the NZAS – Central network also included the University of Otago to provide research-led sports science and sports medicine from their facilities at Westpac Trust Stadium in Wellington, and Central Institute of Technology (CIT) to provide physical-conditioning facilities and accommodation for athletes from its polytechnic campus located

¹² The network diagrams were produced from UCINET 6 matrices (Borgatti et al., 2002) using PAJEK. The use of UCINET 6 is described in Chapter Four.

at Trentham in the Upper Hutt Valley. Both of these organisations were perceived as being core stakeholders for the NZAS – Central network (High Performance Central, 2000). The University of Otago funded a \$2 million facility jointly with NZAS – Central Inc. at the Westpac Stadium; this was officially opened by Prime Minister Helen Clark on 10 July 2001. The opening of the University of Otago’s facilities at Westpac Trust Stadium was to demonstrate an increased commitment to the community in the Wellington region by offering sports-science services to the NZAS – Central network clients; it was also a way of promoting the University of Otago in the region. Facilities developed included a High Performance Sport Centre offering sports medicine and sports science, as well as teaching space for sports-medicine students, and a 100-seat lecture theatre, seminar room and audio and video conferencing suite, all of which offered 24-hour access to the university’s students. The University had 1200 students studying in Wellington on undergraduate medical programmes and on distance-learning courses (University of Otago, 2001).

Figure 5.3: NZAS – Central network stages of development

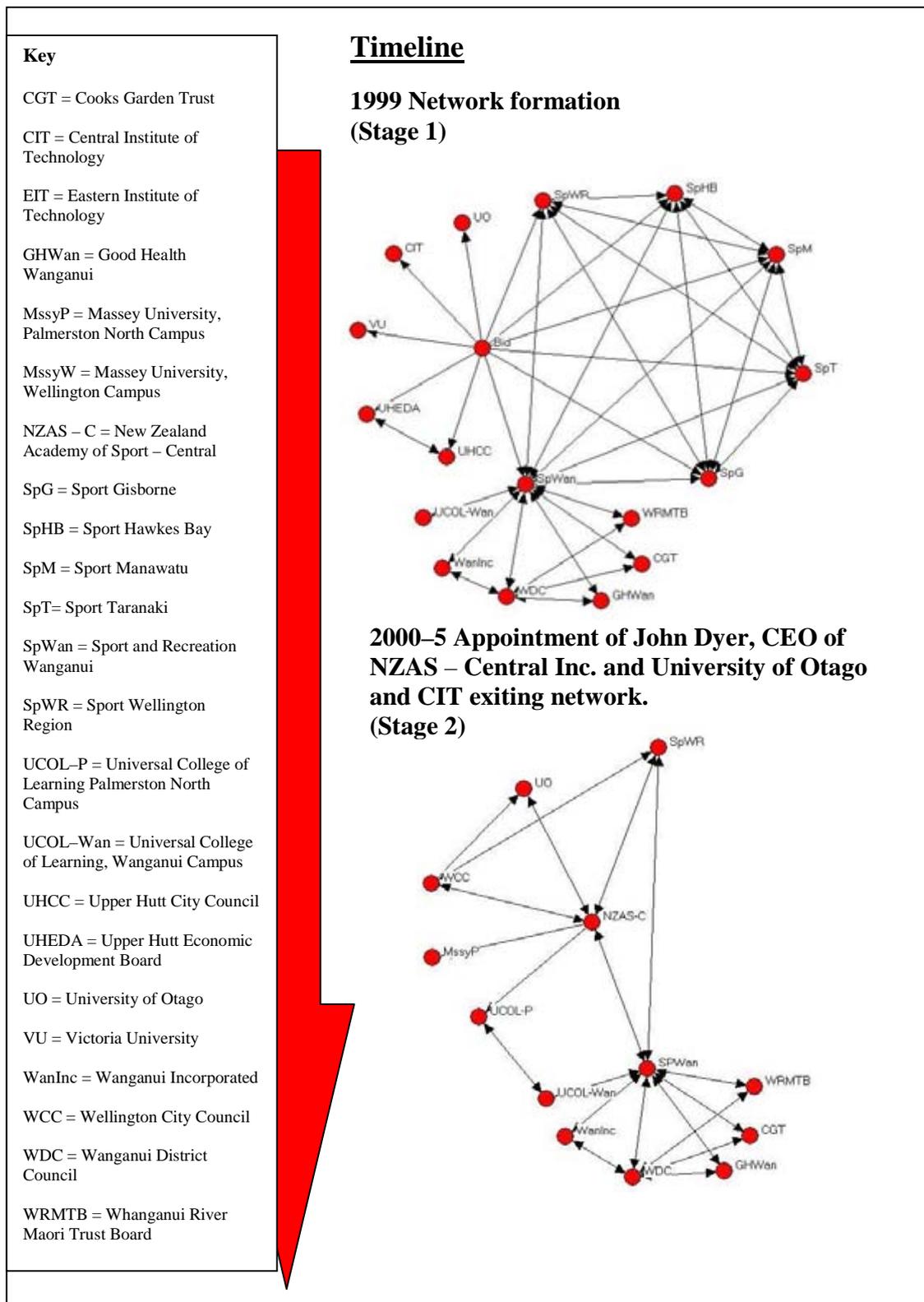
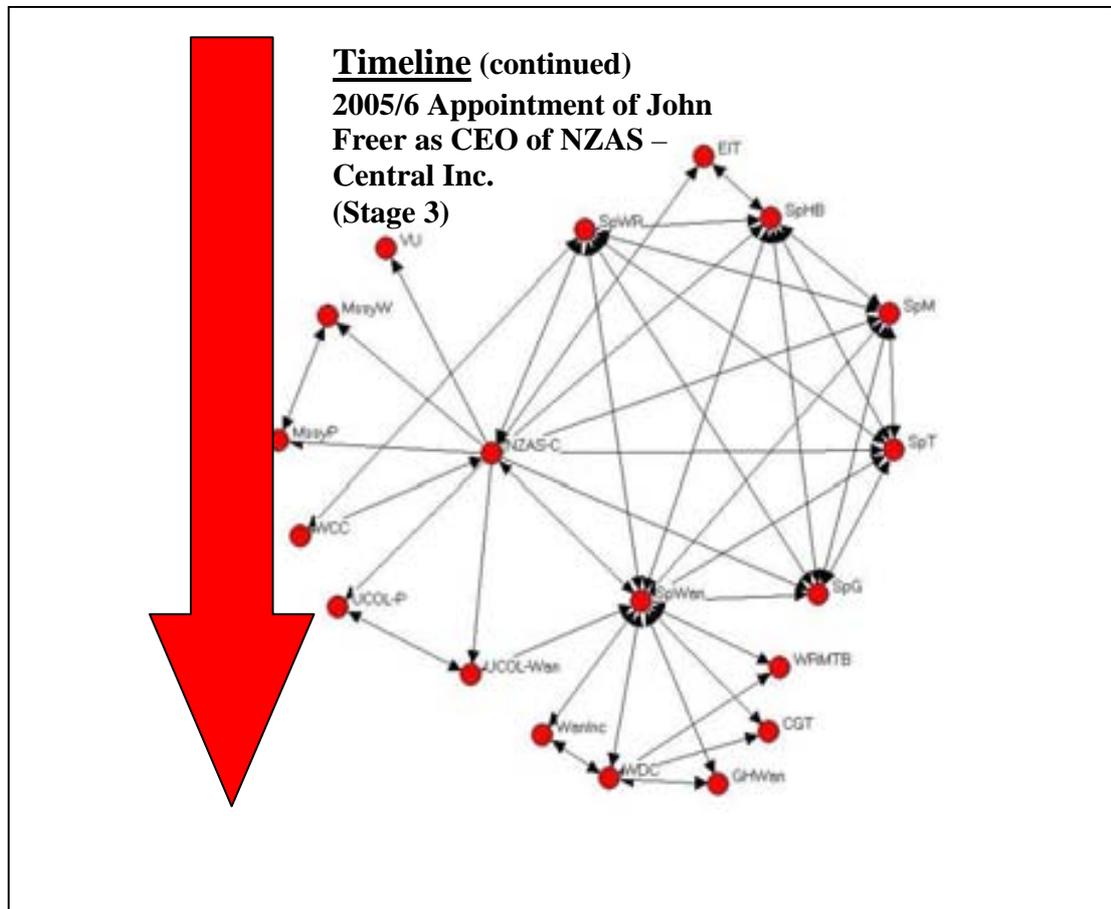


Figure 5.3: NZAS – Central network stages of development (continued)



CIT and the University of Otago are no longer involved in the NZAS – Central network. CIT was disestablished on 1 July 2001 (Ministry of Education, 2001a) and, as a result, NZAS – Central Inc. moved to offices in Westpac Trust Stadium; Sir Ron Scott was chair of the board of Westpac Trust Stadium at that time. The University of Otago terminated their involvement with NZAS – Central at the beginning of 2004 due to operational difficulties and a lower-than-expected use of their sports-science services. The University of Otago still maintains a relationship with NZAS – Central Inc. as landlord for the space rented to them in the Westpac Stadium.

Other interested organisations that lent their support to the original tender and expressed interest in being a part of the network at its formative stages but are currently not involved

include Victoria University, which was going to provide applied-sport-management expertise and sport-management research, Upper Hutt City Council, with access to sports facilities and funding, and Upper Hutt Economic Development Agency which was prepared to underwrite the administrative costs of the NZAS – Central Inc. (High Performance Central, 2000). Due to the disestablishment of CIT and with the NZAS – Central operations being based at Westpac Trust Stadium, the organisations based in the Upper Hutt ceased their original level of support for NZAS – Central. Victoria University never became involved in the network. The development changes in NZAS – Central network are depicted in Figure 5.3. The emergence from one stage to another within the network development is a gradual process which makes the exact date of change impossible to note. However, what can be noted are events or triggers attributable to these changes, and these are identified on the network diagrams and discussed within this section.

SPARC did not view Wellington as being a critical location for an academy base, nor did it think the Wellington bid to be particularly impressive; yet, despite this, the academy bid was won by Wellington. Concerns were expressed about its viability at the outset but there was a political expectation that something should happen in the Wellington region.

5.3.2 Network Context

The research participants located in actors within the NZAS – Central network have a limited awareness of the network's context. They perceive the network as a response to a government tender, demonstrating a limited understanding of the underlying rationale for the creation of the NZAS system, i.e. to address concerns that New Zealand had become less competitive in terms of international sporting success. This limited awareness of context can be seen in this comment from a research participant:

... network was formed back in 2002 I think, after there was a review of high performance sport in New Zealand and there were some changes. Part of that was to actually set up a new brand identity for high performance sport which was the Academy of Sport and then there was a network established and they put tenders out ... A tender process went out, a number of organisations bid for, to establish regional entities and then subsequently three were set up ... Our role is there to develop high-performance athletes and coaches across the country under SPARC's umbrella and that is part of their high-

performance strategy, which is to develop athletes to perform in events that matter to New Zealanders. (CEO/Board level)

5.3.3 Forms of networks

The research participants located in actors within the NZAS – Central network were aware of the different parts of the NZAS system, but were unaware of all actors in their network or their objectives. The strength of relationships between core actors at CEO/Board and work-unit level is high, indicating that the individual level has not been engaged in the network activities. All actors perceive SPARC to have power over the network to the extent that it has prevented the network from being owned by the region. Within the network itself the most influential actors are the Regional Sports Trusts which have yet to be fully engaged in network tasks. There is also a concern expressed by research participants about the lack of focus and strategic direction for the network. The network has not been stable, experiencing dramatic structural changes. The following information describes these findings in more detail.

Research participants perceive four parts to the network: the National Office in SPARC, and the three regional academies each coordinated by a central broker. The following representative quote illustrates this awareness:

... the New Zealand Academy of Sport was set up really as the high performance arm of SPARC. And that's pretty much has followed on from the old New Zealand Sports Foundation and the restructuring it went through and that happened at that time. And of course three academies were set up: North, Central, and in the South ... (CEO/Board level)

Research participants in the NZAS – Central network are aware of core actors only within their own network; these core actors are Sport Wellington Region, Wellington City Council and NZAS – Central Inc., with representation from the Wanganui consortium. All research participants at all levels have a shared understanding of the objectives of the NZAS system although there is limited awareness of the objectives of other actors.¹³ Despite this limited awareness, the findings for Question 8, presented in Table 5.7, show the strength of

¹³ Comments made by research participants about the objectives of actors and the NZAS system were compared with the stated objectives for each actor reported in Appendix D.

relationships reported between actors as significantly higher than average. However, the high strength of relationship is most likely between core actors only because the result from the cross-tabulation routine for strength of relationship, again presented in Table 5.7, shows a significant association with the three organisational levels in the network: there are higher levels for strength of relationships at the CEO/Board and work-unit levels compared with the individual level. These results may indicate that the individual level has not been engaged in the network's activities. The above-average level for strength of relationships is confirmed by UCINET 6 statistics routine – again between three of the four core actors of Sport Wellington Region, Wellington City Council and the central broker. The central broker has a moderate level of relationship strength with other actors outside of the core actors, which would indicate a need to develop those other relationships. Also, relationships between actors within the Wanganui Consortium are weak, which may indicate problems between them.

Table 5.7: Summary of strength of relationship measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
8. How strong is the relationship between your organisation and theirs?	<p>There are significantly higher-than-average levels of relationship strength.</p> <p>Full results are presented in Appendix F.</p>	<p>The level of strength of relationships has a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception compared with the other two levels.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall most actors perceive their relationship with others to be strong. It may indicate that Sport Wellington Region, NZAS – Central Inc., and Wellington City Council work closely with each other and have a good relationship. Wanganui Consortium needs to work on developing their relationship with Cooks Garden Trust as a weak relationship is perceived between those two actors. Generally, the focal actor, NZAS – Central Inc., perceives a moderate level of relationship strength with others outside the core actors of Wellington City Council, Wanganui Consortium, and Sport Wellington Region, which may indicate a need to develop stronger relationships with the other actors in the network.</p> <p>Full results are presented in Appendix H.</p>

NZAS – Central network is not a dense network. Each of the research participants at each of the three organisational levels (CEO/Board, work-unit and individual) do not know of all the other network actors. This can be seen by the results from the cognitive mapping, presented in Appendix I. The results show overall 48% of ties are known. Broken down by the three organisational levels, at the CEO/Board level 56% are known, at the work-unit level 25% are known, and at the individual level 59% are known.

Power over actors within the network is perceived by all three organisational levels to be held by SPARC and is based on SPARC funding the network. There is a perception at all levels that SPARC holding so much power in the network has not engendered trust or allowed the network to be owned by the actors within it. The following quotes illustrate the concerns of research participants about the amount of power that SPARC holds within the network:

... you just tend to keep questioning, really, what power have we got relative to what the national agency [SPARC] has got when they're providing such a high portion of your funds and also stipulating a lot of things that they want done ... (CEO/Board level)

Well the balance of power resides very clearly with SPARC. (Individual level)

The holding of power within the Central network is reported by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage, presented in Appendix J. These calculations indicate Sport Wanganui and the other Regional Sports Trusts, along with the central broker, as holding the most power from the initial bid for the network through all the stages of its development (see also Figure 5.3 which illustrates connections held by actors). The holding of power is based on these actors' ability to bridge structural holes and connect parts of the network together. It is confirmed by the UCINET 6 statistics for Question 5, presented in Table 5.8, which indicate that all actors perceive all others as having low levels of power and that the Regional Sports Trusts hold higher levels of power than the central broker. This would indicate weak levels of power and an imbalance of power in the network, with the Regional Sports Trusts being more important for the network than the central broker perceives. Results of the one-sample *t*-test for the

same question show perception of power by actors in the network is significantly lower than average, which may be due to research participants feeling there is no one actor who holds the most power within the network and their reporting of a lack of focus and strategic direction. However, the cross-tabulation routine shows a significant association for the three organisational levels and levels of perception of power within the network: the individual level reports a significantly lower level of power compared with the other two levels, indicating that at the individual level there is concern that the network is not being directed by the central broker.

Table 5.8: Summary of power measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
5. How much power does this organisation have in the network?	Power is not significantly different than the midpoint. Full results are presented in Appendix F.	The level of power has a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception compared with the other two levels. Full results are presented in Appendix F.	Overall, levels of power within the network range from weak to a little bit strong. The focal actor has a similar, and in one instance a slightly lower, rating for level of power than other actors. It may indicate an imbalance in power within the network which needs to be addressed: it appears that the Regional Sports Trusts hold higher levels of power and this perception differs from that held by NZAS – Central Inc. It may also indicate that the Regional Sports Trusts are more important for the work of the network than NZAS – Central Inc. perceives. Full results are presented in Appendix H.

5.3.4 Role of central broker

The focal people responsible for the formation of the Central network were two key individuals with social networks in the sport industry: Sir Ron Scott and Paul Cameron. Comments regarding the shared understanding of who the focal people were include:

... Sir Ron Scott approached us and said, “Look there’s a chance here for Wellington to put its hand up.” (CEO/Board level)

Paul Cameron in Sport Wellington knew the industry well. (CEO/Board level)

... formation and bringing on key people Sir Ron Scott, people like that who had influence ... (Work-unit level)

... I think it was a combination of a number of people, Paul Cameron...he was heavily involved. (Individual level)

Research participants perceive the University of Otago's motivations for joining the NZAS – Central bid were to build a greater presence for the university in the Wellington area and to develop the university's business. There was resistance to University of Otago joining the network at the outset, although it was generally agreed that the level of expertise that the university would bring would be of benefit to the NZAS – Central bid. The following comments illustrate resistance by other actors to the University of Otago joining the NZAS – Central network because the university was perceived as being from 'outside the community':

So there was kind of that alignment and association that seemed to me a bit skewed [about University of Otago in joining NZAS – Central network]. (CEO/Board level)

That's when Otago came onto the party as well. They actually tried to shake it up a little bit because at first it was quite exciting but then you kind of got swayed by them a lot, it wasn't our community then it was bringing people from outside the community, although they had an influence here through the school of medicine so that was their influence. They wanted to grow their business here in Wellington. (Work-unit level)

So that was a consortium group that worked together for, to develop the academy. And Otago University was very strong there ... I think they just thought that we would be giving them so much work and the reality is, I guess, the amount of work that we're doing with the amount of athletes would probably equate to about 30%. (Individual level)

Research participants located in actors have little awareness of the motivations of other actors for joining the network.

There are different perceptions across all three organisational levels concerning cooperation at the formation and early initiation stages of the network's development. These range from the two extremes: from actors trying to achieve their own objectives through to actors not coming with their own agendas. However, there is a general agreement that cooperation is

now improving between actors. Comments regarding the recent improvement of cooperation between actors are as follows:

It's continually improving, it had to be better so it's taken quite a long time to bed it all down but it's quite a significant change from not having anything like it previously. (CEO/Board level)

... each organisation is trying to achieve through its financial strategies and its outcomes but I think at the moment one of the mandates we've got is the regional strategy. With the regional strategy ... we'll all be working toward it and not working to our own business plans ... and from that we'll identify key deliverables which organisations may lead or support ... That'll be a two- to three-year process. At the moment we are just at the research stage. (Work-unit level)

So really people don't come with an agenda from their organisation ... they are representing the best interests of the academy of sport. (Individual level)

5.3.5 Informal coordination mechanisms

The core actors within the NZAS – Central network have high levels of commitment and trust. However, at the individual level commitment is much lower, indicating that actors have not been engaged fully. There is no commitment from the Regional Sports Trusts which means the network is losing out on resources for a wider geographic coverage. Actors are only now beginning to cooperate well together and have recently moved away from formal contracts. The NZAS – Central network has not been effective because no value has been added outside of the SPARC contract, although this is beginning to be addressed. The following information describes these findings in more detail.

At all levels there is a shared understanding that commitment to the network exists between the core actors, i.e. between Sport Wellington Region, Wanganui Consortium, Wellington City Council and the central broker. However, at present there is no commitment from the Regional Sports Trusts who represent the wider geographic area that the NZAS – Central network services; this is only now starting to be addressed. The lack of commitment and involvement by the Regional Sports Trusts to the NZAS – Central network is illustrated by the following quotes:

... a number of who I would see as critical regional stake holders [the Regional Sports Trusts] have sort of felt a little bit left out of what this academy has been trying to do ... they know who we are but even the Sports Trusts I don't think actually have a, or didn't have a real clear indication of what we do. (CEO/Board level)

So if you want community ownership, the problem is the community haven't owned this [the NZAS system in the central region] yet. (Work-unit level)

... all contributed well to that initial dream and the initial goal. They certainly had the same mentality as the rest of us that they wanted to make sure that the Central region had a really robust and successful Academy. But I believe that once it was established and running that their impact diminished a lot [about actors levels of commitment]. (Individual level)

Commitment between actors is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 1, presented in Table 5.9. However, the cross-tabulation routine shows there is a significant association for levels of commitment and the three organisational levels of CEO/Board, work-unit and individual, i.e. there are lower levels of commitment at the individual level. The UCINET 6 routine indicates that levels of commitment by actors as viewed by the focal actor varies greatly, from low to high; however, all other actors generally have a perception that high levels of commitment exist. The difference in perceptions may be due to a lack of communication or direction for actors as they may not fully understand what is expected from them to complete network tasks.

Table 5.9: Summary of commitment measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	<p>There are significantly higher-than-average levels of commitment.</p> <p>Full results are presented in Appendix F.</p>	<p>Perceived levels of commitment have a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception compared with the other two levels.</p> <p>Full results are presented in Appendix F.</p>	<p>From the viewpoint of the focal actor (NZAS – Central Inc.), the actors' levels of commitment range from low (0.5) to strong (7), i.e. NZAS – Central Inc. perceives levels of commitment to vary widely in the network. However, all other actors perceive levels of commitment as generally strong – the exception being the University of Otago which is perceived as having a weak level of commitment which reflects their exiting from the network. The difference in perceptions may mean NZAS – Central Inc. needs to work on improving levels of commitment, which may be due to a lack of communication or direction for actors because they may not fully understand the work of the network.</p> <p>Full results are presented in Appendix H.</p>

Research participants at all levels have a desire for New Zealand athletes to succeed and do well on the international stage. Research participants are also motivated to belong to the NZAS – Central network for reasons of their own organisation's self-interest, i.e. to achieve actor's business objectives, as illustrated by the following comments:

So in fact I saw that forming the Academy was great, a great concept in New Zealand but it was also with my daily cap [to help meet business objectives] on hey, we're in the capital city, we're in the centre of New Zealand, we're in a huge sporting area, well we've got to have one of these academies. So I had a desire to make sure we got one.
(CEO/Board level)

... we work in the participation strata and also the regional authority strategy. So we're set to achieve a regional strategy and, naturally enough, the high performance programme fits in the pathway for regional development ... So our strategy is to keep Wellington athletes in Wellington, have a high-performance culture and that there are pathways for ordinary people to follow and achieve.
(Work-unit level)

The strength of trust reported between actors is significantly higher than average, as shown by the findings of the one-sample *t*-test for Question 4, presented in Table 5.10. The cross-tabulation routine shows there is no significant association for levels of trust and the three

organisational levels of CEO/Board, work-unit and individual. The UCINET 6 routine reveals overall levels of trust are high, although the central broker does not trust other actors as much as they are trusted. There was no qualitative data on trust.

Table 5.10: Summary of trust measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
4. How much do you trust this organisation?	<p>There are significantly higher-than-average levels of commitment.</p> <p>Full results are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of trust: all organisational levels show medium-to-high levels of trust.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall, levels of trust between actors are generally strong, although Cooks Garden Trust is an exception with a weak perception. This may indicate that Wanganui Consortium needs to work on improving levels of trust with this actor. Also NZAS – Central Inc. generally has moderate-to-only-weakly-strong levels of trust with other actors; these levels of trust need to be improved with all actors.</p> <p>Full results are presented in Appendix H.</p>

The motivation for liaison between actors at CEO/Board level was previously to discuss issues facing athletes, and to deal with issues concerning the University of Otago exiting the network. However, overall communication is believed to have improved with better understanding by actors of the business of the network; this improvement is credited to John Freer, the current CEO of NZAS – Central Inc. Communication is also helped by social networking which exists at the CEO/Board level between key actors, facilitated by existing social networks. In contrast, there is little communication between actors at work-unit and individual levels, the exception being between Sport Wellington Region and NZAS – Central Inc. There is good communication that occurs daily between all central brokers.

Cooperation between actors is currently based on a Memorandum of Understanding between actors. Research participants at all levels note this way of operating is relatively new because previously cooperation relied upon rigid contracts. Only now are Wellington City Council and Sport Wellington Region beginning to work together informally with NZAS – Central Inc. to leverage off each other; these informal interactions are occurring at both the work-unit and individual levels. Cooperation includes the sharing of resources, and

knowledge and information transfer. The Regional Sports Trusts in the region had not previously been engaged in the business of the network, but are now starting to be involved. Comments concerning the improvement in cooperation, and sharing of information and resources between actors, include:

... that's one of the things that I'm working on very hard, about being able to put initiatives into those regional areas that can actually provide awareness and representation of what we're about [about using the Regional Sports Trusts] ... at the moment, while I said we've got memorandum of understandings with six Regional Sports Trusts, we want to bring those memorandums of understandings to life. They all sit here in a folder somewhere. (CEO/Board level)

... [NZAS – Central Inc. are] included in the planning processes and the partnerships that we do in this whole community. They are integrated in that. That we will look at development programmes alongside the partnership and currently there's one which is Jill Mackintosh. So we've brought Jill Mackintosh out, netball coach ... So those are the sorts of things. We develop initiatives and interventions along the way and so it may be at a talent level or just a development level ... Bringing in guest speakers, high performance coaches, deliverers ... (Work-unit level)

And then if I need some training for those athletes or coaches and I can deliver that through the Sports Trust. We locate some of our equipment at the Sports Trust. We don't get them to deliver the high-performance programme. What we do use them as sort of an administrative thing ... we advertise as a joint ... initiative ... We've got this regional athlete-development programme, which we deliver through the Regional Sports Trusts now. And that is our elite-level programme. And we use the people in the Regional Sports Trusts to be our contact with people with the athletes and coaches in their region. And we fund that programme and that enhances the Academy of Sport profile. It enhances awareness of the programme in their region. (Individual level)

The strength of cooperation and information sharing reported between actors is significantly higher than average, as shown by the results of the one-sample *t*-test for Questions 2 and 3, presented in Table 5.11. The cross-tabulation routine between organisational levels and levels of both information sharing and cooperation shows there is no significant association for either: medium-to-high levels of both cooperation and information sharing exist. The UCINET 6 routine reveals that perceptions of cooperation and sharing of information are strong. However, within the Wanganui consortium there is a lower level of both cooperation and sharing of information.

Table 5.11: Summary of information sharing and cooperation measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of information sharing: medium-to-high levels of information sharing were recorded at all organisational levels.	Overall, the perceived level of information sharing between the core actors covered a large range from weak (4) to strong (8.5), suggesting that this is an area that NZAS – Central Inc. needs to address. Also needing to be addressed is the level of sharing by actors comprising the Wanganui Consortium (WanCon) because Cooks Garden Trust (CGT) is perceived as having a weak level of information sharing (with a rating of 4) compared with UCOL, perceived as moderate (with a rating of 6).
3. How well do they cooperate with your organisation?	There are significantly higher-than-average levels of cooperation. Full results for both these questions are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of cooperation: medium-to-high levels of cooperation are recorded at all levels of the organisations. Full results for both these questions are presented in Appendix F.	Overall the level of cooperation is perceived as strong within the network, although there are three actors that are perceived as weak: Wanganui Consortium, Cooks Garden Trust, and Sport Gisborne. Full results for both these questions are presented in Appendix H.

All research participants at all levels of the network perceive that NZAS – Central network actors have not added value outside of the SPARC contract. Business development within the network is only now beginning to be addressed with discussions concerning additional business projects taking place. Developments are aimed at utilising the Regional Sports Trusts in the region and taking the core business expertise of the NZAS – Central network to new markets, namely Fiji. Actors have also met to develop a vision for the network. These two developments in the network are attributed to the appointment of John Freer as CEO of NZAS – Central Inc. Research participants’ quotes note the lack of prior business development, which is only now beginning to be addressed:

What we haven’t done is added value outside of the contract ... So what we’re doing now is we’ve implemented talent development, a

regional talent development programme which is working with potential high-performance athletes in those particular regions which is giving us the ability to have an awareness in those regions ... And one of the initiatives we've been looking at is the development of the testing and athlete-development initiative for Oceania-based athletes; all the high-performance athletes based out in the Pacific Islands. We actually bring them into Wellington, do all their planning and performance analysis, send them back to the Islands ... we see that as a business initiative ... So we see it as an opportunity to grow our revenue ... (CEO/Board level)

And the other thing is that we also involve non-carded coaches and sometimes non-carded athletes in some of our workshops, presentations and seminars ... And there's what you need, is really a developmental part of that programme ... down here, we have slowly grown where we didn't have dedicated people to look after the non-carded programme whereas now we have. So we've grown as the system has grown ... we bring school groups in, we bring non-carded sports teams in and they can access our facilities, at a cost ... Also we are working with some of the non-carded sports to help them develop their programmes. (Individual level)

The lack of network business development can be seen by the results of the one-sample *t*-test for Questions 7 and 10, presented in Table 5.12, which show only an average level of adaptation of processes. The cross-tabulation routine for Question 7 shows a significant association for the levels of adaptation of processes and the organisational levels: at the work-unit level there are higher levels of adaptation than at the CEO/Board and individual levels, which are both recorded as being low. However, for Question 10 the results of the one-sample *t*-test are reported as significantly higher-than-average, indicating that actors help other actors with their business. The UCINET 6 routine reveals a strong belief that other actors belonging to the network help with their business – except NZAS – Central Inc. This finding is corroborated by the UCINET 6 results for Question 7 which indicate that the Regional Sports Trusts are working well together and able to adapt their processes to each other. The results for Question 9 indicate belonging to the network helps three of the four core actors (NZAS – Central Inc., Wellington City Council and Sport Wellington Region) with their business. The results for Question 6 indicate the importance of resources held by all actors for the network. These findings indicate NZAS – Central network has not yet realised its potential to develop network business.

Table 5.12: Summary of importance of resource, adapted processes, belonging measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine between levels	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average levels of importance of resources.	There is no significant association between organisational levels (CEO/Board, work-unit and individual) and the perceived level of importance of resources: all organisational levels perceive resources to be of medium-to high importance.	Overall, all actors within the network are perceived as holding a strong level of resources. This may indicate that the University of Otago’s presence within the network was important for the resources that they held despite them leaving the network. NZAS – Central Inc. is also perceived as strong for the level of resources they hold.
7. How much have you adapted your processes to theirs?	Adaptation of processes is not significantly different from average.	Levels of adaptation of processes have a significant association with organisational levels: there are lower levels of adaption at the CEO/Board and individual levels compared with higher levels of adaption at the work-unit level.	The focal actor’s perception is that other actors hold a weak level of adaptation of processes. However, Sport Wellington Region perceives the other Regional Sports Trusts as having a strong level of adaptation of processes, which may indicate that Sport Wellington Region works closely with these actors and is prepared to adapt its processes much more readily. Wanganui Consortium may need to work more closely with Cooks Garden Trust. Finally, the results suggest that NZAS – Central Inc. needs to address how it works with others and be prepared to adapt its processes to theirs.
9. How much does belonging to the network help you with your business?	There are significantly higher-than-average levels of perceiving that belonging to the network helps with business.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of how belonging to the network helps with business: all levels strongly believe that belonging to the network helps with their business.	Overall, members perceive that their belonging to the network strongly helps with their business (recorded for NZAS – Central Inc., Wellington City Council and Sport Wellington Region).

<p>10. How much does ____ belonging to the network help you with your business?</p>	<p>The perception that a particular organisation belonging to the network is helping with business is not significantly different from average.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of perceived usefulness of specific organisations: all organisational levels rank this question as medium to high.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, most actors perceive strongly that other organisations' membership of the network does help them with their business. However, NZAS – Central Inc. was an exception, perceiving only a weak-to-moderate benefit to their business from Wanganui Consortium, Sport Manawatu, the University of Otago, EIT and Sport Gisborne. These results may indicate that it is important to belong to the network for Sport Wellington Region and Wellington City Council, and that membership of the network may be important for the Wanganui Consortium. Furthermore, the results suggest that NZAS – Central Inc. may need to develop better relationships and find common goals with the Wanganui Consortium, Sport Manawatu, Sport Hawkes Bay, the University of Otago, EIT and Sport Gisborne as these relationships may not be working well. Alternatively, the results could suggest that these actors may be providing only limited resources because the number of athletes is minimal in the areas.</p> <p>Full results for all these questions are presented in Appendix H.</p>
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5.3.6 Other

All research participants located in actors within NZAS – Central network believe the network has not lived up to expectations and its problems are only now beginning to be addressed with the appointment of the current CEO of the central broker. The following information describes this finding in more detail.

The staff employed by the central broker have high-performance backgrounds coupled with business qualifications. There are informal social networks at CEO/Board level between the core actors in the network and the current CEO of the central broker is a member of these informal networks, whereas the previous CEO did not have a social network in the sport industry.

At all levels within the NZAS – Central network there is a shared understanding of the network being slow to establish itself and generally not living up to expectations. Research participants believe the network is only now starting to perform and this is attributed to the appointment of the current CEO in the central broker. Research participants perceive problems with the network arose from not involving actors in the region outside of the Wellington area, and in not developing a shared understanding of the NZAS system amongst all actors. Blame is also apportioned to the University of Otago exiting the network because this relationship breakdown used valuable resources that could have been spent in developing the network's business. Furthermore, the NSOs have been blamed for their inability to understand how to use the NZAS system effectively. There is also a feeling that because SPARC is based in Wellington, it has been able to interfere in the day-to-day business of the NZAS – Central network and hinder its development of the network business. The problems in developing the NZAS – Central network are illustrated by the following quotes:

Ok, one of the reasons, you're starting from scratch, everything was very fragmented in terms of what might have been there for high performance ... we chose Otago and Otago University came on board with us as a new partner but then at the time of looking to get everything started Otago also were successful in getting a high performance in Dunedin which would be fair to say, and some of the Otago people have sat in this room in the early days and said they didn't think they were going to get one in Dunedin. And they did get

one in Dunedin, so obviously that put a lot of pressure on them as an institution ... right through until not that long ago were a key partner and more recently they've withdrawn from our board to concentrate on their bit down south ... That's certainly worked against us in terms of some of the developments that we had in mind.

(CEO/Board level)

I think it's very frustrating that SPARC seems to be in a constant state of flux and they are not listening, I don't believe, to our concerns ... we don't have the real autonomy to go and deal with all of their, all of the key issues [about the NSOs], because SPARC has got this ability and saying alright okay we will give you some extra dollars to do that. That is happening on a regular basis. And it undermines the Academy system, the region system.

(Individual level)

At all levels within the NZAS – Central network there is a shared understanding that the central broker is not performing. However, recently this has improved and coincides with the appointment of the current CEO. The recent development of the Central network can be seen in Figure 5.3: by Stage 3 the network had expanded to include the Regional Sports Trusts in order to cover a wider geographical area. This contrasts strongly with Stage Two when the network had reduced in size from its initial stage. The changes in structure are also attributable to a change in location for the central broker: originally based in offices at CIT in Upper Hutt City, the central broker later shifted to premises in the Westpac Trust Stadium in Wellington. The change in premises and move away from Upper Hutt City area resulted in actors based in Upper Hutt City no longer being part of the network (see Stage 2 in Figure 5.3). Comments regarding improvements in the way that the central broker is working are attributed to the appointment of the present CEO of NZAS – Central Inc., as illustrated by the following comments:

I think the Central network is starting to work much better because it has got some sort of strategic focus on what are the key areas that it wants to achieve in, it has set some measurements. And I think in the areas of, we've done some strategic and international work with the Pacific, I think there are some real opportunities there and I think that is a good piece of work that John [Freer, current CEO of NZAS – Central Inc.] has done.

(CEO/Board level)

The sentiment of NZAS – Central Inc. being ineffective is also recognised by the NSOs and by NZAS – National Office. It is further demonstrated by NZAS – Central network's

contract not being renewed at the beginning of 2007, which was as a result of the SPARC review process undertaken during 2006.

5.3.7 Summary

The embedded case demonstrates an intentionally formed network which is ineffective. The NZAS – Central network has been slow to establish itself and generally has not lived up to expectations held by the research participants located within network actors, NZAS – National Office and the NSOs.

The embedded case demonstrates NZAS – Central network is not a dense network. Although research participants are aware of other core actors, they generally do not understand the objectives of other actors in the network; nor are they aware of the overall network composition. There has also been a lack of strategic direction and focus. The different organisational levels of CEO/Board, work-unit and individual are not all fully engaged in the business of the network. Only the CEO/Board and, recently, work-unit levels in the core actors have been engaged fully, resulting in the current development of new business initiatives. Research participants at all levels have a limited awareness of the network context.

The network has not been stable, experiencing two major structural changes. The changes in structure can be attributed to a number of factors. First, this case highlights the importance of social capital at the CEO/Board level of the central broker, as shown by the initial appointment of the CEO to NZAS – Central Inc. and the subsequent appointment of the current CEO. Second, the move by the central broker to new office space in the Westpac Trust Stadium resulted in Upper Hutt City-based actors exiting the network. Third, the exiting of University of Otago from the network resulted in resources and actors being distracted away from the business of the network.

However, with the recent appointment of the current CEO to the central broker, many of the reported issues that the network is facing are now being addressed. This includes the formation of a strategic direction for the network, engagement of actors in the region to provide a wider geographic coverage, and the generation of new business development.

5.4 NZAS – South Island network

5.4.1 Overview

The NZAS – South Island network is coordinated by a focal actor, NZAS – South Island Inc. (also known as the Academy South Island (ASI)) (NZAS - South Island, 2006a). NZAS – South Island Inc. is located at Logan Park in Dunedin; satellite service centres are located in Christchurch, Nelson and Invercargill, and there is also a mobile unit. The CEO of NZAS – South Island is Kereyn Smith (who is also the Chair of Netball New Zealand and who previously worked for the Hillary commission) (NZAS - South Island, 2004e). The area serviced by the NZAS – South Island network is the entire South Island. In 2003 the NZAS – South Island network serviced approximately 300 athletes; by 2006 the number had remained approximately the same (K. Smith, personal communication, May 17, 2006).

Actors that NZAS – South Island Inc. have a current and recent working relationship with include Christchurch City Council, Dunedin City Council, The Community Trust of Otago, The Community Trust of Southland, the University of Otago, the University of Canterbury, Sport Southland, Sport Otago, Sport Canterbury and Sport Tasman (P. Pfitzinger, personal communication, October 28, 2006; K. Smith, personal communication, May 8, 2006; NZAS – South Island, 2006).¹⁴ Actors within the network were immediately recruited based on their ability to add resources to the network. The emergence from one stage to another within the network development is a gradual process which makes the exact date of change impossible to note. However, what can be noted are events or triggers attributable to these changes and these are identified on the network diagrams and discussed within this section.

The Dunedin-based bid was generally credited as being the best bid to run elite sport provision because it was the most cohesive and had the best vision. There was a competing bid from Christchurch which was compelling because most of the athletes and coaches are based there, but the actors involved in the bid were not cohesive and so the bid failed.

¹⁴ See Figure 5.4. The network diagrams were produced from UCINET 6 matrices (Borgatti et al., 2002) using PAJEK. The use of UCINET 6 is described in Chapter Four.

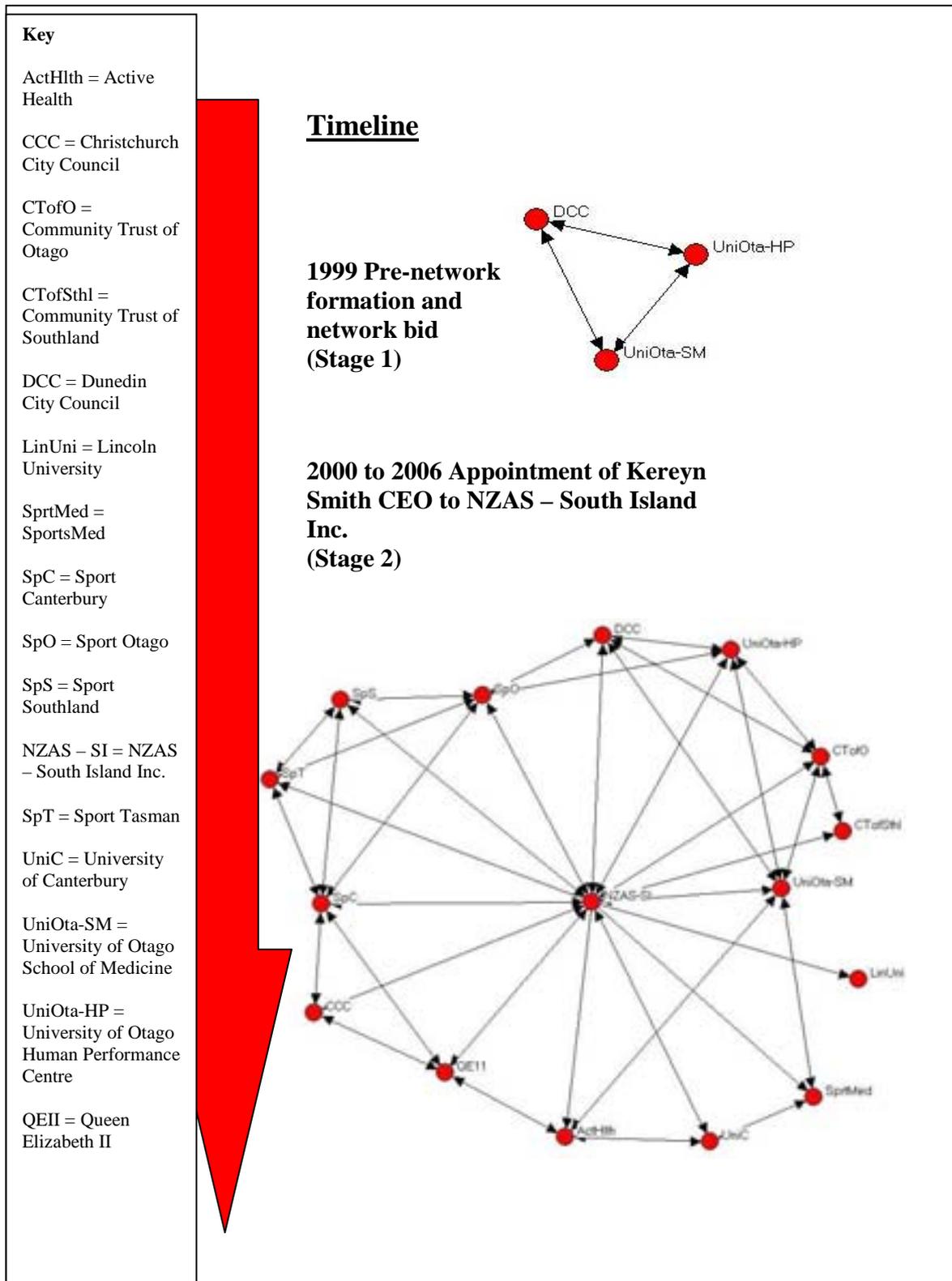
5.4.2 Network context

Research participants located within actors in the NZAS – South Island network have a limited awareness of its context. However, there is an exception to this at the CEO/Board level at the central broker because this research participant was employed by the New Zealand Sports Foundation and Hillary Commission for Sport Fitness and Leisure, which included the review of elite sport systems. All the other research participants perceive the NZAS network context to be a response to a government tender:

Well at the moment it consists, the delivery arm of the Academy of Sport consists of three regional centres ... And then the Hillary Commission announced this, the Sports Foundation announced that they'd done this review and that there were going to be, there was going to be an application for regions to tender to run part of the Academy system in New Zealand. (CEO/Board level)

Furthermore, this comment demonstrates a limited understanding of the underlying rationale for the creation of the NZAS system, which was to address concerns that New Zealand was becoming less competitive in terms of international sporting success.

Figure 5.4: NZAS – South Island network stages of development



5.4.3 Forms of networks

The research participants located in actors within the NZAS – South Island network are aware of the different parts of the NZAS system and of the majority of actors in their network; there is also a high level of awareness of the objectives of other actors. Communication within the network is high and is facilitated by the central broker who is credited with excellent skills in connecting all actors. The strength of relationships between actors and the central broker is high, indicating the ability of the central broker to engage actors in network activities. Even so, there are actors in the network (Sport Otago, Sport Tasman and Lincoln University) that are not engaged as fully as others, and there is also a relationship (between QEII and the University of Canterbury) that does not appear to be working well. All research participants located within the network actors perceive the network to be governed sensitively on an informal basis by the central broker with the NSOs ultimately directing the network. The following information describes these findings in more detail.

There are four parts to the network: National Office in SPARC, and three regional academies each coordinated by a central broker. The following representative quote illustrates understanding of the structure of the NZAS:

If you're talking about the entire network you're talking about predominantly I guess three centres. Three providers, three centres aimed at providing service around the country, throughout the country for the overall academy, obviously under the banner of SPARC initially and that's where the funding comes from. The three services are geographically regionalised I guess, South Island, Central which goes as far as Taupo I think and then probably across to Wanganui, maybe not but it certainly goes through to Napier on the other side ... You've got the Auckland centre, the North Island centre, the North centre, sorry which is the biggest of the group. The South Island is probably the second biggest in number of athletes and the Central is probably the third biggest in number ...

(Individual level)

NZAS – South Island network actors at each of the three organisational levels (CEO/Board, work-unit and individual) know of the majority of other network actors, as shown by the results from cognitive mapping (see Appendix I). Overall, 71% of ties are known. Broken

down by organisational level, the results are 87% of ties are known at the CEO/Board level, 61% known at the work-unit level, and 75% known at the individual level.

At all levels within the network there is a shared understanding that the CEO of NZAS – South Island Inc. is in regular contact with all actors, and that NZAS – South Island Inc. staff connect all the network actors. The CEO has a background in the sport industry, is highly regarded, and deemed to have good networking skills. The following representative quote illustrates the regular contact between the central broker and actors in the network:

We have lots of overlaps, lots of meetings, lots of interaction, so very good. And Kereyn certainly encourages that ... She's been very cooperative and worked with us on that [about a specific programme] ... my impression is that there's lots of liaison between ASI and the providers. (CEO/Board level)

Within the NZAS – South Island network the strength of relationships between actors at each level is significantly higher than average, as shown by the results of the one-sample *t*-test for Question 8, presented in Table 5.13. These findings are consistent with reported results for density. The cross-tabulation routine, also presented in Table 5.13, shows there is no significant association across the three organisational levels (CEO/Board, work-unit individual) with the levels of strength of relationships between actors. The UCINET 6 statistics routine shows a strong level of relationship between the central broker and most other actors. However, Sport Otago, Sport Tasman and Lincoln University are exceptions, which may reflect the weak level of resources these actors bring to the network. There is also a weak relationship between University of Canterbury and QEII, indicating a problem between these two actors.

Table 5.13: Summary of strength of relationship measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
<p>8. How strong is the relationship between your organisation and theirs?</p>	<p>There are significantly higher-than-average levels of relationship strength.</p> <p>Full results are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of relationship strength.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall, relationships with others within the network NZAS – South Island Inc. are generally perceived to be strong, although Sport Canterbury is an exception with its moderate rating. NZAS – South Island Inc. perceives its relationships with the other organisations as generally moderate to strong. However, it does rate its relationships with Sport Otago, Lincoln University and Sport Tasman as only weak, and this may reflect the amount of work and the level of importance in terms of resources that these actors provide for the network business – after all, developing a strong relationship is perhaps not prudent with actors that offer less benefit than others to the network. The University of Canterbury is generally perceived to have moderate levels of relationship strength within the network, with the exception of a weak rating perceived by QEII. This weaker rating may indicate that the relationship between the University of Canterbury and QEII needs to be developed and that currently this relationship is not working well. In contrast, QEII rates its relationships with Lincoln University, Active Health and NZAS – South Island Inc. as strong. This result may be explained by geographical proximity because QEII has both Active Health and a satellite branch of NZAS – SI Inc. located within its premises. Dunedin City Council is perceived by others that are based in Dunedin to have moderate-to-strong relationships, and Dunedin City Council perceives it has strong relationships with those actors based in Dunedin. In contrast, the council has perceptions of weak relationships with those actors based outside of Dunedin. Sport Canterbury perceives it has strong relationships with Christchurch City Council and QEII. Again, this may indicate the geographical proximity of actors as affecting strength of relationship.</p> <p>Full results are presented in Appendix H.</p>

Within the network there is a shared understanding at all levels of the objectives of the NZAS system. There is also a shared understanding at all levels that staff within NZAS – South Island Inc. make a conscious effort to understand the objectives of each actor in order to match and develop business opportunities between actors.¹⁵

The network is viewed as being sensitively coordinated by the central broker, but that ultimately it is the NSOs that hold the power; this view is held by all levels within the network. A good coordination model exists which is based on an informal way of working between actors. All actors have access to the same information enabling identification of business opportunities. The informal way of working between actors and NZAS – South Island Inc. is illustrated by the following quote:

So there are a number of partnerships which, in some cases are, you know, more formal. But in some cases they're quite informal because of the, you know, friendships that they've made with the staff here. So yeah, I'm positive that it works really well, for whatever reason ... it's really helpful that they have a really good understanding of what we're about. (Work-unit level)

The level of power over actors within the network is perceived by all organisational levels (CEO/Board, work-unit and individual) as significantly lower than average, as shown by the results of the one-sample *t*-test for Question 5, presented in Table 5.14. The finding is explained in more detail by the cross-tabulation routine presented in the same table; this shows that there is a significant association between the organisational levels in the network and the perceptions of the level of power: the individual level has a lower perception of power within the network than do the CEO/Board and work-unit levels. The finding may indicate that the individual level is not as engaged in the network as the other two levels.

The level of power over actors within NZAS – South Island network is confirmed by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage, reported in Appendix J. These calculations indicate the central broker as holding

¹⁵ Comments made by research participants about the objectives of actors and the NZAS system were compared with the stated objectives for each actor reported in Appendix D.

the most power at the later stage of the network's development. Power is based on the central broker's ability to bridge structural holes in the network (see also Figure 5.4). Other powerful actors in the NZAS – South Island network are Sport Otago and Sport Canterbury, which provide access to the Sports Trust network, and Christchurch City Council, which is able to control information flow in the Christchurch area.

The UCINET 6 statistics routine presented in Table 5.14 shows power within the network is moderate to strong between most actors. The result may indicate the importance of these actors and the resources they hold for network tasks. However, Sport Otago, Lincoln University and Sport Tasman are perceived as being weaker, which may indicate that the resources they hold are not as important for the network tasks and/or that these actors are not as engaged as other actors in the network. The QEII facility is perceived as having a strong level of power which reflects the importance of that facility in serving as a base in the Christchurch area for the central broker.

Table 5.14: Summary of power measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
5. How much power does this organisation have in the network?	<p>There are significantly lower-than-average levels of power.</p> <p>Full results are presented in Appendix F.</p>	<p>The perceived level of power has a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception of power compared with the other two levels.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall, levels of power within the network are perceived to be moderate to strong between all actors. NZAS – South Island Inc. is perceived to have a moderate-to-strong level of power and it perceives other actors' level of power to be generally moderate. This result may indicate the importance of the resources that these actors hold for the network. Actors perceived with a weak level of power within the network are Sport Otago, Lincoln University and Sport Tasman. This may indicate that these actors are not as actively involved in the network as others, and may be due to the resources that they hold not being as important as those of other actors. QEII is perceived to have a strong level of power by NZAS – South Island Inc., which may reflect the importance of the relationship between the two actors in that QEII provides resources for the Christchurch area.</p> <p>Full results are presented in Appendix H.</p>

5.4.4 Role of central broker

The focal people responsible for the formation of the network were key individuals with social networks in the local sport industry. They were Gordon Sleevit, Tony Schneider and Dave Gerrard, and they were all employed at the time by University of Otago. The formation of the network bid was also facilitated by the ‘smallness’ of Dunedin and the ‘smallness’ of the South Island in general, in that key industry people know each other. Within Dunedin there is also a strong relationship between the University of Otago and Dunedin City Council, based on the economic benefits that the tertiary institution brings to the region. The pre-network formation stage consisted of Dunedin City Council, the University of Otago Human Performance Centre, and the University of Otago School of Medicine (see Figure 5.4). Quotes from research participants note the focal people as including Gordon Sleevit, Tony Schneider and Dave Gerrard, as well as one key actor – Dunedin City Council:

... there was a process whereby say Tony Schneider and Dave Gerrard were known in those particular areas. (CEO/Board level)

... there is a very, very strong recognition and acknowledgement by the Dunedin City Council that the University is one of the best economic drivers in the region ... I guess they saw the benefits as well of having it and of course as a funder were roped into the process. (Work-unit level)

... the better people to formulate a plan of actually attracting the academy here to start with were based in the university ... and I think early on a chap called Gordon Sleevit ... was instrumental in actually organising the process of getting the academy to Dunedin, who was the facilitator between the University, the Council and through SPARC or the Hillary Commission I think it was in those days ... (Individual level)

The motivations for recruiting actors at the early formation stage (see Stage 2 in Figure 5.4) were based on fulfilling the resource and skills requirements for the network. Actors that met the resource and skills requirements were identified by the central broker. This process is illustrated by the following quotes:

So basically it was a case of lining up and finding the service providers ... So that was the main focus, was to make sure we had the providers who could deliver the services and the NSOs were demanding. (CEO/Board level)

... they would have certain skills, rather than be name based. So they would bring marketing skills, management skills, sport technology skills ...
(Work-unit level)

Prior to the formation stage of the network, actors in Dunedin had already cooperated on a joint-venture bid for the National Rugby Academy which, although unsuccessful for Dunedin, did facilitate a close working relationship. Within Dunedin all actors have a good working relationship and this is especially so between Dunedin City Council and the University of Otago. The smallness of the South Island also aids understanding of key individuals and key organisations. The following representative comment illustrates the close relationships that existed between the Dunedin-based actors prior to the network formation, and how the smallness of Dunedin facilitates these relationships:

And where ever there is an opportunity to be able to attract new activity and attract and retain activities here, then that's grasped and it's really up to the City Council to principally I guess to drive it ... I suppose in a city the size of Dunedin which has a population of really say 120,000, it's relationships like this, that infrastructure, that human infrastructure if you like, is relatively and is probably you know 20 or 30 persons I suppose who collectively we talk to quite frequently...

(Work-unit level)

5.4.5 Informal coordination mechanisms

Overall, the NZAS – South Island network is perceived as being effective. Actors have high levels of commitment, trust, cooperation and sharing of knowledge and information, indicating, in general, that relationships between actors are working well. However, Sport Otago, Lincoln University and Sport Tasman are perceived as having lower levels of commitment, indicating that their involvement in the network needs to be reviewed. Tensions also exist between the central broker and both Christchurch City Council and the University of Canterbury – a carry-over from these two actors not being part of the winning bid – and the relationship between QEII and the University of Canterbury is not functioning well; all of these issues need to be addressed. Actors are engaged in network tasks at all levels. At the CEO/Board and work-unit level research participants are motivated by their own strategic interest of gaining business and profile for their organisation, while at the individual level motivations are based on personal development. Communication is

perceived as being at a high level and facilitated by the central broker. Actors cooperate well together on an informal basis. Cooperation is aided by the central broker having office space in QEII and by staff sharing. The NZAS – South Island network has developed significant business outside of the SPARC contract. The following information describes these findings in more detail.

All actors are committed to the work of the NZAS – South Island network. Research participants are passionate about New Zealand athletes succeeding in sport. However, some tension remains between both Christchurch City Council and the University of Canterbury and the central broker, resulting in lower levels of commitment from these two actors. This may in part be due to the Christchurch-based actors not being part of the winning bid, resulting in some resentment towards the Dunedin-based central broker and a continuing desire from these two actors to hold power over the network. However, all actors trust the central broker, and quotes from research participants illustrate the commitment of actors to the NZAS –South Island network:

Very supportive and positive of the academy. (CEO/Board level)

It's part of the appeal of the job, coming to work in Dunedin, was the opportunity to work with a high-performance squad.
(Work-unit level)

So I basically do it for love whereas the ... [about the actor] ... gain from my expertise and my involvement. (Individual level)

Levels of commitment within the network are significantly higher than average, as shown by the results of the one-sample *t*-test for Question 1, presented in Table 5.15. However, the cross-tabulation routine shows a significant association for the three organisational levels, with a lower level of commitment at the individual level compared with the CEO/Board and work-unit levels. The UCINET 6 routine identifies three actors (Sport Otago, Lincoln University and Sport Tasman) with weak levels of commitment. This may indicate either that NZAS – South Island Inc. needs to develop relationships with Sport Otago, Lincoln University and Sport Tasman as they are not performing as well as they should be, or that these actors' presence in the network needs to be reviewed. There is also a difference in perception between other actors and QEII of the University of Canterbury. It may indicate

the relationship between QEII and the University of Canterbury is not working well and needs to be developed.

