Innovation process of rural small businesses in New Zealand.

A thesis submitted in partial fulfilment of
the requirements for the degree of
Masters in Management
at Massey University, Wellington,
New Zealand.

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2012

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Abstract

The fundamental role of innovation in the economy is widely recognised and there are strong links between innovation and such vital economic indicators as productivity, growth and employment generation (Lambert & Fairweather, 2010, p.1; North & Smallbone, 2000b; Steel, Rinne & Fairweather, 2012, p.5). There is therefore a need to identify the drivers and inhibiting factors affecting it (Steel et al, 2012, p.5). As innovation is a social phenomenon, it must also be studied in its own geographical and sectoral context, for meaningful results to be obtained (Asheim & Gertler, 2005; Fagerberg, 2005, p.20). To investigate factors affecting innovation in a rural context, semi-structured interviews were conducted among rural small businesses in the Marlborough region of New Zealand. Given the dominant position of agriculture in rural areas and its significance to the national economy, case studies were chosen from the primary sector. The goal of this exploratory study was to identify factors that may influence, constrain or promote innovation. Information networks were the primary source of innovation found, with participants possessing unusually rich and often global personal networks, which were used to support innovation. Growth aspirations were also positively associated with innovation; the more ambitious their goals, the more willing the participants may be to innovate radically. Innovation took place against a background of an often challenging rural environment (which created a need for innovation) and cultural factors (which created a willingness for change in the participants). Regulation was the only significant constraint identified and even this could be a positive, under certain circumstances. Issues around supplies, staffing and capital were not major influences on innovation process. The participants employed co-operatives, distributors and their own tailored strategies to mitigate some of the negatives associated with rurality, particularly with regard to the maintenance of relationships with key partners over physical distances. In terms of innovation, however, rurality was no barrier.

1. Introduction

Innovation is a key component of the modern economy (Fagerberg, 2005). It is dependent both on geographical and sectoral context (Malerba, 2005; North & Smallbone, 2000a, pp.145-146; Smallbone, North & Kalantaridis, 1999, p.118). Within the study of innovation in a rural environment, two opposing theories have emerged; one that the relative lack of resources (human and financial) in rural areas inhibits innovation and the other that these challenges force rurally-based entrepreneurs to innovate at equal or even higher levels than their urban counterparts, in order to survive and remain competitive (Keeble, 1997, p.284; North & Smallbone, 2000a, p.151). In New Zealand, a recent study has suggested that rural enterprises equal their urban counterparts in innovative practices, despite their assumed access to fewer resources (Battisti, Deakins & Perry, 2011). How such rural small firms achieve this is as yet unknown. The study aimed to investigate this question, by conducting semi-structured interviews among rural SMEs. The study was confined to a single geographical area; Marlborough, a region chosen both for its diverse local economy (Howell, 2001) and ease of access. Given the dominant position of agriculture in rural areas and its significance to the national economy, the case studies were chosen from the primary sector, which in Marlborough includes horticulture/wine, aquaculture/fishing, forestry, farming and supporting services (Marlborough District Council, 2009, pp.81-82). The goal of this exploratory study was to investigate innovation process in a rural context, identifying any common barriers encountered and factors that may influence or promote innovation. This study could provide preliminary indications of factors that determine innovative behaviour in a rural New Zealand environment.

1.1 The importance of innovation

The fundamental role of innovation in the economy is widely recognised. By introducing new processes and products, it permits progress and renews the economic landscape (Fagerberg, 2005, p.10). Innovation is also a crucial component in the maintenance of competitive advantage, both for the individual firm and for its host region or country (Fagerberg, 2005, p.20).

A failure to innovate may cause economic growth to stall and slipping GDP figures have been partly attributed to this (Fagerberg, 2005, p.20; Rinne & Fairweather, 2011a, pp.77-80). Meanwhile, there is strong evidence of a link between innovation and vital economic indicators such as productivity, growth and employment generation (Lambert & Fairweather, 2010, p.1; North & Smallbone, 2000b; Steel, Rinne & Fairweather, 2012, p.5; Virkkala, 2007, p.522). Indeed, some have estimated that innovation is ultimately responsible for between one quarter and one third of all growth, (Rinne

& Fairweather, 2011a, p.77). The link between innovation and prosperity has proved so strong that nations now measure their economic prospects, in part at least, by their ability to innovate and governments the world over have put policies in place, in an attempt to encourage it (Rinne & Fairweather 2011a, p.77).

As innovation is deemed necessary for economic growth and survival at so any levels, it has become an important and multi-faceted area of study (Fagerberg, 2005). In particular, there is a need to identify the drivers and inhibiting factors behind innovation (Steel et al, 2012, p.5). This study will focus on innovation process in a rural context, which may be especially important in countries such as New Zealand, where the primary sector is responsible for more than half of the country's export income (Statistics New Zealand, 2010, p.152).

1.2 Regional context in Marlborough

Marlborough lies at the northeast tip of the South Island and is overwhelmingly rural, containing no major cities but two 'independent urban centres' (Statistics New Zealand, 2004); Blenheim (population 30,000) and Picton (population almost 3000). The total population of Marlborough was approximately 42,000 people in the 2006 census (Marlborough District Council, 2009, p.8). Blenheim acts as a service centre for the surrounding (rural) area and Picton as a transport hub, with a commercial port, ferry link to the North Island, rail service to Christchurch and State Highway 1 all located there. Marlburians are slightly older, less educated and earn slightly less than those from other parts of New Zealand, but unemployment is lower than the national average (Marlborough District Council, 2009). The main economic drivers are wine/horticulture, aquaculture, forestry, tourism and aviation (Marlborough District Council, 2009, pp.81-82). It is estimated that the local economy generated $1.7b in GDP in 2006, up by a quarter (26%) since 2001, while the primary sector produces approximately 40% of the region’s income (Marlborough District Council, 2008, p.9; Marlborough District Council, 2009, pp.81-82). Up until the current recession, Marlborough was experiencing a significant increase in median income level (from a relatively low base) and inward migration levels on a par with the rest of the country (Marlborough District Council, 2008, pp.8-9). The burgeoning wine industry was behind much of this recent growth.

Forecast growth figures for Marlborough's key industries are healthy, ranging from 10-20% (for pastoral farming, horticulture and fishing), to 20-50% (aquaculture/forestry/tourism/aviation) and up to 100% for the wine industry (Marlborough District Council, 2008, p.33). Emerging industries have been identified in engineering, information technologies and natural products (Marlborough

District Council, 2008, p.33), which in Marlborough include the extraction of useful oils from grape by-products and the production of fuel from algae.

The first major commercial viticulture plantations were created in the 1970s and Marlborough is now the largest wine region in the country, with an international reputation. Grapes have largely overtaken other forms of horticulture (which include stone fruit, olives, soft fruit and garlic), but oversupply issues and the recent economic woes mean the wine industry has been under stress, with some resulting mortgagee sales and liquidations. The mussel farming industry was developed in the Marlborough Sounds and a processing plant in the fishing village of Havelock employs a significant number of its inhabitants (2006 census data, Statistics New Zealand). Salmon farms and other forms of fishing/aquaculture are also a presence. The food and wine scene, large conservation estate and beautiful Marlborough Sounds underpin the tourism industry. There are several research institutions present that support the primary sector, including the Marlborough Wine Research Centre (which collaborates with universities in other parts of the country), HortResearch, the Nelson Marlborough Institute of Technology and the Cawthron Institute (Marlborough District Council, 2008, p.62). There is a popular aviation museum near Blenheim and a bi-annual festival of heritage aircraft attracts many visitors to the region. Marlborough Airport, near Blenheim, also hosts an RNZAF base and centre for aviation engineering. Pastoral farming, which once played a major economic role, has been in decline (Marlborough District Council, 2009, p.82). Regional GDP for each sub-section within the primary sector is estimated as follows; wine/horticulture $342m, aquaculture/seafood $126m, forestry $112m and pastoral farming $73m, with other sectors like aviation and tourism contributing a further $118m and $83m respectively. (Marlborough District Council, 2008, p.9).

1.3 Aims

This study aims to investigate rural innovation practices, by identifying the specific hurdles and opportunities businesses face as a result of their rural location and how each enterprise develops strategies to deal with them. This will extend understanding of innovation process in a rural context and allow the development of theory regarding innovation in a rural New Zealand environment. Preliminary suggestions as to good practice in such situations may then be made.

The aim of the research is to answer the following central question -

What are the important factors that affect the process of innovation in rural agricultural

small enterprises?

Subsidiary questions include -

What are the principal constraints they encounter (especially any constraints that relate to their rural location) and what are the main sources of the innovations present?

2. Literature review

Innovation is a complex and highly individual phenomenon. It may appear as a sudden revolutionary idea, but is most likely to be a slow, incremental process (Fagerberg, 2005, p.7; Maskell & Malmberg, 1999, p.179). Small businesses, in particular, are more likely to produce incremental improvements to existing processes, rather than create radical innovations, as they have fewer internal resources to build on (North & Smallbone, 2000a, p.150; North & Smallbone, 2000b and references therein).

Innovation has been characterised in a number of ways, with greater or lesser emphasis on the degree of novelty present (North & Smallbone, 2000a, pp. 145-146). For the purposes of this study, innovation will be defined as 'any significant change made in the adopting organisation', with particular emphasis on those changes impacting the competitive advantage of the host firm (North & Smallbone, 2000a, p. 147; OECD, 2005, pp.17-18; Porter, 1990, p.145; Virkkala, 2007, p.513). Innovation is often categorised for analysis into the following four types; product, process, marketing and organisational (OECD, 2005, pp.16-17; North & Smallbone, 2000a, pp. 147-148; Statistics New Zealand, 2010). These are the common forms of innovation recognised in the literature, but some authors have adapted these definitions to suit their own purposes; for example, North & Smallbone (2000b) described innovations in a broader sense, as changes across five dimensions (products and services, market development, marketing methods, production processes and technology used in administration). Different levels, types and methods of achieving innovation have been found and these appear to vary among firms, industries, regions and countries (Asheim & Gertler, 2005; Fagerberg, 2005, p.20; Malerba, 2005; North & Smallbone, 2000a, p.147). Therefore, it must be studied in its own context.

The effect of culture on innovation, both at the level of firm and nation, is widely reported (Kaasa & Vadi, 2008; Rinne & Fairweather, 2011a; Taylor & Wilson, 2012). Within a New Zealand context, certain national characteristics have been found to favour some aspects of innovative behaviour, while impeding others. A low power distance (egalitarianism), tolerance for uncertainty and high levels of individuality should favour the initiation of innovation (Kennedy, 2008; Rinne & Fairweather, 2011a, pp.79-80), by encouraging the exchange of ideas among different groups and a willingness to take risks and experiment. This would correlate with the relatively high levels of entrepreneurship present (Battisti, Deakins & Roxas, 2009; Rinne & Fairweather, 2011a). However, there is also evidence of a reluctance to commercialise and fully capitalise on innovations, as a

result of an unwillingness to stand out from the crowd[1] and to prioritise financial gains, with recent data suggesting that overall rates of innovation may be relatively low, compared to global norms (Kennedy, 2008; Rinne & Fairweather, 2011a, Statistics New Zealand, 2010). Despite these contradictions, the country enjoys a popular reputation for innovative behaviour, which has been attributed to cultural values and the effect of geographical isolation (Kennedy, 2008, pp.400-407; Lambert & Fairweather, 2010, p.4; Murphy, 2007, p.58; Rinne & Fairweather, 2011a; Rinne & Fairweather, 2011b, p.41). The primary sector in particular has been singled out as innovative, compared with international counterparts (Jayne, 2007).

In addition to national, cultural and sectoral differences, innovation has a regional aspect. Not only can there be observable differences between urban and rural environments, but there is 'no such thing as a typical rural area' (North & Smallbone, 2000b). On the contrary, rural areas are a diverse group and can also vary in accessibility, which may influence innovation (Dinis, 2006, p.12; North & Smallbone, 2000a, p.147). What defines 'rural' has been the subject of discussion and there is still no internationally accepted definition (Malerba, 2005, p.7; Statistics New Zealand, 2004, p.7). Population density and various other factors including economic, occupational and ecological characteristics have all been used to define rural areas (Dinis, 2006, p.11).

When it comes to the examination of innovation in a rural context, two very different poles of opinion exist in the literature, based on theory and evidence; one that rural areas have distinct challenges which ultimately inhibit innovation. The other is that these challenges actually stimulate innovation, by requiring businesses to innovate at levels equal to or higher than their urban counterparts, in order to survive (Keeble, 1997, p.284; North & Smallbone, 2000a, p.151).

The first viewpoint is the more established and has its roots in the 1950s (Battisti et al, 2009, p.179; Renski, 2009, pp.61-62). It states theoretically that because urban environments have greater resources (both human and financial), they are more favourable to many aspects of entrepreneurship, including innovation and growth (Battisti at al, 2009; Renski, 2009; Shields, 2005, p.49). The principal trade off is the higher costs resulting from a more densely populated and therefore competitive business environment; for example, higher property values and rents, increased red tape, traffic congestion and crime rates (Renski, 2009. p.63).

1 Related to egalitarian tendencies and an associated phenomenon known as 'tall poppy syndrome', where individuals are criticised if they are seen to behave in a manner suggesting that they consider themselves superior to others (Kennedy, 2008; Rinne & Fairweather, 2011a).

The theory states that rural areas, being remote from (usually urban) commercial centres (Irvine & Anderson, 2008), are deficient in some of the components of innovation, including information, capital, suitably trained labour and support services (Battisti et al, 2009; Burnett & Danson, 2004; Kalantaridis, 2009, p.496). Rural areas also have limited local markets, an older/poorer/less educated population, weak infrastructure and an historical reliance on traditional (mostly agricultural) sectors, which in many parts of the world have been in decline for some time (Burnett & Danson, 2004; Galloway, Mochrie & Deakins, 2004; Irvine & Anderson, 2008; Ring, Peredo & Chrisman, 2010, p.171). Also, the rural labour force is generally paid less, while being more loyal than their urban equivalents (Kalantaridis, 2009, p.499; Virkkala, 2007, p.513). This is said to discourage the development of those innovations that might reduce the need for labour (Virkkala, 2007, p.513). The fact that the rural business environment is typically less crowded has also been described as a 'sheltering' factor that may reduce the pressure on firms to innovate (Keeble, 1997, p.284; Virkkala, 2007, p.513), while rural areas may also have more family-operated businesses, which can be less exposed to outside pressures.

As a consequence, this theory suggests that lower rates of innovation should be observed in rural areas, while in contrast cities create a positive 'ripple effect' around them, which decreases as distance from the urban centre increases (Kalantaridis, 2009, p.497). Ongoing innovative activity and the development of clusters of innovative organisations are promoted, as proximity of people and resources facilitate the transfer of tacit knowledge[2] and 'knowledge spillovers' occur around centres of innovation (Asheim & Gertler, 2005, p.292; Maskell & Malmberg, 1999, p.171; Virkkala, 2007, p.515). Meanwhile, rural areas suffer from a lack of rapid information transfer, due to 'thin and unspecialised infrastructure' (Virkkala, 2007, p.513), fewer supporting organisations (such as research institutions) and the absence of efficient communications technology (Asheim & Gertler, 2005, pp.293-294; Howell, 2001; North & Smallbone, 2000a, p.155)[3]. Decreased innovation in rural areas is then related to the lower growth rates found among rurally-based enterprises (Kalantaridis, 2009, p.497; Renski, 2009, p.68).

This argument would appear compelling and a number of studies support the theory that the

2 Examples of tacit knowledge might be specific skills residing in individuals, machinery used in processing or organisational habits and culture (Maskell & Malmberg, 1999, p.172). Such information is difficult to describe and codify and proximity is often required for this knowledge to transfer to others (Asheim & Gertler, 2005; Maskell & Malmberg, 1999, pp.172-179).

3 In a related point, dependence on (limited) local suppliers/services may be related to lower rates of innovative activity (Kalantaridis, 2009).

resource-rich urban environment is more conducive to entrepreneurship in general and innovation in particular (Keeble, 1997, p.281). However, it may not be that simple. Other studies have shown that businesses located in rural areas can be equally as innovative as those in an urban situation (Howell, 2001; North & Smallbone, 2000a, p.151; Roper, 2001), while it has been pointed out that rural and urban entrepreneurs may tailor their strategies to suit their different environments (North & Smallbone, 2000a, p.145; Smallbone et al. 1999, p.116). One study has suggested that rural areas may simply attract fewer firms from more innovative sectors (North & Smallbone, 2000a, p.155). In New Zealand, a recent study has shown that rural enterprises do not lag behind their urban counterparts in innovation (Battisti et al., 2011). How they achieve comparable rates of innovation on (it is assumed) fewer resources is not yet known.

In some cases, the unique qualities of the rural landscape and culture may actually provide a basis for competitive advantage (Burnett & Danson, 2004, p.397; Galloway et al., 2004; Irvine & Anderson, 2008, p.200). Rural enterprises may also be able to mitigate the negatives of remoteness; for example by using information technology, a subject that has been well covered in the literature (Galloway et al., 2004, p.253; Howell, 2001; Irvine & Anderson, 2008, p.200; Sparkes & Brychan, 2001). Businesses may develop specific strategies to take advantage of the positives associated with their location, including the use of social capital, which rural areas have in abundance (Onyx & Bullen, 2000, p.32; Ring, Peredo & Chrisman, 2010, p.171). In fact, the richness of rural social capital has been linked to higher survival rates among start-up businesses compared to urban counterparts, which has in turn been related to the presence of volunteer labour and favourable credit terms (Renski, 2009)[4].

