Drivers of Firm Location, Firm Success and Industry Success in the Auckland Region

May 2011

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Date: May 2011. Note: The research was undertaken between October 2008 and May 2009

Version: Final

Acknowledgements
This report has been prepared with funding from the Ministry of Science and Innovation's Cross Departmental Research Pool fund secured and administered by the Ministry of Economic Development, New Zealand Government – Auckland Policy Office.

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Executive summary

Evidence from international studies suggests that large, outward-facing, global cities are playing an increasingly important role in driving economic development.

The importance of Auckland's productivity and growth in the performance of the wider New Zealand economy is widely acknowledged. In order to judge how policy can best assist the city-region's productivity and growth performance, the factors determining, enhancing, and limiting Auckland's development need to be understood.

This research explores the drivers of firm location and industry success in the Auckland region. Commissioned by the Auckland Policy Office (APO) as part of its research programme, the study seeks to understand six questions faced by firms and industry leaders in the Auckland region:

1. What location-related factors lead to the establishment, growth, and continued success of industry sectors?
2. What factors are responsible for the failure of firms within the industry sector?
3. What sources of positive and negative factors impact on firms' location decisions?
4. What roles do skills availability, research centres, universities, and other educational institutions play in industry development?
5. What factors are important for public policy, and what hypotheses can be formed for future quantitative analyses?
6. What specific actions, if any, are required to improve agglomeration benefits?

This research has explored and gathered substantial information on the drivers of firm location, industry success and firm success in the Auckland region in order to answer these questions.

What location-related factors lead to the establishment, growth, and continued success of industry sectors?

Auckland is the largest city in New Zealand, and firms have access to the benefits associated with that fact – including the largest market for most sectors in New Zealand, the largest pool of skilled, unskilled, and casual labour in New Zealand, and better access to international destinations (and people) than any other part of New Zealand.

The review of the literature led to a focus of enquiry on three main drivers of industry success:

- The strength, nature, and composition of domestic and international demand.
- Proactive sectoral development support from the Government.
- Having many fast growing and successful firms within the sector.

We have found that, as would be expected, when considering the importance of these determinants for industry location and success in Auckland there are differences between sectors. The consulting engineering sector is strong in Auckland, partly because demand is strong, but this is demand driven by the requirements of keeping pace with Auckland's continued growth, so Auckland's scale essentially drives demand. Similarly, the significant expenditure on health services within the region, related to the size of population and Auckland's role in providing specialist health services nationally provides the medical technology sector with a ready market. Auckland is home to the largest district health board (DHB) in New Zealand, has the highest concentration of DHBs located in the same region, and is home to world leading research on specific health issues such as diabetes and fertility. These factors could be key attractors for firms in the medical and surgical equipment manufacturing sector to locate in Auckland.

Government intervention was considered in some detail. Historically, this has strongly influenced the success and/or failure of some sectors, e.g. automotive component manufacturing. However, when considering the location-related factors that have led to the establishment, growth, and continued success of industry sectors direct government intervention was not found to be a significant factor. What does make a difference to industry success and location is government expenditure, for example on infrastructure or health. As this is often related to scale again it points to the reinforcing nature of Auckland's growth.

Firm specific characteristics influence industry success. For example, even within some of the fast growing sectors we chose as case studies some firms performed strongly and grew over the past five years; other firms had relatively static or even negative growth over the past five years. Much of the growth within these sectors appears to have been driven by a small number of successful firms (mainly large firms) that have performed well globally, rather than an across-the-board strong performance from all firms within the sector.

An important reason for many scientific research/biotechnology firms locating in Auckland is the ease of access to private equity in Auckland compared with other parts of New Zealand. This is because there are more large businesses and wealthy individuals in Auckland, and New Zealand's largest angel investment organisation, ICE Angels, is located in Auckland.

However, we did find almost universal agreement on one point. The importance of Auckland as a source of labour. The most important single locational advantage Auckland offers to industry sectors is its deep and specialised labour markets. Auckland provides a distinct advantage actors of production. There is a bigger pool of labour (skilled, unskilled, and casual) in the Auckland region, and it is easier to find staff (particularly skilled staff) compared with other parts of New Zealand. Access to a pool of skilled labour is particularly important for very large firms that have high demands for skilled labour as well as firms that need a reasonably large number (e.g. 10 to 15 plus) of highly qualified specialists in niche fields (e.g. scientists).

Therefore, in relation to Porter's diamond, we suggest that from an industry sector perspective, Auckland as a location would appear to more heavily dominated by factor conditions, with labour being the predominant factor of production in this regard. Demand conditions register as important with some sectors but the relevance of related and supporting industries is clearly impeded upon by the aversion to clustering identified in our responses.

Overall, the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities,

product market size, complementary suppliers, infrastructure investments and international connectivity. All of the advantages that one would expect to be associated with a large city.

Therefore, from the sectors we have examined, the location-related factors which have led to the establishment, growth, and continued success of industry sectors in Auckland are essentially a product of Auckland's scale. This may sound a little glib. It is not. Many commentators speculate on the possibility of optimal city size and the natural capping effect of growth. What we appear to have observed is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Given Auckland's long history as New Zealand's major urban centre this suggests that responses that cited history as the driver of locational choice could also confirm, rather than deny this view.

A few firms also noted it is easier to do business in Auckland in general compared with other parts of New Zealand. They believe there is better access to (and choice of) supporting services (e.g. legal, accounting services), and many of their clients have head offices in Auckland. So, although their clients may not be based in Auckland, many visit Auckland frequently for business. One firm claimed that there are, *"more small firms in Auckland doing innovative things"* than anywhere else in New Zealand, and there is a more innovative environment in Auckland in general.

What factors are responsible for the failure of firms within the industry sector?

A key reason that was given as to why some firms in a sector had failed was because they simply stopped investing in product development and improvement, and hence stopped innovating. Building on this notion, the types of firms that appear to be most vulnerable to losing any competitive advantage and market share they may possess are those firms that focus solely on product improvement rather than developing new innovative products.

We elicited a range of responses to this particular question including:

- A lack of domestic competition was seen as an issue for specialized manufacturing. So too, however, was competition from overseas, notably China.
- Consulting engineers suggested that deficient demand due to a lack of finance available to developer clients contributed to firm failures in the sector.
- In the scientific research institutes sector it was observed that although NZ firms are as inventive as anybody else and come up with great ideas, we seem to find it very difficult in executing those ideas, building a business out of them. Also considered that "we either lack the ability or the capital to [build] a brand around things, marketing, getting things in someone's distribution channel etc. That's where we fall over."

The open-ended responses provided to the question "What factors do you think are responsible for the failure of businesses (if any) in your industry" also emphasised management, leadership and financial themes as being leading causes of failure. The key

finding was that here was little if any evidence to support the notion that locational factors were a significant contributor to the failure of firms within an industry sector.

Although the frequency of responses provides some indication of the relative importance of the factors, it is important to note that the overall number of responses received from the web-survey was relatively small. However, it is interesting to note that locational factors did not count strongly in the respondent's views of the causes of firm failures within industry sectors.

What sources of positive and negative factors impact on firms' location decisions?

The key finding is the obvious one – location does matter for firms. The data confirms that there are business-related drivers for firms to be located in Auckland, as opposed to other locations within New Zealand.

For firms that told us "being located in Auckland is important and has a significant impact on the success of the firm", they note that being in Auckland is important because Auckland has the largest population and highest number of businesses in New Zealand. They therefore have better access to the largest pool of labour (in particular skilled labour), customers, and suppliers and other supporting businesses, compared with elsewhere in New Zealand.

Positive features that attract and retain firms in Auckland include:

- Access to a larger pool of highly qualified specialists, as well as skilled, unskilled, and casual labour;
- Better connectivity to regional and international markets as well as supply chains;
- Access to a larger customer base;
- Stronger potential to attract international corporate visitors; and
- Easier in attracting and retaining skilled labour from overseas.

These are not surprising results but they are a useful confirmation, from the individual firm's perspective, of the theoretical underpinnings of agglomeration.

Negative factors that might lead to a firm leaving Auckland included costs involved in dealing with local authority regulations (e.g. zoning and consents), traffic congestion, and the higher costs of doing business in Auckland compared with other parts of New Zealand. Firms observed that there is a double-edged sword in being located in Auckland because the cost of living, employees' salary expectations, and labour costs are higher in Auckland compared with other parts of New Zealand.

Again, this is consistent with much of the work on the economics of urban areas, where productivity gains from increasing concentration of activity are offset by external costs (e.g. congestion) and private costs including land costs and actual travel costs (time and money).

To what extent is locating in Auckland a determinant of a firm's success? Importantly, despite the disadvantages noted, the research found that the majority of firms believed that

being located in Auckland is important and has a significant impact on their success. A number of firms believed that their businesses might have a better chance of growth and survival if they were located elsewhere because their key markets are based in other parts of New Zealand or overseas. This would again appear to be consistent with the theoretical predictions – it is just the opposite of firms who are attracted to Auckland for the same reasons.

However, the data reveals that biotechnology firms, in particular, are attracted to overseas countries because of better access to private equity and government incentives to stimulate research and development. The question of the availability of incentives opens up the debate around 'picking winners' and whether a more interventionist approaches from the public sector e.g. through subsidies or other related measures would be beneficial. We did not canvas this further as the policy environment in New Zealand is very clear on this matter and although it is relevant in relation to locational choice at the country level it is not a determinant of locational choice between Auckland and other parts of New Zealand.

Biotechnology firms were also unique in terms of seeing the benefits of clustering. These benefits can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so.

An interesting finding, seemingly unrelated to the drivers listed above, is that firms, especially small ones, stay in Auckland because it is where the owner lives, and where he or she wants to keep the business. However, one must consider why this is and is it in fact similar to the consideration of why skilled labour supply is higher in Auckland and what attracts these workers?

Considering key policy implication of these findings, the first observation is the close parallel between our findings and the direction given through much of the agglomeration and urban economics literature. In general, interventions which unlock productivity gains from the concentration of economic activity and reduce or mitigate the rising costs associated with locating in Auckland will provide a good starting point. Policies that positively influence access to customers and suppliers and to appropriately skilled labour will be beneficial. Investing in core infrastructure is a general policy prescription. Investing in specific networks that promote these outcomes, based on an understanding of the effectiveness of different transport modes to influence different outcomes is a good step forward.

What roles do skills availability, research centres, universities, and other educational institutions play in industry development?

This builds on the answers above. Skills matter for all sectors examined here. Auckland's large and skilled labour force is a key reason given for firms' choosing Auckland as a location. For firms that told us that being located in Auckland is important and has a significant impact on the success of the firm, being in Auckland was seen as important because it gives access to the largest pool of labour (in particular skilled labour), compared with elsewhere in New Zealand. The evidence was universal on this point - skills availability plays a fundamental role in firms' choice of Auckland as a location and firm success underpins industry development across all sectors examined.

However, there was less uniform evidence on the role of universities in industry development. Whilst evidence from the scientific research institutes underlined the vital role of proximity to universities other respondents actually cited universities as either competitors or, in one case, a blockage to development.

What factors are important for public policy, and what hypotheses can be formed for future quantitative analyses?

Considering key policy implication of these findings, the first observation is the close parallel between our findings and the direction given through much of the agglomeration and urban economics literature. The research revealed that the primary benefit that firms derive from being located in Auckland is that within New Zealand, it is the city with the largest critical mass. Simply because it is the largest city in New Zealand, firms have direct access to the largest pool of customers (for most sectors) and, most importantly, skilled labour. Firms also find it easier to attract skilled foreign labour to a large city such as Auckland, compared with other parts of New Zealand.

In general, interventions which promote the concentration of economic activity and reduce or mitigate the rising costs associated with locating in Auckland will provide a good starting point. Auckland's greatest advantage comes from the size of its population. Simplistically, the key policy implication of these findings is that the public sector should support measures that focus on allowing Auckland to continue to grow.

Investing in core infrastructure is one general policy prescription. This includes infrastructure that can enhance Auckland's connectivity to other regions, nationally and internationally, as well as infrastructure oriented within the region. Both have the potential to stimulate Auckland's population and economic growth. Identifying specific infrastructure investments based on an understanding of the effectiveness of these investments to mitigate against the negative aspects of growth and to facilitate the benefits of scale and density would be a good approach. Obvious measures within the region would be those that improve accessibility of workers into key economic centres and work to manage or constrain the growth of traffic congestion. So too might be initiatives that make Auckland a more affordable place for workers to live.

Skills matter too. Auckland's large and skilled labour force is a key reason given for firms' choosing Auckland as a location. Investing in skills development is important but so too is the attraction and retention of skilled workers. Although firms did not consider amenity as being very important, if skilled workers do, then interventions that maintain and improve amenity will be beneficial.