Table 5.15: Summary of commitment measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	<p>There are significantly higher-than-average levels of commitment.</p> <p>Full results are presented in Appendix F.</p>	<p>Perceptions of the levels of commitment have a significant association with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception of commitment compared with the other two organisational levels.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall NZAS – South Island Inc. is perceived as having a strong level of commitment to the network. NZAS – South Island Inc. perceives Sport Otago, Lincoln University and Sport Tasman to have weak levels of commitment. It may indicate that NZAS – South Island Inc. needs to develop relationships with these three actors as they are not performing as well as they should be, or that these actors' presence in the network needs to be reviewed. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceives the commitment from the University of Canterbury to the network to be weak, whereas the other actors perceive it to be strong. This finding may indicate a relationship that is not working well and needs to be developed.</p> <p>Full results are presented in Appendix H.</p>

Levels of trust within the network are significantly higher than average, as shown by the results of the one-sample *t*-test for Question 4, presented in Table 5.16. The cross-tabulation routine shows there is no significant association between organisational levels and levels of trust. The UCINET 6 routine reveals overall levels of trust within the South Island network are strong, but there are a few exceptions. This may indicate that the relationships NZAS – South Island Inc. has with all other actors are working well. There would appear to be a difference in perception between other actors and Sport Canterbury and QEII of the University of Canterbury. It may indicate the relationships between both Sport Canterbury and QEII and the University of Canterbury are not working well and need to be developed.

Table 5.16: Summary of trust measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
4. How much do you trust this organisation?	<p>There are significantly higher-than-average levels of trust.</p> <p>Full results are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of trust, as all organisational levels show high levels of trust.</p> <p>Full results are presented in Appendix F.</p>	<p>Overall levels of trust within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is perceived to have a strong level of trust with other actors and perceives other actors’ level of trust to be strong. It may indicate relationships that NZAS – South Island Inc. has with all other actors are working well. There would appear to be a difference in perception between other actors and Sport Canterbury and QEII with regards to the University of Canterbury. Both Sport Canterbury and QEII perceive the level of trust of the University of Canterbury to be weak; in contrast, the University’s level of trust is perceived as strong by other actors. This may indicate relationships that are not working well and that need to be developed.</p> <p>Full results are presented in Appendix H.</p>

There is a shared understanding at CEO/Board and work-unit levels of actors being motivated to belong to the network in order to achieve their strategic business purposes and their own personal goals. Motivation arising from strategic business interest is illustrated by the following quotes:

So when you ask me what I saw as an advantage of working with them, it’s nothing to do with them really it’s what the benefit is for Canterbury ... But I work with anyone who’s got an interest in the area we have, which is in getting people more physically active and playing sport more. Wherever I can see that being assisted I’ll work real close with them. (CEO/Board level)

I get as much out of trying to create a research opportunity for another member of staff who otherwise might not have been able to access that coach, or that group of athletes. (Work-unit level)

However, at the individual level research participants are motivated by professional development and self-interest:

Money is important I guess to pay the bills and get through day-to-day, you can’t do it for free but it’s probably not the driving force behind most of my providers, they’re there because they want to be

there ...Yeah, it all goes with the kudos I guess to a certain degree and peer esteem and peer recognition. ... For them that's a highlight. They might put an All Black jersey on their wall that someone signed for them and gave them if they worked with the All Blacks. And to get you to the pinnacle of your profession ... to work with those teams, to work with those athletes is something you strive for anyway. (Individual level)

Communication within the network is perceived to be effective and is attributed to the CEO of the central broker involving all actors in the business of the network and updating them regularly of developments. Informal communication processes also exist in which actors share information with others to identify opportunities and keep apprised of business developments. The CEO/Board level also noted sharing of knowledge and information goes on between other countries' elite sport systems and the other central brokers of NZAS – North Inc. and NZAS – Central Inc.

At all levels of the network there is a shared understanding that six-weekly meetings occur at the CEO/Board level, and that there is an annual forum organised by the central broker for all NZAS – South Island actors to discuss and to be informed of developments in the NZAS system, as well as to share good practice amongst themselves. All levels within the network, actors benefit from the knowledge and information transfer facilitated by this conference. The regular meetings and awareness of knowledge and information sharing is illustrated by the following representative quote:

A combination really [of face-to-face meetings and conversations over the telephone], I mean when necessary for me to talk in detail about something, then it's probably a face-to-face meeting. Commonly, you know, nowadays like many people we update by e-mail as well, so we'll pick up the phone and have a chat. Or again, as I said, meeting at the forum [the annual conference organised by the central broker] ... The forum thing happens at the end of May, or June this year, in the middle of June. So that's based up in Christchurch every year. So that's been a very positive and good interaction, you know, between lots of different organisations. We occasionally have kind of coach-driven, or issue-driven meetings, which are specifically related to a certain issue in a sport, or a number of sports where necessary...Yeah it's good to have communication in these meetings, but it's also a subtle balance between overloading us with demands and, you know, it's expensive to travel around all these places, yeah. (Work unit level)

At work-unit level there is an understanding that sharing goes on between actors and the central broker to best meet individual actors' needs while still achieving the objectives of the network. At the individual level there is awareness of sharing best practice amongst actors.

There is a shared understanding at all levels of the network of the existence of an open culture facilitated by the central broker. There are close working relationships between actors and the central broker, which are in part facilitated by the smallness of the South Island and the smallness of the sport community in general. Research participants report the benefits derived from being in the network has exceeded their expectations. The smallness of the South Island also means actors are aware of who has what type of resource and how to access it. Equipment and premises are regularly shared between actors and even some key staff are contracted to work for the central broker from actors within the network. The closeness of the relationships between actors facilitates reciprocal working arrangements, as illustrated by the following quote:

But yeah the southern operation, particularly in terms of its leadership, its leadership is, the personnel have come through the school of phys-ed, which is extremely beneficial ... I'm talking about the CEO, Kereyn Smith, the high-performance manager Iain Ansell, both of which have come through the school of phys-ed. A lot of the staff there have either prior linkages with the school, or you know, or they know the staff very well. So there's much, I guess closer reciprocal relationships that you would expect with the personnel that are there. And therefore it's been much less of an effort, not just geographically, but an effort in terms of getting them to recognise opportunities in high performance sport, which some of our staff would be keen to pursue ... But we have again a good reciprocal agreement, so if we need to use their facilities, or their equipment, you know, they tend to be very open about that. Likewise if they need to come over and use, you know, some of our stuff. So yeah it's been a much more, I guess, positive and fruitful relationship than we've had going with the southern academy... Yeah and they've got reasonably good access to facilities. They're very open to opportunities to work with the university and that's been, you know really, really helpful in terms of helping me do my job.

(Work-unit level)

Levels of information sharing and cooperation between actors within the network are significantly higher than average, as shown by the results of the one-sample *t*-test for Questions 2 and 3, presented in Table 5.17. The cross-tabulation routine shows there is no

significant association between the three organisational levels in terms of perceived levels of information sharing and cooperation. The UCINET 6 routine reveals that most actors perceive levels of both cooperation and information sharing to be moderate to strong. However, there are exceptions: NZAS – South Island Inc. perceives Sport Otago, Lincoln University and Sport Tasman to have only weak levels of information sharing and cooperation. This may indicate that NZAS – South Island Inc. needs to develop relationships with these three actors or that these relationships are not working or not needed. The relationship between QEII and the University of Canterbury also does not appear to be working well.

Table 5.17: Summary of information sharing and cooperation measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of information sharing.	Overall, sharing of information is perceived to be at a moderate-to-strong level within the network. NZAS – South Island Inc. is perceived to have a strong level of information sharing, but Sport Otago, Lincoln University and Sport Tasman are perceived to have weak levels of information sharing by NZAS – South Island Inc. This finding may indicate that NZAS – South Island Inc. needs to develop relationships with Sport Otago, Lincoln University and Sport Tasman because these actors are not performing as well as they should be or that the presence of these actors in the network needs to be reviewed. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceives the University to be weak, whereas the other actors perceive it to be strong in terms of information sharing. This finding may indicate a relationship that is not working well and needs to be developed. Generally actors based in the two main centres – Dunedin or Christchurch – perceive others in the same location as stronger and those outside of their location as weaker in terms of information sharing.

<p>3. How well do they cooperate with your organisation?</p>	<p>There are significantly higher-than-average levels of cooperation.</p> <p>Full results for both these questions are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of cooperation</p> <p>Full results for both these questions are presented in Appendix F.</p>	<p>Overall levels of cooperation within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is perceived to have a strong level of cooperation with other actors and perceives other actors’ level of cooperation to be moderate to strong, with one exception – Sport Tasman. This finding may indicate relationships that NZAS – South Island Inc. has with all other actors, except Sport Tasman, are working well. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceives the University to be weak, whereas the other actors perceive it to be strong in terms of cooperation. This finding may indicate a relationship that is not working well and needs to be developed. Generally actors based in the two main centres – Dunedin or Christchurch – perceive others in the same location as stronger and those outside of their location as weaker in terms of levels of cooperation.</p> <p>Full results for both these questions are presented in Appendix H.</p>
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At all levels within the network there is a shared understanding of taking core competencies of the network into different markets and from this developing the network's business. This can be seen by a number of projects between different actors all facilitated by the central broker including the X Factor project, the mobile sports-science laboratory unit, the winter programme, pre-carded programmes and the Motorsport Academy. The following representative quote illustrates the ability of NZAS – South Island Inc. to facilitate business developments for the network:

... but bringing the right people together with the right knowledge base, and the right expertise, the right experiences ... building capability. Because that's the other thing the Academy can do well, is assist in building capabilities. (CEO/Board level)

Business development within the network is significantly higher than average, as shown by the results of the one-sample *t*-test for Question 6, presented in Table 5.18. The cross-tabulation routine shows that the CEO/Board, work-unit and individual levels all feel the same about the importance of their resources to the network. The UCINET 6 routine reveals that Sport Tasman, Lincoln University and Sport Otago are rated as weak actors. This would indicate these actors are not so important for developing network business, possibly because of the smaller resources that they hold or because they have not been engaged in network activities.

The importance of the belonging to the network for an actor's business is significantly higher than average, as shown by the results of the one-sample *t*-test for Question 9, presented in Table 5.18. The cross-tabulation routine shows that the CEO/Board, work-unit and individual levels all feel the same about the importance of belonging to the network for their business. The UCINET 6 routine supports the finding and also reveals a strong relationship between the central broker and both QEII and the University of Otago, indicating the importance of these actors for the network's business development.

However, findings for Question 7 from the one-sample *t*-test reveal that adaptation of processes is significantly lower than average. The cross-tabulation routine shows that CEO/Board, work-unit and individual levels all perceive that there has been limited

adaptation of processes. Both these results indicate that the central broker could work more closely with actors. The UCINET 6 routine reveals a close working relationship between the central broker and QEII, but not between other actors. This finding is also supported by results from Question 10 which indicate that actors are more important for the central broker than the central broker is for them. Actors are clustered around two main centres – Dunedin and Christchurch – in which there are core actors in both who add value to the network. Dunedin’s core actors are the University of Otago and Dunedin City Council; Christchurch’s core actors are QEII, Christchurch City Council and Sport Medlab.

Table 5.18: Summary of importance of resource, adapted processes, belonging measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average levels of importance of resources.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and how importantly resources are regarded.	Overall, the resources of NZAS – South Island Inc. are perceived to be very important to the network. Perceptions by NZAS – South Island Inc. of others’ resources are moderate to strong. Most actors in the network are perceived by others to have moderate-to-strong levels of resources. However, the resources of Sport Tasman and Lincoln University were rated weakly by the other actors, as was Sport Otago by NZAS – South Island Inc. These findings may indicate that the importance of the resources is reflected by the type and nature of these actors, because actors with strong levels of resources are sports-science, medical and facility/funding providers, whereas actors with moderate levels of resources are the Regional Sports Trusts.
7. How much have you adapted your processes to theirs?	There are significantly lower-than-average levels of adapted processes.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of adaptation of processes.	Overall, NZAS – South Island Inc. is perceived to only have a weak-to-moderate level of adaptation of processes to others, whereas NZAS – South Island Inc. perceives other actors’ adaptation of processes to be varied. Weakly perceived are Sport Otago, Lincoln University, Sport Canterbury and Sport Tasman; moderately perceived are Dunedin City Council, the University of Otago, Active Health, Sports Medlab, the University of Canterbury, Christchurch City Council and Sport Southland; and strongly perceived is QEII. These findings may indicate the closeness of the relationship that has developed between NZAS – South Island Inc. and QEII which may have resulted in a more open and joint-work approach compared with the other actors in the network. Interestingly, QEII perceives a lower rating for NZAS – South Island Inc., indicating that NZAS – South Island Inc. has made more adaptation to QEII than the other way around. On the other hand, QEII has adapted its processes at a strong level to Active Health, possibly because Active Health is located within the premises of QEII.

<p>9. How much does belonging to the network help you with your business?</p>	<p>There are significantly higher-than-average levels of perception that belonging to the network helps with business.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and how important belonging to the network is perceived to be.</p>	<p>NZAS – South Island Inc., the University of Otago and QEII all believed strongly that belonging to the network helps with their business. This finding may reflect the strength of relationship that exists between NZAS – South Island Inc. and these two actors. For Dunedin City Council, the response level was weak. The University of Canterbury and Sport Canterbury did not respond to this question.</p>
<p>10. How much does _____ belonging to the network help you with your business?</p>	<p>An organisation belonging to the network helping with business is not significantly different than average.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is a significant association between the organisation levels and levels of how important different organisations are to helping with business: the importance of other actors belonging is rated more highly at the CEO/Board level than by the work-unit and individual levels.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, NZAS – South Island Inc. is generally perceived to be moderately-to-strongly helpful to other actors' businesses. NZAS – South Island Inc., itself, perceives the level of help with their business from different network actors as variable: it perceives the level of help from Sport Tasman, Sport Otago, and Lincoln University to be only weak and from Active Health to be moderate, but it perceives that its associations with Dunedin City Council, the University of Otago, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Southland and QEII all to be strongly helpful to its business. Strongly rated actors may be indicative that these are core partners that add value to the business of the network for NZAS – South Island Inc. The most important actors for NZAS – South Island Inc. are Dunedin City Council, the University of Otago, Sport Medlab, Christchurch City Council and QEII. This reflects a clustering of actors around the two population centres where most of the athletes are located, i.e. Dunedin and Christchurch. The findings may also indicate that actors in the network are more important for NZAS – South Island Inc. than NZAS – South Island Inc. is for them, with the exception of Dunedin City Council.</p> <p>Full results for all these questions are presented in Appendix H.</p>

5.4.6 Other

All research participants located within actors in NZAS – South Island network believe the network is working well and that the network is focused on improving its ability to meet the needs of NSOs. The central broker is credited with leading the vision for the network and successfully meeting the different objectives of actors in the network to develop business initiatives. An open culture exists which facilitates the sharing of best practice amongst actors. The social capital held by the central broker is noted by all research participants and is credited as contributing to the network. The following information describes these findings in more detail.

At all levels within the network there is a shared understanding of helping NSOs to develop and use the NZAS system better. Resistance by NSOs to the NZAS system is perceived as deriving from NSOs wanting to control funding and to do it their own way. The resistance by NSOs has recently started to diminish, as shown by the following research participant's quote: "the NSOs are just starting to understand the potential of it".

There are concerns expressed over the administration costs of running three networks and a national office and with the duplication of roles that occurs throughout the NZAS system, as illustrated by the following quote:

In the Academy of Sport, whether we take South, Central or North, they'll have an ace adviser, some sort of programme manager, some sort of services manager and so on. Then in New Zealand Hockey, as an example, they will have a high performance manager, a sports sciences coordinator, a medical adviser and so on ... And so I think probably what we've done with our New Zealand sporting programmes at this point in time, is actually put in another layer of people in terms of delivering services to sport. (Individual level)

Within the network at all levels there is a shared understanding of tensions existing between different actors and their objectives and in the need to carefully balance this with financial remuneration. However, great care has been taken by the central broker to ensure that this balance is achieved. There are also perceptions that two Canterbury-based actors were initially resistant to the successful Dunedin-based bid and that this has caused some problems for the central broker. The University of Canterbury, which played a crucial role

in the unsuccessful bid, wanted to take more of a lead role in the network, and Christchurch City Council initially viewed the central broker with suspicion. The following quotes illustrate concerns of research participants that tension in the relationship existed between NZAS – South Island Inc. and both the University of Canterbury and Christchurch City Council:

... And I think there was, I think, a bit of tension for a while between ASI and [anon], but I think there's a lot better communication in fact between them now. (CEO/Board level)

Initially when the QEII concept plan was tenuous, there were misconceptions that the Academy wanted to take over the place and this got locals 'hackles up'. However, the truth was told and this perception diminished. (Work-unit level)

At all levels within the network there is a shared understanding of the central broker leading the vision for the network. Relationships with the central broker are perceived to be working incredibly well and living up to expectations. Through the central broker, actors are able to understand the objectives of others in the network and match opportunities despite actors being diverse with differing objectives. The following quotes illustrate NZAS – South Island Inc. as working well in developing the network and in exceeding expectations of network actors:

... an excellent CEO has been appointed, Kereyn Smith, and she's done an outstanding job in my view. And making the ASI, Academy of Sport, feeling like it serves the whole of the South Island ... Yes it is [about NZAS – South Island network living up to expectations] ... [The central broker is] communicating with coaches, with athletes, with providers. They're providing the glue. In many ways I think the Academy is the glue ... (CEO/Board level)

Oh it's exceeded them, you know, by quite a long way really, to be fair... (Work-unit level)

... I think it's fantastic ... [about the central broker] (Individual level)

The network's success is further demonstrated by NSOs who perceive NZAS – South Island Inc. as adding value to the development of athletes. The following NSO quote illustrates the esteem in which NZAS – South Island Inc. staff are held: "There are impressive people who work there."

At all levels there is a shared understanding that an open culture exists with the sharing of best practice:

... in sport it is fundamentally important that people who work in different areas of sport work together and not, don't compete with each other. We're a small country, a sporting sector, you break it down as even smaller and it is absolutely non-productive to not be sharing good practice. It's wasteful to be competing for the talented athlete pool.
(CEO/Board level)

Either through the Academy of Sport themselves, you know just kind of letting me know, or they hold their yearly providers' forum, which brings a lot of these people together, which is good to go to. And I've really enjoyed the interaction with the other staff members doing similar sorts of things to what I'm doing, or just through personal contacts, I guess, you know, people at the universities who have, you know, contacted me and said I'm working with the Academy of Sport South Island doing this, can you help out, that type of arrangement. So I don't think there's any kind of cloak and dagger, or you're working with them, oh yeah, that's not on, or anything like that. It's more a question of we recognise down here that there's not that many people. And the facilities are quite spread over the country, so we have to try and make the best of what we've got wherever that is.
(Work-unit level)

... certainly sharing ideas. We're going to have breakfast tomorrow morning ... We meet once a month, have our say, listen to each other, share what's happening this month, what the latest thing is.
(Individual level)

At all levels within the network there is a shared understanding that key staff of the central broker are involved with elite sport and are good at networking. Also key staff within the central broker graduated from University of Otago; this common background has facilitated informal social networks. Comments concerning the perceived high level of social capital and networking skills held by the central broker include:

... it's worked well because we've got someone like Kereyn Smith ... Kereyn came from the industry, a degree in physical education, advisor to the sports minister, deputy to Peter Dale and the Hillary Commission in those formative years, Kereyn knows the industry really, really well. Kereyn, down here, has made things move and what she's done is she's sought extra contracted services that the Southern Academy does ... and Iain Ansell, the general manager ... and again, Iain is such a personable guy, himself a New Zealand water polo captain and you know, and also a masters degree from the University of Otago in physical education ... Kereyn is from Otago as well, so they've got both the academic and practical background that have made such a difference so between the three of them; Kereyn, Iain and Raeleen and then a similar group in Christchurch working harmoniously, lots of regular interchange and visits and

exchanges of personnel ... and she's [Kereyn Smith] also very highly regarded internationally in her netball. She was chair of Netball New Zealand for I think her term has just expired but she was as a consequence of that appointed to the International Netball Federation so she's one of our New Zealand representatives on an international federation of some significant standing. (Work-unit level)

5.4.7 Summary

The embedded case demonstrates an intentionally formed network which is effective. Effectiveness is due to the central broker thoroughly understanding the objectives and drivers for all actors in the network and ensuring actors are engaged in network activities. The majority of research participants understand the objectives of all other actors in the network. The central broker accomplishes network tasks by facilitating business development through identifying opportunities and presenting these to actors in a way which meets their objectives. The central broker is also recognised as employing staff with excellent communication and networking skills, and who have a thorough understanding of the sport industry through significant experience within it at the elite level.

The case also demonstrates how the formation process of the network was aided at the pre-network stage by strong existing relationships and social networks. The network quickly moved to a strategic focus which has influenced the shape of the network. The smallness of the South Island sport industry is noted as facilitating identification of potential actors. This has also been possible by the central broker actively identifying suitable actors that meet resource and skills requirements for the network's tasks. A shared and open communication style exists, in which the central broker occupies the most powerful position in the network by having connections to all actors.

The NZAS – South Island network is moderately dense and currently consists of sixteen actors. There are two distinct clusters of actors comprising of those based in Dunedin and those based in Christchurch. For the central broker, key actors are the University of Otago in Dunedin and QEII in Christchurch. Generally, levels of information sharing, cooperation, trust and commitment between actors are high. However, within the two clusters not all relationships are as beneficial to the network as they might be, and these areas should be addressed. Problems would appear to exist between QEII and the

University of Canterbury. Some actors are not fully engaged in the network, and their membership and involvement may need to be reviewed. These actors are Sport Tasman, Lincoln University and Sport Otago. There is a limited awareness of network context by actors.

5.5 Chapter summary

This chapter has presented the context for the New Zealand government's network approach to high performance and elite sport and has described each of the three NZAS intentionally formed networks that comprise the single embedded case. In describing the three networks, a number of useful insights and key details were uncovered. These were reported in the summary of each network and will be used to inform the cross-case comparison in Chapter Six.

However, the key finding from the study of these three embedded, intentionally formed networks is that the NZAS – North network is efficient, NZAS – South Island network is efficient and effective, but NZAS – Central network is neither efficient nor effective. The finding is important for the cross-case analysis presented in Chapter Six because each intentionally formed network was created under the same conditions, in the same business sector, with the same brief, and at the same time – yet each has evolved differently. This key difference allows for three comparable intentionally formed networks to be investigated and understood, in particular by contrasting and comparing the NZAS – Central network, which represents a polarised case, with the other two networks. The use of polarised cases generally leads to a more powerful explanation of occurrences and helps to develop and extend theory, as noted by a number of researchers (Dubois & Gadde, 2002; Eisenhardt, 1989a; Graziano & Raulin, 1997; Halinen & Törnroos, 2005; Yin, 1986, 1994).

Effectiveness was defined and operationalised from the perspective of the research participants, at multiple levels and from multiple actor perspectives. This approach was taken as it was not possible to measure effectiveness against one objective, due to multiple evaluations of it by the differing stakeholders in the networks. Effectiveness was treated as a relative rather than an absolute measure, dependent on the viewpoint of research

participants. Participant viewpoint was explored in Chapter Four, section 4.2.1 which dealt with the epistemological approach taken in the study.

As business development and growth is an outcome of networks being effective, the present study provides an important contribution and answers a call by Mouzas (2006) and Tuominen et al. (2000) for more research into the area of network effectiveness.

A number of research-related implications were noted while the within-case descriptions were being written up and these are discussed next.

5.5.1 Multiple levels of analysis

The use of multiple levels of analysis within each network actor (i.e. studying at the three different organisational levels of CEO/Board, work-unit and individual) reveals differences in perception in the construct areas of research interest. It demonstrates the effect of cross-level pressures within networks, highlighting that such cross-level pressures need to be taken into account rather than investigating networks at just one level only.

5.5.2 Multiple research methods

The use of multiple research methods has provided a richer understanding of each of the intentionally formed networks. The multiple research methods used within this embedded single-case strategy consisted of in-depth interview, use of secondary sources of data, a cognitive mapping technique, and SPSS and UCINET 6 software packages to map the network structure over time, measure relational aspects and to understand what the research participants think are important. The use of multiple research methods provides evidence for the qualitative findings and will substantiate the overall research findings of the study.

5.5.3 Richness of case information

The within-case summaries provide a description of each of the three embedded, intentionally formed networks. The combination of multiple levels of analysis and multiple research methods has added complexity to the research process within the study. However, the complexity is necessary in order to extend network research and measure the strength of network dynamics, and reflects the complexity of the phenomenon studied.

Chapter Six

Cross-case analysis

6.0 Introduction

This chapter discusses the key themes emerging from the cross-case analysis. The analysis encompassed an inductive use of the within-case descriptive findings for each embedded case. Insights and themes were built by linking the cross-case analysis evidence back to the literature. The procedures outlined in Chapter Four were followed. The purpose of the study was to understand how the multiple levels within networks influence the organising dynamics in an intentionally formed network through the measurement of tie strength, and to answer the research objectives. Throughout the process, conceptual mapping that linked ideas and concepts with relationships between them was used to check coded data for causal links and emergent theory. This follows the recommendations of Denzin (1994), Miles and Huberman (1994), and Richards and Richards (1994). The process also provided understanding of why the relationships between themes occurred, in order to build theoretical consistency and inform the contribution to network literature. The approach meets the guidelines set out by Eisenhardt (1989a).

The resulting themes developed from the cross-case analysis are from the use of polarised embedded cases. The use of polarised cases means contrasts and comparisons can be made between each, thus generating more powerful explanations of occurrences. The process is recommended by Dubois and Gadde (2002), Eisenhardt (1989a), and Yin (1994). Evidence of the NZAS – Central network representing a polarised case (i.e. it was considered to be ineffective when compared with the other two networks) was presented as the main finding reported in the summary of Chapter Five. The finding is substantiated by SPARC not renewing the contract for the Central network in 2007. The finding is important because it allows for three comparable intentionally formed networks to be investigated and understood in which the NZAS – Central network represents an ineffective intentionally formed network in contrast to the NZAS – South Island network which represents an effective network and the NZAS – North network which is efficient. It is possible to make the comparison as each of the intentionally formed networks was created under the same conditions, in the same business sector, with the same brief, and at the same time.

Further evidence to support the NZAS – Central network not being effective is demonstrated by the results from a one-way ANOVA with multiple comparisons of variance conducted with SPSS for Windows software. The analysis was conducted to compare the average rating for each of the relational aspects in the questionnaire shown in *Table B.5: Questionnaire for NZAS members* (see Appendix B) across the three networks. The details of the analysis are discussed within Chapter Four and full results are presented in Appendix F. Notable findings are that actor commitment, how well actors share information, how well actors cooperate, and levels of trust are reported as lower for the NZAS – Central network compared with both the NZAS – North and NZAS – South Island networks, although significantly different levels are reported only between the NZAS – North and NZAS – Central networks. These are interesting findings and would benefit from further statistical analysis facilitated by more data gathering. The next section presents the key themes.

6.1 Key themes

There are four key themes within the study; these were identified and refined from the analytical process used in the cross-case comparison. The four key themes are presented below and then discussed in detail.

- *Theme One:* Network effectiveness is dependent on the central broker role adding value to network actors and clients.
- *Theme Two:* Cross-level pressures influence network effectiveness.
- *Theme Three:* Understanding network context is not critical for network effectiveness.
- *Theme Four:* Relationships established at the pre-network formation stage improve network effectiveness.

6.2 Theme One: Network effectiveness is dependent on the central broker role adding value to network actors

The results from the study show that the durability of the intentionally formed network is dependent on the central broker being able to add value and so contribute towards network effectiveness. The central broker adds value to actors and clients through the coordination mechanism, communication, bridging of structural holes, setting strategic direction, coordination of resources for network business development, and by holding social capital. These factors and their impact on intentionally formed network effectiveness are explained next.

6.2.1 Adding value to network actors through the coordination mechanism

The role of the central broker in adding value by the coordination mechanism is achieved at the formation stage by ensuring a formal mechanism is enforced whereby the network and no single actor is disadvantaged. In the later stages it is achieved by monitoring and policing network activities to protect network and actor interests. Once network relationships develop and become established the coordination mechanism moves from a formal to an informal process, which may be loosely guided by memorandums of understanding, although these are unlikely to be referred to or used. Employing an informal coordination mechanism contributes to effectiveness in intentionally formed networks.

Evidence

There are clear differences between the three embedded, intentionally formed networks. The NZAS – North network relies on an informal mechanism policed by the central broker, although initially a formal means of coordination was in place. The NZAS – South Island network has also moved away from a formal to an informal mechanism, based on norms of behaviour, which is inclusive of actors and facilitated by the central broker. The development in coordination mechanisms by the NZAS – North and NZAS – South Island networks contrast with the NZAS – Central network which has been unable to operate a coordination mechanism independent of SPARC and has relied on formal instruments, i.e. contracts. Specific evidence for each of the networks is presented next.

The NZAS – North network actors use a contract and a Memorandum of Understanding to provide direction; this is illustrative of the informality of their coordination mechanism.

Comments regarding the informality of the coordination mechanism included:

we're doing it in an informal way, in which it's a discussion amongst equals ... (CEO/Board level)

... there is that original agreement to keep falling back on and say, 'hey we are working as a cooperative and not as a competitor' ... (Work-unit level)

... there's minutes and all that sort of stuff taken but it's not too hard and heavy, that's for sure. (Individual level)

Within the NZAS – Central network there is a perception that SPARC holds so much power in the network that their network has not been allowed to be owned by the actors within it:

In one way you're at the mercy of SPARC ... (CEO/Board level)

As a consequence, coordination is through a formal mechanism.

The NZAS – South Island network is viewed as sensitively coordinated by the central broker and that ultimately it is the NSOs that hold power. The coordination mechanism model that exists is based on an informal way of working between actors. Comments illustrating the encouragement by NZAS – South Island Inc. to use an informal coordination mechanism based on norms of behaviour and facilitated by the development of social ties included:

So I think Kereyn's ethos is very much to network thoroughly ... [about informal way of working]. (CEO/Board level)

We've used their facility ... we've used them for meetings ... And we've used their staff to assist us in seminars, because of the knowledge that they have ... more ad hoc, when there's an issue that comes up, hey we need someone that knows this, can they come and do a presentation. Can they come and be part of a working party. (Work-unit level)

... the people know each other relatively well and can communicate
on a more personal basis as well. (Individual level)

The effective NSOs have a coordination structure with clear lines of communication, organisational objectives, and the employment of full-time dedicated staff. This has facilitated communication with the NZAS and made it easier for the NZAS to access and understand their organisations. In contrast, the NSO that was ineffective has poor internal communication and reporting processes and has relied on voluntary help to make their organisation function. Described next is the importance of communication and the impact of it for intentionally formed networks.

6.2.2 Adding value to network actors through communication

The central broker needs to facilitate communication between all partners in the network. By doing so, cooperation, information sharing, trust and commitment are cultivated between actors, which contributes to developing effectiveness in intentionally formed networks.

Evidence

The NZAS – North network relies on both informal and formal mechanisms for communication, facilitated by the central broker and involving all actors. Levels of trust and commitment are high. As a consequence, actors cooperate well together – but on NZAS business only because actors are competing in the same market against each other. However, information and knowledge sharing does occur at the individual level.

The NZAS – South Island network actors perceive communication to be effective, based on a combination of informal and formal mechanisms facilitated by the central broker. The smallness of the South Island facilitates communication as actors are aware of each other and have had previous experience of working together. As one research participant said,

Yeah it is and I think it's more than that because it's now working
closely, very closely on a daily basis about where it's all headed. It's
beyond, going further ... [about expectations] (Individual level)

In contrast, the NZAS – Central network has had poor levels of communication between actors in the past, although at the latter stages of the network’s development communication had begun to improve as a result of actions taken by the central broker.

For the NZAS – North network the level of communication between actors is perceived to be high. At all organisational levels (CEO/Board, work-unit and individual) there is a shared understanding that regular meetings occur. There are six-weekly meetings at CEO/Board and work-unit level, and a weekly meeting at the individual level. Actors have representation on the board of NZAS – North Inc. which allows them to influence the network business. There is an annual meeting for all levels of the NZAS – North network actors. A high level of informal communication exists between all levels of the network and between all actors. The informal and formal communication processes are facilitated by NZAS – North Inc. which has office space in the premises of all actors. The NZAS – North Inc. staff are credited as the glue that binds actors together in the network. The regularity of communication between actors at the different levels is demonstrated by the following quotes:

...so there’s another group that meets which the key people in each of the organisation that actually manages the delivery. So Pete Pfitzinger meets with them, Nigel Avery on our side, Henry Duncan from AUT, forget the chap’s name from Auckland University, and until recently it was Gordon Paterson, I don’t know if he is still doing that job, from WINTEC. So that group actually meets probably on a six-weekly basis and talks about how things are going, how things can be improved operationally, so there’s an operational focus, or other services needed and what’s emerging out of their contact with coaches and sports and those sort of things. They very much think about how the operational process can be improved and that’s a useful interaction in that they can get to understand each other much better. (CEO/Board level)

... we meet collaboratively, people know who you are working with and why... and that’s the sort of thing I guess Pete Pfits (Peter Pfitzinger, NZAS – North) sort of coordinates and ensures that we don’t duplicate things. (Work-unit level)

I think that the consortium managers get together on a regular basis facilitated by NZAS ... Peter (Pfitzinger) and Marty (Dowson) and they are really good focused meetings ... (Individual level)

For the NZAS – Central network, at the CEO/Board level communication is believed to have improved with better understanding by actors of the business of the network. The improvement in communication is credited to the current CEO of NZAS – Central Inc. Communication is also facilitated by social networking which exists at the CEO/Board level between key actors as a result of their social network. Until recently, the motivation for liaison between actors at CEO/Board level had focused on issues concerning the exiting of the University of Otago from their network. The following quote illustrates the constraints that contributed to the lack of communication and understanding between actors:

I think that, as I've said, and the administrative issues around the relationship with Otago have been ... and I think the board would all agree, have been quite consuming in the last 12 months, probably.
(CEO/Board level)

There is little communication between actors at work-unit and individual levels, the exception being between Sport Wellington Region and NZAS – Central Inc. in which it was noted communication occurs “all the time” at the work-unit level.

For the NZAS – South Island network, communication is perceived to be effective and is attributed to the CEO of the central broker involving all actors in the business of the network and updating them regularly on developments. Informal communication processes also exist in which actors regularly share information with others to identify opportunities and keep apprised of business developments.

At all levels of the network there is a shared understanding that six-weekly meetings occur at the CEO/Board level and that there is an annual forum organised by the central broker for all the NZAS – South Island network actors to discuss and to be informed of developments in the NZAS system and to share good practice amongst themselves. The regularity and effectiveness of communication between actors is demonstrated by the following quotes:

She's got good staff and she imbues in them a real feeling of team work and we could well host our academy meetings in Dunedin, it would be a hell of a lot easier, but we all go to Christchurch and we host them there. So this is the meeting that I'm referring to that's happening very soon [the annual conference organised by the central broker].
(CEO/Board level)

... we need to find out something so I can pick up the phone and talk to Kereyn.
(Work-unit level)

Communication is usually predominantly by telephone or by email or some other telecommunication method as opposed to a face-to-face contact.
(Individual level)

For the NSOs, there is a distinct contrast between those that are effective and those that are not. The effective NSOs report having regular communication on both an informal and formal basis with key staff in NZAS – North Inc. and NZAS – South Island Inc. The communication facilitates an informal and flexible way of working with the NZAS system based on the NSOs' needs. NZAS staff are viewed as easy to deal with and knowledgeable. It has, however, taken some time for NZAS to develop this understanding and recognise the way in which these NSOs operate. In contrast, the NSO which is ineffective reports communication between themselves and NZAS has started to improve recently which has increased trust and understanding of the NZAS system for them. The ineffective NSO is unsure who to contact concerning NZAS services, and feels isolated in the system with a limited understanding of it. The importance of bridging structural holes is discussed next.

6.2.3 Adding value to network actors by bridging structural holes

The central broker adds value to actors by bridging structural holes in order to connect actors that may not know each other, and consequently appraise actors of opportunities that exist within the network for business development. The bridging of structural holes enables the central broker to be the most influential and powerful actor in the network and, as a consequence, maintain their network position.

Evidence

The NZAS – North network is a dense network in which all actors are aware of all other actors, and the strength of connections between actors is high. In such a network, the ability

of the central broker to bridge structural holes is limited. The central broker of the NZAS – North network struggles to add value because of this and is challenged by AUT which has an equal number of connections within the network and so a similar level of power. As a consequence of this high network density, the central broker was excluded from the network development until its later stages.

Within the NZAS – South Island network, all structural holes are effectively bridged by the central broker and there is clear evidence that they have the most power within the network. In contrast, the NZAS – Central network has a number of structural holes which other actors successfully bridge – so much so that there is little difference between the central broker and the Regional Sports Trusts in terms of the power that they may exert in the network. The outcome is the central broker's levels of power within the network are perceived to be low. Density is also much lower for the NZAS – Central network compared with the other two networks. Presented next is more detailed information relating to each of the networks.

Within the NZAS – North network all actors know of all other actors and are aware of who the key individuals are within each actor at the three different organisational levels. This awareness can be seen in the results from the cognitive mapping, presented in Appendix I, which show 100% of ties are known at each level between all actors. Actors think of the NZAS – North network as comprising AUT, University of Auckland UniSports Centre, MISH and WINTEC. There is a resistance to acknowledging the central broker as part of the North network, as apparent in the reporting of the network development by research respondents: the network pictures depicted in Figure 4.2 do not include the central broker until 2002 even though the central broker was formed in June 2000.

The strength of relationships between actors at all three organisational levels (CEO/Board, work-unit and individual) is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 8, presented in Table 6.1. The cross-tabulation routine shows there is no significant association between the levels of strength of relationships and the

three organisational levels within the network. Strength of relationships between actors is also confirmed by UCINET 6 statistics routine as being moderate to high.

The dominant and powerful actors in the NZAS – North network are the central broker and AUT. Power is based on these actors’ ability to bridge structural holes and connect parts of the network together. The holding of power within the network is confirmed by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage, presented in Appendix J. The findings from these calculations indicate the central broker and AUT as holding the most power at the later stages of the network’s development.

Table 6.1: Summary of strength of relationship and power measures for NZAS – North network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
8. How strong is the relationship between your organisation and theirs?	There are significantly higher-than-average levels of strength of relationship.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of relationship strength.	Overall, for strength of relationship to others the results are moderate-to-strong for the network.
5. How much power does this organisation have in the network?	There are significantly higher-than-average levels of power. Full results for both questions are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of power. Full results for both questions are presented in Appendix F.	Overall, the balance of power is reasonably distributed across the network and is at a moderate-to-strong level. Given that, the data may indicate NZAS – North Inc. is holding the most power and that AUT also holds a strong level of power. Full results for both questions are presented in Appendix H.

The NZAS – Central network is not a dense network: each of the actors at each of the three organisational levels do not know of all the other network actors. This low awareness can be seen in the results from the cognitive mapping, presented in Appendix I, which show that, overall, only 48% of all possible ties are known. Broken down by organisational level, the results read: at the CEO/Board level, 56% of all possible ties are known; at the work-unit level, 25% are known; and at the individual level, 59% are known. Actors are only

aware of core actors within the network, these being Sport Wellington Region, Wellington City Council, NZAS – Central Inc. and the Wanganui consortium.

Research participants reported the strength of relationships between their organisations to be significantly higher than average, as shown by the findings for Question 8, presented in Table 6.2. However, the high strength of relationships is between core actors only. The cross-tabulation routine shows a significant association between the levels of relationship strength and the three organisational levels: there are significantly higher levels of relationship strength at the CEO/Board and work-unit levels compared with the individual level. The finding may indicate that the individual level has not been engaged in the network's activities. The strong level for relationship strength between others is confirmed by UCINET 6 statistics routine between three of the four core actors of Sport Wellington Region, Wellington City Council and the central broker.

The holding of power within the Central network is reported by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage, presented in Appendix J. These calculations indicate that the Regional Sports Trusts and the central broker held the most power at all stages of the network's development. (See also Figure 4.3 which illustrates the low levels of connection between the central broker and the other actors, and the high levels of connection that the Regional Sports Trusts have in the network). The holding of power is based on these actors' ability to bridge structural holes and connect parts of the network together. It is confirmed by the findings for Question 5, presented in Table 6.2, that all actors perceive all others as having low levels of power and that the Regional Sports Trusts hold higher levels of power than the central broker. This would indicate weak levels of power and an imbalance of power in the network, with the Regional Sports Trusts being more important for the network than the central broker perceives. Results from the one-sample *t*-test reported for the same question show power by actors in the network is perceived to be significantly lower than average. This may be due to research participants feeling there is no one actor that holds power and that the network lacks focus and strategic direction. The cross-tabulation routine also shows a significant association between the organisational levels and perceptions of levels of power: the

individual level reports a lower level of power compared with the CEO/Board and work-unit levels, indicating there is concern at the individual level that the network is not being directed by the central broker.

Table 6.2: Summary of strength of relationship and power measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
8. How strong is the relationship between your organisation and theirs?	There are significantly higher-than-average levels of strength of relationship.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of relationship strength: at the individual level there is a lower perception of relationship strength compared with the CEO/Board and work-unit levels.	Overall, most actors perceive they have a strong relationship with the others. The findings may indicate that Sport Wellington Region, NZAS – Central Inc. and Wellington City Council work particularly closely with each other and have a good relationship.
5. How much power does this organisation have in the network?	Power is not significantly different than the midpoint. Full results for both questions are presented in Appendix F.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of power: at the individual level there is a lower perception of power compared with the CEO/Board and work-unit levels. Full results for both questions are presented in Appendix F.	Overall, levels of power within the network range from weak to low-strong. The focal actor has a similar level of power to the other actors, and in one instance even has a slightly lower rating. This indicates an imbalance in power within the network as the Regional Sports Trusts hold higher levels of power. Full results for both questions are presented in Appendix H.

The NZAS – South Island research participants know of the majority of other members in their network. This high level of density can be seen in the results from the cognitive mapping, presented in Appendix I, which show that, overall, 71% of possible ties are known. Broken down by organisational level, the results read: at the CEO/Board level, 87% of all possible ties are known; at the work-unit level, 61% are known; and at the individual level, 75% are known.

Within the NZAS – South Island network the strength of relationships between actors at each level is significantly higher than average, as seen by the findings of the one-sample *t*-

test for Question 8, presented in Table 6.3. These findings are consistent with reported results for density. The cross-tabulation routine also reported in this table shows there is no significant association between organisational levels (CEO/Board, work-unit and individual) and the levels of relationship strength. The UCINET 6 statistics routine reveals a strong relationship between the central broker and all other actors.

The level of power over actors within the network is perceived by all organisational levels as not being significantly different from average. The result may be due to research participants in the network having a feeling of joint ownership in the network activities as well as a sense that the network is managed and has direction. These results can be seen in the findings for the one-sample *t*-test for Question 5, presented in Table 6.3, and is consistent with reported results for density. However, the cross-tabulation routine for Question 5 reveals there is a significant association between the organisational levels and levels of power: the individual level has a lower perception of power within the network than do the CEO/Board and work-unit levels. The finding may indicate the individual level is not as engaged in the network as the other two levels. The UCINET 6 statistics routine for Question 5 reports the level of power within the network is perceived to be moderate to strong between all actors. This finding may indicate the importance of all actors and the resources they hold for network tasks. Power over actors within the NZAS – South Island network is confirmed by UCINET 6 statistics routines for ego network density, ego structural holes and ego network brokerage, presented in Appendix J. The findings indicate that the central broker held the most power at the later stage of the network's development; this is based on the central broker's ability to bridge structural holes in the network. (See also Figure 4.4 which illustrates the high level of connection between the central broker and other actors).

Table 6.3: Summary of strength of relationship and power measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
8. How strong is the relationship between your organisation and theirs?	There are significantly higher-than-average levels of relationship strength.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of relationship strength.	NZAS – South Island Inc. is generally perceived to have a strong relationship with the other actors in the network.
5. How much power does this organisation have in the network?	There are significantly lower-than-average levels of power. Full results for both questions are presented in Appendix F.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and level (low, medium or high) of power: at the individual level there is a lower perception compared with the CEO/Board and work-unit levels. Full results for both questions are presented in Appendix F.	Overall, levels of power within the network are perceived to be moderate to strong between all actors. NZAS – South Island Inc. is perceived to have a moderate-to-strong level of power. NZAS – South Island Inc. perceives other actors' level of power to be generally moderate. It may indicate the importance of the resources that these actors hold for the network. Full results for both questions are presented in Appendix H.

6.2.4 Adding value to network actors by setting strategic direction

The central broker is able to determine strategic direction for the network by the identifying the necessary resources for network tasks at the formation and early initiation stages. A dynamic process that maintains the strategic direction also contributes to effectiveness of intentionally formed networks. The role of the central broker is to ensure that the vision and strategic direction is inclusive of all actors, and that this drives the development of the network.

Evidence

The NZAS – North network actors were motivated to join the network by strategic self-interest, i.e. to protect their own business interests from competitor organisations. Actors were aware of the strategic motivations of others for being a member of the network. Actors within the NZAS – North network had experience of working with each other before

the network's formation. In contrast, the NZAS – South Island network actors were invited to join the network based on their resources and capabilities that were required for building the network. The process of building the network was as a result of strategic intent by the central broker. Key actors also had experience of working with each other before the formation of the network. Actors were also aware of the motivations of others for being a member of the network. The formation of the NZAS – Central network was different again, with actors being invited to join the network based on the social network ties of the key individuals responsible for forming the network. Research participants were unaware of the motivations of others in joining the network, and had no prior experience of working with each other. Specific data for each of the networks is presented next.

At the pre-network formation stage of the NZAS – North network, MISH was motivated to form an alliance with a tertiary institute in order to develop their own business. MISH was privately funded and intended to be the New Zealand equivalent to the Australian Institute of Sport. Motivations for joining the network for other actors were based on strategic self-interest in terms of additional revenue building and to protect their market. The self-interest of actors is evident in the following comments:

I think, probably in the initial stages ... each person was in there for their own interests (CEO/Board level)

... interested parties have applied but the four consortium partners seem quite adamant they don't, there is no need or they don't want anybody else. (Individual level)

For the NZAS – Central network the three organisational levels have different perceptions about cooperation at the formation and early initiation stages of the network's development. Perceptions range from actors trying to achieve their own objectives through to actors not coming with their own agendas. Generally, research participants in the Central network have little awareness of the motivations of the other actors for joining the network.

Within the NZAS – South Island network the motivations for recruiting actors at the early formation stage were strategic and were based on fulfilling the resource and skills requirements for the network. This is illustrated by Stage 2 in Figure 5.4 when the inclusion

of actors was based on geographic coverage and the resources held. Actors that met the resource and skills requirements were identified by the central broker:

... basically it was a case of almost aligning to who we knew the experts were ... so it was reasonably easy to establish who the providers were going to be. So that was the main focus, was to make sure we had the providers who could deliver the services and the NSOs were demanding. (Individual level)

Prior to the formation stage of the network, actors in Dunedin had already cooperated on a prior joint-venture bid for the National Rugby Academy which, although unsuccessful for Dunedin, did facilitate a close working relationship between them. The smallness of the South Island also aids understanding of key individuals and key organisations:

We've already, we have close contact with the university. It's the biggest industry in our city...Dunedin's not a big city, 120,000 people. There was already contact ... Some of those people in those organisations are keen sportsmen that use our facilities. So we knew them by face and name. (Work-unit level)

... [Dunedin City Council and University of Otago have] come together before on other issues ... it's not like you get to meet people for the first time, when opportunities like that come along like the Centre for Excellence. I mean, the City Council knows us, the university knows us, we know them so we can just pick up the phone and chat. (Work-unit level)

... really close relationship between the City Council and the University and obviously the University's partners so you'll find that there's quite a lot of facilitation and communication between the two organisations ... and obviously the University's the major employer for the town and one of the largest revenue earners for the city as well of course ... therefore there's a relationship there that's symbiotic to a certain degree. (Individual level)

The effective NSOs had strategic plans which were jointly prepared with NZAS staff and had been tailored to meet the specific requirements of the NSOs. In the past there was a culture within these NSOs based on individualism, a culture that had resulted in athletes and coaches being difficult to work alongside and a reluctance to take on board new ideas and different ways of training. The effective NSOs had successfully changed this culture. In contrast, the NSO that was ineffective reported struggling to develop a strategic plan. The difficulty in developing the strategic plan was attributed to the nature of the individualism

that occurs within that sport. The NSO had also experienced difficulty with getting the NZAS system to understand their sport's unique requirements.

6.2.5 Adding value to network actors by coordinating resources for business development

The central broker adds value to the network by understanding network actors and their objectives; this understanding enables opportunities to be identified and the appropriate actors to become involved.

Evidence

The three embedded, intentionally formed networks have three very different findings. The NZAS – North network actors compete in the same market for the same students with similar products. Actors do not share information or knowledge concerning their own business and, as a consequence, do not develop joint projects. The central broker has been unable to add value in this instance to the NZAS – North network. In contrast, the central broker in the NZAS – South Island network has added value to actors by understanding their objectives, and matching business opportunities to the appropriate actors. The business opportunities were developed from core competencies of the network. And in the third case, the NZAS – Central network had only recently started to work collaboratively as a result of actions by the central broker. Prior to this, a combination of factors had prevented the central broker from being able to add value to the actors in the network. Specific evidence on each network is presented next.

Actors in the NZAS – North network were motivated by strategic self-interest, i.e. they were concerned with protecting their market from competitors and developing their own business in terms of building additional revenue. As a result of actors protecting their own business interest, there has been the limited development within the network. However, this motivation has also created a network that operates efficiently, driven by actors wanting to maximise the return on their involvement:

... I think there's quite a lot of people, the various stakeholders looking to maximise the return to them rather than us looking at it in terms for the greater good ... I think there is vested interest that shouldn't be there. (CEO/Board level)

... there is a general willingness to share in the activities perhaps the promotion of self when in front of the press skews that a little bit ... Well I guess it's the need to focus on your own particular activities as opposed to the collective activity and it's very, it's not easy to keep the wider picture in perspective when you are working with your own particular activity. (Work-unit level)

The lack of network business development between actors is seen by the 'average' score in the findings of the one-sample *t*-tests for both Questions 7 and 10, presented in Table 6.4. The cross-tabulation routines for these two questions also show that there is no significant association between the three organisational levels, i.e. CEO/Board, work-unit and individual levels, and the levels of adapted process and levels of belonging helping with business. The UCINET 6 routine reveals overall the level of adaptation of processes (Question 7) to other actors is weak, with the exception of NZAS – North Inc. The results from Question 9 indicate all actors work at developing their own business more than they do with each other for developing the business of the NZAS – North network. In particular, the one-sample *t*-test reports a higher-than-average level of perceiving that the network is helping with an organisation's business, and the cross-tabulation routine shows the three organisational levels all feel the same way. The UCINET 6 routine shows that actors believe their business benefits from belonging to the NZAS – North network (Question 9), and that the other actors are also important for the NZAS – North network (Question 6).

Table 6.4: Summary of importance of resources, adapted processes, belonging to the network measures for NZAS – North network

Question	One-sample t-test	Cross-tabulation routine	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average levels of importance of resources.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the ratings for the importance of resources: all organisational levels rate the importance of resources highly.	Overall, all actors strongly rate other members' resources as important for the network.
7. How much have you adapted your processes to theirs?	Adapted processes is not significantly different than average.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of processes adaptation: all organisational levels have low-to-medium levels of adaptation processes.	Overall, the level of adaptation of processes is weak to moderate. The data may indicate that actors within the network are adapting their processes to those of NZAS – North Inc. but not to the other actors within the network.
9. How much does belonging to the network help you with your business?	There are significantly higher-than-average ratings for belonging to the network helping with business.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and their ratings of how belonging to a network helps with business: all organisational levels rate the importance of the network to their business highly.	Overall, members strongly believe that belonging to the network helps with their business.
10. How much does _____ belonging to the network help you with your business?	An organisation belonging to the network helping with business is not significantly different than average. Full results for all these questions are presented in Appendix F.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and their ratings of how others belonging to the network helps with business: all organisational levels rate this highly. Full results for all these questions are presented in Appendix F.	Overall, results may indicate NZAS – North Inc. needs the other actors in the network as equally as they need NZAS – North Inc. The perception that other actors belonging to the network helps with an actor's business is strong. However, there is one exception and that is with MISH which has a low-to-moderate level for NZAS – North Inc. These results tend to indicate that all actors work with others in developing their own business but at a lower level compared with working with NZAS – North Inc. Full results for all these questions are presented in Appendix H.

For NZAS – Central network, the central broker has not been able to add value to the network by developing new business initiatives until very recently. The reasons for not being able to do so are attributed to research participants not understanding the objectives or motivations of others for being in the network and so not being able to identify joint projects, the exiting of one actor from the network with an associated diversion of resources, and a change in the network structure due to the central broker relocating to different premises. Actors have a general concern over the NZAS – Central network’s poor performance:

I think it’s taken us quite a long time to get to where we are relative to the development and we’ve still got, realistically, quite a long way to go for what we’d like to get to ... (CEO/Board level)

I think there is a great deal of improvement to be made. (Individual level)

Changes in the network structure can be seen in Figure 5.3, which depicts the reduction in size of the network at Stage 2. The lack of network business development between actors can be seen by the only ‘average’ score for adapting processes, as shown by the findings of the one-sample *t*-test for Question 7, presented in Table 6.5. However, the cross-tabulation routine does reveal differences between the three organisational levels and the levels of adapted processes: at the work-unit level there are higher levels of process adaptation than at the CEO/Board and individual levels, which are both recorded as low.

Belonging to the network benefits an actor’s business more than their membership benefits NZAS – Central Inc. The finding would indicate that the central broker has not yet been able to develop the potential for the network held by its members. The potential for the network is revealed by the findings for Question 6, which indicates the importance of resources held by all actors for the network. It is confirmed by the UCINET 6 routine which reveals the core actors strongly believe that having the other actors belonging to the network helps with their business. However, NZAS – Central Inc. is an exception: it scores actors which cover the network region outside of Wellington at a lower level than it scores those actors within Wellington. This finding is corroborated by the UCINET 6 results for Question 7 which indicate the Regional Sports Trusts working well together and able to adapt their processes to each other. The results for Question 9 indicate belonging to the

network helps three of the four core actors (NZAS – Central Inc., Wellington City Council and Sport Wellington Region) with their business.

Table 6.5: Summary of importance of resources, adapted processes, belonging to the network measures for NZAS – Central network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average levels of importance of resources.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of importance of resources: all organisational levels perceive the importance of resources at a medium-to high-level.	Overall, all actors within the network are perceived as holding a strong level of resources. It may indicate that the University of Otago’s presence within the network was important for the resources that they held despite them leaving the network.
7. How much have you adapted your processes to theirs?	Adaptation of processes is not significantly different from average.	There is a significant association between organisational levels and levels of adaptation of processes: there are lower levels of adaption at the CEO/Board and individual levels compared with higher levels of adaption at the work-unit level.	The focal actor’s perception is that other actors hold a weak level of adaptation of processes. However, Sport Wellington Region perceives the other Regional Sports Trusts as having a strong level of adaptation of processes, which may indicate that Sport Wellington Region works closely with these actors and is prepared to adapt its processes much more readily.
9. How much does belonging to the network help you with your business?	There are significantly higher-than-average levels of belonging to the network helping with business.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the perceived level (low, medium or high) of how belonging to the network helps with business: all levels strongly believe that belonging to the network helps with their business.	Overall, members perceive that their belonging to the network strongly helps with their business (recorded for NZAS – Central Inc., Wellington City Council and Sport Wellington Region).
10. How much does _____ belonging to the network help you with your business?	<p>The perception that a particular organisation belonging to the network is helping with business is not significantly different from average.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of perceived usefulness of specific organisations: all organisational levels rank this as medium to high.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, most actors perceive strongly that other organisations’ membership of the network does help them with their business. It may indicate that it is important to belong to the network for Sport Wellington Region and Wellington City Council. For NZAS – Central Inc., relationships with Wanganui Consortium, Sport Manawatu, Sport Hawkes Bay, the University of Otago, EIT and Sport Gisborne need to be developed to find common goals as these relationships may not be working well.</p> <p>Full results for all these questions are presented in Appendix H.</p>

For the NZAS – South Island network the central broker has been able to add value and develop network business. Through the central broker, research participants are able to understand the objectives of others in the network and match opportunities despite actors being diverse with differing objectives. Research participants openly acknowledge the network living up to their expectations:

... my impression is that they're [the central broker] operating in an efficient manner and using networks ... (CEO/Board level)

... it's definitely exceeded my expectations in terms of the relationship we have with southern academy now. (Work-unit level)

... it becomes more successful almost by the month. If you see the programmes, seminars and the business that they're putting through. (Individual level)

At all levels within the network there is a shared understanding of taking core competencies of the network into different markets and from this developing the network's business:

Kereyn Smith's worked with our marketing and communication department to create something that is known as the X-factor brand. She's all about, you know, providing that something that little bit extra ... based on the knowledge and facilities, and that the University can help to provide. So yeah the relationship is, in my opinion, quite cleverly, you know, sort of put right up front. (Work-unit level)

... The other thing we have down here which we've worked on over the last few years is a motorsport academy and so that's privately funded through MotorSport New Zealand. So there is people contributing to the funding systems from minority sports I guess but on a private basis which we see as a growth area down here a little bit more; specialisation that we can offer in Otago with the University being a strong player. There's the Human Performance Centre and Physical Education School ... Yeah, absolutely, for instance [the Motorsport Academy], they do an academy down here ... The X-Factor is sort of one of our branding logos I guess and I think that's in cooperation with the university. (Individual level)

Business development within the network is indicated by significantly higher than average levels of importance of resources, as seen by the findings of the one-sample *t*-test for Question 6, presented in Table 6.6. The cross-tabulation routine presented in the same table shows no significant association between levels of resources and the three organisational

levels (CEO/Board, work-unit and individual), meaning all organisational levels feel the same.