The use of rural networks and social capital to overcome barriers associated with reduced economies of scale and lack of information is a common theme in the literature (Fitjar & Rodriguez-Pose, 2011; Lambert & Fairweather, 2010, p.7; Onyx & Bullen, 2000, p.32; Ring, Peredo & Chrisman, 2010, pp.172-173; Roper, 2001; Shields, 2005; Virkkala, 2007, p.515). Rural networks are most often described as strong and local. While strong ties are important, in that they provide support to the entrepreneur (Hoang & Antoncic, 2003), it is the so-called 'weak ties', to people or organisations from outside of the immediate circle, that are most likely to bring in new resources and information (Hoang & Antoncic, 2003, p.171). This has obvious implications for

4 Social capital is not without its negatives, including exclusion of outsiders and pressure to conform to behavioural norms (Thornton, Ribeiro-Soriano & Urbano, 2011, pp.107-108) which may have implications for innovation.

innovation; strong local networks may circulate existing information around the group, but inhibit the transfer of new information from elsewhere, unless weak ties are also present (Hoang & Antoncic, 2003, p.172-173). While the majority view remains that extensive networks of weak ties do not exist in rural locations, the occasional study has found evidence to the contrary, with international networks recently found in a highly innovative rural area of Norway (Fitjar & Rodriguez-Pose, 2011).

Why networks exist and what form they take has been related to differences in culture, attitude and values among managers, with 'open-minded' management developing international links, while 'trusting' people may be more willing to network locally (Fitjar & Rodriguez-Pose, 2011, p556). Other personal characteristics are also said to affect the propensity to form networks, with younger, more educated, wealthier people, males and inmigrants considered more likely to engage with information sources from outside their local area (Fitjar & Rodriguez-Pose, 2011, p.570; Kalantaridis, 2006, pp.68-71).

How networks function to support innovation has also been the subject of discussion. Theory states that networks act by making accessible resources that are not contained within the firm, making networking an important strategy to overcome resource constraints commonly found in small rural firms (Thornton et al., 2011, p.108). International networks may be especially important, as they have been credited with promoting (particularly radical) innovation, by providing a method for the transfer and assimilation of knowledge learnt at a some distance from the firm (Fitjar & Rodriguez-Pose, 2011, pp.556-559).

However, the degree to which physical proximity is necessary, for information networks to function, is not clear. In the debate on the effect of rurality and geographical isolation, the importance of physical proximity in the transfer of knowledge has been emphasised (Asheim & Gertler, 2005; Maskell & Malmberg, 1999; Virkkala, 2007). The argument for the importance of physical proximity states that certain types of knowledge cannot be codified and as a result are difficult to transmit any distance (Asheim & Gertler, 2005, p.292; Maskell & Malmberg, 1999, p.171; Virkkala, 2007, p.515). Therefore, there is no substitute for frequent face-to-face contact, which more or less requires that the parties be physically located near each other.

However, others point out that geography is 'only one expression of distance' (Fitjar & Rodriguez-Pose, 2011, p.559) and may not be a barrier to firm co-operation or communication (Felzensztein,

Gimmon & Carter, 2010, p.681). They state that other forms of proximity may partly compensate for lack of geographical co-location (Fitjar & Rodriguez-Pose, 2011, p.559; Virkkala, 2007, p.515). Four types of proximity have been described; cognitive, organisational, social & institutional (Fitjar & Rodriguez-Pose, 2011, p.559 and references therein; Virkkala, 2007, p.515). These explain how businesses and their personnel may be 'close' in terms of knowledge, culture, organisational characteristics and social context (Fitjar & Rodriguez-Pose, 2011, p.559 and references therein), which facilitates communication and learning among the parties, without the need for geographical proximity. This is one potential explanation for the ability of networks to function across physical distances, although it does not completely eliminate the need for some level of face-to-face communication (Fitjar & Rodriguez-Pose, 2011).

In the study of innovation, research is commonly confined to a particular geographical area or industry, as context is such an important influence (e.g. North, Smallbone & Vickers, 2001). Some studies have compared regions or sectors (e.g. Felzensztein et al, 2010; Renski, 2009) or analysed changes in one context over long time intervals (Keeble, 1997). The literature on innovation is extensive and includes both theoretical work, studies of innovation practices in the field and scholarly reviews. However, innovation is such a complex and individual phenomenon that there is still no one universal theory (and probably cannot be) that explains innovation process in all situations, although good attempts have been made in the areas of knowledge/learning and network theory. A number of conflicting theories exist and are likely to continue to do so, as evidence for both viewpoints has been documented, usually in different contexts. Often there is a dominant viewpoint, which is well supported by both evidence and theoretical grounding, and a 'minority view' which clearly conflicts the dominant theory. Although there is evidence underpinning these minority views, the theory supporting them may be more recent and therefore less developed.

Despite the difficulties and complexities of innovation, the need to understand such an important driver of economic activity provides the impetus for continued work, especially in those areas where the dominant model may not adequately explain observed behaviour. The study of innovation in a rural environment falls into this category.

Two broad methods are often used to study innovation; quantitative work (often based on large scale surveys, e.g. Keeble, 1997, who surveyed 1000 businesses) and qualitative methods, involving in-depth study of one or more participating firms. More rarely a combination of the two is used (e.g. North & Smallbone, 2000b). The method used is dependent on the research question to be asked,

with quantitative work most appropriate for identifying dominant features and formally (dis)proving hypotheses, based on previously developed theory (Battisti et al, 2009; Yin, 2009), while qualitative studies are useful for exploratory work and the building of theory (Eisenhardt & Graebner, 2007). Both methods have their positives and negatives; large scale quantitative studies can only paint a picture with broad brush strokes and lack detail and depth, while qualitative work lacks the sample size to produce generalisable and statistically accurate results (Battisti et al, 2009; Eisenhardt & Graebner, 2007). Even the results are often written differently, with quantitative research favouring tabular summaries of statistics, while qualitative data are often described in the form of a narrative (Eisenhardt & Graebner, 2007).

To summarise, innovation is a complex social and economic phenomenon and as such must be studied in its own context. Within the study of rural innovation practices, two conflicting viewpoints have emerged; one that the unique challenges provided by a rural environment inhibit innovation, while the other is that these challenges actually stimulate innovation, by requiring businesses to innovate in order to survive. Rural businesses may also develop strategies (such as the use of networks, social capital and information technology) to allow them to maximise the positives of the rural environment, while reducing the impact of operating in a remote location.

3. Methodology

For the purposes of this study, 'rural' is defined according to the categories used by Statistics New Zealand (2004), where employment figures are used to determine the level of urban influence in an area, as below.

Rural areas (as defined by Statistics New Zealand, 2004)

1. with high urban influence ('significant proportion of the resident employed population work in a main urban area')
2. with moderate urban influence (...'significant, but not exclusively main urban influence... a large percentage of the resident employed population works in a minor or secondary urban area, or ... a significant percentage work in a main urban area.')
3. with low urban influence (...'rural areas with a strong rural focus. The majority of the population in these areas works in a rural area.')
4. highly remote rural areas (..'minimal dependence on urban areas in terms of employment, or where there is a very small employed population.')

For practical considerations, as well as to avoid any confusion caused by potential inter-regional differences, it was decided to focus on one region; Marlborough. While it would perhaps have been interesting to compare two or more different regions, this was outside the scope of the current project.

As stated earlier, innovation may be affected by sectoral context (Malerba, 2005; North & Smallbone, 2000a, p.147). In Marlborough, as in other rural areas of New Zealand, the primary sector is overwhelmingly dominant, as measured by the number of businesses (1297 of a total 2155, Statistics New Zealand, 2004) and by its contribution to the local economy (approximately 40% of economic output, Marlborough District Council, 2009, pp.81-82). Therefore, this sector was chosen for study.

As we are asking 'how' and 'why' questions in an attempt to build theoretical constructs, a qualitative approach was deemed most appropriate (Eisenhardt & Graebner, 2007, p.26; Felzensztein et al, 2010, p.679; Yin, 2009, p.13). The phenomena under study are highly dependent on context, which would also suggest that a qualitative approach is appropriate (Yin, 2009, p.18). Semi-structured and in-depth interviews were undertaken among SMEs in the primary sector. SMEs

are defined here as businesses with fewer than 100 employees (Cameron & Massey, 1999, p.1). Industry experts were also included as key informants, to give a more complete overview of the sector and allow them to recommend good candidates for case studies (Virkkala, 2007, p.522). These key informants were sourced from the local branch of Federated Farmers and the industry body Wine Marlborough. Candidates were recruited using the snowballing method (Yin, 2009)[5].

Case studies were undertaken in such a way as to allow comparison between them and also with the existing literature; by choosing multiple cases, including both similar and contrasting examples, as well as those that may represent critical or unique cases and those that may address rival theoretical explanations (Eisenhardt & Graebner, 2007; Yin, 2009). Theoretical rather than random sampling was used, a method where cases are chosen for the likelihood that they will yield rich data or theoretical insight (Eisenhardt & Graebner, 2007, pp.25-27; Kalantaridis, 2006, p.66; Yin, 2009). Each case can be treated as a distinct experimental unit, with multiple case studies serving as replications, contrasts or extensions to the emerging theory (Eisenhardt & Graebner, 2007, p.25). The final number of interviews was eleven; by then a clear picture had emerged and further interviews were not adding significant new data, making it an appropriate end point (Yin, 2009). The number of interviews is less important than the richness of acquired data in qualitative research (Yin, 2009), but eleven is consistent with other work in this area (Felzensztein et al, 2010, p.679; Kalantaridis, 2006, p.66).

A guide for the interview questions is included in Appendix 1. The methodology was reviewed after the first few interviews have been completed, but no significant changes were made, other than to let the forestry interviews also represent agricultural services; they were self-described as service businesses and one company had operated in the viticultural sector for many years (Forest2). Criteria for choosing case studies are shown in Table 1, p.14. (Further details of cases are given in Table 2 on p.17 and case summaries can be found in the appendix). In forestry and aquaculture industries, the sector is dominated by a few large businesses, which limited the choice of cases somewhat compared to other sectors, but suitable candidates were still available.

All case studies were located in Marlborough and fit criteria for SME status (Cameron & Massey, 1999, p.1). At least two cases from each industry sub-sector were chosen, with as much diversity represented as possible (in terms of business size, history, product). Businesses were also chosen

5 Of the eleven case studies, two were suggested by Federated Farmers (Farm2&3), two by Wine Marlborough (Hort3&4) and two were recommended by other participants (Forest 1&2).

from across the province and include examples from the most remote hinterland (Farm1&2), urban centres (Forest1&2), boundary areas (Hort1&4) and rural villages (Fish1). See Table 2 (p.17) for more detail.

Table 1. Criteria for selecting case studies

Criteria	**Supporting concepts**
Located primarily, but not necessarily exclusively, in an area with 'little or no urban influence', as defined by Statistics New Zealand's 'Rural/urban profile', 2004 (updated 2007). One or two 'urban' cases included for contrast (from one of the two 'independent urban areas' present in Marlborough).	Definition of rurality
Within the provincial boundaries of Marlborough	Importance of regional context
From the primary sector (including key informants and service businesses within this sector)	Importance of sectoral context
SME status (<100 employees, Cameron & Massey, 1999, p.1) not a franchise or branch of a larger organisation	Independent nature of business
Business is more than 3 years old	To ensure rich data

Once case studies had been chosen and informed consent gained, interviews were conducted with the owner/managers of the participating SMEs. As far as practical, more than one person from each business was interviewed, as they may present differing viewpoints on how innovations occurred, fill in any informational gaps and allow an added degree of security in the validity of the information gained (Eisenhardt & Graebner, 2007, p.28; Yin, 2009, p.18). To make best use of resources, all available personnel from each case study were interviewed at the same time; when businesses are operated by a married couple, they were often most conveniently interviewed together, for example.[6] In some cases, emails or later conversations with participants volunteered additional data after the main interview was conducted (Hort1,2&3, Fish2). Other material concerning the business or the local industry (such as press coverage, industry reports, publicity material) was also consulted where available, to provide context for the case study and reduce the chance of bias (Eisenhardt & Graebner, 2007, p.28), but only information gained directly from participants was used in the analysis.

6 In some cases, only one person could be interviewed (Farm2, Forest2, Fish1, Hort2&3). In others, a couple was interviewed (Farm1&3, Hort4, Fish2, Forest1) and one case study included information from three people (Hort1).

The case studies were deemed to be low risk, as the information gained should be no more sensitive than that found in normal conversation. However, the names and other identifying characteristics of the participating businesses will not be published and the original data will be destroyed after the research has been completed. University guidelines were followed and approval gained before commencement.

A potential risk of bias exists, as I grew up in rural Marlborough and know personally some of the interviewees and businesses. It was possible to compensate for this, in design and execution of the study[7]. Previous experience can also have advantages, in terms of ease of access to potential case studies, the facilitation of rapport with participants and a pre-existing knowledge of the region and industry.

The interviews were recorded and transcribed. Information contained in them was then sorted based on common themes, while innovations[8] discussed by the participants were assigned to one of four categories for study; product, process, marketing and organisational (OECD, 2005, pp.16-17; North & Smallbone, 2000a, pp.147-148). These are the standard categories used in innovation studies (Statistics New Zealand, 2010). Key resources (especially information sources) supporting each reported innovation were identified where possible. Theory was then developed to fit any emerging patterns, with continuing reference to the literature and additional case studies as required (Eisenhardt & Graebner, 2007, p.30).

Areas of particular interest, which were covered during the interview process, are given below -

- how location affects the business (either positively or negatively)
- strategic approaches to innovation (whether successful or not)
- why the business is located where it is and what positives/negatives operators see in their choice of location, particularly with regard to innovation

7 Particular care was taken around the design of the interview guide and the interview process, to avoid assumption of prior knowledge for example (see Appendix 1 for the interview guide). While it was inevitable that I should know some of the interviewees, as a consequence of living in a close knit community, some were completely unknown to me prior to the study (Farm2&3, Forest2) and some were only known very slightly (Hort3&4, Forest1, Fish1), which should further reduce the chance of bias.

8 Innovation was defined as 'any significant change made in adopting organisation' with particular emphasis on those changes impacting the competitive advantage of the host firm (North & Smallbone, 2000a, p. 147; OECD, 2005, pp.17-18; Porter, 1990, p.145; Virkkala, 2007, p.513).

- how dependent (or otherwise) businesses are on local resources and which are the most important influences on innovation process
- whether social capital and networking are important aids to innovation
- what limitations are reported, that impeded innovative behaviour and whether there are any specific to their rural environment

In summary, what are the positives and negatives unique to rural environments, as experienced by the participants, which impact on their ability to innovate? And how do they respond to these challenges/opportunities?

4. Results

The eleven case studies were chosen to represent the multi-faceted nature of the primary sector (for summary details of the cases, see Table 2. Further details are recorded in Appendix 2). Therefore, it is hardly surprising that they differ in many ways, both in the nature of the businesses and the approach of their owners to management. Despite this, there were a number of correlations that could be made between their experiences. Details of their differences and similarities are outlined below.

The age of the business varied from 3 to 32 years, with an average of 9.8 years. Full-time staff members ranged from 1 to 15 and part-time or causal staff from 1 to 26. The owners themselves came from diverse backgrounds; some were born and raised in the province, as were their parents and grandparents before them. Others were inmigrants from elsewhere in the country and some had either spent significant periods overseas or were foreign migrants. Within these cases, there were some that were self-described as 'typical' for their industry, as well as some that were breaking new ground in their respective fields. Twelve men and six women were interviewed, who ranged in age from late twenties to sixties.

Table 2. Summary of case studies

Case study ID	**Location***	**Industry sub-section**
Hort1	Boundary between independent rural and rural/low urban influence	Horticulture
Hort2	Rural/low urban influence	Horticulture
Hort3	Rural/moderate urban influence	Wine/viticulture
Hort4	Boundary between independent rural and rural/low urban influence	Wine/viticulture
Farm1	Rural/low urban influence	Farming
Farm2	Highly rural/remote	Farming
Farm3	Rural/low urban influence	Farming
Forest1	Independent urban centre	Forestry/services
Forest2	Independent urban centre	Forestry/services
Fish1	Rural/low urban influence	Aquaculture/fisheries
Fish2	Independent urban (office) & rural/low urban influence (packhouse)	Aquaculture/fisheries

* categories of rurality as described by Statistics New Zealand (2004).

4.1 Innovative activity

Innovations reported in each case study are shown below in Table 3, along with key resources that supported these changes, where these were given[9]. Innovation are categorised by type; product, process, marketing or organisational (OECD, 2005, pp.16-17; North & Smallbone, 2000a, pp. 147-148). In some cases, it was difficult to assign reported innovations into categories, as they may have more than one function. For example, Farm3 described joining an industry body an important step in the development of their business, but is this primarily a marketing or process change, or even an organisational one? As the main outcome of this change was incremental improvements in farm systems, this has been assigned as a 'process' innovation.

Likewise, for a number of businesses (Farm1, Fish1&2, Hort1-3) expansion was an important recent event. This was achieved in different ways, via the building/lease/purchase and equipping of a new facility or buying/planting of new cropping areas. In some cases, these are fairly clear-cut organisational changes, relating to growth (Fish1&2, Hort1&3), but in other cases they also involve an element of process change, as for example in Farm1, where the main reason for building a new warehouse was not growth, but that it made possible improvements in harvesting procedures. In this case, three separate functions involved in creating the facility have been teased out and named as different forms of innovation, even though the changes were closely related and happened concurrently[10]. In Hort2 also, (and to a lesser extent Fish1) expansion involved not simply the physical growth of the business' facilities, but the changes to processing technology or increased product range that this enabled. In both cases, however, as the main aim was growth, both changes have been categorised as 'organisational'.

Table 3. Innovation types & supporting information

Case study ID	Innovation reported	Innovation type	Supporting information
Forest1	1. Health & safety procedures 2. Modifications to protective clothing 3. Staff management (changing pay intervals, employment contracts)	Organisational (1,3,4) Process (2)	Internal (self, previous owner, employees) External (clients, accountant, bank, lawyer, industry assessors, courses)

9 The participants described information as the key resource supporting innovation, so information sources are focused on here. See Table 3.

10 Farm1 reported installing basic infrastructure (like water and electricity) to their site as a considerable challenge, requiring a number of innovations. Together, these have been classed as a 'process' change, as they supported the development of their processing technology.