The following table sets out our key hypotheses about firm location and industry success in the Auckland region:

Table 1: Hypotheses about firm location and industry success in Auckland

Potential hypotheses	Comment on inputs to analysis
Hypotheses about Firm Location	
Auckland is a good place for SMEs to grow and do business in (particularly non-exporters), but it is not a prime location for large firms.	○ Calculate location quotient of Auckland region for small non-exporters vs. large export firms
Auckland is a good place for firms to undertake product development activities, including R&D, but it is not a good place to do the actual manufacturing of the product, particularly in product areas that have strong price competition from imports. Product development occurs in Auckland more so than manufacturing, over time	○ Examine whether firms which report being 'product development innovators' in previous surveys have reduced or stopped manufacturing over time (e.g. using the Statistics NZ Longitudinal Business Database).
Owner-operator firms have a marked preference to locate within close proximity of the owners place of residence	○ Analyse Census area unit data to show proximity of self-employed persons place of residence and their place of work (can also analyse by occupation type, industry type, age group and income).
SMEs in the tradeable goods sector (i.e. imports or exports make up a significant component of firm output) have improved their physical accessibility to seaports and airports in the region in order to avoid congestion	○ Analyse changes in spatial distribution over time of firms with over 20% of output in imports and/or exports, in relation to motorway and rail links to the main sea and air ports
Growth in agricultural services and other industries in Franklin District associated with the primary sector are increasingly oriented to the Waikato regional economy rather than Auckland	○ Analyse location of suppliers and customers of firms in the primary production sector and related industries located within Franklin District ○ Analyse place of work of employees in the primary production sector and related industries located within Franklin District
Hypotheses about Industry Success	
Growth within Auckland industries is largely driven by the growth and success of a small number of firms (mainly large firms) that have been successful in capturing global markets – rather than an overall growth in all or most firms within the industry.	○ Examine composition of industry output growth split between large and small firms
Industry growth is driven by the growth of successful firms within the industry, but the success of firms can also put the industry in a vulnerable position – particularly if they are bought out by larger foreign-owned firms and the intellectual property and major operations are shifted offshore.	○ Analyse output and employment levels over time for industries comprising a significant share of foreign owned firms and compare against performance of non-foreign owned firms.
Government sector development policies and	○ Analyse average output levels over time for

strong demand (international and domestic) can increase the number of firms in the industry, but not the actual success of the industry itself. Industry success is dependent on the ability of many firms within the industry to grow and succeed, and to sustain that growth over time.	industries comprising firms where a significant majority have been subject to sector development or business assistance initiatives (e.g. using the Statistics NZ Longitudinal Business Database).
Hypotheses about Firm Success	
Successful Auckland firms have good access to capital and resources, strong leadership, and are responsive to changes due to customer demand and the wider business environment.	○ Analyse output growth results for firms reporting 'responsive' business practices in previous surveys (e.g. using the Statistics NZ Longitudinal Business Database).
Medium and larger sized firms have better ability to grow and succeed than small firms, including successfully entering foreign markets.	○ Analyse output or employment growth results for firms by employment size
SME business owners' attitudes to growth, including lack of interest in growing the business, particularly if owners have achieved a satisfactory level of success, are important barriers that inhibit SMEs' growth into larger and more successful firms.	○ Analyse output growth results for firms reporting their 'motivating' business practices in previous surveys (e.g. using the Statistics NZ Longitudinal Business Database)
The success of SMEs in manufacturing and business services industries in Auckland is not a function of their intra-regional location	○ Examine whether there are any significant differences in the spatial distribution of successful and unsuccessful firms in different industries over time (e.g. measured by relative employment and/or sales revenue; and controlling for relocations due to expansion in floorspace/site area). ○ Identify whether firms that have relocated sites have concentrated in particular areas in the region

What specific actions, if any, are required to improve agglomeration benefits?

Overall, the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities, product market size, complementary suppliers, infrastructure investments and national and international connectivity. All of the advantages that one would expect to be associated with a large city contribute to the productivity of its industries and can be summarised as drivers of scale and density.

As noted above, what we appear to have observed in Auckland is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Therefore, agglomeration is important. However, in general this study did not reveal any new or ground breaking insights into the specific actions that would lead

to greater benefits from concentrating economic activity beyond those already well understood:

- Public sector intervention to lift the constraints to further concentration of economic activity through improved accessibility and amenity.

The research did not identify significant industry locational advantages or disadvantages at the intra-regional level. However, there was one interesting finding, a strong and deep aversion to geographic clustering in a number of industry sectors. Whilst theory suggests that being spatially close to one another allows some firms to operate more productively in sourcing inputs, accessing global markets, sharing knowledge and technology, and motivating competitiveness, these advantages can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so. It might be useful, therefore, to consider finding ways of encouraging firms to collaborate when developing business strategy.

Conclusion

Auckland is the largest city in New Zealand. The firms located here have direct access to the largest market for most sectors in New Zealand, the largest pool of skilled, unskilled, and casual labour in New Zealand, and better access to international destinations (and people) than any other part of New Zealand. Auckland's strength is its scale. The advantages offered by Auckland's scale drive firm success which translates into industry success. The competitiveness of cities or regions is not just about successful industries, but also successful firms – Auckland is no different.

1 Introduction

1.1 Overview of the study

Evidence from international studies suggests that large, outward-facing, global cities are playing an increasingly important role in driving economic development. The importance of Auckland's productivity and growth in the performance of the wider New Zealand economy is widely acknowledged. In order to judge how policy can best assist the city-region's productivity and growth performance, the factors determining, enhancing, and limiting Auckland's development need to be understood.

This report sets out the findings of the *Industry Sector Success and Firm Location Study*. The objective of the study is to identify the key factors that determine industry sector success and firm location decisions in the Auckland region. In particular, the study seeks to understand:

- What location-related factors led to the establishment, growth, and continued success of industry sectors?
- What factors are responsible for the failure of firms within the industry sector?
- What sources of positive and negative factors impact on firms' location decisions?
- What role do skills availability, research centres, universities, and other educational institutions play in industry development?
- What factors are important for public policy, and what hypotheses can be formed for future quantitative analyses?
- What specific actions, if any, are required to improve agglomeration benefits?

The scope of the study includes consideration of:

- Firms within fast-growing and successful sectors in Auckland (since 2000);
- Firms within negative-growth sectors in Auckland (since 2000);
- Firms within these sectors, or parts of firms, which have moved within, to, or from the Auckland region;
- International firms within these sectors that have shifted from or into the Auckland region;
- Firms, or parts of firms, within these sectors that have shifted from or to other parts of New Zealand; and
- New firms within these sectors that have established themselves in Auckland.

This report constitutes the first phase of the APO's research into the factors that influence industry success, firm success and firm location in the Auckland region. The findings set out in this report are intended to inform a second phase of work, which will focus on quantitatively testing the hypotheses developed in this report using GIS and longitudinal firm performance data.

1.2 Overview of the report

The structure of the following parts of this report is as follows:

Section 2 provides an overview of the key concepts relevant for this study, including the linkages between national, regional, industry and firm level growth and productivity. It also presents the Auckland context and sets the stage for the discussion of the findings.

Section 3 describes the research design and methods underpinning the study.

Section 4 presents the findings with regard to the drivers of firm location. It answers questions as to why firms choose to locate in the Auckland region, to what extent being located in Auckland impact on success, and the negative factors associated with Auckland that might cause firms to locate to other cities or regions.

Section 5 presents the findings with regard to the drivers of industry success. The main themes include the nature and composition of demand, government intervention, and also firm success.

Section 6 examines the drivers of firm success including the availability of factors of production; cost of doing business; competition, innovation and product development; access to capital; and business leadership, strategy, and responsiveness to change.

Section 7 summarises the main findings, considers the implications for government policy and offers hypotheses about firm location, firm success and industry success for testing in the second phase of work.

2 Setting the scene

The purpose of this section is to review the literature relating to the factors behind industry success, firm success and firm location.

When considering firm success we have concentrated on the notion of competitiveness as a proxy for success. Competitiveness is the notion that firms (and also nations, regions and cities) have no option but to strive to be competitive in order to survive in the marketplace being shaped by globalisation and the evolution of information technologies. In order to be competitive, these organisational entities must by definition be more successful than non-competitive peers. The purpose of this component of literature review was therefore to identify those factors that made some firms more competitive than others.

The notion of 'industry success' can of course be interpreted in a range of different ways. These include successful industries in New Zealand, successful industries globally, industries that are large and lucrative, industries that are experiencing fast growth, as well as industries that are rapid adopters of technology. Given the wide definitional nature of the notion of industry success a framework was required so research results could be uniformly analysed. There is an emerging consensus that measuring competitiveness at the regional and industry/firm level provides a powerful analytical tool when looking at industry success. We followed this approach.

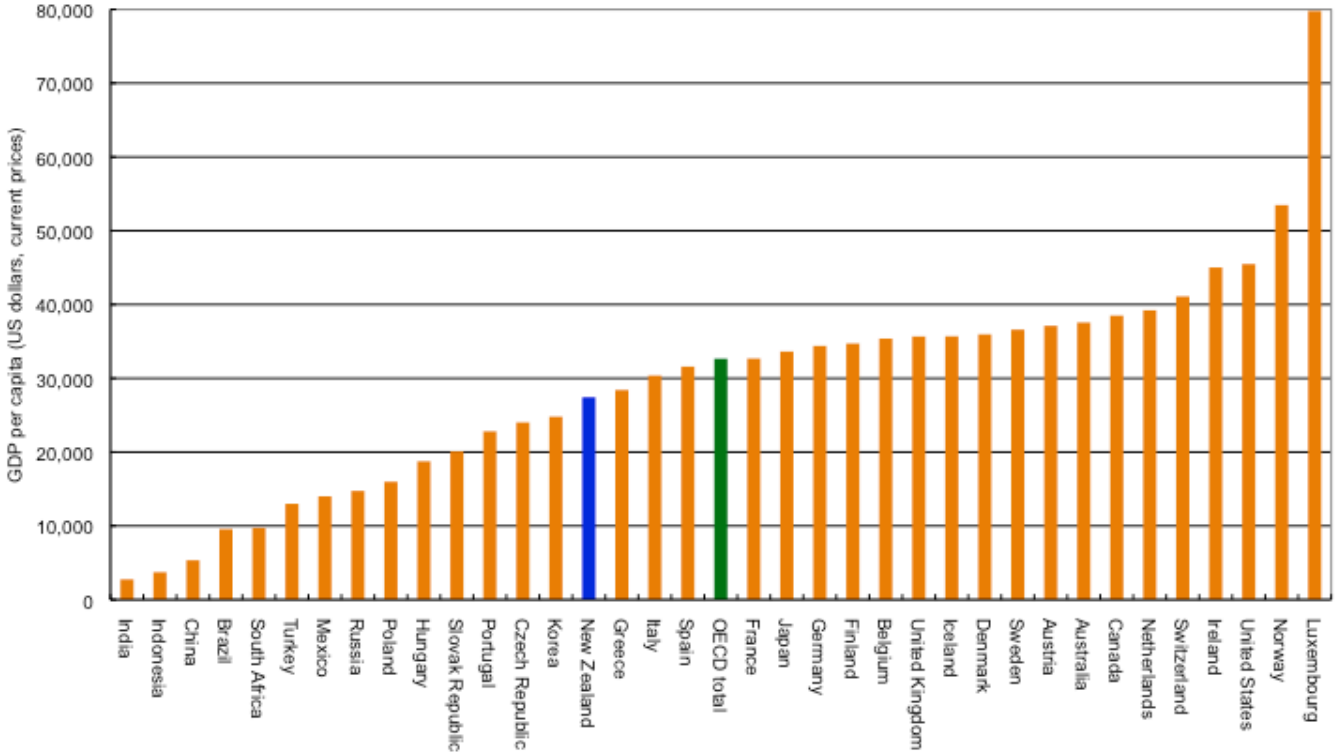
The review of firm location factors considered the type and importance of factors that firms traditionally consider when they choose where to locate or expand and a consideration of the economic rationale for the growth of cities, regions and industry clusters.

This literature review was conducted as a desktop research exercise focusing primarily on the review of international journals and on reports published by major national and international organisations. Firstly, to provide a useful context, we consider the importance of productivity in driving economic growth and the economic performance of Auckland.

2.1 Lifting New Zealand's economic performance

For many years, New Zealand's GDP per capita (a measure of standard of living) has been lower than the OECD average – ranking in the lower half of all OECD countries. In 2007, New Zealand's GDP per capita was US $27,431 (at current prices and with purchasing power parity applied). This was 16 percent lower than the OECD average, and New Zealand ranked 22nd out of 36 OECD countries.

Figure 2.1: Comparison of GDP per capita in OECD countries (2007)



Source: OECD Factbook, 2009

Lifting New Zealand's GDP per capita is a key economic objective of the current Government.

It is important to note that economic growth and growth in income per capita is not an end in itself. Instead, economic progress allows a country to increase (or at least maintain) the standard of living and quality of life for its population. Strong economic growth also provides the financial resources for governments to pursue other non-economic goals, including social, environmental, and cultural goals (So, Waite, & Davies, 2008; New Zealand Government, 2002). Overall, much of what New Zealanders value and desire in life (including free and/or affordable basic education and healthcare services) are underpinned by a strong, healthy economy (Office of the Minister for Economic Development, 2006).

2.2 Productivity and the drivers of productivity

Productivity is commonly defined as the ratio between the volume of output and the volume of inputs used to produce that output. That is, it measures how efficiently production inputs, such as labour and capital, are being used in an economy to produce a given level of output. Productivity is therefore considered to be a key source of economic growth and competitiveness (OECD, 2008).

But what are the factors that drive productivity growth?

First, it is important to acknowledge that while the term 'productivity' is often used to compare the performance of different countries or regions over time, productivity improvements occur within firms and industries (Office of the Minister for Economic Development, 2006; Porter, 1990). The performance, productivity, growth, and success of firms and industries are therefore critically important for regional and national economic growth, and thus to the overall improvements in standards of living and quality of life that they seek for their populations.