The importance of the network for an actor's business is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 9, presented in Table 6.6. The cross-tabulation routine shows the three organisational levels (CEO/Board, work-unit and individual) all feel the same. The UCINET 6 routine also supports the finding, and furthermore, reveals a strong relationship between the central broker and both QEII and the University of Otago, indicating the importance of these actors for the network's business development.

However, the findings of the one-sample *t*-test for Question 7 reveal that adaptation of processes is significantly lower than average, and the cross-tabulation routine shows the three organisational levels all feel the same. The result indicates the central broker could work more closely with actors. The findings are further supported by the UCINET 6 routine which reveals a close working relationship between the central broker and QEII, but not between other actors. The findings are also supported by results from Question 10 which indicate that actors are more important for the central broker than the central broker is for them. Actors are clustered around two main centres – Dunedin and Christchurch – and in both these clusters are core actors who add value to the network: Dunedin's core actors are the University of Otago and Dunedin City Council, and Christchurch's core actors are QEII, Christchurch City Council and Sport Medlab.

Table 6.6: Summary of importance of resources, adapted processes, belonging to the network measures for NZAS – South Island network

Question	One-sample <i>t</i>-test	Cross-tabulation routine	UCINET 6 routine
6. How important are their resources for the network?	There are significantly higher-than-average levels of importance of resources.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and levels for how importantly resources are regarded.	Overall, the resources of NZAS – South Island Inc. are perceived to be very important to the network. Perceptions by NZAS – South Island Inc. of others' resources are moderate to strong. Most actors in the network are perceived by others to have moderate-to-strong levels of resources.
7. How much have you adapted your processes to theirs?	There are significantly lower-than-average levels of adapted processes.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of adaptation of processes.	Overall, NZAS – South Island Inc. is perceived to only have a weak-to-moderate level of adaptation of processes to others, whereas NZAS – South Island Inc. perceives other actors' adaptation of processes to be varied. Weakly perceived are Sport Otago, Lincoln University, Sport Canterbury and Sport Tasman; moderately perceived are Dunedin City Council, the University of Otago, Active Health, Sports Medlab, the University of Canterbury, Christchurch City Council and Sport Southland; and strongly perceived is QEII. These findings may indicate the closeness of the relationship that has developed between NZAS – South Island Inc. and QEII which may have resulted in a more open and joint-work approach compared with the other actors in the network. Interestingly, QEII perceives a lower rating (4.7) for NZAS – South Island Inc., indicating that NZAS – South Island Inc. has made more adaptation to QEII than the other way around.
9. How much does belonging to the network help you with your business?	There are significantly higher-than-average levels of belonging to the network helping with business.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and levels for how important belonging to the network is for helping with business.	NZAS – South Island Inc., the University of Otago and QEII all believed strongly that belonging to the network helps with their business. This finding may reflect the strength of relationship that exists between NZAS – South Island Inc. and these two actors.

<p>10. How much does _____ belonging to the network help you with your business?</p>	<p>An organisation belonging to the network helping with business is not significantly different than average.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is a significant association between the organisation levels and levels of how important different organisations are to helping with business: the importance of other actors belonging is rated more highly at the CEO/Board level than by the work-unit and individual levels.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, NZAS – South Island Inc. is generally perceived to be moderately-to-strongly helpful to other actors’ businesses. NZAS – South Island Inc., itself, perceives the level of help with their business from different network actors as variable. Strongly rated actors may be indicative that these are core partners that add value to the business of the network for NZAS – South Island Inc. The most important actors for NZAS – South Island Inc. are Dunedin City Council, the University of Otago, Sport Medlab, Christchurch City Council and QEII. This reflects a clustering of actors around the two population centres where most of the athletes are located – Dunedin and Christchurch. Overall it may indicate that actors in the network are more important for NZAS – South Island Inc. than NZAS – South Island Inc. is for them.</p> <p>Full results for all these questions are presented in Appendix H.</p>
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There is a distinct contrast between the effective and ineffective NSOs. The effective NSOs report the NZAS system has adapted resources to meet their needs and to understand their sport, although this has taken some time to achieve. In contrast, the ineffective NSO struggled to get its needs met through its dealings with NZAS – Central Inc.

6.2.6 Adding value to network actors by holding social capital

The central broker needs to hold relevant social capital that matches the needs of the network by having experience of elite sport, and through social networks in the sport-business sector.

Evidence

There are clear differences between the three networks. The NZAS – North network has a high level of social capital within the central broker. This social capital is facilitated by staff sharing, the location of the central broker's offices in the premises of each actor, and the staff of the central broker having experience within elite sport – especially noted at the CEO/Board level. Within the NZAS – South Island network, the smallness of both the South Island and the sport-business sector means all research participants know of each other and the people involved in elite sport. The CEO of the central broker has a wide network of contacts in the sport-business sector, and is credited with high networking skills. In contrast, the NZAS – Central network had limited social capital held within the central broker at the CEO/Board level, as the previous CEO did not come from a sport-business sector and consequently could not facilitate connections between actors in the network. Specific examples from the data are presented next for each of the networks.

Within the NZAS – North network, at all levels there is a shared understanding of the CEO and key staff of the central broker having been involved with elite sport performance. Having experience of elite sport is perceived as essential for the central broker. Many of the staff of the central broker have also worked in different actors in the NZAS – North network. Sport-science staff working within the NZAS – North network also obtained their qualifications from the University of Otago, and so they have a social network across all

actors in the network. The high level of social capital held by the central broker is illustrated by the following comment:

... there is enormous respect for [Peter Pfitzinger's] sporting ability.
You don't represent the US in two Olympics if you're not top of your
game. (CEO/Board level)

Within the NZAS – Central network the previous CEO of the central broker did not have a sport-sector background and consequently was unable to develop the network. This can be seen in Figure 5.3: Stage 2 coincides with the appointment of the previous CEO, and Stage 3 coincides with the appointment of the current CEO, whose background in the sport-business sector has enabled the network to develop. Research participants noted the impact on the network's development of the present CEO compared with the previous CEO of the central broker:

[The first CEO of NZAS – Central Inc.] didn't have a strong sporting
background or didn't have strong sporting links. (CEO/Board level)

For the NZAS – South Island network, at all levels within the network there is a shared understanding of the key staff from within the central broker being involved with elite sport, and in being good at networking. These key staff all graduated from the University of Otago, which has facilitated the building of informal social networks. The high level of social capital held by the central broker is illustrated by the following comment:

... because of their, the CEO here, Kereyn Smith. She had vast
experience in sport and elite sport, because she was in the Hillary
Commission before that. (Work-unit level)

For the NSOs there is a distinct difference between the effective and ineffective organisations. The effective NSOs report having links between key individuals within NZAS – North Inc. and NZAS – South Island Inc. and their organisations; these links enable the effective NSOs an ease of access for services for their organisations, their athletes and coaches. High-performance staff within these NSOs have been elite sport people in that particular sport and they also have considerable business experience. However, the effective NSOs in the NZAS – Central network reported no value in having

contacts with NZAS – Central Inc. In contrast, the ineffective NSO did not know key individuals within the NZAS system or the range of services that may be accessed, and dealt mainly with NZAS – Central Inc. The high performance manager of the ineffective NSO did not have elite-sport experience within this sport or a business background.

Discussion

Previous studies have shown that prior knowledge of actors explain network start-up at the network formation stage (Ahuja, 2000; Baum et al., 2000; Watts, 1999). These findings explain the formation of the three embedded NZAS networks. The literature has shown that although socially embedded ties are useful for start-up, they hinder the network at later stages and so there is a need for a strategic focus as soon as possible (Chetty & Patterson, 2002; Coviello & Munro, 1997; Gulati, 1998; Hite & Hesterly, 2001). For the NZAS – South Island network the move to a strategic focus at the earliest stage was paramount and the central broker identified actors based on resource capability for network purposes. The finding is congruent with researchers who note the need for a network to determine its resource base so that it does not suffer from resource scarcity (Baum et al., 2000; Birkinshaw et al., 2007; Chetty & Blankenburg Holm, 2000; Coviello, 2006; Gomes-Casseres, 1994; Sadler & Chetty, 2000; Witt, 2004). For the NZAS – North network this has not been possible, as although actors were motivated by a strategic purpose at the outset of the network's formation, this was for self-interest. The self-interest motivation of actors has limited the network's development by preventing others from joining. Likewise, the NZAS – Central network has not moved to a strategic focus and, until very recently, had not identified resource capabilities necessary for network tasks.

The role of the central broker within the NZAS – South Island network has been to ensure value and desirability of relational opportunities which entails the recognition of complementary resources; this finding is congruent with research by Cowan et al. (2007), Dyer and Nobeoka (2000) and Pihkala et al.(1999). Both central brokers for the NZAS – North and NZAS – South Island networks have worked to ensure all actors share in their network gains; this has also been noted as important by Cowan et al. (2007), Dyer and Nobeoka (2000) and Pihkala et al. (1999). In contrast, the NZAS – Central network has

been unable to add value to the network members and there has been limited benefit to actors. The influence of coordination mechanisms is discussed next.

Prior studies note that for a network to increase the potential return on investment to actors then the coordination mechanism employed must be self-enforcing, based on norms of behaviour, and underpinned by trust and familiarity between actors (Dyer & Nobeoka, 2000; Dyer & Singh, 1998; Thorelli, 1986). Coordination needs to be collective for this to occur, otherwise there will be no incentive for performance (Gomes-Casseres, 1994; Gulati, 1998). Coordination mechanisms influence structure because all actors depend on each other for coordination, joint-planning and the use of power to complete tasks (Håkansson & Johanson, 1993). Within the present study, actors within the NZAS – North and NZAS – South Island networks openly acknowledge that this has taken place. In contrast, actors within the NZAS – Central network comment on the inability to own network processes due to the interference of SPARC. Prior studies also reveal the intentional creation of networks depends on a network catalyst or central broker to bring the network together and to facilitate action. This catalyst may be an organisation specially formed for this purpose and which temporarily governs the network, handing over power at a later time to network actors; these networks have been found to be not durable (Chetty & Patterson, 2002; Welch et al., 1998). What is *different* about the findings within this study is that the central broker has not handed back power to actors and that the effective networks are durable. An example of an intentionally formed network in which the central broker retains power is the Toyota network, in which the actors are in the car manufacturing industry (Dyer & Nobeoka, 2000). The point of difference with the NZAS network is that the actors are from differing service industries to each other, although there are overlapping business objectives which enable network membership, and a government organisation has retained power. It is an *important* finding as it means this is a new form of network in which the central broker remains as the focal actor.

Coordination of resources for network development is achieved by bridging structural holes, and so presenting opportunities for actors to act as a broker by connecting parts of the network (Brass et al., 2004; Burt, 1997; Granovetter, 1973). For an actor to act as a

broker, they must have many connections to others (Ahuja, 2000; Burt, 1992; Dyer & Nobeoka, 2000). However, actors are able to add value to themselves by becoming a broker (Batjargal, 2003; Hite & Hesterly, 2001). This has certainly been the case for the central broker within the NZAS – South Island network.

By comparison, the NZAS – North network is a closed network that is dense with multiplicity, and so there is no requirement for a broker as everyone knows of everyone else (Brass et al., 2004; Burt, 1997). This explains the finding of AUT competing for the central broker position and the exclusion of the central broker in the network maps by actors. However, dense networks in which everyone is connected by strong ties are rigid and provide no creativity or new ideas (Burt, 1992). The NZAS – North network has not developed new business outside of the SPARC contract. This is in contrast to the NZAS – South Island network which has structural holes in which the central broker provides connections to new information and ideas and, as a consequence, the network is more creative and innovative. The finding is supported by research by Burt (1992) and Dyer and Nobeoka (2000). However, the NZAS – Central network has too many structural holes within it, which has had the effect of reducing trust and network developments; ties between actors in the network are also weak (Ahuja, 2000).

Both the NZAS – North and NZAS – South Island networks facilitate the coordination of effective communication. This is required for knowledge and information transfer as it develops connectedness between actors (Dyer & Nobeoka, 2000; Lindberg-Repo & Grönroos, 2004; Powell, 1990).

The term social capital in this study is used to refer to how well connected a person is; good connections allow them to do better than the next to facilitate a certain action (Burt, 2000). Social capital is important as it contributes to an actor's knowledge, growth and competitive advantage; it also determines the opportunities that are available to it (Chetty & Agndal, 2007). Actors need to practise using social capital to some degree in order to be effective; the more this is encouraged and built up, the more effective an actor will be (Cooke, 2007). Social capital is also a function of bridging structural holes (Burt, 2000;

Burt, Hogarth, & Michaud, 2000) and is useful when first starting to build a network (Walker et al., 1997). A finding for the influence of social capital is positively demonstrated by the central brokers of the NZAS – North and NZAS – South Island networks. By comparison, the NZAS – Central network has demonstrated the lack of social capital: the first CEO of the central broker did not have experience in the sport-business sector which resulted in the network reducing in size.

Summary

Findings from the three embedded networks highlight the importance of the role of the central broker in adding value to network actors and clients. Previous research studies show the central broker role in intentionally created networks by governments is temporary, with power being handed back to network actors. This study has a key difference from previous studies in the literature: a central broker has been specifically created by the government for the task of coordinating the network but with no intention of handing back power to network actors. The finding also differs from research on the Toyota network (Dyer & Nobeoka, 2000) because actors within the NZAS network are from differing service industries to each other – although there are overlapping business objectives which enable network membership – and it is a government organisation that has retained power. It is an important finding as it means this is a new form of network in which the central broker remains as the focal actor in a government-run service-industry setting. The new network form is termed within the study as a *structured* network. The study also answers a call by Håkansson (2006) and Möller and Rajala (2007), begun by Liu and Brookfield (2000), for further research to identify and categorise the different types of network structure and the important features of them.

The findings also reveal that the durability of the intentionally formed network depends on the central broker being able to add value and this is congruent with the findings of Dyer and Nobeoka (2000). The central broker adds value to actors and clients through the coordination mechanism, communication, bridging structural holes, setting strategic direction, coordinating resources for business and holding social capital.

6.3 Theme Two: Cross-level pressures influence network effectiveness

The findings from the study reveal that the central broker needs to ensure the multiple levels within the network are engaged in the network activities. The study divided networks into three organisational levels (CEO/Board, work-unit and individual) in order to investigate the influence of cross-level pressures. The CEO/Board level is concerned with strategic positioning of the actor, the work-unit level with income generation and meeting business targets, and the individual level with personal development. Each level has a different objective which must be matched to those of the network. How well this match is achieved will influence levels of relational aspects of commitment, sharing of information, cooperation, trust and the strength of relationships between actors.

Evidence

Cross-level pressures at the CEO/Board, work-unit and individual level for each network were examined. The findings reveal that the work-unit level in the NZAS – North network has not been engaged in the network tasks, and for the NZAS – Central network, the individual level has not been engaged. In contrast, all three levels in the NZAS – South Island network have been engaged. Presented next is detailed evidence from each of the networks.

Relationships between actors in the NZAS – North network are governed by a Memorandum of Understanding and by contracts; however, these are for guidance purposes rather than day-to-day adherence. As a result of the competitive nature of their businesses, actors cooperate on NZAS matters but no other information is shared between actors at CEO/Board or work-unit level. There is a shared understanding at all levels that informal knowledge and information sharing occurs only at the individual level between all actors:

... I don't see the individual members of the network relating necessarily with individual members. I don't see the University of Auckland working with AUT [about CEO/Board and work-unit levels].
(CEO/Board level)

Otherwise, there is an understanding of shared facilities of ... whether it's physiology or someone's got equipment or testing facilities that nobody else has [about the individual level] ... (Individual level)

At the individual level actors run workshops, training sessions and share resources between themselves in order to improve their service to the athletes:

I think that tends to happen very much at a provider level. You'll get the exercise physiologists together; you'll get the psychologists together ... I think that there's pretty consistent sharing amongst the providers within the different sub disciplines to try to get protocols consistent across the Northern region and certainly a sharing of knowledge and best practice. (CEO/Board level)

Objectives are met at the individual level through the opportunities provided by working with elite athletes. Comments made at the CEO/Board level regarding challenging staff at the individual level include:

... there is an excitement with working the top people, top athletes. It's part of the excitement of doing postgraduate studies, isn't it? You sort of get into the right people ... But there is a sort of an excitement aspect of, you know, the staff all need to be challenged and they're only challenged if they've got some good people and they're trying to strive to get somebody to do better. (CEO/Board level)

The levels of commitment, trust and relationship strength are significantly higher than average across all organisational three levels in the NZAS – North network, as seen by the findings of the one-sample *t*-tests for Questions 1, 4 and 8, presented in Table 6.7. The cross-tabulation routine shows there is no significant association between the three organisational levels and levels for commitment, trust and relationship strength. The finding is confirmed by the UCINET 6 statistics routine, which shows a moderate-to-high level for these relational aspects.

The levels of cooperation and information sharing reported between actors are significantly higher than average, as seen by the findings of the one-sample *t*-tests for Questions 2 and 3, presented in Table 6.7. The cross-tabulation routine shows there is a significant association between the levels of cooperation and information sharing with the organisational levels: at the individual level cooperation between actors is very high, whereas the level of information sharing is lower at the work-unit level compared with CEO/Board and individual levels, which are both high. The UCINET 6 routine reveals that participants perceive levels of cooperation and information sharing to be strong.

For the NZAS – Central network, cooperation between actors is currently based on a Memorandum of Understanding between actors. Actors at all levels note this way of operating is relatively new; previously, cooperation relied upon rigid contracts. Cooperation includes the sharing of resources, and knowledge and information transfer. Only now are Wellington City Council and Sport Wellington Region beginning to work together informally with NZAS – Central Inc. to leverage off each other; however, this is reported as occurring at the work-unit level only:

... So again, we don't walk without each other ... [about NZAS – Central Inc.]. We walk out the door and we have got that concept of collaboration, knowing we're not walking out the door for ourselves; we're walking out the door with our partners. So that's how we operate. (Work-unit level)

The Regional Sports Trusts in the region had not previously been engaged in the business of the network; this is only now starting to occur:

... we actually created a very strong relationship with the RSTs so that we had a thumbprint in each area of our region [about the evolving working relationship with the RSTs] ... And that's been very successful and part of the deal that we do with each of the Sports Trusts, is we will pay for a couple of presentations and workshops for them in their area ... (Individual level)

Table 6.7: Summary of commitment, information sharing, cooperation, trust and strength of relationship measures for NZAS – North network

Question	One-sample <i>t</i>-test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	There are significantly higher-than-average levels of commitment.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of commitment (low, medium or high): all levels show high levels of commitment.	Overall, levels of commitment in the network are strong.
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and the level of information sharing (low, medium or high): at the individual level there is a higher perception compared with the other two levels.	Overall, levels of information sharing are moderate to strong.
3. How well do they cooperate with your organisation?	There are significantly higher-than-average levels of cooperation.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and the level of cooperation (low, medium or high): at the individual level there is a higher perception compared with the other two levels.	Overall, levels of cooperation within the network are strong.
4. How much do you trust this organisation?	There are significantly higher-than-average levels of trust.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of trust (low, medium or high): all levels show high levels of trust.	Overall, levels of trust within the network are strong.
8. How strong is the relationship between your organisation and theirs?	There are significantly higher-than-average levels of strength of relationships.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of strength of relationship (low, medium or high).	Overall, the results are moderate to strong for strength of relationship to others in the network.
	Full results for all these questions are presented in Appendix F.	Full results for all these questions are presented in Appendix F.	Full results for all these questions are presented in Appendix H.

Strength of commitment between actors in the NZAS – Central network is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 1, presented in Table 6.8. The cross-tabulation routine shows there is a significant association between levels of commitment and the three levels of CEO/Board, work-unit and individual. There are lower levels of commitment at the individual level. The UCINET 6 routine indicates that the focal actor views the levels of commitment by others actors as varying greatly, from low to high. All other actors generally have a perception that high levels of commitment exist. The difference in perceptions may be due to a lack of communication or direction for actors as they may not fully understand what is expected from them to complete network tasks.

The strength of trust reported between actors is significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 4, presented in Table 6.8. The cross-tabulation routine shows there is no significant association between the three organisational levels of CEO/Board, work-unit and individual and the levels of trust. The UCINET 6 routine reveals, overall, levels of trust are high, although the central broker does not trust other actors as much as they are trusted.

Cooperation and information sharing between actors is perceived to be significantly higher than average, as seen by the findings of the one-sample *t*-tests for Question 2 and 3, presented in Table 6.8. The cross-tabulation routines reveal there is no significant association between the three organisational levels (CEO/Board, work-unit and individual) and levels of cooperation and information sharing. All organisational levels perceive cooperation and information sharing to be at medium-to-high levels. The UCINET 6 routine reveals that levels of cooperation and information sharing are perceived to be weak to strong.

Findings for Question 8, presented in Table 6.8, show the strength of relationships reported between actors as significantly higher than average. The high level of relationship strength is most likely between core actors only. The result from the cross-tabulation routine for relationship strength shows a significant association between the three organisational levels

in the network and levels of relationship strength: the CEO/Board and work-unit levels perceived higher levels of relationship strength compared with the individual level. It may indicate that the individual level has not been engaged in the network's activities. The above-average level for strength of relationships is confirmed by UCINET 6 statistics routine between three core actors: Sport Wellington Region, Wellington City Council and the central broker. However, the central broker has only a moderately strong relationship with actors outside of the core actors

Table 6.8: Summary of commitment, information sharing, cooperation, trust and strength of relationship measures for NZAS – Central network

Question	One-sample <i>t</i>-test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	There are significantly higher-than-average levels of commitment.	There is a significant association for levels of commitment with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception of commitment compared with the other two levels.	From the viewpoint of the focal actor (NZAS – Central Inc.), the actors' levels of commitment range from low (0.5) to strong (7), i.e. NZAS – Central Inc. perceives levels of commitment to vary widely in the network. However, all other actors perceive levels of commitment as generally strong – the exception being the University of Otago which is perceived as having a weak level of commitment; this reflects their exiting from the network.
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of information sharing: medium-to-high levels of information sharing were recorded at all organisational levels.	The perceived level of information sharing between the core actors covered a large range from weak (4) to strong (8.5).
3. How well do they cooperate with your organisation?	There are significantly higher-than-average levels of cooperation.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of cooperation: medium-to-high levels of cooperation are recorded at all levels of the organisations.	Overall, the level of cooperation is perceived as strong within the network.
4. How much do you trust this organisation?	There are significantly higher-than-average levels of commitment.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level of trust: all organisational levels show medium-to-high levels of trust.	Overall, levels of trust between actors are generally strong. However, NZAS – Central Inc. has moderate-to-only-weakly-strong levels of trust with other actors.

<p>8. How strong is the relationship between your organisation and theirs?</p>	<p>There are significantly higher-than-average levels of strength of relationships.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is a significant association for levels of strength of relationships with organisational levels (CEO/Board, work-unit and individual): at the individual level there is a lower perception compared with the other two levels.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, most actors perceive their relationship with others to be strong. This may indicate that Sport Wellington Region, NZAS – Central Inc. and Wellington City Council work closely with each other and have a good relationship. Generally the central broker perceives a moderate level of relationship strength with others outside the core actors, which may indicate a need to develop stronger relationships with the other actors in the network.</p> <p>Full results for all these questions are presented in Appendix H.</p>
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For the NZAS – South Island network, levels of information sharing, cooperation, trust and relationship strength between actors within the network are significantly higher than average, as seen by the findings of the one-sample *t*-tests for Questions 2, 3, 4 and 8, presented in Table 6.9. Moreover, the cross-tabulation routine shows all three organisational levels feel the same. The UCINET 6 routine reveals that perceptions are generally at a strong level. The findings for Question 8 are consistent with reported results for density.

Levels of commitment within the network are significantly higher than average, as seen by the findings of the one-sample *t*-test for Question 1, presented in Table 6.9. However, the cross-tabulation routine shows variance between the three organisational levels, with there being a lower level of commitment perceived at the individual level compared with the CEO/Board and work-unit levels.

At the individual level, objectives stem from the motivations of working with elite sport people and the benefits that this brings:

... from working with sport people; either they can put photos up on the wall which would generate income, they can names drop, they can work, for instance quite often they can work with the rugby teams. The rugby team comes back and sees them. (Individual level)

Table 6.9: Summary of commitment, information sharing, cooperation, trust and strength of relationship measures for NZAS – South Island network

Question	One-sample <i>t</i> -test	Cross-tabulation routine	UCINET 6 routine
1. This member's commitment to the NZAS network?	There are significantly higher-than-average levels of commitment.	There is a significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of commitment: at the individual level there is a lower perception of commitment compared with the other two levels.	Overall, NZAS – South Island Inc. is perceived as having a strong level of commitment in the network.
2. How well do they share information with you?	There are significantly higher-than-average levels of information sharing.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of information sharing.	Overall, sharing of information is perceived to be at a moderate-to-strong level within the network. NZAS – South Island Inc. is perceived to have a strong level of information sharing.
3. How well do they cooperate with your organisation?	There are significantly higher-than-average levels of cooperation.	There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of cooperation.	Overall, levels of cooperation within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is perceived to have a strong level of cooperation with other actors and perceives other actors' level of cooperation to be moderate to strong with one exception – Sport Tasman. Generally actors based in the two main centres – Dunedin or Christchurch – perceive others in the same location as more cooperative than those outside of their location.
4. How much do you trust this organisation?	There are significantly higher-than-average levels of trust.	There is no significant association between organisational level (CEO/Board, work unit and individual) and the level (low, medium or high) of trust: all organisational levels show high levels of trust.	Overall, levels of trust within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is strongly trusted by other actors and, in turn, strongly trusts them also. It may indicate relationships that NZAS – South Island Inc. has with all other actors are working well.

<p>8. How strong is the relationship between your organisation and theirs?</p>	<p>There are significantly higher-than-average levels of strength of relationships.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is no significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium or high) of the strength of relationship.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>NZAS – South Island Inc. is generally perceived by others in the network to have a strong relationship with their organisations. In turn, NZAS – South Island Inc. perceives its relationships with the other actors to be moderate to strong. Generally actors based in the two main centres, Dunedin or Christchurch, perceive they have stronger relationships with actors in the same location than with those organisations outside of their location.</p> <p>Full results for all these questions are presented in Appendix H.</p>
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A comparison of the relational aspects across the three embedded NZAS networks was undertaken using a one-way ANOVA (analysis of variance); full results are presented in Appendix F. Results from this analysis show several significant differences in the relationships across the three networks. Specifically, results show the NZAS – North network has significantly higher levels of commitment, information sharing and cooperation than both the NZAS – Central and NZAS – South Island networks. The strength of relationships is significantly higher in the NZAS – North network than the NZAS – South Island network, indicating that the NZAS – North is a dense network that has strong ties between its members. Results also indicate that relationships between members of the NZAS – Central network are not as developed as those in the NZAS – North network. The levels of commitment, information sharing and trust are all higher for the NZAS – South Island network compared with the NZAS – Central network. The level of commitment at the individual level for the NZAS – South Island is also higher than that of the NZAS – Central network. The next section examines prior research to determine how findings from the present study contribute to network literature.

Discussion

Previous studies note the importance of a number of relational aspects to network effectiveness. These are trust, commitment, information and knowledge sharing, strength of relationships, cooperation and power (Ahuja, 2000; Blankenburg Holm et al., 1996; Brass et al., 2004; Dyer & Nobeoka, 2000; Dyer & Singh, 1998). Actor capabilities that contribute to network effectiveness are also noted by a number of researchers. These capabilities are importance of resources and resource sharing, adaptation of processes, and network membership helping with business (Dyer & Singh, 1998; Johannisson, 1987b; Powell, 1990). The findings from this study are congruent with the findings from prior research. However, the *contribution* made by this study is that the relational aspects and capabilities of actors have been linked to cross-level pressures within the network.

The importance of cross-level pressures was investigated within this study by measuring them at three organisational levels: CEO/Board, work-unit and individual. The CEO/Board level is concerned with strategic direction, leading, policy decisions and setting the vision

for the network (Bennis, 1989); the work-unit level is concerned with managing the tasks and activities to achieve the network objectives (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003); and the individual level is concerned with carrying out the tasks and activities managed by the work-unit level (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003). Evidence from the three embedded, intentionally formed networks demonstrated that the NZAS – South Island network has engaged all three levels within the network and has developed new network business. In contrast, the NZAS – North network has failed to engage the work-unit level due to the competitive nature of the actors in that network, and the NZAS – Central network has failed to engage the individual level. The results from this study make a *valuable contribution* to the literature as prior studies have tended to note the existence or non-existence of relationships (Brass et al., 2004; Dyer & Nobeoka, 2000; Möller et al., 2005) and that multiplicity is important (Dyer & Nobeoka, 2000). By addressing cross-level pressures, this study has *answered a call* by a number of authors for more research into this area (Brass et al., 2004; Day, 1995; Gulati, 1998; Möller et al., 2005; Parkhe et al., 2006; Powell, 1987). The study has also answered a call for research into the measurement of relational strength, rather than merely noting the existence, or non-existence, of a tie (Brass et al., 1998; Brass et al., 2004).

The findings from this research also make an *important* distinction in that actors with differing objectives who serve different markets can form an effective network – although it must be stated that in order for the network members to effectively contribute to the network, the central brokers have identified overlapping objectives which enables membership to be productive for actors and the network. This result complements the finding of Erickson and Kushner (1999) which notes prior network studies have been based on multiple actors with similar over-riding objectives and in similar business sectors, because this research is in a sports setting with actors in the same network having different objectives and markets from one another.

Summary

Findings from the embedded cases demonstrate support for cross-level pressures influencing network effectiveness. This was demonstrated by the central broker needing to

ensure all levels within the network are engaged in the network activities. The three organisational levels (CEO/Board, work-unit and individual) have different objectives, but each must be matched to those of the network. How well this match is achieved will influence levels of relational aspects such as commitment, information sharing, cooperation, trust and the strength of connections between actors.

The findings indicate the importance of all levels for network effectiveness. The NZAS – South Island has engaged all levels of the network, and has also developed new business initiatives. In contrast, the NZAS – North network has not been able to engage the work-unit level despite the CEO/Board and individual levels being engaged. Failure to engage this level for information sharing and cooperation is the result of actors within the network competing in the same market. The objectives for the work-unit level are based on business targets being met, which logically would indicate competition between actors. Finally, the NZAS – Central network has failed to engage the individual level, as demonstrated by lower levels for commitment and strength of relationships with other actors in the network.

The data from the three embedded networks also demonstrates that the measurement of overall relational strength between actors can be used to indicate which relationships within the network are not working as well as they could. For example, within the NZAS – South Island network there appears to be a weak link between the central broker and Sport Otago, Sport Tasman and Lincoln University. The weak link may also reflect these actors' resources not being crucial for network activities and, as such, their membership may need to be reviewed. For the NZAS – North network, the actor who is not as strongly connected is University of Auckland UniSports Centre; for the NZAS – Central network, actors that are not as strongly connected and who not engaged in network activities are the Regional Sports Trusts and actors within the Wanganui consortium.

The study has answered a call from a number of authors for research into the study of networks to investigate cross-level pressures (Brass et al., 2004; Day, 1995; Gulati, 1998; Möller et al., 2005; Parkhe et al., 2006; Powell, 1987). The study has also answered a call

for research into the measurement of relational strength, rather than merely noting the existence, or non-existence, of a tie (Brass et al., 1998; Brass et al., 2004).

6.4 Theme Three: Actor understanding of network context is not critical for network effectiveness

The findings from the study reveal that actors do not need to understand the network's context. The reason for this is twofold: First, the central broker matches the actors' objectives to network activities so there is no need for the actors to understand the context – their primary business aim is being met successfully. Second, actors are unable to have power over parts of the network or the network processes due to the role held by the central broker. This is because the central broker holds the most power within the network based on financial influence, and monitors the network with the intention of safeguarding the interests of meeting network objectives and matching these to the appropriate actors.

Key evidence

The NZAS network context comprises *seven* factors that are important to understand: (1) New Zealand's success rate of ratio of population to number of gold medals won at the Summer Olympic Games was being surpassed by other nations prepared to invest in resources to win at the elite level. (2) The 2000 Olympic Games was held in the Southern Hemisphere (Sydney) for the first time, resulting in more New Zealanders following the events and watching these events as they happened in real time. (3) There has been a move away from amateurism to a more professional approach in the provision of elite sport. (4) The Winning Way Report (1995) advocated change to elite-sport provision (Sadleir, 1999; Whineray, 1995). (5) The 1998 review of the seventeen sport-specific academies found the sports were not making much progress because of a range of issues (NZSF, 1999a). There was also a growing concern as funding for the academies was due to run out in June 1999. (6) Other nations' elite sport systems were examined. (7) The structure for the provision of all sport in New Zealand, including high performance and elite sport, was being changed as a result of the findings presented within the Ministerial Taskforce Report (T. Mallard personal communication, May 26, 2005; Graham et al., 2001).

Consequently, the New Zealand government embarked on a nationally coordinated programme administered on a regional basis, which led to the tender process for the creation of the NZAS network (K. Sadleir, personal communication, May 11, 2004; NZSF, 1999b). Provision of the network's services was intended to be driven by the NSOs, with the philosophy that each sport would control its own development and be accountable for its own results. The tender process provided a means to gauge what the provision of services would look like, and to identify key organisations and how they would network in order to operate. The key driving factor behind the process was a lack of funding available to develop new facilities; this led to the strategy of leveraging community resources and developing the NZAS network, comprising of three embedded, intentionally formed networks each coordinated by a central broker.

The three embedded networks all demonstrate a lack of understanding of the national network's context as there is no awareness of the influencing factors or the purpose behind the network's creation. Instead, each level within each network holds the view that it was created from a tender process due to a lack of facility provision. The only exception to this view is held by the central brokers at CEO/Board level for NZAS – North Inc. and NZAS – South Island Inc., because these individuals had been involved in the process for changing elite sport provision. Representative comments that show a lack of understanding of context include:

That SPARC, or whomever it was way back, basically put out a bid, I think, to get regional providers and AUT led the sort of amalgamation and the proposal, you know, getting those three together and put in the bid, they had to put in a tender.

(CEO/Board level)

Well I suppose it was first of all when the government changed its, the way it worked with elite athletes and set it up, and informed that they wanted local authorities to have some sort of involvement.

(Work-unit level)

... New Zealand Academy of Sport is the high performance arm of SPARC – Sport and Recreation New Zealand – which is the government's sort of department or agency looking after the sports participation and movement and recreation and sport needs of New Zealand. It's broken into 3 areas – the Northern Academy, the Central Academy and the South Island Academy. The, my understanding of its objectives are to provide services to targeted

sports that SPARC has identified as being worthy of or ... being identified as to be provided services to and they, the academies, manage the delivery of those services through the National Sporting Organisations ... (Individual level)

For the intentionally formed network to be effective the central broker needs to match the organisational objectives of actors to the network activities – this requires an understanding of who are the actors in the network. There is a contrast between the findings for the NZAS – North and NZAS – South Island networks and those for the NZAS – Central network in terms of both density and understanding objectives. The NZAS – North network is dense, i.e. all actors know of all others and understand their objectives, and the NZAS – South Island network has a high level of density, i.e. actors know of most of the other actors and their objectives, and this is especially so for the central broker. In contrast, the NZAS – Central network is not dense: actors do not know all other actors nor do they understand their objectives. Evidence of density is presented in Appendix I from the findings of the cognitive-mapping technique. For the NZAS – North network 100% of ties are known at each level between all actors, and for the NZAS – South Island network most actors (71%) know of the others. However, the awareness of other actors in their network is only 48% of all possible ties for the NZAS – Central network.

Consequently, there is a high level of awareness at all organisational levels (CEO/Board, work-unit and individual) of objectives of other actors in the NZAS – North and NZAS – South Island networks, but only a limited awareness by network members in the NZAS – Central network. However, the competitive nature of actors in the NZAS – North network has resulted in efficiencies rather than business developments taking place.

There is a shared understanding at all organisational levels that NZAS – South Island Inc. makes a conscious effort to understand the objectives of each actor in order to match and develop business opportunities between actors.¹⁶ Evidence of the understanding is demonstrated by the core competencies of the network being developed and applied to different markets. Projects that have been facilitated by the central broker include the X-

¹⁶ Comments made by research participants about the objectives of actors and the NZAS system were compared with the stated objectives for each actor reported in Appendix D.

Factor project, mobile sports-science laboratory unit, winter programme, pre-carded programmes, and the Motorsport Academy. The following representative quote illustrates the ability of the NZAS – South Island Inc. to facilitate business developments for the network:

And I think that's what an Academy is about. It's about bringing the component bits together, and about communicating so that happens. And I think they know, they understand that role as well.
(CEO/Board level)

In the effective network (NZAS – South Island), actors are unable to have power over parts of the network or the network processes due to the role held by the central broker. In the efficient network (NZAS – North), although one actor (AUT) is able to challenge the central broker for power they are unable to take the power away from the central broker. This is because the central brokers in both the NZAS – North and NZAS – South Island networks hold the most power based on financial influence, and successfully monitor the network with the intention of safeguarding the interests of meeting network objectives and matching these to the appropriate actors.

For the NZAS – North network, the central broker holds the most power, as illustrated by the following quotes concerning where the balance of power lies in the network:

... decision rests with the Academy [the central broker] and with the NSO.
(CEO/Board level)

I would say the Central office [of the central broker].
(Work-unit level)

... the direction comes from the Pete Pfitzinger's and the Marty's [the central broker] ...
(Individual level)

For the NZAS – South Island network, the central broker also holds the most power. Actors within the NZAS – South Island network also note the collaborative manner in which the central broker operates:

These things can often be achieved effectively by the collaborative effort of all those who can actually bring something to the table ...

As I say, very, very informally, there's no structure to it. I might give you an example which may or may not be helpful. Every three months or so we will host Kereyn and anybody else she may want to bring along from the Centre, along with Otago, and along with representatives from the Council, and we'll just be talking about what's going on in the town, where expenditure is looming on the horizon in conjunction with particular initiatives with perhaps no other reason so that we're working with the same information and support to us in our funding role to know as early as possible where the extent of which the demand on our funds might arise. So it's all about having information and as and when opportunities come along then we can swing into action pretty quickly. (Work-unit level)

These guys here [central broker], there's no ego or flexing their own influence or saying bugger ... they play a fantastic supportive role ... (Individual level)

In contrast, the ineffective network (NZAS – Central) has been unable to add value because the central broker has not engaged actors in the network to develop business opportunities. The central broker also has a lower level of power in the network. The lack of power within the NZAS – Central network was attributed to SPARC holding the funding and being involved in the operation of the network:

SPARC is still the key player ... (CEO/Board level)

The bureaucrats at SPARC should step back and allow that to be administered [about the holding of power in the NZAS regional network in the central area]. (Individual level)

Evidence of power for the central brokers in each network is provided by UCINET 6 data for Question 5, presented in Table 6.10. The results demonstrate power in the NZAS – Central network is jointly shared between the central broker and the Regional Sports Trusts, which in some instances are more powerful. This is in contrast to the NZAS – North and NZAS – South Island networks, where the highest levels of power are held by the central brokers.

Findings from the ANOVA for levels of power, presented in Appendix F, show there is a significant difference in the level of power between the three networks. Power is significantly lower for the NZAS – Central network compared with the NZAS – North and NZAS – South Island networks. The findings would indicate that actors in the NZAS – Central network are unable to exert much power over the network and are not as involved

in their network as are the actors in the NZAS – North and NZAS – South Island networks. The findings also indicate that the central broker has limited influence in the network. This is corroborated by the findings for centrality, presented in Appendix J, which support the central brokers in the NZAS – North and NZAS – South Island networks as having more power than the central broker in the NZAS – Central network.

The next section examines prior network studies to establish how the findings from the present research contribute to network theory.

Table 6.10: Summary of power measures for NZAS – North, NZAS – Central and NZAS – South Island networks

Question	One-sample t-test	Cross-tabulation routine	UCINET 6 routine
<p>NZAS – North network 5. How much power does this organisation have in the network?</p>	<p>There are significantly higher-than-average levels of power.</p>	<p>There is no significant association between organisational levels (CEO/Board, work-unit and individual) and the level (low, medium or high) of power that organisations hold in the network.</p>	<p>Overall, the balance of power is reasonably distributed across the network and is moderate to strong, although the data may indicate NZAS – North Inc. and AUT as holding the most power within the network.</p>
<p>NZAS – Central network 5. How much power does this organisation have in the network?</p>	<p>Power is not significantly different from the midpoint.</p>	<p>There is a significant association between organisational levels (CEO/Board, work-unit and individual) and the level (low, medium or high) of power: at the individual level there is a lower perception compared with the other two levels.</p>	<p>Overall, levels of power within the network range from weak to strong. The focal actor, NZAS – Central Inc., has a similar, and in one instance a slightly lower, rating for level of power than other actors. It may indicate an imbalance in power within the network which needs to be addressed as the Regional Sports Trusts would appear to hold higher levels of power.</p>
<p>NZAS – South Island network 5. How much power does this organisation have in the network?</p>	<p>There are significantly lower-than-average levels of power.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>There is a significant association between organisational levels (CEO/Board, work-unit and individual) and the level (low, medium or high) of power: at the individual level there is a lower perception of power compared with the other two levels.</p> <p>Full results for all these questions are presented in Appendix F.</p>	<p>Overall, levels of power within the network are perceived to be at a moderate-to-strong level between all actors. NZAS – South Island Inc. is perceived to have a moderate-to-strong level of power.</p> <p>Full results for all these questions are presented in Appendix H.</p>

Discussion

Existing literature developed from organic networks supports actor power being based on a network position of centrality. Centrality enables the brokerage of information, and access to and power over resources (Brass et al., 2004; Cook & Emerson, 1978; Gulati & Gargiulo, 1999; Van den Bulte & Wuyts, 2007). An actor maintains a central position by establishing and renewing connections with others, which results in them being able to exert the greatest influence over the network's development for their own advantage (Powell et al., 2005). The view of centrality is clearly evident in the NZAS – North network. At the early stages of the network's development, MISH attempted to hold the most power over other actors in the network through the position it held. At the latter stages power passed to AUT and the central broker, based on their network position. Within the NZAS – South Island network the central broker is clearly the most powerful actor based on centrality. In contrast, the central broker in the NZAS – Central network has not held a convincing position of centrality and this is noted by research participants who commented on the lack of focus for the network.

The development of a network is a dynamic process over time in which connections become either more or less important and, as a result, are either severed or strengthened resulting in a new environment emerging (Coviello, 2006; Gulati, 1999). By holding power, actors seek to influence parts of the network environment (Erickson & Kushner, 1999). The findings from the study contrast with prior research as the findings demonstrate actors have been unable to gain power over the network because of the role held by the central broker. The results indicate the importance for effectiveness of the central broker holding power.

Prior studies also demonstrate understanding of context as being critical for actors and for network survival because actors are able to make sense of the network environment and, as a result, position themselves accordingly to take advantage of new developments (Achrol, 1991; Anderson et al., 1994; Cook, 1977; Cousens & Slack, 2005; Erickson & Kushner, 1999; Gulati et al., 2000; Mattsson, 1997; Thibault & Harvey, 1997; Wilkinson & Young, 2002). However, there appears to be little guidance from the literature on the need for

actors to understand context within an intentionally formed network. In contrast with prior research, findings from the study show actors, with the exception of the central broker, are unaware of the network context. Discussed next is the effect of ties.

Networks that are dense with strong ties give access to in-depth knowledge and facilitate the creation of knowledge. Stronger connections result in more stability and less likelihood of disruption, and are more probable between actors that are similar with similar values (Coleman, 1988; Emirbayer & Goodwin, 1994; Hanneman, 2001). However, strong ties may also limit understanding of the environment as actors become dependent on their closely knit actors for information. A network with dense ties may pursue a collective strategy whilst competing with each other individually (Gulati, 1998). This view is supported by findings for the NZAS – North network. Networks that are dense are substandard, whereas a network that is not dense and includes the brokerage of structural holes develops better ideas and provides more creativity (Ahuja, 2000; Burt, 1992). Weak ties act as a bridge to other actors that otherwise would not be connected in order to give access to new information, diverse resources and new opportunities (Ahuja, 2000; Granovetter, 1973; Van den Bulte & Wuyts, 2007). The network will fail if it is embedded with solely weak or strong ties. The ideal situation is to establish a cohesive core of strong ties while also maintaining weak ties to facilitate information flow (Uzzi, 1996, 1997). The findings from the present study show the NZAS – North network to be a dense network with limited creativity and business development. In contrast, the NZAS – South Island network has a cohesive core of strong ties with weak ties connecting the central broker to other actors and, as a result, the network has developed new business initiatives. In the third case, the NZAS – Central network has been characterised by weak ties and has not developed new business or been able to add value. Both types of network, dense with strong ties or consisting of weak ties with the bridging of structural holes, offer benefits and this is dependent on the development stage of the network (Soda et al., 2004).

Understanding the objectives of others is an important aspect of relational success (Brass et al., 1998; Mullen & Kochan, 2000; Whipple et al., 1996). This is because there is a risk involved when cooperating when little is known about a potential partner's abilities and

skills in maintaining a relationship (Gulati & Gargiulo, 1999; Powell, 1990). Yet evidence suggests within an intentionally formed network ties are not strong and activities are typically short-lived rather than long-term (Pihkala et al., 1999; Welch et al., 1996; Welch et al., 1998). The task of the central broker then is to ensure positive rivalry by making certain all actors share in the gains and also to prevent opportunism and exclusive relationship development with actors by having numerous choices of potential partners for the project or task. Value and desirability of these relational opportunities is also dependent on whether there is recognition of complementary resources: too much overlap of resources between actors means there may be no benefit, yet if the resources are too far apart they may not be understood by either actor (Cowan et al., 2007; Pihkala et al., 1999). This view is supported by findings for the NZAS – North and NZAS – South Island networks in which the central brokers have understood the objectives of other actors and ensured all have shared in the gains from network activities.

Summary

Findings from the embedded cases demonstrate support for the view that actors' understanding of network context is not critical for network effectiveness.

The three embedded networks highlight the importance of the central broker's role of preventing actors from influencing parts of the network or the network processes through the holding of power. Within the NZAS – North and NZAS – South Island networks the central brokers have a high level of power, are connected to all actors, and understand actor objectives. Actors within the networks also understand all others and their objectives. Actors are unable to take power over the networks due to the position of centrality that the central brokers occupy. As actors' business interests are being met by the network there is no need for them to understand network context – it would be little benefit to them. In contrast, the central broker for the NZAS – Central network, which is ineffective, has a lower level of power and actors are not aware of others or of their objectives.

6.5 Theme Four: Relationships established at the pre-network formation stage improve network effectiveness

The results from the study show relationships established at the pre-network formation stage contribute towards the effectiveness of intentionally formed networks. These relationships enable network actors to work together as trust and understanding already exist.

Evidence

Both the NZAS – North and NZAS – South Island networks had developed relationships between actors at the pre-network formation stage enabling them to develop stable networks. In contrast, the NZAS – Central network did not have a working relationship between actors at the pre-network formation stage; consequently, the network has not been effective.

Within the NZAS – North network, MISH was actively seeking to develop a relationship with either AUT or University of Auckland UniSports Centre, as shown at the pre-network formation stage in *Figure 4.2: NZAS – North network stages of development*. MISH was motivated to form an alliance with a tertiary institute as it required academic expertise to drive its business in order for it to become the New Zealand equivalent to the Australian Institute of Sport.

Within the NZAS – Central network, actors did not have a working relationship with others at the pre-network formation stage, as shown by *Figure 4.3: NZAS – Central network stages of development* in which a pre-network formation stage is missing. As a consequence, relationships have taken longer to develop.

Within the NZAS – South Island network, actors had prior business experience with each other; this is credited with developing a close working relationship between them. Within Dunedin, all actors have a good working relationship and this is especially so between Dunedin City Council and the University of Otago. The smallness of the South Island also aids understanding of key individuals and key organisations:

And it was from an economic point of view, economic department, that we decided this was good for Dunedin, to have them based here, and it was good for our athletes ... And in doing that, that brought a number of agencies together, being Sport Otago, Council, the University... So it brought those people together, having gone through the application and wanting them there, of course the network was already set up ... (Work-unit level)

There's always been town and gown I guess in Otago ... And Dunedin's not a big town, you know 110,000 people... (Individual level)

The Dunedin-based bid was generally credited as being the best bid to run elite sport provision because it was the most cohesive and had the best vision. There was a competing bid from Christchurch which was compelling as most of the athletes and coaches are based there; however, the actors involved were not unified and, as a result, the bid failed:

And we couldn't get our act together in Christchurch, there were warring factions ... And we really failed. We put a bid forward, but it didn't compare with Dunedin's ... I think we would have presented as a rather fragmented bunch, despite our best efforts. (CEO/Board level)

... wanted to control it. I think it was the control thing. Was it the city or was it the university? And the others, Teachers College or College of Education were probably tagging on. And it never got sorted out. (Individual level)

Discussion

Prior relationships are influential and essential in determining the basis for network formation and early stages for growth (Chetty & Blankenburg Holm, 2000; Coviello, 2006; Sadler & Chetty, 2000; Witt, 2004). At the pre-network formation stage, organisations are in business relationships for other reasons, such as obtaining knowledge critical to the organisation that enables the achievement of strategic objectives, and as a by-product of this are able to identify other opportunities for the organisation. This can be seen in the present study by actors in the NZAS – North network. These relationships are influential and essential in determining the basis for network formation and early stages for growth at the pre-network formation stage, as noted by a number of researchers (Chetty &

Blankenburg Holm, 2000; Coviello, 2006; Sadler & Chetty, 2000; Witt, 2004). This view is strongly supported by the present study and is demonstrated by the three embedded cases.

Actors that fail to configure effective networks at the beginning suffer consequences of resource scarcity (Baum et al., 2000; Gomes-Casseres, 1994). To ensure forming an effective network, actors need to carefully examine the configuration of potential partners so that they do not form multiple alliances with similar partners, and to consider which potential rivals make the most beneficial partners (Baum et al., 2000). Evidence within the study supports prior studies as the central broker for the NZAS – South Island network invited potential partners to join the network based on the resources and capabilities they held. The three actors responsible for jointly forming the NZAS – North network also identified one other actor to join the network based on that actor’s capability. However, three of the network actors are in the same business and compete with each other, resulting in the NZAS – North network being efficient rather than effective.

The process of network formation is further explained in general terms by the ‘small world’ principle in which all actors are connected to others via a chain of others. The ‘smallness’ refers to the perception that everyone is closely associated to everyone else, despite geographical distance (Watts, 1999), inferring actors know of each other directly or have acquaintances in common. This was certainly the case during the formation of the NZAS – South Island network. The implication of the ‘small world’ principle for explaining network initiation and early growth stages is that information concerning actor suitability is easier to come by when actors know or know of each other. This is especially important because trust and identification have more influence for entering a network than economic convenience (Gulati & Gargiulo, 1999; Watts, 1999). This view is strongly supported by the three embedded cases.

Summary

Relationships established at the pre-network formation stage contribute towards effectiveness. These relationships may be formed through social ties, from prior experience, or as a result of ‘small world’ principles, and they enable network actors to work together

as trust and understanding already exist. The finding has already been conceptualised in existing literature; the contribution from this study is to provide further empirical evidence for it.

The three embedded cases highlight the effect of pre-network relationships for network effectiveness. The NZAS – North and NZAS – South Island networks both had prior experience of working together which meant actor identification and norms of behaviour were addressed. In contrast, the failed bid from Christchurch and the ineffective NZAS – Central network both demonstrate the importance of working collaboratively with an understanding of others.

6.6 Chapter summary

The cross-case analysis has enabled the identification of four themes associated with effectiveness in intentionally formed networks. This was achieved by using a combination of qualitative and quantitative techniques, and by comparing findings across the three embedded cases by the construct areas identified from prior studies, as discussed in the literature review in Chapter Two. The next chapter reports the conclusions from the study.

Chapter Seven

Conclusion

7.0 How the research objectives of the study were addressed

The study critically examined organising dynamics within an intentionally formed network through the measurement of tie strength. Investigating an intentionally formed network is an important contribution as prior studies have tended to neglect it and instead have mainly focused on explaining organic networks. A number of researchers have identified the need to understand intentionally formed networks (Håkansson, 2006; Pihkala et al., 1999; Tikkanen & Parvinen, 2006). The importance of intentionally formed networks was reported in Chapter One as enabling organisations and governments to obtain the same benefits as naturally emerging networks by making it possible for smaller organisations to compete globally through joining together with others to achieve a specific purpose (Chetty & Patterson, 2002; Galaskiewicz, 1996; Powell, 1990). Previous research also noted the high failure rate of networks and the cost of failure incurred, which is a concern for all involved (Day, 1995; Håkansson & Ford, 2002). Researchers have reported intentionally formed networks are managed by a central broker in which the central broker hands back power to actors once the network has become established; however, these networks have not been durable (Chetty & Patterson, 2002; Welch et al., 2000). These concerns have informed the purpose of this study in which the overall aim was to understand how the multiple levels within networks influenced the organising dynamics within an intentionally formed network. The research objectives of the study were:

1. To develop insights that make a valuable contribution to network theory by progressing understanding of intentionally formed networks grounded in managerial practice.
2. To understand from a multi-level network perspective, how the organising dynamics contribute to the operation of an intentionally formed network.
3. To investigate and understand how, from a managerial perspective, an intentionally formed network approach has been used for a national programme to achieve global outcomes.

To ensure rigour in addressing the three objectives, particular attention was paid to the challenges of network research noted by Coviello et al. (1997), Håkansson (2006), Halinen and Törnroos (2005), and Hoang and Antononcic (2003). These researchers uniformly identified the case-study strategy as the most suitable approach for understanding networks. This is because the case study allows for multiple methods that can combine structural and relational aspects over time, thus addressing the complex and dynamic nature of networks. Context of the network was also important to understand because it informed why and how the network was created, as well as the forces acting upon it which then influence structural and relational dimensions within the network (Anderson et al., 1994; Wilkinson & Young, 2002). Accordingly, the networks were examined over time from the perspective of the research participants. Data was gathered at multiple levels from within the three embedded networks (in which one of the embedded networks represented a polarised case of being ineffective),¹⁷ and from client organisations of the networks (who also represented polarised cases of being effective and ineffective). The three embedded networks were formed under the exact same conditions at the same time. By comparing and contrasting across the three embedded networks it was possible to generate stronger findings. Quantitative and qualitative data measuring relational aspects and network structure was combined to gain a richer understanding of practices.

7.1 Contributions to theory

In order to address the research aim it was necessary to understand a national programme which had global objectives as it informed the context in which the study was based. In so doing, the study makes a significant academic contribution through the development of theory. It does this in *six* ways. *First*, the findings reveal a new network form previously unidentified, termed here *structured* network. The findings have answered a call for more research into identifying network types by Håkansson (2006), and Möller and Rajala (2007) which was begun in 2000 by Liu and Brookfield (2000). The structured network differs

¹⁷ Effectiveness was defined in Chapter Two as producing a desired or intended result and was based on a dictionary definition (Soanes & Stevenson, 2006). Effectiveness was evidenced by 'business development' of the networks (Mouzas, 2006) through the management of structures and relationships (Tuominen et al., 2000). The findings in Chapter Five showed effectiveness in the NZAS – South Island network. Operationalisation of the term was from the viewpoint of the practitioner and was explained in Chapter Four, which dealt with the research method.

from intentionally formed networks which are created by governments with the intention of the central broker handing over power to actors once the network becomes established, and which have been found not to be durable (Chetty & Patterson, 2002; Welch et al., 1998). What is different and new about the form of network identified here is the network that was effective was also durable, and that the central broker, which is a government agency, has retained their position within it. However, the creation of an intentionally formed network in which the central broker retains power is evidenced by prior research conducted by Dyer & Nobeoka (2000) on the Toyota network, the actors being in the car-manufacturing industry. The points of difference with the NZAS network is that a government organisation has retained power over actors and the actors are from differing service industries to each other – although there are overlapping business objectives which enable network membership. As shown in Chapter Five, central brokers retained power of the network and NZAS – South Island, managed by a central broker, was both an effective and durable network. This was in contrast to the NZAS – Central network which was not durable and was demonstrated to be ineffective. Evidence of NZAS network actors being in different service industries is demonstrated by the findings presented in Appendix D.

Second, the importance of cross-level pressures was investigated within each of the embedded networks. Previous research has tended to focus on merely noting the existence or non-existence of relationships (Brass et al., 2004; Möller et al., 2005), and this study answers a call made by Brass et al. (2004) for more research into measuring the strength of relationships within networks.

In order to investigate cross-level pressures, it was necessary to examine the three networks using a combination of qualitative and quantitative techniques, as recommended by Coviello (2005) and Coviello et al.(1997). Cross-level pressures were measured at the three organisational levels of CEO/Board, work-unit and individual (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003). The research findings demonstrate the importance of engaging these multiple levels within the network because each level has a differing objective. Evidence for this has been presented in Theme Two in Chapter Six: the NZAS – North and NZAS – Central networks have mixed levels of engagement, in contrast to the NZAS –

South Island network which has engaged all three organisational levels. Overall relational strength between network actors is also important to understand because it informs whether connections between actors are working as they should. By investigating the strength of relational aspects, the study also demonstrated how it influences network organising dynamics.

Third, organising dynamics influence network effectiveness and durability; these are dependent on the role of the central broker who must add value to the network, to the actors, and to its clients through appropriate coordination mechanisms, communication, bridging of structural holes, setting of strategic direction, and coordination of resources for business development, as well as through the holding of social capital. The study's findings are compatible with results found by Cowan et al. (2007) and Pihkala et al. (1999) because they highlight the importance of the central broker's influence and authority. Evidence for this was presented in Chapter Five where NZAS – South Island was shown to represent an effective network and to be managed by a central broker who was able to add value. In contrast, the NZAS – Central network was shown to be neither effective nor durable and the central broker was not able to add value. Evidence for this was also presented in Chapter Six in Theme One. Evidence of actors' differing objectives and different markets is shown in Appendix D.