	4. Changes to insurance cover		
Forest2	1. Moving into planting vines (from planting pines)	Organisational	Internal (self) External (other business people, courses*)
Fish1	1. Moving into a bigger facility 2. Hiring or firing staff 3. Adding new products 4. Extending sales into new geographical areas 5. Design of new storage unit	Organisational (1,2) Product (3,5) Marketing (4)	Internal (self, employees) External (engineering firm)
Fish2	1. Addition of new products 2. Initial work on development of harvest & storage technology 3. Entering new markets 4. Employing a general manager 5. Change of attitude & focus from production to market-driven 6. Purchase & development of new packhouse, offices 7. Building & maintaining new relationships	Organisational (4,5,6,7) Product (1) Process (2) Marketing (3)	Internal (self, employees) External (other businesspeople, consultants*, unspecified European sources). Planning to use Icehouse & mentor.
Farm1	1. Building factory 2. Design/build processing equipment 3. Installing basic infrastructure to remote site	Process (2,3) Organisational (1)	Internal (self) External (accountant*, bank*, other businesspeople, overseas travel, online overseas suppliers, manufacturers)
Farm2	1. Changing farm grazing systems (many aspects, multiple innovations) 2. Use of social media & other technology 3. Addition of new farms 4. Employing new staff	Organisational (3,4) Process (1) Marketing (2)	External (suppliers, processors, industry groups & service providers, research institutions, broader industry through social media, mentor, HR consultant, overseas travel)
Farm3	1. Lease of additional land 2. Purchase of separate dairy farm business 3. Incremental improvements to production 4. Got involved with industry body	Organisational (1,2) Process (3,4)	Internal (self) External (contractors, research institutions, industry groups, other farmers, consultants, buyers)
Hort1	1. Addition of new products	Marketing (2,3)	Internal (self, previous

	2. New joint marketing initiative 3. Unique branding 4. Expansion of production 5. Change of freight arrangements	Product (1) Organisational (4) Process (5)	owner) External (overseas travel, internet, local & overseas suppliers, research institutions, consultants, other businesses, distributors)
Hort2	1. Scientific analysis of product (for marketing purposes) 2. Expansion of production & production facilities 3. Development of harvest technology & equipment, process improvements 4. Building relationships with future distributors 5. Compliance/food safety protocols 6. Targeting of specific export market	Process (2,3,5) Marketing (1,4,6) Organisational (2)	Internal (self, business partner) External (accountant, overseas travel, local service providers, internet, consultants, research institutions, other business people, local council*
Hort3	1. New processing facility 2. Introducing new viticultural technique 3. Structure business to smooth peaks & troughs in supply/ revenue 4. New equipment (didn't work)	Organisational (1,3) Process (2,4)	Internal (self, other directors) External (consultants, accountant, lawyer)
Hort4	1. Use of social media 2. Changes to management practices to avoid annoying neighbours 3. Taking on distributors 4. Upgraded facility & improved production systems 5. Changed methods of viticulture 6. Hosting journalists, often collaboratively with other businesses 7. Planned initiative to target local market	Marketing (1,3,6,7) Process (2,4,5)	Internal (self, previous experience overseas) External (older mentors & other businesspeople both here and overseas, internet, unspecified reading, bank, courses, accountant)

* mentioned as unhelpful or they had reservations about their usefulness

Most of the innovations related to the main focus of each business, which in turn often related to their stage of growth. Hort2, for example, is concentrating on developing the technology to harvest their product and then selling that product around the world. Most of their reported recent

innovations are therefore those of process and marketing. Fish2 is going through an intensive growth phase, with the purchase of new sites and hiring of extra staff, so most of their reported innovations were organisational, whereas in their earlier history, they (like Hort2) were focussed on developing new harvest technology, which would have been primarily process innovations. Hort1 and 4 are not concerned with increasing production volume, but on building their brand and improving their profit margins; their innovations are mostly around marketing functions. Both forestry businesses, whose core functions are services rather than physical products, make mostly (or entirely) organisational changes.

Most owners were positive about change, but there were differences in their attitudes and these may be associated with the degree or type of innovation present. The business with the fewest number of reported recent changes was Forest2[11]. He had been in business 18 years and felt that he was now comfortable with where they were and knew '*the recipe to make the company run*' (Forest2). He also talked about getting older, wanting to step back from day-to-day management of the company, hiring a foreman and spending more time on another business interest in publishing (Forest2)[12].

Only one business (Farm3) reported mixed but mainly negative feelings about change. This business had been in the family for many years (as had the radically innovative Farm2) and their goal was incremental improvement, rather than major change. There was a suggestion that this might be related to the responsibility they felt to hand the farm down intact to the next generation, which could have made them more risk averse than they might otherwise have been -

'*Always stuck to the knitting. Identified very early in the piece what the property was best capable of producing naturally... we're not risk takers. Got to be winner before the farm transfers to our children....We don't do change. We stick to the knitting and try and do that better.*' (Farm3)

When asked about expansion, he said -

'*We've looked at growing it on numerous occasions and ended up falling back into our comfort*

11 In general, the service/forestry sector was the least innovative, supporting North & Smallbone (2000a, p.150), who found service businesses to be less innovative than other firms.

12 Forest1 also wants to step back and hire a foreman, while Farm2 & 3 are in the process of succession planning. Hort1 would like to retire. Fish1 is planning to concentrate on a new business interest on the West Coast, while running his current business remotely, something he has done before. This shift in focus is not always a factor of the age of the owner; Forest1 is in his late twenties/early thirties and wants to spend more time with an impending first child, while Fish1 is in his early forties, a serial entrepreneur ready for the next challenge.

zone.' (Farm3)[13]

This relatively conservative approach to change may simply be a question of personality and management style; when asked if they had ever tried to implement a change that did not work, they answered in the negative and attributed this to slow, careful research and the fact that they were '*not risk takers*'. While averse to radical change, they were enthusiastic about improving the business and open to the possibility of change if approached -

'*Certainly haven't got blinkers on. Would consider it, if the opportunity presented* (in the context of expanding outside the region)....*When you're not doing anything, life's not exciting... always trying to market myself as being fairly receptive to opportunities. Was hoping that someone would come knocking on my door.*' (Farm3)

Probably the most innovative businesses were Farm2, Hort2 and Fish2. All three were pioneers, either developing a new industry or at the leading edge of knowledge in their field. In each case, a major initial innovation (e.g. a decision to grow a new crop) then led to multiple other innovations. As they were breaking new ground, existing knowledge then had to be rethought, recombined or simply invented.

4.2 The relationship between growth & innovation

Growth and innovation have been strongly linked in the literature (see pp.1-2). Nine of the eleven participants were growing or wanting to grow their businesses.[14] (See Table 4). Only two businesses were comfortable with their present size; Farm3 was still open to the idea of growth if the right opportunity presented itself, while Forest2 had no immediate plans for growth, but this was due to a current lack of demand and he expected to be able to expand again when conditions were right.

How the businesses planned to achieve growth differed, as did their motivations[15]. Hort3 had decided to set a limit on one aspect of their future growth (based on the production capacity of their current property), but were planning to grow in other ways. Hort4 planned to grow in price point,

13 Although growth had in fact occurred, through leasing of additional land.

14 Farm1 & Hort1 reported that capital was a constraint on growth. Forest1's plans had been set back by an inability to find more staff, a problem they were working hard to solve.

15 A number of businesses expressed altruistic motives. Hort4 felt a sense of responsibility to their staff. Fish1 expressed pleasure in knowing that he had achieved something for his industry. Fish2 wanted to generate more jobs and revenue for the country, while developing the industry responsibly. Forest2 described '*training young fellas and watching them grow and prosper*' as the highlight of the whole business and got immense satisfaction from knowing that none of the men he had trained had ever had an accident with a chainsaw, even after leaving his company.

not in volume. Hort2 and Fish2 had big plans to export their product to a number of countries. Succession planning had been the driving force behind Farm2's recent growth, with their business doubling in size in the previous twelve months -

'*Getting bigger was the major part of my succession plan. I looked at the pie. I thought, if we split it up as it was now, everyone's going to be heartbroken, including myself. So I thought, well we had to grow it.*' (Farm2)

Table 4. Attitudes to growth

Case study ID	**Theme**
Farm1&2, Fish1&2 Hort2-4, Forest1	Growing or planning to grow
Hort1	Would like to grow, but prevented by lack of funds
Forest2, Farm3	Comfortable with present size

It was noticeable that the three businesses (Farm2, Hort2, Fish2) growing at probably the fastest rates and with the most ambitious long-term plans were also those making the most radical changes within their companies. Likewise, those businesses with no immediate plans for growth (Forest2, Farm3) were happy with how their business was presently working and therefore felt no need to make more than incremental improvements to existing systems. Those few businesses that wanted to grow, but were finding it difficult for various reasons (Forest1, Hort1, Farm1) were not prevented from innovating in other areas. Hort1 for example, while not able to expand production at present, was working on marketing initiatives to achieve a premium price for their existing product. So, it may be that growth aspirations are indicative of the general attitude of participants to change, while the more ambitious their plans for growth, the more likely they may be to choose strategies involving radical (rather than incremental) innovation.

4.3 Sources of innovation

Information seemed to be the key resource supporting innovation. When asked about the information and ideas supporting the changes made, businesses reported a diverse range of sources[16] and reliable information was recognised as vital -

'*Well also, I think good information enables you to make very smart decisions. The wrong*

16 Not all sources of information had proved useful to the interviewees; Forest2 had reservations about the usefulness of a business management course, Fish2 had found consultants to be a cost rather than an asset, Farm1 said the bank and accountant were useless, while bad advice from the local council had cost Hort2 $280,000.

information and it bites you. And you need the right up to date information.' (Hort4)

Many innovative ideas had come from the business owners themselves, supporting North & Smallbone (2000a, p.153)[17] Self-reliance was a frequent theme, a trait common in entrepreneurs (Cameron & Massey, 1999; Lambert & Fairweather, 2010, p.23). Sample quotes are given below -

'*I think when you're self-employed, you have to figure it out for yourself.*' (Forest2)

'*...have learnt to sort of, have learnt to be more pro-active in your own decision making, rather than reliant on others. Though have taken professional advice in the past, against what my gut feeling was and regretted it.* ' (Farm3)

'*I have the ideas man here* (co-owner talking about her husband). *I just keep a log of the ideas. Maybe we can't do that right now, but we'll be able to do that in 18 months*.' (Hort4)

Sometimes, self-reliance was more a necessity than a choice -

'*That was the hardest thing, was there was nobody really to ask. The amount of ...operations that get set up in New Zealand are very few, like there might only be one or two in any given year, or every second year. It's a very small industry.*' (Farm1)

Many also mentioned other internal sources of information. One regarded his staff as a main source of inspiration for the business (Forest1), others depended heavily on their current business partners (Hort2) or had received advice from previous owners of their businesses (Forest1, Hort1). Only one case study did not mention either themselves or other internal sources in the context of finding ideas or information useful to the business (Farm2). This was also the business with the broadest and most diverse range of external networks available to them (Farm2).

Of those that did look for inspiration and help outside the business, four (Farm2, Hort1,2&4) used the internet in some way. Of these, Farm2 made by far the most use of the internet, to the point that the exchange of ideas via social media (discussed in section 4.10) was considered to be their most important source of information, along with research institutions. However, the use of the internet

17 See Table 3 for sources of information.

was nowhere near as prominent a theme as their use of personal connections and relationships.[18]

4.4 The role of networks

Of the eleven studies, nearly all had extensive personal networks (see Table 5). In the majority, these networks were global, with contacts and connections extending to Australia, Europe, Asia, North and South America. Nearly all mentioned networks in the context of innovation and as sources of ideas important to the business.[19] In three cases, travel abroad had been crucial to their business development.

Of those who did not report global networks in the context of innovation, one was very well networked nationally (Farm3) and used information provided through these networks to improve his business performance. Another was an exporter (Hort3), who mentioned strong local infrastructure as supporting their business and had made innovations as a result of information from these local sources. While not discussed in the context of innovation, they also talked about maintaining daily contact with overseas distributors, which would imply that they too had access to global sources of information (Hort3). Fish1 also had connections nationally (but no global networks), as they made a point of personally visiting their customers around the country three times a year. Forest2, who reported only one recent change in their business, talked to other business people in Auckland when he felt the need. So, of the eleven cases, eight had global networks, one had extensive national networks that were used for information purposes (Farm3) and only two (Fish1, Forest2) did not report describe networks as important in the context of innovation.

Table 5. Presence & use of networks

Types of network present	**Networks used in innovation? Type of network used?**	**Overseas travel vital for innovation**	**Involved with research institutions**
Global – Hort1-4 Farm1&2 Fish2 Forest1(limited) **National** - Farm3 Fish1(limited) Forest2 (limited)	**Yes, global** - Forest1, Hort1,2&4, Farm1&2, Fish2 **Yes, national** – Farm3 **Yes, local** - Hort3 **No** - Fish1, Forest2	Farm1 Hort1&2	Hort1&2 Forest1 Fish2 Farm2&3

18 Not one innovation was mentioned as a result of simply searching the internet, but it was used as a research tool.

19 Only Forest1 did not mention their global connections in the context of innovation, but rather to find staff.

Two of the participants (Hort2&3) explained this readiness to form networks and innovate as an aspect of New Zealand culture. Hort3 described New Zealanders as '*worldly, well-travelled and well-informed*' people, who knew they were at the edge of the world and therefore considered it necessary to make active efforts to connect with others from elsewhere (Hort3). He contrasted this with the worldview that he had seen in another (larger and less peripheral) country, where most had not travelled outside of their region and were inward-looking (Hort3). Hort2 said that entrepreneurs in New Zealand were '*not restricted by culture*', joking that this was because there was no culture (a reference to the relative youth of the country). He went on to explain how he had developed better machinery, as a result of visiting similar businesses in two European countries, which each differed in their processing methods. However, when he discussed the differences with them, they expressed an unwillingness to change their existing systems and dismissed the idea with '*Ah, the Spanish are crazy*' (Hort2).

While some of the interviewees had lived overseas or were foreign migrants, this did not necessarily mean an increased use of global networks in their business life. This is counter to other work, which found that locally-born entrepreneurs were more dependent on the local environment than inmigrants (Kalantaridis, 2006, p.68). Of the three most innovative and globally networked businesses (Fish2, Hort2 & Farm2), one had grown up locally but lived a number of years offshore (Fish2). The other two were born and raised in Marlborough, although one did have a (locally raised) business partner who now lived overseas (Hort2). The most globally networked of them all, Farm2, was managing a property that had been in their family for nearly a century and did not report ever living outside of New Zealand (or outside of Marlborough). So it would appear that having no history of overseas connections is no barrier to their later development.

While all the most innovative businesses (Fish2, Hort2 & Farm2) were globally networked, those with less extensive or more local networks included those businesses that reported fewer or incremental (rather than radical) innovations. Farm3 for example, with a strongly stated preference for incremental improvements, was very well networked nationally, but reported no overseas connections. Forest2 also apparently only shared information within New Zealand (mainly with four or five close friends in business) and reported only one change in business management practices.

Of those making the most radical changes, all used their global networks to support innovation.

While much information was still sourced internally, Fish2 was tapping into European sources of information about available technology, looking to recruit staff offshore and made use of unspecified foreign informants on subjects like sources of funding and market intelligence. Hort2's major breakthroughs had occurred as a result of his repeated research trips offshore -

'*First time I went, was completely unprepared. Didn't know what the hell I was doing, how -well, had a vague idea where I was going. That was about it...I had some small luck, which emboldened me to go back in the end. And the second time round, I made further progress. I still had struggles with the language barrier. Third time I went back, I had the help of a translator. And by then I'd really got my teeth into it...*

Then I went to Italy, and I just started turning up. And you know, it was pretty interesting, got some... But I got onto one place that had, the owners had a daughter that knew english, so had a walk round with them and learned some really important things. Your real watershed moment stuff...