2.3 The performance of Auckland

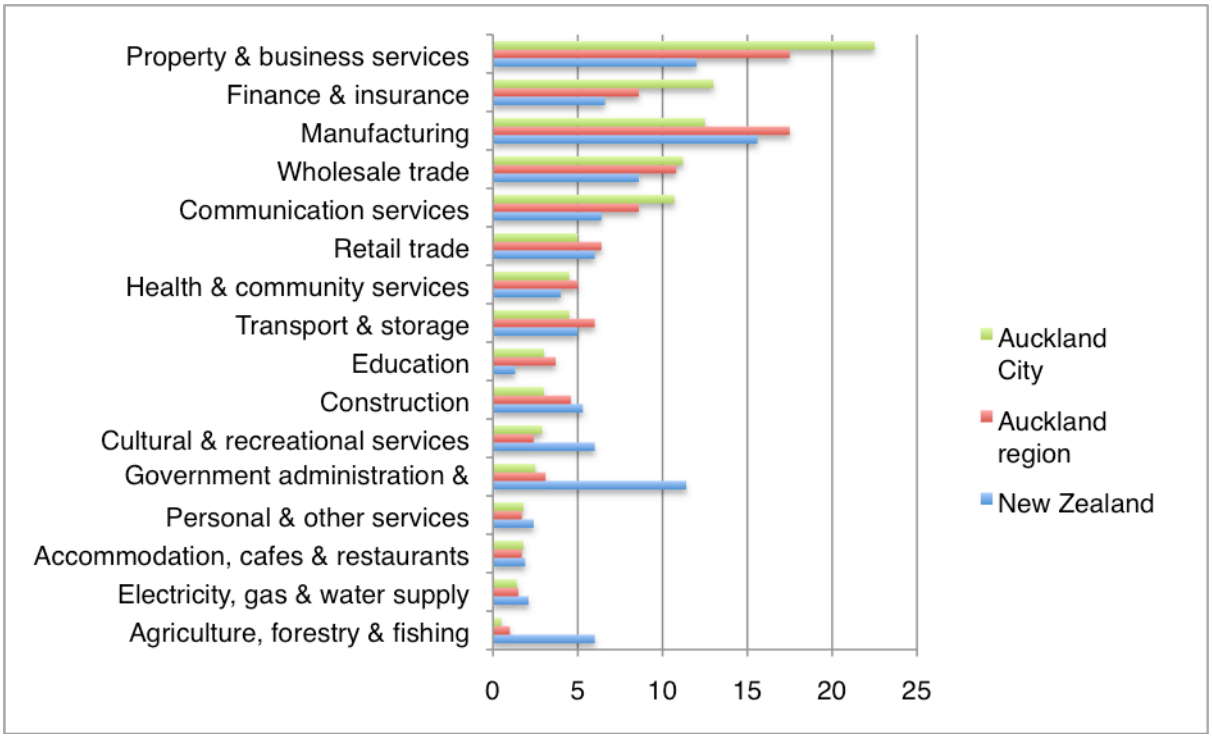
As Maré (2008) notes, *"as New Zealand's largest and densest city, Auckland should be expected to perform well"* (p. 2).

Auckland is a small city by international comparisons, but in terms of country-level context, Auckland is an essential component of New Zealand's overall economic performance. It is home to approximately one third of New Zealand's population, and over one third of New Zealand's production is based in Auckland (OECD, 2006). Densely populated by New Zealand standards, the Auckland region occupies just 2 percent of New Zealand's land area, but it accounts for 33 percent of national employment and 40 percent of value added in the economy (Maré, 2008).

Although Auckland's growth and productivity performance[1] is modest compared with other OECD cities (OECD, 2006), a number of researchers (including Maré, 2008; Williamson, Paling, & Waite, 2008; Williamson, Paling, Staheli, & Waite, 2008) conclude that firms and industries located in the Auckland region are more productive than similar firms and industries located in other parts of New Zealand. In particular, Maré (2008) finds that the average value added per worker (a measure of labour productivity) in the Auckland region is 30 to 50 percent higher than other regions in New Zealand. Maré explains that part of the reason that Auckland has higher productivity than other parts of New Zealand is because it has a relatively high share of industries that have high average productivity nationally. Indeed, as shown in Figure 2, the Auckland region's share of the property and business services, and finance and insurance industries (i.e. industries that are typically associated with being high-value added) is higher than the overall New Zealand average.

[1] According to the OECD (2006), Auckland's real GDP growth averaged only 1.8 percent between 1997 and 2007 – low compared with other OECD cities.

Figure 2.2: Percentage of industry share of economy (GDP) for year ending March 2008



Source: Committee for Auckland, 2008.

Glaesar (2007) also points out why large dense urban cities with multiple strengths (i.e. industries) are better placed to continue to grow successfully. He notes that these cities enjoy both economies of scale and scope. Having many large and successful industries mean that cross-industry collaboration and innovation is more likely to happen, leading to more innovations.

Given the productivity premium that the Auckland region has over other parts of New Zealand, there is a good argument for the Government to concentrate it investments and resources on helping firms and industries in the Auckland region to grow and succeed. That is, the concentration of investments and resources in the Auckland region is more likely to generate the highest rates of return (in terms of overall productivity gain), compared with spreading investments and resources thinly across the country.

2.4 Identifying the drivers of firm and industry success

To satisfactorily deal with this task we need to address two concepts for both firms and industries; the definition of success and the drivers of success.

2.4.1 Defining firm success

The notion of 'firm success' is open to wide interpretation. For instance some firms may judge success against a purely financial yardstick while others may define the notion in terms of the lifestyle opportunities provided to the owner or employees. For the purpose of this review we have used the notion of competitiveness as a proxy for understanding and interpreting success. Recent decades have seen significant attention paid to the notion of 'competitiveness'. Martin (2005) notes:

> "The credo of competitiveness has attracted a veritable host of believers and followers. Economists and experts everywhere have elevated 'competitiveness' to the status of a natural law of the modern capitalist economy."

Although the abundance of material from which we can seek to derive a common set of 'success factors', or those factors that make certain firms more competitive than others (and thereby more 'successful') is useful, there are risks too. In general terms the notion of competitiveness can be criticised as being as vague a concept as 'success'. Inconsistent usage of the term has led to confusion in the policy debate. Begg describes this confusion succinctly:

> "At one level (competitiveness) is equated, usually loosely, with the 'performance' of an economy, an absolute measure. At another, because it relates to competition, it implies a comparative element, with the implication that to be competitive, a city has to undercut its rivals or offer better value-for-money. In this sense, competitiveness is essentially about securing (or defending) market-share."

However, Depperu and Cerrato (2005) argue that the definition of competitiveness is a little broader and more useful when applied :

> "At the firm level, profitability, costs, productivity and market share are all indicators of competitiveness. Generally, competitiveness is considered synonymous with success. In very simple terms, success can be intended as achievement of company objectives."

Adopting the view of Depperu and Cerrato that "at the firm level, profitability, costs, productivity and market share are all indicators of competitiveness" would seem to be a reasonable way of defining firm success. The key issue, however, for this study is what drives firm success? This question will be answered at the end of this section.

2.4.2 Defining industry success

Notwithstanding the somewhat subjective discussion around defining firm success, there is an emerging consensus that measuring competitiveness at the industry as well as the firm level provides a powerful analytical tool at the regional level.

> "It is at the regional (sub-national) scale that many of the increasing returns that raise the productivity of firms and workers are created and are self-reinforcing." (Martin)

Although the notion of competitiveness was initially developed as a tool for analysing national competition, the significant attention paid to the concept has seen analysis inevitably filtered down to regional, urban and local levels. In particular, interest has grown in the 'regional foundations' of national competitiveness, and with developing new forms of regionally based policy interventions to help improve the competitiveness of cities and, importantly, industries (Martin 2005).

Krugman (1980) applies a narrow interpretation of competitiveness, arguing that it is an attribute of companies, not of regions, countries or continents and raises three points of opposition to the idea of investigating competitiveness at a national level. His first argument is that it is misleading and incorrect to make as analogy between a nation and a firm. Where, for instance, a failing firm will eventually go out of business, there is no equivalent 'bottom line' for a nation. Second, Krugman argues that while firms compete for market share, and one firm's success will often be at the expense of another, the success of one country actually creates opportunities for another. Lastly, Krugman argues that if competitiveness has any meaning, then it is simply another way of saying productivity; that growth in national living standards is essentially determined by the growth rate of productivity.

For the purposes of this study the definition of firm success given by Depperu and Cerrato (2005) would appear to be partly useful for industries too. Profitability and productivity would be non-controversial definitions of success. So too would be employment growth by sector, which is supported by the analysis in the following section, and we have used this as a key measure of industry success in later sections of this report.

2.4.3 Drivers of industry and firm Success: What makes some industries and firms more competitive than others?

Establishing that competitiveness is an effective, useful measure of industry as well as firm success is a first step. Few commentators have actually sought to define competitiveness factors in relation to urban economies. Among those who have is Kresl (1995), who cites six factors, which he considers signal a competitive urban economy:

- The jobs created should be high-skill, high income jobs;
- Production should evolve towards environmentally benign goods and services;
- Production should be concentrated in goods and services with desirable characteristics, such as high income elasticity of demand;
- The rate of economic growth should be appropriate to achieve full employment without generating the negative aspects of overstressed markets;
- The city should specialize in activities that will enable it to gain control over its future, that is, to choose among alternative futures rather than passively accepting its lot; and
- The city should be able to enhance its position in the urban hierarchy.

Kresl's factors are vague however, and blend both qualitative and quantitative measures. What is required is a more fully developed set of measures to benchmark against. Some factors, like the role of innovation, are usually discussed in isolation. A useful finding is that Baldwin's research (Baldwin 2005) has shown that amongst Canadian SMEs innovative activities are the most important determinants of industry success; that is, for a wide range of industries, they serve to discriminate between the more-and the less-successful firms better than any other variable.

Other researchers have attempted to model a broad range of factors that contribute in varying degrees towards competitive nations, industries and firms. We have selected two related and well known models which provide those measures - Porter's Diamond Model of Competitive Advantage ("Diamond Model") and Begg's Urban Competitiveness Maze (Begg 1999).

Importantly, we selected Porter's Diamond Model as it is one of the few models in international business research which illustrates what comprises national competitiveness within a given industry. We selected Begg's Urban Competitiveness Maze as it represents a more recent synthesis of research into competitiveness at the urban level.

The factors which influence competitiveness within each model are summarised in table 2.1 below:

Table 2.1 – Competitiveness Factors

Porter's Diamond Model	Begg's Urban Competitiveness Maze
• Factor Conditions • Demand Conditions • Related and Supporting Industries • Firm Strategy, Structure, and Rivalry • Government's Role	• Sectoral Trends • Company Characteristics • The Business Environment • Innovation and Learning

2.4.4 Porter's diamond

Porter's competitive advantage framework provides a well known way of examining what makes firms and industries successful. Porter's competitive advantage framework, published in his book, *The Competitive Advantage of Nations* (1990), provides a framework to explain why firms based in particular countries achieve international success in distinct segments and industries, and why industries in some countries are more successful than the same industries in other countries.

The key thesis of Porter's framework is that trade and specialisation occurs within and among firms, and therefore, the success of any industry is dependent on the degree of competitive advantage that firms within the industry can gain across a number of areas.

Porter (1998a) also argues that regional competitive advantage stems from the presence and dynamics of an array of *"…interconnected companies, specialised suppliers, service providers, firms in associated industries, and associated institutions (for example, universities, standards associations, and trade associations) in particular fields that compete but also co-operate"* (p. 213-214). He refers to these geographical concentrations of firms as clusters.

Porter describes four attributes of competitive advantage. They are:

1. **Efficiency and mix of production inputs utilised:** Competitive advantage that firms can gain from the efficient and effective use of production inputs – in particular, from the use of more advanced and value-adding production inputs;

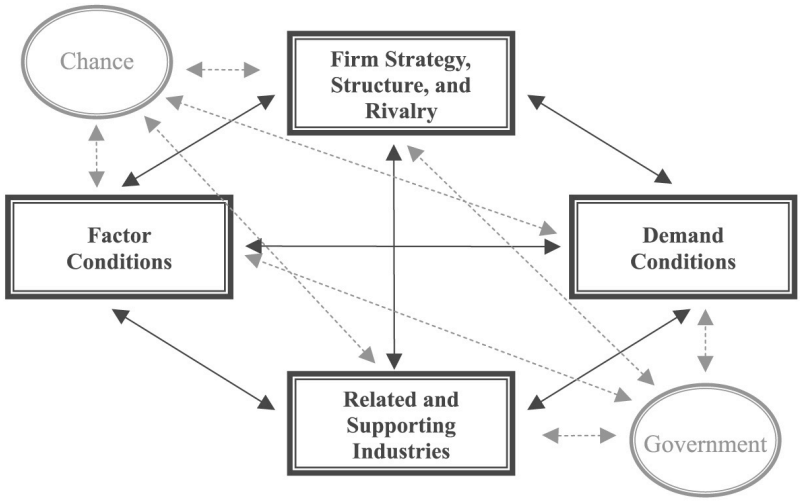
2. **Nature and strength of demand:** Competitive advantage that firms can gain from having access to sophisticated and demanding customers;

3. **Strength of firms in industry**: Competitive advantage that firms can gain from high degrees of competition among firms in the same industry, and having effective business strategies and organisational structures;

4. **Competitiveness of related or supporting industries**: Competitive advantage that firms can gain from high degrees of competition among firms in related or supporting industries.