Fourth, relationships developed at the pre-network formation stage contribute to network effectiveness. These relationships enable network actors to work together as trust and understanding already exist. Relationships may be formed through social ties, from prior experience of working with others, or as a result of 'small world' principles. Evidence of this was presented in Chapter Five for the NZAS – North and NZAS – South Island networks, in which actors had prior experience of working with each other. In contrast, the NZAS – Central network did not include actors that had prior experience of working with each other. The finding is congruent with previous studies which note prior relationships are influential and essential in determining the basis for network formation and early stages for growth (Chetty & Blankenburg Holm, 2000; Coviello, 2006; Sadler & Chetty, 2000;

Witt, 2004). Although the finding has already been conceptualised in existing literature, this study contributes further empirical evidence for it.

Fifth, an understanding of network context is not critical for actors. The findings differ from prior research studies which assert that an understanding of the network context is critical for actors and for network survival because actors are able to make sense of the network environment and, as a result, position themselves accordingly to take advantage of new developments (Anderson et al., 1994; Cook, 1977; Erickson & Kushner, 1999; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002). Context is not well understood by actors in the three embedded networks in the study. This may be explained by two occurrences: First, the central broker matches organisational objectives to network activities so there is no need for actors to understand the context as their primary business aim is being met successfully. The role of the central broker, then, is crucial in coordinating tasks and in matching network development opportunities, as noted by Pihkala et al. (1999). Evidence for this is presented in Chapter Five by the NZAS – South Island network, in which the central broker is credited with matching opportunities to actors and also understanding their objectives. Second, actors are unable to influence parts of the network or the network processes due to the role held by the central broker. This is because the central broker holds the most power within the network, and monitors the network with the intention of safeguarding the interests of meeting network objectives and matching these to the appropriate actors. The finding of the central broker holding the most power is congruent with prior studies which note actors maintain a central position by establishing and renewing connections with others which results in them being able to exert the greatest influence over the network's development for their own advantage (Powell et al., 2005). The difference, however, between this study and prior research is that prior research shows actors position themselves accordingly to take advantage of new developments (Anderson et al., 1994; Gulati et al., 2000; Mattsson, 1997; Wilkinson & Young, 2002), whereas within this particular study they are unable to do so because of the role of the central broker. Evidence for this is presented in Chapter Five by the pattern of connections linking NZAS – North Inc. and NZAS – South Island Inc. to others: the patterns for these two central brokers contrast with those of the ineffective NZAS – Central network in which the

central broker has not been able to maintain connections with others over time. Further detailed evidence of connections between actors and the influence these connections have within each of the networks is presented in Appendix J.

Sixth, previous studies and theoretical perspectives from the literature concerning sport networks note few studies had been conducted in a national not-for-profit organisation, making this particular study a relatively new context for network research (Cousens & Slack, 2005; Erickson & Kushner, 1999; Thibault & Harvey, 1997; Wolfe et al., 2002). The findings from the research are relevant and applicable to other business sectors such as not-for-profit and social policy sectors because the objectives of the network researched in the study were socially constructed. Organisations in these sectors are facing challenges of reaching beyond their traditional markets as a result of their changing environment, which is becoming more complex and competitive. Partnering with others presents a means of dealing with the environment uncertainty. Also, previous research in the sport sector has focused on noting changes over time in the network environment, with the transformation of the network resulting from a shift in the balance of power (Cousens & Slack, 2005; Thibault & Harvey, 1997; Wolfe et al., 2002). Erickson and Kushner (1999) applied network theory to a sports event, noting the immediacy of public awareness for whether the network activity was successful or not – which is a different finding to network studies in other business contexts. While this study has examined networks in the same sport context, it differs from previous studies by contributing understanding of how an intentionally created network was formed in response to national concerns. The results have demonstrated that effective networks can be intentionally created to meet global objectives in the not-for-profit sector. Evidence of the context for the study is presented in Chapter Five (NZ), and additional information on the network context is provided in Chapter Three (global). Chapter Five also describes how the NZAS – North, NZAS – Central and NZAS – South Island networks were intentionally created to provide services to match global objectives. The NZAS – North and NZAS – South Island networks have proved to be durable, in contrast to the NZAS – Central network which was not durable, and evidence for this is also presented in Chapter Five.

The findings from the study also demonstrate the unique approach taken by the New Zealand government of issuing a tender in order to gauge the level of interest and the resources available that could meet the needs of the elite and high-performance sport sector. As a result, a network approach was adopted with the creation of a branded strategy and three interdependent networks. A national and global view was necessary in order to fully comprehend the network approach taken and the influences acting upon it. The research also demonstrates the formation, structure and informal coordination mechanism aspects of the networks in order to understand how the actors that comprise the NZAS system work collaboratively to achieve global outcomes.

7.2 Methodological contributions

A methodological contribution was made by addressing a gap in the research approach in the study of networks. The gap is the result of a lack of literature into the methodology of network examination (Halinen & Törnroos, 2005). It is a result of both the emerging nature of the research area, and its complexity (Hoang & Antoncic, 2003; O'Donnell et al., 2001). The contribution made here in the current study is that of combining qualitative and quantitative techniques; this has enabled an holistic research approach to investigate both structural and informal coordination mechanisms and answers a call made by a number of researchers (Coviello, 2005; Coviello et al., 1997; Halinen & Törnroos, 2005).

The three technical aspects of the study that enabled this methodological contribution were: *First*, a review of the literature had not identified any previous study that had examined three networks which were formed under the same conditions at the same time and where one of the networks represented a polarised case. By selecting and researching the three embedded networks in the NZAS structure, this study makes a unique contribution. Furthermore, data was gathered from clients of the networks who also represented polarised cases of being effective and ineffective; this made it possible to compare and contrast findings to generate more powerful explanations. Specifically, the multi-method approach comprising of in-depth interviews, cognitive-mapping techniques and quantitative techniques, provided enriched findings and a means of ensuring triangulation from the multiple data sources. The selected networks were studied over time and at different levels

with the examination of the form of the network and the informal coordination mechanisms.

Second, the study answers the call by Brass et al. (2004) for more research in the area of measuring the strength of relationships. Due to the emerging nature and complexity of the research area, there is a lack of measurement of relational strength in network literature. This has meant there is a deficiency of methodological research into networks and a resulting lack of clear guidelines for how they should be studied, as noted by Halinen and Törnroos (2005). These researchers also proposed general parameters to answer this, and their instruction was taken into account when designing the research method for the study, as described in Chapter Four.

Third, the emerging nature and the complexity of the research area has resulted in a mainly qualitative approach being adopted by researchers (Coviello, 2005; Halinen & Törnroos, 2005). However, in order to investigate cross-level pressures it was necessary to examine networks using a combination of both qualitative and quantitative techniques, as recommended by Coviello (2005) and Coviello et al., (1997). Cross-level pressures were measured at three organisational levels of CEO/Board, work-unit and individual (Bennis, 1989; Kirk, 1999; Mitronen & Möller, 2003). This answers a call for more research into cross-level pressures, because previous research had tended to focus on merely noting the existence, or non-existence, of relationships (Brass et al., 2004; Möller et al., 2005)

7.3 Propositions

The research was concerned with understanding how the multiple levels within networks influence the organising dynamics in an intentionally formed network; it was addressed from the perspective of the focal actor and measured through the strength of ties between actors. Key themes presented in Chapter Six identified various factors in the study that had an impact on effectiveness in intentionally formed networks. These themes are summarised and presented below as propositions and, as such, it is reasoned that these can be used to inform future empirical studies.

- *Proposition One:* Effective network organising dynamics are dependent on the central broker adding value to network actors and clients:
 - through communication
 - by bridging structural holes
 - by setting strategic direction
 - by coordinating resources for business development, and
 - by holding social capital.
- *Proposition Two:* Cross-level pressures influence network effectiveness.
- *Proposition Three:* An understanding of network context is not critical for network effectiveness.
- *Proposition Four:* Relationships established at the pre-network formation stage improve network effectiveness.

The propositions provide new insight into intentionally formed network effectiveness. Although Proposition Four has already been conceptualised in existing literature, the contribution from this study is to provide further empirical evidence of it. Managerial implications identified in the study are summarised next.

7.4 Managerial implications

These should not be treated as generalisable findings because of the small sample size used in the study, rather findings that are now ready for further investigation.

1. Networks that are intentionally created and managed and that are comprised of actors that have different objectives and serving differing markets can be durable and effective. This has implications for practitioners involved in them and for governments that are interested in creating them. Durability and effectiveness are dependent on the *permanent* role of the central broker. To ensure effectiveness and durability the central broker *must add value* to the network, to the actors, and to the network's clients through appropriate coordination mechanisms, communication, bridging of structural holes, setting

of strategic direction, coordination of resources for business development, and by holding social capital.

2. Cross-level pressures within networks *need* to be matched to network objectives. For the network to be effective, all organisational levels (CEO/Board, work-unit and individual) need to be engaged in the completion of network tasks.
3. Within an intentionally formed network actors do not need to be aware of the network context because the central broker negates the benefits derived from this through holding power. Actors are prevented from manoeuvring into positions of power within the network as the role of the central broker is to connect actors and match opportunities between them and others with network tasks. It requires the central broker to *understand* each actor's objectives and the network environment.
4. Prior knowledge of others through social ties, working together on earlier projects or as a result of the 'small world' principle, is influential and essential in determining the basis for network formation and early stages for growth. However, the network needs to later develop a *strategic focus* and identify actors with appropriate resources and capabilities for undertaking the network tasks.
5. Central brokers need to pay attention to the *strength of relational aspects* within the network. These are an indication of how effective the overall network is, whether connections between individual actors are effective, and also the importance of the actors for network tasks. By measuring relational strength it may be possible to address and identify relationships that are not working as well as they could.
6. A network approach can be successfully applied to the not-for-profit sector, such as arts and traditional charities, and the social policy sector. Partnering with others to form networks will be of importance to organisations in these sectors to enable them to face challenges in their changing environment. These changes are the result of them needing to reach beyond their traditional markets.

7.5 Strengths and limitations of the study

The strength of the study is in the sampling method used to ensure depth and to draw out complex themes. To this end, a single embedded case was selected consisting of three embedded networks comprising of SPARC's branded strategy, the New Zealand Academy of Sport. The three networks were formed under the same conditions and at the same time, enabling a comparison between similar organisations. However, the approach taken does mean the small number of sub-units comprising the case impacts the validity of generalising the findings. As such, the results are generalisable only to the theoretical propositions outlined for the embedded case and the findings have been carefully reported to reflect this (Graziano & Raulin, 1997; Yin, 1994).

Data was gathered from 56 in-depth interviews and 144 questionnaires completed by 41 research participants. This represented a limited sample size across the three networks. In order to make the study even stronger a larger sample size could have been included for the quantitative measures that were used; however, this was not realistic due to time requirements and the nature of the study itself. There were problems with reliability of the quantitative data because of the small sample size: there were missing values which restricted the number of statistical tests that could have been run using SPSS and UCINET 6 software. Limitations in terms of reliability were also experienced from presenting only one question for each construct area in the questionnaire. As a result of this constraint, multiple measures for the same constructs were not made so it was not possible to measure correlations for reliability (Churchill, 1979).

7.6 Future research

Network studies are an emerging area of research interest and the study of networks themselves presents a complex methodological problem. Hence further research is needed to address the complexity of networks by investigating them over time, in order to capture their dynamic aspect, and at more than one level, in order to assess cross-level pressures within networks. Measurement of the relational strength between actors also needs to be investigated. The propositions developed from the present study provide the basis for this further investigation in greater detail.

A more detailed in-depth study of a single network which combines both qualitative and quantitative methods in which data is gathered from all actors in the network is called for. Such a study would also allow for a more rigorous testing of the propositions developed in the present study. Also, a larger-scale national or international quantitative study could further test the propositions with the view to developing a model for understanding network organising dynamics and further testing of the measurement of tie strength. Such a model could be used to test the constructs and relationships between actors within a network, with effectiveness as an independent variable. Quantitative data should be collected in more than one way in order to test the reliability of each variable within the model. This could be replicated across a different time span with different agencies, and either across the same business sector or other sectors.

Further investigation is required into actors' levels of understanding of the network context. It might be that increased awareness of context could increase motivation and commitment levels, thus ensuring network effectiveness. Also, future research needs to consider the effects of structural holes as prior studies present contrasting findings for the benefits of closed and open networks. Motivations of actors for improving their network position and how these actors may be managed by a central broker is also an area requiring further research attention.

There is a lack of research in the area of intentionally formed networks, despite interest being shown by businesses and governments in creating intentionally managed networks. Thus, future studies of this nature would be of benefit to both academics and practitioners alike. In particular, further research is required into networks in the sport and not-for-profit sectors.

7.7 Final words

The research was concerned with understanding how the multiple levels within networks influence the organising dynamics in an intentionally formed network; it was addressed from the perspective of the focal actor and measured through the strength of ties between actors. The objectives and issues identified within the study have been addressed and answered as a result of the research process that was employed. The use of a case-study strategy enabled the combination of qualitative and quantitative techniques to enrich and add depth to the findings. The research approach captured the practices of those involved in the networks to present ‘real life’ experiences of intentionally formed networks. The study highlighted key areas for understanding organising dynamics, from which new insights were noted. By so doing, the study has increased understanding of the dynamic and complex processes within intentionally formed networks.

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Appendix A
Key contributions from the literature that inform the study

Table A.1: Key contributions that inform the study

Study	Main issue/objective	Theoretical influences	Industry/sector/ product/ country focus	Data collection	Key findings and contributions	Limitations
Achrol (1991)	Presents argument of weakening of the vertical organisation of economic activity. Puts forward two predictions for how companies will evolve: marketing-exchange company and marketing-coalition company.	Networks.	Conceptual.	Conceptual.	Organisations need to move toward organising themselves to reflect diversity and the borderless market place. Response is a flexible organisation operating as a network. This will be governed by norms of behaviour. Links to network theory and explains relevance to change in market place.	No empirical tests (qualitative or quantitative).
Anderson et al. (1994)	Provides conceptual development of dyadic business relationships in a network context. Advances business network as set of connected relationships. Interested in managers' perceptions to develop theory and management practice.	Business network and social exchange theory.	Case study of wood saw network, and case study of label printer for Danish soft-drink industry.	None. Uses empirical evidence previously described in two separate case studies.	Presents a conceptual framework to understanding organisations' decision-making. Greater attention needs to be paid to business network context. Calls for more detailed case studies to enrich understanding of networks over time.	Need to test this empirically.

Bell (2005)	Extends current knowledge by disentangling cluster from network research. Examines network centrality, influence of clusters, and structure on network innovativeness.	Clusters (economic activity), networks.	Canadian mutual fund companies (finance).	Mixed method approach. Sample size of 23 with 6 useable responses consisting of survey of industry experts, financial columnists in Canada's business press, and executives of mutual fund data services. Entire industry net. Examined connectedness of all 77 fund companies in Canada.	Finds both cluster and network mechanisms innovation enhances firm prestige.	Study does not account for firm-specific factors influencing innovativeness. Calls for research into innovation in service industries.
Bell & Zaheer (2007)	How different network ties between firms vary in their ability to carry knowledge across geographical space.	Organisational knowledge flow and innovation. Absorptive capacity. Networks.	Canadian mutual fund companies (finance).	Examined connectedness of all 77 fund companies in Canada. Entire industry net. Mixed method approach. Sample size of 23 with 6 useable responses consisting of survey of industry experts, financial columnists in Canada's business press, and executives of mutual fund data services. Modelled three distinct networks. Analysed at different levels – individual, manager. And at firm level and institutional level.	Individual level ties are more enduring for the transmission of knowledge over geography. These ties effectively transmit knowledge especially when friends are geographically distant. Institutional ties forms conduits for knowledge only when there is geographic proximity. Organisational ties have no affect on knowledge flows and is not affected by geography. Study contributes to overall understanding of how geography influences ability of different ties to drive knowledge flows in organisations which is an important precursor to innovation.	Networks measured at a single point in time. Strength of ties not measured.

Bengtsson & Kock (1999)	Examines nature of relationships between competitors in business markets.	IMPG networks, strategic management.	Sweden rack and pinion industry – four companies (lifts) and lining industry – two companies (mining).	Two in-depth case studies. 16 participants interviewed.	Firms are involved in different types of relationships. Four types were identified – competition, co-opetition, cooperation, and coexistence.	Exploratory case study which is static in time. Further empirical testing required.
Benson-Rea and Wilson (2003)	Argue that organisation needs to take into account industry life-cycle stage and own life-cycle development stage. Builds a conceptual model to maximise learning.	Industrial Marketing Purchasing Group (IMP) network theory and entrepreneurship literature on networks.	NZ wine industry.	Case studies of four organisations in the NZ wine industry.	Presents a framework for conceptualising the way an organisation learns, and applies life-cycle concept to networks. Network structures are both intentional and emergent.	Need to duplicate study and empirically test.
Brass et al. (1998)	Explores how relationships amongst individuals influence unethical behaviour in organisations.	Social network analysis.	Conceptual.	Conceptual.	Constraints and opportunities provided by relationships may predict unethical behaviour. This may be the result of network structure.	No empirical tests (qualitative or quantitative).
Brass et al.(2004)	Systematic review of network literature.	Review of networks – interpersonal, interunit and interorganisational.	Systematic review of network literature.	None. Systematic review of network literature.	Identifies areas of interest for research: trade-off in networks (i.e. gaining information while not giving any away), dynamics through longitudinal studies, multilevel rather than single-level studies, strength and content of relationships.	Review. No empirical testing (qualitative or quantitative).

Campbell and Cooper (1999)	Investigates impact of customer involvement in new product development (NPD).	IMP and new product development.	Chemical, electronic, and industrial product organisations.	Quantitative study targeting key respondents in 250 organisations; final sample size of 88.	Finds customer partnering does not predict ultimate success of NPD, but customer partnerships do improve NPD advantage. Identifies need to develop comprehensive NPD model.	Further work needed on mediating influences of partnering with customers in NPD. Does not compare costs of within-house partnering compared to customer partnering. Study is not longitudinal.
Cook (1977)	Develops exchange model for purpose of analysis of interorganisational relations. Provides guidelines for future theoretical development.	Social exchange theory and organisational theory.	Conceptual.	Conceptual.	Develops exchange theory model. Exchange theory provides useful framework for analysis of interorganisational relations. Finds most of the research is conceptually undeveloped in this area that tests exchange propositions.	No empirical testing (qualitative or quantitative).
Cousens and Slack (2005)	Explores evolution of network over time in response to environmental changes.	Networks applied to sports industry.	North American Major League professional sport (baseball).	Qualitative and quantitative. Primary sources consist of nine interviews to understand quantitative data. Quantitative data is secondary sources and gathered from 1970–1997 from 410 documents. Uses historical data to track changes over time. Uses this approach to develop a longitudinal study.	Maps out key landmark events in legislation and changes in network to explain how these influenced network actors. Changes in power based on changes in critical resources and how this changed actors' position in network and power. Shows how networks emerge at macro-level not micro-level.	Need to duplicate study. Applies network theory to sports industry but does not extend it in any way.

Coviello (2005)	Introduces research method that allows network dynamics to be examined over time. Method integrates quantitative and qualitative data.	Network theory.	Glassworks.	Qualitative study (using three individuals) with the use of software (UCINET 6) to map structural dimensions. Takes a retrospective longitudinal approach.	Focuses on developing the research method. This enables study of process and outcomes over time and understanding how these influence network development.	Single case study limits representativeness.
Dyer & Nobeoka (2000)	Investigates knowledge diffusion and knowledge sharing in a network. Objectives (1) How to motivate self-interest? (2) Free rider problem. (3) Maximise efficiency of knowledge transfer.	Organisational learning, networks. Bases study on Easton & Araujo (1992) and Easton et al (1993) research on five types of relationship between competitors.	Toyota.	Exploratory multi-method case study. Interviews conducted with 30 Toyota and 21 senior supplier executives.	Toyota solved three knowledge sharing dilemmas; (1) motivate participants, (2) prevent free riders, (3) reduce costs with regard to accessing knowledge. Findings include Toyota being 'convenor' of network.	Exploratory case study. Further empirical testing required.
Erikson and Kushner (1999)	Examines implications of network theory for service organisations. Clarifies network theory by illustrating a number of basic network concepts in this setting. Looks at dyadic relationship between promoter and facility owner.	Business network theory.	Sports/public entertainment industry.	Theoretical analysis based on observing two major sport events. Qualitative interviews with executives. Use of background information from secondary sources.	Provides insight into basic power issues and how these influence network position. Identifies other links being made in network at tertiary level not through main actors.	Need to test this empirically. Needs further work on power relations.
Geser (1992)	Presents argument of network actors as organisations.	Economics, sociology, and law.	Conceptual.	Conceptual.	Concludes social actor and social interaction apply in a better way to organisations rather than individuals.	No empirical tests (qualitative or quantitative).

Gadde and Mattsson (1987)	Examines dyadic relationship in context of network. Looks at stability and long-term relations. Need to examine this from focal actor point of view.	IMP.	Conceptual.	None. Uses empirical evidence described in three previous studies.	Finds relational changes between actors are a gradual process. Finds typical entry and exit patterns of actors. Shows importance of taking a long-term perspective in studying networks.	Data is descriptive but does not explain why changes happen; qualitative data is required.
Gulati et al.(2000)	Strategic networks provide organisations with access to resources and allow them to achieve strategic objectives. Illustrates importance of networks' impact by considering five traditional sources of differential returns to organisations in strategy research.	Networks and strategic theory. Identifies a gap in the literature: strategic implications for organisations embedded in network and their position in network.	Conceptual.	None.	A strategic approach is useful in studying networks. Allows a more refined understanding of industry structure, i.e. networks can influence nature and degree of competition and profitability beyond traditional measures of industry concentration.	No empirical tests (qualitative or quantitative).
Håkansson (2006)	Examines how company operates in network context. Identifies key features of network for creating wealth.	IMP.	Furniture.	None. Uses empirical evidence described in previous case study.	Develops proposition: interactions within business environments are used to create efficient solutions. These interactions need to be analysed in a network context.	Need to test this empirically.
Halinen and Törnroos (2005)	Examines practicality of case research into business networks.	Networks and case-study research method.	Conceptual.	Conceptual. Uses an example of telecommunication industry as research vehicle to illustrate points.	Provides guidelines for problems of network boundary, complexity, time, and comparisons.	The guideline areas are fairly unknown territory for network researchers as most network research has focused on describing different types of networks.

Havila & Wilkinson (2002)	Examines relationship termination and the energy that exists when relationship ends. Examines what happens when trading stops to the social bonds.	IMPG	IMP2 database of Swedish industrial product firms.	Swedish firms from IMP2 case study database. Three case studies selected from eleven. Interviews and questionnaires with focal firm and an identified firm from focal firm perspective.	Relationship dissolution due to external circumstances rather than due to dissatisfaction.	Exploratory case studies. Further empirical testing required.
Hite and Hesterly (2001)	Are cohesive networks of socially embedded ties or sparse networks rich in structural holes more conducive to success?	Networks theory, strategy theory, entrepreneurship theory.	Conceptual.	None.	Addresses evolution of organisation networks. Tries to explain a shift in strategic intent during development of network. Builds a conceptual model.	No empirical tests (qualitative or quantitative).
Hoang and Antononcic (2003)	Provides a systematic literature review of networks in entrepreneurship literature.	Networks and entrepreneurship.	Critical review of literature.	None. Critical review of literature.	Notes conceptual vagueness of network approach to date with no over-arching theory.	Review. No empirical testing (qualitative or quantitative).
Holmen & Pedersen (2003)	Discuss network horizons and the effect of managers influencing this and the impact on the firms' business strategy.	IMPG	Scandinavian electronics industry.	Case study of firm called HybTech. 16 telephone interviews with marketing and sales, technology and process, and management.	The ability of a firm in a network depends on its strategizing – how it initiates and reacts to change in the network.	Exploratory case studies. Further empirical testing required. Theory requires further development as there appears to be no single optimal network horizon solution.

Koka & Prescott (2002)	Presents social capital as a multidimensional construct. Yields-information diversity, information richness, and information volume. Explains why performances between firms differ.	Strategic alliances, networks.	Global steel industry comprising alliances in 162 firms from 48 countries.	Builds a model using alliance data over 1980-94 period. Alliance and network matrix constructed for network measures of social capital construct. Formally tests construct validity of social capital.	Conceptualises social capital at the network level to consider entire networks while considering an alliance. Firms differ in their level of social capital. Firms can change their position to establish social capital. Large network changes are due to information richness and information diversity.	Requires in-depth study to validate and explore relational dynamics affect nature of informational flows.
Kogut (2000)	To understand networks as arising out of generative rules. Whereby rents are accrued to brokers, and to closed network groups.	Networks.	Conceptual.	Conceptual.	Networks are the outcome of generative rules of coordination.	No empirical tests (qualitative or quantitative).
Liu & Brookfield (2000)	Illustrates network dynamics and structure. Examines factors influencing network shapes, and various forms of networks.	Networks, strategic management, and economics.	Supplier networks in Taiwan's machine tool industry.	Three case studies taken from 80 year research project. Research for this paper was between 1996 and 1998 of 24 interviews, factory visits, includes six suppliers and six members of network, and top management of focal firm.	Identifies stars, rings, and tiers as basic organisational patterns of networks.	Further empirical testing required in other industries and cultures.

Lubatkin, Florin, & Lane (2001)	Reviews process of interfirm learning and develops a model.	Alliances.	Conceptual.	Conceptual with development of a model.	States knowledge of learning alliances is based on knowledge absorption. Argues organisational economic, game and social identity theory may be useful for explaining failure of learning alliances but not their success. Develops a model to explain reciprocal learning.	Focuses on two firms in alliance, need further research into networks. No empirical tests (qualitative or quantitative).
Madhavan, Koka, & Prescott (1998)	Understanding how industry events shape networks. Determining how to use the network changes for specific firm benefit.	Strategic alliances, networks.	Global steel industry.	Tested hypothesis by analysing changes in global steel industry 1997 to 1993. Data obtained from Dow Jones News Retrieval Service.	Industry events may be either structure re-enforcing or structure loosening. Identifying the event in this way alerts managers. Networks examined over time with contribution of empirical validation of data for structure. Initiates dynamic discussion of networks.	Further empirical testing required into how networks can be strategic resources subject to management design.
Martin & Sunley (2003)	Deconstruct Porter's cluster theory to identify problematic issues with it.	Clusters.	Conceptual.	Conceptual.	Cluster concept cannot provide a deterministic and universal model. And, because there is an association between some high growth industries and geographic location does not mean concentration is the main reason for economic growth.	Calls for careful evaluative research of cluster theory rather than buying into the 'Porter brand'. Further empirical testing required.
Mattsson (1997)	Compares and contrasts relationship marketing theory with network theory.	Relationship marketing (RM) and IMP.	Critical review of RM and IMP network literature.	None. Critical review of RM and IMP network literature.	If take a broad definition of RM it is close to IMP network literature and would benefit from research interaction between the two.	Review. No empirical testing (qualitative or quantitative).

Medlin (2004)	Examination of self-interest constructs of a firms' economic goals as well as collective interests of business relationship.	Networks.	Software firms in Australia and New Zealand.	Relationship managers in partner firms interviewed by phone from 82 firms.	Develops a model and examines relational performance and economic goals. The process of relationship development, the willingness to jointly plan resource mix, and identify attractiveness of partner firms.	Variations in coordination of resource mixes is required into management styles and how these affect relationships. One industry within one cultural boundary analysed, requires further testing in other countries/cultures/industries.
Möller et al.(2005)	Draws distinction between emerging networks, and intentionally created managed networks.	Networks.	Conceptual.	None. Empirical examples provided.	Notes differences between two types of network. Management of intentionally created networks is in 'embryonic' stage. More research is required.	Conceptual. No empirical testing (qualitative or quantitative).
Mouzas (2006)	Examines difference between effectiveness and efficiency in network research.	Networks.	Manufacturers and retailers of well-known blue-chip companies in UK, Switzerland and Germany.	Qualitative. Fifty-seven in-depth interviews and 12 workshops with 84 managers.	Efficiency and effectiveness central terms in assessing performance. Most companies focus on efficiency gains which require different skill set to effectiveness. Little research done on effectiveness.	Qualitative only; need quantitative testing of results. Further work required into effectiveness.
Parkhe et al. (2006)	Brief summary of network theory. Reviews papers in special topic forum on networks.	Networks.	Conceptual.	None.	Review and introduction to special topic forum.	No empirical testing (qualitative or quantitative).

Perry, Cavaye, & Coote (2002)	Examines investments in relationships and how these affect technical and social bonds between partners in franchises.	IMPG.	Australian franchise/franchisee relationships.	Mail survey questionnaire to 693 franchisors in 1998 (response rate 175). Used Morgan & Hunt (1994) questionnaire. Used structural modelling of results.	Finds technical and social bonds between partners in franchises are both important parts of the relationship. It is the starting point for understanding relationships. These bonds enhance efficiency and effectiveness.	Exploratory research limited to Australia. Requires in-depth study to validate findings in other cultures and industries.
Pihkala et al. (1999)	Examines SMEs as part of intentionally created networks.	Networks and resource based theory.	Metal, electronics, and publishing.	Four case studies of SMEs over an 8-year period. SMEs' employee numbers range from 1 to 50.	Value-adding principle is crucial in an intentionally created network. Networking capability is important. Networking is best promoted from within by internal network brokers. New industries favour networking approach. Emergence of managed networks have created expectations.	Qualitative only. More research into this area is required, as not fully understood.
Powell et al. (2005)	Examines the formation and dissolution of a network over a 12-year period. Examines how patterns of interaction emerge.	Networks.	US biotechnology.	Study is longitudinal over 12-year period. Secondary data from biotechnology industry. Created a database of 482 organisations from <i>BioScan</i> database and used data from <i>BioScan</i> to collect information on organisations. Includes interviews with 200 participants.	Growth of network is spurred by new entrants or new activities by members. A regular core of actors are placed at the centre of the network; these actors get richer and have multi-connectivity. Demonstrates how dense connections influence decisions and development of network.	Examines one industry.

Toms & Filatotchev (2004)	Explains the variation of network structures. Seeks to extend theory on network characteristics by synthesising resource based view of firm and resource dependency theory. Extends links between organisational resources and strategic restructuring in turbulent environments.	Networks, governance, strategic management.	British cotton industry 1830-1980.	Builds a theoretical model of typology of networks from case study of Lancashire textile industry. Examined network through time in one industry which played central importance to economic growth of Britain.	Typology of networks identifies two processes to account for dynamic transitions in network structure.	Model reinterprets evolution of cotton industry. Requires further study to validate findings in other cultures and industries.
Young & Wilkinson (1997)	Identifies types of cooperative relationships over time as a means of gaining competitive edge for the firm.	Networks.	Uses Interfirm Relations Research Program (IRRP) data base commenced in mid 80s.	IRRP consists of 35 in-depth semi-structured interviews with managers. Includes pilot study using early version of questionnaire. Measures different aspects of inter-firm relations. Main questionnaire refined and convenience sample contacted with response of 120 respondents.	Relationships are multi-dimensional, including cooperativeness and competitiveness. Relationships operate in the context of other relationships and experiences of this affects how a focal firm is evaluated. Identifies a range of types of relations. Provides insights into the kinds of attractors that may exist as key drivers.	Measurement of cooperativeness and competition needs refinement. Sample not representative of a particular industry or type of firm. Requires further empirical testing in different industries and cultures.
Powell (1987)	Describes diversity of hybrid organisations (networks) and offers explanations for this.	Network forms of social organisation.	Conceptual.	None.	Identifies a new way of organisation: the network.	No empirical testing (qualitative or quantitative).

Powell et al. (2005)	Examines the formation and dissolution of a network over a 12-year period. Examines how patterns of interaction emerge.	Networks.	US biotechnology.	Study is longitudinal over 12-year period. Secondary data from biotechnology industry. Created a database of 482 organisations from <i>BioScan</i> database and used data from <i>BioScan</i> to collect information on organisations. Includes interviews with 200 participants.	Growth of network is spurred by new entrants or new activities by members. A regular core of actors are placed at the centre of the network; these actors get richer and have multi-connectivity. Demonstrates how dense connections influence decisions and development of network.	Examines one industry.
Soda et al.(2004)	Examines short- and long-term impact of closure and structural holes.	Networks.	Italian television production.	Longitudinal study over 12-year period. Used secondary and primary data.	Closure and structural holes are valuable but at different points in time.	Does not include the types of brokerage roles actors play in the network or the influence of this on the network.
Thibault and Harvey (1997)	Explores and examines links in Canadian sports system. Presents different strategies for the creation of these links. Presents issues and problems surrounding these links.	Resource-dependency theory and Canadian sports structure.	Canadian sports system.	Conceptual.	Identifies drivers for relationship building (increased competition for resources, organisations required to be accountable, government funding-sources decreasing). Calls for formalisation of links and examines ways in which sports organisations have got money out of the system in past. Reviews funding and delivery systems and roles. Identifies strategies for relationship formation.	Conceptual.

Tikkanen and Parvinen (2006)	Investigates literature on planned networks in order to identify gaps in knowledge.	Networks.	Conceptual. Sets out to presents a review of planned network literature but finds there is scant literature in this area.	Conceptual.	Finds issues with research emanate from complexity of economic activity, decentralised decision-making, networking as a key success mechanism, fragmentation of information, and shift toward customisation.	No empirical testing (qualitative or quantitative).
Tuominen et al.(2000)	Examines high- and low-performing companies in terms of organisational design. Examines the interplay between customers and organisational design and how this influences performance.	IMP and intraorganisational relationships.	Finnish metal, engineering and electro technical companies.	Quantitative study. Postal survey of 340 organisations with more than 60 employees. Mailed to managing directors. Response rate of 142.	Intraorganisational dimensions have a positive impact on performance excellence. Commitment of personnel is higher in high-performing companies and is the critical component.	Uses one level to analyse organisations.
Wilkinson and Young (2002)	Investigates how organisations should behave in a business network.	IMP.	Conceptual.	Conceptual.	Cooperative strategies that take into account the needs of others are more appropriate than controlling strategies. Managers need to become more flexible and adaptable in their approach.	No empirical testing (qualitative or quantitative).

Wolfe et al.(2002)	Examines the position of power held by actors within the network. Looks at the impact of the arrival of satellite TV on the network and how this has affected positions of power.	Network. Looks at power relationships and way in which network is not working as currently transaction-cost-based relationships are predominant.	Recreation/sport industry in Ireland	Empirical data gathered from National Governing Body of Sport (NGBs), sport sponsors, media, and experts. Fifty in-depth interviews	Contends trust and commitment required in order to avoid conflict and engender cooperation. This will benefit long-term strategic goals at the expense of short-term, lucrative one-off transactions. Contends first study of sports networks. Need for sport to operate as a network rather than aggregated relationship approach.	Qualitative only with no quantitative testing of results.
Young & Wilkinson (1997)	Identifies types of cooperative relationships over time as a means of gaining competitive edge for the firm.	Networks.	Uses Inter-firm Relations Research Program (IRRP) data base commenced in mid 80s.	IRRP consists of 35 in-depth semi-structured interviews with managers. Includes pilot study using early version of questionnaire. Measures different aspects of inter-firm relations. Main questionnaire refined and convenience sample contacted with response of 120 respondents.	Relationships are multi-dimensional, including cooperativeness and competitiveness. Relationships operate in the context of other relationships and experiences of this affects how a focal firm is evaluated. Identifies a range of types of relations. Provides insights into the kinds of attractors that may exist as key drivers.	Measurement of cooperativeness and competition needs refinement. Sample not representative of a particular industry or type of firm. Requires further empirical testing in different industries and cultures.

Appendix B
Questionnaires and development of conceptual framework

Table B.1: Self selection questionnaire for NSOs

<p>I am undertaking research for a PhD at Massey University. The research is a study of the factors for network effectiveness in elite/high performance sports provision in New Zealand. It is anticipated that the insights gained will be of benefit to the management of networks in the sports industry. It is also the purpose of this study to examine how theory works in practice.</p> <p>Please would you be so kind as to complete the following self-selection questionnaire and return it in the self addressed envelope to Simon Martin, Department of Commerce, Massey University, Private Bag 102 904, North Shore MSC, Auckland.</p> <p>I will be contacting you shortly to arrange an interview with you.</p> <p>Many thanks for your time and help with this research.</p> <p>Simon Martin</p>		
<p>Please rate each of the following for the high performance aspect of your sport:</p>		
	Worst/low	Best/high
1. The level of commitment of your high performance athletes	0 1 2 3 4 5 6 7 8 9 10	
2. Ability of your high performance coaches	0 1 2 3 4 5 6 7 8 9 10	
3. Access to sport specific training facilities for your high performance athletes	0 1 2 3 4 5 6 7 8 9 10	
4. Your national sport organisation's commitment to excellence	0 1 2 3 4 5 6 7 8 9 10	
5. Support given by your national sport organisation for talent identification and development systems for high performance athletes	0 1 2 3 4 5 6 7 8 9 10	
6. Access to relevant international competition opportunities for your high performance athletes	0 1 2 3 4 5 6 7 8 9 10	
7. The importance of effective sport science support to ensure the success of your programme	0 1 2 3 4 5 6 7 8 9 10	
8. The importance of effective sport medicine support to ensure the success of your programme	0 1 2 3 4 5 6 7 8 9 10	
9. The importance of 'lifestyle support' (opportunities for the development of athletes and coaches career and education)	0 1 2 3 4 5 6 7 8 9 10	
10. How effective is the communication between your NSO and key stakeholders (athletes and coaches)	0 1 2 3 4 5 6 7 8 9 10	
<p>Thank you</p>		

Table B.2: List of interview questions for first part of study

Question numbers	Questions
1.	What is the structure of your organisation and also elite sport provision?
2.	What structure is in place to manage the relationships for elite sport?
3.	How does SPARC/NZOC work with other organisations?
4.	What types of alliances are in place – informal/formal, types of agreement with the organisations that SPARC/NZOC works with?
5.	Who is responsible for drawing up the agreements or contracts with the national sports organisations/how are they set/shared?
6.	Do the different parties have input into setting the objectives?
7.	How does your organisation work with the other organisations?
8.	What are your objectives (short, medium, long term) and measurement of these?
9.	How is your organisation funded?
10.	Do other sports organisations or other parts of SPARC compete for the same funding (For NZAS only)?
11.	How do the other organisations network with each other and work with each other in the delivery of high performance sport?
12.	What were the problems that SPARC/NZAS were trying to overcome and the reason for the restructure (For NZAS only)?
13.	What measures are in place to ascertain whether you are successful (For NZAS only)?
14.	How has this influenced the way in which the organisation was formed and functions (For NZAS only)?
15.	Do the different organisations and people involved from each compete for resources and funding (is there sabotage of efforts from others)?
16.	Which national sports organisations are good/not good (in terms of performance)? And what do you base this on?
17.	Any questions or anything that you may wish to add?

Table B.3: Questions to Hon Trevor Mallard 26 May 2005

1.	There seems to be a move away from saying 'sport owns sport' and this is reflected by stating that NZAS will withdraw funding if sports are not prepared to do what NZAS want. Is this the case?
2.	There seems to be a move away from giving New Zealanders the opportunity to have success in sports which mean something to them by a shift of focus onto other sports that may win medals. Is this the case?
3.	What happens to the sports that don't get national recognition?
4.	Why are relatively financially well off sports included as priority sports?
5.	Will there be a need to increase funding into elite sport in order to keep up with competition from other countries that are doing a similar exercise?
6.	How can those sports with high participation levels ever have a national identity if they are not funded and included as a carded sport?

Table B.4: Network interview schedule for NZAS members

Present information and check background of company, turnover, number of employees, history at start of interview. (This information will be compiled before the interview).
Interview questions:
Tell me about the NZAS network?
Can you tell me about joining the network?
What do you think about how the network is working?
Prompts:
When did you join the NZAS – C / NZAS – SI / NZAS – N network?
Why did you join the NZAS – C / NZAS – SI / NZAS – N network?
<ul style="list-style-type: none"> - What were you hoping to gain for your organisation? - Is it living up to your expectations?
Who are the other NZAS – C / NZAS – SI / NZAS - N network members in the network?
How did you find out about the other members (referrals or part of relationship - probe for social/business connection)?
What is your opinion of the NZAS – C / NZAS – SI / NZAS – N members that were chosen?
Do you know when and how/why the other NZAS – C / NZAS – SI / NZAS – N network members were selected?
Who do you deal directly with in the NZAS – C / NZAS – SI / NZAS – N network?
What kind of dealings do you have with the NZAS – C / NZAS – SI / NZAS – N network members?
<ul style="list-style-type: none"> - How often and what kind (i.e. face to face, email, telephone)? - What kind of activities occur (i.e. knowledge/information/staff share/other)? <ul style="list-style-type: none"> o Probe frequency of this interaction? o How do you build trust? How important is this? o What can you say about the commitment of the other parties? - Could you tell me about the activities? - Who initiated this? - For what reason/why? - Who does this/why this person? - What has happened to make this possible (i.e. knowledge share/information/staff swap/change in procedure/regular meetings)? - Who are your key partners in the NZAS – C / NZAS – SI / NZAS – N network? - How do the relationships in the network work? - What are the power balance, control in the relationships you have? - What kind of relationship is this (contract/informal relationship)? Please explain.
(can use secondary information to prompt the above questions – I saw this on your website / saw this in the media)
How are resources (expertise/knowledge/information/finance/service/staff) shared and developed within the NZAS – C / NZAS – SI / NZAS – N network?
What plans are you aware of for the NZAS – C / NZAS – SI / NZAS – N network growth (i.e. more members to join)? Who do you think makes these plans?
What are your organisational goals?

What are the other NZAS – C / NZAS – SI / NZAS – N network member’s organisational goals?

Can you draw your network and place the partners (that you work with directly) in relation to each other in terms of their importance (on A3 paper)?

What is the purpose of the NZAS – C / NZAS – SI / NZAS – N network?

What do you think the NZAS – C / NZAS – SI / NZAS – N will gain from your organisation?

How does belonging to the NZAS – C / NZAS – SI / NZAS – N network help your organisation?

Are there any ways in which belonging to the NZAS – C / NZAS – SI / NZAS – N network has hindered your organisation?

Who formed the NZAS – C / NZAS – SI / NZAS – N network? Which organisation controls it now?

Can you tell me why there is no mention of the other consortium partners on your website?

Do you have any written information/publicity material/memos/documents/press releases/magazines/TV/radio concerning the NZAS network that I might have a look at?

Notes:

May need to explain difference between ‘member’ (an organisation involved in the network) and ‘partner’ (an organisation that you deal with directly in the network).

Prompts with; can you expand/clarify? Why/when/how did that happen?

Table B.5: Questionnaire for NZAS members

How do you rate the following aspects of the relationship for each NZAS member? NZAS member _____	
	Worst/low Best/high
1. This member's commitment to the NZAS network?	0 1 2 3 4 5 6 7 8 9 10
2. How well do they share information with you?	0 1 2 3 4 5 6 7 8 9 10
3. How well do they cooperate with your org?	0 1 2 3 4 5 6 7 8 9 10
4. How much do you trust this org?	0 1 2 3 4 5 6 7 8 9 10
5. How much power/control does this org have in the network?	0 1 2 3 4 5 6 7 8 9 10
6. How important are their resources for the network?	0 1 2 3 4 5 6 7 8 9 10
7. How much have you adapted your processes to theirs?	0 1 2 3 4 5 6 7 8 9 10
8. How strong is the relationship between your organisation and theirs?	0 1 2 3 4 5 6 7 8 9 10
9. How much does belonging to the network help you with your business?	0 1 2 3 4 5 6 7 8 9 10
10. How much does _____ belonging to the network help you with your business?	0 1 2 3 4 5 6 7 8 9 10
11. How important is the geographic location of _____ for you?	0 1 2 3 4 5 6 7 8 9 10
Other criteria that impact on the network, please specify:	
	0 1 2 3 4 5 6 7 8 9 10
	0 1 2 3 4 5 6 7 8 9 10
	0 1 2 3 4 5 6 7 8 9 10
	0 1 2 3 4 5 6 7 8 9 10
	0 1 2 3 4 5 6 7 8 9 10
	0 1 2 3 4 5 6 7 8 9 10

Table B.6: Interview schedule for NSOs

<p>Present information and check background of company, turnover, number of employees, history at start of interview. This information will be compiled before the interview.</p>
<p>Questions:</p> <p>When did you join the NZAS – C / NZAS – SI / NZAS – N network?</p> <p>Why did you join the NZAS – C / NZAS – SI / NZAS – N network?</p> <ul style="list-style-type: none"> - What were you hoping to gain for your organisation? - Is it living up to your expectations? <p>Who are the NZAS – C / NZAS – SI / NZAS – N network member organisations?</p> <p>Can you tell me about the relationships that your organisation has with the other NZAS members?</p>
<p>Prompts:</p> <p>What is your opinion of the NZAS – C / NZAS – SI / NZAS – N members that were chosen?</p> <p>Do you know when and how/why the NZAS – C / NZAS – SI / NZAS – N network members were selected?</p> <p>Who do you deal directly with in the NZAS – C / NZAS – SI / NZAS – N network?</p> <p>What kind of dealings do you have with the NZAS – C / NZAS – SI / NZAS – N network members?</p> <ul style="list-style-type: none"> - How often and what kind (i.e. face to face, email, telephone)? - What kind of activities occur (i.e. knowledge/information/staff share/other)? <ul style="list-style-type: none"> o Probe frequency of this interaction? o How do you build trust? How important is this? o What can you say about the commitment of the other parties? - Could you tell me about the activities? - Who initiated this? - For what reason/why? - Who does this/why this person? - What has happened to make this possible (i.e. knowledge share/information/staff swap/change in procedure/regular meetings)? - Who are your key partners in the NZAS – C / NZAS – SI / NZAS – N network? - How do the relationships in the network work? - What are the power balance, control in the relationships you have? - What kind of relationship is this (contract/informal relationship)? Please explain. <p>(can use secondary information to prompt the above questions – I saw this on your website / saw this in the media)</p>
<p>How are resources (expertise/knowledge/information/finance/service/staff) shared and developed within the NZAS – C / NZAS – SI / NZAS – N network?</p> <p>What plans are you aware of for the NZAS – C / NZAS – SI / NZAS – N network growth (i.e. more members to join)?</p> <p>Who do you think makes these plans?</p> <p>What are your organisational goals?</p> <p>What are the NZAS – C / NZAS – SI / NZAS – N network organisational goals?</p> <p>What is the purpose of the NZAS – C / NZAS – SI / NZAS – N network?</p> <p>What do you think the NZAS – C / NZAS – SI / NZAS – N will gain from your organisation?</p> <p>How does belonging to the NZAS – C / NZAS – SI / NZAS – N network help your organisation?</p>

Are there any ways in which belonging to the NZAS – C / NZAS – SI / NZAS – N network has hindered your organisation?

Who formed the NZAS – C / NZAS – SI / NZAS – N network? Which organisation controls it now?

Notes:

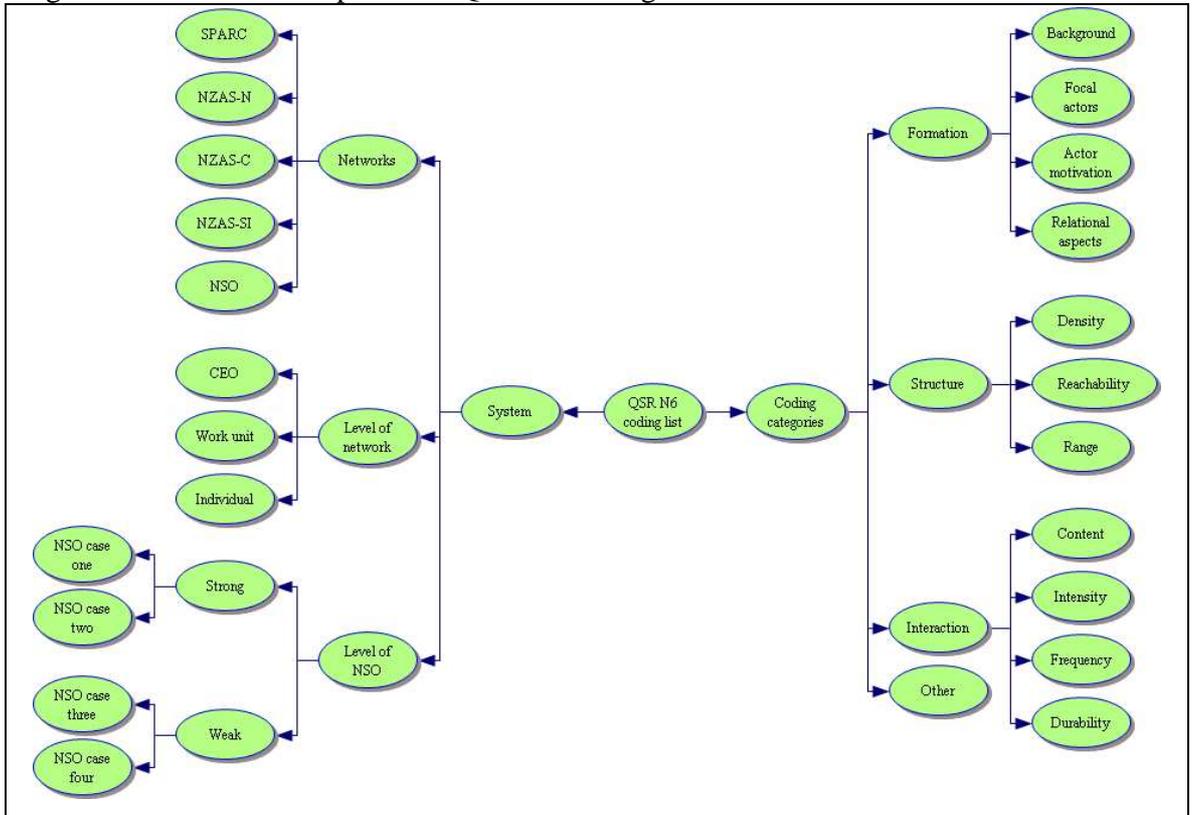
May need to explain difference between ‘member’ (an organisation involved in the network) and ‘partner’ (an organisation that you deal with directly in the network).

Prompts with; can you expand/clarify? Why/when/how did that happen?

Table B.7: Cross-case analysis

Network construct		Networks and network actors						
		NZAS – NO	NZAS – N	NZAS – C	NZAS – SI	NSO (strong)	NSO (strong)	NSO (weak)
Context (at CEO/Board, work-unit and individual levels)								
Formation (at CEO/Board, work-unit and individual levels)	Focal actor							
	Actor motivation							
	Cooperation							
Structure (at CEO/Board, work-unit and individual levels)	Density							
	Reachability							
	Range (understanding of goals)							
	Position and power							
	Governance							
Interaction (at CEO/Board, work-unit and individual levels)	Commitment							
	Motivations							
	Trust							
	Communication and frequency							
	Cooperation							
	Sharing of resources							
	Knowledge and information transfer							
	Business development							
Other	Perception of the network							
	Perceived disadvantages of belonging							
	Role of NZAS							
	Competition							
	Social capital							

Figure B.1: Initial development of QSR N6 coding



Appendix C

Research participant consent forms and information sheets, and ethics approval documents

This appendix contains copies of the information sheet to participants explaining the study for the first part of the research, participant consent form for first part of study, transcriber confidentiality form, information sheet to participants explaining the study for second part of the research, organisation consent form, participants consent form for second part of study, and copy of human ethics approval application MUAHEC 04/004.



Department of Commerce
Private Bag 102 904
North Shore Mail Centre
Auckland
New Zealand
Telephone: 64 9 441 8176
Facsimile: 64 9 441 8177

Exploratory study into high performance sport provision in NZ

Information sheet (ref MUAHEC 04/004)

Researcher introduction:

I am a full time PhD student at Massey University, Albany Campus in the Department of Commerce. I am conducting research for my PhD on high performance sport provision in NZ and the relationships between the organisations involved that facilitate this. This part of the study is concerned with investigating who the organisations are that are involved with elite sport provision, why they are involved and what they do to provide this.

My contact details are:

Simon Martin, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9104. Email s.g.martin@massey.ac.nz

My supervisors contact details are:

Professor Sylvie Chetty, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9468. Email s.chetty@massey.ac.nz

Nitha Palakshappa, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9454. Email n.n.palakshappa@massey.ac.nz

Participant recruitment:

I wish to invite you to be a part of this study as you represent one of the organisations involved in elite sport provision. All other representatives of organisations involved in elite sport provision have also been selected for the purposes of this study and will be approached for interviewing by me in order that I may understand

the nature of elite sport provision. All information used in the course of this study obtained from you will be shown to you so that you have the opportunity to edit the content, context and confidentiality of what you have said.

Project procedures:

The interview will be audio taped, where this is objected to notes will be taken instead. You will be given the opportunity to view and edit the transcript of the tape and also any quotes from the interview that are used by me in this part of the study along with any other information that I might use. All data will be stored for a period of five years in a secure place and after this destroyed. The data will be used in my PhD work and in published materials.

Participant involvement:

I expect that you will be involved once only for this part of the study for a period of approximately one hour.

Participant's rights:

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question.
- Withdraw from the study before July 2004.
- Ask any questions about this study at any time during participation.
- Provide information on the understanding that your name will not be used unless you give permission to the researcher.
- Be given access to a summary of the project findings when it is concluded.
- Ask for the audio tape to be turned off at any time during the interview.

Project contacts:

You are invited to contact the researcher and or supervisors should you have any questions about the project.

Compulsory statements:

1. Committee approval statement

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB Protocol MUAHEC 04/004. If you have any concerns about the conduct of this research, please contact Associate Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x9078, email humanethicsalb@massey.ac.nz.

END



Exploratory study into high performance sport provision in NZ

Participant consent form (ref MUAHEC 04/004)

This consent form will be held for a period of five (5) years

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being audio taped.

I agree to participate in this study under the conditions set out in the information sheet.

Signature.....Date.....
Full name – printed.....



Exploratory study into high performance sport provision in NZ

Transcriber's confidentiality agreement (ref MUAHEC 04/004)

I.....(full name – printed) agree to transcribe the tapes provided to me.

I agree to keep confidential all the information provided to me.

I will not make any copies of the transcripts or keep any record of them, other than those required for the project.

Signature.....Date.....



Exploratory study into high performance sport provision in NZ

Information sheet

Researcher introduction:

I am a full time PhD student at Massey University, Albany Campus in the Department of Commerce. I am conducting research for my PhD on high performance sport provision in NZ and the relationships between the organisations involved that facilitate this. This part of the study is concerned with investigating the relationships between the organisations involved with elite sport provision, why they are involved and what they do.

My contact details are:

Simon Martin, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9144. Email s.g.martin@massey.ac.nz

My supervisors contact details are:

Professor Sylvie Chetty, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9468. Email s.chetty@massey.ac.nz

Nitha Palakshappa, Massey University, Department of Commerce, Private Bag 102 904, North Shore MSC, Auckland. Telephone 09 414 0800 extn 9454. Email n.n.palakshappa@massey.ac.nz

Participant recruitment:

I wish to invite you to be a part of this study as you represent one of the organisations involved in elite sport provision. All other representatives of organisations involved in elite sport provision have also been selected for the purposes of this study. They will be approached for interviewing by me in order that I may understand the nature of elite sport provision and the relationships between the organisations that form this provision. All information used in the course of this study obtained from you will be shown to you so that you have the opportunity to edit the content, context and confidentiality of what you have said.

Project procedures:

The interview will be audio taped, where this is objected to notes will be taken instead. You will be given the opportunity to view and edit the transcript of the tape and also any quotes from the interview that are used by me in this part of the study along with any other information that I might use. All data will be stored for a

period of five years in a secure place and after this destroyed. The data will be used in my PhD work and in published materials.

Participant involvement:

I expect that you will be involved once only for this part of the study for a period of approximately one to one and a half hours.

Participant's rights:

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question.
- Withdraw from the study before June 2006.
- Ask any questions about this study at any time during participation.
- Provide information on the understanding that your name will not be used unless you give permission to the researcher.
- Be given access to a summary of the project findings when it is concluded.
- Ask for the audio tape to be turned off at any time during the interview.

Project contacts:

You are invited to contact the researcher and or supervisors should you have any questions about the project.

Compulsory statements:

1. Committee approval statement

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, email humanethicspn@massey.ac.nz

END

Te Kunenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey



Exploratory study into high performance sport provision in NZ

Organisation consent form

This consent form will be held for a period of five (5) years

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the organisation that I represent and staff within this organisation being a part of this study under the conditions set out in the information sheet.

Signature.....Date.....
Full name – printed.....

Te Kunenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey



Exploratory study into high performance sport provision in NZ

Participant consent form

This consent form will be held for a period of five (5) years

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being audio taped.

I agree to participate in this study under the conditions set out in the information sheet.

Signature.....Date.....
Full name – printed.....

Te Kunenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey



Massey University
AUCKLAND

OFFICE OF THE
DEPUTY VICE-CHANCELLOR
Private Bag 132 904
North Shore MSC
Auckland
New Zealand
T Deputy Vice-Chancellor
64 9 414 0800 extn 9517
Regional Registrar
64 9 414 0800 extn 9616
F 64 9 414 0814
www.massey.ac.nz

02 March 2004

Simon Martin
College Of Business
Massey University
Albany

Dear Simon

HUMAN ETHICS APPROVAL APPLICATION – MUAHEC 04/004
“Exploratory research into elite sport provision in New Zealand”

Thank you for your application. It has been fully considered and approved by the Massey University, Albany Campus, Human Ethics Committee.