...so we went charging off down to (omitted) *and met this dude down there and he was way better, because he was a more small scale, a bit more backward. Like us Kiwis, duct tape everywhere. And they did it - significantly different process and a lot simpler....So that's where I've got a lot of my intellectual property from, as far as the business goes.*' (Hort2)

Farm2 used both national and global networks, in addition to an interactive email blog discussed in a later section (section 4.10) -

'*We've got tonnes of people out there with huge ability, but a lot of people don't go seeking it and we do....And then we're got a huge network of suppliers and providers of services to this farm, which we have huge respect for and have very very open and clear relationships with....And in the course of the year, I do a lot of travel both nationally and internationally now and I find that hugely rewarding from information flows and stuff.*' (Farm2)

He credits his complete overhaul of management systems to the influence of outside sources, which began with him listening to a presentation from a researcher and taking part in a local soil conservation initiative -

'*This place had a transformation of its thinking, initially quite slowly. It was hugely inspired by one*

person (name omitted) *but I didn't know him and he didn't know me. He just got up and gave an address and while I wanted to get to know him better, I couldn't seem to get in touch with him. And I went four years just on my own …*

...and then we joined this soil conservation group and that brought in six specialist people who as it turned out were brilliant, particularly two or three of them. And that sort of had the effect of linking all the power together …

I didn't understand that that was going to happen, but looking back now, yeah it was, it was something special happened there and it was the quality of the people that he brought to the project that really unlocked a new vision, you know.' (Farm2)

Six of the eleven businesses had been or were participants in research (see Table 5)[20]. Mostly the institutions involved were from New Zealand (but outside the region), but in one case they also came from Australia (Farm2). This relationship was often more than a simple transfer of knowledge from institution to practitioner. For example, Hort1 described how consultants had learnt from their business and later applied that knowledge to others. The most detailed description of the interaction comes from Farm2, in relation to two researchers from different universities -

'*And he was a systems analyst. And I thought what the bloody hell do I need a systems analyst for? But he turned out to be, oh the first couple of times we met, I ended up telling him to bugger off, which probably didn't help a hell of a lot. But he had a look round and he wanted to get involved. And he sent a mouse-like email back to me, please what did I say wrong, you know? And he came here and criticised the lack of utilisation that we had on our hill country. And I thought I've been bloody ten years trying to rear the stakes and cover on these stuffed hills and you get this stupid bastard from* (omitted) *coming here and tell me that? And once he realised that he wasn't dealing with the same combination of problems that he had in* (omitted)*, he engaged a much better cog with us and he used to worry the hell out of me with these questions. Why do you do this and why do you do that? And he started to work us towards a whole new approach to utilising our feed.*' (Farm2)

In relation to the second researcher, the relationship is very much that of friendship and

20 Hort2 had commissioned research into the properties of his product and made use of scientific services from both local and non-local sources. Hort1, Farm2, Forest1 and Farm3 had research conducted on their premises, while a research institution had been instrumental in helping Fish2 develop technology in the early years of their business.

collaboration, with both farmer and academic involved in educating the industry as a result of research conducted on the property. The initial contact between them came about through a local customer, who insisted that the farmer attend a meeting with him (and drove him four hours to get there), having decided that the farmer needed to hear what the researcher had to say (Farm2). This then led to a life-changing epiphany for the farmer -

'*...and 5 minutes after* (name) *started to speak, I was already consumed. And I was flat out writing notes and when he'd finished, there were 200 farmers at the day and only two of us took any notice... and I tried to see him at the end of the thing to thank him, but every time I got nearly to him, he'd turn and talk to somebody round the other side. And I thought what the hell. And I wanted to come straight home... And I sat til 4 o'clock in the morning, at my computer, working out a new strategy. And that was like, I'm one of - not many people can actually define a massive change in their life to one hour, one man and one day....He rang me up four years after that... and I answered and it was yes it's* (name). *I'm a lecturer at* (omitted) *and ... I wondered if there's any possibility I could come out and have a look at your farm? And I said to him, know you? If I bloody got hold of your bloody hair about two years ago, I'd have ripped the last of it out. I said, you probably don't realise I've spent the last four years of my life absolutely fixated on a one hour delivery that you gave ... And he came out and I met him... And he's been a close friend ever since. I've done countless stuff with him. ... When he comes up for Christmas, he always comes and I probably swap emails with him once every second day. So what's actually happening with him and me is that he had a dream and I've put his dream into place. There's huge power associated with all of that and we've talked in tandem and separately in a lot of places. All over New Zealand we go and deliver. Sometime we do the double act. More often than not they get him and then they get me, because he's mister theory and I'm mister practical. And I tell better jokes than he does*.' (Farm2)

4.5 The impact of rurality

Most businesses were from rural areas, as you might expect in the primary sector. Of the eleven cases, only the two from the forest sector were exclusively urban (see Table 2, p.17). One ran the business from his home and said that this had tax advantages (Forest1), while the other said that it was easier for the employees (who lived in town) if the business was also based in a main centre (Forest2). The third business with an urban presence was Fish2; their original site was rural and the packhouse is still there, but recent expansion has seen them set up an office in town and there are plans to open more bases in Christchurch and elsewhere in New Zealand, as the business grows (Fish2).

Both businesses located on boundaries of urban centres (Hort1&4) have issues around the negative impact of urban areas on their ability to run their businesses. Hort1 reported that, in their opinion, the development of the central business district was favoured by council policy, over that of the periphery of town, with the result that their compliance burden was difficult. Hort4 had, over the last 30 years, been encroached upon by residential housing and as a result fielded occasional complaints from nearby residents and spent considerable time and money on maintaining community relations and adapting their management techniques, to reduce any potential impact on their new neighbours.

Not all location-based problems reported by businesses were due simply to their rural location, but it was not always easy to determine how much rurality impacted on a problem and how significant other factors might be. Based on reported information, (which is summarised in Table 6) of the 23 problems that had at least some geographical aspect to them, only 13 were all or partly related to the rurality of the site where the business was conducted. Of these, four were related to lack of basic infrastructure (of which two concerned poor internet services), three were related to rural planning constraints or urban/rural tension, four were related to freight or the physical distance that customers had to travel to visit the site and one concerned changing patterns of land use in the area. Even these problems were often not solely due to the rurality of the site; for example, the perishable nature of the product had as at least as much impact on some freight issues as did the greater distances to be travelled from a rural location (Hort1).

There were a number of problems that had geographical elements, but did not seem to involve rural issues. Some were national rather than specifically rural problems, or regional issues where it would not matter where in Marlborough the business was located, rurally or otherwise. For example, one mentioned the lack of good capital in New Zealand (Fish2)[21]. Two exporters had issues about being at a distance from their overseas markets (Hort3, Fish2), which would have been true regardless of where they were located within New Zealand. Two talked about issues relating to the movement of freight or personnel around the country, particularly the difficulty of getting goods across Cook Strait (Hort4, Fish1). Some talked about the limited size of their particular industry in Marlborough or in New Zealand as a whole (Farm3, Forest2. Also Farm 1, albeit complicated by rurality as well). Another two problems were associated with the labour pool in Marlborough; one said there was a

21 For details, see section 4.9

general shortage in quality labour and that they would be looking offshore to fill future positions (Fish2), while the other thought that the wine industry in Marlborough '*sucked up all the good labour and anybody who showed a bit of initiative*', resulting in staff shortages in his local industry (Forest2).[22]. Some participants also talked more broadly about the macro-environment and how it affected their businesses, including government policy and taxes (Hort1&4, Forest1, Farm1), counter-productive attitudes within the industry and dislike/distrust of the wine industry by some elements of the wider community (Farm3, Hort4).

Overall, there seemed to be an association between the degree of rurality and the number or severity of location-based problems that a business faced. While the only business to have no location-based issues was in an urban area (Forest1), the most 'rural' business (Farm2) did not report the most problems. This may be an issue with the categories of rurality that were used. Although only Farm2 was classed as 'remote/rural' by Statistics New Zealand (2004), the business located the furthest from an urban centre, in terms of travel time, was Farm1. This business did indeed report the most location-based issues, mostly around lack of infrastructure such as electricity, water supply and freight services (Farm1). What was perhaps more crucial is that the most important problems (the ones they spent most time discussing or that were described as having the biggest impact) were not always related to location; for example, several stressed the impact of compliance requirements (Hort2, Hort4, Fish2, supporting the findings of Deakins, Battisti & Bensemann, 2012), one was worried about increasing consolidation of his industry and the effect this could have on his supply of raw ingredients (Fish1) and one rapidly growing business described the biggest limitation they faced as 'time' (Farm2). Altogether, it seems that while a rural location certainly adds to the problems associated with running a business, these may not always be the most crucial issues that the business faces.

Table 6. Location-based problems reported

Problems identified	**How problem related to location**	**Case study ID**
Local government / Resource Management Act	Yes. Perception that Central Business District was being favoured over satellite areas on the periphery of town, where business is located, resulting in onerous compliance burden. Lack of human and financial resources to comply promptly with requirements.	Hort1
Freight	Partly. Problem related to perishable nature of	Hort1

22 The advantages of conducting business in Marlborough included favourable weather (Farm2, Hort1&2), well-developed infrastructure and an established brand (as regards the wine industry, Hort3&4) and its central location for distribution purposes within New Zealand (Fish1).

	product, but made worse by location	
Slow internet	Yes	Hort2
Local government / Resource Management Act	Yes. Rural zoning/management plan prohibit building processing facilities on site.	Hort3
High cost of travel to marketplaces for marketing purposes	Partly. Mentioned high oil prices causing increase in international airfares in 2008.	Hort3
Distance to travel to site for walk-in customers	Yes. Not a big problem.	Hort3
Encroaching urban development & associated complaints about business activities	Yes. Alters work activities to avoid annoying neighbours. Spends time and thought on maintaining good community relations, with some extra financial cost.	Hort4
Freight	Partly. Issues of careless truck drivers etc damaging product in transit. Major classes of goods coming primarily from the North Island, difficulty and cost of getting it across the strait. Distribution hub in Auckland, where population is concentrated.	Hort4
Freight/transport	Yes. Most freight companies won't deliver to the site (too rural). Higher distribution costs related to greater distance to travel.	Farm1
Water	Yes. Not on mains water (as not available), have to adapt system to suit. One water system was not suitable as it depends on mains power, which they don't have.	Farm1
Electricity supply	Yes. Installing mains power to rural site very expensive. Got generator instead for a fraction of the cost.	Farm1
Machinery availability/expertise	Partly. Small industry in NZ, so few resources available generally. But the rural location also lacked standard services (electricity, water), which created extra difficulties.	Farm1
Extremes of climate (dry)	Yes, but high sunshine hours and mild winters also cited as strategic advantages.	Farm2
Lack of broadband, cellphone coverage	Yes, internet problems reported as their 'biggest impediment'	Farm2
Shortage of skilled shearers and wool handlers in Marlborough	Partly. The local sheep industry has lost critical mass. But easy to bring in shearers from Nelson.	Farm3
Loss of critical mass in the local industry	Yes. Changing land use in the valley, with sheep farming being pushed out by forestry, life-style blocks and horticulture/grapes/olives, depending on where in the valley you are talking about.	Farm3
Maintaining customer relationships (within New Zealand)	Partly. They choose to personally visit customers three times a year, in addition to other forms of communication, which is a chore, but judged to be extremely important.	Fish1
Logistics of moving product to market	Yes. Building a depot in Christchurch, closer to international airport. Small local airport can only	Fish2

	handle limited amounts of freight. Has also employed an experienced general manager. Important to build/maintain relationships with freight forwarders.	
Labour	Yes. Shortage in quality labour (quantity ok). Sources staff nationally and plans to look internationally to fill key roles in the future.	Fish2
Effort required to build & maintain customer relations	Partly. Asian customers want regular visits, need a personal relationship with the owner. A lot of international travel currently required.	Fish2
Availability of funds for growth	Yes. Plans to source capital overseas, as NZ capital is hard to find, expensive and comes with inflexible terms; mentions currency risk as a downside to going overseas for money.	Fish2
Staff	Partly. Wine industry takes all the good local labour. Top staff get handpicked away from forestry by vineyards (he has lost staff this way). Average age of his staff is rising; young people don't like the work, find it too physical/dirty/noisy, unglamorous. He sources staff from central north island hub of forestry industry, where there is not the competition from vineyards.	Forest2
Issues around staff training	Partly. Having trained staff does not translate to getting a better price from clients. Training is better managed in North Island industry, where industry is bigger, better managed. When labour is short, you take whoever is available, regardless of training. Resistance to change from staff, around implementing new industry standards	Forest2

4.6 Staffing issues

Of the eleven case studies, six reported staff shortages of some sort, although for different reasons. Their experiences are summarised in Table 7. The importance of staffing issues varied among the industry subsections and even within sectors. Generally, staffing issues were not reported as a major influence on innovation. This runs counter to some other work, where financial and staff shortages were found to be constraints on innovative activity (Battisti et al, 2009, p.189).

Several expressed a frustration with the attitude of potential staff. Hort4, a vineyard/winery, said that New Zealand graduates tended to want overseas experience, rather than to work in a local business. As a result they ended up employing '*a lot of Germans*'. They reported that new staff, especially younger people, tended to have unrealistic expectations, to be lazy and '*want everything when they're twenty, rather than actually spending twenty years*' and that they objected to working

in the vineyard as well as in the winery. This had long-term implications for the future of their business -

'*...we are really now struggling to find good, keen people that you could mentor and bring on.*' (Hort4)

Table 7. Staffing issues among participants

Case study ID	Staffing issues	Details
Forest1&2	Severe staff shortages	Industry-wide problem, due to competition from other sectors, stricter immigration rules, physical nature of the work, unattractive image of forestry, pay rates. Local candidates often unsuitable.
Farm3, Fish1	Some lack of local specialist labour	Minor inconvenience. Due to loss of '*critical mass*' in the local sheep industry (Farm3). Rural location a potential issue (Fish1).
Hort4, Forest1&2	Poor attitude of potential staff	Multiple reasons, including poor motivation and work ethic, unrealistic expectations.
Fish2	Lack of quality (management) staff, recruitment agencies had not helped	'*We've spent a fortune with recruitment agencies and ended up with idiots. So, their CVs are perfect but in terms of their realistic ability, their CV doesn't match up with that.*' (Fish2)
Farm1&2	Reported no lack of staff	'*We actually had so many people apply, it was tough sorting them through.*' (Farm2).

A strong positive that they mentioned in relation to staff was their ongoing relationship with Tongan-New Zealand workers -

'*And the rest of them, the contractors, are Tongan families really. But they've been here for 30 years, 'cause they're the same ones that Dad helped bring in 30 years ago. So in a way I grew up with, yeah, in a way they were almost like my brothers, to be honest with you. 'Cause we, we all got going early on.*' (Hort4)

The two forestry cases echoed Hort4's frustrations with the attitudes of (particularly younger) employees[23]. They both said that poor motivation and work ethic were an issue and compared the New Zealand employee unfavourably with their foreign equivalent (Forest1&2). They recognised however, that there were other factors involved, including the difficult physical nature of the job, the fact that the logging companies paid more than what they could offer and the unattractive image

23 This does not seem to be an inter-generational clash of cultures, as two of the three interviewees expressing these concerns were in their late 20s and 30s, an age not dissimilar to that of their potential recruits.

of forestry, compared to other career options (Forest1&2).

Severe staff shortages were apparently an issue across the entire forestry sector, but particularly in Marlborough (Forest1&2). This was caused not just by lack of enthusiasm for the sector among the workforce, but also the fact that stricter immigration rules had tightened up the supply of foreign labour (Forest1) and that they were in direct competition with the wine industry for staff (unlike in the central North Island, the hub of the forestry industry, where there was less competition for staff from other industries, Forest2). The labour shortage was described as the single biggest problem facing one business -

'*At the moment I don't run the business the way the business should run, because I need the staff.... At the moment, I'm not even looking for skilled people. I'm pretty much looking for anyone who is interested to do hard work and there is not anybody.*' (Forest1).

They had previously employed foreign staff (Fiji was mentioned) and would like to do so again, but were stymied by the fact that there were people on the Work & Income database with forestry experience and that therefore the Department of Immigration has stopped issuing work permits for foreigners (Forest1). However, these potential local recruits always had some issue that made them unsuitable, whether it be drug use, lack of training, fitness or motivation (Forest1). Forest2 also considered foreign workers as the solution to the local labour shortage; he thought that it would be useful if those brought in for seasonal work in the wine industry were allowed to move to forestry work during annual lulls in the vineyard calendar (Forest2). Forest2 had also seen some older, more experienced men stay in the industry longer, while '*the younger fellas are just non-existent*' with the result that the average age in his crew had gone from 22-23 to 36 years.

In other sectors, staff shortages were not as important. For example, Fish1 recognised that persuading good permanent staff to move to his more remote location had the potential to be difficult, but also said that they had not had significant problems so far. Of his staff, all were local except one, who drove from Kaikoura (about 2 hours away) to do '*budgets and stuff*' two days a week (Fish1). For Fish2, the issue was not lack of quantity, but quality. This business is growing rapidly and acquiring more layers of management. They had previously used recruitment agencies to source staff, but with no success. Their last reported hiring was a general manager, who came from outside the region and whom they felt they were lucky to get (Fish2) -

'*He knows how to run systems and manage staff. It's the systems element that has been so beneficial. So what it's meant is that our sales volume and relationships with customers has grown dramatically, just by having that extra asset on the ground.*'

All three of the case studies that experienced the worst labour shortages expressed a personal concern for the welfare of their staff and went to some efforts to keep them happy. This included paying them more than they could really afford (Forest1), prioritising health and safety (Forest1&2), providing training (Forest1&2) and considering the impact on staff of management practices (Hort4, Forest1).

4.7 Regulation

Another theme that surfaced strongly was the effect of regulation and compliance on business (see Table 8, p.37). Of the eleven cases studies, all but three mentioned compliance or regulatory requirements as a negative, even though they were not asked directly about this. Both Farm2&3, for whom regulation was not an obvious issue, were members of a co-operative (Silver Fern Farms)[24]. This may ease the burden of compliance somewhat for them (supporting the findings of Deakins et al., 2012) or even turn regulation into a competitive advantage. The co-operatives often had quite detailed expectations of their members, in terms of reporting requirements, the implementation of electronic data collection and product specifications, but the response of the farmers was positive, as they saw direct benefits from the process -

'*...we email them our data and so they're getting a hell of a lot of information out of that. We've got that much information here at the moment, we've actually got to learn what we're really going to concentrate on and do it. But it's cool, because I think in the next five years, the sheep and beef industry's going to soar onto a new cloud. But it is a little bit daunting at the moment, the volume of technology that's coming through and just trying to establish what is the most important bits to bite off.*' (Farm2)

Of those businesses that mentioned compliance, two regarded its effects less negatively than others (Forest1, Fish1). Fish1 mentioned new compliance costs and while it was '*onerous*', they had successfully implemented the required changes. Forest 1 did not regard regulation as a factor limiting their activities and was matter-of-fact about increased health and safety requirements as a result of taking on a large client -

24 Farm1 was also in a co-operative, albeit a different one, and mentioned this as a positive because they took care of marketing and the time consuming task of dealing with export procedures.

'*Well, the company pretty much told me what they wanted. "You need to have this, otherwise you can't work for us.*'"

They already had a high level of health and safety capability and regarded this as vital, even if it involved extra costs, not only for the welfare of the employees, but also as part of their value proposition to clients (Forest1).

Table 8. Reported experiences of regulation

Case study ID	Effect of regulation	Details
Farm2&3 Forest2	No issues	Effect of regulation mitigated by co-operative (Farm2&3)
Forest1 Fish1	Various minor negatives	Rising compliance costs associated with addition of new products (Fish1). Increased health and safety requirements, seen as a necessary cost (Forest1).
Hort1,3&4 Farm1	Minor to moderate negative	Council policy seen to promote central business district over peripheral areas (Hort1). Rural zoning prohibits some activities (Hort3). Export requirements (Farm1). Taxation (Hort1&4)
Fish2, Hort2	Serious constraint	Poor advice results in significant cost (Hort2). Conflicting interpretations of food safety regulations, resulting in inability to fill export contracts (Fish2)
Hort2&3 Farm1	Positive effect on innovation	Food safety rules encouraging the building of new facility (Farm1). High excise tax drives them to export more (Hort3). Strict food safety rules as a national strategic advantage (Hort2)

In those cases where they perceived compliance and regulation to have a more negative effect, several mentioned local government and/or the Resource Management Act, while central government policy or departments were mentioned by a further three cases. Another also mentioned government policy as an added pressure on their business, in the context of rises to GST and the minimum wage (Hort1).