These four attributes are known as the four attributes of Porter's 'diamond', because the strength of each of these attributes can be plotted on a t-axis and connected to form a diamond shape. In simple terms, the Diamond Model is a method of analysing the degree of advantage an industry holds in the market place. Porter argues that the competitive advantage of an industry is seen as arising from the four different determinants in the quadrants in the diamond, set out at Figure 3.1 below:

Figure 2.3 – Porter's Diamond Model of Competitive Advantage



To Porter, firms are most likely to succeed in industries or industry segments where the diamond is more favorable. Porter also describes two additional variables that can affect the

degree of competitive advantage firms can gain from each of the four attributes (and therefore the shape of the diamond). They are the impact of government policies and external factors that are beyond the control of the industry (Porter calls this 'chance' events).

Porter (1998a) argues that in many industries, and especially in distinct segments of industries, competitors with true international competitive advantage are based in only a few nations and certain characteristics of the nation make them the 'home-base' of those leading firms. The influence of the nation under Porter's Diamond Model applies to industries and segments rather than firms per se. Consequently, it is concluded that to understand competitive advantage the basic unit of analysis should be particular industries within the nations. Porter also supports the view that countries that have competitive advantage in one industry segment will have competitive advantage in a set of related industry segments. This is much more likely to occur if these clusters are located in the same geographical space, because such proximity facilitates the flow of information from which the capability to innovate and to upgrade competitiveness develops.

This conviction that the 'home base' of an enterprise is the locus of competitive advantage is reflected in Porter's exclusion of foreign-owned firms from the study of national competitive advantage. The author's view is that foreign-owned subsidiaries are not sources of competitive advantage for the host country.

Importantly, Porter is a proponent of cluster-based theories of regional growth and competitive advantage. The focus of these theories is on the importance of local external economies associated with the spatial agglomeration of economic activity. Local clusters of export-orientated industrial specialisation are held to be the building blocks of regional success. Clustering of similar and related firms generates various external economies that are sources of increasing returns to the firms concerned, in particular the presence of a pool of specialised labour, dedicated suppliers, and networks of supporting institutions. Clustering also intensifies inter-firm rivalry and knowledge spillovers, both of which stimulate innovation, and thus higher productivity, and thence the export competitiveness of the firms in the cluster.

While Porter's Diamond Model has been highly influential, it is not without its critics. Grant (1991) has argued that the model lacks precision, determinacy and strong predictive ability. Beije and Nuys (1995) continue with the argument noting the fear that the model is comparable with any observed development.

Others have argued that the Diamond Model can be inadequate for resource-intensive industries such as New Zealand (Cartwright, 1993) and Canada (Yetton et al 1982). For resource-based economies like New Zealand, Porter's model is seen to fall short for three reasons:

- First, the economy's small size and geographical remoteness means that Auckland (and New Zealand) firms can only gain real economies of scale from access to international rather than domestic markets. Nevertheless, Auckland's position as the largest and densest city in New Zealand means that it provides a concentrated home market of scale for emerging New Zealand firms.

- Second, with the increasingly globalised market for international trade coupled with the communication flows across countries, international customers have just as much bargaining power over firms as domestic customers.

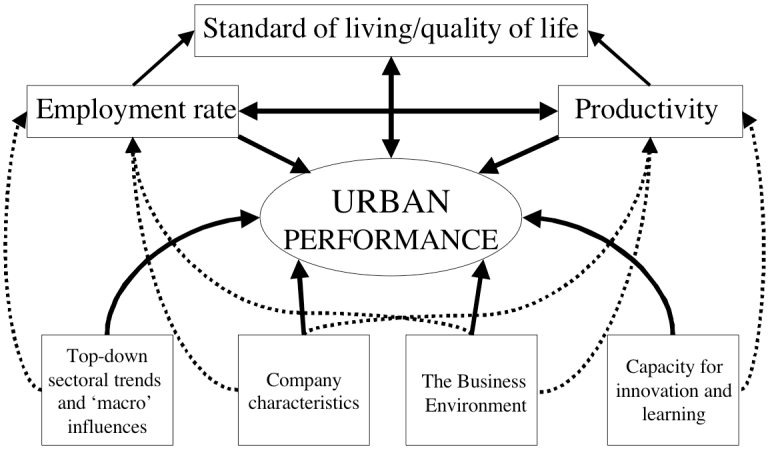
- Third, easy access to information about the needs of international customers means that firms do not need to rely on sophisticated domestic customers to anticipate international trends.

Nuys (1995) argues that Porter has no description of networks in relation to his cluster concept and pays little attention to the manner in which relationships actually operate. Nuys argues that Porter does not actually address the major principles of interaction between enterprises (such as trust, dependency, status, power and economic motive) so that observers remain unclear as to why and how interaction between firms is set up.

2.4.5 Begg's Urban Competitiveness Maze

A number of the critiques of Porter's Diamond Model are addressed by Begg in his Urban Competitiveness Maze. While Begg's framework, like Porter's, seeks to bring together the factors that affect urban economic performance, Begg's ultimate target variable is standard of living, adjusted to allow for non-pecuniary influences on the quality of life. In this framework the various 'competitiveness' factors are brought together in a schema shown graphically in the Figure below.

Figure 2.4– Begg's Urban Competitiveness Maze



It is the combination of employment rate and productivity that generates output and thus income, although whether the income so generated stays in the city would depend on the location of the owners of capital and the residence of workers. Urban performance, too, is multi-faceted and is linked in various ways with standard of living, employment rate and productivity. A 'good' performance may be measured, for instance, on the number of jobs a city sustains, but this might not be matched either by income generation or improved equity.

On the 'input' side, the four categories of determinants (discussed at Table 2.1 below) draw on a format similar to that used by Porter, but differ to the extent that the focus here is on variations across cities rather than nations.

Table 2.2 – Begg's urban economic performance factors

Sectoral Trends	Sectoral trends which captures the main influences on the structure of economic activity in a city and the consequent prospects. These factors are shaped partly by the city's inheritance: the mix of industries and functions will be the outcome of historical development. These in turn will be affected by the incidence of 'top-down' policy influences. • Thus, the aggregate performance of the national (and, increasingly, the regional economy) is bound to affect the individual city. • Long-term structural changes will affect the health of the industries prominent in the urban economy. These will change through time, but usually quite slowly.
Company Characteristics	Company characteristics refers to the mix of attributes of the companies in the local area. Are they, on average, dynamic or sluggish, financially robust or precarious? Do they have access to efficient financing or are they reliant on costly capital? Plainly, an urban area with dynamic companies, selling in growing markets and with strong growth potential will tend to perform better. Key facets of this will include: • Ownership and decision-making powers. Cities with a preponderance of indigenously owned companies will, all other things being equal, be more competitive than those where external control dominates. • The size mix of companies which, in combination with sectoral mix, will bear on how competitive companies are. SMEs constitute a second source of potential competitiveness. Rapid start-up rates and high survival rates are desirable characteristics. • The market segments in which there is relative specialisation: up-market or low-brow; declining or growing, etc. The breadth and quality of the supply-chain is seen as an advantage of agglomeration, but can equally be seen as having an effect on the ability of the urban area to compete. Moreover, a high and growing proportion of trade is within the organisation or in tightly-knit supply chains.
The Business Environment	The business environment comprises factors outside the direct control of the firm that affect the ease with which business can be done. Many of the most telling influences on urban competitiveness concern the mix of factors that affect the input costs of employers in the urban area. Key factors here include: • The supply, quality and cost of the various factors of production, i.e. different categories of labour, property and complementary services. • Labour supply in turn is shaped by the education and training facilities and the ease with which companies can alter the nature

	of publicly funded training provision • Fiscal and user charges can vary substantially between cities, as can the benefits or costs of local public spending. Physical planning rules have similar effects • Social and environmental factors, such as the quality of residential accommodation, the crime rate, schools and so on will play a significant part in persuading investors and senior managers to select a city to invest in. The availability of civic amenities can be expected to work in a similar way. • More generally, 'social cohesion' is regarded as a favourable aspect of a locality and careful integration of social and economic objectives can assist regeneration (Mier, 1993). • Various agglomeration effects can be envisaged. Positive ones include the diversity of sub- contractors, while congestion can be adverse. These are linked to the quality and cost of the transport, communication and other infrastructure networks.
Innovation and learning	Innovation and learning refers to those factors that inhibit or encourage the capacities of firms to develop new processes and products. These are increasingly being recognised as crucial to successful urban development (see the work of Cooke and Morgan, 1994). Much of the impetus to innovate or learn will come from within the company, but there will also be tangible external influences. Thus: • Access to various kinds of networks make it easier to learn of opportunities, to compare notes and to benefit from the experience of others. • In a related way, if there is pressure from exacting purchasers quality enhancement is likely to be achieved (one of Porter's key factors). • The availability of research support, whether in the form of publicly funded research institutes or universities interested in assisting business, or a range of consultancy expertise are likely positive factors here.

In general terms there are some useful synergies between both Porter and Begg's approaches are relevant to this study. Also of relevance is the Conference Board of Canada's (2003) extensions of Porter's concepts about the drivers of firm and industry-level productivity and competitiveness. It presents three broad categories of firm and industry productivity drivers. They are:

- Firm-specific factors – including human capital, physical capital, and innovation;
- Business and policy environment factors – including industrial structure, mix of products and services, size of firms, foreign ownership, degree of competition within the industry, clustering, urbanisation, and types of labour; and
- Global factors – including trade liberalisation, changes to world commodity prices, political events, and other external events.

After considering locational influences in the next section an attempt is made to shape a framework from the learning offered by these approaches.

2.5 Firm location, productivity and success – what matters?

Firm location has become a salient feature of the globalising economy. The location of firms is important as it affects the ability of firms to access the factors of production that it needs, including skilled labour and financial capital, and the relative profitability of firms because location affects the overall cost of doing business.

As discussed above, Porter (1990) argues that strong domestic demand is a key source of competitive advantage. Sophisticated and demanding domestic customers put pressure on firms to improve the quality and design of their products. Domestic demand also provides insights into the existing needs and trends that are difficult to gain in international markets. The size of the domestic market in absolute terms is also important because a large domestic market can lead to comparative advantage in industries where there are economies of scale.

Although some commentators contend that the boundaries between local and global markets are increasingly becoming blurred due to globalisation, others argue that competitive advantage has become more and more localised. Supporting this latter view, Porter (1998b) argues:

> *"In a global economy… one would expect location to diminish in importance. But the opposite is true. The enduring competitive advantages in a global economy are often heavily localised, arising from concentration of highly specialised skills and knowledge, institutions, rivalry, related businesses, and sophisticated customers."* (p. 90)

Porter contends that clusters affect competition in three respects that both reflect and amplify the diamond: 1) increasing the current productivity of constituent industries or firms; 2) increasing the capacity for innovation and productivity growth; and 3) encouraging new business formation that supports innovation that expands the cluster or industry.

2.5.1 Location drivers

Why do firms locate where they do? One of the earliest explanations is provided by Losch's central place theory that simply assumes that firms locate in such a way as to maximize profits (Parr 2002). Krugman (1995) and others have extended the central place explanation to include market size, agglomeration and localization economies. In addition to such market-based factors, policy-related factors such as favouritism towards certain regions can also explain location of firms (Markusen 1999). Before examining the results of the surveys on the drivers of firm location in Auckland we consider the economics of cities and the relationship with firms' locational decisions.[2]

[2] This section draws heavily on Ascari Partners Ltd (2007), *Cities: Engines of Growth in the Global Economy*, a report prepared for the Ministry of Economic Development.

More recent theory on international trade predicts that increased globalisation is associated with increased locational concentration of particular economic activities, and hence increased specialisation of national and regional economies.

Although empirical analyses face many such methodological difficulties, the literature provides much information about why firms locate where they do. The central determinates of a location decision are a firm's factors of production. For instance, a firm that spends a large portion of total costs on unskilled labour will be drawn to locations where labour is relatively inexpensive. Generally speaking, firms choose locations they consider will allow them to maximise net revenues. If demand for goods and services is held roughly constant, then revenue maximisation is approximated by cost minimisation.

In addition to production factors firm's locational choices are influenced by public policy including the effect of regulation, taxation and financial incentives and more indirect factors including the existence of industry clusters, the overall quality of life and innovative capacity of the location.

A range of the key firm location factors identified in the literature is discussed in Table L1 below.

Table 2.3 – Factors influencing firm location Identified in the literature

Firm Production Factors	
Labour Dumais et al (1997) Fulton and Shigley (2001)	Frequently the single most important factor for firms deciding where to locate. For most firms, labour is the largest operating cost.
Land Carlson (2000)	Demand for land depends on the type of firm. Manufacturing firms require more space and tend to prefer suburban locations. Warehousing and distribution firms need to located close to rail / road networks.
Local Infrastructure Fisher (1997) Eberts (1991)	The quality and efficiency of infrastructure and facilities, such as roads, bridges, water and sewer systems, airport and cargo facilities, energy systems, and telecommunications.
Access to markets Friedman et al (2006)	While technically part of infrastructure, transportation is important enough to warrant particular attention. Access to efficient transportation is critical.
Materials Jenson and Pompelli (2002)	Firms producing goods, and even firms producing services, require various materials to develop products that they can sell.
Public Policy Factors	
Regulation Mulatu (2009)	The degree of importance for regulatory controls varies greatly with industry type. Regulations protect the health and safety of a community, and help maintain the quality of life. Simplified bureaucracies and straightforward regulations can help firms react quickly in a competitive marketplace.
Taxes	While the majority of research indicates that taxation issues are relatively unimportant, they can become important when all other factors

Buss (2001) Wasylenko (1997) Beaulieu (2004) Phillips and Goss (1995)	are equal. Location decision-makers may use tax incentives as tie-breakers when more than one community fits all of the other location needs. Within a region, production factors are likely to be similar, so differences in taxation levels across communities are more important in the location decision than the differences in tax levels between regions.
Financial Incentives Bartik (1994) Bartik (1995) Buss (1999)	Governments can offer firms incentives to encourage growth. Generally, economic research has shown that most types of incentives have had little significant effect on firm location between regions. However, for manufacturing industries with significant equipment costs, property or investment tax credit or abatement incentives can play a significant role in location decisions.
Indirect Factors	
Industry Clusters Porter (2000) Head et al (1995) Audretsch and Feldman (1996)	Firms tend to locate in areas where there is already a concentration of firms like their own. The theory works in practice because firms realise operational savings and have access to a large pool of skilled labour when they congregate in a single location.
Quality of life Granger and Blomquist (1999) Florida (2000)	A region that features many quality amenities, such as good weather, recreational opportunities, culture, low crime, good schools and a clean environment attracts people simply because it is a nice place to be. A region's quality of life attracts skilled workers, and if the amenities lure enough potential workers to the region, the excess labour supply pushes their wages down so that firms can find skilled labour for a relatively low cost.
Innovative capacity Collaborative Economics (1999) Florida (2001)	Recent studies suggest that a culture promoting innovation, creativity, flexibility and adaptability will be essential to keeping global cities economically vital and internationally competitive. Innovation is particularly important in industries that require an educated workforce. High tech firms require access to new ideas typically associated with a university or research institute. Government can also be a key part of a communities' innovative culture, through the provision of services and regulation of development and business activities that are responsive to the changing needs of business.