If you make any significant departure from the Application as approved then you should return this project to the Human Ethics Committee, Albany Campus, for further consideration and approval.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a new application must be submitted at that time.

Yours sincerely

Associate-Professor Kerry Chamberlain
Chairperson,
Human Ethics Committee
Albany Campus





Massey University

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(ETHICS & EQUITY)
Private Bag 11 222
Palmerston North
New Zealand
T 64 5 350 5573
F 64 5 350 5622
humanethics@massey.ac.nz
www.massey.ac.nz

25 January 2006

Simon Martin
Department of Commerce
ALBANY

Dear Simon

Re: Exploratory Research into Elite Sport Provision in New Zealand

Thank you for your Low Risk Notification which was received on 13 January 2006.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Campus Committees.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by a campus human ethics committee.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, e-mail humanethicspn@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to a Campus Human Ethics Committee. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Sylvia V Rumball (Professor)
**Chair, Human Ethics Chairs' Committee and
Assistant to the Vice-Chancellor (Ethics & Equity)**

cc Dr Nitha Palakshappa
Department of Commerce
Albany

Prof Lawrence Rose, HoD
Department of Commerce
Albany

Prof Sylvie Chetty
Department of Commerce
Albany

Massey University Human Ethics Committee
Accredited by the Health Research Council

To Kaitiaki
ki Parihuru

Appendix D
NZAS network descriptions and objectives of each actor

1.0 Introduction

NZAS network descriptions and objectives of actors are presented in the following order. First, NZAS – North network. Second, NZAS – Central network. Third, NZAS – South Island network. The NSOs who are the clients of the network are not presented within the appendix.

1.1 NZAS – North network overview

The NZAS – North actors are NZAS – North Inc., Auckland University of Technology (AUT), the Millennium Institute of Sport and Health (MISH), University of Auckland UniSports Centre and the Waikato Institute of Technology (WINTEC) (NZAS - North, 2004b, 2006b).

1.2 NZAS – North actors

1.2.1 NZAS – North Inc.

The vision for NZAS – North Inc. was to provide:

A world leading and integrated high performance sport environment that provides the opportunity for elite and developing athletes and coaches to achieve excellence on a consistent basis in the international arena (NZAS - North, 2004e).

The vision in 2006 was:

To work in partnership with sports to enable their High Performance Programmes, Athletes and Coaches to achieve international success by providing world leading support (NZAS - North, 2006c).

The original tender document to act as a high-performance sport centre notes the North network as providing NZ\$70 million in existing equipment and multi-sport high-performance training centres. This includes the \$8 million sports facility at AUT in Akoranga Drive and the NZ\$32 million Millennium Institute of Sport Health facility. The document also lists each of the stakeholders in the North network, including the number of

students, courses and expertise at each of the academic institutions involved in the network. It sets out provision for twenty-two sports and where the servicing of these sports for the athletes, coaches, accommodation and resources will take place. A further seventeen sports are also identified as being possible to provide services for. Sports-medicine and sports-science personnel are listed, as well as international links which would allow for benchmarking of best practice (NSIN, 2000).

NZAS – North Inc. has created a multidisciplinary environment at a small number of specialist training centres to improve the international performance of New Zealand athletes (NZAS - North, 2004d). It is committed to excellence in high performance sport through investing in people who will add value by leading the initiatives and support programmes of the high performance sports. The role of NZAS – North Inc. is to complement the efforts of the performance sports to enable their athletes to succeed at the highest level. The responsibility and accountability for planning for high performance sport, and the results that this achieves, belongs to the respective national sport organisation (NZAS - North, 2004b, 2004e, 2006c). NZAS – North Inc. believes there are a number of critical success factors to high performance sport, and that these need to be underpinned by the necessary and appropriate funding, facilities, services, personnel and programmes. The critical success factors are committed and talented athletes, coaching at high-performance level, commitment to excellence by the national sports organisations, appropriate training facilities, relevant competition, specialised sports-science services (in biomechanics, exercise physiology, sports psychology, nutrition, physical conditioning and anthropometry), specialist sports medicine (from physicians, physiotherapists, podiatrists, and chiropractors), and, finally, career and education opportunities that support athletes and coaches (NZAS - North, 2004e, 2006c).

Services provided by the NZAS – North network include sports medicine, sports science, access to training facilities, career and coaching support, and education and development opportunities. SPARC provides all other aspects of the New Zealand high-performance sport system such as funding for international competitions, coaching support, and training camps (NZAS - North, 2004d).

NZAS – North Inc. is governed by a Board of seven members, and the CEO of NZAS – North Inc. Four of the members represent the network partners who form the NZAS – North network, referred to by those members as the consortium; the remaining three members are independent and have a background in sport (NZAS - North, 2004a). The Board members were selected to represent the broad geographical area of the northern region; there is also a requirement for them to have high-performance sporting interests (NSIN, 2000). The current Board members are David Appleby (former Chair of NZ Hockey), Judith McKay (Executive Director Finance and Development at AUT), Hugh McGahan (former Rugby League International), Janet Mackay (former Executive Director of Women’s Golf NZ), Warwick Nicoll (former Registrar of University of Auckland), Gordon Paterson (Dean of Faculty of Applied Business Technology at Waikato Institute of Technology), and Mike Stanley (CEO of the Millennium Institute of Sport and Health). The Board members have diverse sporting backgrounds and all have a passion for those involved in sport to realise their full potential (NZAS - North, 2004a, 2006a). NZAS – North Inc. is structured to work with carded athletes and coaches. NZAS – North Inc. goes beyond their contractual obligations with SPARC in providing added-value to NSO high-performance programmes, carded athletes and coaches. Other than this, no other work outside the contract is engaged in.

The consortium partners of the NZAS – North network are Auckland University of Technology (AUT) via the Sport Performance Centre on the Akoranga Drive Campus in Northcote, North Shore; the Millennium Institute of Sport and Health (MISH) in Albany; Waikato Institute of Technology (WINTEC); and the University of Auckland via the UniSports Centre for Sport Performance at Merton Road, Glen Innes in Auckland (NZAS - North, 2004b, 2006b). A website page clearly identifies each of the consortium partners and provides a link to these partners’ websites (NZAS - North, 2004b, 2006b).

A ‘Heads of Agreement’ document was signed by each of the members. This sets out an agreement for the four organisations to operate as a consortium in order to provide sports-science services and make facilities available for this purpose. Each of the four founding

stakeholders also signs an annual individual service-level agreement with NZAS – North Inc. The agreement specifies and lists the staff, resources and level of service required for the athletes for that year, and also includes dates and fee amounts. There is some flexibility within this document to accommodate unforeseen circumstances such as staff moving on or athletes not being available. The key principle of this document is to maintain a relationship by defining the collective objectives and aspirations in a cooperative and mutually beneficial manner. The document lists expectations for trust, respect, communication, exclusivity, customer focus, accountability, cooperation and autonomy (Clarke, 2005).

The CEO of NZAS – North Inc. since December 2004 is Peter Pfitzinger; prior to this it was Alastair Snell. Other staff positions within the organisation include a performance services general manager, two performance services coordinators, a performance services advisor for the Waikato and Bay of Plenty area, a biomechanist, an athlete career and education manager, a finance manager and an administration manager (NZAS - North, 2004a). By May 2006, staff positions included within the performance services team were a performance services advisor for the Waikato/Bay of Plenty area, a biomechanist, and a performance services manager; within the coaching team were a coaching services advisor, coaching support administrator, coach support services manager, and within the Athlete Career and Education (ACE)and scholarships team were the ACE advisor, two scholarships coordinators, the ACE regional coordinator, an administrator – ACE, and an Ace advisor; and, finally, within the administration and finance team were two administration assistants, and the finance and administration managers (NZAS - North, 2006a).

1.2.2 Auckland University of Technology (AUT)

AUT offers a range of tertiary courses to its 25,000 students which include foundation certificate courses, diplomas, degrees and doctorates. Facilities provided by AUT for NZAS – North network are part of the Faculty of Health in the Division of Sport and Recreation. The Division comprises sport- and sport-science-based courses, as well as one of the newest sports and fitness centres in the country offering sport testing, athlete training and an applied research centre (MISH, 2003; NZAS - North, 2004b).

The mission of the Faculty of Health is to make a significant contribution to New Zealanders' health and well-being. This is facilitated by strong collaborative relationships with health organisations in which students and staff are involved in and contribute to the latest knowledge-developments, technology and research, and work-based practice. Close collaboration with national and international organisations ensures graduates are at the leading edge of health professional knowledge (AUT, 2004a).

The Sports and Fitness Centre is a state-of-the-art training and education facility; it is currently registered as a Level 3-accredited laboratory by Sport Science New Zealand (the highest level awarded by this body). The facility has two international-sized netball and basketball courts, an aerobics and dance room, changing facilities which can be used separately by different teams at the same time, seminar rooms, consulting rooms, a performance assessment area, research area, café and fully equipped gym (NZAS - North, 2004b). AUT (2004a) state:

The AUT Sport & Fitness Centre is also a designated training facility for the New Zealand Academy of Sport – North providing a range of sports-science services to many of New Zealand's elite athletes and teams.

This superb facility offers professional staff who are highly skilled and committed to helping individuals and teams reach their potential and achieve their goals.

The Division of Sport and Recreation offers programmes in health, fitness, sport, outdoor recreation, dance and holistic therapies. The aim of the Division is to provide courses and educational experiences that develop and educate people with problem-solving skills and to enhance the well-being of community members (AUT, 2004b).

The AUT website identifies AUT as a member of NZAS – North network, providing a range of sports science for the country's top athletes. There is no mention of the other consortium members or a link to NZAS – North Inc. (AUT, 2004a).

1.2.3 The Millennium Institute of Sport and Health (MISH)

The stated mission for MISH (2004a) is:

A world class integrated environment for the achievement of excellence in sports performance and in personal health, recreation, recreation and fitness.

The stated objectives for MISH (2004c) are:

To provide opportunities for widespread participation in sport at all levels, delivering the highest quality sporting experience; A national centre of high performance sporting excellence and world class support services; Contribute to enhanced community and wellbeing through physical activity, education and lifestyle change.

The facilities cater for all ages and all persons from the community from the very basic sports level through to the elite athlete. The facilities have been purposefully designed to meet the training and preparation needs of New Zealand's high-performance athletes and reflect the passion that MISH has for the success of them (MISH, 2004a). MISH (2004d) states:

The Institute was developed in response to trends that have undermined the effectiveness of traditional sports delivery, to provide an entry to elite sporting continuum based on the best elements of grass roots club based sport and world class high performance practice.

We want to ensure that physical activity, and participation and success in sport remain important parts of our national goals and identity.

MISH (2004b) also states:

Our end goal is to contribute to the sustained success of New Zealand athletes in peak competition – World Championships, Commonwealth and Olympic and Games and for New Zealand to benefit through the process and resulting achievements.

MISH employs a number of national and international coaches in athletics, swimming, water polo and weightlifting, as well as sport-science staff through a partnership arrangement with AUT (MISH, 2004e, 2004f).

MISH is owned and operated by two incorporated societies: North Shore Bays Fitness Centre Trust which owns the 'Sovereign Super Sports Centre' assets, and MISH which runs the operations side of the business. MISH provides an international athletics stadium, Olympic pool, indoor sports hall with 60-m sprint track, a sport conditioning and fitness centre, sport rehabilitation services, and a sport-science laboratory, as well as other services to community user groups (MISH, 2003; NZAS - North, 2004b). MISH also has accommodation, education, conference and social facilities available for sports teams, schools and corporate groups (NZAS - North, 2004b).

MISH provides a dedicated environment for athletes to reach their objectives and seeks to become the equivalent to the Australian Institute of Sport, offering a multi-sport training facility and support environment all on one site. The Institute was developed through a joint vision held by Graeme Avery and Stephen Tindall, plus their financial backing. The \$32-million facility has been funded by philanthropy, grants and sponsorships. The vision is for a multi-sport facility that will create an integrated world-class environment for sporting excellence. In 1997 a number of local clubs on the North Shore, Auckland got together to address a need for facilities and, in particular, a swimming pool. The clubs were North Harbour Bays Athletics Club, North Shore Swimming Club, North Harbour Water Polo and Rangitoto College ("All for one: Auckland's Millennium Institute of Sport," 2002; MISH, 2004a, 2004d). MISH opened in February 2002; it is located in Mairangi Bay near Albany on the North Shore of Auckland (NZAS - North, 2004b).

The MISH website identifies MISH as a member of the NZAS – North consortium, and as being committed to providing services and facilities for the country's top athletes; no details or web-links are provided for NZAS – North Inc. (MISH, 2003). The only consortium member referred to is AUT with whom MISH has a partnership arrangement for sport-science services and sport-management education. MISH describes the training and support facilities in some detail at AUT as well as the sport-science staff involved in this delivery (MISH, 2004f).

1.2.4 The University of Auckland – UniSports Centre

The University of Auckland is New Zealand's top-ranked tertiary institution based on research quality; it is the largest university in New Zealand with 32,000 students (University of Auckland, 2004a).

The University of Auckland's UniSports Centre is situated at Colin Maiden Park, Tamaki Campus, Auckland, (AUT, 2004a). It was built in 1999, and has the most comprehensive sport-science and sports-medicine operation in New Zealand (University of Auckland, 2005b). There are 43 acres of playing fields and an indoor training centre, meaning that the UniSports Centre can cater for tennis, rugby, rugby league, soccer and cricket (NZAS - North, 2004b).

The Tamaki Campus buildings which contain the UniSports Centre are shared with the Adidas Sports Medicine Centre and NZAS – North Inc. headquarters. The Department of Sport and Exercise Science at Auckland University's Tamaki Campus works with the UniSports Centre and elite athletes serviced by NZAS – North network (University of Auckland, 2004a). The Department is part of the Faculty of Science which offers 28 undergraduate subjects as well as postgraduate programmes including PhD. There are currently 6000 full-time students within the Faculty (University of Auckland, 2004c). The stated main purpose of the Department is:

...to further the understanding of human movement and its relation to sport, exercise and health. We seek to advance, apply and disseminate relevant knowledge and expertise (University of Auckland, 2004b).

The Department includes biomechanics, exercise physiology, exercise psychology, sport sociology, human sensory physiology, exercise rehabilitation, and human motor control. Previous research projects have included the development of training programmes to improve performance in cyclists, swimmers and rowers. Current research is investigating force development in strength athletes (University of Auckland, 2004b).

The Biomechanics Laboratory in the Department of Sport and Exercise Science integrates physics with biological and engineering principles for the benefit of athletes as well as the treatment of patients. The laboratory measures almost 100 m²; it has a 10-m walkway which leads from the lab through to the outside running track containing three Bertec footplates imbedded in the walkway. Other equipment includes an 8-camera real-time motion-analysis system for motion capture, EMG systems, 10-channel MotionLab system and telemetered Biovision system, Biodex machine, treadmill and Novel pressure measurement system (University of Auckland, 2004b).

The UniSports website states that the facility is also responsible for the coordination of a number of sport-science programmes for Badminton New Zealand, Counties Manukau Sport, Cycling New Zealand, Hot Cycles, Netball New Zealand, New Zealand Black Sticks, New Zealand Rugby League, Sport Auckland, Sport Science New Zealand, New Zealand Black Ferns, and Yachting New Zealand (University of Auckland, 2005a).

The UniSports web home page was under construction during the last part of 2004 and first part of 2005. The UniSports website has a link to NZAS – North Inc; there is no reference to the other consortium members (University of Auckland, 2005b).

1.2.5 Waikato Institute of Technology (WINTEC)

WINTEC, formerly Waikato Institute of Technology, is currently the fifth largest polytechnic in New Zealand. It caters to 24,000 full- and part-time students and offers 2500 courses. The courses range from certificate and diploma through to postgraduate level (WINTEC, 2004b).

WINTEC plays a leading role in the development of sport education programmes in New Zealand. Sport studies and sport-science-based courses are offered from certificate through to Masters level (WINTEC, 2004e). The mission for Sport and Exercise Science at WINTEC (2004d) is:

To provide world-class education in sport science and recreation, to positively influence the development of individuals and to meaningfully contribute to the greater community.

The Centre for Sport and Exercise Science was opened in 1999 and is based at the Avalon Campus. The Centre houses an extensive range of sport-science facilities which include a Level 3-accredited Sports Science New Zealand physiology laboratory, a Level 2 biomechanics laboratory, and an environmental chamber. The campus also contains the country's most modern Equine Education Centre with a 65-metre by 45-metre indoor riding arena and stabling for up to 40 horses (Level 2-accredited Sports Science New Zealand), and 37 acres of playing fields for rugby, rugby league, cricket and soccer (MISH, 2003; NZAS - North, 2004c; WINTEC, 2004b). Facilities provided by WINTEC for NZAS are part of the Centre for Sport and Exercise Science. This comprises 'state-of-the-art' sports testing and consulting in some of the best sports-science facilities in New Zealand (WINTEC, 2004e).

WINTEC (2004c) states:

We provide Sports Science New Zealand accredited performance testing in the fields of biomechanics, exercise physiology, nutrition, sport psychology, coaching and rehabilitation. In addition, Waikato Institute of Technology are a major stakeholder in the New Zealand Academy of Sport – Northern Region.

The WINTEC website identifies WINTEC as a member of the NZAS – North network providing training and testing facilities for them, but no detail or web-links are provided for NZAS – North Inc. or the other consortium members (WINTEC, 2004a).

2.1 NZAS – Central network overview

The current core actors comprising NZAS – Central network are NZAS – Central Inc., Wellington City Council, Sport Wellington Region, and representation from a Wanganui consortium of organisations. NZAS – Central Inc. currently also works with Regional Sports Organisations and the Regional Sports Trusts in their area: Sport Taranaki, Sport Manawatu, Sport Gisborne, Sport Wanganui, and Sport Hawke’s Bay. More recent links have been established with Eastern Bay of Technology (EIT), Universal College of Learning (UCOL) at its Palmerston North and Wanganui campuses to provide sports conditioning, and Massey University at its Palmerston North and Wellington campuses to provide sports-science services.

Originally the NZAS – Central network also included the University of Otago (through their building of a service centre for medicine to support Wellington Hospital). The University was to provide research-led sports science and sports medicine from their facilities at Westpac Trust Stadium in Wellington, and Central Institute of Technology (CIT) was to provide physical conditioning facilities and accommodation for athletes at its campus located at Trentham in the Upper Hutt Valley. Both of these organisations were perceived as being core stakeholders for the NZAS – Central network (High Performance Central, 2000).

Other interested organisations that leant their support to the original tender and expressed interest in being a part of the network at its formative stages but who are currently not involved include Victoria University, Upper Hutt City Council, Upper Hutt Economic Development Agency, and Wanganui City Council which was to provide access to sports facilities (High Performance Central, 2000). Due to the disestablishment of CIT and the subsequent relocation of NZAS – Central Inc. to the Westpac Trust Stadium, the organisations based in the Upper Hutt ceased their original level of support for the NZAS – Central network. Victoria University never became involved in the network (P. Pfitzinger, personal communication, October 28, 2006).

2.2 NZAS – Central actors

2.2.1 NZAS – Central Inc.

The mission for NZAS – Central Inc. was “to provide a network of world class facilities and expertise enhancing the development of high performance athletes” (NZAS - Central, 2006b).

Contracted-out sport-science and sports-medicine services are provided by UCOL at its campuses in Wanganui and Palmerston North, by Massey University at its campuses in Wellington and Palmerston North, and by EIT. There are also a number of independent contracts for these services throughout the region. NZAS – Central Inc. also works with the Regional Sports Trusts, (Sport Wellington Region, Sport Gisborne Tairahiti, Sport Hawke’s Bay, Sports Manawatu, Sports Taranaki, Sports Wanganui,)and Regional Sports Organisations to assist athletes and coaches to enhance their performance to reach their potential. This is achieved by helping to identify talented athletes and to give them access to facilities and support services (NZAS - Central, 2006b).

NZAS – Central Inc. is governed by a Board of eight members including the CEO of NZAS – Central Inc. The original Board members included Mike Baines (CEO of Upper Hutt Economic Development Board), Barbara Beadle (former Commonwealth Games silver medallist and athletics coach at elite level), Trevor Boyle (CEO of CIT), and Dr David Gerrard (Associate Professor of Sports Medicine at Otago University. He is a former Commonwealth Games gold and bronze medallist and Chef de Mission for the New Zealand Olympic Team to Atlanta in 1996, former Deputy-Chair of the Hillary commission, former Board member for the New Zealand Sports Foundation and NZ Sports Drug Agency), Sir Ron Scott (former director of the New Zealand Sports Foundation, Chef de Mission for the New Zealand team at the Los Angeles Olympics, founder and Chairman of the Hillary Commission. He is also the Deputy-Chair of the Wellington Regional Stadium Trust), Keith Muir (international team coach formerly for basketball and former Hillary Commission Team Leader of Coaching Development), Ian Wells (former Chairman of New Zealand Tennis, Deputy Chair of New Zealand Soccer and a qualified accountant). The current Board is Sir Ron Scott, Paul Cameron (CEO of Sport Wellington), Paul Shields

(independent Board member and previous Manager, Business Operations and Monitoring for Wellington City Council), Derek Fry (Chief Marketing and Stakeholder Services Officer for Wellington City Council), Suzie Muirhead (NZ hockey's most capped player and former captain of the Black Sticks. She has represented New Zealand at three Commonwealth Games and two Olympic qualifying tournaments), Ron Cheatley (represents Wanganui district. He has been the NZ cycling coach for 21 years taking teams to five Olympic Games, four Commonwealth Games and seven World Championships. He won the Coach of the Year at the Halberg Awards in 1989 and in 1998. He currently sits on the Sports Dispute Tribunal of New Zealand), Chris Collins (CEO of Eastern Institute of Technology (EIT). He has an academic and management background in sport and has published in the area of sports management), and Steve McKean (Regional Sports Director for Sport Taranaki and former national coach for men's basketball).

The CEO of NZAS – Central Inc. up to October 2005 was John Dyer, after which John Freer was appointed. John Freer had previously worked overseas as a journalist as well as in marketing and communications. Prior to this he was a regional services manager with the Hillary Commission for Sport Fitness and Leisure and also worked for Sport Wellington Region. Other staff positions within NZAS – Central Inc. include a coaching performance manager, performance services manager, a financial administrator and PM scholarships, ACE manager, athlete services coordinator, and a resource coordinator (NZAS - Central, 2006a).

2.2.2 Wellington City Council

Wellington is recognised in New Zealand as the arts and events capital. Wellington is a vibrant city with a good infrastructure and an abundance of recreation and leisure opportunities. The vision for Wellington City Council is “Creative Wellington – Innovation Capital”, the aim being to attract smart people to create forward-looking enterprise, and to promote Wellington's reputation as New Zealand's centre for creativity and innovation (Wellington City Council, 2006c).

The population of Wellington City is 163,824 with 451,700 people living within the greater Wellington region; this accounts for 10% of the country's population. It is home to Te Papa

(New Zealand's national museum), plus other museums, theatres, arts festivals, and a number of recreation and sports facilities (Wellington City Council, 2006a).

Wellington City Council is represented on the board of NZAS – Central Inc. by Derek Fry; previously this position was occupied by Paul Shields. (However, Paul Shields has remained on the NZAS – Central Inc. Board as it was felt by the Board that he brought a range of valuable skills to the organisation). Wellington City Council provides free access to council-owned facilities for carded athletes and also contributes \$50,000 per annum to NZAS – Central Inc. The contribution to the NZAS – Central Inc. is based on the NZAS strategy being in alignment with that of the council's (Wellington City Council, 2003).

There is no mention of the NZAS on Wellington City Council's website (Wellington City Council, 2006b, 2006c).

2.2.3 Sport Wellington Region (SWR)

Sport Wellington Region (SWR) is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. SWR promotes healthy, physically active lifestyles and provides sports and recreation expertise to the Wellington region. SWR has offices based in Wellington, with satellites at Kapiti, Porirua, Upper Hutt and Wairarapa to reach into their communities of interest. It employs 28 full- and part-time staff (Sport Wellington Region, 2006a, 2006b, 2006c).

The purpose of SWR is "Wellington Region – New Zealand's most successful sporting and physically active community" (Sport Wellington Region, 2006b, p2). SWR seeks to support and develop the sporting infrastructure in the Wellington region as well as promoting increased physical activity. This work is achieved through SWR being a regional leader, an educator, and a facilitator of sporting opportunities. The organisation works with the eight local authorities in the greater Wellington area in assisting with the planning and coordination of their recreation strategies. SWR also networks with the other RSTs, SPARC, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the greater Wellington

region. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport Wellington Region, 2006a, 2006b, 2006c).

There is no mention of the New Zealand Academy of Sport on SWR's website (Sport Wellington Region, 2006a, 2006c). However, NZAS – Central Inc. is listed as a supporter of SWR in its annual report for 2004/5 (Sport Wellington Region, 2006b).

2.2.4 Wanganui consortium

The original members of the Wanganui consortium were and still are Wanganui District Council, Good Health Wanganui, Wanganui Regional Polytechnic (disestablished on 17 December 2001 and incorporated into the Universal College of Learning (UCOL) (Ministry of Education, 2001b)), Sport Wanganui (now called Sport and Recreation Wanganui), Wanganui Economic Development Board (now called Wanganui Incorporated), Whanganui River Maori Trust Board, and Cooks Gardens Trust. These members provide funding and a range of facilities which includes a velodrome built to the same specifications as used in the 2000 Sydney Olympics, an athletics stadium, an indoor stadium with sprung wooden floors, and sports grounds (High Performance Central, 2000). The Wanganui district is represented on the Board of NZAS – Central by Ron Cheatley.

Wanganui District Council

Wanganui is situated on the west coast of the lower North Island. The vision for Wanganui is:

Together building a community where caring, trust and good governance are fundamental qualities. A place where there is community solidarity, responsibility, partnership and prosperity (Wanganui District Council, 2005b, p. 39).

The stated mission is: “Building a safe, healthy and industrious community with the people of the Wanganui District” (Wanganui District Council, 2005b, p. 39)

The population base of the district was 43,266 in 2001, and this is expected to either remain static or decline. The district is in the lower rank of provisional cities in terms of socio-economic status. It has a below-average educational standard and skills earning potential, as reflected by 29.9% of the population having no qualifications compared with the national average of 23.7%. The median income level in Wanganui is \$14,800 which is lower than the \$18,500 national average, and the unemployment rate of 4.7%, is above the national rate of 3.5% (Wanganui District Council, 2005a). Wanganui District Council also faces financial problems from costs incurred from storm water management projects and failed forestry investments (Wanganui District Council, 2005b).

Good Health Wanganui

Good Health Wanganui is the provider arm of the Wanganui District Health Board. It is responsible for all secondary health services, community and rural services, mental health, Maori health, clinical support, and public health services (Wanganui District Health Board, 2006b).

The Wanganui District Health Board's key business areas are assessing health needs, planning and monitoring services, funding and purchasing health services, providing these services, and effectively governing them (Wanganui District Health Board, 2006a).

UCOL

The Wanganui Regional Community Polytechnic was disestablished on 17 December 2001 and incorporated into the Universal College of Learning (UCOL). UCOL is the renamed Manawatu Polytechnic; its name was changed on 21 September 2000 (Ministry of Education, 2001b).

UCOL is based in the lower North Island with campuses in Palmerston North, Wanganui, Levin and Masterton. It is a government-funded institute of technology (UCOL, 2006a). UCOL employs 290 equivalent-full-time staff and in 2004 had enrolments of 6,280 equivalent-full-time students (EFTS). (UCOL, 2006b). The mission statement for UCOL is:

...to provide its communities with universal access to applied education and training services that are directly relevant to the twenty-first century work and social environment. These services integrate with general education to enhance students' personal development and career potential. (UCOL, 2006b, p. 3).

UCOL's portfolio of human-performance and sports-science courses was first developed in 2002. It was to capitalise on a perceived gap in local provision in Palmerston North because Massey University Palmerston North campus offered only postgraduate programmes in sports management, and demand had been identified for sports and human-performance qualifications at certificate and diploma levels (UCOL, 2006b).

Sport and Recreation Wanganui (SRW)

Sport and Recreation Wanganui is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. SRW encourages healthy physically active lifestyles and provides sports and recreation expertise to the Wanganui region. The Trust has offices based in Wanganui near to the Cooks Garden Centre and has outreach workers based in the central region and at Ruapehu. It employs 16 full- and part-time staff (Sport and Recreation Wanganui, 2006b, 2006c).

The vision of Sport and Recreation Wanganui is: "The people of the Wanganui District are recognised as the healthiest and most physically active in New Zealand" (Sport and Recreation Wanganui, 2006c). Its mission is:

- To identify the market segments that we are able to influence.
- To remove the barriers to people being physically active.
- To develop innovative initiatives that will introduce our clients to physical activity that provides them with an enjoyable experience in order to make a difference to their lifestyle.
- To leverage off other organisations in order to achieve our vision (Sport and Recreation Wanganui, 2006c).

Sport and Recreation Wanganui seeks to support and develop the sporting infrastructure in the Wanganui region as well as promoting increased physical activity. This work is achieved through Sport and Recreation Wanganui being a regional leader, an educator, and a facilitator of sporting opportunities. SRW provides education courses to trainers,

administrators and participants in sports. The organisation works with the local authorities in their area to assist them with the planning and coordination of their recreation strategies, as well as assisting recreational organisations and facilities with strategy and campaign planning to increase participation rates in sports. SRW also manages the Splash Centre in Wanganui and the Horowhenua Aquatic Centre in Levin. Sport and Recreation Wanganui networks with the other RSTs, SPARC, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Wanganui region. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport and Recreation Wanganui, 2006c).

There is a mention of the National Academy of Sport with web-link on Sport and Recreation Wanganui's website. SRW states the Academy "is a focal point for sporting excellence in New Zealand. It provides top quality sport science, sports medicine and educational and career development services to coaches and athletes" (Sport and Recreation Wanganui, 2006a). However, the Academy name is incorrectly presented and the hot link is inactive as at 30 August 2006.

Wanganui Incorporated

Wanganui Incorporated is the Wanganui District Council-controlled economic and development unit which was established in 2005 (Wanganui District Council, 2006). The purpose of this unit is to generate significant and sustainable growth in the Wanganui region (Wanganui Incorporated, 2006a). The unit offers a number of business-enterprise training courses and business support, the aim of which is to increase economic growth in the region as well as to increase visitors to the region through cultural and sporting events. Wanganui Incorporated also provides policy and strategy research, as well as links to various government websites for grants and business information (Wanganui District Council, 2006; Wanganui Incorporated, 2006b).

There is no mention of the New Zealand Academy of Sport on their website (Wanganui District Council, 2006; Wanganui Incorporated, 2006a, 2006b, 2006c).

Whanganui River Maori Trust Board

The Whanganui River Maori Trust Board was constituted in 1988 under the Maori Trust Boards Act 1955. The Board has a number of functions: it negotiates with the government over the settlement of outstanding claims concerning the customary rights of the Whanganui River; it has a role of care and protection, and use of the Whanganui River; and it assists in the maintenance of links for the descendents of the Whanganui iwi (Whanganui River Maori Trust Board, 2006).

There is no mention of the New Zealand Academy of Sport on their website (Whanganui River Maori Trust Board, 2006).

Cooks Gardens Trust

The Cooks Garden Trust Board is responsible for managing and running the Cooks Garden outdoor sporting venue. It is the home of Peter Snell's 1962 sub-four-minute mile record for New Zealand. It houses a 400-metre running track, an open-air velodrome, a sports field, and function rooms. It recently underwent a multimillion dollar refurbishment and is Wanganui's sporting and entertainment venue (Wanganui Accommodation Anndion Lodge, 2006).

2.2.5 Sport Taranaki

Sport Taranaki is a sport and recreation charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Taranaki is community focused: it identifies and promotes physical activity and healthy lifestyles to the people of the Taranaki region and also provides administrative and strategic-planning expertise to sporting organisations (Sport Taranaki, 2006b, 2006d). The mission for the Trust is: "Inspiring a healthy, active community" (Sport Taranaki, 2006b). The Trust provides facilities and administrative support for a number of sports codes which are housed in its offices, including Central Soccer Taranaki, Taranaki Cricket, Taranaki Rugby League, Taranaki Hockey, Netball Taranaki, Volleyball New Zealand, Softball New Zealand, and Bowls New Zealand. It also provides space and facilities for NZAS – Central Inc. (Sport Taranaki, 2006b). Sport

Taranaki's offices are located in New Plymouth, and it employs 13 full- and part-time staff (Sport Taranaki, 2006a).

NZAS – Central Inc. is listed incorrectly as National Academy of Sport – Central with a web-link on Sport Taranaki's website, along with SPARC and a number of other sports codes and sports agencies (Sport Taranaki, 2006c).

2.2.6 Sport Manawatu

Sport Manawatu is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Manawatu encourages physically healthy active lifestyles and provides sports and recreation expertise to the Manawatu region. The Trust has offices based in Palmerston North, and satellite offices in Horowhenua and Tararua. It employs 24 full- and part-time staff (Sport Manawatu, 2006d, 2006e).

Sport Manawatu seeks to support and develop the sporting infrastructure in the Manawatu region as well as promoting increased physical activity. Sport Manawatu provides education courses to trainers, administrators and participants in sports. The organisation works with the local authorities in their area to assist them with the planning and coordination of their recreation strategies, as well as assisting recreational organisations and facilities with strategy and campaign planning to increase participation rates in sports. Sport Manawatu also networks with the other RSTs, SPARC, UCOL, local authorities in its area, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Manawatu region. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport Manawatu, 2006a, 2006b, 2006d, 2006f).

There is a mention of the New Zealand Academy of Sport with a web-link on Sport Manawatu's website. It states the Academy "is a focal point for sporting excellence in New Zealand. It provides top quality sport science, sports medicine and educational and career development services to coaches and athletes"(Sport Manawatu, 2006c).

2.2.7 Sport Gisborne Tairahiti

Sport Gisborne Tairahiti is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Gisborne Tairahiti promotes healthy physically active lifestyles and provides sports and recreation expertise to the Gisborne region. The Trust offices are based in Gisborne (Sport Gisborne Tairahiti, 2006b).

Sport Gisborne Tairahiti seeks to support and develop the sporting infrastructure in the Gisborne region as well as promoting increased physical activity. Sport Gisborne Tairahiti provides community events, and education courses to trainers, administrators and participants in sports. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities. The organisation works with the local authorities in their area to assist them with the planning and coordination of their recreation strategies, as well as assisting recreational organisations and facilities with strategy and campaign planning to increase participation rates in sports (Sport Gisborne Tairahiti, 2006a, 2006b). The mission statement of Sport Gisborne is: “more people, more active, more often” (Sport Gisborne Tairahiti, 2006b).

Sport Gisborne Tairahiti also networks with the other RSTs, SPARC, local authorities in its area, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Gisborne region (Sport Gisborne Tairahiti, 2006b).

There is no mention of the New Zealand Academy of Sport on Sport Gisborne Tairahiti’s website, although there is a web-link to SPARC (Sport Gisborne Tairahiti, 2006a, 2006b).

2.2.8 Sport Hawke’s Bay

Sport Hawke’s Bay is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Hawke’s Bay promotes healthy physically active lifestyles and provides sports and recreation expertise to the Hawke’s Bay region. The Trust offices are based in Taradale (Sport Hawke’s Bay, 2006b).

Sport Hawke's Bay seeks to support and develop the sporting infrastructure in the Hawke's Bay region as well as promoting increased physical activity. Sport Hawke's Bay provides community events, and education courses to trainers, administrators and participants in sports. Initiatives and programmes are aimed at active communities, youth, sport development and in providing recreation opportunities. The organisation works with the local authorities in their area to assist them with the planning and coordination of their recreation strategies, as well as assisting recreational organisations and facilities with strategy and campaign planning to increase participation rates in sports (Sport Hawke's Bay, 2006a). The mission statement of Sport Hawke's Bay is: "Leading the Development of Sport and Active Recreation in Hawke's Bay" (Sport Hawke's Bay, 2006a).

Sport Hawke's Bay also networks with the other RSTs, SPARC, EIT, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Hawke's Bay region (Sport Hawke's Bay, 2006a).

There is a web-link to the New Zealand Academy of Sport which is listed on their 'links' webpage under sport and active organisations, but there is no mention of what the NZAS is or does (Sport Hawke's Bay, 2006c). There are also hot links to SPARC and to EIT on the 'partners' and 'links' web pages (Sport Hawke's Bay, 2006c, 2006d).

2.2.9 Eastern Institute of Technology (EIT)

Eastern Institute of Technology, established in 1974 and based in the Hawke's Bay at Taradale, is one of the fastest growing tertiary institutions in New Zealand. It offers over 90 courses and caters to 10,000 full- and part-time students. The courses range from certificate and diploma through to undergraduate and postgraduate levels (Eastern Institute of Technology, 2006c; NewZealandeducated.com, 2006). Sport-studies-based courses offered include Certificate in Recreation and Sports Science, Diploma in Recreation and Sport, Bachelor of Recreation and Sport Science, and Postgraduate Diploma in Health Science (Eastern Institute of Technology, 2006a).

The mission for EIT is:

EIT will support the economic and social development of our diverse communities by providing relevant, high quality and accessible education and training to individuals, professionals, businesses, community organisations and iwi. (Eastern Institute of Technology, 2005, p. 28).

Specialist sports facilities are provided at the multimillion-dollar regional Pettigrew Green Arena Hawke's Bay stadiums. They include national-standard tournament facilities for netball, basketball, volleyball and tennis, a national- and international-standard centre court with seating for 2,500 spectators, four squash courts, a lecture theatre, an aerobics and fitness studio, consulting rooms and offices, an exercise-science laboratory, massage room, function room and café (Eastern Institute of Technology, 2006b).

The EIT profile for 2006–2008 identifies a number of collaborative arrangements with other organisations including Sport Hawke's Bay and the Central Regional Academy of Sport, as well as Massey University and AUT. web-link The document notes:

Two further illustrations of collaborative arrangements are the Agreement of Co-operation between the New Zealand Olympic Academy and EIT and the MoU between the New Zealand Academy of Sport and EIT whereby EIT is involved in testing Hawke's Bay elite sports people. (Eastern Institute of Technology, 2005, p. 43).

2.2.10 Massey University (Wellington and Palmerston North campuses)

Massey University has three main campuses; these are located at Albany in Auckland, Palmerston North and at Wellington. The Wellington campus was previously the Wellington Polytechnic which was disestablished on 1 July 1999 and incorporated into Massey University (New Zealand Gazette, 1999). The three campuses cater for 19,000 local and international students and a further 18,000 extramural students (Massey University, 2006b). The mission statement for Massey University references offering courses of relevance to New Zealanders and also meeting the needs of the diverse population (Massey University, 2006c).

Massey University's Wellington and Palmerston North campuses offer a number of undergraduate and postgraduate courses in sports and exercise science (Massey University, 2006d).

The sport-science and research laboratory located at Wellington campus currently has a Level-2 accreditation with Sports Science New Zealand and is expected to be accredited at Level 3 for exercise physiology. The laboratory has biomechanical- and physiological-analysis capabilities for a broad range of sports activities. It can carry out sensormedics Vmax on-line gas analysis, cardioscope heart rate and ECG monitoring, as well as performance-testing equipment including various ergometers, video analysis and SiliconCoach, accogait force platform, Beyer Rapidlab full blood gas analyser, accusport hand-held lactate analysers, laboratory and, as well as various types of exercise physiology and biomechanics testing equipment (Massey University, 2006e).

The human performance laboratory located at the Palmerston North campus has a Sports Science New Zealand Level-2 accreditation and is able to evaluate a range of sporting activities. It can carry out Morgan Mass spectrometry on-line gas analysis, and has cardioscope equipment for heart-rate and ECG monitoring, as well as various ergometers, a video analysis silicon coach, LactatePro to measure blood lactate levels, and laboratory and field fitness-testing equipment (Massey University, 2006a).

2.2.11 Victoria University

Victoria University was established in 1897 and is based in Wellington, operating from three campus sites located in Kelburn, Te Aro and Pipitea (Victoria University, 2006a, 2006b). It offers courses in over 120 subject areas and caters to 20,000 full- and part-time students. The courses range from certificate and diploma through to undergraduate and postgraduate levels, including Masters and PhD (Victoria University, 2006e, 2006f). Leisure-studies-based courses are offered as part of the museum and heritage studies programme. These courses approach the area of leisure studies from a social science perspective; no sports science courses are offered (Victoria University, 2006c).

The mission for Victoria University is based around offering lifelong learning experiences enriched by a commitment to the Treaty of Waitangi. There is a stated commitment to innovation, supporting staff, diversity, excellence and integrity (Victoria University, 2006d).

There is no mention of the New Zealand Academy of Sport on Victoria University's website (Victoria University, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f).

3.1 NZAS – South Island network overview

Organisations that NZAS – South Island Inc. has current and recent working relationships with include Christchurch City Council (as NZAS – South Island Inc. has offices within the council-owned Queen Elizabeth II sports facility in Christchurch), Dunedin City Council, The Community Trust of Otago, The Community Trust of Southland, the University of Otago, the University of Canterbury, Sport Southland, Sport Otago, Sport Canterbury, and Sport Tasman and is noted by P. Pfitzinger (personal communication, October 28, 2006), K. Smith (Personal communication, May 8, 2006) and NZAS – South Island (2006a).

3.2 NZAS – South Island Actors

3.2.1 NZAS – South Island Inc.

The mission for NZAS – South Island Inc. is:

To provide New Zealand's best sportsmen and women with the superior facilities and support services they need to train, compete, and win at the highest level (NZAS - South Island, 2004b, 2006c).

Its vision is to foster a culture of excellence in a friendly personal environment that is passionate about sport, where individual attention may be given to athletes from world-class scientists and practitioners (NZAS - South Island, 2004b, 2006c). It reflects the "Spirit of the South" (NZAS - North, 2004a). Relationships are maintained with the NZAS network and the National Sports Organisations (NSOs), as well as centres in North America and Australia to ensure international standards are achieved (NZAS - South Island, 2004b). The driving values of NZAS – South Island Inc. are:

...customer focus, excellence, accessibility, innovation, resourcefulness and responsiveness cost effectiveness, co-operation and continuous learning and improvement (NZAS - South Island, 2004a, 2006c).

Services provided by the NZAS – South Island network include sports medicine, sports science, access to training facilities, career and coaching support, and education and development opportunities. SPARC provides all other aspects of the New Zealand high-performance sport system such as funding for international competitions, coaching support and training camps (NZAS - South Island, 2004a).

NZAS – South Island Inc. is governed by a Board of seven members and the CEO of NZAS – South Island Inc. The Board members are Dr Selwyn Maister (Olympic hockey gold medallist and assistant coach of the Black Sticks. He is a Rhodes Scholar, an organic chemist, and former Dean of the Health and Sciences Faculty and Research at Canterbury Polytechnic. He is currently Chief Executive of Sport Canterbury), Lois Muir OBE (a former New Zealand netball coach for many years including two World Championship titles in the 1980s. She is a former New Zealand netball captain, and recently stepped aside as coach of the Otago Rebels in the National Bank Cup competition. Lois is the academy's foundation chairperson. She has served on the boards of both the Hillary Commission and the New Zealand Sports Foundation and many other sporting organisations), Clive Matthewson (Director of Development, University of Otago), Michael Sidey (is an Executive director of Forsyth Barr Ltd in Christchurch and share broker and fund manager with that company. He is also a trustee of several community/charitable trusts and is on the council of the University of Otago. As a University of Otago student in the early 1970s, he played for the University A rugby side for three seasons. Since then he has been a regular multi-sport competitor), Peter Cox (a former provincial hockey and marathon representative, he has been a regular competitor in the Speight's Coast to Coast and other multi-sport events. He is a full-time company director and board chairman, and is the Deputy-Chair of the academy), Mike Piper (an Invercargill accountant and company director. He is the deputy chairman of the Southland Building Society and chairman of Stadium Southland Ltd. Piper was a founding trustee of Sport Southland. He is a former

Otago age-group rugby representative and provincial marathon champion who won the World Masters' title in 1994 and gained age-group titles in the 1990 and 1992 Honolulu and Boston Marathons, respectively), Helen Littleworth (joined the board in 2005, replacing Dunedin-based management consultant Vickie Paterson. Helen is a Dunedin-based sports and manipulative physiotherapist who has worked with a wide range of sporting codes and teams including the 2002 Women's Rugby World Cup-winning Black Ferns. A former Black Ferns captain, she was also a New Zealand hockey representative) (NZAS - South Island, 2004c, 2006d).

The CEO of NZAS – South Island Inc. is Kereyn Smith (who is also the Chair of Netball New Zealand and has previously worked for the Hillary Commission for Sport Fitness and Leisure). Other staff positions within the organisation include a coaching manager, administration manager, Winter Olympics performance director, sport services manager, two administration assistants (one in Dunedin, the other in Christchurch), and a Prime Minister's scholarship/athlete and career counselling (PMS/ACE) coordinator, (NZAS - South Island, 2004e). By 2006 two new positions were created: a performance psychologist and a business manager (NZAS - South Island, 2006e).

NZAS – South Island Inc. recognises the disadvantage that the geographic isolation of New Zealand has for high-performance athletes and also that other nations are able to give their athletes a great deal of support; NZAS – South Island Inc. seeks to redress these disadvantages (NZAS - South Island, 2004f). To meet the challenge of supporting athletes in a wide area they have developed a number of satellite centres and regional facilities. Regional facilities are located in Christchurch, South Canterbury, Dunedin, Southland, Queenstown and Tasman (NZAS - South Island, 2004d), and service centres are located in Invercargill and Christchurch. A mobile unit is also employed which acts as a testing unit training and analysis station, and laboratory. The mobile unit supports athletes and coaches where they live and train as well as at training camps and at other events. NZAS – South Island has very strong links with the University of Otago and Christchurch City Council (because it operates from the QEII Stadium in Christchurch). Sports-medicine services are provided by University of Otago clinical staff and independent consultants. The university

also provides environmental facilities, such as the immersion tank and swimming flume, and sports-science services and facilities are provided by the university's National School of Physical Education and Human Performance Centre. Two altitude centres are provided in Wanaka; these are also used as training camps. Distance-teaching facilities offer education and support for coaches and athletes (NZAS - South Island, 2004b). NZAS – South Island Inc. also works closely with the Regional Sports Trusts in the South Island based on a memorandum of understanding (K. Smith, personal communication, September 28, 2005). NZAS – South Island Inc. has continued to develop new programmes outside the carded system to assist athletes, and this work has been done in conjunction with SPARC, the New Zealand Olympic and Commonwealth Games Federation, other funding bodies, regional sporting organisations, and NSOs noted by K. Smith (personal communication, September 28, 2005) and NZAS - South Island (2006a). In addition, NZAS – South Island Inc. also offers a user-pays service to all coaches, athletes and sports organisations outside the SPARC-funded NZAS programme (NZAS - South Island, 2006b).

No reference to the NZAS – South Island network members or their websites was made on the website of NZAS – South Island Inc. up to 2005 other than a brief mention of the services listed in the above paragraphs (NZAS - South Island, 2003, 2004a, 2004b, 2004c, 2004d, 2004e, 2004f). However, a list of partner organisations was included on the website of NZAS – South Island Inc. in 2006 (NZAS - South Island, 2006a).

3.2.2 Dunedin City Council

Dunedin is promoted by the City Council as:

A prosperous, accessible city of well-educated people engaged in creative industries that lead the world; with freedom to celebrate a distinctive blend of cultural heritage, architectural character and lifestyle choice; in a city with a thriving business heart and vibrant suburban communities; and a strong and sustainable connection to a uniquely beautiful harbour, peninsula and hinterland (Dunedin City Council, 2006, p2).

The population of Dunedin is 121,900 (Statistics New Zealand, 2006). Dunedin City Council is not represented on the Board of NZAS – South Island Inc. Dunedin City Council provides free access to council-owned facilities for carded athletes and also charges a

lower-than-commercial rate for rented space at Logan Park where the NZAS – South Island Inc. offices are housed. Its contribution to NZAS – South Island Inc. is based on an alignment of perceived economic benefits for the city; this involves the funding of one-off projects.

There is no mention of the New Zealand Academy of Sport on Dunedin City Council's website (Dunedin City Council, 2006).

3.2.3 University of Otago

Founded in 1869, the University of Otago is New Zealand's oldest university (University of Otago, 2006d). The main campus catering for the majority of students, staff and administration is located in Dunedin; other campuses are located in Auckland, Wellington and Christchurch. The university currently provides a range of tertiary courses from undergraduate to PhD level for 17,830 full- and part-time students. It boasts 50,000 Otago graduates living around the world, many of whom hold influential positions (University of Otago, 2006f).

The university is structured into four academic divisions: School of Business Departments, Division of Health Sciences Departments, Division of Humanities Departments, and Division of Sciences Departments (University of Otago, 2006e).

The medical sciences are provided to NZAS – South Island Inc. by the Division of Health Sciences. Within the Division there are three medical schools: the Christchurch School of Medicine located at Christchurch Hospital campus, the Wellington School of Medicine and Health Sciences located at Wellington Hospital, and the Dunedin School of Medicine which operates from Dunedin Hospital and Southland Hospital (in Invercargill); all three medical schools offer diploma to postgraduate research courses. The purpose of the Division is to provide research-based courses of an international standard in the health and related sciences at undergraduate, postgraduate and professional levels (University of Otago, 2006g).

A high-performance sport centre (Human Performance Centre) is operated by the School of Physical Education in the Division of Sciences Departments in which a multidisciplinary staff group of sports-science researchers work to enhance human performance. The Human Performance Centre offers consultancy services to sports and other organisations. Facilities include a \$5 million laboratory complex that houses the only swimming flume in the Southern hemisphere, an immersion tank, an environmental chamber, a strength-testing lab, circuit room, biochemistry lab, video and edit suite, motion-analysis capture and digitising lab, seminar and conference room, and an electronics workshop (University of Otago, 2006a, 2006c). The mission statement of the School of Physical Education is:

To extend, share, critique and apply knowledge about the biological, professional and social aspects of physical activity through research and teaching in the university and community. (University of Otago, 2006b).

There is no mention of the New Zealand Academy of Sport on the University of Otago's website (University of Otago, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g).

3.2.4 Christchurch City Council

Christchurch is promoted by the city council as a 'peace city' which reflects the peace movement history in New Zealand and demonstrates the council's commitment to developing strategies for a more peaceful community and respect for all citizens (Christchurch City Council, 2006e). The city council also actively seeks ways of promoting Christchurch as a sports destination. It is active in promoting recognition of the temperate climate and geographical variation of the region, making it an ideal destination for a diverse range of outdoor sporting activities based on mountains, rivers, lakes and wide areas. The council also promotes a number of international-standard facilities, and has a reputation for hosting international sports events, which it actively seeks to attract (Christchurch City Council, 2006a, 2006d).

The population of Christchurch is 356,030 (Christchurch City Council, 2006c). Christchurch City Council is represented on the board of NZAS – South Island Inc. Christchurch City Council provides free and reduced-fee access to council-owned facilities

for carded athletes and it charges also a lower-than-commercial rate for rented space at the QEII facility where the Christchurch-based satellite office of NZAS – South Island Inc. is housed. Its contribution to NZAS – South Island Inc. is based on an alignment of perceived economic benefits for the city; this involves the funding of one-off projects and in assisting with building a sporting infrastructure.

There is no mention of the New Zealand Academy of Sport on Christchurch City Council's website (Christchurch City Council, 2006a, 2006b, 2006d).

3.2.5 University of Canterbury

Founded in 1873, the University of Canterbury was New Zealand's second university. The campus is located in the suburb of Ilam on a 76-hectare site and operates five specialist field-research centres outside of Christchurch. The university currently provides a range of tertiary courses from undergraduate to PhD level for 12,000 full- and part-time students (University of Canterbury, 2006b).

The university is structured into six departments: College of Arts, College of Business and Economics, College of Engineering, College of Science, School of Law, and the Christchurch College of Education (University of Canterbury, 2006a).

The sports-science services are provided to NZAS – South Island Inc. by Sport Science and Recreation Services. The main purpose of this service is to provide a recreation centre and recreation programmes for the university's students. Some research is undertaken by staff members but no taught courses of study are provided. The service also functions as a sport-science centre for elite athletes. Elite athletes can access the following services and equipment from Sport Science and Recreation Services: video skills-analysis, blood and expired gas analysers, ergometers, hydrostatic weighing tank for body composition assessment, lactate analysers and field testing equipment (University of Canterbury, 2006c).

There is no mention of the New Zealand Academy of Sport on the University of Canterbury's website, although reference is made to providing services to elite athletes for the past 40 years and that the university has serviced a number of elite athletes and teams in New Zealand (University of Canterbury, 2006a, 2006b, 2006c).

3.2.6 Lincoln University

Lincoln University is one of the eight universities in New Zealand. The campus is located in Lincoln which is a twenty-minute drive from Christchurch (Lincoln University, 2006c). The University currently provides a range of tertiary courses from undergraduate to PhD level in over 500 subjects for 4,268 full- and part-time students (Lincoln University, 2006b, 2006d).

The university is structured into four academic divisions: Agriculture and Life Sciences; Bio-protection and Ecology; Commerce; and Environment, Society and Design. The division of Environment, Society and Design offers courses in recreation management. There are no sports-science related courses offered (Lincoln University, 2006a).

There is no mention of the New Zealand Academy of Sport on Lincoln University's website (Lincoln University, 2006a, 2006b, 2006c, 2006d).

3.2.7 Sport Southland

Sport Southland is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Southland promotes healthy physically active lifestyles and provides sports and recreation expertise to the Southland region (Sport Southland, 2006e). Sport Southland has offices based in Invercargill and Gore (Sport Southland, 2006a). It employs 14 full- and part-time staff (Sport Southland, 2006d).

Sport Southland works with the local authorities and other organisations in the Southland area in assisting with the planning and coordination of a comprehensive regional leisure strategy. Sport Southland also networks with the other RSTs, SPARC, and other sports and

funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Southland region. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport Southland, 2006c, 2006e).

Sport Southland has a web-link for NZAS – South Island Inc. on the sponsors’ page of its website, as does the Community Trust of Southland (Sport Southland, 2006c). NZAS – South Island Inc. is also listed as providing sport development for young people in the region (Sport Southland, 2006b).

3.2.8 Sport Otago

Sport Otago is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Otago encourages physically active and healthy lifestyles and provides sports and recreation expertise and services to the Otago region. Sport Otago is based in Dunedin and has representatives in Oamaru and Cromwell (Sport Otago, 2006a, 2006b, 2006e). The organisation employs 26 full- and part-time staff (Sport Otago, 2006c).

The mission statement of Sport Otago is: “To provide leadership and expertise to the sport and recreation industry so that Otago people can live healthy, active lives” (Sport Otago, 2006e). Sport Otago also networks with the other RSTs, SPARC, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Otago area. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport Otago, 2006a).

There is no mention of the New Zealand Academy of Sport on Sport Otago’s website (Sport Otago, 2006a, 2006b, 2006c, 2006d, 2006e).

3.2.9 Sport Canterbury

Sport Canterbury is a division of the Canterbury West Coast Sports Trust; it is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Canterbury promotes healthy physically active lifestyles and provides sports and recreation expertise and services to the Canterbury region. Sport Canterbury is based in Christchurch; other divisions include Sport Mid Canterbury and Sport South Canterbury, as well as offices of the West Coast Sports Trust located in Hokitika and Greymouth (Sport Canterbury, 2006a, 2006b, 2006d, 2006e).

Sport Canterbury also networks with the other RSTs, SPARC, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Canterbury area. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Sport Canterbury, 2006a, 2006d, 2006e).

Sport Canterbury has a web-link to NZAS – South Island Inc. on their website (Sport Canterbury, 2006c).

3.2.10 Sport Tasman

Sport Tasman is a division of the Tasman Regional Sports Trust; it is a sport and recreation education charitable trust and is one of 17 Regional Sports Trusts (RSTs) in New Zealand. Sport Tasman encourages healthy physically active lifestyles and provides sports and recreation expertise and services to the Tasman region. The offices of Sport Tasman are located in Nelson; other divisions of the Tasman Regional Sports Trust include Sport Marlborough, Sport Kaikoura and Sport Buller (Tasman Regional Sports Trust, 2006b, 2006c).

The mission statement for Tasman Regional Sports Trust is: “To lead the development of physical activity, recreation and sport across the Top of the South Island Sport” (Tasman Regional Sports Trust, 2006b). One of the key objectives under this mission is improving sport performance.

Sport Tasman, as part of the Tasman Regional Sports Trust, works with the local authorities and other organisations in the Tasman area; it also networks with the other RSTs, SPARC, and other sports and funding organisations in developing and sharing information and best practice to further develop the sporting infrastructure for the Tasman region. Initiatives and programmes are aimed at active communities, youth, sport development and at providing recreation opportunities (Tasman Regional Sports Trust, 2006b). Sport Tasman also operates the Tasman Regional Resource Centre in Nelson, and the Richmond and Motueka Recreation Centre in Motueka (Tasman Regional Sports Trust, 2006c). Sport Tasman employs 13 full- and part-time staff (Tasman Regional Sports Trust, 2006d).

The Tasman Regional Sports Trust has a web-link for NZAS – South Island Inc. on the coaching resource centre page of their website. The coaching resource is an initiative developed by NZAS – South Island Inc. in conjunction with the Tasman Regional Sports Trust (Tasman Regional Sports Trust, 2006a).