Of those that mentioned the Resource Management Act or council policy, one felt that the Resource Management Act was being applied in a heavy-handed way, as a tool to discourage development at the periphery of town (at whose border they were located), in order to stimulate development in the town centre (Hort1). They saw the necessity of encouraging the town's economic development and had sympathy for the individual officials, whose job it was to apply the rules, but suffered from a lack of time and resources to deal with what they saw as never-ending new requirements (Hort1).

Hort3 meanwhile had bought a processing facility off-site '*because the council are making it very, very difficult for people to set up what they see as sort of industry in amongst rural, in a rural zone.*' At the same time, however, they said that a council initiative in 2002 (to provide irrigation to outlying parts of the valley) had stimulated the development of vineyards in those areas, although as rates were doubled or tripled to pay for it, some farmers had been forced to leave the area as a result (Hort3).

The most serious effects of regulation and compliance on business were those seen in Fish2 and Hort2. Hort2 had paid for a $280,000 building unnecessarily, after taking advice from a planning official at the local council. It was only later, when he hired his own consultant, that he found that the initial information from the council was incorrect. While the cost was obviously significant to a young business and took money that could have been spent elsewhere, the owner was philosophical and partly blamed his own lack of experience for the mistake -

'*I got the duty planner and he got the book out. He didn't seem to have much idea of what we were doing....But it just annoyed me that I had such poor advice. But then again, I went in there not particularly aware of what I, where I was at. Because this was early on, when I was learning about the process - I didn't know enough to argue the point with council, how's that?*'

Perhaps even more seriously, Fish2 found itself unable to fill large export orders to the United States, because of conflicting interpretations of food safety regulations among government departments, both here and abroad, resulting in a '*massive*' economic impact on their company -

'*Our argument is, how I read the FDA report, is that it's results driven, not process driven. NZFSA's interpretation of it is that it's process driven. So they want us to treat the water, even though we've got no detectables in the water....But the spec the NZFSA has giving us is completely different to what the USFDA has given us.*' (Fish2)

Careful and time-consuming negotiation takes place between the company and the authority, but frustration remains -

'*One of the biggest problems I've had is, with a lot of the government departments* (is that they) *are a law unto themselves. It's all subjective. It comes down to their personal interpretation, rather than what the law says. So we've been battling with it forever. We've made a lot of progress, but we've got*

to do it carefully so we don't upset them, 'cause then they just go -' (Fish2)

Some participants however, while detailing the negatives associated with compliance and regulation, paradoxically mentioned it as a source of innovation. Farm1, while wrestling with the paperwork involved with export requirements, also said that the necessity of complying with food safety rules was a contributory factor behind the decision to build an industry-leading processing facility, rather than simply renting an existing building (Farm1). Hort4 said the high excise taxes on wine sold domestically (excise tax is now more than the cost of the fruit) had forced them to look harder at exporting. Hort2 even described New Zealand's comparatively strict food safety rules as a strategic advantage over other countries -

'*We can't do the sort of stuff the Sicilians do because* (name of food safety consultant) *would, again she'd spin out. It's just not the way New Zealanders do things. We believe we can do things better and different...*' (Hort2)

Overall, however, the experience that these rural businesses had of regulation was overwhelmingly negative, ranging in severity from simply a cost of doing business, to a pointless or disconnected bureaucracy, to an inhibition of business growth, preventing them from acquiring major new contracts. Some degree of tension between business and the regulatory environment is probably inevitable, as the government seeks to place restrictions on business activity for a variety of reasons, including protecting the interests of other members of the community. However, as cases such as Hort2 and Fish2 illustrate, some rural businesses are suffering significantly from regulation or its application, with no visible advantages to the wider population as a result.

4.8 Relationships

Another theme that emerged was that of relationships and the cost of maintaining them, particularly where there was physical distance between the parties. Most of these key relationships were between businesses and their customers, but distributors and freight forwarders, both crucial in getting their products to market, were also mentioned. The experiences of participants are summarised in Table 9.

Good communication with their main clients was important to many participants, but particularly stressed by Farm2 -

'*...basically everybody that's doing business with this farm knows what expectations we have of them and we know what they have of us, so we're extremely closely allied to - and we've also got systems in place to monitor the likely outcomes for this farm, in terms of grass and soil temperature and all those sorts of things so that actually, when things change either adversely or positively for us, we can take appropriate responses and communicate those responses to people, so that they can understand the changes likely to come from this business, so - part of our responsibility as being a value chain, you know*.'

Table 9. Relationships & communication

Case study ID	Theme	Additional details
Forest1&2 Farm2 Fish1&2	The importance of good communication	Vital for service businesses (Forest1&2) Freight forwarders & airlines important, as well as customers (Fish2)
Fish1&2 Hort3&4 Farm1	Issues around geographical distance & personal contact	Visiting customers can transform relationships (Fish1) Personal contact particularly important for Asian customers (Fish2) High costs of servicing international markets (Farm1, Hort3&4, Fish2)
Farm1-3 Hort3&4	Use of distributors & co-operatives	Use of co-operative saves time & money (Farm1) Use of distributor makes cash flow easier (Hort4) Distributors know their markets best (Hort3)
Hort3&4	Other strategies employed	Less emphasis on international trade fairs (Hort3&4) Social media, trade visits & mailing list used (Hort3)

The farmers had little trouble maintaining relationships with customers, as most of this was done for them by their co-operative. One did not personally deal with his end customers offshore, but mentioned that a colleague who did spent $70-80,000 per annum on airfares, something he doubted was cost-effective (Farm1). Lack of time was another reason why they preferred to let the co-op handle this end of the business; they felt that they could not both work in the business and deal with export markets (Farm1). Farm2 also relied heavily on their co-op in this respect, although he had done some public relations work for them before -

'*I don't really have to do that. Although I have done a bit of that. I've spent time with Marks & Spensers' buyers last year, up in the Hawkes Bay, going round farms and talking about things, but in actual fact that process is via my processors...*' (Farm2)

Distributors, like co-operatives, also helped businesses reduce the amount of effort required to service customers that were some distance away. Of the horticultural businesses, those that did not

export reported few of these issues (Hort1&2)[25] Those that did export talked about the importance of distributors bridging the gap between them and their end customers. Hort4 mentioned that cash flow was easier and more reliable when dealing with a distributor, who paid on the 20th of the month, rather than him having to chase 300-400 small customers (Hort4) -

'*From a logistics point of view, we've only got one real customer to deal with and then we're left helping sell the wine. Rather than helping them – for us to cover all those extra roles of logistics and managing money and making sure. You know, we were just spending less time wine-making and grape growing and more time trying to follow up with customers and getting money off people to pay the bills.*' (Hort4)

Hort3 mentioned that it had been difficult to visit customers when fuel prices (and therefore the cost of international travel) were high. Now their brand was better known, they attended trade fairs less frequently and they also preferred to deal mostly with distributors -

'*..your distributors are your gateway to your customers and because they're in different countries, they're the best people to communicate with, because they are in that culture and they understand that marketplace. So, probably 90% of our communication is with our distributors.*' (Hort3)

Fish1's customers extended throughout the South Island and into the North Island. They found it necessary to personally visit them, which they described as hard work but ultimately essential -

'*Your worst customer - like you're ring someone up and they'll be like "yeah yeah, send some mussels" and it starts going. And it'll be like a nightmare. And I'm pretty intolerant, so I'm like that's it, we're not selling* (to) *this guy. But then you go and meet them and it changes everything. I could name probably four people that were probably our worst bloody nightmare, that turned into our best customers. Just through meeting them.*' (Fish1)

Fish2 and Hort4 agreed that maintaining good customer relationships took work, but had different strategies to deal with this. Fish2, unlike Hort3, found it necessary to meet personally with his export customers, rather than rely on distributors. In his case, they were primarily in Europe, North America and Asia, so this meant a lot of international travel; his wife mentioned that he had spent

25 Although Hort1 talked about difficulties arising from the purchase policies of supermarkets.

fifteen weeks of the last year overseas (Fish2). This face-to-face contact was particularly important to his Asian customers -

'*The Asian guys prefer face-to-face. Like we're looking at this office in Hong Kong. We were just talking about this, this morning. The guys looking to run that for us will only do so as long as I go up there four times a year...*' (Fish2)

Customers were not the only people that this owner had to spend time on. He initially had instances of perishable seafood product being left in the sunshine at airports, but once he had developed good relationships with freight forwarders and airlines, this issue was resolved.

Hort4, who exports about 40% of their product, like the other viticulture/wine study (Hort3) had pulled back on attending trade shows and fairs. They felt that these events were crowded with unknown brands '*...and we didn't find the value of being part of the madding crowd, so to speak*' (Hort4). They regarded travel to their overseas markets to be perhaps not the best use of resources -

'*I mean you get what three million people going from the North to the South* (in Marlborough). *If we could capture that market, rather than - you know three million people over basically a four month period is like going and selling wine in Sydney over summer. And you don't even have to leave...*' (Hort4)

They also lacked the time to both travel frequently and tend to the business at home (Hort4). Instead, they made use of other methods to maintain relationships with customers, including an extensive mailing list, that had taken years to build up and which they regarded as a valuable resource (Hort4) -

'*It's hard to build that up and have those people who are those loyal customers. You can't undervalue that, and we've just tried to slowly grow that. And that's also why we put the effort into being the face at cellar door. You know, that's a lot of our time, but that's helped. You know, we've got customers that buy every year and they trust us. They trust the brand and they come back. They ask about the kids and they become very engaged with what we're doing....And therefore they are loyal. And they'll buy our wine, which might be a couple of bucks more, because they know it's better. They know us and they're emotionally attached to the brand almost. Which is the best we can have*.'

Other strategies that they employed to mitigate the effect of distance included the extensive use of social media (website, blog, Facebook, Twitter). They also encouraged wine writers / critics to personally visit them, sometimes in collaboration with other wineries and sometimes as a result of contact made via social media (Hort4). They found both enhanced the customer's perception of their brand; the blog and Twitter entries showed that they actually practiced what they preached in their marketing literature, in contrast to some of the claims they heard at trade events from other companies (Hort4). Having well-known writers visit and give their opinion on their wine likewise improved their credibility with customers and was more cost effective than other options -

'*And then you get the opportunity to host a wine writer here or something and they actually physically see how small it is and how we do things. We're had huge success from that. Having people here makes a big difference. 'Cause anyone can hide behind words... You're better off bringing a* (name omitted) *journalist here than flying to Sydney to see him or spending that money on an ad in that magazine. 'Cause if they're going to charge you 2,500, 3000 grand on an ad, spend 3,000 bringing that wine writer* (here). *They write a hell of a lot more words... it's them saying stuff about you that you'd never say yourself. So you're still spending the same amount of money, but it reached a lot better and has got a lot more credibility. And integrity.*' (Hort4)

So most interviewees reported that building and maintaining relationships with key partners was important to their business. Some were buffered by the activities of their co-operatives and some used the services of distributors to reduce some of the burden of servicing customers from their rural location. Some (Fish1 & 2) found there was no substitute for personal contact, even though the distances involved were large and came with high costs, in terms of time, money and impact on family life. And one (Hort4) had developed a multi-pronged strategy to build strong connections with far flung customers while hardly leaving home, using social media, a mailing list and the services of journalists who had been attracted enough to visit in person.

4.9 Capital & investment

Capital and investment, especially in relation to proposed expansion, were mentioned by a number of participants. For a summary, see Table 10. Three said in passing that lack of capital prevented them from expanding their business as they would like. A further case was also planning expansion, albeit on a larger scale and stated that there was a lack of suitable finance available for business growth in New Zealand, forcing him to look offshore for funds -

'*New Zealand is incredibly capital short. Like real capital, you just can't source it in New Zealand. And so again, we've been looking overseas...The New Zealand banking system is pretty crap, to be honest with you. Incredibly expensive money and quite poorly able to be utilised. A lot of the sort of lending models in New Zealand are fixed loans secured against fixed assets, rather than - we wanted flexibility, in terms of we wanted to be able to repay it quickly or delay it, but, also to get a loan in New Zealand to grow your business, you're talking around 6-8%. In the US at the moment, it's 1.5, 1.8.*' (Fish2)

Table 10. Capital & investment themes

Case study ID	Theme	Additional details
Hort1&4 Farm1 Fish2	Capital as constraint on growth	Capital constraints at present prevent expansion (Hort1&4, Farm1). Lack of good capital in New Zealand (Fish2).
Hort1,3&4 Farm3	Willingness to consider partner	Conditional on retaining control of the business. As means of funding growth.
Hort2 Farm3	No lack of capital found	From banks (Farm3) & existing partners (Hort2).
Farm3 Hort4	Dangers of easy money	Problems of too much debt, risk of business failure, interference in business management by lender.
Hort4 Farm2&3 Fish1&2 Forest2	Capital constraints as a positive Owners as portfolio investors	Funding constraints promote good decision making. Diverse range of businesses involved. Motivations for portfolio ownership include exit strategy and entrepreneurial aspirations.

A number of owners expressed a willingness to take on an outside partner, if the right one could be found and if they were able to retain control of the business -

'*Yeah, if we found the right person, we'd probably consider it. As long as we, so long as I had ultimate control of what happened. But it's very hard getting good capital, the right partner.*' (Hort4)

In contrast, two businesses (Hort2, Farm3) found capital was readily available, one from their existing partners in the business and one from banks -

'*We've had, well the bank put to us just recently that they had got funds and people that would like to get involved in - agriculture's quite sexy to be involved in at the moment. And if I would like- I think the implication was, would I like to buy the farm across the road in a syndicate and manage it*

in conjunction with (their main farm's name)?' (Farm3)

However, Farm3 (and also Hort4) had reservations about going into debt on this scale; Farm3 had seen neighbours try and fail. They believed that easy capital came with its own risks and could be '*quite dangerous in some situations*' (Farm3, in the context of bank lending). Interestingly, Hort4, while acknowledging that more funds would valuable in terms of growing their business, also believed that having limited capital could have its positives -

'*Too much capital is a problem too. People make wrong decisions. I think we've made some decisions because we actually had limited funds....that's what reduced capital does, it makes you research.... we're at a stage where if we had the right amount of capital, we could blow this thing out of the park.*' (Hort4)

They were also aware that funding could come with conditions attached, affecting business management -

'*And I think the speculative thing is damaging as well...You know, like that's when we got here. It was like holy crap, people are borrowing like - banks are dictating what they're allowed to plant, if they're going to lend the money. '"We're only going to lend you the money to buy that block of land if you plant 90% sauvignon blanc." That's very dangerous territory you're getting into. Some banks. Thankfully, not our bank. It just was a perfect storm waiting to happen.*' (Hort4)[26]

Of the eleven case studies, five businesses from three sectors had already invested in other unrelated businesses or were planning to acquire them. These investments included a forestry block, West Coast goldmine, unspecified agricultural interests overseas, dairy farm in Murchison, publishing business and future mixed farming venture. This is support for other studies that have shown that portfolio business ownership is a common strategy, particularly in the farming sector (Carter, 1998)[27].

4.10 Information technology

The use of information technology (IT) by rural businesses has been a popular subject in the

26 They were referring to a recent period when a surplus of grapes was produced in Marlborough, with lower prices offered as a result. A large number of wineries got into financial trouble and some businesses were put into liquidation.

27 Motivations for portfolio business ownership may include growth, diversification, maintaining profitability, or as an exit strategy (Carter, 1998; Carter, Tagg & Dimitratos, 2004)

literature. A number of participants talked about its uses for business purposes (see Table 11). Farm3 said they had no personal issues with internet access, but their neighbours apparently had problems. Hort2 said slow internet speed was a '*great hindrance*' but it was something he mentioned after the interview had been completed (in a later email) and it was in the context of day-to-day activities, rather than innovation. Farm2 had been an early adopter of technology and was very heavily dependent on information systems for the daily management of the business -

'*Like I think I was the second farmer in Marlborough who had a computer or maybe the third. And I got heavily criticised for that and even my wife was very very scathing by the amount of time I put on the computer, but the knowledge and systems that we've developed from there - this farm is run from an office, from office computers. And we have feed budgeting and management programmes, which is just like an absolute central role. And financial control is also through that system, so I think computers have been huge for this business*' (Farm2)

Table 11. Information technology themes

Case study ID	Theme	Additional details
Farm3	No issues with internet service	'*You can solve most things with money*' (Farm3)
Hort2 Farm1&2	Poor service / issues of rurality	Varying impact A hindrance to business activities (Hort2, Farm2)
Hort4 Farm2	Use social media extensively	As aid to building brand, bridging distances (Hort4) As aid in innovation, information source (Farm2)
Hort1&3	General use of internet	As research tool (Hort1,2&4) Vital for farm management systems (Farm2)

Although IT was vital to them, internet speed was slow and described as a '*major impediment*' to farm management (Farm2). Ironically, there was a fibre optic cable running through the property, but he could not connect to it and instead was forced to use a satellite[28]. Cellphone coverage was not available at the two sites where he needed it most; the farmhouse and the wool shed/yards (Farm2).

In spite of these difficulties, Farm2 connects to approximately 300 people via an email blog, which goes to a mixed group of industry peers, processors, politicians, environmental groups and researchers. The resulting free-ranging interactive conversations are global in scope, with the blog

28 Farm1 also had no available landline, as a result of their remote location. They used satellite telephone and internet services, which could be unreliable.

going to places as diverse as Australia, Uruguay and the Falkland Islands and covering a range of topics -

'*...a lot of them are close friends in business and through that process I created in and out conversation, of exchange of ideas and that covers a lot of stuff.... You know, it covers farming stuff, but it also covers sort of bordering on politics and all sorts of stuff, so I kind of find that quite valuable*' (Farm2).