As this table shows, location matters to firms. The characteristics of locations identified in this table will be expected to strongly influence firms' locational choices and will therefore be an important determinant of the success of firm. Another way of considering the importance of location is to briefly canvass the economic geography literature.

2.5.2 The economics of cities and firm location

Cities are the driving force of the modern global economy (OECD 2006). A reason for this is the vast structural change that has occurred in most modern economies. Whilst cities were traditionally the home of specialised production processes (e.g. cars in Detroit or cotton goods in Manchester), they now thrive through the concentration of company headquarters

and the provision of high value added service activities. Essentially, cities have become the natural home of the knowledge economy, with an over-representation of high value added service activities.

A key factor in this pattern of economic development is the concept of agglomeration; the higher levels of productivity and higher returns to businesses and workers that arise from increasing the concentration of people and economic activity in larger, denser urban areas.

Agglomeration theorists argue that (based on the original work of Marshall) the spatial concentration of people and activities can generate external economic benefits via input-output linkages (input for one firm is output for another firm and vice versa), thick local labour markets for specialised skills, and knowledge spillovers for innovation (Ottaviano, 2007).

The effects of agglomeration economies can raise the productivity of firms and, ultimately, the competitive advantage of a region. Krugman (1980) argues that some firms will locate in densely populated, large urban areas to benefit from 'home market' effects associated with agglomeration because their activities are subject to increasing returns of scale and efficiency gains, which, in turn, allows them to expand to global markets. Of the three underlying factors that drive agglomeration, the labour market effects appear most prominent. These benefits essentially drive the growth of cities, the formation of clusters and the growth of industrial regions. They also fundamentally influence firm location choices.

The empirical evidence supporting the existence of economic benefits arising from agglomeration is strong. A significant number of empirical studies undertaken across a broad range of cities and urban areas, including Auckland, have found a positive relationship between either, the employment scale, or, density in an urban area, and the productivity of that area (Williamson et al 2007a). Work previously undertaken by Ascari Partners, for the Ministry of Economic Development has shown that agglomeration benefits are being achieved in Auckland. Our research has found that:

- A doubling of employment densities in Auckland will result in around a 3% improvement in productivity, consistent with agglomeration effects being at play.
- Accessibility constraints are probably limiting the productivity benefits that may otherwise be generated.

More specifically, accessibility and amenity are widely recognised as two of the major factors underpinning agglomeration. Used to proactively, they can enable a city to reap further benefits from growth but if neglected they can easily act as a constraint to further growth.

Investments which promote a reduction in transport costs create the opportunity for an increase in the employment density and productivity of a city as 'accessible cities with efficient transport systems have higher productivity than more dispersed places' (Cervero 2000). A paper published by the Centre for Transport Studies in London (Graham 2005) goes so far as to say that "ultimately transport investment is crucial in sustaining cities and supporting urban agglomeration." Reduced travel times and improved accessibility bring a greater range of employment opportunities within reach of households. Both of these improve the match between potential workers and employment opportunities. The reduced travel times will also to allow firms and businesses to interact more effectively between themselves, again allowing the generation of agglomeration benefits.

The literature also demonstrates that the economic success of cities is substantially dependent on the skill levels of workers. It makes clear that, to attract skilled workers, cities must be an attractive place to live and work with a range of social, cultural and environmental features (high amenity values) (Liu 2005). Research indicates that quality of life factors, including vibrancy and local amenity, are often key factors in the employment and housing decisions made by the most knowledgeable workers. Liu notes that skilled people are attracted to compact centres, as living and working spaces, due to their vibrancy, the protection of green spaces, labour market thickness and a generally tolerant social environment Marcus Spiller makes similar remarks in reference to intensification in the Australian context. The contention is that high quality urban areas will be more successful in attracting well educated and highly productive workers, the types of workers who will underpin the productivity gains within a more agglomerated economy.

Additionally, it is becoming increasingly apparent that amenity is a significant factor in the location choices made by firms. This is principally because an attractive location:

- adds to the prestige of the firm; and
- makes it easier to attract skilled workers who are more productive and therefore more profitable.

Previous research on business location in Auckland confirms the importance of these factors. The ARC's Business Land Strategy found that business location within the region is not simply driven by the supply of vacant business land. Different business types have differing locational requirements. The Business Service sector in Auckland typically requires:

- Good transport access, especially public transport
- High amenity surroundings
- Proximity to customers/clients
- High-quality premises
- Medium to high broadband capacity.

2.5.3 Summary

The drivers of firm location are well understood from a theoretical and empirical perspective. For firms, location matters a lot, but trade-offs must be made between the advantages of cities, including access to skilled, unskilled, and casual labour, access to markets as well as supply chains and knowledge sharing opportunities with the associated costs such as higher rents and wages, traffic congestion and reduced amenity.

This analysis provides a good comparative framework to apply to the responses generated in this study. For instance, for firms in Auckland, how much does access to markets matter? Is Auckland seen as providing a deep, skilled labour force? Does amenity drive firms to locate in Auckland? And, are clusters in Auckland fostering industry success?

2.6 Identifying a framework to underpin the analysis

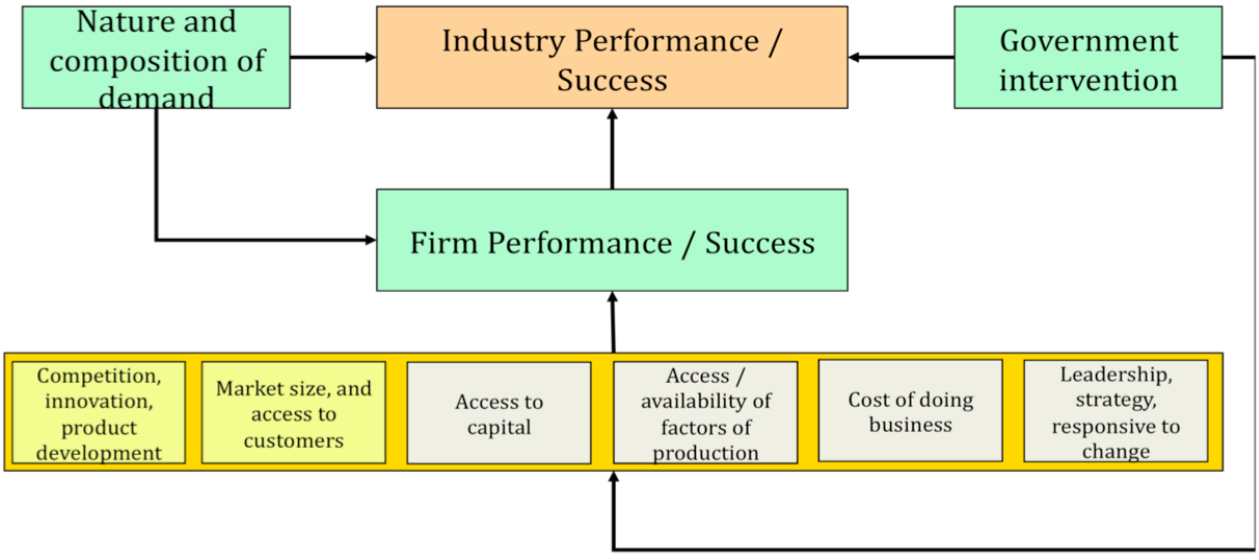
The purpose of this section has been to develop an informed understanding of the drivers of firm and industry success and firm location decisions.

The analysis has revealed an often complex picture, which is to be expected. However, it is important to distil this picture into a meaningful tool that can be applied in this study as benchmarks, against which Auckland specific responses can be compared. This will allow conclusions to be drawn on the relative importance of accepted drivers of firm success, industry success and firm location within the Auckland context.

We feel that overall the concepts and principles presented by Porter offer a useful starting point for thinking about and analysing the data collected this study in relation to the drivers of industry and firm success. Porter's frameworks provides a strong foundation for the survey research and semi-structured interviews questions. It also enables us to gain deeper understanding of the empirical data as well as the underlying patterns and themes that emerged during our analysis. However, we have adapted this framework to reflect our considered view, based on the analysis above, of the key drivers of firm and industry success and the connections between the two concepts. The most important distinction is our emphasis on the role of firms in driving industry success. This is not inconsistent with Porter, but reflects a more micro way of looking at industry success. In essence, the micro foundations of industry success are to be found in firms.

The diagram below provides an outline of the approach adopted:

Figure 2.5: Research approach



We consider that at a broad level, there are three main drivers of industry success:

- The nature and composition of demand (consistent with Porter's nature and strength of demand). On the demand side, the strength, nature and composition of domestic

and international demand provide the base conditions and opportunities for which firms within the industry can take advantage of and grow from.

- Government intervention: Second, on the supply side, government intervention is important. This could be a positive influence where proactive sectoral development support is used to encourage more firms to enter the industry. However, it is also distortionary and leads to adjustment costs if support is reduced or removed.

At the sectoral level, these two categories of drivers provide the foundational conditions from which firms within the industry can take advantage of, and help the industry to grow and succeed. However, they are not sufficient conditions for the growth and success of the industry itself.

- Firm performance or success (consistent with Porter's strength of firms in industry). Because industries are made up of firms at the microeconomic level, the third major determinant of industry growth is having many fast growing and successful firms within the sector.

The third point is critically important. It is not possible to consider the drivers of industry success in a meaningful sense in isolation from a consideration of the firms within an industry and their drivers of the success. Firm success is seen to be driven by six direct factors which are also strongly influenced by location:

- Competition, innovation and product development (consistent with Porter's efficiency and mix of production inputs utilised)
- Market size and access to customers (consistent with Porter's nature and strength of demand)
- Access to capital
- Access to/availability of factors of production
- Cost of doing business
- Leadership, strategy and responsiveness to change

The purpose of this review was to develop not just a theoretical underpinning for the research, but to identify multiple perspectives to inform the interview process and interpret the data collected. A substantial literature exists, both in economics and economic geography, that emphasises the role of firms and industries in regional and urban competitiveness. From an investigation of the literature, we have developed a conceptual framework for understanding the key drivers that affect Auckland's productivity and competitive performance. Our analysis of the empirical findings and writing of the report are based on the principles of the framework. The methodology used for collecting the primary information needed for this research is discussed in the next section of the report.

3 Methodology

This section provides a review of the methods we applied in the collection of the primary data that underpins this research.

3.1 Mixed method design

A mixed methods design captures both qualitative and quantitative approaches and involves analysing data from multiple methods and sources (triangulation). The design is advantageous because it explains more fully the drivers of firm and industry success and firm location decisions by providing diverse ways of making meaning from what is being observed. Multiple methods of data collection and an interpretative approach to data analysis were used for this research, including a literature review of theoretical literature and empirical research from economic geography and economics, web based survey research of firms, and case studies of successful and declining industry sectors within the Auckland region through semi-structured interviews with firms. Mixed method designs, through triangulation, add to the credibility of the research by strengthening confidence in the hypotheses drawn (Patton, 2002). Each method is discussed in more detail below.

3.2 Online survey

To understand the factors influencing firm location as well firm success, an online survey was used to collect information from as wide a range of firms as possible, including different sizes of firms across different industries and geographic locations both within and outside the Auckland region. Designed in conjunction with MED staff, Porter's competitive diamond model was used, together with the current literature, to develop the questions. The survey was piloted with four firms before it was launched. Each firm provided feedback, which was incorporated into the final version of the survey.

The survey consisted of three short sections, and was approximately 10 to 15 minutes in length. The three sections of the survey comprised questions about:

- The characteristics of each firm;
- The factors that influence each firm's location decisions; and
- The factors that influence each firm's performance and success.

The Employers and Manufacturers Association (EMA) and the New Zealand Trade and Enterprise (NZTE) were approached to provide us with a sample population through access to their databases. According to these groups, New Zealand businesses have been over surveyed in recent years. In spite of this caution, both NZTE and EMA agreed to bring the survey to the attention of their members. An official cover letter signed by the Director of APO, along with a web link to the online survey, was forwarded to members of the NTZE database of manufacturers and the EMA database inviting them to participate in the research. An email with the survey link was also sent to industry contacts of PricewaterhouseCoopers, Ascari, and Strateg.Ease to widen the breadth and scope of the firms included in the survey. In total, approximately 550 firms were invited to participate, most of which were located in the Auckland region.