3.2.11 The Community Trust of Otago

The Community Trust of Otago is one of 11 community trusts in New Zealand; it manages investments for charitable and philanthropic purposes for the benefit of communities in Otago. The Community Trust of Otago is based in Dunedin (The Community Trust of Otago, 2006a, 2006b). The mission of the Trust is:

The Community Trust of Otago supports, encourages, and enhances Otago communities by responsibly managing and sharing the resources which have been entrusted to us (The Community Trust of Otago, 2006a).

There is no mention of the New Zealand Academy of Sport on The Community Trust of Otago's website, although there is a web-link to Dunedin City Council (The Community Trust of Otago, 2006a, 2006b, 2006d). Also mentioned is the sum of NZ\$736,500 donated in 2006 to sports development for a number of sports in the Otago area (The Community Trust of Otago, 2006c).

3.2.12 The Community Trust of Southland

The Community Trust of Southland is one of 11 community trusts in New Zealand. It was formed in 1988 and manages investments for charitable and philanthropic purposes for the benefit of communities in Southland. The Community Trust of Southland is based in Invercargill (The Community Trust of Southland, 2006).

There is no mention of the New Zealand Academy of Sport on The Community Trust of Southland's website (The Community Trust of Southland, 2006).

3.2.13 SportsMed

SportsMed is a large medical service specialising in all sports-related injury treatments. The range of services offered includes physiotherapy, podiatry, chiropractic, rehabilitation, massage, nursing, and training and coaching. It also has specialised sports physicians. Previous and existing clientele include provincial and national sports teams as well the Olympic team (SportsMed, 2006d). SportsMed is located in Bealey Avenue, Christchurch (SportsMed, 2006a, 2006b).

There is no mention of the New Zealand Academy of Sport on SportsMed's website, although SPARC and a number of NSOs are mentioned (SportsMed, 2006a, 2006b, 2006c, 2006d).

3.2.14 Active Health QEII

Active Health is a sports-medicine and sports-rehabilitation clinic specialising in all sports-related injury treatments. The range of services offered includes medical, physiotherapy, rehabilitation, acupuncture, nutrition, podiatry, chiropractic, exercise prescription, training programmes, mental conditioning, altitude simulation, fitness testing, and coaching (Active Health QE11, 2006c). Active Health QEII was formed by multiple world age-group triathlon and endurance sport coach Dr. John Hellemans (Active Health QE11, 2006b). Active Health is located in the QEII facility, Christchurch (Active Health QE11, 2006a).

There is no mention of the New Zealand Academy of Sport on Active Health QEII's website, although some of the medical staff are listed as accredited providers for the New Zealand Academy of Sport (Active Health QE11, 2006a, 2006b, 2006c).

4.0 Summary

The information presented in this appendix is intended to complement the within-case descriptions and provide a depth of understanding of each of the embedded networks' composition. A description of each of the actors within the embedded networks, including their objectives, has been given.

The NZAS – North network actors are similar: with the exception of MISH, they are all tertiary institutions that compete in the same market. However, MISH's objectives for its high-performance and elite business are similar to those of the tertiary institutions who service the same clientele base as a means of informing their teaching and developing research. In contrast, the actors within the NZAS – Central and NZAS – South Island networks are not similar to each other; they serve different markets and have different mission statements.

Appendix E New Zealand Olympic Committee

The New Zealand Olympic Committee (NZOC)¹⁸ is a branch of the International Olympic Committee (IOC). It is one of 202 Olympic Committees worldwide that make up the IOC (B. Maister, personal communication, May 11, 2004). The NZOC mission is: “To develop and protect the Olympic movement in New Zealand in accordance with the Olympic Charter.” The vision of NZOC is: “To contribute to a better New Zealand by educating youth through sport and the Olympic ideal.” The NZOC was recognised by the International Olympic Committee on 5 April 1919, having been founded on 18 October 1911 in Wellington. The goal of the Olympic movement is to educate youth through sport in order to build and contribute to a peaceful and better world (NZOC, 2003).

The NZOC is part of the worldwide Olympic movement whose philosophy is based on that of the ancient Greeks. The NZOC (2003) states:

By blending sport with culture and education, modern Olympism promotes a way of life based on: the balanced development of the body, mind and character; the joy found in effort; the educational value of being a good role model for others; and observing the universal ethics of tolerance, generosity, unity, friendship, non-discrimination and respect for others.

B. Maister, Secretary General of NZOC notes:

...around the world different countries interpret that (Olympic Charter) differently. Some interpret it literally; others play loose homage to the Charter. In the NZOC’s case we are very mindful of the Charter and we adhere fairly closely to its dictates (personal communication, May 11, 2004).

To this end, the NZOC pursues a range of programmes in Olympic Education, the Environment, United Nations Affairs, Ethics, Equality, Human Rights (Sport for all), and

¹⁸ New Zealand was one of the first nations to fully support the restoration of the Olympic Games. This stems from a meeting in Paris on 8 July 1892 between Pierre de Coubertin, founder of the modern-day Olympic movement, and Leonard Albert Cuff (1866–1954) of Christchurch who was, at the time, athlete in and manager of the 2nd New Zealand athletics team. Both shared the same ideals and philosophy (NZOC, 2003).

Culture and Arts. This is achieved by participating in the Commonwealth and Olympic Games and in providing assistance for the development of its member organisations (NZOC, 2003).

Within the NZOC is the Athletes Commission, a group of twelve athletes who represent other athletes associated with the Olympic and Commonwealth Games. This was formed on 4 July 1986. The Athletes Commission also has a representative on the Board of the NZOC. The goal and guiding principal of the Athletes Commission is:

To provide a bridge between participant and administrator to ensure that the ideas and needs of athletes are presented to the NZOC Executive in their own words (NZOC, 2003).

The Athletes Commission ensures that the athletes' perspective is heard by the Board of the NZOC and respective NSOs. In particular, the Athletes Commission enables athletes to be involved in the design of the Olympic and Commonwealth Games' team uniforms, and in the negotiation of allowances and terms for athletes attending the Games to ensure the athletes' contract is as favourable as possible. The Commission also helped establish an appeals process for selection or drug concerns, and represents athletes who have a dispute with their federation (NZOC, 2003).

The Olympic Academy is a part of the NZOC; its role is to provide teaching and counsel that promotes the Olympic ideal. This is achieved by providing teaching programmes, contributing toward international cooperation, and promoting the Olympic ideals to the member organisations (NZOC, 2003). The NZOC focuses on sport which, by definition, is physical, competitive and organised. There are 40 National Sport Organisation (NSO) members of the NZOC; membership is determined by the sport being included in the Commonwealth or Olympic Games. These sports determine the direction and future of the NZOC. The relationship with each of the sports is important and the NZOC is in regular contact at any time with most of these sports. There are monthly newsletters, and general assemblies and meetings that these members attend. The only formal agreement that is entered into is with each of the sports over selection of members for the Games. There is

scope to include other sports as ‘associate members’ of the NZOC (B. Maister, personal communication, May 11, 2004).

The NZOC requires approximately NZ\$12–15 million to operate over a four-year period;¹⁹ monies are sourced from the IOC (and its partners), the Charity Gaming Association in New Zealand, and also from corporate sponsors based in New Zealand. The NZOC is not government-funded. This makes it an independent and autonomous organisation, although the NZOC does liaise and work closely with SPARC on a number of matters at regular intervals. This autonomy means that the NZOC is able to lobby and influence government concerning sport development and sport policy (B. Maister, personal communication, May 11, 2004). B. Maister commented that the NZOC is,

...working incredibly closely with SPARC with whom we’ve formed a memorandum of understanding and with whom at all levels we have effective working relationships including (Olympic) Games team management – we’ve got some of their staff on our Games team. We share information (personal communication, May 11, 2004).

The NZOC is also able to directly assist the member sports through funding allocation from the Olympic Solidarity programme. This funding can assist a sport’s initiatives such as development programmes, participatory programmes, talent-identification schemes, coach development, and youth pathways. It is based on the sport applying for monies with a business case which has measurable outcomes. This entails the NZOC taking an overview of how and what the sport is doing in terms of its development, as well as liaising with SPARC to ensure that they are aware of any funding initiatives so that the sport’s development is coordinated. The NZOC also works closely with the Ministry of Education; the NZOC produces educational resources for schools and organises school visits to educate school children about the Olympic movement and to inspire them so that they can excel at being the best that they can be. The NZOC also works with the Ministry of Health

¹⁹ The four-year period includes preparing and organising teams for a Commonwealth Games, Summer Olympic Games and a Winter Olympic Games. This is typical of a smaller country; larger countries may have a separate Olympic organisation and Commonwealth Games organisation as is the case with Australia (B. Maister, personal communication, May 11, 2004).

to promote health and a 'smoke-free' image. The NZOC occasionally assists sports with athletes who need to fast-track passports in order to represent the country. When it comes to Games Team preparation, the NZOC is responsible (in partnership with NSOs and SPARC) for the logistics and management of the athletes and support personnel. This includes accommodation, transport, outfitting, medical insurance, team publications, media, gifts, and preparation allowances for all the sports involved (B. Maister, personal communication, May 11, 2004). B. Maister commented:

What we talk about is trying to provide an environment in which every athlete can excel in the Olympic spirit (personal communication, May 11, 2004).

He also noted:

Sport in New Zealand remains on a very amateur basis; volunteers still play a significant role. You take out rugby...and cricket...then the rest of the sports are very amateur and therefore when I ring a sports CEO, let's say of one of our smaller member sports...the wife says he'll be back at five because that's when he does his sports work...the problem is that his equivalent overseas is probably sitting in an office of ten people with a totally professional staff and a professional sport, and New Zealanders somehow expect our athletes to go over there and compete with it. New Zealanders...just simply don't understand the realities of professional sport around the world.

To summarise, the NZOC focuses on 40 NSOs which, by definition, are physical, competitive and organised. Membership of the NZOC is determined by the sport being included in the Commonwealth or Olympic Games. The autonomy of the NZOC in terms of where it obtains its funding from means that it is able to lobby and influence government concerning sport development and policy.

Appendix F
SPSS statistics routine to inform cross-case and within-case analysis

1.0 Introduction

A statistical and data management system, SPSS for Windows, was used to analyse the quantitative data gathered from the research participants' questionnaire responses (see Table B.5: *Questionnaire for NZAS members*, Appendix B). The questionnaire comprised eleven relationship variables and was developed from findings from the prior network studies discussed in Chapter Two. The distribution of the questionnaire and the response rate is reported in Chapter Four. The purpose of the analysis was to provide a triangulation for qualitative data, measure the strength of relational aspects, and investigate cross-level pressures within each network at CEO/Board, work-unit and individual levels. Three statistical tests were undertaken: (1) a cross-tabulation analysis on CEO/Board, work-unit and individual levels within each embedded intentionally formed network for each relational aspect, (2) a one-sample t-test on the means of all relational aspects for each embedded intentionally formed network, and (3) a one-way ANOVA to compare the means of all relational aspects across the three embedded intentionally formed networks.

1.1 Cross tabulation

The cross-tabulation analysis on CEO/Board, work-unit and individual levels within the embedded intentionally formed networks across each relational aspect was undertaken to discover if there was any variance in the means between these organisational levels. The purpose of this was to investigate cross-level pressures within each network. However, the cross-tabulation routine was not possible with the data in its original format as there were insufficient numbers of cases. By transforming the scale from an 11-point scale (0 = worst/low to 10 = best/high) into a 3-point scale, and changing the number of cases to a percentage of cases, a cross-tabulation analysis was possible. The 3-point scale comprises of 1 = worst/low (which includes 0 to 3 on the questionnaire scale), 2 = medium (which includes 4 to 6 on the questionnaire scale), and 3 = best/high (which includes 7 to 10 on the questionnaire scale). The research hypothesis was that there is a significant variance across all three organisational levels within each network for each of the variables; the null

hypothesis was that there is no significant variance across all three levels within each network for each of the variables. A Somers'd directional and Kendall's tau-b and Gamma symmetric measures were used to calculate significance at the 0.10% level.

1.2 One sample *t*-test

The one-sample *t*-test procedure was used to test for a significant variance from the midpoint (average) of 5 on the scale of 0= worst/less to 10= best/highest for each of the means of the relational aspects listed in the questionnaire. The research hypothesis was that there is a significant variance from the midpoint of 5; the null hypothesis was that there is no significant variance from the midpoint of 5. Significance is taken at the 0.10% level (90% confidence level) rather than the 0.05% level (95% confidence level) because the purpose of this study is exploratory rather than confirmatory, and a smaller difference may be detected at this lower confidence level when the sample size is small.

1.3 One-way ANOVA

A one-way ANOVA with multiple comparisons of variance was conducted for the three embedded intentionally formed networks. Following on from this, a Levene test was used to test for homogeneity of variances in order to determine which post hoc test (Bonferroni or Tamhane) to use for each of the eleven relational aspects. The purpose of these tests was to investigate differences in the responses to each of the relational aspects between each embedded intentionally formed network. The results from these tests were used to inform the cross-case analysis.

The research hypothesis was that variance between the three networks is heterogeneous (not equal); the null hypothesis was variance is homogenous (equal). A small *p* value (under 0.10) would reject the null hypothesis and accept the research hypothesis that variance is heterogeneous (not equal).

The ANOVA (analysis of variance) between pairs (combinations of NZAS – North, NZAS – Central, and NZAS – South Island networks) reveals the following relational aspects as significant (with an *f* value above 3): commitment, how well information is shared, power,

the importance of resources, adaptation of processes, how much other organisations belonging to the network helps with your business, and geographic location. However, the ANOVA does not identify the individual networks. A Post Hoc test (either Bonferroni or Tamhane) was used to provide multiple comparisons between pairs combined from the NZAS – North, NZAS – Central, and NZAS – South Island networks. Bonferroni post hoc tests were undertaken for Questions 4, 5, 7, and 9; Tamhane post hoc tests were undertaken for Questions 1, 2, 3, 6, 8, 10, and 11.

1.4 Results – Cross-tabulation routine

1.4.1 NZAS – North network

The cross tabulation results presented in the Table G.1 shows a significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium, and high) of information-sharing, cooperation, and importance of geographic location. Specifically, results show information-sharing is significantly different between the organisational levels: there is a higher level of information-sharing at the individual level compared with the CEO/Board and work-unit levels. The level of cooperation is also significantly different between the organisational levels: at the individual level, it is very high. And finally, the importance of geographic location is significantly different between levels: it is perceived to be much more important by those at the individual level.

1.4.2 NZAS – Central network

The cross tabulation results presented in the following table shows a significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium, and high) of commitment, power, adapted processes, and strength of relationships. Specifically, results show commitment is significantly different between the organisational levels: at the individual level there is a lower level of commitment compared with the other two levels. Perceived power of other organisations in the network is also significantly different between levels: at the individual level it is lower compared with the other two levels. Again, the degree of adaptation of processes to others' is significantly different between levels: adaptation is perceived to be lower at the individual and CEO/Board levels compared with the work-unit level. Finally, strength of relationships is significantly

different between levels: at the individual level there is a lower perception of relationship strength compared with the other two levels.

1.4.3 NZAS – South Island network

The cross tabulation results presented in Table G.1 shows a significant association between organisational level (CEO/Board, work-unit and individual) and the level (low, medium, and high) of commitment, power, and other organisations belonging to the network helping with your business. Specifically, results show commitment is significantly different between organisational levels: at the individual level there is a lower level of commitment compared with the other two levels. There is also a significant association between the levels of how the power of other organisations is perceived with the three organisational levels: a higher proportion of respondents at the individual level rated the power of other organisations at the low-to-medium level compared with the CEO/Board and work-unit levels which rated it at a medium-to-high level. Other organisations belonging to the network helping with your business is also significantly different between organisational levels: a higher proportion of respondents at the CEO/Board level rated this at the high level compared with respondents at the work-unit and individual levels.

Table F.1: Cross tabulation of CEO/Board, work-unit and individual levels within NZAS – North, NZAS – Central and NZAS – South Island networks

Question	Level within the network	NZAS – North network				NZAS – Central network				NZAS – South Island network			
		CEO/Board	Work-unit	Individual	Significance	CEO/Board	Work-unit	Individual	Significance	CEO/Board	Work-unit	Individual	Significance
1. This member's commitment to the NZAS network	Low %	0	0	0	.908	14.3	0	29.4	*.002	0	0	11.5	*.090
	Medium %	15	0	16.7		7.1	25	47.1		26.3	28.6	34.6	
	High %	85	100	83.3		78.6	75	23.5		73.7	71.4	53.8	
2. How well do they share information with you?	Low %	0	0	0	.076	16.7	0	11.8	.449	11.1	28.6	19.2	.717
	Medium %	35	50	11.1		33.3	0	52.9		16.7	42.9	19.2	
	High %	65	50	88.9		50.0	100	35.3		72.2	28.6	61.5	
3. How well do they cooperate with your organisation?	Low %	0	0	0	*.012	7.1	0	5.9	.667	5.3	23.8	7.7	.584
	Medium %	25	25	0		21.4	0	29.4		15.8	33.3	26.9	
	High %	75	75	100		71.4	100	64.7		78.9	42.9	65.4	
4. How much do you trust this organisation?	Low %	10	0	0	.148	8.3	0	0	.449	0	10	7.7	.691
	Medium %	10	0	5.6		16.7	25	41.2		7.6	30	7.7	
	High %	80	100	94.4		75.0	75	58.8		82.4	60	84.6	
5. How much power does this organisation have in the network?	Low %	5	0	22.2	.279	21.4	0	58.8	*.012	11.8	19	38.5	*.007
	Medium %	60	50	11.1		57.1	25	35.3		52.9	47.6	50	
	High %	35	50	66.7		21.4	75	5.9		35.3	33.3	11.5	
6. How important are their resources for the network?	Low %	5	0	0	.346	7.1	0	5.9	.598	17.6	4.8	23.1	.189
	Medium %	15	25	10		14.3	0	23.5		17.6	28.6	30.8	
	High %	80	75	90		78.6	100	70.6		64.7	66.7	46.2	
7. How much have you adapted your processes to theirs?	Low %	35	75	44.4	.849	30.8	0	47.1	*.070	28.6	76.2	57.7	.416
	Medium %	40	25	22.2		38.5	0	47.1		42.9	23.8	19.2	
	High %	25	0	33.3		30.8	100	5.9		28.6	0	23.1	

8. How strong is the relationship between your organisation and theirs?	Low % Medium % High %	0 25 75	25 0 75	12.5 6.3 81.3	.854	7.1 14.3 78.6	0 0 100	23.5 41.2 35.3	*.006	5.6 44.4 50	28.6 38.1 33.3	19.2 19.2 61.5	.683
9. How much does belonging to the network help you with your business?	Low % Medium % High %	0 18.2 81.8	33.3 66.7 0	0 33.3 66.7	.366	0 0 100	0 0 100	0 0 100	-	0 0 100	33.3 33.3 33.3	0 0 100	.552
10. How much does ___ belonging to the network help you with your business	Low % Medium % High %	26.3 26.3 47.7	0 25 75	33.3 11.1 55.6	.850	7.1 14.3 78.6	0 0 100	11.8 35.3 52.9	.116	6.7 33.3 60	33.3 38.1 28.6	34.6 30.8 34.6	*.076
11. How important is the geographic location of ___ for you?	Low % Medium % High %	30 25 45	25 50 25	5 20 75	*.019	7.1 0 92.9	0 0 100	11.8 11.8 76.5	.196	17.6 11.8 70.6	42.9 23.8 33.3	34.6 7.7 57.7	.499

Note: * indicates one-sample *t*-test is significantly higher or lower than the midpoint/average on the questionnaire scale of 0 (worst/less) to 10 (best/highest), $p < 0.10$.

1.5 Results – One sample *t*-test

1.5.1 NZAS – North network

Table G.2 presents the results from the one-sample *t*-tests. For the NZAS – North network, the results show significantly higher-than-average levels of commitment, information-sharing, cooperation, trust, power of an organisation, importance of organisational resources, strength of relationships, belonging to the network helping with your business, and for the importance of geographic location. The significantly higher-than-average levels of power in the network may be due to the network being influenced by the organisations who are a member of the governance board for NZAS – North Inc. Adaptation of processes and other organisations belonging to the network helping with an organisation's business are not significantly different from the scale midpoint of 5. This may reflect organisations competing in the same business area.

1.5.2 NZAS – Central network

For the NZAS – Central network, the one-sample *t*-test results show significantly higher-than-average levels of commitment, information-sharing, cooperation, trust, importance of organisational resources, strength of relationships, belonging to the network helping with your business, other organisations belonging to the network helping with their business, and for the importance of geographic location. There are significantly lower-than-average levels for perceived power in the network which may be due to organisations in the network feeling there is no one organisation that holds power – organisations reported a lack of focus and strategic direction. The level for adaptation of processes does not significantly vary from the midpoint. This may reflect organisations not working closely together within the network, and would also support the feeling of a lack of focus and direction within the network. Despite this, the strength of relationships between organisations is reported as being at significantly higher-than-average levels. This may be because the NZAS – Central network is still establishing itself and is starting to identify business opportunities so organisations are relying on each other more than they were at earlier stages in the network's development. This would also account for a significantly higher-than-average result for other organisations belonging to the network helping with their business.

1.5.3 NZAS – South Island network

For the NZAS – South Island network, the one-sample *t*-test results show significantly higher-than-average levels of commitment, information sharing, cooperation, trust, importance of organisational resources, strength of relationships, belonging to the network helping with your business, and for the importance of geographic location. The perceived levels of power in the network and how much other organisations belonging to the network help with an organisation's business are not significantly different from the scale midpoint of 5. This may be due to organisations in the network feeling a sense of joint ownership in the network activities, as well as a sense that the network is managed and has direction. It may also be due to the nature of the projects being small in comparison with the overall business of each organisation. Adaptation of processes is significantly lower than the scale midpoint of 5. This would support the assertion that the network's projects comprise only a small part of the business of each organisation.

1.6 Results – ANOVA (analysis of variance)

The post hoc test identifies several significant differences in the relationships across the three networks. Specifically, results show the NZAS – North network has significantly higher levels of commitment, information-sharing, and cooperation than the other two networks. The importance of resources, adaptation of processes, and strength of relationships are also significantly higher in the NZAS – North network than the NZAS – South Island network. This would indicate NZAS – North is a dense network that has strong ties between its organisations.

NZAS – Central network has significantly lower levels of power than the other two networks. This would indicate that organisations in the NZAS – Central network are not as able to exert as much influence over partners as organisations in the other two networks are. Ties between organisations are also weaker, as is trust which is significantly lower compared with the levels seen in the NZAS – North network; this may indicate that relationships between organisations in the NZAS – Central network are not as developed as those in the NZAS – North network.

The NZAS – Central network rates the importance of geographic location at a significantly higher level than do the other two networks. This indicates a stronger reliance on organisations to deliver services and resources for the network in different locations. By comparison, the majority of NZAS – North network organisations are situated in one place and the NZAS – South Island network has a mobile unit which it uses to deliver services to a wide geographic area.

The NZAS – South Island network has a significantly higher level of power than the NZAS – Central network; this indicates organisations in the NZAS – South Island network are able to exert more influence over others, and that ties between organisations are stronger.

Table F.2: Results of one-sample *t*-test and ANOVA for NZAS – North, NZAS – Central, and NZAS – South Island networks

Question	NZAS – North network one-sample <i>t</i> -test		NZAS – Central network one-sample <i>t</i> -test		NZAS – South Island network one-sample <i>t</i> -test	
	Sig. (2-tailed)	Mean (Std.D)	Sig. (2-tailed)	Mean (Std.D)	Sig. (2-tailed)	Mean (Std.D)
1. This member's commitment to the NZAS network	*.000	8.00 (1.379) ^a	*.011	6.11 (2.459) ^a	*.000	7.07 (2.112) ^a
2. How well do they share information with you?	*.000	7.17 (1.430) ^a	*.015	6.00 (2.236) ^a	*.000	6.27 (2.497) ^a
3. How well do they cooperate with your organisation?	*.000	7.60 (1.345) ^a	*.000	6.80 (1.712) ^a	*.000	6.97 (2.436) ^a
4. How much do you trust this organisation?	*.000	7.85 (1.636) ^a	*.000	6.94 (1.519) ^a	*.000	7.47 (1.789)
5. How much power does this organisation have in the network?	*.000	6.50 (2.233) ^a	*.066	4.14 (2.669) ^{ab}	.333	5.27 (2.132) ^{ab}
6. How important are their resources for the network?	*.000	8.00 (1.555) ^a	*.000	7.34 (1.814)	*.000	6.59 (2.443) ^a
7. How much have you adapted your processes to theirs?	.118	4.43 (2.318) ^a	.162	4.35 (2.639)	*.000	3.21 (2.563) ^a
8. How strong is the relationship between your organisation and theirs?	*.000	7.18 (1.947) ^a	*.000	6.54 (2.160)	*.004	5.98 (2.534) ^a
9. How much does belonging to the network help you with your business?	*.000	6.96 (1.918)	*.001	8.20 (.837)	*.097	7.67 (3.204)

10. How much does__belonging to the network help you with your business	.203	5.54 (2.656)	*.000	6.66 (1.955) ^b	.317	5.35 (2.622) ^b
11. How important is the geographic location of__for you?	*.017	5.98 (2.610) ^a	*.000	7.69 (2.336) ^{ab}	*.019	6.03 (3.280) ^b

Notes: * indicates one sample *t*-test is significantly higher or lower than the midpoint/average on the questionnaire scale of 0 worst/less to 10 best/highest for strength of relationship, $p < .10$.

^a is used to indicate whether the mean of NZAS – North network is significantly higher or lower than the mean of the other networks, $p < 0.10$.

^b is used to indicate whether the mean of NZAS – Central network is significantly higher or lower than the mean of NZAS – SI network, $p < 0.10$.

Appendix G
Explanation of terms used in UCINET 6 tables

Table G.1: Explanation of terms used in UCINET6 tables

Ego network density is used to compute the standard ego network for every actor. The ego measures are for undirected ties which consider all ties in and out from an ego. Ego network density measure are:

- Size = Size of ego network measured by the number of actors.
- Density = (Ties divided by pairs) times 100 to give the number of possible connections within the network.
- NEgoBe = Normalised ego betweenness. A measure of betweenness of ego in its own network, i.e. how many times an actor is between others which indicates how well-connected the actor is to others.

Note: Ego is the actor who is the focus of their network. Ego net is the network from the ego's perspective (Borgatti et al., 2002; Hanneman, 2001).

Structural hole measure is undertaken for all nodes in the network and treats each node as an ego. The Structural hole measure used is listed below:

- Constraint = Burt's constraint measure of the extent to which an ego is invested in actors who are invested in other of ego's alters (Burt, 1992).

Note: Density and constraint are opposing measures of structural holes for ego nets, so that greater density indicates fewer structural holes whereas greater constraint indicates more constraint on coordinated actions when there are more structural holes. Dense networks tend to facilitate coordination and thus help with implementation of new ideas; however, they are poor at generating new ideas. Sparse networks do the opposite, i.e. they are good at generating new ideas since they have more structural holes leading to more social domains which allow more opportunities for new combinations of ideas; however, it is harder to act on these ideas due to the coordination problems inherent in sparse networks (Borgatti et al., 2002; Hanneman, 2001).

Table H.1 is continued on the next page.

Ego network brokerage is used to calculate five kinds of brokerage. The routine calculates this measure for each node and the total for the five. A partition data-set vector was entered to partition the actors into groups. The partition vectors are: (1) facility (2) facility and funder (3) facility, trainers and research (4) funder (5) manager (6) medical (7) nothing (8) research, and (9) support partner. These groups were identified from examining the business purpose, stated mission and objectives for each actor, and the role that they play in the network. Stated objectives of each actor and their business purpose are listed in Appendix D for each intentionally formed network.

- Coordinator = This role means the actor mediates within its ego net. It assumes directed ties from a to b to c.
- Consultant = The ego mediates interactions between members of another ego net in the network.
- Gatekeeper = Ego intercepts information coming from a's ego net and can decide who to give it to in its own ego net which also contains b.
- Representative = Ego intercepts information coming from nodes in its own ego net and can decide who to give it to in b's ego net.
- Liaison = Ego mediates interactions between members of different ego nets in the network.

Note: The roles played by key ego nodes should also be examined because different types of brokers represent different types of roles and they act differently, leading to creation or breaking of ties. Ego nodes that try to create links between their alters tend to reduce existing structural holes, thereby reducing their own power; ego nodes can operate in both dense and sparse networks. Without an actor playing this role, there may be an absence of coordination due to cognitive gaps that arise from incomplete interpersonal knowledge. Structure affords opportunities but the characteristic of the egos also influence actions taken or not taken, which may in turn influence the success of the network (Borgatti et al., 2002; Hanneman, 2001).

Appendix H
Results of quantitative techniques using UCINET 6

1.0 Introduction

The data for this analysis was gathered from responses to the questionnaire presented in Table B.5: *Questionnaire for NZAS members* (see Appendix B). The distribution of the questionnaire and response rate is reported in Chapter Three. The methods for the UCINET 6 (Borgatti et al., 2002) calculations follows the instructions of Hanneman (2001). The analysis was undertaken for each of the three embedded networks: NZAS –North, NZAS – Central, and NZAS – South Island. The method of analysis is described in Chapter Three. A summary of the results is presented at the end of this appendix. The purpose of the UCINET 6 analysis was to measure the strength of relational aspects between actors within each of the networks.

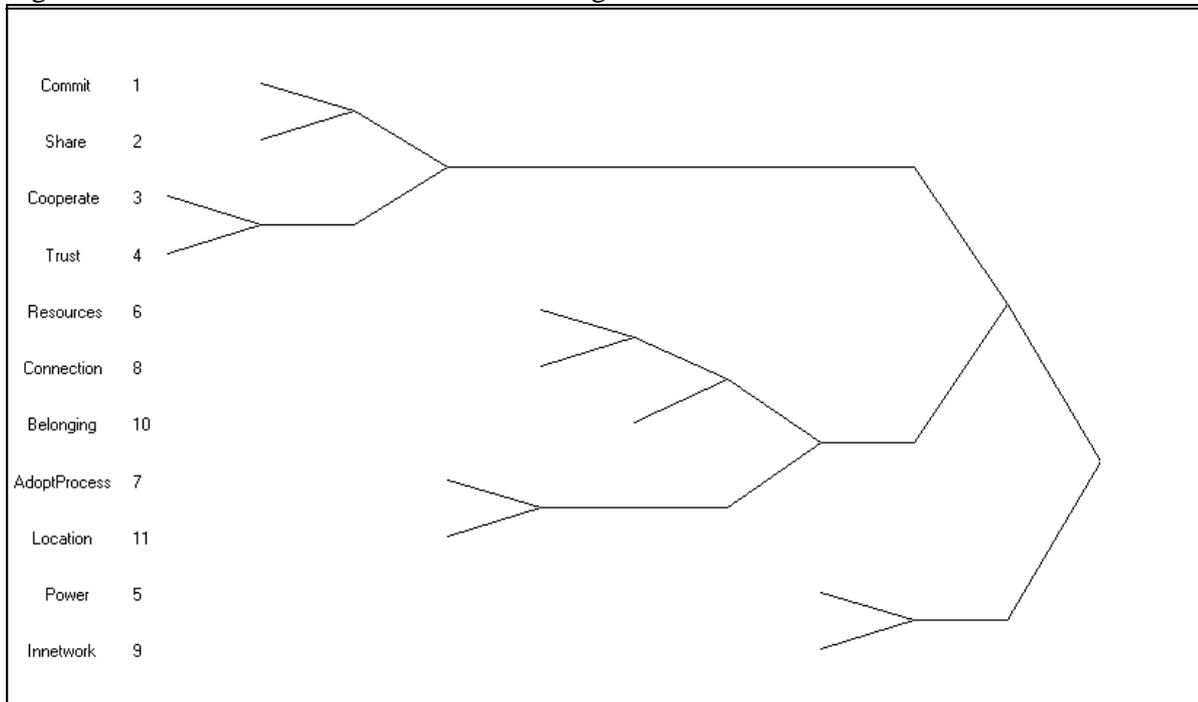
Two calculations were used. First, a tree diagram was produced for each of the intentionally formed networks to identify variables that are most similar. A tree diagram was also produced for each result for the NZAS – North network, although this was not possible for the other two networks due to insufficient data. The insufficient data meant UCINET 6 statistical tests were limited to ego net analysis for NZAS – Central and NZAS – South Island networks. Secondly, a matrix calculation was done to show the average rating for each network actor for each variable. The results indicate how other actors perceive others, and are useful because where discrepancies occur this may indicate a problem area that an actor is not aware of, or an imbalance in power.

The rating scale used in the questionnaire for each variable is 0 to 10; the scale gives a midpoint and is explained in Chapter Three. Within the scale, a rating of 0 to 3 indicates worst/low, 4 to 6 indicates medium/average, and 7 to 10 indicates high/best.

1.1 NZAS – North network

1.1.1 Overall rating of all variables by actors of NZAS – North network

Figure H.1: NZAS – North UCINET 6 tree diagram of similarities

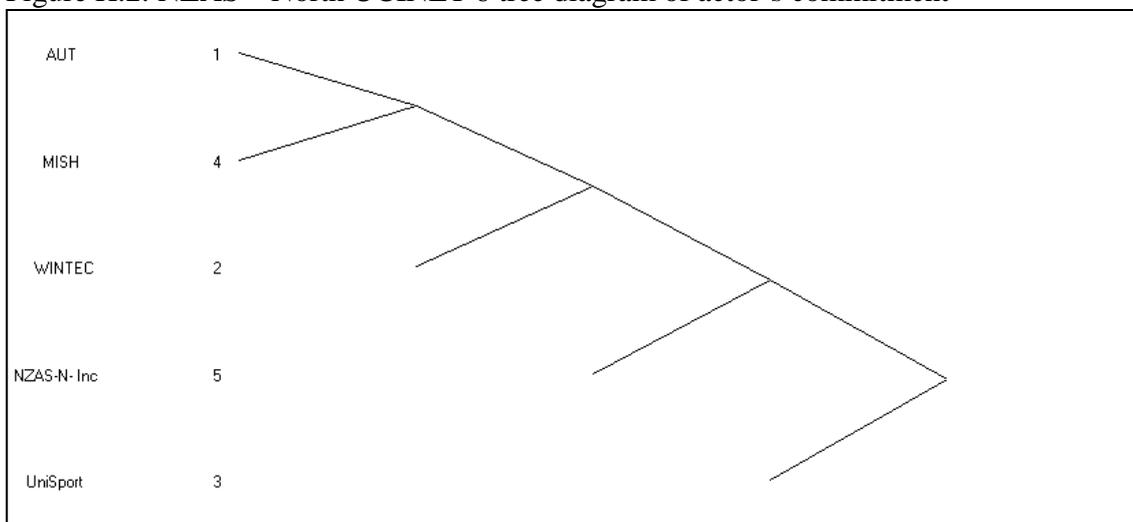


The tree diagram in Figure H.1 shows three distinct similarity groupings in terms of how consistently actors of the NZAS – North network rate each other on the eleven variables. First, actors of this network have similar perceptions of each other in terms of cooperation, trust, commitment, and sharing of information. Most similar are cooperation and trust, then commitment and sharing. Second, the next cluster of similarity in perceptions included adapting one's processes to fit those of others, the importance of others' geographic location, valuing the resources of others in the network, the strength of connection to others, and the importance of others' belonging to the network. In this cluster, adapting processes and being closely located are rated similarly, followed by how they value the resources of others, strength of the relationship with others in the network (connection), and the importance of others' belonging to the network. Third, and least similar, is how the actors rate each other in terms of perceptions of the power held by others within the network, and the values organisations placed on being in the network.

The grouping of cooperation, trust, commitment, and sharing consists mostly of social relational aspects (with the exception of information-sharing). In contrast, the grouping of adapting processes, geographic location, resources, connection, and belonging to the network are economic aspects. Finally, perceptions of the power of others and the value of being in this network could be interpreted as perceiving an imbalance in resources manifested by perceptions of power differentials.

1.1.2 Question 1: Rating of actors' commitment for NZAS – North network

Figure H.2: NZAS – North UCINET 6 tree diagram of actor's commitment



The tree diagram in Figure H.2 shows the similarities in how each actor rates each other actor on commitment. MISH and AUT are most similar in the sense that they have similar perceptions of the level of commitment of others to the network. Least similar perceptions are held by University of Auckland UniSports Centre who sees all other actors as being strongly committed, giving them ratings ranging from 8 to 8.5 (see Table H.1), but other actors vary in their perceptions of University of Auckland UniSports Centre's commitment level, giving it ratings ranging from 6 to 8. NZAS – North Inc. is rated as highly committed (ratings of 9.5 to 10) by all actors except University of Auckland UniSports Centre who sees them as somewhat less committed. NZAS – North Inc. views University of Auckland UniSports Centre and MISH as being less committed to the network relative to the other actors. Overall, University of Auckland UniSports Centre is seen to be less committed than others by all except WINTEC who sees all actors as being strongly committed. MISH sees

WINTEC and University of Auckland UniSports Centre as being less committed, while AUT sees University of Auckland UniSports Centre as less committed. University of Auckland UniSports Centre, on the other hand, sees all actors as equally committed.

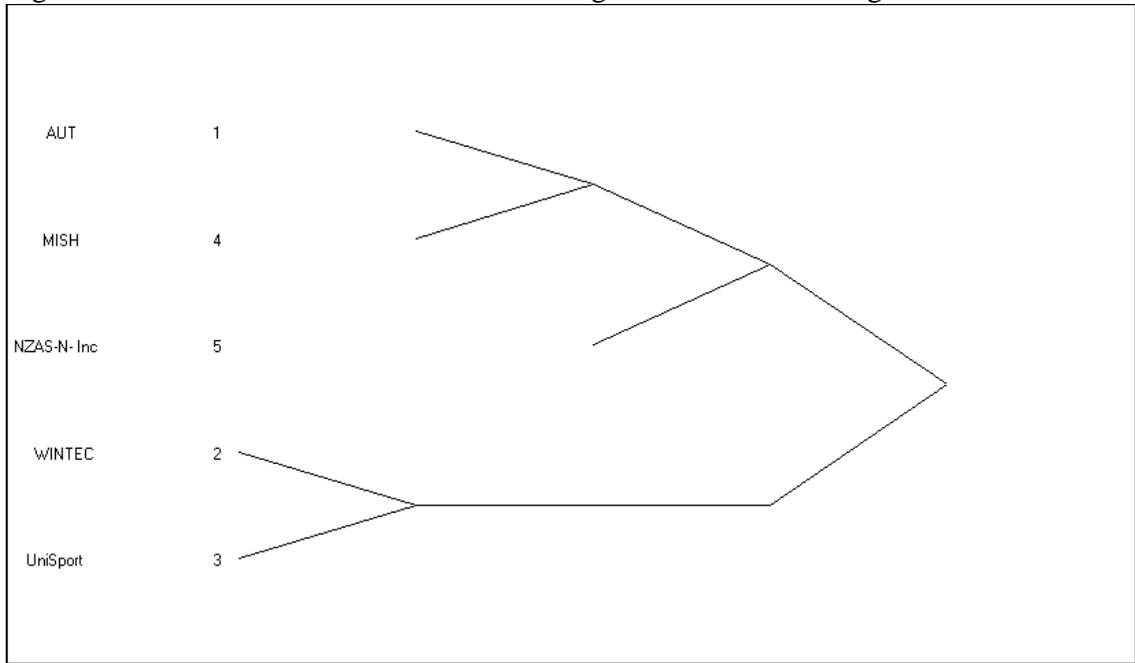
Overall, levels of commitment in this network are strong although the results also indicate University of Auckland UniSports Centre and WINTEC need to work on improving how others perceive them in terms of their level of commitment.

Table H.1: Actor's commitment to NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	8.3	6.7	8	9.7	3
WINTEC	8	0	8	8	9.5	1.5
UniSport	8.5	8	0	8.5	8	1.5
MISH	8	7.5	6.5	0	10	3.5
NZAS – N Inc.	8	8.5	6	6	0	2.5
Range	0.5	1	2	2.5	2	

1.1.3 Question 2: Rating of actors' sharing of information for NZAS – North network

Figure H.3: NZAS – North UCINET 6 tree diagram of actor's sharing of information



The tree diagram in Figure H.3 shows the similarities in how each actor rates each other actor on sharing of information. WINTEC and University of Auckland UniSports Centre are most similar in the sense that they have similar perceptions of the level of sharing of information. A second grouping consisting of AUT and MISH are the next most similar in their perceptions. Least similar perceptions are held by NZAS – North Inc. who sees University of Auckland UniSports Centre and MISH as having lower levels of sharing of information, giving them ratings of 5 and 5.5 (see Table H.2). NZAS – North Inc. and AUT are rated consistently by all others as being more committed, with ratings ranging from 7.5 to 8 for both.

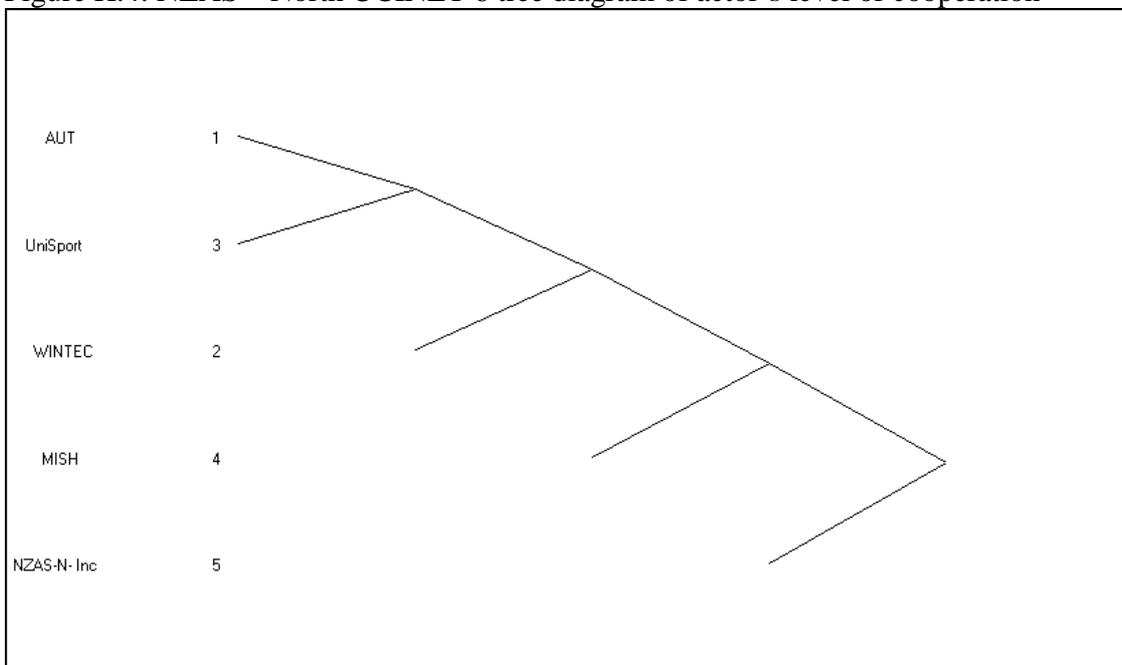
Overall, levels of sharing of information are generally strong, although MISH and University of Auckland UniSports Centre are seen to have a lower level of information-sharing (ratings range from 5 to 8 for UniSport, and 5.5 to 8 for MISH). This indicates that University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of sharing of information.

Table H.2: Actor's sharing of information for NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	7.3	5.7	7.3	8	2.3
WINTEC	8	0	8	8	8	0
UniSport	7.5	7.5	0	7.5	7.5	0
MISH	8.5	6.5	6	0	8	2.5
NZAS – N Inc.	7.5	7.5	5	5.5	0	2.5
Range	0.5	1	2.3	2.5	0.5	

1.1.4 Question 3: Rating of actors' levels of cooperation within NZAS – North network

Figure H.4: NZAS – North UCINET 6 tree diagram of actor's level of cooperation



The tree diagram in Figure H.4 shows the similarities in how each actor rates each other actor on their levels of cooperation. University of Auckland UniSports Centre and AUT are most similar in the sense that they have similar perceptions of the level of cooperation of others in the network. Least similar perceptions are held by NZAS – North Inc. who sees MISH as being less cooperative than the other organisations, and WINTEC as being more cooperative than others. (Ratings range from 6.5 to 8 for MISH, and 7.5 to 9 for WINTEC, as presented in Table H.3.) NZAS – North Inc. is rated as having a high level of cooperation (ratings of 8.5 to 9) by all actors. Overall, University of Auckland UniSports

Centre is seen to be less committed (ratings range from 5.7 to 8) than others by all except WINTEC who sees all actors as having high levels of cooperation. AUT and MISH view University of Auckland UniSports Centre as having lower levels of cooperation. University of Auckland UniSports Centre, on the other hand, sees all actors as having very similar levels of cooperation, giving the other actors ratings ranging from 7 to 8.

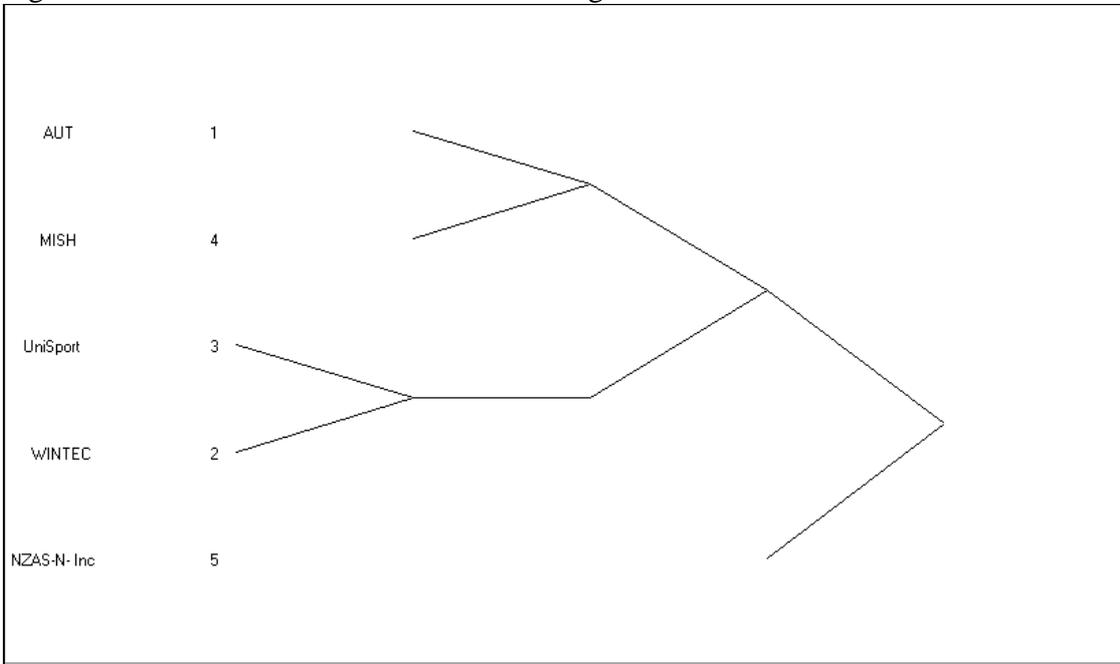
Overall, levels of cooperation within this network are strong. However, the data indicates University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of cooperation.

Table H.3: Actor's level of cooperation within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	7.7	5.7	7.3	8.7	3.3
WINTEC	8	0	8	8	9	1
UniSport	7.5	7.5	0	7	8	1
MISH	8.5	7	6	0	8.5	2.5
NZAS – N Inc.	7.5	9	7.5	6.5	0	2.5
Range	0.5	1.3	2.3	1.5	1	

1.1.5 Question 4: Rating of actors' levels of trust within NZAS – North network

Figure H.5: NZAS – North UCINET 6 tree diagram of actor's level of trust



The tree diagram in Figure H.5 shows the similarities in how each actor rates each other actor on trust. University of Auckland UniSports Centre and WINTEC are most similar in the sense that they have similar perceptions of the level of trust of others in the network. A second grouping consisting of AUT and MISH are the next most similar in their perceptions. The least similar perceptions are held by NZAS – North Inc. who sees MISH as being the least trustworthy and WINTEC as the most trustworthy, giving them ratings of 6 and 9 respectively (see Table H.4). AUT rates MISH more lowly for trustworthiness, giving it a rating of 6.3. NZAS – North Inc. is rated as having high levels of trust (8 to 9.7) by all actors. University of Auckland UniSports Centre is also less trusted by AUT, compared with a higher level of trust given by University of Auckland UniSports Centre for AUT. WINTEC see all actors as having strong trust.

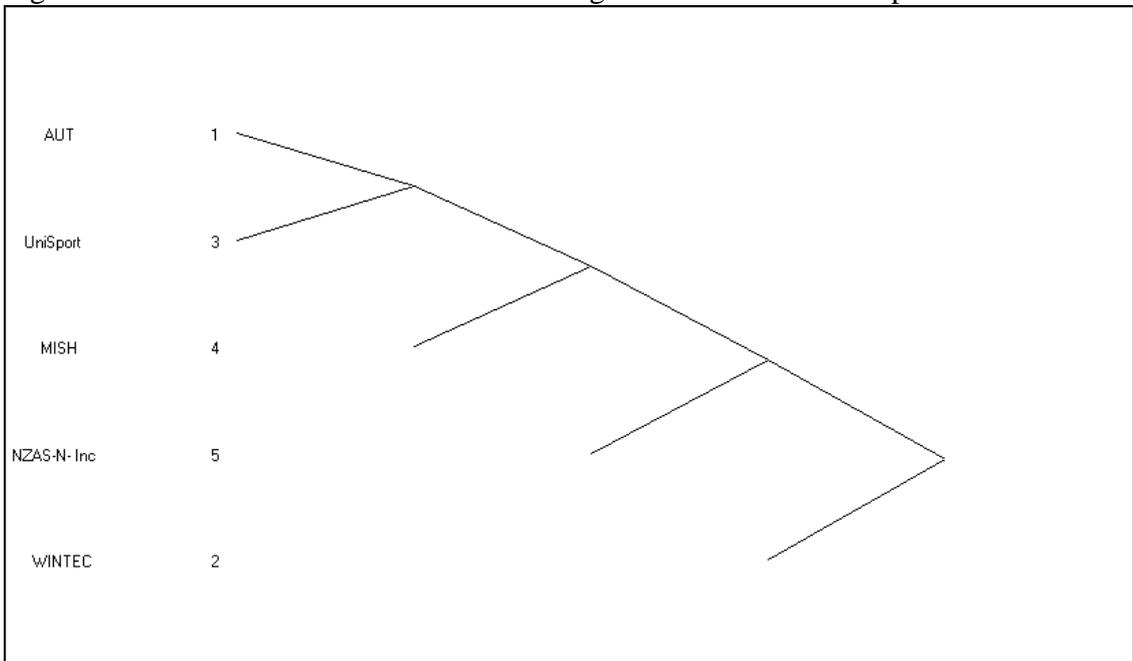
Overall, levels of trust within this network are strong. However, the data indicates University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of trust which is at a moderate level.

Table H.4: Actor’s levels of trust within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	8.7	5.5	6.3	9.7	3.2
WINTEC	8	0	8	8	9	1
UniSport	7.5	7.5	0	7.5	8	0.5
MISH	8.5	8.5	7	0	9	2
NZAS – N Inc.	7.5	9	7.5	6	0	3
Range	1	1.5	2.5	2.0	1.7	

1.1.6 Question 5: Rating of actors’ levels of power held within NZAS – North network

Figure H.6: NZAS – North UCINET 6 tree diagram of actor’s level of power



The tree diagram in Figure H.6 shows the similarities in how each actor rates each other actor for how much power an actor holds within the network. University of Auckland UniSports Centre and AUT are most similar in the sense that they have similar perceptions of the level of power held by others in the network. Least similar perceptions are held by WINTEC who sees all other actors as having moderate-to-strong levels of power, giving them ratings ranging from 6 to 8.5 (see Table H.5). NZAS – North Inc. is rated as having strong levels of power in the network (8 to 9) by all actors. WINTEC is viewed as having weak levels of power within the network, with ratings of 3.5 to 5.5, and University of Auckland UniSports Centre are not too far behind, with ratings of 4 to 7.3. MISH is viewed

by AUT as having a high level of power within the network (rating of 8), while MISH view AUT as having only a moderate level of power (rating of 5.5).

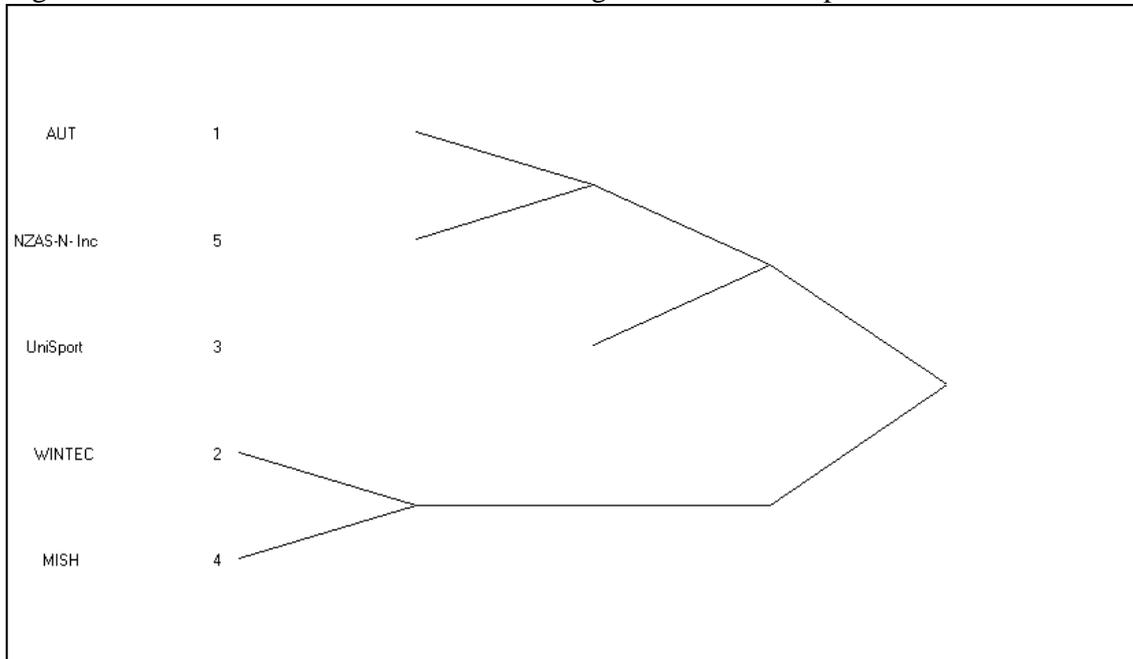
Overall, the balance of power is reasonably distributed across the network and is at a moderate-to-strong level. The data indicates NZAS – North Inc. holds the most power within the network, and AUT and MISH also hold strong levels of power; WINTEC and University of Auckland UniSports Centre are the weakest actors.

Table H.5: Actor’s levels of power held within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	5	7.3	8	9	4
WINTEC	6	0	7	6	8.5	2.5
UniSport	7.5	5.5	0	6.5	8	2.5
MISH	5.5	3.5	4.5	0	9	5.5
NZAS – N Inc.	6.5	4	4	6.5	0	2.5
Range	2	2	3.3	2	1	

1.1.7 Question 6: Rating of actors' importance of resources within NZAS – North network

Figure H.7: NZAS – North UCINET 6 tree diagram of actor's importance of resources



The tree diagram in Figure H.7 shows the similarities in how each actor rates each other actor on importance of resources for the network. MISH and WINTEC are most similar in the sense that they have similar perceptions of the level of importance of resources to the network. AUT and NZAS – North Inc. are the next most similar in their perceptions. Least similar perceptions are held by University of Auckland UniSports Centre, who sees MISH as being the strongest for importance of resources for the network, giving it a rating of 9 (see Table H.6).

University of Auckland UniSports Centre's resources are perceived to not be very important for the network, with the other actors giving it ratings of only 5 to 7.5. NZAS – North Inc., MISH and AUT are rated as having the highest levels of importance of their resources for the network, with ratings ranging from 7.5 to 9 by all actors.

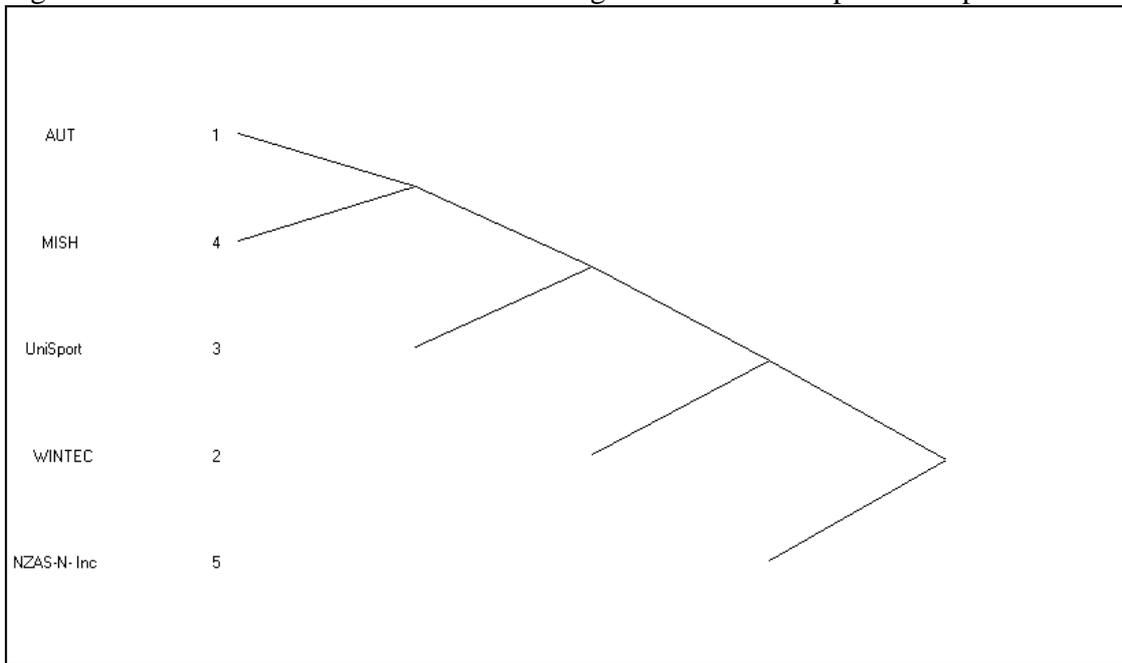
Overall, all actors rate the other actors' resources as strongly important. However, the data indicates University of Auckland UniSports Centre needs to work on improving the perception held by MISH that its resources are only moderately important to the network.