It seems likely that this exchange of ideas has helped further knowledge within the industry. He certainly credits the blog with helping to revolutionise his own approach to farming, increasing other forms of interaction with his broader industry community and raising the profile of the business -

'*And what they probably didn't realise was also they'd flicked a switch that had turned us from being one type of farm to being something completely different. And then more and more people got interested in what happened here and we started getting lots of visits and stuff and in 2008 to celebrate the end of that project* (a soil conservation project that was the catalyst for beginning the blog)*, we had a field day and there was 420 people came to that. And a lot of people became interested in what was happening on this farm and so it just sort of kept snowballing and then I started sending stuff out and some of those people started sharing it with other people and then all of a sudden it was popping up all over the place. I go to conferences and people were using my pictures.*' (Farm2)

Hort4 also used the internet and social media to connect with the outside world, but their focus was on building their brand, rather than as a source of ideas. They had a website, but made most use of Facebook and Twitter to communicate, an approach they thought was easier for a small business to do well -

'*I think corporate brands can't do social media, unless they've got a personality who they allow - that's very hard for big companies, freaking out about liability and "What's that person saying?" Whereas, where social media, social media is more an option for smaller companies, to be honest, where you can, it's a time investment. It's obviously not costing anything. It's costing you your time, but you very much get your personality out there....* ' (Hort4).

Overall, they considered social media to be far more useful and cost effective than other forms of advertising -

'*...'cause the magazines hit you up, saying "Here, you can have a third of a page ad in our magazine. It'll cost 1,200 bucks." You go ah. And I switch off to ads. As soon as it looks like an advertorial type of thing, I'm very sceptical. I don't read it. And we actually had quite good advice from a friend of ours, who's had a very successful wine company. She said print media doesn't work, unless you've got the money to have full page ads in every magazine... And also because we didn't have the coin, you had to be a bit more clever again about how you do marketing and advertising and stuff.*' (Hort4)

Not only did social media maximise the use of their advertising budget, it was more believable, fostering a sense of authenticity and connection in their interactions with customers (Hort4). Also, like Farm2, they found that online communication often led to other forms of interaction and raised company profile -

'*But we've had so many things since come out of it, like someone's heard about the wine from there and that's why they come to the cellar door. Or someone saw a review somewhere. Or a wine writer asked to come here, because he follows us on Twitter. You know, you can't buy that.*' (Hort4)

4.11 Supporting services & suppliers

The literature suggests that rural areas may lack supporting services, compared with urban counterparts and there is some discussion as to how reliance on local suppliers/services may affect innovation (see literature review). In this study, no businesses were entirely dependent on their local area for resources. Even those businesses whose customers were entirely local (Forest1&2) had suppliers from outside the district. Many sourced supporting services and supplies from all over New Zealand and two also looked offshore (see Table 12)

Some reported that distances made getting supplies delivered to their site more difficult. Many mentioned frustration with the distribution or transport of their product, although for Hort3 and Farm3 these problems were fairly trivial. For all but Farm1 (whose site is furthest from freight hubs) and Fish2 (who is building a base nearer an international airport, to facilitate the shipment of perishable goods), their problems with transport and distribution were not related to rurality. For most, the problems would have remained where-ever they were located in New Zealand, as they

concerned issues common to the logistics of sending goods around the country or across the world. Ultimately, these difficulties did not prevent them from getting what they needed or from selling to distant markets and they felt able to access goods and services from a variety of places as required - '*But with the modern age, you know, it doesn't really matter.*' (Fish2, in the context of sourcing suppliers).

Table 12. Use of supporting services & supplies

Case study ID	Theme	Additional details
Farm3 Fish2	Have policy of buying locally or domestically	N/A
Farm1 Hort4	Problems with transport	Remote site makes freight difficult (Farm1, Hort4) General problems with distribution, freight (Hort1,3&4, Fish1&2, Farm3)
Hort2&4 Fish2	Preference or need for certain non-local services	Use accountancy & legal services from outside region, to protect sensitive information, as '*Marlborough talks*' (Hort4) Graphic design & packaging sourced overseas (Hort2, Fish2)

One had such good relationships with their supply chain that they behaved more like partners; in Fish2, a major supplier of packaging had offered to set up a base near them in Christchurch, to service their new packhouse. Another, however, worried about security of supply, as a result of structural changes in their industry -

'*We've never not had supply, in ten years, but it's always a sort of niggle in the back of your mind...* (The suppliers) *they're not any different, but they're administered in a different manner. And the control of our supply is getting more and more watered down.*' (Fish1, in the context of consolidation and corporatisation of the industry)

4.12 Summary of results

The aim of this study was to identify the main factors that influence innovation process in a rural environment, especially the key constraints and sources of innovation present. The most important source of innovation found was the presence of information networks (especially global networks), with nearly all participants mentioning them in the context of innovation. The participants' attitude to growth was also linked to innovation; the more ambitious their plans, the more likely they may be to choose strategies involving radical (rather than incremental) innovation. Many innovations were also mentioned in relation to problem solving and there was much support for the theory that

difficulties associated with rural environments can promote innovation.

Staffing and staff shortages, along with capital constraints, varied in importance across and even within sectors, but neither posed a major barrier to innovation. It seems that while a rural location certainly adds to the problems associated with running a business, these may not always be the most crucial issues that the business faces. The participants employed co-operatives, distributors and their own tailored strategies to mitigate some of the negatives associated with rurality, particularly with regard to the maintenance of relationships with key partners over physical distances. In terms of innovation, however, rurality was no barrier.

Regulation was the only significant constraint to innovation reported. While the experience that these rural businesses had of regulation was overwhelmingly negative, its impact varied among participants. Paradoxically, some had also found that the difficulties thrown up by regulation had proved a stimulus to innovative behaviour.

5. Discussion

The aim of this research was to identify the important factors that affect the process of innovation in rural agricultural small enterprises. These are discussed below, along with patterns of innovation observed and a model for innovation in these rural businesses is proposed.

All of the case studies reported innovation and there were representatives of each of the four types generally recognised (product, process, marketing, organisational, OECD, 2005, pp.16-17; North & Smallbone, 2000a, pp.147-148). The forestry/service sector reported less innovation, which is consistent with literature that describes the service sector as generally less innovative than others (North & Smallbone 2000a, p.150). This has been attributed to the difficulties that service businesses face when attempting to make changes to core activities and the possibility that the conventional definitions of innovation may not suit them (North & Smallbone, 2000b). The businesses in the service sector also reported more organisational innovations than any other type, while other sub-sectors showed a range of organisational, process, product and marketing innovations, with no one type predominating. Sectoral context has been shown to influence the type of innovation reported (North & Smallbone, 2000a, pp.147,150); for example, organisational and process innovations are common in the electronics industry (Virkkala, 2007, p.522) and product innovations most important in the manufacturing sector (North & Smallbone, 2000b).

In this study, the type of innovation found seemed to relate to the main focus of each business, which in turn often related to their growth stage. In particular, the present focus of the business seemed to affect the category of innovations present. Businesses pioneering a new industry were creating process innovations, as they developed new technology (e.g.Hort2). Those established businesses trying to improve profit margins, while keeping production rates steady, were producing innovations in the marketing area (Hort1&4), while those growing rapidly into a larger enterprise were making mainly organisational changes (e.g.Fish2). It is probably logical that most innovations should take place in the areas where the business is directing the majority of its efforts.

The level of innovation present in some of the case studies was surprising. According to the literature, small firms make mostly small, incremental innovations and almost none introduce new products to their industry, let alone their economy (North & Smallbone, 2000a, p.150; North & Smallbone, 2000b and references therein). Yet two of the eleven cases were pioneering products new to this country (and in one case new to the southern hemisphere) and the majority had made

radical changes to their business (Farm1&2, Hort1,2&4, Fish2). The case studies were chosen as far as possible for their likelihood of yielding rich data, in regards to innovation, which might explain the high level of innovative activity present.

5.1 The relationship between rural environments & innovation

At the beginning of this study, two opposing theories were described; one that the relative lack of resources (both human and financial) in rural areas inhibits innovation and the other that these challenges force rurally-based entrepreneurs to innovate at equal or higher levels than their urban counterparts, in order to survive and remain competitive (Keeble, 1997, p.284; North & Smallbone, 2000a, p.151).

In these case studies, there was little evidence to suggest that they were prevented from innovating by factors associated with their rural environment. In fact, their most pressing problems were often unrelated to location. This suggests that, while rurality adds to the problems associated with running a business, it may not always be the most important issue. A number of other studies have also found that entrepreneurs regard rurality as less of a problem, in terms of their ability to innovate, than other factors such as finance (North & Smallbone, 2000b, p.14) or that (apart from internet use) their ability to innovate is not adversely affected by location (North & Smallbone, 2000a, p.153).

However, there was strong support for the theory that difficulties (including those associated with rural environments) actually promote innovative activity[29]. Hardship of some kind was often mentioned in the context of innovation (Forest2, Farm1&2, Hort2&4) and many innovations were reported as responses to a problem faced by the business. This is support for those who theorise that most new knowledge arises in the context of problem solving (Maskell & Malmberg 1999, p.179). Reported difficulties included lack of funds or financial hardship, lack of infrastructure, lack of available work, as well as trouble stemming from physical distance/rurality and regulation (Forest2, Farm1&2, Hort2&4).

There may also be some relationship between the degree of difficulties reported and the level or type of innovation present. The only business that reported not being forced to change by

29 An example of how rurality might encourage innovation is the multi-pronged strategy created by Hort3, who were able to build strong connections with far-flung customers at comparatively little cost, using social media, a mailing list and the services of visiting journalists.

circumstance (Farm3) was the one with the most strongly stated preference for incremental innovations and continual improvement of existing systems, whereas the '*almost desperate*' situation that one business found itself in created a need for the most comprehensive transformation described (Farm2). While lack of resources is obviously not absolutely necessary for innovation (witness the highly innovative and yet well-supported Hort2), it does seem that radically innovative behaviour can be a successful strategy to ensure survival in a difficult situation. It would also be logical that a business doing well while conducting business as usual, would have little incentive to make major changes, but would instead focus on maximising the effectiveness of existing systems.

The degree of difficulty experienced may ultimately determine how positive or otherwise its effect is on innovation. For successful innovation to occur, there must be some room to manoeuvre or some method of solving the problem. If the environment becomes overly hostile, while attempts might be made to resolve the issue, business failure would be the most likely outcome. In these case studies, however, while serious problems were at times experienced, they were not terminal and successful strategies were usually found to deal with them.

5.2 Resource constraints & inhibiting factors

There was little evidence of any significant constraints on their ability to get the information they required to support innovation; only one business (Farm1) described an initial lack of available resources in New Zealand, because of the small size of the industry and reluctance of competitors to share information, but he too found what he needed in the end. The vast majority of participants reported that they had no problems in this area. This is contrary to the theory that states that rural businesses, by virtue of their geographical isolation, small local markets and lack of specialised supporting services, suffer from a lack of specialised information (Burnett & Danson, 2004; Kalantaridis, 2009, p.496; Renski, 2009; Shields, 2005). In fact, the case studies had access to information from a wide variety of sources, both local and non-local, through personal networks, industry contacts and collaborations with research institutions.

Likewise, although some participants had trouble accessing fast, reliable information technology (Farm1&2, Hort2), none were prevented from innovating because of it and one, while reporting significant difficulty connecting to internet and phone services, still successfully used social media to build and maintain global information networks (Farm2). The ability to source supplies and services was also not an issue for most; although rurality could make life more difficult, it did not prevent them from innovating and they felt able to access goods and services from a variety of

places as required.

While some businesses did have concerns about staff shortages (Farm3, Fish1&2, Hort4, Forest1&2), rurality was only mentioned in this context by one of them (Fish1) and in their case, a rural location had not turned out to be an impediment to their recruitment of staff. For the others, the motivation and quality of available personnel, competition for staff from other sectors and characteristics of the industry as a whole were more important. Severe staff shortages were apparently the single most significant problem in the forestry industry. Like some other sectors, they had attempted to bring in staff from elsewhere to plug the gap, but current immigration and welfare policies prevent this. A lack of available workers stopped one business from operating as the owner would like and while they had work available, without suitable labour the company was unable to grow (Forest1). Both forestry cases were of the opinion that changes to government policy, allowing them to bring in foreign workers or redeploy existing migrants during lulls the wine industry calendar, would be a very significant help. A need for appropriate training for potential local recruits was also suggested (Forest1).

Capital was a constraint for some businesses, but this was not reported in the context of rurality. Availability of capital seemed to vary across the sectors, with one business reporting that agriculture was a particularly popular investment at the moment and that he had been actively encouraged by his bank to take on more debt (Farm3), while another was forced to look overseas for the capital required to expand their growing fisheries business (Fish2). A number of businesses expressed a willingness to take on an outside partner, as a means of growth, but only if certain conditions were met, usually around maintaining control of the business. How serious the intentions of the owners were, with regards to taking on business partners, was at times hard to gauge, but there is some evidence to suggest that there might be a lack of either suitable investors or effective communication between financial and primary sectors. In terms of innovation, capital constraints were not a significant limiting factor for many participants and lack of money was even credited as a spur to innovative thinking by one participant (Hort3). This is in contrast to some other work conducted in a New Zealand context, which found capital and staffing to be constraints on innovative activity (Battisti et al, 2009, p.189)

The most significant barrier to innovation reported was regulation, with both local and national compliance requirements mentioned. The impact of regulation and its application varied across the businesses, with some regarding the effect as minor and others as a serious limiting factor. Those

businesses that were members of co-operatives or used distributors reported that this was an effective strategy to reduce the burden of compliance. However, the overall impact of regulation on business management was overwhelmingly negative, costing participants significant resources and inhibiting business growth and development. In terms of innovation, regulation had a more mixed effect; while some had been prevented from making desired changes in their business, several also credited regulation requirements as a stimulus to innovate.

5.3 The presence of networks

Perhaps the most striking theme to emerge from the data was the use of information networks to support innovation30. These networks were diverse and far-reaching; information was sourced from a wide range of different types of entity, located not only locally, but also across the country and around the world. They commonly included peers, the broader industry (including suppliers, distributors and other service providers) and institutions. As an example, six of the eleven businesses had been or were involved in research collaborations with an institution, usually from outside the region and in one case from overseas.

The networks present were often unique to the participants. Farm2&3 and Hort4 were involved with industry bodies that facilitated networking, but most contacts reported in the context of innovation were formed as a result of the individual efforts of the entrepreneur, creating personally tailored, informal lines of communication. An example might be Hort2's private research trips to Europe, with resulted in ongoing relationships and acquisition of unique intellectual property. Informal networks such as these have been described as most likely to transfer 'small ideas' (Felzensztein et al., 2010, p.678) that support incremental improvements, but in these case studies, informal networks also provided information that led to radical change.

It is highly unusual for rural businesses to possess such rich global networks, with only one other example documented, as far as I am aware. In that instance, international networks were recently found in a rural area of Norway (Fitjar & Rodriguez-Pose, 2011). The general consensus in the literature is that rural areas lack broad information networks and efficient methods of information transfer (Asheim & Gertler, 2005, pp.293-294; Howell, 2001; Kalantaridis, 2006, p.64; Keeble 1997, p.291; North & Smallbone, 2000a, p.155, Virkkala, 2007, p.513). Those networks that do exist in rural areas have been described as primarily local and consisting of strong ties. These are

30 The word 'network' is variously used in the literature to describe social interactions, commercial relationships or information networks (Felzensztein et al., 2010, p.677). The word is used in the third sense here, with emphasis on information supporting innovation (North & Smallbone 1995 p. 1527).

characteristics that may be counter-productive in terms of innovation, as strong ties can exclude outsiders (and the information they might bring) and enforce existing norms of behaviour (Hoang & Antoncic, 2003). This picture does not fit the patterns observed in Marlborough, where an abundance of weak and non-local ties supported innovative practices.

Likewise, some previous work has reported that most innovations depend solely or primarily on internal resources (North & Smallbone 2000b, p.14; Statistics New Zealand, 2012, p.26). In contrast, although internal resources were certainly important in this study, none reported using only internal information and all participants relied to some degree on external information and/or practical help. Information from external sources was also the catalyst for many of the most radical innovations found. Examples include Hort1's re-branding of overly large fruit (which were previously treated as waste) as a premium product, Hort2's improvements in processing technology and Farm2's revolution in farming systems. Use of external help may differ among sectors, with some sectors less willing to engage with outside agents, for fear of competition and loss of intellectual property (North & Smallbone 2000b, p.14). While it is impossible to generalise with such a small sample size, initial impressions are that the primary sector in Marlborough is very willing and able to reach outside of their organisations for information and other help, as required.

This active searching for information from outside the business may be a useful strategy to negate any resource deficiencies that might otherwise be found in such small, geographically isolated firms. Most knowledge is created and passed on via some type of social interaction, while networks are known to allow firms access to resources not possessed internally (Maskell and Malmberg, 1999, p.171; Thornton et al., 2011, p.108). Global networks in particular may be important for knowledge and learning (Felzensztein et al., 2010, p.676). All this would correlate with the pattern observed, as use of (particularly international) networks was associated with higher levels of innovation.

5.3.1 Why networks might exist

So why did the participants in this study have such rich and far-reaching networks? The characteristics of either the primary sector or the Marlborough region could be responsible for the prevalence of (particularly global) networking. Repeating the study in different regions and industries around New Zealand would be necessary to determine whether Marlborough and/or the primary sector are unique in this. There was, however, no suggestion from the participants that they

saw themselves as in any way different from their counterparts in other parts of the country. Many in fact were migrants from other locations and Marlborough, statistically at least, resembles other rural areas in the literature, in being older, poorer and less educated than the national norm (Marlborough District Council, 2009). This study also covered a range of different sub-sectors within the primary industry, including related service businesses, yet all sub-sectors showed evidence of global networking to some degree[31]. As there has been little work done on the networking of primary sector businesses in New Zealand, further study is needed to identify how universal this use of global networks might be in the sector[32].

Global networking has been made much easier by modern advances in communications technology, but while they used information technology in some cases to enhance their networking (particularly Farm2's email blog and Hort4's use of social media), the majority of connections were personal. It seems unlikely that the level of networking found was due solely to adoption of internet technology, although it undoubtedly facilitates some aspects of communication. Information technology was also probably available in the rural areas described in previous research, yet global networks such as those found in Marlborough are reported extremely rarely.