A total of 51 firms responded to the survey, in which 39 were fully completed. The remainder consisted of partially completed surveys (12 in total). We chose to discard the incomplete surveys, resulting in an extremely low response rate (7 percent). This might be explained by the fact that the survey was carried out over the summer period (including the Christmas and New Year period) when a large number of businesses close down for an extended period. Other contributing reasons may include consultation fatigue among members of the business community, and firms not willing to put in the time and effort to complete a survey in the current economic downturn, as they concentrate on ensuring business survival.

Additionally, although the study focused on firms located in the Auckland region, the survey was designed so that it could also capture the views of firms that have fully relocated from Auckland, and those that have never been located in Auckland. However, only two of the 39 completed responses were from firms that have never been located in Auckland. None of the respondents had fully relocated from Auckland previously.

The low response rate prohibits us from drawing definitive conclusions. Because of this, the information collected from the surveys was used to supplement the interview data.

3.3 Case studies – fast growing and declining industry sectors

To gain an in-depth understanding of the factors both driving and impeding industry success in the Auckland region, seven industry sub-sectors were selected as case studies. Case studies within a mixed method design enable a detailed analysis of the dynamics within a single setting or particular context. To collect case study evidence, we selected:

- Five large sectors (with an employee count of over 1,000 in 2008) with high positive employment growth in the Auckland region between the years 2000 and 2008 (referred below as 'growing' sectors); and
- Two sectors with negative employment growth in the Auckland region over the same period (referred below as 'declining' sectors).

Case studies were chosen based on an assessment of the employee count data by detailed industry groups from the Statistics New Zealand's business demographics database. Australian and New Zealand Standard Industrial Classification (ANZSIC) 1996 industry classifications were used as the basis of the analysis. The main criterion was to select a mix of goods production and service provision sectors to ensure some degree of breadth and depth in our coverage. Table 3.1 shows the industry sub-sectors that were selected for the case studies.

Table 3.1: Employment growth rates of the case study sectors

	ANZSIC 1996 Code	Auckland Regional Employment Growth Rate (2000 to 2008)
High Growth Industry Sub-Sectors		
Medical and Surgical Equipment Manufacturing	C2832	231%
Services to Agriculture (nec)[3]	A0219	154%
Scientific Research	L7810	124%
Consultant Engineer Services	L7823	79%
Electronic Equipment Manufacturing (nec)	C2849	54%
Declining Industry Sub-Sectors		
Automotive Component Manufacturing (nec)	C2819	-52%
Agricultural Machinery Manufacturing	C2861	-48%

Source: Statistics New Zealand

The ANZSIC classification provides a framework for compiling and analysing industry statistics in New Zealand and Australia. Although Statistics New Zealand and the Australian Bureau of Statistics attempt to ensure the classification stays current and relevant by reflecting changes in the structure and composition of industry, businesses are ultimately assigned to a category according to their predominant economic activity.

It is important to note that Statistics New Zealand's definitions for each of the above ANZSIC categories are narrow and prescriptive, and we have taken a broader interpretation of the sector where we felt it was relevant to do so. For example, from the definition of the category 'electronics equipment manufacturing' (discussed below), it is unclear whether consumer electronics are included as part of the definition. However, we have interpreted 'electronic equipment' to include all equipment that is electronic in nature, including consumer electronics.

It is also important to note that many of the firms fell into multiple ANZSIC categories. For example, some medical and surgical equipment manufacturers and agricultural machinery manufacturers also viewed themselves as electronic equipment manufacturers. Some scientific research firms also provided services to the agricultural sector. It is within these parameters that we proceed to describe the selected sub-sectors.

[3] nec = not elsewhere classified.

3.3.1 Overview of the case study sectors

Medical and surgical equipment manufacturing sector

This sector is defined by Statistics New Zealand as consisting of businesses that are mainly engaged in the manufacturing of medical, surgical, or dental equipment. This includes the manufacture of artificial joints and limbs, diagnostic apparatus, hypodermic needles or syringes, respirators, first aid equipment, and veterinary instruments.

In 2008, 1,820 people were employed in the medical and surgical equipment manufacturing sector in the Auckland region – representing 77 percent of the total number of people employed in the sector nationally. Within the Auckland region, Manukau City has the highest share of employees in the sector – with 84 percent of the region's employment in the sector being located there.

Between the years 2000 and 2008, employment grew by 231 percent in the sector within the Auckland region – faster than the national growth rate of 165 percent. Manukau City experienced a phenomenal rate of employment growth in the sector – increasing from 12 people in 2000 to 1,530 people in 2008 – a growth rate of 12,650 percent. Employment in the sector also grew quickly in North Shore City and Waitakere City (but from a low base), and decreased in Auckland City. Employment in the sector is negligible in Rodney District, Papakura District, and Franklin District.

Electronic equipment manufacturing sector

This sector is defined by Statistics New Zealand as consisting of businesses engaged in the manufacturing of electronic equipment, including alarm systems, earphones, hearing aids, intercom equipment, magnetic tapes, printed circuit boards, record players, sound recording equipment, tape recorders, transistors, amplifiers, microphones, radio receiving sets, semi-conductors, television receiving sets, and other electronic devices.

In 2008, 1,540 people were employed in the electronic equipment manufacturing sector in the Auckland region – representing a 54 percent share of the national total. Within the Auckland region, Auckland City has 80 percent share of the employment in the sector.

In the Auckland region, employment in the sector grew by 54 percent between the years 2000 and 2008 – slightly higher than the national growth rate of 51 percent over the same period. Within the Auckland region, employment in the sector grew positively in North Shore City and Auckland City, and decreased in Waitakere City, Manukau City, and Papakura District.

Scientific research sector

This sector is defined by Statistics New Zealand as consisting of research institutes (except universities) that are mainly engaged in undertaking research in the agricultural, biological, physical, and social sciences. It includes aeronautical research, biological research, food research, medical research, agricultural research, industrial research, farm operations, and space tracking.

In 2008, 1,770 people were employed in the scientific research sector (excluding universities) in the Auckland region – representing 24 percent of the national total. Within the Auckland region, 89 percent of the sector's jobs are located in Auckland City.

In the Auckland region, employment in the sector grew by 124 percent between 2000 and 2008, compared with just 30 percent nationally. Nearly all areas within the Auckland region achieved positive employment growth, with most of the growth (in terms of actual jobs) occurring in Auckland City. Manukau City and North Shore City also achieved high rates of growth, but they started from a low base.

Consultant engineering services sector

This sector is defined by Statistics New Zealand as consisting of businesses that provide engineering consultancy services, including in the fields of chemical engineering, civil engineering, electrical engineering, hydraulic engineering, materials handling engineering, traffic engineering, marine engineering, boat designing, building inspection and consultancy, and construction project management.

In 2008, 6,410 people were employed in the consultant engineering sector in the Auckland region – representing 42 percent of the national total. Within the Auckland region, 72 percent of the jobs in the sector are located in Auckland City.

In the Auckland region, employment in the sector grew by 79 percent between 2000 and 2008, compared with a national growth rate of 73 percent. All areas in the Auckland region achieved positive employment growth except for Papakura District, where employment numbers did not change overall. Most of the growth in terms of actual jobs occurred in Auckland City, but Waitakere City achieved the highest rate of growth with 208 percent growth over the period.

Services to agriculture sector

This sector is defined by Statistics New Zealand as consisting of businesses that provide services to the agricultural sector, including crop harvesting, farm irrigation, fruit picking, artificial insemination, dairy herd testing, fertiliser spreading, hay baling or pressing, livestock dipping, mulesing, seed cleaning or grading, rural land clearing, livestock drafting or droving, agricultural pest control, and wool classing.

In 2008, 1,420 people were employed in the sector in the Auckland region. This represents only 6 percent of the national total. Within the Auckland region, 49 percent of the jobs in the sector are located in Franklin District, 26 percent are located in Manukau City, and 14 percent are located in Rodney District.

In the Auckland region, employment in the sector grew by 154 percent between 2000 and 2008, compared with a national growth rate of 77 percent. All areas of Auckland (except Papakura District) had positive employment growth, but most of the growth in terms of actual number of jobs occurred in Franklin District and Manukau City.

Agricultural machinery manufacturing sector

This sector is defined by Statistics New Zealand as consisting of businesses mainly engaged in the manufacturing of agricultural machinery or equipment, including agricultural implements, irrigation equipment for agricultural purposes, tractors for agricultural purposes, windmills, and lawn mowers.

In 2008, 320 people were employed in the sector in the Auckland region. This represents 12 percent of the national total. Within the Auckland region, 72 percent of jobs are located in Auckland City.

The agricultural machinery manufacturing sector represents an intriguing situation. Although the number of employees within the sector in the Auckland region has decreased by 48 percent between 2000 and 2008, the sector has growth by 23 percent nationally. Also, the total number of firms within the sector in the Auckland region has remained relatively unchanged over the same period. According to Statistics New Zealand data, there were 36 agricultural machinery manufacturing firms in the Auckland region in 2000. In 2008, there were 37 firms.

Automotive components manufacturing sector

This sector is defined by Statistics New Zealand as consisting of businesses mainly engaged in the manufacturing of automotive components, including car accessories, clutch assembly, gear boxes, mufflers, roof racks, shock absorbers, transmissions, radiators, seat belts, child car restraints, suspension components, wheels, factory reconditioning of changeover motors, and marine conversion of automotive engines.

In 2008, 590 people were employed in the sector in the Auckland region. This represents 37 percent of the total number of people employed in the sector nationally. Within the Auckland region, 54 percent of the jobs in the sector are located in Manukau City.

In the Auckland region, employment decreased by 52 percent between 2000 and 2008. This compares with a decrease of 32 percent nationally. Most areas of the Auckland region (except North Shore City and Franklin District) experienced negative employment growth. Most of the jobs lost were from Manukau City, which interestingly enough, enjoyed employment growth up to about 2005, but job numbers have more than halved since then. Rodney District, North Shore City, and Franklin District experienced relatively high positive growth, but they started from a low base.

In 2003, the automotive components manufacturing sector was described as a thriving industry in New Zealand. Exports, notably to the US and Australian markets, increased by 90 percent between 1998 and 2003, with an annual increase of 21.5 percent per year. Known for high quality designed products and customer service, New Zealand exports were projected to grow through to 2007 at a rate of approximately 10 percent, with a total increase of over 50 percent (Miller & Whitcher, 2003). R&D activities were heavily concentrated in large firms, while smaller firms had achieved success in niche markets overseas.

Miller and Whitcher (2003) noted that for success to continue, manufacturers in New Zealand simply had to keep responding to new market opportunities by creating new innovative products. Clearly, this response was not the case. One possible reason was a rising exchange rate since the early 2000s. The rising New Zealand currency kept profit growth modest and shipping costs high. Another reason might be the effects of deregulation

of the automotive industry in 1984 are finally being felt. Although the industry has diversified into other product lines following the reforms of the 1980s, NZTE concedes the removal of protection barriers contributed to the demise of a well performing subsector (NZTE, 2006). Consequently, the number of firms competing in the industry has declined. Argent Metals Technology Limited (owned by ION limited), which was described in a report for NZTE as *"arguably one of New Zealand's finest examples of the industrial application of advanced research and development"*, is no longer in business (Miller & Whitcher, 2003, p. 30). Overseas manufacturers (e.g. China, India, and other emerging economies) are also increasing threats to New Zealand's automotive components manufacturing industry. Unfortunately, it seems that the development of niche products and provision of good customer service has not been enough to keep the industry globally competitive.

3.3.2 Semi-structured interviews

As part of the case studies, 59 semi-structured interviews were carried out with firms, as well as industry representatives, government officials, and university staff affiliated with the seven case study sectors. The purpose of the interviews was to understand the underlying motives and behaviour of individual firms, but also to acquire wider industry perspectives about each sector.

Potential firms were identified through a search of a number of online business directories and the Internet more generally. In the case of the four specialised manufacturing sectors, NZTE helped to identify firms to interview. The criteria for selecting firms were based on firm size and location to ensure that the perspectives of small, medium, and large firms from different parts of Auckland are captured.

At least five firms were interviewed in each sector, except for the automotive components manufacturing sector. The reasons for this decision were two fold. First, most of the firms we approached were struggling to cope with the current economic recession. For example, the manager of one company we contacted was in a meeting at the time we called, deciding whether to continue operating or not. Second, it appeared that firms in the sector has been approached multiple times for research purposes, and many said that they did not see the benefits of speaking to another researcher.

Forty-seven interviews were carried out with firms as part of the case studies. The people interviewed were mainly chief executive officers (CEOs) or managing directors. In the case of the scientific research sector, both public and private research institutes were interviewed. Twelve interviews were carried out with people associated with the different industries, including CEOs and Board members of various industry bodies, and government officials that are either currently or have previously been heavily involved with the sectors.

The questions used in the interviews were informed by the concepts and ideas described in section 2.2.

3.4 Data analysis

The interviews were transcribed and subjected to content analysis to identify major patterns, themes, understandings, and illustrative case examples. Four kinds of triangulation were used to establish, verify, and validate the qualitative analysis of the research (Patton, 2002):

- *Methods triangulation* – checking the consistency of findings through different data collection methods;
- *Triangulation of sources* – checking the consistency of different data sources within the same method;
- *Analyst triangulation* – using more than one analyst to review the findings; and
- *Theory/perspective triangulation* – using more than one perspective or theory to interpret the data.