Table H.6: Actor's importance of resources within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	8	7.7	8.7	8.7	1
WINTEC	9	0	7.5	7.5	9	1.5
UniSport	8.5	7.5	0	9	8.5	1.5
MISH	8.5	7.5	5	0	8.5	3.5
NZAS – N Inc.	8	7.5	7	8	0	1
Range	1.0	0.5	2.5	1.5	0.5	

1.1.8 Question 7: Rating of actors' adaptation of processes to others within NZAS-North network

Figure H.8: NZAS – North UCINET 6 tree diagram of actor's adaptation of processes



The tree diagram in Figure H.8 shows the similarities in how each actor rates each other actor for adaptation of processes to others within the network. MISH and AUT are most similar in the sense that they have similar perceptions of the level of adaptation of

processes to others within the network. Least similar perceptions are held by NZAS – North Inc. who see itself as having only weak-to-moderate levels (4 to 6) of adaptation of processes to others within the network (see Table H.7). NZAS – North Inc. is rated as having moderate levels of adaptation of processes by the other actors, with ratings ranging from 4.5 to 7.5. MISH has a lower level of adaptation of processes to NZAS – North Inc. than the other actors do, with a rating of 4.5 compared with ratings of 7 to 7.5 for the others. MISH has also a weak level of adaptation of processes to others, with ratings ranging only from 2 to 4.5. Generally there is a weak-to-moderate level of adaptation of processes to others within the network, with the ratings ranging from 1.3 to 7.5 – the stronger ratings being those for NZAS – North Inc.

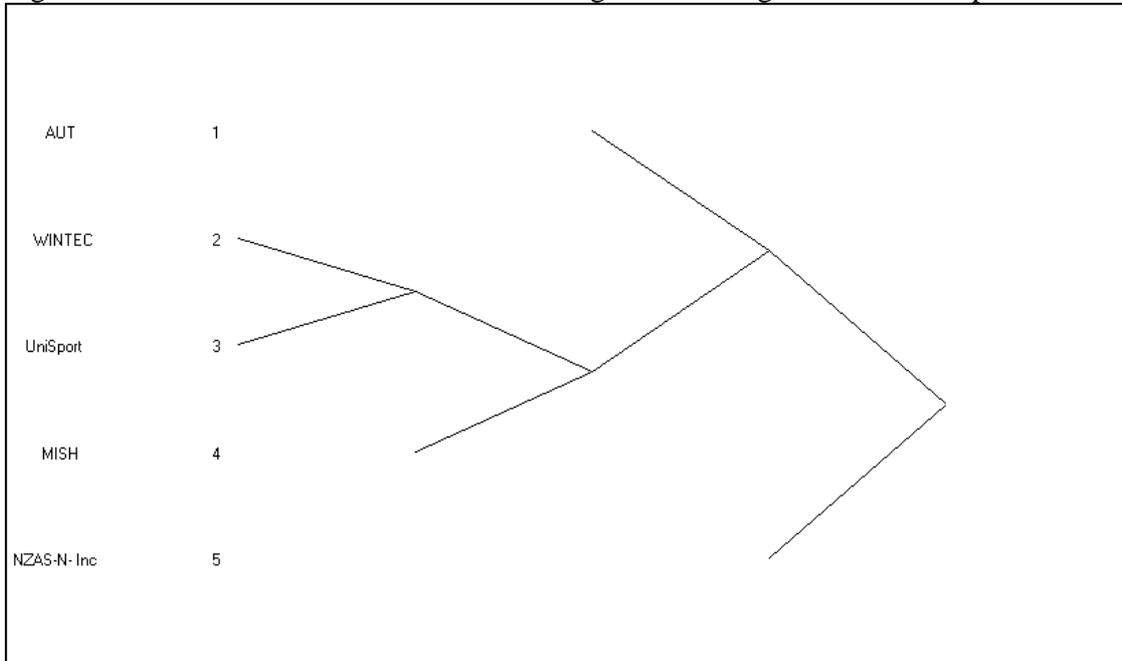
Overall, the level of adaptation of processes is weak to moderate. The data indicates actors within the network are adapting their processes to those of NZAS – North Inc. but not to the other actors within the network.

Table H.7: Actor’s adaptation of processes within NZAS-North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	1.3	1.3	5.7	7	5.7
WINTEC	3	0	5.5	3	7	4
UniSport	5	4	0	6.5	7.5	3.5
MISH	3.5	2	2	0	4.5	2.5
NZAS – N Inc.	6	5	4.5	4	0	2
Range	2.5	3.7	4.2	3.5	2.5	

1.1.9 Question 8: Rating of actors' strength of relationship with others within NZAS-North network

Figure H.9: NZAS – North UCINET 6 tree diagram of strength of relationships



The tree diagram in Figure H.9 shows the similarities in how each actor rates each other actor on strength of relationship with their organisation. University of Auckland UniSports Centre and WINTEC are most similar in the sense that they have similar perceptions of the strength of their relationships with others in the network. Both University of Auckland UniSports Centre and WINTEC have weaker levels of strength of relationships compared with others. University of Auckland UniSports Centre has a weak level of connection with MISH and a moderate level of connection with AUT (ratings of 3 and 5.3, respectively), while WINTEC has a weak level of connection with MISH and a moderate level of connection with University of Auckland (ratings of 3 and 5.5, respectively) (see Table H.8). Interestingly, the strength of connection perceived by University of Auckland UniSports Centre with WINTEC is higher and is perceived as being strong (rating of 8) compared with WINTEC's rating of University of Auckland UniSports Centre of only 5.5. Least similar perceptions were held by NZAS – North Inc. who saw the strength of its

relationships as slightly weaker than others with AUT and MISH, but stronger than others with WINTEC and University of Auckland UniSports Centre (ratings of 7 for AUT, 8 for WINTEC and University of Auckland UniSports Centre, and 6.5 for MISH; see Table H.8). All actors in the network perceive their relationship with NZAS – North Inc. to be strong.

Overall, actors in this network rate the strength of their relationships to others as moderate to strong. However, the data indicates that MISH is poorly connected to both WINTEC and University of Auckland UniSports Centre. Furthermore, the data indicates that University of Auckland UniSports Centre and WINTEC both need to work on improving the strength of their relationships with each other as the perception between the two does not match: for WINTEC, the perception is that a strong relationship exists with University of Auckland UniSports Centre, but for University of Auckland UniSports Centre, the perception is that only a moderately strong relationship exists.

Table H.8: Actor’s strength of relationship within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	8.3	5.3	7.3	9	3.7
WINTEC	8	0	8	8	9	1
UniSport	7.5	5.5	0	7	8.5	3
MISH	9	3	3	0	8	4
NZAS – N Inc.	7	8	8	6.5	0	1.5
Range	2	5	5	1.5	1	

1.1.10 Question 9: Rating of actors’ own level of belonging to the network helping with their business within NZAS – North network

Each research participant was asked to rate how their organisation’s membership of the network helped with their business. An average score was taken for each actor (see Table H.9).

Not surprisingly, NZAS – North Inc. ranks belonging to the network as helping with their business more highly than any of the other actors: NZAS – North Inc. ranks the importance of network membership at 9, whereas the scores given by the other actors range only from 5 to 7.5. This is most certainly due to the network providing the necessary services required for the New Zealand Academy of Sport.

AUT and WINTEC rate the helpfulness of their membership as moderate to high, at 7 and 7.5, and this may reflect that these two institutions offer sports-science courses.

MISH and University of Auckland UniSports Centre rate the helpfulness of their membership of the network as moderate, both with a rating of 5. This may reflect that University of Auckland UniSports Centre is moving away from this area and is focusing its business more on medical science rather than sports science, and that it does not have a permanent head of department for this area of their business. MISH’s response may reflect their conflict of interest between commercial and subsidised facility provision.

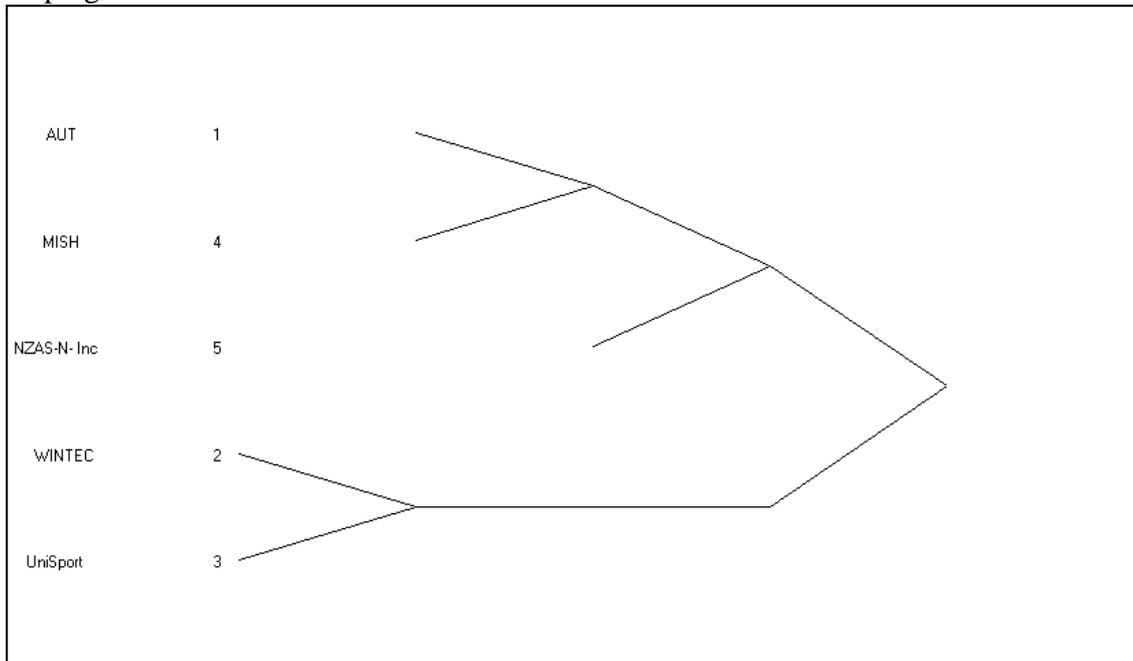
Overall, actors strongly believe that their membership of the network helps with their business, although MISH and University of Auckland UniSports Centre are exceptions, ranking their network membership as only moderately advantageous.

Table H.9: Actor’s own level of belonging to the network helping with their business within NZAS – North network

AUT	7
WINTEC	7.5
UofA	5
NZAS – North Inc.	9
MISH	5

1.1.11 Question 10: Rating of actors' level of others' belonging to the network helping with their business within NZAS – North network

Figure H.10: NZAS – North UCINET 6 tree diagram of others belonging to the network helping with their business



The tree diagram in Figure H.10 shows the similarities in how each actor rates each other actor on the level of that actor's belonging to the network helping with their business. University of Auckland UniSports Centre and WINTEC are most similar in the sense that they have similar perceptions of the level of an actor's belonging helping with their business. A second grouping consisting of AUT and MISH are the next most similar in their perceptions. Least similar perceptions are held by NZAS – North Inc. who rates all the other actors as strong (7 to 8) for helping them with their business (see Table H.10). In contrast, all the other actors rate others as low to moderate for how each helped with their business. WINTEC is rated weak (2.5 to 5.3) by all other actors except NZAS – North Inc.

Overall, results indicate NZAS – North Inc. needs the other actors in the network as equally as they need NZAS – North Inc. The level of other actors' belonging to the network helping with an actor's business in this instance is strong. However, there is one exception: MISH

perceives that NZAS – North Inc.’s membership of the network is only moderately helpful (4.5) to its business.

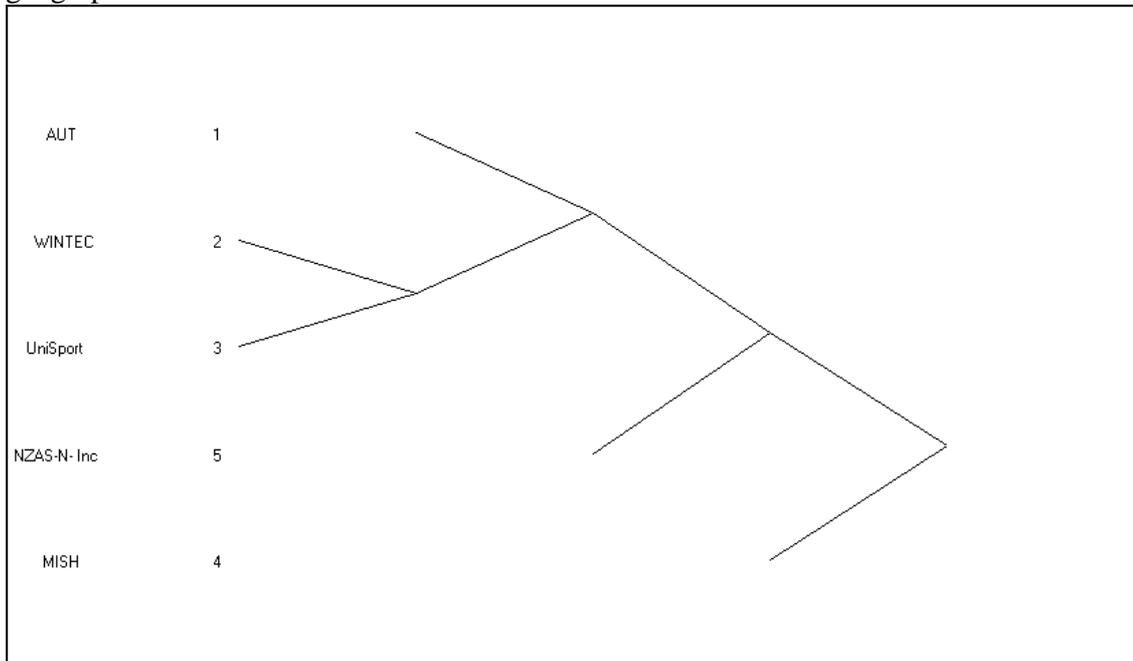
For the other actors in the network there is generally a moderate level of others’ belonging being helpful to their business. However, WINTEC is the exception: it is perceived as adding little value to others in the network in terms of their business, which is probably due to its geographic location outside of Auckland. These results would generally tend to indicate that all actors work with others in developing their own business but at a lower level compared with working with NZAS – North Inc.

Table H.10: Actor’s level of belonging to the network helping with their business within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	5.3	3.3	5	8.7	5.4
WINTEC	4	0	6	4	8	4
UniSport	4	2	0	5	7	5
MISH	5	2.5	2.5	0	4.5	2.5
NZAS – N Inc.	8	7.5	7	8	0	0.5
Range	3	4.5	4.5	3	3.2	

1.1.12 Question 11: Rating of actors' level of importance of others' geographic location within NZAS – North network

Figure H.11: NZAS – North UCINET 6 tree diagram of level of importance of others geographic location



The tree diagram in Figure H.11 shows the similarities in how each actor rated each other actor on geographic location. University of Auckland UniSports Centre and WINTEC are most alike in the sense that they have almost the same perceptions of the geographic importance of others, giving ratings at moderate levels of 5.5 to 7, as can be seen in Table H.11. Least similar perceptions are held by MISH who rates all others at low-moderate levels (4.5 to 5). The lowest rated by other actors are University of Auckland UniSports Centre and WINTEC (ratings of 4.3 and 3.7, respectively, by AUT). Interestingly, WINTEC is rated 9 by NZAS – North Inc. and this may be due to its unique location, enabling it to service an area that none of the others can.

Overall, the level of importance of others' geographic location is moderate to strong. WINTEC may be perceived by NZAS – North Inc. to provide a unique location and is rated as strong.

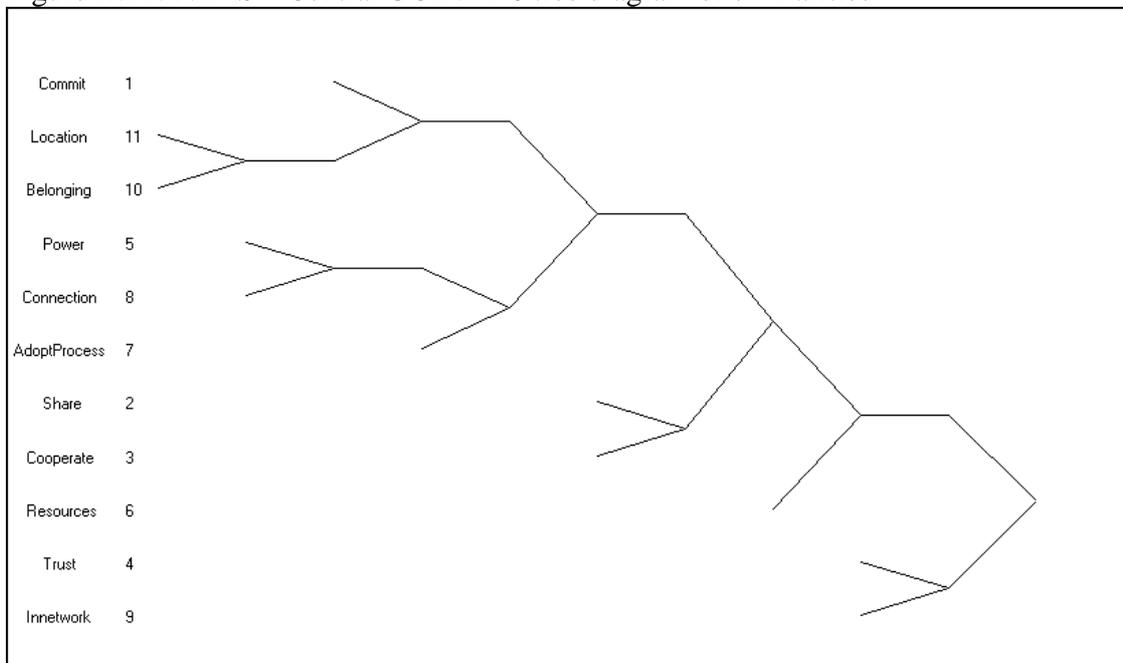
Table H.11: Actor’s level of importance of others’ geographic location within NZAS – North network

	AUT	WINTEC	UniSport	MISH	NZAS – N Inc.	Range
AUT	0	4.3	3.7	7	5.3	2.7
WINTEC	5.5	0	6.5	5	7.5	2
UniSport	7	6.5	0	7	8	1
MISH	5	4.5	5.5	0	4.5	0.5
NZAS – N Inc.	6	9.5	7	6	0	3.5
Range	2	5.2	2.3	2	2.5	

1.2 NZAS – Central network

1.2.1 Overall rating of all variables by actors of NZAS – Central network

Figure H.12: NZAS – Central UCINET 6 tree diagram of similarities



The tree diagram in Figure H.12 shows five distinct similarity groupings in terms of how consistently actors in the NZAS – Central network rate each other on the eleven variables. First, actors in this network have similar perceptions of each other in terms of the importance of geographic location, others’ belonging to the network helping with their business, and the commitment of others. In this cluster, geographic location and others’ belonging to the network helping with their business were rated similarly. Second, the next cluster of similarity in perceptions included power, strength of relationship with others, and

adaptation of processes to others, with the most similarly rated in this cluster being power and strength of relationship with others. Third, sharing of information and cooperation were rated similarly and then, fourth, importance of resources. Finally, of least similarity is trust and own level of belonging to the network helping with their business.

The grouping of geographic location with others belonging to the network helping with their business would make sense as being located close to another actor could increase a sense of belonging to the network; it may also help that actor's business which could be expected to have a positive affect on commitment. The grouping of perceptions to do with power, relationship strength and processes' adaptation in the second cluster could be explained thus: actors that have strong relationships with others might have an increased sense of their power in the network and this could encourage them to adapt their processes to others. The third cluster, sharing of information and cooperation, can be explained as closely related concepts. The least similar group is trust and being in the network helping with that actor's business, which could indicate that trust is weak between actors in this network and, as such, is viewed differently by all, as is their own level of belonging to the network helping with their business.

There was insufficient data to run the tree diagrams for each of the variables for the NZAS – Central network because the core partners of Wellington City Council, Sport Wellington Region, the Wanganui Consortium, and NZAS – Central Inc. did not have sufficient experience of other actors in their network in order to rate them. Where spaces exist in the tables, no data was recorded. Also it was not possible within this study to survey all actors in the network.

1.2.2 Question 1: Rating of actors' commitment for NZAS – Central network

Wellington City Council, Sport Wellington Region, the Wanganui Consortium, and NZAS – Central Inc. all rate each other at a strong level of commitment (ratings of 7 to 8, see Table H.12). The Wanganui-based group of actors, who include Universal College of Learning (UCOL), Cooks Garden Trust (CGT), Wanganui District Council (WDC), and Sport Wanganui (SpWan), has a moderate-to-strong rating for commitment (5 to 9). Sport

Wellington Region rates the other Regional Sports Trusts (SpWan, SpTar, SpMan, SpHB, and SpG) as having strong commitment; this reflects Sport Wellington Region's established working relationship with each of these Regional Sports Trusts. NZAS – Central Inc. does not rate the Regional Sports Trusts as highly as Sport Wellington Region, and this could indicate or be a reflection of the newness of these relationships for NZAS – Central Inc. The University of Otago (UofO) is rated as having a very low commitment (rating of 0.5) by NZAS – Central Inc. and at a moderate level (rating of 5) by Sport Wellington Region; this is not surprising given that this actor has recently exited the network. Sport Gisborne is also been rated by NZAS – Central Inc. as having very low commitment (rating of 2); this may reflect that Gisborne is the furthest area from Wellington where NZAS – Central Inc. is based, and the newness of this relationship being re-established, and/or that Sport Gisborne is not as important in terms of the network business, reflecting few athletes being based there.

Overall, from the focal actor's viewpoint, the range between actors' level of commitment is 6.5, from very low to moderately strong (ratings of 0.5 to 7), indicating that NZAS – Central Inc. perceive levels of commitment to vary widely in the network. However, nearly all other actors perceive levels of commitment as generally strong. The exception is the University of Otago who is perceived as having a weak level of commitment, a reflection of their exiting from the network. This difference in perceptions may mean NZAS – Central Inc. needs to work on improving levels of commitment. Varying levels of commitment may be due to a lack of communication or direction for actors as they may not fully understand the purpose of the NZAS network system.

Table H.12: Actor's commitment to NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	U ofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC	0	8		8													0
SWR	8	0		8.5				7	9	6	9	5					4
WanCon	8	8	0		7	5	7	9									2
NZAS – C Inc.	7	7	4	0					6	2	6	0.5	7	4.5	4.5	2	6.5
Range	1	1		0.5				2	3	4	3	4.5					

1.2.3 Question 2: Rating of actors' sharing of information for NZAS – Central network

As can be seen in Table H.13, NZAS – Central Inc. rates most actors in the Central network at weak or moderate levels for sharing of information (ratings of 2 to 7), yet the other actors rate NZAS – Central Inc. as strong (ratings of 8 and 8.5). Sport Wellington Region rates the other Regional Sports Trusts (SpWan, SpTar, SpMan, SpHB, and SpG) as strongly sharing information (ratings of 7 to 9); this probably reflects Sport Wellington Region's established working relationship with each of these Regional Sports Trusts. NZAS – Central Inc. does not rate the Regional Sports Trusts as highly as Sport Wellington Region, and this could indicate or be a reflection of the newness of these relationships for NZAS – Central Inc. The two actors also give very different ratings of the University of Otago for information-sharing: NZAS – Central Inc. gives the university a rating of 2.5 compared with Sport Wellington Region's rating of the university at 6. This indicates a poor relationship between NZAS – Central Inc. and the University of Otago. Sport Gisborne is also perceived by NZAS – Central Inc. to be poor at information-sharing (rating of 2); again, this may reflect that Gisborne is the furthest area from Wellington where NZAS – Central Inc. is based, and/or the newness of this relationship being re-established, and/or that Sport Gisborne is not as important as the other actors in terms of the network business.

There is a wide range in the perceived levels of information-sharing between the core actors (ratings of 4 to 8.5) and this could indicate an area that NZAS – Central Inc. needs to address. Another area that needs to be addressed is the perceived low levels of information-sharing from some of the actors comprising the Wanganui Consortium (WanCon): Cooks Garden Trust (CGT) is perceived as having a weak level of information-sharing (rating of 4), and UCOL only as moderate (rating of 6).

Table H.13: Actor's sharing of information for NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC	0	4		8													
SWR	7.5	0		8.5				8	9	7	8	6					3
WanCon			0		6	4	8	9									3
NZAS – C Inc.	5.5	6.5	3	0					7	2	7	2.5	6.5	6.5	5	2	5
Range	2	1.5		.5				1	2	5	1	3.5					

1.2.4 Question 3: Rating of actors' level of cooperation within NZAS – Central network

As can be seen in Table H.14, NZAS – Central Inc. rates all the other actors in the Central network at moderate-to-strong levels for cooperation, giving them ratings of 4.5 to 8. However, there is an exception with NZAS – Central Inc. rating Sport Gisborne (SpG) as weak (rating of 2). The Wanganui Consortium rates the Wanganui-based group of actors at medium-to-high levels (ratings of 7 to 10), with the exception of Cooks Garden Trust which is rated at only 3. Generally, all other ratings from other actors are strong for levels of cooperation. This indicates the Wanganui Consortium needs to work on improving levels of cooperation with Cook's Garden Trust, and NZAS – Central Inc. need to improve levels of cooperation with Sport Gisborne. Alternatively, this may reflect a low importance of these actors for the network.

Overall, the level of cooperation is perceived as strong within the network although there are two actors that are perceived as weak: Sport Gisborne, and the Wanganui Consortium for its member the Cooks Garden Trust. These weak relationships need to be reviewed by NZAS – Central Inc.

Table H.14: Actor's level of cooperation within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	U ofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC	0	5		8													3
SWR	8.5	0		8.5				8	8	7	8	6					2.5
WanCon		7	0		7	3	8	10									7
NZAS – C Inc.	6	8	4.5	0					7	5	7	6	7	7	6.5	2	6
Range	2.5	3		.5				2	1	2	1						

1.2.5 Question 4: Rating of actors' levels of trust within NZAS – Central network

As can be seen in Table H.15, NZAS – Central Inc. trusts most of the other actors in the Central network at a moderate level, giving them ratings of 5 to 7. However, it rates Sport Wellington Region (SWR) as strong (rating of 8). NZAS – Central Inc., in turn, is very strongly trusted by Wellington City Council (WCC), which gives it the maximum rating of 10. The Wanganui Consortium rates the Wanganui-based group of actors as medium to high for trust (ratings of 6 to 8), with the exception of Cooks Garden Trust which has a rating of only 3. Generally all other ratings from other actors are strong for levels of trust.

Overall, levels of trust between the actors in the NZAS – Central network are generally strong. However, Cooks Garden Trust is an exception with weak perceptions of trust from the other actors; this may indicate the Wanganui Consortium needs to work on improving levels of trust with Cooks Garden Trust. Also, NZAS – Central Inc. generally has only moderate levels of trust with other actors – these levels of trust need to be improved with all actors.

Table H.15: Actor's levels of trust within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC	0	8		10													2
SWR	8.5	0		8.5				7	8	6	7	9					3
WanCon		0	0		6	3	6	8									3
NZAS – C Inc.	7.5	8	5.5	0					7	5	7	6	6.5	6.5	6.5	5	3
Range	1	0		2.5				1	1	1	0	3					

1.2.6 Question 5: Rating of actors' levels of power held within NZAS – Central network

As can be seen in Table H.16, NZAS – Central Inc. is perceived as holding a low strong level of power within the Central network (ratings of 7). Sport Wellington Region perceives Sport Taranaki (SpTar) to hold the strongest level of power (rating of 8), and the other Regional Sports Trusts have a similar rating to NZAS – Central Inc. (ratings of 6 to 7). NZAS – Central Inc. perceives all other actors in the network as having only weak levels of power within the network (ratings of 0 to 4.5). The Wanganui Consortium (WanCon) gives a range of ratings for power held by the Wanganui-based group of actors (ratings of 3 to 8). There is a difference in the perceptions held of the University of Otago (UofO) by Sport Wellington Region (SWR) and NZAS – Central Inc., with a moderate level of power given to the university by SWR (rating of 5) compared with only a very weak level for the same institution from NZAS – Central Inc. (rating of 0.5).

Overall, perceived levels of power within the network vary considerably. The focal actor, NZAS – Central Inc., has a similar, and in one instance a slightly lower, rating for level of power than other actors. This may indicate an imbalance in power within the network which needs to be addressed as the Regional Sports Trusts would appear to hold higher levels of power, yet this perception differs from that held by NZAS – Central Inc. It may indicate that the Regional Sports Trusts are more important for the work of the network than NZAS – Central Inc. realises.

Table H.16: Actor's levels of power held within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC		5		7													2
SWR	6			7				7	8	6	7	5					3
WanCon		5			5	3	8	5									5
NZAS – C Inc.	3.5	4.5	0						2	0	2	0.5	3.5	3.5	3	0	4
Range	2.5	0.5		0				2	6	6	5	4.5					

1.2.7 Question 6: Rating of actors' importance of resources within NZAS – Central network

As can be seen in Table H.17, the resources of NZAS – Central Inc. are perceived by the other actors as strongly important to the network (ratings of 10 and 9). Sport Wellington Region (SWR) also perceives all the other actors as strongly important for their resources (ratings of 8 to 9.5). However, NZAS – Central Inc.'s perceptions of the importance of resources held by actors vary considerably (ratings of 2 to 8.5): of least importance are Sport Manawatu (SpMan), and WanCon (the Wanganui Consortium), yet, interestingly, NZAS – Central Inc. perceives the University of Otago as holding a strong level of resources for the network (rating of 8.5) despite this actor having exited the NZAS – Central network.

Overall, all actors within the network are perceived as holding a strong level of resources. This may indicate that the University of Otago's presence within the network was important for the resources that they held despite them leaving the network. NZAS – Central Inc. is perceived as strong for the level of resources it holds.

Table H.17: Actor's importance of resources within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC	0	8		10													2
SWR	9	0		9.5				8	8	8	9	8					1
WanCon		6	0		8	8	9	7									3
NZAS – C Inc.	8	6	4	0					7	2	7	8.5	6.5	7.5	7.5	5	6.5
Range	1	2		0.5				1	1	6	2	0.5					

1.2.8 Question 7: Rating of actors' adaptation of processes to others within NZAS – Central network

As can be seen in Table H.18, NZAS – Central Inc. perceives its adaptation of processes to the other actors in the Central network as being at a weak level (ratings of 0 up to 5.5). Sport Wellington Region (SWR) perceives a moderate level of adaptation of its processes to all other actors (ratings of 5 to 7). The Wanganui Consortium (WanCon) gives a range of ratings for the Wanganui-based group of actors adapting their processes (ratings of 3 to 8), with the lowest rating being with Cooks Garden Trust.

The focal actor's perception is that of having a weak level of adaptation of processes to others in the network. However, Sport Wellington Region perceives a strong level of adaptation of processes to others in the network. This may indicate that Sport Wellington Region works closely with these actors and is prepared to adapt its processes much more readily. The Wanganui Consortium may need to work more closely with Cooks Garden Trust. Finally, the results indicate that NZAS – Central Inc. needs to address how it works with others and be prepared to adapt its processes to theirs.

Table H.18: Actor's adaptation of processes within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC		7		7													0
SWR	6			7				7	7	7	7	5					2
WanCon		5			7	3	5	8									5
NZASC	2.5	1	3						3	0	4	0.5	3.5	4	5.5	0	5.5
Range	3.5	6		0				1	4	7	3	4.5					

1.2.9 Question 8: Rating of actors' strength of relationship with others within NZAS – Central network

As can be seen in Table H.19, NZAS – Central Inc. perceives it has strong relationships with the other core actors in the Central network, i.e. Wellington City Council (WCC) and Sport Wellington Region (SWR), rating its relationship with these two organisations at 7 and 8, respectively. However, it perceives its relationships with the other actors as being much weaker, rating them between 2 and 6. Sport Wellington Region has a strong relationship with the other Regional Sports Trusts (ratings of 7 to 9). The Wanganui Consortium (WanCon) gives a weak rating (4) for its relationship with Cooks Garden Trust (CGT), whereas it rates its relationships with the other Wanganui-based group of actors at 7 and 8.

Overall, most actors perceive a strong level for strength of relationship with others. This indicates Sport Wellington Region, NZAS – Central Inc., and Wellington City Council work closely with each other and have a good relationship. However, the results indicate that the Wanganui Consortium needs to work on developing its relationship with Cooks Garden Trust. Generally the focal actor, NZAS – Central Inc., perceives a moderate level of strength of relationship with others outside the core actors of Wellington City Council, the Wanganui Consortium, and Sport Wellington Region; this indicates a need to develop stronger relationships with the other actors in the network.

Table H.19: Actor's strength of relationship within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC		9		10													1
SWR	8			8.5				8	7	7	9	7					1
WanCon		8			8	4	8	7									5
NZAS – C Inc.	7	8	3						6	3	5	4.5	6	6.5	5.5	2	6
Range	1	1		1.5				1	1	4	4	2.5					

1.2.10 Question 9: Rating of actors' own level of belonging to the network helping with their business within NZAS – Central network

Each research participant was asked to rate how much their organisation's belonging to the network helped with its business. An average score was taken for each actor (see Table H.20).

Although NZAS – Central Inc. did not respond to this question, the perception by research participants was that NZAS – Central Inc. *is* the network. This would imply that without this actor there would be no network.

Sport Wellington Region (SWR) strongly perceives that its belonging to the network helps their business (rating of 9); this reflects the nature of their business in providing sports opportunities to their communities and a wish to improve their services, which includes opportunities for elite athletes. Wellington City Council gives a moderate-to-high rating of 7 for its belonging to the network helping with its business. This reflects the nature of its business in that this actor works with other firms in the community to deliver their objectives, one of which is 'healthy communities'. The Wanganui Consortium did not respond to this question.

To summarise, NZAS – Central Inc., Wellington City Council, and Sport Wellington Region all perceive that their belonging to the network strongly helps with their business.

Table H.20: Actor's own level of belonging to the network helping with their business within NZAS – Central network

WCC	7
WanCon	Not answered
SWR	9
NZAS – Central Inc.	Not replied to: research participants stated they were the network.

1.2.11 Question 10: Rating of actors' level of others belonging to the network helping with their business within NZAS – Central network

For actors' level of others belonging to the network helping with their business there is little difference between the responses of the core actors of NZAS – Central Inc., Wanganui Consortium, Wellington City Council (WCC), and Sport Wellington Region (SWR), as can be seen in Table H.2. All three actors rate the importance of others' belonging at moderate to strong (7 to 8). Sport Wellington Region rates the network membership of the other Regional Sports Trusts as strongly helping it with its business and gives a moderate rating to the helpfulness of the University of Otago's membership (ratings of 8 and 9, and of 5, respectively). The Wanganui Consortium (WanCon) gives strong ratings (6 to 8) to the Wanganui-based group of actors. NZAS – Central Inc. rates the helpfulness of other actors as weak to moderate (ratings of 2.5 to 7), the weak-rated actors being the Wanganui Consortium, Sport Manawatu, the University of Otago, EIT, and Sport Gisborne.

Overall, most actors perceive a strong level of others belonging to the network helping them with their business. The exception, however, is NZAS – Central Inc. who perceives a weak-to-moderate level of helpfulness from the membership of the Wanganui Consortium, Sport Manawatu, Sport Hawke's Bay, the University of Otago, EIT, and Sport Gisborne. This may indicate that it is important to belong to the network for Sport Wellington Region and Wellington City Council, and for the Wanganui Consortium, the membership of Wanganui-based actors may be important. For NZAS – Central Inc. it may indicate that relationships with Wanganui Consortium, Sport Manawatu, the University of Otago, EIT, and Sport Gisborne need to be developed to find common goals because these relationships may not be working well, or that these actors may be providing only limited resources because the number of athletes are minimal in the areas that these actors serve.

Table H.21: Actor's level of belonging to the network helping with their business within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC		8		7													1
SWR	8.5			7				8	8	9	8	5					4
WanCon		8			6	8	8	7									2
NZAS – C Inc.	8	7.5	4.5						7	3	5	2.5	5.5	7.5	7.5	3	4.5
Range	0.5	0.5		0				1	1	6	3	2.5					

1.2.12 Question 11: Rating of actors' level of importance others geographic location within NZAS – Central network

Nearly all the actors in the NZAS – Central network strongly perceive the geographic location of other actors within the network to be important (ratings of 7 to 10), as can be seen in Table H.22). However, NZAS – Central Inc. is an exception: it has a large range of ratings for the importance of the other actors' locations (between 1 and 9). Weak-rated actors include Sport Manawatu (SpMan), the University of Otago (UofO), and Sport Gisborne (SpG).

Overall, actors, with the exception of the NZAS – Central Inc., perceive a strong level of importance of others' geographic location for them. This may indicate that actors perceive other actors as important in order to cover the wide geographic area that comprises the NZAS – Central network. For NZAS – Central Inc., the findings may indicate that relationships with the Wanganui Consortium, Sport Manawatu, the University of Otago, EIT, and Sport Gisborne need to be developed to find common goals, or that these actors may provide limited resources as the number of athletes are minimal in the areas that these actors serve.

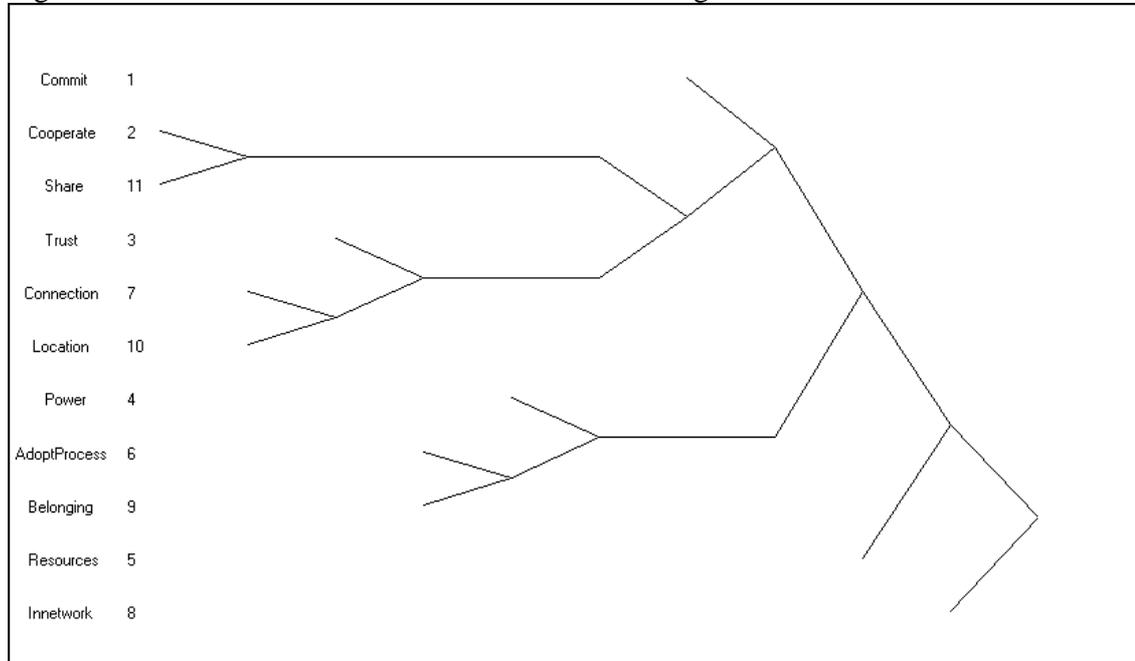
Table H.22: Actor's level of importance of others geographic location within NZAS – Central network

	WCC	SWR	WanCon	NZAS – C Inc.	UCOL	CGT	WDC	SpWan	SpTar	SpMan	SpHB	UofO	EIT	MasseyPn	MasseyW	SpG	Range
WCC		9		10													1
SWR	9			9				10	10	10	10	7					3
WanCon		8			8	9	8	9									1
NZAS – C Inc.	9	8	6.5						8	3	7	1	7.5	7.5	8	4	8
Range	0	0		1				1	2	7	3	6					

1.3 NZAS – South Island network

1.3.1 Overall rating of all variables by actors of NZAS – South Island network

Figure H.13: NZAS – South Island UCINET 6 tree diagram of similarities



The tree diagram in Figure H.13 shows six distinct similarity groupings in terms of how consistently actors of the NZAS – South Island network rate each other on the eleven variables. First, actors of this network have similar perceptions of each other in terms of how well an actor cooperates, and sharing of information. Second, the next cluster of similarity in perceptions includes importance of geographic location of an actor, strength of relationship with an actor, and trust. Of these, the importance of geographic location and strength of relationship with an actor were the most similar. Third, the next cluster of similarity in perceptions is adapting of processes to fit those of others, others belonging to the network helping with their business, and power held by others within the network. Within this cluster, adaptation of processes and others belonging to the network are most similar. Lastly, in the cluster where perceptions are the least similar are commitment, importance of others' resources in the network, and belonging to the network helping with their business.

The grouping of how well an actor cooperates, and sharing of information would make sense as these are closely related concepts. The grouping of importance of geographic location, strength of relationship, and trust may be explained by an actor's geographic location affecting the strength of its relationship with other actors which, in turn, influences levels of trust. The grouping of adapting one's processes to fit those of others, others belonging to the network helping with their business, and power held by others within the network may be explained by actors who help others with their business might adapt processes to facilitate this. In turn, this may increase the level of power an actor has within the network.

There was insufficient data to run the tree diagrams for each of the variables for NZAS – South Island network as actors did not have sufficient experience of other actors in this network in order to rate them. Where spaces exist in the tables, no data was recorded. Also, it was not possible within this study to survey all the actors in the network.

1.3.2 Question 1: Rating of actors' commitment for NZAS – South Island network

All of the actors perceive NZAS – South Island Inc. to be strongly committed to the network, giving it ratings of 9.3 to 10 (see Table H.23). However, NZAS – South Island Inc. perceives other actors' levels of commitment to be generally moderate to strong, with a few exceptions (ratings of 6 to 9). Those actors that are perceived to have a weak commitment are Sport Otago (SpO), Lincoln University (LnclnUni), and Sport Tasman, with ratings of only 3 to 3.5. These ratings may indicate relationships that NZAS – South Island Inc. needs to develop because these three actors are not performing as well as they should be, or the ratings may indicate that these actors' presence in the network needs to be reviewed. QEII also perceived Lincoln University to have weak commitment (rating of 4.7).

The University of Canterbury (UofC) is generally perceived to have a strong commitment to the network (with ratings of 8.5 to 10 from the other actors), apart from the perceived weak commitment rating from QEII (rating of 4). This may indicate a relationship that is not working well and needs to be developed. QEII and the University of Canterbury are

both located in Christchurch, so are close to one another. Both actors were involved in the unsuccessful South Island bid in which actors did not work well together due to a struggle for power.

Overall, NZAS – South Island Inc. is perceived as having a strong level of commitment to the network. NZAS – South Island Inc. perceives three actors to have weak levels of commitment, and these are Sport Otago, Lincoln University, and Sport Tasman. This may indicate relationships that NZAS – South Island Inc. needs to develop as these actors are not performing as well as they should be or that these actors' presence in the network needs to be reviewed. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceive the university's commitment to be weak, whereas the other actors perceive its commitment to be strong. This may indicate that the relationship between QEII and the University of Canterbury is not working well and needs to be developed.

Table H.23: Actor's commitment to NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		7	10						7	6	5	7	8		4
NZAS – SI Inc.	8	3.5		7	8	7	3	8.5	6.5	6	3	7	9		5
UofO	4.5	8	9.5		9	9		7	9	5		5			5
UofC					8										
SpC			10		8	8	10	10		6			10		4
QEII			9.3		7.3	7	4.7	4							4.3
CTofO	9			8											1
Range	4.5	4.5	0.7	1	1.7	2	5.3	6	2.5	1	2	2	2		

1.3.3 Question 2: Rating of actors' sharing of information for NZAS – South Island network

As seen in Table H.24, NZAS – South Island Inc. is perceived by the other actors in the network to have a strong level of sharing of information (ratings of 8.3 to 10). However, NZAS – South Island Inc. perceives other actors' sharing of information at lower levels, giving them moderate to strong ratings, with a few exceptions (ratings of 6 to 8.5). Those actors that are perceived to have weak levels of information-sharing are Sport Otago (SpO), Lincoln University (LnclnUni), and Sport Tasman (ratings of 3.5 to 4.5). This may indicate relationships that NZAS – South Island Inc. needs to develop.

The University of Canterbury (UofC) is generally perceived to have moderate-to-strong levels of information-sharing (ratings of 7 to 7.5), although there is an exception with QEII giving the university a very weak level for information-sharing (rating of 1). This may indicate a relationship that is not working well and needs to be developed. Other perceptions made by QEII are for moderate-to-strong levels of information-sharing from the other actors (ratings of 6 to 8.3). However, again there is an exception, with Lincoln University being rated as weak for information-sharing (rating of 4.3) by QEII; again, this may indicate a relationship that needs to be developed.

Dunedin City Council (DCC) rates Sport Southland (SpS) and Sport Tasman (SpT) as weak for sharing information (ratings of 0 and 2). This may reflect Dunedin City Council's business needs being focused on the Dunedin area of the South Island rather than the very top or the bottom of the South Island, so there would be no incentive for the council to develop a relationship with these two actors.

The University of Otago (UofO) rates Active Health (ActvHlth), Sport Canterbury (SpC), and Christchurch City Council (CCC) as weak for information-sharing (ratings of 2, 3 and 2, respectively). This may reflect the university's Dunedin base and the fact that it focuses its business in this area rather than in the Christchurch area.

Overall, sharing of information is perceived at moderate-to-high levels within the network. NZAS – South Island Inc. is perceived to have a strong level of sharing of information. Sport Otago, Lincoln University, and Sport Tasman are perceived to have weak levels of sharing of information by NZAS – South Island Inc. This may indicate relationships that NZAS – South Island Inc. needs to develop as these actors are not performing as well as they should be or that these actors' presence in the network needs to be reviewed. There would appear to be a difference in perception between QEII and the other actors in the network of the University of Canterbury: QEII's perception of this actor is weak compared with it being perceived as strong for information-sharing by the other actors. This may indicate a relationship that is not working well and needs to be developed. Generally actors based in the two main centres – Dunedin and Christchurch – perceive others in the same location as stronger and those outside of their location as weaker in terms of information-sharing.

Table H.24: Actor's sharing of information for NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		6	8						5	5	0	2	6		8
NZAS – SI Inc.	7	4.5		8.5	7	7	4	7.5	6	5	3.5	7.5	7		5
UofO	5	4.5	8.5		2	9		7	3	2		7			7
UofC					8										
SpC			10		10	10	10	0		8			10		10
QEII			8.3		8	6	4.3	1							7.3
CTofO	6			6											0
Range	2	1.5	2	2.5	8	4	5.7	6.5	3	6	3.5	5.5	4		

1.3.4 Question 3: Rating of actors' levels of cooperation within NZAS – South Island network

NZAS – South Island Inc. is perceived to have a strong levels of cooperation with the other actors in the network (ratings of 8 to 10), as can be seen in Table H.25. In turn, NZAS – South Island Inc. perceives other actors' level of cooperation to be moderate to strong (ratings of 5 to 9) – the lowest rating being the perceived level of cooperation from Sport Tasman (5). This may indicate relationships that NZAS – South Island Inc. has with all other actors are working well.

The University of Canterbury (UofC) is generally perceived to have moderate-to-strong levels of cooperation (ratings of 5 to 8). However, there is an exception to this, with QEII perceiving the university to be very weak in its level of cooperation (rating it only 1). All other ratings by QEII for other actors are moderate to strong (ratings of 5 to 10). This may indicate the relationship between the University of Canterbury and QEII is not working well and needs to be developed.

Dunedin City Council (DCC) rates Sport Southland (SpS) and Sport Tasman (SpT) as weak for levels of cooperation (ratings of 0 and 1). This may reflect Dunedin City Council's business needs being focused on the Dunedin area of the South Island rather than the very top or the bottom of the South Island, so there would be no incentive for the council to develop a relationship with these two actors.

The University of Otago (UofO) rates Active Health (ActvHlth) and Christchurch City Council (CCC) as weak for information-sharing (ratings of 2 for both actors). This may reflect the University of Otago being based in Dunedin and focusing its business in this area rather than the Christchurch area where Active Health and Christchurch City Council are based. The moderate rating (of 4.5) for Sport Otago by the university may indicate a relationship that needs to be developed.

Sport Canterbury (SpC) rates all actors as strong for levels of cooperation (ratings of 8 and 10). This may indicate that Sport Canterbury has developed strong relationships with the other actors in the network.

Overall, levels of cooperation within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is perceived to have a strong level of cooperation with other actors and perceives other actors' level of cooperation to be moderate to strong – with the weakest actor being Sport Tasman. This may indicate relationships that NZAS – South Island Inc. has with all actors, apart from Sport Tasman, are working well. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: the university is perceived to be weak in terms of its cooperation by QEII, yet it is perceived as strong by the other actors. This may indicate a relationship that is not working well and needs to be developed. Generally actors based in the two main centres – Dunedin or Christchurch – perceive others in the same location as stronger and those outside of their location as weaker in terms of levels of cooperation.

Table H.25: Actor's level of cooperation within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		8	8						5	5	1	0	6		7
NZAS – SI Inc.	8	6		8.5	8	6.5	6	9	7.5	7	5	8.5	8		3
UofO	6.5	4.5	8.5		2	9		7	8	2		6			7
UofC					6										
SpC			10		10	10	10	8		8			10		2
QEII			9.7		10	5	6.7	1							9
CTofO	6			8											2
Range	2	3.5	2	0.5	8	5	4	8	3	6	4	6	4		

1.3.5 Question 4: Rating of actors' levels of trust within NZAS – South Island network

As seen in Table H.26, NZAS – South Island Inc. is strongly trusted by the other actors in the network (ratings of 8 to 10). In turn, NZAS – South Island Inc. trusts other actors at moderate-to-strong levels (ratings of 6 to 9). This may indicate relationships that NZAS – South Island Inc. has with all of the other actors in the network are working well.

The University of Canterbury (UofC) is trusted moderately to strongly by most of the other actors in the network (ratings of 7 to 8.5), except for QEII who rates it weakly at 3, and Sport Canterbury who rates it very weakly at 0. This may indicate the University of Canterbury needs to develop its relationships with these two actors and that currently these two relationships are not working well.

Dunedin City Council (DCC) rates Sport Southland (SpS), Christchurch City Council (CCC), and Sport Canterbury (SpC) as weak for levels of trust (ratings of 3 and 4). This may reflect Dunedin City Council's business needs being focused on the Dunedin area of the South Island rather than other parts of the South Island so there would be no incentive for the council to develop relationships with these actors. However, if this were solely the case, Sport Tasman and QEII would also be rated as low.

The University of Otago (UofO) rates its trust of the other actors as moderate to strong (ratings of 6 to 9) – with one exception, Sport Canterbury which it rates at 0. However, the University of Otago is based in Dunedin and this result may reflect the university having no knowledge of Sport Canterbury in terms of doing business with them.

Sport Canterbury (SpC) rates all actors as strong for levels of trust (ratings of 8 and 10), with the exception of Lincoln University and the University of Canterbury (ratings of 0). This may indicate that Sport Canterbury has developed strong relationships with others but is distrustful of the two actors involved in the original bid in Christchurch.

QEII trusts all the other actors at moderate-to-strong levels (ratings of 7.3 to 9.3), with the exception of a moderate level of trust for Lincoln University (rating of 5.7). This may

indicate that the relationship between these two actors is not as well developed as others. (The rating for University of Canterbury has already been mentioned above).

Overall, levels of trust within the South Island network are strong although there are a few exceptions. NZAS – South Island Inc. is strongly trusted by the other actors and, in turn, trusts those actors. This may indicate relationships that NZAS – South Island Inc. has with all other actors are working well. There would appear to be a difference in perception between other actors, and Sport Canterbury and QEII of the University of Canterbury: trust of this actor by Sport Canterbury and QEII is weak compared with it being strongly trusted by the other actors. This may indicate a relationship that is not working well and needs to be developed.

Table H.26: Actor's levels of trust within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		7	8						4	3	7	3	6		5
NZAS – SI Inc.	7.5	7.5		9	8.5	7	7	8.5	8.5	6	7.5	8.5	7		3
UofO	6	7	8.5		9	9		7	0	8		6			9
UofC					7										
SpC			10		10	10	0	0		8			10		10
QEII			9.3		8.7	7.3	5.7	3							6.3
CTofO	6			8											2
Range	1.5	0.5	2	1	1.5	2.7	2.3	5.5	8.5	5	0.5	5.5	4		

1.3.6 Question 5: Rating of actors' levels of power held within NZAS – South Island network

As seen in Table H.27, NZAS – South Island Inc. is perceived to have moderate-to-strong levels of power (ratings of 7 to 10 by the other actors). In turn, NZAS – South Island Inc. perceives other actors' level of power to be generally moderate (giving them ratings of 5.5 to 7). This may indicate the importance of the resources that these actors hold for the network. Actors perceived with a weak level of power within the network are Sport Otago, Lincoln University, and Sport Tasman (ratings of 2 to 3). This may indicate these actors are not as actively involved in the network as the others, and this may be due to the resources that they hold not being as important as those of other actors.

The University of Canterbury (UofC) is perceived to have a moderate level of power (ratings of 4 to 6). This may indicate the importance of the resources that this actor holds for the network.

Dunedin City Council (DCC) rates Sport Southland (SpS) and Sport Tasman (SpT) as having weak levels of power (ratings of 3 and 2, respectively). Again, this may reflect the resources that these actors hold as not being essential to the business of the network.

The University of Otago (UofO) perceives most actors to have moderate levels of power within the network (ratings of 4 to 5). However, there are two exceptions: the university rated NZAS – South Island Inc. at 7.5, and Sport Canterbury at 9 – both strong ratings for level of power. Active Health (ActvHlth) and Sport Southland (SpS) are perceived as holding weak levels of power (ratings of 3). This may indicate that Active Health and Sport Southland do not hold resources that are as important as other actors' resources for the network tasks.

Sport Canterbury (SpC) perceived most actors to have moderate levels of power within the network (ratings of 4 and 5). Again, however, there is an exception with Sport Canterbury having rated NZAS – South Island Inc. at the highest level for power (10). Active Health (ActvHlth) and Sport Medlab (SprtMed) are perceived as holding weak levels of power

(ratings of 0). This may indicate that Active Health and Sport Medlab do not hold resources that are as important as other actors' resources for the network tasks.

QEII perceived NZAS – South Island Inc. to have a strong level of power (rating of 9). Other actors were perceived to have much weaker levels of power (ratings of 2.7 to 4). This may indicate a perception of a power imbalance between the focal actors and others in the network.

Overall, levels of power within the network are perceived to be at moderate-to-strong levels between all actors. NZAS – South Island Inc. is perceived to have a moderate-to-strong level of power, while NZAS – South Island Inc. perceives other actors' level of power to be generally moderate. This may indicate the importance of the resources that these actors hold for the network. Actors perceived with a weak level of power within the network are Sport Otago, Lincoln University, and Sport Tasman. This may indicate these actors are not as actively involved in the network as others and this may be due to the resources that they hold not being as important as those of other actors. QEII is perceived to have a strong level of power by NZAS – South Island Inc. and this may reflect the importance of the relationship between the two actors in that QEII provides resources for the Christchurch area.

Table H.27: Actor's levels of power held within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		7	7						8	7	2	3	4		5
NZAS – SI Inc.	7	2.5		6.5	4.5	6.5	2	6	5.5	6.5	3	5.5	10		7.5
UofO	5	5	7.5		3	5		4	9	5		3			6
UofC					4										
SpC			10		0	0	5	5		4			5		10
QEII			9		3.3	4	2.7	4							6.3
CTofO	7			5											2
Range	2	2.5	3	1.5	4.5	6.5	3	2	3.5	3	1	2.5	6		

1.3.7 Question 6: Rating of actors' importance of resources within NZAS – South Island network

As seen in Table H.28, the resources of NZAS – South Island Inc. are perceived to be strongly important by the other actors in the network (ratings of 8.5 to 10). In turn, NZAS – South Island Inc. perceives the importance of other actors' resources as either strong or moderate. However, there are three exceptions: NZAS – South Island Inc. perceives the resources of Sport Tasman (SpT), Sport Otago (SpO) and Lincoln University (LnclnUni) to be not very important (ratings of 2 and 3). Actors perceived by NZAS – South Island Inc. to have strong levels of resources are Dunedin City Council (DCC), the University of Otago (UofO), Active Health (ActvHlth), Sport Medlab (SprtMed), the University of Canterbury (UofC), Christchurch City Council (CCC), and QEII (ratings of 6.5 to 9), while Sport Canterbury (SpC) is perceived to have a moderate level of resources (rating of 4). This may indicate that the importance of the resources is reflected by their type and nature, because those actors whose resources are rated strongly are sports-science, medical and facility/funding providers, whereas actors with moderate levels of resources are the Regional Sports Trusts. Weak-rated actors are Lincoln University, which is not as involved in the network as other actors in the Christchurch area, and Sport Tasman.