Younger, more educated, wealthier people, males and inmigrants are considered more likely to engage with information sources from outside their local area (Fitjar & Rodriguez-Pose, 2011, p.570; Kalantaridis, 2006, pp.68-71). This theory does not, however, account for the level of networking found here; participants included both men and women, from a broad range of ages (20s-60s) and their reported educational backgrounds ranged from those who left school in their teens to those with trade qualifications or a tertiary degree. There was no obvious association between gender, age or education and the level of networking present. There was also no apparent relationship between being of local origin and being less networked (see p.26 for detail).

Perhaps the most viable explanation for why these businesses were so outwardly focussed and well connected to global information sources is that of cultural influence. Two of the businesses expressed the opinion that business people in New Zealand were aware of their peripheral status on the world stage and actively compensated for it by seeking out and being open to new ideas, wherever they might find them (Hort2&3). One described New Zealanders as people who knew

31 The primary sector in New Zealand has however a reputation and long history of innovative behaviour (Jayne, 2007; Rinne & Fairweather, 2011b, p.35).

32 There has been some recent work on networking in the farming, energy and building sectors, in the context of technological innovation (Lambert & Fairweather, 2010).

they were on the edge of the world and therefore had to make an effort to make those external connections, an attitude he had noticed was lacking in some other, more populated parts of the world (Hort3). Likewise, Hort2 described New Zealand entrepreneurs as '*not restricted by culture*', joking that it was because we lacked a culture in this country. He had also seen a reluctance to change among his primary sector peers in other countries, even when exposed to potentially beneficial ideas (in the context of improvements to harvesting technology).[33]

There is strong support in the literature for the influence of culture on innovation, while innovative behaviour in New Zealand is described as a trait developed of necessity due to isolation (Kennedy, 2008, pp.400-407; Lambert & Fairweather, 2010, p.4; Murphy, 2007, p.58; Rinne & Fairweather, 2011a; Rinne & Fairweather, 2011b, p.41). Businesses in the country's primary sector, in particular, have also been described as early adopters of new technology, compared to their overseas counterparts (Jayne, 2007). In addition, certain personality traits found in this country (such as egalitarianism, individualism and a tolerance for uncertainty) have been associated with a higher propensity to innovate (Kennedy, 2008; Rinne & Fairweather, 2011a, pp.79-80)[34]. The effect of culture might therefore explain the use of global networks by the participants and reinforces the notion that innovation is a social phenomenon, embedded in a cultural context (Rinne & Fairweather, 2011b; Steel et al, 2012, p.4; Thornton et al., 2011).

5.3.2 Impact of networks

The presence of networks, particularly global ones, seems to have been a key factor in the ability of participants to innovate. Nearly all of the case studies mentioned networks in the context of innovation and many described how the information gained from sources outside the business was crucial to how innovation progressed. Those who made the most radical changes, were breaking new ground, growing the fastest or with the most ambitious plans for the future all had not just local or national but global networks and these were personal connections, rather than simply the gathering of information online.[35] Those without international networks included the businesses that reported fewer innovations or less radical behaviour. There is also support in the literature for the

33 Openness to new experiences and idea has been positively correlated with innovation in the literature (Steel et al, 2012). The ability to conduct social relationships has also been linked to increased innovation (Steel et al, 2012), which would explain why those participants with extensive personal networks were also highly innovative.

34 Although there may be problems in New Zealand with the implementation of innovation and innovation rates are therefore perhaps not as high as they could be (Rinne & Fairweather, 2011b; Statistics New Zealand, 2010)

35 However, the ability to use information technology, particularly in the context of social media, was a vital tool for some in the development of networks (Farm2, Hort4).

positive effect of networks on innovation (Onyx & Bullen, 2000, p.32; Lambert & Fairweather, 2010, p.39; Ring, Peredo & Chrisman, 2010, pp.172-173; Shields, 2005; Statistics New Zealand, 2012, p.30; Virkkala, 2007, p.515). Therefore, it would seem that having global, personal sources of information could be recommended as a strategy to promote innovation.

5.4 Relationship between growth aspirations & innovation

In addition to other factors that were associated with innovation, the motivation of the owner (in particular their attitude to growth and change) seems to be related to their willingness or otherwise to engage in radical innovation. The three businesses (Farm2, Hort2, Fish2) with the most ambitious long-term plans were also those making the most radical changes within their companies, while those businesses with no immediate plans for growth (Forest2, Farm3) were mostly satisfied with how their business was presently working and therefore made no more than incremental improvements. Attitude seems to be more important than ability in this context, as even if their growth plans are currently on hold, if there is a willingness to grow, there is also a willingness to innovate in other areas. The literature reports that a mutually reinforcing relationship may exist between innovation and growth (North & Smallbone, 2000a, p.153; Virkkala, 2007, p.522), and so it may be that growth aspirations lead to innovation, which in turn promotes growth. These results certainly seem to suggest that growth aspirations are a clue as to the general attitude of participants to change. It may also be that innovation is self-reinforcing (Fitjar & Rodriguez-Pose, 2011, p.558), in that one innovation creates a climate where other innovations become more likely or even necessary; in many cases, one initial innovation triggered a chain reaction of (usually lesser) innovations as a result. Examples might be a decision to grow a new crop, enter a new market or build a new facility, all of which then necessitate additional changes. Success in one innovation may also build confidence and new knowledge, making further innovations easier to visualise and achieve.

5.5 Key findings & implications for theory

The key findings and implications of this study are listed below -

- Overall, the participants were highly innovative, with most having undertaken radical changes in their businesses and several engaged in pioneering new industries or technologies. This is counter to theory that states that small businesses make mostly small, incremental innovations and almost never introduce new products to their industry, much less their economy (North & Smallbone, 2000a, p.150; North & Smallbone, 2000b and

references therein).

- Information networks were the primary source of innovation found, with participants possessing rich and often global personal networks, which were used to support innovation. As far as I am aware, there is only one other example of an internationally networked rural area in the literature and the authors likewise linked the presence of these global networks to the highly innovative behaviour observed (Fitjar & Rodriguez-Pose, 2011).

- In terms of other influences on innovation process, growth aspirations were positively associated with innovation. Innovation took place against a background of an often challenging rural environment (which created a need for innovation) and cultural factors (which created a willingness for change in the participants). Regulation was the only significant constraint identified, while issues around supplies, staffing and capital were not major influences on innovation process.

The goal of this exploratory study was to identify factors that may influence, constrain or promote innovation. These are summarised in Table 13 below. They are the primary influences on innovation process observed in the participants and provide the basis for a model of innovation process in a rural environment.

Table 13. Factors affecting innovation process in a rural environment

Influencing factors found	**How each influenced innovation**
Challenges/rurality	Stimulus (creates a need for innovation). Many factors contribute to the overall environment, including resource availability.
Cultural influences	Stimulus (willingness to change, openness to ideas).
Information networks	Primary source of innovation.
Growth aspirations	Ambitious plans for growth have positive association with innovation.
Regulation	Mostly a constraint, but can be stimulus in some situations.

5.6 Conclusions

The aim of the research was to answer the following questions -

What are the important factors that affect the process of innovation in rural agricultural small enterprises?

In particular, what are the principal constraints they encounter (especially any constraints that relate to their rural location) and what are the main sources of the innovations present?

In answer to these questions, information networks were the primary source of innovation found. Growth aspirations may also be positively associated with innovation; the more ambitious their goals, the more willing the participants may be to innovate radically. Regulation was the only significant constraint identified (and even this could be a positive, under certain circumstances). Innovation took place against a background of cultural factors and difficulties associated with a rural environment. Issues around supplies, staffing and capital were not major influences on innovation process, but might contribute in some cases to the difficulties associated with a rural environment, which cumulatively provided a stimulus to innovate. In terms of good practice, different forms of network may be appropriate for different purposes; national networking may be most appropriate for encouraging incremental improvements to existing systems, while global networking may be of most benefit to industry leaders or those pioneering new fields and technologies.

Limitations of this study include the fact that case studies by their very nature are not representative in a statistical sense and therefore the results cannot be generalised (Eisenhardt & Graebner, 2007, Felzensztein et al., 2010, p.679). Further quantitative research, across a number of regions, would be needed to confirm the results.

This study contributes to the literature in describing the presence of rich international networks among rural small businesses, which have rarely been described previously (Fitjar & Rodriguez-Pose, 2011) and identifying factors that may influence their development and use to promote innovation.

5.7 Suggestions for further research

Regulation was the only major constraint described by participants in the context of innovation. Innovative businesses may be at greater risk than others of encountering difficulties with regulation, because they work at the edge of knowledge and often outside of accepted practice. It is probably unrealistic to expect regulators to be able to deal effectively with all new situations thrown up by

innovating companies, just as it is to expect all new innovations to fall within existing guidelines. However, further research could be done to quantify the problem and identify the key issues involved, with a view to making possible improvements.

A number of participants expressed a willingness to take on investment partners or stated that lack of capital was a constraint on growth. There may be a need for more flexible capital and a more diverse pool of potential investment partners, as a means of encouraging business growth. How to facilitate good communication between businesses and potential investment partners and diversify the sources of funding available could be the subject of further research.

Given that personal information networks were the primary source of innovation found, encouraging such networks could be an effective stimulus to innovation. Determining the extent of existing networking within the primary sector, followed by discovering and implementing an appropriate medium to further strengthen information networks, could be the focus of future work.

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7. Appendices

Appendix 1

Pre-interview check list

Confirm the following -

- Industry sector (primary) and subsection (e.g. fishing)
- Rural location - in one of the two most rural areas as defined by Statistics New Zealand (2004)
- SME status (<100 employees, not a franchise or branch of a larger organisation)

Interview Guide

Industry sector

- forestry
- wine
- fishing/aquaculture
- farming
- agricultural services
- other (please specify)

What does the business produce/sell?

Rural location

Address
Does the business have more than one site?
If it does, where are the other sites?

SME status & staffing

1. When was the business started? (When did you buy it?) How and why? (motivation)
2. Is it a franchise or branch of another business? Partnership? Sole trader? Company?
3. Who owns it? (family business, public company, number of owners, whether related or not)
4. How many full-time staff (paid or unpaid) does it have?
5. What are the job titles of the staff members?
6. How many part-time or casual staff does it have?
7. Do you have seasonal staff? If so, how many and what do they do?

Rural characteristics

1. Why is the business located where it is? / Why did you choose to run the business here?
2. Did you/they consider other locations, when beginning/buying the business? If so, which ones and why? What were the factors involved in choosing a location?
3. Does this area/location have particular advantages? What about disadvantages?
4. Did you grow up in this area? Have you lived anywhere else? Have family here? Move here from somewhere else? (Are they local or inmigrants?)

Human resources

1. Are your staff local or from somewhere else? (Where?)

2. Do you have trouble finding suitable staff?

Embeddedness/networking/resource limitations

1. Where are your main markets? Who do you sell to?
2. How do you transport/deliver your services/products? (value chain) Do you use distributors? Talk me through how the product/service goes from you to your final end-use customer?
3. Do you have/ have you had any trouble with distribution/ transport? Did you find a solution? If so, how?
4. How do you communicate with your customers? (Email, face-to-face, telephone)? How do they find you? Order your products?
5. What percentage of your sales would be local (define) and what non-local (define region, NZ, overseas)?
6. What sort of support services (if any) do you use? And where are they based? (accountant, distributor, transport services, legal services...)
7. When you were expanding, what resources did you need? (Labour, capital, information)? Where did they come from? How did you know where to find them? Did you find yourself short of something you needed or wanted?
8. What sort of people do you talk through business issues with? Family? Staff? Other businesspeople? Accountant? Lawyer? Consultants? If so, why? Who do you most rely on for ideas?

Objectives & growth orientation

1. Do you have any plans to grow the business or are you comfortable with where you are?
2. If you're planning to grow, how and why?
3. What sort of issues have you found, or do you expect?
4. Do you plan to expand outside the region or move locations? (advantages and disadvantages they see in their location)

Innovation processes

1. Can you tell me about the history of the business? Key points in development of firm/growth? How did you start or join the business?
2. Thinking of a significant change you implemented, over the last three years, can you walk me through how it all happened? (actual examples of innovations, where they got the information, how it progressed, hurdles and resource limitations). Why did change occur? Where did you get the idea for that? Did you do it alone or in co-operation with other businesses? Who was most help? Who/what didn't help? What problems did you have on the way? When were the changes begun? When did you finish?
3. Can you remember trying to implement a change that didn't work? Why didn't it work, do you think? Are there any changes that you would like to make, but haven't been able to do?
4. What changes are you considering for the future? What are the forces that are driving change in your business/industry? What are your plans for the business over the next three years or so?

Appendix 2
Case Summaries

HORT1

started 9 years ago (2002)
sells fresh fruit and several value-added products
3 fulltime staff (married couple owners, plus one other)
2-11 casual staff (pickers, packers)
chose the business, site irrelevant at the time

Problems identified	**Related to location?**
Local government / Resource Management Act	Yes. Perception that CBD was being favoured over satellite areas on the periphery of town, where business is located, resulting in onerous compliance burden. Lack of human and financial resources to comply promptly with requirements.
Distribution, purchase policies of supermarkets	No. Problem industry-wide, related to perishability of product and structural issues in the industry.
Freight	Partly. Problem related to perishable nature of product, but made worse by location
Further expansion limited by capital	No.
Government policy at national level	No.

Extensive local, national and global network. Use of internet, but mostly personal contacts to solve problems, gain information. Use academic and consultant resources. No current issues around labour quality or quantity. Mix of fixed older local and casual younger foreign workers. Have extensively expanded the business, have plans for further expansion, but no plans to implement them in the near future, limited by availability of capital. Would like to retire. Chose business rather than location. In-migrants from Westcoast/Christchurch. Sell product locally and nationally, 50:50. Successful marketing campaigns, including recent joint venture with local companies to pool aspects of marketing, reduce costs. Unique scale/method of production. Unique branding of what was waste fruit into premium product, as a result of something seen during overseas travel. New product in development, with co-operation from another local business. Background: current oversupply in industry forcing innovation and/or expansion to achieve economies of scale.

HORT2

started 13 years ago (1998)
1 fulltime, 1 part time, 4 seasonal (3 months harvesting), of which 3 backpackers from NZ
orchards in 4 local sites, one other SI
owned by 2 couples, both local (Nelson/Marlborough)

Problems identified	**Related to location?**
Local government / Resource Management Act	No. Misunderstanding on both sides during early stages of development resulted in costly mistake.
Slow internet	Yes

Chose the site as climate suited proposed crop, land cheap. Reports few problems. Reluctant to employ more people at this stage, for reasons of preserving highly sensitive intellectual property at this early stage of business development. Has easy access to capital via overseas-based business partner, which is probably vital to success in this case, as the crop needs a number of years to grow before a return is possible. Information networks are global in scope. Found overseas connections by himself or through existing personal connections, or via business partner. Good support services based all over New Zealand. Sell product nationally and plan to export product to Australia, Taiwan, Japan, China and Europe in three years time. Use personal contacts and internet to solve problems. No problems with distribution or transport of product to market or labour. Use local and non-local NZ scientific services. Make their own unique processing equipment, based on information gleaned from various overseas sources/travel, using both the owner's own engineering background and local engineering expertise. Attributes pressure to innovate to our stringent health regulations (forcing innovation) and the lack of a restrictive local culture inhibiting innovative practice. Background: a product unique in the Southern Hemisphere, so they are developing a new industry, but there is a long history of production in Europe, Asia and North America.

HORT3 (WINE)

started 13 years ago (1998)
vineyard & local but off-site winery
family business
12 fulltime, 4 part-time and up to 26 seasonal staff

Problems identified	**Related to location?**
Local government / Resource Management Act	Yes. Rural zoning/management plan prohibit building processing facilities on site.
High cost of travel to marketplaces for marketing purposes	Partly. Mentioned high oil prices causing increase in airfares in 2008
Weather	No.
Distance to travel to site for walk-in customers	Yes. Not a big problem.
Distance from manufacturer in EU for parts for a piece of specialist equipment	Yes. Stopped using that equipment, not a serious issue.

Business began as second career for parents, now employs two offspring in key roles. Family in-migrants from elsewhere in NZ. Chose the site for growing characteristics, location. All local staff, apart from one from EU; no problems sourcing skilled staff locally. Export to 22 countries (Europe, Asia, Americas, Australasia), in a pattern that's not traditional for the industry. No significant problems with transport or distribution. Global networks of distribution (a pattern common in this industry segment). Use both local and non-local NZ supporting services. Report no constraints except capital when expanding, thanks to well-developed infrastructure of industry in Marlborough. Pioneered novel viticultural practice, industry-leading. Internet important, no problems mentioned. Could consider an investment partner to fund growth under appropriate conditions. Background: industry segment dominated by four big players, all overseas owned. Bulk product is a trend. Also negative affects of current economic conditions on the industry.