In this research, methods triangulation involved not just comparing and integrating data from the survey and interviews, but also searching for consistencies across the entire data set. When inconsistencies were found, we probed deeper to gain insight into the discrepancies. Triangulation of sources was achieved by comparing perspectives of people from different groups (e.g. the CEO of a medical equipment manufacturer with the CEO of the Medical Technologies Association of New Zealand) or with written documentation. To achieve analyst triangulation, two separate teams were used. One team analysed the data while the other team peer reviewed the findings.

The main purpose of theory triangulation was to understand how different premises and assumptions impact on the interpretations, findings, and hypotheses. In the next section we present our analysis and empirical findings.

4 Drivers of firm location

This section considers our findings with regard to the drivers of firm location. It considers questions as to why firms choose to locate in the Auckland region, to what extent being located in Auckland impacts on success, and what negative factors associated with Auckland that might cause firms to locate to other cities or regions?

As noted in Section 2, the drivers of firm location are well understood from a theoretical and empirical perspective. For firms, location matters a lot, but trade-offs must be made by firms between the advantages of cities, including access to skilled, unskilled, and casual labour, access to markets as well as supply chains and knowledge sharing opportunities and the associated costs of cities such as higher rents and wages, traffic congestion and reduced amenity. This picture provides us with a comparative framework to apply to the responses generated in this study.

4.1 Why do firms choose to locate in the Auckland region?

4.1.1 Preference of owners and CEOs

Interestingly then, given the above, our discussions with firms revealed that the most common reason why they are located in Auckland is because it is where their owner, CEO, or shareholders live – rather than for rational business purposes per se. This factor was a common theme for all types of firms – large and small, and across different sector and activity groupings. It is possibly a little worrying to find that the most common locational driver for firms in Auckland is not something that the literature would concur with. However, there may well be a good reason for this response. Although we did not investigate why a firm's owner or CEO lived in Auckland, they are essentially skilled labour. Perhaps these people locate in Auckland to best capitalise on their skills in the same way other workers do.

Importantly, a number of firms did note that Auckland is actually not the best place for their business to be located in New Zealand if they want to grow the business because their key customers and markets are not located in Auckland. However, they are in Auckland because it is the place where the owner or CEO lives and wants to live. This situation can be seen more acutely in the services to agriculture sector, where a number of Auckland-based firms said that better locations to grow their businesses include the Waikato, Hawkes Bay, and Canterbury regions, which have a higher concentration of agricultural activities than the Auckland region.

Extending this finding to include global locations, some firms, particularly export-intensive businesses, noted that Auckland is not the best place to be located because it is far from the firms' key customers and markets, which are based overseas. Also, a number of firms in the automotive components manufacturing sector and biotechnology sector noted that they would be better off in other countries, but have chosen to be in Auckland because it is where the owner or CEO lives, and because they are proud Kiwis and want to keep the business in New Zealand. For example, a few automotive component manufacturers felt that their business would be bigger and grow faster if it was located in Australia because local demand conditions are better there compared with New Zealand (which has no local automotive industry). A number of biotechnology firms also noted that they would be better off in other countries, such as Australia or the US, because there is better access to a larger

pool of private equity, and there are better government incentives for biotechnology firms in some countries overseas.

4.1.2 Expected locational drivers

There are a number of other important reasons why firms considered that they were located in the Auckland region (compared with other locations in New Zealand) that are consistent with the factors identified in Section 2. However, the relative importance of these factors differs depending on the nature of the firm. These locational drivers include:

- **Labour supply:** There is a bigger pool of labour (skilled, unskilled, and casual) in the Auckland region, and it is easier to find staff (particularly skilled staff) compared with other parts of New Zealand. Access to a pool of skilled labour is particularly important for very large firms that have high demands for skilled labour as well as firms that need a reasonably large number (e.g. 10 to 15 plus) of highly qualified specialists in niche fields (e.g. scientists);

- **Markets**: There is better access to the large Auckland market and customer base, and Auckland has been a high-growth centre over recent years. This factor is more important to firms that service the domestic market, and less important for major exporters. For example, one Christchurch headquartered consulting engineering firm said they decided to expand into the Auckland market because it was one of the fastest growing regions in New Zealand;

- **International market access**: There is better access to international markets and supply chains because there are better international connections (via airport and port) to and from Auckland compared with other parts of New Zealand. This factor is more important to firms that have international business dealings, including exporters and importers, and less important for those that do not;

- **International visitors:** It is easier to attract international business visitors to Auckland (compared to other parts of New Zealand) because: 1) Auckland is New Zealand's largest city and international visitors tend to want to visit a large city, and 2) it is easier for international visitors to do business in Auckland because most international flights land in Auckland, and not other parts of New Zealand. Again, this factor is more important to firms that have international business dealings, and less important for those that do not; and

- **Skilled migrant labour:** It is easier to attract and retain highly skilled labour from overseas to Auckland because people tend to want to live in a major centre compared with smaller cities in New Zealand. This factor is more important to firms that have to recruit internationally, and less important for firms that do not.

A few firms also noted it is easier to do business in Auckland in general compared with other parts of New Zealand. They believe there is better access to (and choice of) supporting services (e.g. legal, accounting services), and many of their clients have head offices in Auckland. So, although their clients may not be based in Auckland, many visit Auckland frequently for business. One firm claimed that there are, *"more small firms in Auckland doing innovative things"* than anywhere else in New Zealand, and there is a more innovative environment in Auckland in general. It is unclear how important these factors are to different types of firms because they were mentioned by only a small number of respondents.

4.1.3 Influences at the sectoral level

Significant locational influences at the sectoral level included:

- **Government health sector:** Auckland is home to the largest District Health Board (DHB) in New Zealand, has the highest concentration of DHBs located in the same region, and is home to world leading research on specific health issues such as diabetes and fertility. These factors could be key attractors for firms in the medical and surgical equipment manufacturing sector to locate in Auckland;

- **Access to private equity:** An important reason for many scientific research/biotechnology firms locating in Auckland is the ease of access to private equity in Auckland compared with other parts of New Zealand. This is because there are more large businesses and wealthy individuals in Auckland, and New Zealand's largest angel investment organisation, ICE Angels, is located in Auckland; and

- **Close proximity to rural activities outside region**: Auckland is not a natural home for providers of services to the agricultural sector. Some firms are located Auckland (in the Franklin District in particular) because it is relatively close to the Waikato region – a major region for agricultural activities. According to Statistics New Zealand, 82 percent of the people employed in the services to agriculture sector within the Auckland region in 2008 were located in the southern parts of Auckland – i.e. Manukau City, Papakura District, and Franklin District. Approximately 49 percent of the Auckland regional employment total was located in Franklin District alone.

4.2 To what extent does being located in Auckland impact on firm success?

On the whole, we received mixed comments from firms when we asked them how important it is for their business to be located in Auckland in terms of growing their businesses. The interview responses are largely consistent with the results of the web survey, which are discussed below.

According to the results of the web survey:

- 62 percent of respondents said that being located in Auckland is important and has a significant impact on the success of the firm; and

- 38 percent of respondents said that being located in Auckland was handy, but was not important or had minimal impact on the success of the firm.

For firms that said being located in Auckland is important and has a significant impact on the success of the firm, they note that being in Auckland is important because Auckland has the largest population of people and businesses in New Zealand. They therefore have better access to the largest pool of labour (in particular skilled labour), customers, and suppliers and other supporting businesses, compared with elsewhere in New Zealand.

However, although access to the skilled labour force in Auckland is important, there is a double-edged sword in being located in Auckland because the cost of living, employees' salary expectations, and labour costs are higher in Auckland compared with other parts of

New Zealand. This is entirely consistent with the expectations derived from the literature and shows a good understanding, at the firm level, of the benefits and costs associated with choosing an urban location.

A number of firms noted that Auckland is not the best place for their business to be located either:

- Within New Zealand, because their key markets are in other parts of New Zealand (e.g. a number of firms in the services to agriculture sector noted this situation); or
- Globally, because their key customers and markets are overseas (e.g. a number of large exporters noted this reason).

One retailer mentioned that its stores in Auckland are the least profitable (compared with shops in other parts of New Zealand) because of the high rent and labour costs in Auckland.

However, as discussed previously, many firms are located in Auckland (or have their head office in Auckland) because it is where the owner, CEO, or shareholders lives and wants to live.

Overall, many firms believed that their business is not location specific, and could be done anywhere, provided there is good access to customers and suitable labour. However, as Auckland clearly provides a significantly larger population base than any other New Zealand centre there would be good reason to choose Auckland as a location.

A number of firms considered (or are considering) relocating the firm or part of the firm overseas – either to be closer to key markets or to reduce the cost of certain business functions. This is particularly the case for many manufacturers and exporters who are looking to reduce the cost of manufacturing by considering shifting more of their manufacturing function to low cost countries, particularly China, Malaysia, and Mexico. At the same time, they are looking to reduce transport costs by locating their manufacturing function closer to key markets overseas.

Other firms, including those in the automotive components manufacturing and biotechnology sectors, said that they have considered relocating to countries such as Australia and the US because of better access to key markets, private equity (particularly for biotechnology firms), and/or government incentives.

In saying this however, a few biotechnology firms noted that New Zealand's geographic isolation from the rest of the world makes it an ideal place for scientific research, as any negative impacts associated with scientific experiments and clinical trials can be more easily contained and controlled.

4.3 Why do firms choose to locate in specific parts of Auckland?

Focusing on the next level of detail, firms were asked why they chose to locate in the specific part of Auckland that they are currently located. The results of the web survey and interviews are described below.

The web survey listed a range of different factors (informed by our review of the literature), and asked respondents to assess each of the factors as either: very important, important,

neutral, somewhat unimportant, or not important. The results are shown in the table below – ordered from most important to least important according to survey respondents.[4]

Table 4.1: Firm location factors

Firm Location Factors	Proportion of firms responding 'Very Important' or 'Somewhat Important'	Proportion of firms responding 'Not Important' or 'Somewhat Unimportant'	Proportion of firms responding 'Neutral' or 'Not Applicable'
Being geographically close to customers	74%	18%	8%
Access to plentiful and free/affordable car parking	69%	21%	10%
Being geographically close to workers	69%	3%	28%
Access to quality internal transport infrastructure or services (e.g. road, rail etc)	69%	13%	18%
Access to quality telecommunications infrastructure or services	69%	10%	21%
Being geographically close to built amenities (e.g. cafes, shops, banks, medical services, childcare facilities etc)	54%	21%	26%
Location provides good exposure/profile for the business	54%	17%	29%
Being geographically close to the owner's residence	51%	23%	26%
Lack of negative social issues (e.g. crime)	46%	21%	33%
Being geographically close to suppliers	44%	28%	28%
Access to quality external transport infrastructure or services (e.g. port, airport etc)	41%	23%	36%
Supply of suitable land/premises	36%	31%	34%
Low regulatory compliance costs (e.g. zoning/consenting issues)	34%	34%	32%
Being geographically close to businesses in the same supply chain	31%	33%	36%
Being geographically close to businesses in the same industry	31%	51%	18%
Being geographically close to natural amenities (e.g. beach, forests, parks etc)	21%	49%	31%
Favourable natural climate	15%	26%	59%
Being geographically close to research and development facilities	5%	62%	33%

As shown above, the eight factors that survey respondents said were most important (where over 50 percent of responses were ‘very important’ or ‘somewhat important’) when they considered where to locate their firm are:

[4] Some factors might not sum exactly to 100 percent due to statistical rounding.

- Being geographically close to customers;
- Access to plentiful and free/affordable car parking;
- Being geographically close to workers;
- Access to quality internal transport infrastructure or services (e.g. road, rail, etc);
- Access to quality telecommunications infrastructure or services;
- Being geographically close to built amenities (e.g. cafes, shops, banks, medical services, childcare facilities etc);
- Location provides good exposure/profile for the business; and
- Being geographically close to the owner's residence.

The three least important factors are:

- Being geographically close to natural amenities (e.g. beach, forests, parks etc);
- Favourable natural climate; and
- Being geographically close to research and development facilities.

It is important to note that 53 percent of the survey respondents were small firms with up to 20 employees, and nearly all respondents are reliant on the local Auckland market (with nearly all respondents earning nearly all their revenue from the Auckland region). The responses are therefore skewed towards small firms and firms that only (or mainly) earn their revenue from customers in the Auckland region.

At the disaggregated level, it is clear from our interviews with a wider range of firm types (and to some extent, indicated by a more detailed breakdown of the survey responses) that:[5]

- Being located **close to customers** is important for firms that mainly trade locally, but not important for firms where major customers are not located in Auckland, including export-intensive firms where major customers are overseas.

  Being located close to customers is particularly important for service-based firms where it is more difficult to export services overseas, or even to other regions in New Zealand. One reason for this finding includes the nature of most service activities, which require physical proximity to customers. Although it is possible to bridge the proximity barrier through travel and telecommunications, the cost involved can make non-local firms less cost competitive (and therefore less attractive to customers) than local firms.

- Being located in **a convenient place for most of the firm's employees** (or potential labour pool) is important for nearly all firms, particularly those whose employee base (current and future) is spread throughout the Auckland region rather than confined to specific areas. Firms believe that they are likely to lose employees if they move to

[5] The disaggregation of the survey responses provided some indications as to which locational factors are more important to different types of firms (e.g. different sized firms). However, they have been treated as indicative only, and less weight has been put on the survey disaggregations because the relatively small total number of responses we received means that it is not meaningful to draw any conclusions from the data.

locations where many employees would have to travel long distances to and from work because many would be unwilling to do so.