The University of Canterbury (UofC) is perceived to have strong levels of resources by others (ratings of 7.5 to 8), although there is a rating of 0 from Sport Canterbury and this may well reflect a poor relationship between the two actors.

Dunedin City Council (DCC) rates most actors as moderate to strong for the resources that they hold (ratings of 7 to 9) – the exception being Sport Tasman (rating of 4) and this may reflect this actor being on the extremity of the network in terms of geographical location (top of the South Island), and the role this actor plays in that there are few athletes requiring services in that area.

The University of Otago (UofO) perceives most actors to have moderate-to-strong levels of resources within the network (ratings of 5 to 9), the exception being Sport Otago (rated at

4). This may indicate a perception that most actors (the exception being Sport Otago) in the network hold important resources.

Sport Canterbury (SpC) perceives most actors to have moderate-to-very-strong levels of resources within the network (ratings of 6 to 10). This may indicate a perception that all actors in the network hold important resources.

QEII perceives most actors to have moderate-to-strong levels of resources within the network (ratings of 5.3 to 8.7), with the exceptions being Active Health and Lincoln University (ratings of 3 and 4.3). This may indicate a perception that most actors in the network hold important resources and that Active Health and Lincoln University are not as involved in the network business as other actors.

Overall, the resources of NZAS – South Island Inc. are perceived to be strongly important, whereas NZAS – South Island Inc. perceives others' resources to be at moderate-to-strong levels. Most actors in the network are perceived by others to have moderate-to-strong levels of resources. Weak-rated actors are Sport Tasman, and Lincoln University and, for NZAS – South Island Inc. only, Sport Otago. This may indicate the importance of the resources is reflected by the type and nature of these actors, as actors with strong levels of resources are sports-science, medical and facility/funding providers, whereas actors with moderate levels of resources are the Regional Sports Trusts. Weak-rated actors are Lincoln University and Sport Tasman.

Table H.28: Actor's importance of resources within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LncInUni	UofC	SpC	CCC	SpT	SpS	QEII	CTof O	Range
DCC		9	9						6	8	4	7	7		5
NZAS – SI Inc.	8.5	2		9	6.5	7.5	3	8.5	4	8.5	3	5.5	9		6
UofO	6	4	8.5		8	9		7	9	5		6			3
UofC					4										
SpC			10		10	10	0	0		6			8		10
QEII			8.7		3	5.3	4.3	8							5.7
CTofO	8			9											1
Range	2.5	7	1.3	0	7	4.7	4.3	8.5	5	3.5	1	1.5	2		

1.3.8 Question 7: Rating of actors' adaptation of processes to others within NZAS – South Island network

As seen in Table H.29, NZAS – South Island Inc. is perceived by the other actors in the network to have weak-to-moderate levels of adaptation to others' processes (ratings of 3.5 to 5). In turn, NZAS – South Island Inc. perceives other actors' adaptation of processes to be varied. Weakly perceived are Sport Otago (SpO), Lincoln University (LnclnUni), Sport Canterbury (SpC), and Sport Tasman (SpT) (ratings of 0.5 to 2.5); moderately perceived are Dunedin City Council (DCC), the University of Otago (UofO), Active Health (ActvHlth), Sports Medlab (SpTMed), the University of Canterbury (UofC), Christchurch City Council (CCC), and Sport Southland (SpS) (ratings of 4 to 5.5); and strongly perceived is QEII (rating of 8). This may indicate the closeness of the relationship that has developed between NZAS – South Island Inc. and QEII which may have resulted in a more open and joint-work approach compared with the other actors in the network.

The University of Canterbury is perceived to have weak-to-moderate levels of adaptation of processes (ratings of 0 to 4.5), the rating of 0 being perceived by two actors, Sport Canterbury and QEII. This may indicate that the university does not work closely with other actors.

Dunedin City Council has moderate perceptions of adaptation of processes with Sport Otago and NZAS – South Island Inc. (ratings of 5), and weak perceptions for the other actors based in Christchurch (ratings of 0 to 3). This may indicate a good working relationship between actors within a close geographical location, as Dunedin City Council, Sport Otago, and NZAS – South Island Inc. are based in Dunedin. It may also indicate the nature of the relationships as Dunedin is a small town with a population of 121,900 (Statistics New Zealand, 2006) so that everyone knows of everyone else and is connected.

The University of Otago generally perceives most actors to have weak levels of adaptation of processes to others within the network (ratings of 2 to 3.5) – the exception being Sport Southland with a rating of 5. This may indicate that the University of Otago does not adapt

processes to others and this may well reflect the nature of the university in being the oldest established university in New Zealand.

Sport Canterbury (SpC) perceives most actors to have weak levels of adaptation of processes (ratings of 0), except for NZAS – South Island Inc. and Lincoln University which it rates at of 5 and 8, respectively.

QEII perceives varied levels of adaptation of processes. Weakly rated are the University of Canterbury, Lincoln University, and Sports Medlab (ratings of 0 to 2.7). NZAS – South Island Inc. is moderately rated (rating of 4.7), while a strong perception is held of Active Health's level of adaptation of processes (rating of 8). This may reflect Active Health and a satellite branch of NZAS – South Island Inc. being located in the QEII premises and renting space there. Active Health has been based there for a longer period of time than NZAS – South Island Inc.

Overall, NZAS – South Island Inc. is perceived to have weak-to-moderate levels of adaptation of processes to the other actors. In turn, NZAS – South Island Inc. perceives other actors' adaptation of processes to be varied. Interestingly, QEII perceives a lower level of adapting its processes to match NZAS – South Island Inc. (rating of 4.7) than NZAS – South Island Inc. does for adapting to QEII (rating of 8), indicating that NZAS – South Island Inc. has made more adaptation to QEII than the other way around. QEII have adapted its processes at a strong level to Active Health and this may reflect Active Health being located within the premises of QEII.

Table H.29: Actor's adaptation of processes within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		5	5						0	3	0	0	1		5
NZAS – SI Inc.	4.5	0.5		4.5	4	6	1.5	4.5	2.5	4.5	1	5.5	8		7.5
UofO	2.5	3	3.5		2	2		3	2	2		5			3
UofC					1										
SpC			5		0	0	8	0		0			0		8
QEII			4.7		8	2.7	0.7	0							8
CTofO	0			0											0
Range	4.5	4.5	1.5	4.5	8	6	7.3	4.5	2.5	4.5	1	5.5	8		

1.3.9 Question 8: Rating of actors' strength of relationship with others within NZAS – South Island network

As seen in Table H.30, NZAS – South Island Inc. is generally perceived to have strong relationships with the other actors in the network (ratings of 7.5 to 9), with the exception being Sport Canterbury (SpC) which rates the strength of its relationship with NZAS – South Island Inc. at 5. In turn, NZAS – South Island Inc. perceives its relationships with the other actors in the network to be generally moderate to strong (ratings of 6 to 8). However, again, there are exceptions: NZAS – South Island Inc. perceives it has weaker relationships with Sport Otago (SpO), Lincoln University (LincolnUni), and Sport Tasman (SpT) (ratings of 3.5 to 4.5). This may reflect the amount of work and level of importance in terms of resources that these actors provide for the network business. Developing a strong relationship is perhaps not prudent with actors that can offer less benefit than others to the network.

The University of Canterbury is perceived to have weak through to strong relationships within the network (ratings of 2 to 8). The weak rating is perceived by QEII (rating of 2), and this may indicate the relationship between the University of Canterbury and QEII needs to be developed, and/or that currently this relationship is not working well. Sport Canterbury perceives a moderate rating (5) for the strength of its relationship with the University of Canterbury.

Dunedin City Council is perceived by others to have moderate-to-strong relationships with them (ratings of 6 to 8), whereas Dunedin City Council perceives others to have weak-to-strong relationships with it. Weak relationships are perceived with Sport Tasman, Sport Southland, and Sport Canterbury (ratings of 0 to 3); moderate perceptions with QEII and Christchurch City Council (ratings of 4 to 5); and the strong perceptions are with NZAS – South Island Inc. and Sport Otago. This may indicate that geographical proximity of actors facilitates stronger relationships: the two actors that the council relates most strongly to are both Dunedin-based. The moderate ratings for QEII and Christchurch City Council may reflect the focus of Dunedin City Council's business, because these two actors are both local-council-type firms and so are similar in nature to Dunedin City Council.

The University of Otago is perceived to have a strong relationship with NZAS – South Island Inc. and The Community Trust of Otago (ratings of 7.5 and 8, respectively). This may be explained by these two actors being Dunedin-based. The University of Otago perceives the strength of its relationships with the other actors as varying between weak to strong. Weak relationships are perceived with Sport Otago, Christchurch City Council, and Sport Canterbury (ratings of 2 to 3); moderate relationships are perceived with the University of Canterbury, Sport Southland, Dunedin City Council, Active Health, and Sports Medlab (ratings of 4 to 6); and the strong perception is of its relationship with NZAS – South Island Inc. This may indicate abilities of the focal actor, NZAS – South Island Inc., in building strong relationships, also there is an established working relationship that functions well between University of Otago and Dunedin City Council.

Sport Canterbury perceives the strength of its relationships with the actors in the South Island network as varying between weak to strong. Weak relationships are perceived with Lincoln University and Sport Medlab (ratings of 0 and 2, respectively); moderate relationships are perceived with the University of Canterbury, Active Health, and NZAS – South Island Inc. (ratings of 5); and strong relationships are perceived with the Christchurch City Council and QEII (ratings of 9 and 10). The strong ratings for the relationships with the last two actors may be explained by geographical proximity because Sport Canterbury is located in QEII and it would also work closely with Christchurch City Council.

QEII perceives the strength of its relationships with the other actors in the network as varying between weak to strong. QEII perceives it has only a weak relationship with the University of Canterbury (rating of 2), and just a moderate level of relationship with Sport Medlab (rating of 4). However, QEII perceives that it has strong relationships with Lincoln University, Active Health, and NZAS – South Island Inc. (ratings of 7 to 9.3). This may be explained by geographical proximity because QEII has both Active Health and a satellite branch of NZAS – South Island Inc. located within its premises.

Overall, NZAS – South Island Inc. is generally perceived by the other actors within the network to have strong relationships with them, with the exception of Sport Canterbury which perceives its relationship to be moderate. In turn, NZAS – South Island Inc. perceives its strength of relationships with the other actors as generally moderate to strong. However, again, there are exceptions with NZAS – South Island Inc. perceiving its relationships with Sport Otago, Lincoln University, and Sport Tasman to be weak. This may reflect the amount of work and level of importance in terms of resources that these actors provide for the network business. Developing a strong relationship is perhaps not prudent with actors that can offer less benefit than others to the network. The University of Canterbury is generally perceived to have moderate levels of strength of relationships within the network, with the exception of a weak rating perceived by QEII. This may indicate the relationship between University of Canterbury and QEII needs to be developed and that currently this relationship is not working well. QEII has a strong level of perception of Lincoln University, Active Health, and NZAS – South Island Inc. This may be explained by geographical proximity as QEII has both Active Health and a satellite branch of NZAS – South Island Inc located within its premises. Dunedin City Council is perceived by others that are based in Dunedin to have moderate-to-strong levels of strength of relationship and, in turn, Dunedin City Council perceives those based in Dunedin to have strong levels of strength of relationship. In contrast, it perceives its relationships with actors based outside of Dunedin to be weak. Sport Canterbury has strong levels of perceptions of Christchurch City Council and QEII – this may indicate the geographical proximity of actors influencing the strength of their relationship.

Table H.30: Actor's strength of relationship within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		8	9						3	5	0	2	4		9
NZAS – SI Inc.	7.5	4.5		7.5	6	7.5	3.5	8	7.5	7	4.5	8	8		4.5
UofO	6	3	7.5		4	5		4	3	2		5			5.5
UofC					5										
SpC			5		5	2	0	5		9			10		10
QEII			9.3		8.7	4	7	2							7.3
CTofO	8			8											0
Range	2	5	4.3	1.5	4.7	5.5	7	6	4.5	7	4.5	6	6		

1.3.10 Question 9: Rating of actors' own level of belonging to the network helping with their business within NZAS – South Island network

Each research participant was asked to rate how their organisation's membership of the network helped with their business. An average score was taken for each actor, and the results of the analysis can be seen in Table H.31.

NZAS – South Island Inc. strongly believes that belonging to the network helps with its business (rating of 9). This is not surprising as the network provides the mechanism for the NZAS – South Island Inc. to deliver its services to the athletes and to also raise funds to finance this.

Both the University of Otago and QEII perceive that belonging to the network strongly helps with their business (ratings of 8 and 10). This may reflect the strength of relationship that exists between NZAS – South Island Inc. and these two actors.

The Community Trust of Otago perceives that belonging to the network is moderately helpful to its business (rating of 6). This may reflect the nature of how this actor conducts its business in that they are a funder of projects for the community of Otago and depend on relationships with others in order to achieve their objectives because they do not undertake the actual projects or work themselves.

Overall, actors' perception of belonging to the network helping with their business was variable. A strong level was recorded for NZAS – South Island Inc., the University of Otago, and QEII, and this may reflect the strength of relationship that exists between NZAS – South Island Inc. and these other two actors. For Dunedin City Council, the response level was weak. The University of Canterbury and Sport Canterbury did not respond to this question.

Table H.31: Actor’s own level of belonging to the network helping with their business within NZAS – South Island network

DCC	2.5
NZAS – South Island Inc.	9
UofO	8
UofC	Not answered
SpC	Not answered
QEII	10
CTofO	6

1.3.11 Question 10: Rating of actors’ level of others belonging to the network helping with their business within NZAS – South Island network

As seen in Table H.32, the focal actor of the NZAS – South Island network is generally perceived to be moderately to strongly helpful to the other actors for their business (ratings of 5 to 9). In turn, NZAS – South Island Inc. perceives the levels of other actors’ belonging to the network as helping with its business as varying between weak to strong. Perceptions of weak levels of helpfulness are held for Sport Tasman, Sport Otago, and Lincoln University (ratings of 2 to 3.5), while the membership of Active Health is perceived to be moderately helpful (rating of 5.5). NZAS – South Island Inc. also perceives that the memberships in the network of Dunedin City Council, the University of Otago, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Southland, and QEII are all strongly helpful to its business (ratings of 6.5 to 8.5). This may indicate that the strongly rated actors are core partners that add value to the business of the network for NZAS – South Island Inc. Of the strongly rated actors, the most important to NZAS – South Island Inc. are Dunedin City Council (rating of 8), University of Otago (rating 8.5), Sport Medlab (rating 7.5), Christchurch City Council (rating 7.5), and QEII (rating 8). This reflects a clustering of actors around the two population centres where most of the athletes are located – Dunedin and Christchurch. A perception of the network membership of NZAS – South Island Inc. being strongly important to Dunedin City Council is also noted (rating of 9). Overall, actors in the network are more important to NZAS – South Island Inc. than NZAS – South Island Inc. is to them.

Overall, the membership of NZAS – South Island Inc. in the network is generally perceived to be moderately to strongly helpful to the other actors for their business. In turn, NZAS –

South Island Inc. perceives the level of other actors' belonging to the network helping with its business as varying between weak to strong. Perceptions of weak levels of helpfulness are held for Sport Tasman, Sport Otago, and Lincoln University, while the membership of Active Health is perceived to be moderately helpful. NZAS – South Island Inc. also perceives that the memberships in the network of Dunedin City Council, the University of Otago, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Southland, and QEII are all strongly helpful to its business. Strongly rated actors may be indicative that these are core partners that add value to the business of the network for NZAS – South Island Inc. The most important actors for NZAS – South Island Inc. are Dunedin City Council, the University of Otago, Sport Medlab, Christchurch City Council, and QEII. This reflects a clustering of actors around the two population centres where most of the athletes are located –Dunedin and Christchurch. Overall, this may indicate that actors in the network are more important for NZAS – South Island Inc. than NZAS – South Island Inc. is for them, with the exception of Dunedin City Council.

Table H.32: Actor's level of belonging to the network helping with their business within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		8	9						3	8	0	4	5		9
NZAS – SI Inc.	8	3.5		8.5	5.5	7.5	3	6.5	6.5	7.5	2	6.5	8		8.5
UofO	3.5	4	5.5		4	7	7	2	2	6					5
UofC					5										
SpC			5		0	0	6	0					10		10
QEII			6.7		5.3	2.7	3	1							5.7
CTofO	5			5											
Range	4.5	4.5	4	3.5	5.5	7.5	4	6.5	4.5	2	2	2.5	5		

1.3.12 Question 11: Rating of actors' level of importance of others geographic location within NZAS – South Island network

As seen in Table H.33, the geographic location of NZAS – South Island Inc. is generally perceived to be strongly important by the other actors within the network is (ratings of 7 to 10). This may be explained by NZAS – South Island Inc. having two distinct centres, the head office based in Dunedin and a satellite office based in QEII Stadium in Christchurch.

NZAS – South Island Inc. perceives the level of importance of others' geographic location within the network as being mainly strong. Strong perceptions are given for the importance of location of Dunedin City Council (DCC), the University of Otago (UofO), Active Health (ActvHlth), Sport Medlab (SprtMed), the University of Canterbury (UofC), Christchurch City Council (CCC), Sport Tasman (SpT), Sport Southland (SpS), and QEII (ratings of 6.5 to 9). However, NZAS – South Island Inc. does not perceive that the locations of Sport Otago (SpO), Lincoln University (LnclnUni), and Sport Canterbury (SpC) are strongly important (ratings of 1.5 to 5.5). This may reflect a clustering of actors around the two population centres where most of the athletes are located – Dunedin and Christchurch – and the importance of Sport Southland and Sport Tasman in providing remote services in the areas that they serve.

Overall, the geographic location of NZAS – South Island Inc. is generally perceived to be strongly important to the other actors in the network. It may be explained by NZAS – South Island Inc. having two distinct centres, a head office based in Dunedin and a satellite office based in QEII in Christchurch, indicating that location of NZAS – South Island Inc. is important for those actors. NZAS – South Island Inc. perceives the level of importance of others' geographic location within the network as being mainly strong. Strong perceptions are held for the importance of location of Dunedin City Council, the University of Otago, Active Health, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Tasman, Sport Southland, and QEII, whereas the geographic locations of Sport Otago, Lincoln University, and Sport Canterbury are not perceived to be important. The results may reflect a clustering of actors around the two population centres where most of the athletes are located, these being Dunedin and Christchurch. It may also indicate the importance of Sport Southland and Sport Tasman in providing remote services in the area that they serve.

Table H.33: Actor's level of importance of geographic location within NZAS – South Island network

	DCC	SpO	NZAS – SI Inc.	UofO	ActvHlth	SprtMed	LnclnUni	UofC	SpC	CCC	SpT	SpS	QEII	CTofO	Range
DCC		8	9						3	0	4	3	5		9
NZAS – SI Inc.	9	1.5		9.5	6.5	7.5	5.5	8	4.5	8.5	7	9	9		7.5
UofO	6.5	3.5	7		3	7		2	2	2		7			5
UofC					3										
SpC			10		10	2	0	0		9			10		10
QEII			9		9.7	3	1	0							9.7
CTofO	2			10											8
Range	7	6.5	3	0.5	7	5.5	5.5	8	2.5	9	3	6	5		

1.4 Summary of results presented in tabular format

Table H.34: Summary of UCINET 6 results for similarity rating of variables

Questions	NZAS – North	NZAS – Central	NZAS – South Island
Tree diagram for identification of most similarly viewed variables	In the cluster of similarly viewed variables are cooperation, trust, and commitment – variables that reflect the social relational aspects of this cluster. However, the exception is information-sharing, which is also in this cluster.	Similarly viewed variables are those based on the importance of the geographic location of others, belonging to the network helping with their business, and commitment. This may indicate that for this network being located close to another actor increases a sense of belonging to the network which may then help that actor’s business; this could then be expected to have a positive influence on commitment.	The most similarly viewed variables are based on how well an actor cooperates, and sharing of information. This would make sense as these are closely related concepts.
1. This member’s commitment to the NZAS network?	Overall, levels of commitment in this network are strong. However, results also indicate University of Auckland UniSports Centre and WINTEC need to work on improving how others perceive them in terms of their level of commitment.	Overall, from the focal actor’s viewpoint (NZAS – Central Inc.), the range between actors’ level of commitment is 6.5, from low (rating of 0.5) to strong (rating of 7). This indicates that NZAS – Central Inc. perceives levels of commitment to vary widely in the network. However, all other actors perceive levels of commitment as generally strong, the exception being the University of Otago who is perceived as having a weak level of commitment which reflects its exiting from the network. This difference in perceptions may mean NZAS – Central Inc. needs to work on improving levels of commitment, which may be due to	Overall, NZAS – South Island Inc. is perceived as having a strong level of commitment in the network. NZAS – South Island Inc. perceives three actors to have weak levels of commitment: Sport Otago, Lincoln University, and Sport Tasman. This may indicate relationships that NZAS – South Island Inc. needs to develop as these actors are not performing as well as they should be or that these actors’ presence in the network needs to be reviewed. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceives the university’s commitment to be weak, whereas the other actors perceive it to be strong. This may indicate a relationship that is not working well and needs to be developed.

		a lack of communication or direction for actors as they may not fully understand the work of the network.	
2. How well do they share information with you?	Overall, levels of sharing of information are moderate to strong. However, MISH and University of Auckland UniSports Centre are seen to have lower levels of information-sharing, with ratings of 5.5 to 8 and 5 to 8, respectively. This may indicate that University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of sharing of information.	Overall, the perceptions of sharing of information ranged from weak to strong (ratings of 4 to 8.5) between the core actors and this could indicate that this is an area that NZAS – Central Inc. needs to address. Another area that needs to be addressed is the Wanganui Consortium (WanCon) because Cooks Garden Trust (CGT) is perceived as having a weak level of information-sharing (rating of 4) compared with UCOL perceived as moderate (rating of 6).	Overall, sharing of information is perceived at moderate-to-strong levels within the network. NZAS – South Island Inc. is perceived to have a strong level of sharing of information, but Sport Otago, Lincoln University, and Sport Tasman are perceived to have weak levels by NZAS – South Island Inc. This may indicate relationships that NZAS – South Island Inc. needs to develop as these actors are not performing as well as they should be or that these actors' presence in the network needs to be reviewed. There would appear to be a difference in perception between other actors and QEII of the University of Canterbury: QEII perceives the university to be weak at information-sharing, whereas the other actors perceive it to be strong. This may indicate a relationship that is not working well and needs to be developed. Generally actors based in the two main centres – Dunedin or Christchurch – perceive others in the same location as having stronger levels of information-sharing and those outside of their location as having weaker levels.

<p>3. How well do they cooperate with your organisation?</p>	<p>Overall, levels of cooperation within this network are strong. However, the data may indicate University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of cooperation.</p>	<p>Overall, the level of cooperation is perceived as strong within the network although there are two actors that are perceived as weak: the Wanganui Consortium due to its member Cooks Garden Trust, and Sport Gisborne.</p>	<p>Overall, levels of cooperation within the South Island network are strong with a few exceptions. NZAS – South Island Inc. is perceived to have a strong level of cooperation with other actors and perceives other actors level of cooperation to be moderate to strong, with one exception – Sport Tasman. This may indicate relationships that NZAS – South Island Inc. has with all actors are working well, with the exception of Sport Tasman. There would appear to be a difference in perception between the other actors and QEII of the University of Canterbury: QEII perceives the university to only have a weak level of cooperation, whereas the other actors perceive the level as strong. This may indicate a relationship that is not working well and needs to be developed. Generally, actors based in the two main centres – Dunedin or Christchurch – perceives others in the same location to have stronger levels of cooperation and those outside of their location to have weaker levels.</p>
<p>4. How much do you trust this organisation?</p>	<p>Overall, levels of trust within this network are strong. However, the data may indicate University of Auckland UniSports Centre and MISH need to work on improving how others perceive them in terms of their level of trust which is at a moderate level.</p>	<p>Overall, levels of trust between actors are generally strong. However, Cooks Garden Trust is an exception: it is only weakly trusted by the other members of the network, and this may indicate the Wanganui Consortium needs to work on improving levels of trust with this actor. Also the levels of trust NZAS – Central Inc. has with other actors are generally only moderate to low-strong; these levels of trust need to be improved</p>	<p>Overall, levels of trust within the South Island network are strong, although there are a few exceptions. NZAS – South Island Inc. is perceived to be strongly trusted by the other actors in the network and, in turn, perceives other actors' level of trust to be strong. This may indicate relationships that NZAS – South Island Inc. has with all other actors are working well. There would appear to be a difference in perception between the other actors and QEII of the University of Canterbury: the university is only weakly trusted by QEII, whereas the other actors</p>

		with all actors.	perceive their levels of trust of the university as strong. This may indicate a relationship that is not working well and needs to be developed.
5. How much power does this organisation have in the network?	Overall, the balance of power is reasonably distributed across the network and is at a moderate-to-strong level, although the data may indicate NZAS – North Inc. as holding the most power within the network. MISH and AUT also hold strong levels of power, with the weaker actors being WINTEC and University of Auckland UniSports Centre.	Overall, levels of power within the network vary from weak to low-strong levels. The focal actor, NZAS – Central Inc., has a similar, and in one instance a slightly lower, rating for level of power than other actors. This may indicate an imbalance in power within the network which needs to be addressed because the Regional Sports Trusts would appear to hold higher levels of power and this perception differs from that held by NZAS – Central Inc. It may indicate that the Regional Sports Trusts are more important for the work of the network than NZAS – Central Inc. perceives.	Overall, levels of power within the network are perceived to be at a moderate-to-strong level between all actors. NZAS – South Island Inc. is perceived to have a moderate-to-strong level of power, and NZAS – South Island Inc. perceives other actors' level of power to be generally moderate. This may indicate the importance of the resources that these actors hold for the network. Actors perceived with a weak level of power within the network are Sport Otago, Lincoln University, and Sport Tasman. This may indicate these actors are not as actively involved in the network as others and this may be due to the resources that they hold not being as important as those of other actors. QEII is perceived to have a strong level of power by NZAS – South Island Inc. and this may reflect the importance of the relationship between the two actors in that QEII provides resources for the Christchurch area.
6. How important are their resources for the network?	Overall, the actors perceive the importance of the other actors' resources as strong for all actors. However, the data may indicate University of Auckland UniSports Centre needs to work on improving the perception held by MISH of the level of importance of their resources, as these are perceived to be at a moderate level of importance for the network.	Overall, all actors within the network are perceived as holding a strong level of resources. This may indicate that University of Otago's presence within the network was important for the resources that it held despite it leaving the network. NZAS – Central Inc. is perceived as strong for the level of resources it holds.	Overall, the resources of NZAS – South Island Inc. are strongly perceived to be important by the other actors in the network. In turn, perceptions by NZAS – South Island Inc. of the importance of the other actors' resources are moderate to strong. Most actors in the network are perceived by others to have moderate-to-strong levels of resources. Weak rated actors are Sport Tasman, Lincoln University and, for NZAS – South Island Inc. only, Sport Otago. This may indicate the importance of the resources is reflected by the

			type and nature of these actors, as actors with strong levels of resources are sports-science, medical and facility/funding providers. Actors with moderate levels of resources are the Regional Sports Trusts. Weak rated actors are Lincoln University and Sport Tasman.
7. How much have you adapted your processes to theirs?	Overall, the level of adaptation of processes is weak to moderate. The data may indicate that actors within the network are adapting their processes to those of NZAS – North Inc. but not to the other actors within the network.	The focal actor perceives that other actors hold a weak level of adaptation of processes. However, Sport Wellington Region perceives the other Regional Sports Trusts as having a strong level of adaptation of processes. This may indicate that Sport Wellington Region works closely with these actors and is prepared to adapt its processes much more readily. The Wanganui Consortium may need to work more closely with Cooks Garden Trust. Finally, the results also indicate that NZAS – Central Inc. needs to address how it works with others and be prepared to adapt its processes to theirs.	Overall, NZAS – South Island Inc. is perceived to have weak-to-moderate levels of adaptation of processes by the other actors. In turn, NZAS – South Island Inc. perceives other actors' adaptation of processes to be varied. Weakly perceived are Sport Otago, Lincoln University, Sport Canterbury, and Sport Tasman; moderately perceived are Dunedin City Council, the University of Otago, Active Health, Sports Medlab, the University of Canterbury, Christchurch City Council, and Sport Southland; and, finally, strongly perceived is QEII. This may indicate the closeness of the relationship that has developed between NZAS – South Island Inc. and QEII which may have resulted in a more open and joint-work approach compared with the other actors in the network. Interestingly, QEII perceives a lower rating of 4.7 for NZAS – South Island Inc., indicating that NZAS – South Island Inc. has made more adaptation to QEII than the other way around. QEII has adapted its processes at a strong level to Active Health and this may reflect this actor being located within the premises of QEII.

<p>8. How strong is the relationship between your organisation and theirs?</p>	<p>Overall, the results are moderate to strong for strength of relationship to others within this network. However, the data may indicate that MISH is poorly connected to both WINTEC and University of Auckland UniSports Centre. Moreover, the data also indicates University of Auckland UniSports Centre and WINTEC both need to work on improving the strength of their relationships with each other as the perception between the two does not match: for WINTEC, the perception is that a strong relationship exists with University of Auckland UniSports Centre, whereas for University of Auckland UniSports Centre the perception is that only a moderately strong relationship exists.</p>	<p>Overall, most actors perceive they have a strong relationship with the others. This may indicate that Sport Wellington Region, NZAS – Central Inc., and Wellington City Council work closely with each other and have a good relationship. Generally, the focal actor, NZAS – Central Inc., perceives a moderate level of strength of relationship with others outside the core actors of Wellington City Council, the Wanganui Consortium, and Sport Wellington Region, and this may indicate a need to develop stronger relationships with the other actors in the network. Moreover, the Wanganui Consortium needs to work on developing its relationship with Cooks Garden Trust as a weak strength of relationship is perceived.</p>	<p>Overall, the actors in the network perceive that they have strong relationships with NZAS – South Island Inc. However, Sport Canterbury is the exception with a perception of a moderate relationship. In turn, NZAS – South Island Inc. perceives its strength of relationships as generally moderate to strong, but again there are exceptions: NZAS – Central Inc. rates its relationships with Sport Otago, Lincoln University, and Sport Tasman as weak. This may reflect the amount of work and level of importance in terms of resources that these actors provide for the network business. Developing a strong relationship is perhaps not prudent with actors that can offer less benefit than others to the network. The University of Canterbury is generally perceived to have moderately strong relationships within the network, with the exception of a weak rating perceived by QEII. This may indicate the relationship between University of Canterbury and QEII needs to be developed and that currently this relationship is not working well. QEII perceives strong relationships with Lincoln University, Active Health, and NZAS – South Island Inc. This may be explained by geographical proximity because QEII has both Active Health and a satellite branch of NZAS – South Island Inc. located within its premises. Dunedin City Council is perceived by others that are based in Dunedin to have moderate-to-strong levels of strength of relationship. Dunedin City Council perceives it has strong relationships with those actors based in Dunedin, but it holds weak perceptions of its relationships actors based outside of Dunedin. Sport</p>
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			Canterbury perceives strong levels of relationship with Christchurch City Council and QEII. This may indicate the geographical proximity of actors as influencing strength of relationship.
9. How much does belonging to the network help you with your business?	Overall, actors feel that belonging to the network strongly helps with their business. However, MISH and University of Auckland UniSports Centre were exceptions: they both perceived that their membership was only moderately helpful.	NZAS – Central Inc., Wellington City Council, and Sport Wellington Region all feel that belonging to the network strongly helps with their business.	NZAS – South Island Inc., the University of Otago, and QEII all feel that belonging to the network strongly helps with their business. This may reflect the strength of relationship that exists between NZAS – South Island Inc. and these two actors. For Dunedin City Council, the response level was weak, and University of Canterbury and Sport Canterbury did not respond to this question.
10. How much does _____ belonging to the network help you with your business?	Overall, results may indicate NZAS – North Inc. needs the other actors in the network as equally as they need NZAS – North Inc. The level of other actors belonging to the network helping with an actor’s business is strong, but with one exception: MISH rates the value of NZAS – North Inc. belonging to the network as only a low-moderate level. For the other actors , there is generally a perception that others belonging to the network are moderate helpful to their business. WINTEC, however, is an exception, being perceived as adding little value to others in the network in terms of their business. These results would generally tend to indicate that all actors work with others in developing their own business but at a lower	Overall, most actors perceive that other actors’ membership of the network strongly helps them with their business. However, there is an exception with NZAS – Central Inc. perceiving the helpfulness of the Wanganui Consortium, Sport Manawatu, the University of Otago, EIT, and Sport Gisborne at only weak-to-moderate levels. This may indicate that it is important to belong to the network for Sport Wellington Region and Wellington City Council and that, for the Wanganui Consortium, the Wanganui-based actors belonging to the network may be important. For NZAS – Central Inc. it may indicate that relationships with the Wanganui Consortium, Sport Manawatu, Sport Hawke’s Bay, the University of Otago, EIT, and Sport	Overall, the actors in the NZAS – South Island network perceive the membership of NZAS – South Island Inc. as moderately to strongly helpful to their business. In turn, NZAS – South Island Inc. perceives the membership of the other actors in terms of helping with its business as varying between weak to strong. It holds weak perceptions of the helpfulness of Sport Tasman, Sport Otago, and Lincoln University; moderate perceptions of Active Health; and strong perceptions of the helpfulness of Dunedin City Council, the University of Otago, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Southland, and QEII. Strongly rated actors may be indicative that these are core partners that add value to the business of the network for NZAS – South Island Inc. The most important actors for NZAS – South Island Inc. are Dunedin City Council, the University of Otago, Sport Medlab, Christchurch City Council, and QEII. This

	level compared with working with NZAS – North Inc.	Gisborne need to be developed to find common goals as these relationships may not be working well or that these actors may provide limited resources as the number of athletes are minimal in the areas that these actors serve.	reflects a clustering of actors around the two population centres where most of the athletes are located – Dunedin and Christchurch. Overall, this may indicate that actors in the network are more important for NZAS – South Island Inc. than NZAS – South Island Inc. is for them, with the exception of Dunedin City Council.
11. How important is the geographic location of _____ for you?	Overall, the level of importance of other actors’ geographic location is moderate to strong. WINTEC may be perceived by NZAS – North Inc. to provide a unique location because it rates WINTEC’s location as strongly important.	Overall, all actors except NZAS – Central Inc. perceive the other actors’ geographic location as strongly important for them. This may indicate that actors perceive other actors as important in order to cover the wide geographic area that comprises the NZAS – Central network. For NZAS – Central Inc., it may indicate that relationships with the Wanganui Consortium, Sport Manawatu, the University of Otago, EIT, and Sport Gisborne need to be developed to find common goals or that these actors may provide limited resources as the number of athletes are minimal in the areas that these actors serve.	Overall, the actors in the NZAS – South Island network perceive the geographic location of the central broker to be strongly important. NZAS – South Island Inc. has two distinct centres – a head office based in Dunedin and a satellite office based in Christchurch – and the findings may indicate that the location of NZAS – South Island Inc. is important for actors in those two centres. In turn, NZAS – South Island Inc. perceives the level of importance of others’ geographic location within the network as being mainly strong. It holds strong perceptions for the importance of location of Dunedin City Council, the University of Otago, Active Health, Sport Medlab, the University of Canterbury, Christchurch City Council, Sport Tasman, Sport Southland, and QEII. However, the perceptions of importance of location of Sport Otago, Lincoln University, and Sport Canterbury are exceptions. This may reflect a clustering of actors around the two population centres where most of the athletes are located – Dunedin and Christchurch – and the importance of Sport Southland and Sport Tasman in providing remote services in the area that they serve.

Density calculated from cognitive mapping technique

1.0 Introduction

Density of each network by organisational level (CEO/Board, work-unit and individual) was calculated from the cognitive-mapping technique described in Chapter Three. The cognitive mapping of each network to show current density by level is presented in Tables J.1, J.2 and J.3. Selection of research participants and the response rate for this exercise are reported in Chapter Three.

1.1 Results for NZAS – North, NZAS – North Central, and NZAS – North South Island networks

The results show NZAS – North network is a dense network with 100% of ties at each level, i.e. each organisation at each level knows of the other network organisations (see Table I.1)

The NZAS – Central network consists of twenty-one organisations. Of the 231 possible known ties by each of the three organisational levels (CEO/Board, work-unit and individual) in the NZAS – Central network, 112 or 48% of ties are known. At the CEO/Board level, 59 or 56% of the 105 possible known ties are known. At the work-unit level, 16 or 25% of the 63 are known. At the individual level, 37 or 59% of the 63 are known. In other words, NZAS – Central network is not a dense network because each of the organisations at each of the three levels (CEO/Board, work-unit and individual) do not know of all the other network organisations (see Table I.2).

The sixteen organisations of the NZAS – South Island network at each of the three organisational levels (CEO/Board, work-unit and individual) know of the majority of other network organisations. Of the 176 possible known ties by each of the three organisational levels (CEO/Board, work-unit and individual) in the NZAS – South Island network, 125 or 71% of ties are known. At the CEO/Board level, 28 or 87% of the 32 possible known ties are known. At the work-unit level, 49 or 61% of the 80 are known. At the individual level, 48 or 75% of the 64 are known (see Table I.3).

Table I.1: Cognitive mapping of NZAS – North network to show current density by level

Level	Organisation	Known organisations in network				
		NZAS – N	MISH	UA	WINTEC	AUT
CEO/Board	NZAS – N	1	1	1	1	1
	MISH	1	1	1	1	1
	UA	1	1	1	1	1
	WINTEC	1	1	1	1	1
	AUT	1	1	1	1	1
Work-unit	AUT	1	1	1	1	1
Individual	NZAS – N	1	1	1	1	1
	MISH	1	1	1	1	1
	UA	1	1	1	1	1
	WINTEC	1	1	1	1	1
	AUT	1	1	1	1	1
Key 1 = know about 0 = don't know about NZAS – N = NZAS – North Inc. MISH = Millennium Institute of Sport and Health UA = University of Auckland UniSports Centre WINTEC = Waikato Institute of Technology AUT = Auckland University of Technology						

Table I.2: Cognitive mapping of NZAS – Central network to show current density by level

Level/ Organisation	Known organisations in network																				
	NZAS – C	Sp WR	VU	MW	MP	WCC	UCOL –P	UCOL –Wan	Sp Wan	Wan Inc	WDC	GH Wan	CGT	WRMTB	WEDB	SpG	SpT	SpM	SpHB	EIT	UO
<i>CEO/Board</i>																					
NZAS – C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WanDist	1	1	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	0	0
WCC	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SpWR	1	1	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
UO	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
<i>Work-unit</i>																					
WCC	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SpWR	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1	1	0	1
UO	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Individual</i>																					
NZAS – C	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1
NZAS – C	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
SpWR	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1	1	0	1
Key																					
1 = know about											WDC = Wanganui District Council										
0 = don't know about											GHWan = Good Health Wanganui										
NZAS – C = NZAS – Central Inc.											CGT = Cooks Garden Trust										
SpWR = Sport Wellington Region											WRMTB = Whanganui River Maori Trust Board										
VU = Victoria University											WEDB = Wanganui Economic Development Board										
MW = Massey University Wellington Campus											SpG = Sport Gisborne										
MP = Massey University Palmerston North Campus											SpT = Sport Taranaki										
WCC = Wellington City Council											SpM = Sport Manawatu										
UCOL–P = Universal College of Learning Palmerston North Campus											SpHB = Sport Hawkes Bay										
UCOL–Wan = Universal College of Learning Wanganui Campus											EIT = Eastern Institute of Technology										
SpWan = Sport Wanganui											UO = University of Otago										
WanInc = Wanganui Incorporated											WanDist = Wanganui District Consortium										

Table I.3: Cognitive mapping of NZAS – South Island network to show current density by level

Level/ Organisation	Known organisations in network															
	NZAS – SI	UniOta– HP	UniOta– SM	DCC	SpO	CCC	QE11	UniC	SpC	ActHlth	SprtMed	LinUni	CTofSthl	CTofO	SpS	SpT
<i>CEO/Board</i>																
NZAS – SI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SpC	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	1
<i>Work-unit</i>																
DCC	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1
UniOta-SM	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1
UniOta-HP	1	1	1	1	1	0	0	1	1	0	0	0	0	0	1	0
CtofO	1	1	1	1	1	1	0	0	1	0	0	0	1	1	1	0
CCC	1	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
<i>Individual</i>																
NZAS – SI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UniOta-SM	1	1	1	1	0	1	0	1	0	0	0	0	0	0	1	0
UniC	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1
QE11	1	1	1	1	0	1	1	1	1	0	0	1	0	0	1	1
Key																
1 = know about										UniC = University of Canterbury						
0 = don't know about										SpC = Sport Canterbury						
NZAS – SI = NZAS – South Island Inc.										ActHlth = Active Health						
UniOta–HP = University of Otago, Human Performance Centre										SprtMed = SportMed						
UniOta–SM = University of Otago Sports Medicine										LinUni = Lincoln University						
DCC = Dunedin City Council										Ctof Sthl = Community Trust of Southland						
SpO = Sport Otago										Ctof O = Community Trust of Otago						
CCC = Christchurch City Council										SpS = Sport Southland						
QE11 = QE11 Centre Christchurch										SpT = Sport Tasman						

Overall network structure calculated using UCINET 6 statistics routine

1.0 Introduction

Network structural aspects for each embedded network were calculated using UCINET 6 statistics routine for ego network density, ego network structural holes, and ego network brokerage. These calculations are shown in the following tables for each of the network development stages. Terms used in the tables are explained in Table H.1, Appendix G. The use of UCINET 6 is explained within Chapter Three, along with the process for selecting the research participants and the response rate for the exercise.

1.1 NZAS – North network

For the NZAS – North network, ego network density size reported in the following tables indicates MISH was the most influential actor at the early stages of development of the network. As the network developed, AUT became the most influential actor in Stages 3 and 4; in the final stage, AUT jointly shares this position with the central broker, NZAS – North Inc. Thus, as the network developed MISH become less influential. The least powerful actors are WINTEC and UA at all stages; by the latter stage this also included MISH.

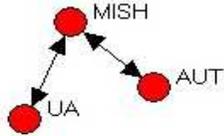
Structural hole measures of constraint reveal MISH was the least constrained at the early stages of network development (score of 0.5, and with the highest score (100) for ego betweenness). AUT and University of Auckland UniSports Centre were completely constrained by MISH in Stage 1 when the network was comprised of just three members. Again this indicates the greater level of influence that MISH had in the network at this stage. However, by Stage 3 when the network had grown to five members, AUT had become the least constrained actor (0.61) and less dependent on other network members; AUT also had the highest ego betweenness (66.67), indicating a change in the network in terms of which actor has the most influence. Low constraint values imply more structural holes. High values of constraint imply ego is directly tied to another network member (i.e. alter) who is also tied to many of its other network members, thereby taking away some of ego's power. Egos with low constraint values have more power and information due to their being able to directly access information that is not available to others who do not

have direct ties. MISH lost power as the network moved to Stage 3 while AUT gained power as structural holes opened up in its network.

In the last stage of the network's development, AUT and NZAS – North Inc. are the most influential actors. This is indicated by their ego network density size being the greatest (4 for both), ego betweenness score being the highest (25 for both), and level of constraint being the lowest (0.68 for both).

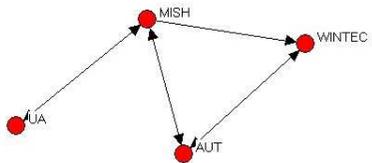
In Stages 1 and 2, MISH played the role of a consultant to all the other members of the network, giving it the power to control information flow and to make decisions on the level of coordination. However, by Stage 4 MISH no longer played any mediating role in the network because, by Stage 2, AUT had begun playing the role of a representative, allowing it to control information from its own ego net to others outside its ego net. By Stage 4, AUT's role had expanded to coordinator, gatekeeper and representative to two other organisations for each of these three roles. This increased AUT's power in the network and also its ability to shape the social structure of the network. However, the entrance of NZAS – North Inc. in Stage 4 resulted in new ties with existing members; this allowed NZAS – North Inc. to act as a consultant to two other members and a liaison between four of the five members. The sharing of power in the network between AUT and NZAS – North Inc. may have been successful because the two organisations played different, but complementary, brokerage roles that facilitated sustainable coordination of actions within the network. This is based on the duality aspects of actor characteristics, and the role each played based on their position within the structure. As a liaison, NZAS – North Inc. was able to work across the other subgroups in the network and, as a consultant, to mediate actions between members of other subgroups. As a coordinator, AUT was able to mediate actions within its own subgroup and to act as the sender, or receiver, of information to or from other subgroups. As the network grew in size from Stage 1 to Stage 4, there was a shift in the type of organisation able to play a brokerage or mediating role: from MISH as a facility, to AUT and NZAS – North Inc. who could be characterised as facilities that also provide training and research support to others in the network.

Table J.1: UCINET6 measures for NZAS – North network Stage 1

Network map	Actor	Ego network density			Structural hole Constraint	Ego network brokerage: Un-normalised brokerage scores						
		Size	Density	NEgoBe		Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total	
	AUT	1	-	-	1.0	Facility MISH	0	0	0	2	0	2
	MISH	2		100	0.5		Facility, trainers and research					
	UA	1	-	-	1.0	AUT		0	0	0	0	0
							UA	0	0	0	0	0

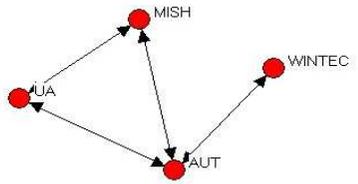
NOTE: All figures have been rounded to one decimal place. Insufficient data resulted in missing values is denoted by -

Table J.2: UCINET6 measures for NZAS – North network Stage 2

Network map	Actor	Ego network density			Structural hole Constraint	Ego network brokerage: Un-normalised brokerage scores						
		Size	Density	NEgoBe		Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total	
	WINTEC	2.	100	0	1.24	Facility MISH	0	0	0	3	0	3
	MISH	3	33.33	66.67	0.60		Facility trainer and research					
	AUT	2	50	50	0.89	WINTEC		0	0	0	0	0
	UA	1	-	-	1	AUT	0	0	1	0	0	1
							UA	0	0	0	0	0

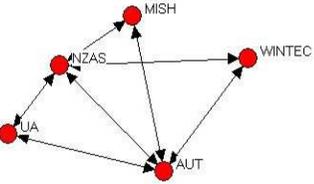
NOTE: All figures have been rounded to two decimal places. Insufficient data resulted in missing values is denoted by -

Table J.3: UCINET6 measures for NZAS – North network stage 3

Network map	Actor	Ego network density			Structural hole Constraint	Ego network brokerage: Un-normalised brokerage scores																																	
		Size	Density	NEgoBe		Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total																												
	WINTEC	1	-	-	1	<table border="1"> <tr> <td>Facility MISH</td> <td>0</td> <td>0</td> <td>0</td> <td>3</td> <td>0</td> <td>3</td> </tr> <tr> <td>Facility trainer and research WINTEC</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>AUT</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>4</td> </tr> <tr> <td>UA</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>						Facility MISH	0	0	0	3	0	3	Facility trainer and research WINTEC	0	0	0	0	0	0	AUT	2	1	1	0	0	4	UA	0	0	0	0	0	0
	Facility MISH	0	0	0	3							0	3																										
	Facility trainer and research WINTEC	0	0	0	0							0	0																										
	AUT	2	1	1	0							0	4																										
	UA	0	0	0	0							0	0																										
MISH	2	100	0	1.13																																			
AUT	3	33.33	66.67	0.61																																			
UA	2	100	0	1.13																																			

NOTE: All figures have been rounded to two decimal places. Insufficient data resulted in missing values is denoted by -

Table J.4: UCINET6 measures for NZAS – North network stage 4

Network map	Actor	Ego network density			Structural hole Constraint	Ego network brokerage: Un-normalised brokerage scores																																								
		Size	Density	NEgoBe		Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total																																			
	NZAS	4	50	25	0.68	<table border="1"> <tr> <td>Facility MISH</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Facility trainer and research WINTEC</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>AUT</td> <td>2</td> <td>2</td> <td>2</td> <td>0</td> <td>0</td> <td>6</td> </tr> <tr> <td>UA</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Manager NZAS</td> <td>0</td> <td>0</td> <td>0</td> <td>2</td> <td>4</td> <td>6</td> </tr> </table>						Facility MISH	0	0	0	0	0	0	Facility trainer and research WINTEC	0	0	0	0	0	0	AUT	2	2	2	0	0	6	UA	0	0	0	0	0	0	Manager NZAS	0	0	0	2	4	6
	Facility MISH	0	0	0	0							0	0																																	
	Facility trainer and research WINTEC	0	0	0	0							0	0																																	
	AUT	2	2	2	0							0	6																																	
	UA	0	0	0	0							0	0																																	
	Manager NZAS	0	0	0	2							4	6																																	
WINTEC	2	100	0	1.13																																										
MISH	2	100	0	1.13																																										
AUT	4	50	25	0.68																																										
UA	2	100	0	1.13																																										

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1.2 NZAS – Central network

For the NZAS – Central network, ego network density size reported in the following tables indicates Sport Wanganui and the network bid as jointly being the most influential actors at the early stages of NZAS – Central network's development. The Regional Sports Trusts also have a reasonably high level of influence. Furthermore, structural hole measures of constraint reveal Sport Wanganui (0.25) and the network bid (0.25) to be the least constrained at the early stages of network development. Egos with low constraint values have more power and information due to their being able to access information directly that is not available to others who do not have direct ties. However, normalised ego betweenness scores – a measure of being able to connect other actors in the network – indicate Sport Wanganui (62.12) as being more powerful. Brokerage scores for this stage also reveal Sport Wanganui (88) as the most powerful actor because it is able to act as gatekeeper, representative, consultant and liaison, compared to the network bid (0). This would indicate the importance of the Regional Sports Trusts network for the NZAS – Central network.

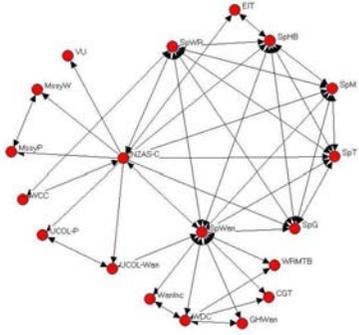
At the next stage of the network's development, some actors had exited the network and, as a result, the network had decreased in size. Ego network density size for Sport Wanganui (8) and NZAS – Central Inc. (6) again indicate these were the most influential actors. Actors that were least constrained were Sport Wanganui (0.31) and NZAS – Central Inc. (0.4). However, other actors also had low scores of constraint, indicating their ability to bridge structural holes which have opened up in the network and these actors are UCOL–Palmerston North campus (0.56), Ucol–Wanganui campus (.05), Wanganui District Council (0.59), Sport Wellington Region (0.84), and Wellington City Council (0.93). Brokerage scores for this stage also reveal Sport Wanganui (46) as the most powerful actor as it was able to act as gatekeeper, representative, consultant and liaison, compared with NZAS – Central Inc. (15) and Wanganui District Council (12). Again, this would indicate the importance of the Regional Sports Trusts network for the NZAS – Central network.

By the final stage the network had grown to include new actors. Ego network density size for Sport Wanganui (12) and NZAS – Central Inc. (13) again indicates these are the most influential actors. Actors that are least constrained are Sport Wanganui (0.25) and NZAS –

Central Inc. (0.25), although other actors (including all the Regional Sports Trusts) also have low scores of constraint, indicating their ability to bridge structural holes. However, normalised ego betweenness scores – a measure of being able to connect other actors in the network – indicate Sport Wanganui (67.05) as being more powerful. Brokerage scores for this stage also reveal Sport Wanganui (97) as the most powerful actor because it is able to act as gatekeeper, representative, consultant and liaison, compared with NZAS – Central Inc. (34), Wanganui District Council (12), Sport Wellington Region (14), and Sport Hibiscus Coast (10). This again would indicate the importance of the Regional Sports Trusts network. Because these actors are able to play the role of representative, allowing them to control information from their own ego net to others outside their ego net, this has increased their power within the network and their ability to shape the social structure of the network.

It is also worth noting that there are actors within the network that do not contribute to the work of the network. These actors are Good Health Wanganui, Wanganui Incorporated, Whanganui Regional Maori Trust Board, and the Upper Hutt Economic Development Agency.

Table J.7: UCINET6 measures for NZAS – Central network stage 3

Network map	Actor	Ego network density			Structural hole	Ego network brokerage: Un-normalised brokerage scores							
		Size	Density	NEgoBe	Constraint	Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total		
	WDC	5	40	30	0.59	Facility UCOL-Wan	0	1	1	0	0	2	
	GHWan	2	100	0	1.13		UCOL-P	0	0	0	0	0	0
	UCOL-Wan	3	50	41.67	0.74		CGT	0	0	0	0	0	0
	SpWan	12	26.52	67.05	0.25	Facility and funder WDC	0	0	0	6	6	12	
	WanInc	2	100	0	1.13		WCC	0	0	0	0	0	0
	WRMTB	2	100	0	1.13	Facility, trainers and research Mssy-P	0	0	0	0	0	0	
	CGT	2	100	0	1.13		EIT	0	0	0	1	1	
	SpWR	7	66.67	21.43	0.46		Mssy-W	0	0	0	0	0	
	VU	1	-	-	1		Manager NZAS – C	0	0	0	2	32	34
	SpT	6	90	0	0.5	Nothing GHWan	0	0	0	0	0	0	
	SpM	6	90	0	0.5		WRMTB	0	0	0	0	0	
	SpG	6	90	0	0.5		WanInc	0	0	0	0	0	
	SpHB	7	69.05	15.48	0.43	Research VU	0	0	0	0	0	0	
	NZAS – C	13	25.64	31.57	0.25		Support partner SpHB	0	5	5	0	0	10
	MssyP	2	50	0	1	SpM		0	0	0	0	0	
	MssyW	2	50	0	1	SpWan		0	30	34	8	25	97
	UCOL-P	2	50	0	1	SpWR		0	5	9	0	0	14
	WCC	2	100	0	1.13	SpG		0	0	0	0	0	0
	EIT	2	50	50	0.89	SpT		0	0	0	0	0	0

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1.3 NZAS – South Island network

For the NZAS – South Island network, ego network density size and structural hole scores reported for Stage 1 indicates no one actor held an influential position over another, i.e. all actors had the same scores (size 2, density 100, normalised ego betweenness 0, constraint 1.13). No actor was able to act as broker because 100% of ties are present.

Ego network density size reported for Stage 2 of the network's development indicates NZAS – South Island Inc. as being the most influential actor, and the least powerful or influential actor was Lincoln University. Structural hole measures of constraint reveal NZAS – South Island Inc. to be the least constrained actor. This also indicates that NZAS – South Island Inc. had a greater level of influence in the network than others because egos with low constraint values have more power and information due to their being able to directly access information that is not available to others who do not have direct ties. High values of constraint imply ego is directly tied to another network member (i.e. alter) who is also tied to many of its other network members, thereby taking away some of ego's power. Examples of actors within the – South Island network that had high values of constraint would be Lincoln University and the Community Trust of Southland.

However, normalised ego betweenness scores reveal University of Canterbury (66.67) as being higher than NZAS – South Island Inc. (50.57) and University of Otago Sports Medicine being slightly lower (43.33). This would indicate the influence of these actors in the network relative to NZAS – South Island Inc. Even so, in terms of the role of broker that these three actors play, NZAS – South Island Inc. had by far the highest brokerage score (103) and is clearly the most powerful actor. This actor is able to act as a liaison and consultant to others. It is able to control information flow and to make decisions on the level of coordination, playing a mediating role within the network. The University of Canterbury had a low brokerage score (4) indicating it is unable to influence the network as a whole, despite having a high normalised ego betweenness score.

Other high brokerage scores are for Sport Otago and Sport Canterbury (13 for both); these two actors play gatekeeper and representative roles. Their scores indicate their power and

influence in terms of opening up the Regional Sports Trusts network to NZAS – South Island Inc. They are able to control information within their own ego nets to others outside their ego net. University of Otago Sports Medicine (brokerage score of 16) and Christchurch City Council (12) are also influential and powerful actors. University of Otago Sports Medicine plays the role of gatekeeper, representative, consultant and liaison – which indicates the importance of this actor – giving it power and ability to influence part of the network. Christchurch City Council plays the role of consultant and liaison, where it is able to control information flow and make decisions in the Christchurch area.

Table J.8: UCINET6 measures for NZAS – South Island network stage 1

Network map	Actor	Ego network density			Structural hole	Ego network brokerage: Un-normalised brokerage scores						
		Size	Density	NEgoBe	Constraint	Coordinator	Gatekeeper	Representative	Consultant	Liaison	Total	
	UniOta-HP	2	100	0	1.13	Facility and funder DCC	0	0	0	0	0	0
	DCC	2	100	0	1.13	Facility, trainers, and research UniOta-HP	0	0	0	0	0	0
	UniOta-SM	2	100	0	1.13		UniOta-SM	0	0	0	0	0

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