HORT4 (WINE)

third owners (business itself started 1979, they bought 8yrs ago)
5 fulltime staff, 10 casuals, plus contractor organises other seasonal labour needs (up to 14 staff)

Problems identified	**Related to location?**
People with preconceived ideas of what their brand was about.	No. An issue relating to buying an existing business. Also talked about the advantages of buying an existing brand.
Attitudes towards and within the industry	No. Problems of lack of community support for a newer industry and speculators within the industry.
Encroaching urban development & associated complaints about business activities	Yes. Alters work activities to avoid annoying neighbours. Spends time and thought on maintaining good community relations, with some extra financial cost.
Labour	No. Attitude of younger potential workers and issues relating to work expectations, unwillingness to do vineyard work. NZ graduates want to work overseas.
Transport	Partly. Issues of careless truck drivers etc damaging product in transit. Major classes of goods coming primarily from the North Island, difficulty and cost of getting it across the strait. Distribution hub in Auckland, where population is concentrated.
Business environment in NZ	No. Restrictive, ill-informed compliance. Heavy tax burden (e.g. excise). Suggested changes to tax and depreciation rules to stimulate business R&D, retain business in NZ

Both have family business background in wine; one from Marlborough, one from overseas. Bought their own winery, because they wanted do their own thing, 'frustrated with corporate stuff' having worked in much larger organisations for other people. Also dissatisfied with where industry was heading where they were (in Australia) and wanted more control. Picked Marlborough for its existing status as a wine region. Picked company for its history, existing brand, mixture of grape varieties, presence of an existing winery on site. Other advantages are soil type, climate, traffic flow. A pioneer of organic viticulture in NZ. High excise tax on wine (which exported product is exempt from) drives them to look at overseas markets, along with greater knowledge about wine and a broader market base present overseas. Extensive use of social media (Facebook & Twitter). Export to at least 3 countries, but 60% to NZ market. Employ accountant and lawyer from Nelson, rather than Marlborough, because 'Marlborough talks' and it's sensitive information. Use online research for equipment, including YouTube for seeing how things work as can't travel there in person. Previous work experience in much larger companies helps guide development of the business. Talk about reduced capital as an incentive to do things better, more efficiently, innovate. Got grants from NZ Trade and Enterprise, been on locally-based courses. Capital a restriction on growth, but would be willing to have the right partner. Began social media after seeing opportunity,

because of costs of print advertising, after advice that print media didn't work (from industry colleague and friend), because she herself didn't read print ads. Don't attend many trade shows; bring people to the site instead, in collaboration with other businesses, plus use social media. Involved in industry governance. Have 30yr connections to Tongan staff as result of growing up here.

FARM1

started 2002 (9 years ago), major expansion 2004-6
1 fulltime, 1 part time staff, up to 3 casuals (all local)

Problems identified	**Related to location?**
Freight/transport	Yes. Most freight companies won't deliver to the site (too rural). Higher distribution costs related to greater distance to travel.
Water	Yes. Not on mains water (as not available), have to adapt system to suit. One water system wasn't suitable as depends on mains power, which they don't have.
Electricity supply	Yes. Installing mains power to rural site very expensive. Got generator instead for fraction of cost.
Capital	No.
Machinery availability/expertise	Partly. Small industry in NZ, so few resources available generally. But the rural location also lacked standard services (power, water), which created extra difficulties.
Compliance	No. Nationally implemented. Particularly as regards export processes.

Choose the site for availability of land, he lives there, proximity to work sites. Grew up in the area. Approx. 90% of crop sent to distributor/co-op in Timaru (ultimately bound for export to EU), rest sold directly locally. Built one of the best processing facilities in NZ. Sourced information during building/expansion from all over the world; online Danish suppliers, visited operations both here and in Australia. Forced to source much information overseas, as there was a lack of knowledge here about machinery. Also, intense competition in the industry meant unwillingness from other operators to provide useful information, so again he went overseas or found retiring non-local operators with nothing to loose. Innovation driven by changing needs of growing business, food safety regulations (same as Hort2). Like Hort2, mentions that talking to the manufacturers was useful when sourcing equipment. Like Hort1, further expansion constrained by availability of capital. Considering diversification into another product line for export. Background: working in specialised niche within agricultural sector. Increasing pressure from government forcing industry to take over more costs relating to biosecurity issues.

FARM2

took over business from parents in 1979 (32 years ago), family company, succession in progress
5 full time & 2 part time staff (including 4 family members total)
produce seed, bull beef, lamb, mutton. Plus dairy grazing.

Problems identified	**Related to location?**
Extremes of climate (dry)	Yes, but high sunshine hours and mild winters also cited as strategic advantages.
Lack of broadband, cellphone coverage	Yes, internet problems reported as their 'biggest impediment'
Defining roles and time constraints, as business expands rapidly,	No

Farm in the family since 1919; looked at relocating in 1998 due to pressure from drought but stayed, prompting major re-invention of the farming systems they used. One of the top producing farms in the country. A major innovation involved using lucerne, which was already being grown there, but systems were optimised after contact with non-local research institution, following a crisis in business performance and land degradation. Still very frequent contact with them, as result of friendships formed; he and they continue to educate other farmers as a result of their joint experience on the project. Reports no trouble finding staff (so many applicants, it's hard to sort through them), distribution or transport. Lucerne seed is processed locally and sold via local merchant all over NZ. Animals go to processors in Timaru, Ashburton and Wellington, as well as a local Blenheim plant. Employ a semi-retired industry expert, based in Wellington, as mentor. Business has doubled in size in last year, as part of succession planning. Use support services from Nelson, Marlborough. Has a blog to 300 NZ-based and overseas people (Australia, Uruguay, Falkland Islands), including industry experts and politicians, which provide a useful source of ideas and support. Gains valuable information from work-related travel within NZ and overseas (this year Australia and South America, with ongoing commitments to both). Multi-awarding winning at a national level, for farming and environmental practices. Actively involved with local and Australian research institutions. Involved in business activities overseas. Early adopter of technology (eg. second or third farmer in Marlborough to have a computer). Thanks to use of a systems analyst (consultant from NI), they more closely matched stocking and breeding patterns to available feed (using a different approach to neighbouring properties), with the result that productivity has improved and lambs are finished 'faster than anyone else in New Zealand'.

FARM3

family farm, taken over in 1978 (33 years ago)
husband & wife partnership structure
one full time, 2 part time and up to 6 casual staff
produce wool, lamb, dairy supply (bulls, heifers, cows), timber/forestry

Problems identified	**Related to location?**
Shortage of skilled shearers and wool handlers in Marlborough	Partly. The local sheep industry has lost critical mass. But easy to bring in shearers from Nelson.
Shortage of trucks to take sheep for processing last year	No. “Seasonal hiccups” due to weather-related selling of stock.
Loss of critical mass in the local industry	Yes. Changing land use in the valley, with sheep farming being pushed out by forestry, life-style blocks and horticulture/grapes/olives, depending on where in the valley you're talking about.
Attitude of other farmers	No. Talking about negative attitudes in and about the industry in the past, as result of a down-turn

Chose to stay on family farm for personal rather than business reasons. Has policy of employing locals where possible. All product bound for buyers outside Marlborough, either directly or through a local agent. Most support services are local or Nelson-based, with some in Murchison or Canterbury. Expansion over the years has been by leasing extra land, using existing resources. Part-owner in a second farm business in Murchison (dairying) which has some links to the dairy-support side of the business. Reports that capital is not a constraint as banks are keen to lend money, but this can be a trap. Networks widely with others in his industry, but reports he's fairly self-reliant when it comes to solving problems and a local technical field officer is inexperienced. Involved in research with non-local NZ institution. Says gathering information isn't difficult. Open to recent suggestion that they buy another farm with a syndicate (an idea suggested by the bank) but time is the constraint and there is 'so much potential here' ie on existing farm. Also considering growing existing operation, through irrigation, but it doesn't stack up economically. Have concentrated on optimising current operation, increasing performance. Reports no problems with internet personally (but neighbours apparently report problems). Said several times that they didn't do change, focussed on sticking to the knitting and doing it better. When asked about plans for the next few years, said 'more of the same'. On expansion - 'we've looked at growing it on numerous occasions and ended up falling back into our comfort zone'.

FISH1

business started 10 years ago
5-6 fulltime, 7-8 part time staff
produces/ distributes fresh, smoked & marinaded seafood, plus seafood storage units

Problems identified	**Location based?**
Maintaining customer relationships	Partly. They choose to personally visit customers three times a year, in addition to other forms of communication, which is a chore but judged to be extremely important.
Increasing consolidation and corporatisation of the industry	No.
Staffing issues	No. One didn't adjust to changing scale of business, one under performed in sales tasks.

Has forestry block in the Sounds and is starting a mining venture on the West Coast, in addition to the core aquaculture business. Began business already owning mussel farms in the area. Gave up a good job as manager for an aquaculture company, as needed a challenge. Located business because of access to mussels and they got a good deal from the port company for a site. Marlborough is also central for distribution. Had been worried about availability of key staff, but hasn't been a significant issue. Moved to Marlborough at 17 yrs. Have lived 7 years in Kaikoura as an adult, while running the Marlborough business remotely. Wife/co-owner from Canterbury. Most staff from Marlborough; one travels from Kaikoura (to do financials). Sell over South Island and lower North Island; private customers, restaurants, fisheries, supermarkets. Have invested a lot of effort in getting distribution methods right. Most product (95%) shipped outside Marlborough. Most reported supporting services from neighbouring regions (Nelson, Kaikoura). Mussels mostly from Malborough, but also bought in from Banks Peninsular and Golden Bay. Most expansion involves hiring of extra staff. Not much new capital gear is needed. Recently moved into larger premises, to enable growth and addition of new products. Growth spurts triggered by new products, new customers or geographical area covered. Designed a superior storage unit for seafood, in consultation with local engineering company, with prototype testing done in Nelson; existing storage options were expensive and disliked by customers. Availability of the unit has encouraged sales. Reports no shortages during expansion except time, but suggests staff will be important for future growth. Depends on previous experience and internal sources for ideas (mostly self and wife. Staff also mentioned). Entrepreneurial owner's instincts are to push ahead with expansion, before budgets or plans are fully in place, but takes advice from staff on this. Background: market consists of large sacks of cheaper, poorer quality mussels up north (they sell smaller bins of premium product).

FISH2
current business entity began 3 years ago, but his father started it in mid 1990s
15 fulltime staff (plus had 2-3 part time in the past, as required)
sells seafood & derivative products

Problems identified	**Location based?**
Logistics of moving product to market	Yes. Building a depot in Christchurch, closer to international airport. Has also employed an experienced general manager. Important to build/maintain relationships with freight forwarders.
Labour	Yes. Shortage in quality labour (quantity ok). Sources staff nationally and plans to look internationally to fill key roles in the future.
Effort required to build & maintain customer relations	Partly. Asian customers want regular visits, need personal relationship with owner. A lot of international travel currently required.
Compliance	No. General burden is heavy, with international requirements. Difficulty with NZ food safety authority's interpretation of water treatment requirements to supply the US market, while the US authority itself has different interpretation again. He can't commit to big new US contracts until this is solved. Costs of meeting NZ govt requirements would be $300,000 for this issue. Long ongoing negotiation required, some progress made.
Availability of funds for growth	Yes. Plans to source capital overseas, as NZ capital is hard to find, expensive and comes with inflexible terms; mentions currency risk as a downside to going overseas for money.

Main office is in Blenheim, while the packhouse is 30 mins south of town at the original site. Just bought a site in a local industrial park (as yet undeveloped) and planning to build a second packhouse in Christchurch, to be nearer large airport. Local airport can't handle the quantity of freight. Chose to enter the business because he saw it as a good opportunity in the primary industry. Transport product in their own trucks, from packhouse to airport. Site was pre-existing family business (interviewed second generation) with its own infrastructure, chosen because it was where they lived, the research on the fishery (which they pioneered) was done in the area. Owner is from Marlborough, but has lived long periods in Canterbury, plus 5 and a half years in UK. Came to this business from dairy farming (uses recommended margins from his farming background). Looking at acquiring another business (also in fisheries/aquaculture, but different species). Business employs mostly New Zealanders, one from overseas, also 2-3 family members. Export 85% of their product, with less than 1% to Marlborough and balance elsewhere in NZ. Key markets are Hong Kong/Asia and Australia; also exporting to Europe, North America. Looking at opening an office in Hong Kong, to help with sales. Asian customers require face-to-face contact, so opening Hong Kong office will be conditional on owners committing to visit personally 4 times a year. Had trouble with product left out in the sun at first; now have good relationship with freight forwarder. Key suppliers in Nelson have offered to set up a depot in Christchurch for them, when their new packhouse is built. They import bags from Asia, as can't get good enough quality in NZ. Source suppliers

domestically when possible. Only other key service mentioned was accountancy in Auckland. Mentions mostly internal but also external sources of information, has global contacts for subjects like available technology, sources of funding, market information. Has employed consultants and found them to lack understanding, a cost rather than an asset. Also 'spent a fortune with recruitment agencies and ended up with idiots'. Looking at doing a course through Icehouse and hoping to use a mentoring programme. Meets with 3 older business people (one local, two in Christchurch) once a month to talk. Mentions constraints of cash flow and staff requirements, when discussing future growth. Long term plans include opening bases elsewhere in NZ. Would also like to do something in sheep/beef/dairy. Describes the most significant recent change as hiring a general manager; owner couldn't do that job and also develop the business. They hired a manager from a national courier company, whose experience with systems and logistics proved valuable; resulting large jump in sale volume and improved customer relationships. Aiming to build brand. Talked about having to change his mentality, shift resources away from production and towards market development. Long-term plans will see them employing 230 people and becoming the second or third largest fisheries company, for revenue, in New Zealand. Motivation includes helping NZ economy; is also aware of the responsibility of 'getting it right' when developing a new fishery. An incentive to grow was the economies of scale produced.

Background: the technology to harvest and process their target seafood species was first developed by them, with institutional help. Produce a premium product in a large, diverse industry. Seafood industry in NZ going through a difficult time, with the global economic crisis and strong NZ dollar. But a global shortage of food and new advice from US to eat fish 3 times a week will promote demand.

FOREST1

Business began in 2002, he bought in 2006 (6 years ago)
Silvicultural services, mostly thinning and planting
2-10 staff, depending on seasonal demand

Problems identified	**Location based?**
Staff shortages	No. Industry-wide problem. Forestry is hard work physically, there is more money in logging, poor motivation/work ethic. Finding people from WINZ involves problems with drug testing requirements, lack of suitable experience, coupled with lack of appropriate training programmes and inflexible rules. Stricter immigration rules have made it hard to get foreign staff.
Problems relating to taking on a new business	No. Inherited some problems and was initially inexperienced, plus the language difficulties of a new immigrant.
Fluctuations in work availability and type	No. Structural changes. Shift from pruning toward thinning work meant investment required in different tools, health & safety.

Bought the business from his then boss, for financial reasons and because his work visa was expiring and the business enabled him to stay in New Zealand. Both migrated from overseas. He came here to learn english. Had intended to go to Nelson (through an agency) but moved to Marlborough on arrival in NZ, because of advice given by a fellow traveller about available work there; worked firstly in the vineyards, before moving to forestry. Before moving to NZ, he'd worked in forestry and been self-employed. Currently has enough work for 5 extra staff but can't find them. Runs business from his Blenheim residence because of tax advantages. Staff now 50:50 locals and inmigrants from elsewhere in NZ. Used to employ more foreigners, but can't now because of changes to immigration rules. Involved in industry research about physical demands on workers, using GPS and heart monitors, in effort to get better recognition and pay for workers. Report a trend away from working for smaller clients to working mainly for one of a couple of large companies, which required significant investment to comply with the company's health & safety requirements. All work in Marlborough, but has worked in Murchison in the past. Support services from Nelson-Marlborough. Have done local business courses and found them helpful. Has always been good at health & safety and takes drug testing unusually seriously, by industry standards. He relies on wife for an employee's perspective (she also works for unrelated company), staff for information and feedback, also industry training assessors, clients. Attributes company survival to good communication/relationships with employees. Ideas come from employees and owner's head. Describes new health & safety procedure and an addition to safety gear, since copied by other contractors; in one case the information was spread to others by an industry assessor. In both reported cases, the idea came from the owner's observation and experience. Planning to hire more staff if they can, as they have the work; want to bring up an employee to foreman position, so owner can spend more time on paperwork (new baby on the way). Long-term, might take a crew to Australia for 2 month trip; would be good money and a change, keep workers happy. Describes changes to insurance and employment contracts. Noticing increased Asian foreign investment, as result of ETS scheme & availability of land. Suggests that there should be more free or cheap training courses to encourage people into forestry, help the labour shortage. Aims to be the most professional forestry company in Marlborough, hence emphasis on staff training.

FOREST2
4 fulltime, 1 part-time staff
Started company in 1994 (18yrs)
Silvicultural services (pruning, planting, thinning). Has planted grapes before as well.

Problems identified	**Location based?**
Staff	Partly. Wine industry takes all the good local labour. Top staff get handpicked away from forestry by vineyards (he has lost staff this way). Average age of his staff is rising; young people don't like the work, find it too physical/dirty/noisy, unglamorous. He sources staff from central north island hub of forestry industry, where there isn't the competition from vineyards.
Issues around staff training	Partly. Having trained staff does not translate to getting a better price from clients. Training is better managed in NI industry, where industry is bigger, better managed. When labour is short, you take whoever is available, regardless of training. Resistance to change from staff, around implementing new industry standards
Issues affecting work availability	No. Peaks and troughs occur in industry. When work tight, other crews can migrate into the area, to compete with local contractors. Exchange rate having large negative effect on work availability.
The rare difficult job/customer	No.

Born in Marlborough and has family here; knowing people helps him gain work and he liked the place. Chose to start a company there for that reason and because of the work available here. Began company after working in the industry. Base is in Blenheim, as is more convenient for employees, who live there. He transports them to work in company trucks. Reports no location-based disadvantages. Has employed up to 23 people before; the current 4 are the lowest he's had, reflecting the industry's ups and downs. All employees now from the North Island (central NI is the hub of forestry in NZ), where they were once all from Marlborough. Describes a trend away from tendering for jobs towards being contracted to one or more of several large forestry companies, who now provide most of the work. All work is local. All key suppliers are local, bar one specialty equipment shop in Motueka. Expansions are driven by availability of work, mean only buying another truck and employing more staff. Talks through business issues with 4 or 5 friends who run successful businesses (in other industries), in Marlborough and Auckland. Has a publishing business on the side; some of his networks come from there. Highlight of the business is training young people and seeing them go onto good jobs, not having accidents. For many years, when forestry work was slack and there was demand from vineyards, he redeployed staff into planting grapes; he had the contacts and the pool of labour, they enjoyed the change, the work was quite different in some ways, but similar skill sets were needed. Would like to improve his skills at negotiating pay rates with customers. Suggests getting foreign vineyard workers into forestry jobs during the lull in winery work, to help labour shortage. Would like to step back from the business, employ a foreman to do more management tasks, go into forest management (as he's getting older) and spend more time on his publishing business. Talked about rising age of his workforce, the fact that foreign workers are better workers than (younger) New Zealanders.