For example, a number of firms were located in Auckland City because, geographically, it is the centre of the Auckland region, and it is therefore a more convenient location for all employees (who might live in very different parts of the Auckland region) to work than any other part of Auckland. A number of manufacturers located in Manukau City said that one of the reasons they are located there is to be close to the large base of low cost, low skilled labour that generally live in South Auckland. One firm based in Northcote (close to the Auckland Harbour Bridge) noted that it chose to locate there because it can take advantage of both the skilled employee base in North Shore City, and those employees (wherever they might live) that are willing to work in the Auckland CBD.

- Being located **close to the owner's residence** is important for most privately owned and managed firms, but this factor is less important for other types of firms. In particular, the cost of travel, including the travel time, is a major determinant for firm location. This is particularly the case for small firms across all sectors that have no or few employees.

- Being located **close to the motorway** system is important for firms where the transport of goods and people is an essential part of business operations. For example, it is important for businesses such as importers, exporters, distributors, and consultancy-type businesses where employees frequently need to travel during the day for business purposes.

- Being located **close to the airport** is important for firms that need to travel frequently (domestically or internationally) for business purposes, and firms that have a high proportion of goods that are exported or imported via air freight.

- Being located **close to suppliers** is important for firms that source raw or semi-processed materials locally. However, most firms we spoke to import materials directly from overseas, so being close to suppliers is not important.

- Being in a location that provides **good exposure and profile** for the business is more important for firms whose target market are household consumers and where foot traffic is important (e.g. retail and sales-type activities), compared with manufacturing and distribution types activities where business profile is not important.

- Being located in **a CBD-type location for image reasons** (including the main Auckland CBD, or professional business areas of satellite cities within Auckland) is more important for large firms, including multinationals, and business head offices. For example, one large multinational firm that recently relocated to the Auckland CBD pointed out that it is a blue chip company, and it was important for image reasons to be located in the main Auckland CBD. Another firm noted that it is considering moving from an industrial part of Henderson to a newer part of Henderson that has more modern, business park facilities to align the function of the firm (a head office) to its immediate surroundings.

- The **availability of suitable land/premises** at the time of setting up or relocating the business is more important for large firms than smaller ones. For manufacturing firms, the availability of suitably configured space (i.e. for factory, warehouse, and office space), and suitably zoned locations is important. For example, a number of

manufacturers said that they are located in particular areas because the area is (or was) one of the few areas in the Auckland region that had the appropriate zoning for their activity type at the time (or where the local authority was more tolerant to particular types of activities, including heavy industrial activities).

One large firm we spoke to noted that when it relocated from Manukau City, it was looking relocate to a city-fringe area such as Newmarket. However, it relocated to the CBD because suitable (and relatively cheap) office premises became available in the CBD at the time.

The cost of suitable land/premises appears to be important for all types of firms, but particularly for small firms and manufacturers.

- Being in a location that has **free and affordable parking** is important for some firms. It is more important for firms that have client visitors, and firms located outside the CBD where there is an expectation that there is free or cheap parking for employees and other visitors.
- A few firms observed that it is important to be **close to supporting industries** as well as being in a "nice area" that is close to natural amenities (e.g. beach, parks, open space etc) and built amenities (e.g. cafes, banks, retail shops etc). However, except for firms that are located on the North Shore who noted that being in a "nice" area was important, it is difficult to segment these firms into categories for comparison purposes.
- In terms of **proximity to research and development facilities**, firms believed that it was important to be in a region that had a strong university in terms of producing highly skilled graduates. However, at an area level, it was not important to be located close to a university or other research and development facilities.

4.4 Why do firms relocate to other areas?

Firms that have relocated from one part of Auckland to another part of Auckland

A number of firms that participated in the web survey and the interviews indicated they have previously been located in another part of Auckland. This includes 28 percent of the firms that participated in the web survey. The main reasons firms noted for relocating within the Auckland region include:

- The firm outgrew its previous facilities and needed to move to larger facilities;
- The firm was renting and either decided to purchase its own facilities, or had to relocate because the landlord recalled the lease;
- The firm wanted to move to a more convenient location for doing business;
- The firm wanted to have all its employees (previously located in different parts of Auckland) located in the same building;
- The firm wanted to move to a cheaper location;

- The firm was not allowed to undertake certain activities because of land use constraints on their previous premises, and had to relocate to different premises in order to undertake those activities; and
- The firm had a change of ownership structure, and the new owner wanted to move to a new location to help change the organisational culture.

4.4.1 Firms that have relocated from other parts of New Zealand to Auckland

Eight percent of the firms that responded to the survey said their business had relocated from other parts of New Zealand to Auckland. Reasons for the relocation include:

- Being closer to other business headquarters;
- Having better access to corporate services;
- Having better airport linkages to international cities for conducting business and easier access for overseas visitors; and
- Expanding the global client base, which respondents contended is easier to do it from Auckland.

Mixed responses were received on what impact relocating to Auckland has had on firm revenue. Some firms said that it had increased revenue although some indicated there has been no change.

4.4.2 Firms that have relocated, or are considering relocating part(s) of their Auckland business internationally

As discussed previously, some of the reasons firms have relocated parts of their operations overseas, or are currently considering relocating part or all of the business overseas, include:

- Being geographically closer to key customers and markets;
- Being able to take advantage of the lower cost of production (particularly manufacturing) in some lower cost countries overseas;
- Better access to private equity, and government incentives; and
- Lifestyle reasons.

One firm in particular noted that it had increased its business focus on developing its Australian operations in the early 2000s when the previous Labour Government came into power, because it was not confident that the Labour Government would be sympathetic to the needs of firms.

4.5 What are the negative factors of being located in Auckland?

In addition to asking firms about why they decided to locate in Auckland (positive factors), firms were asked what the negative factors are of being located in Auckland. The results of the web survey (shown in the table below) indicate the three most negative factors about being located in Auckland are too many local authority regulations (e.g. zoning and consents) and the high costs involved, high levels of traffic congestion, and the higher cost of doing business in Auckland compared with other parts of New Zealand.

Table 4.2: Negative location factors associated with being located in Auckland

Negative factors associated with being located in Auckland	Proportion of firms who responded 'a very serious problem'	Proportion of firms who responded 'a problem, but they can live with it'	Proportion of firms who responded 'not a problem'	Proportion of firms who responded 'not applicable'
Too much local authority regulations and high costs (including zoning and consents)	44%	19%	33%	3%
High level of traffic congestion	36%	47%	17%	0%
Higher cost of doing business compared with other parts of New Zealand	31%	33%	33%	3%
Lack of free/affordable car parks	28%	33%	39%	0%
Large geographic spread of region (high travel time costs)	25%	33%	36%	6%
Higher cost of labour compared with other parts of New Zealand	17%	44%	33%	6%
Lack of suitable land supply	14%	31%	47%	8%
Poor environmental quality	11%	19%	67%	3%
Higher level of competition compared with other parts of New Zealand	11%	22%	64%	3%
Poor natural amenities (e.g. not close to beach, forest, mountains etc)	3%	14%	78%	6%

As well as four ratings shown above, a fifth (more extreme) rating was included in the survey: 'such a serious problem that we are considering relocating out of Auckland'. None of the survey respondents selected this fifth rating for any of the negative factors. The results indicate that these negative factors are more hindrances and inconveniences to firms – that is, the problems are not major enough to make firms consider locating elsewhere.

In addition to the above negative factors, firms believed that the cost of living in Auckland is relatively high compared with other similar global cities, but income levels, particularly for skilled labour, are low by comparison. Firms therefore thought that it is difficult to attract skilled international talent to Auckland.

One firm elaborated by pointing out that Auckland has all the negative factors associated with large global cities (albeit at a lesser scale), but few of the advantages of being located in a large global city (e.g. lack of critical mass).

4.6 Clustering

We asked firms how important being located close to other firms or organisations undertaking similar or complementary activities is for growth? Nearly all the firms said that they see no value in being located in close proximity to similar firms, particularly competitors. They note, however, there could be benefits in being located in close proximity to other firms in the same value chain.

Only firms in the biotechnology sector thought that there could be value in being physically close to other similar firms – particularly small start-ups that have little business experience or sectoral knowledge, and have few established networks or relationships. These firms think that being physically located close to other similar firms can facilitate networking, the sharing of ideas and business experiences, and even collaboration.

Whilst theory suggests that being spatially close to one another allows firms to operate more productively in sourcing inputs, accessing global markets, sharing knowledge and technology, and motivating competitiveness, these advantages can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so. This issue is also considered within the section on firm success.

4.7 Summary and Findings

This section has considered the responses generated around why firms choose to locate in the Auckland region, negative factors associated with Auckland that might cause firms to locate to other cities or regions and to what extent being located in Auckland impacts on success.

The key finding is the obvious one – location does matter for firms. The data confirms that there are business-related drivers for firms to be located in Auckland, as opposed to other locations within New Zealand.

For firms that said being located in Auckland is important and has a significant impact on the success of the firm, they note that being in Auckland is important because Auckland has the largest population and highest number of businesses in New Zealand. They therefore have better access to the largest pool of labour (in particular skilled labour), customers, and suppliers and other supporting businesses, compared with elsewhere in New Zealand.

Positive features that attract and retain firms in Auckland include:

- Access to a larger pool of highly qualified specialists, as well as skilled, unskilled, and casual labour;
- Better connectivity to regional and international markets as well as supply chains;
- Access to a larger customer base;
- Stronger potential to attract international corporate visitors; and

- Easier in attracting and retaining skilled labour from overseas.

These are not surprising results but they are a useful confirmation, from the individual firm's perspective, of the theoretical underpinnings of agglomeration.

Negative factors that might lead to a firm leaving Auckland included costs involved in dealing with local authority regulations (e.g. zoning and consents), traffic congestion, and the higher costs of doing business in Auckland compared with other parts of New Zealand. Firms observed that there is a double-edged sword in being located in Auckland because the cost of living, employees' salary expectations, and labour costs are higher in Auckland compared with other parts of New Zealand.

Again, this is consistent with much of the work on the economics of urban areas, where productivity gains from increasing concentration of activity are offset by external costs (e.g. congestion) and private costs including land costs and actual travel costs (time and money).

To what extent is locating in Auckland a determinant of a firm's success? Importantly, despite the disadvantages noted, the research found that the majority of firms believed that being located in Auckland is important and has a significant impact on their success. A number of firms believed that their businesses might have a better chance of growth and survival if they were located elsewhere because their key markets are based in other parts of New Zealand or overseas. This would again appear to be consistent with the theoretical predictions – it is just the opposite of firms who are attracted to Auckland for the same reasons.

However, the data reveals that biotechnology firms, in particular, are attracted to overseas countries because of better access to private equity and government incentives to stimulate research and development. The question of the availability of incentives opens up the debate around 'picking winners' and whether a more interventionist approaches from the public sector e.g. through subsidies or other related measures would be beneficial. We did not canvas this further as the policy environment in New Zealand is very clear on this matter and although it is relevant in relation to locational choice at the country level it is not a determinant of locational choice between Auckland and other parts of New Zealand.

Biotechnology firms were also unique in terms of seeing the benefits of clustering. These benefits can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so.

An interesting finding, seemingly unrelated to the drivers listed above, is that firms, especially small ones, stay in Auckland because it is where the owner lives, and where he or she wants to keep the business. However, one must consider why this is and is it in fact similar to the consideration of why skilled labour supply is higher in Auckland and what attracts these workers?

Considering key policy implication of these findings, the first observation is the close parallel between our findings and the direction given through much of the agglomeration and urban economics literature. In general, interventions which unlock productivity gains from the concentration of economic activity and reduce or mitigate the rising costs associated with locating in Auckland will provide a good starting point. Policies that positively influence access to customers and suppliers and to appropriately skilled labour will be beneficial. Investing in core infrastructure is a general policy prescription. Investing in specific networks that promote these outcomes, based on an understanding of the effectiveness of different transport modes to influence different outcomes is a good step forward.

Skills matter. Auckland's large and skilled labour force is a key reason given for firms' choosing Auckland as a location. Investing in skills development is important but so too is the attraction and retention of skilled workers. Although firms did not consider amenity as being very important, if skilled workers do, then interventions that maintain and improve amenity will be beneficial.

5 Drivers of industry success

5.1 Introduction

This section presents the findings of our research with regard to the drivers of industry success. The main themes include the nature and composition of demand, government intervention, and firm success, as explained in Section 2.

At a broad level, the approach we have adopted seeks to identify three main drivers of industry success. First, on the demand side, the strength, nature and composition of domestic and international demand provide the base conditions and opportunities for which firms within the industry can take advantage of and grow from. Second, on the supply side, proactive sectoral development support from the Government can encourage more firms to enter the industry, thereby increasing the probability of more firms in the industry becoming successful.

At the sectoral level, these two categories of drivers provide the foundational conditions from which firms within the industry can take advantage of, and help the industry to grow and succeed.

However, they are not sufficient conditions for the growth and success of the industry itself. Because industries are made up of firms at the microeconomic level, the third major determinant of industry growth is having many fast growing and successful firms within the sector.

In particular, it is important to have many fast growing and successful firms that can sustain that growth and success over time. Such a result relies on the ability of firms within the industry to take advantage of favourable demand opportunities, and/or leverage off any assistance provided by government. Similarly, when faced with adverse demand or other conditions from the wider business environment, it is the characteristics of firms within the industry and their ability to respond quickly to the changing environment, including by innovating or changing business models, that determines whether firms survive or fail. Firm specific characteristics are therefore a key determinant of success at the firm level.

Each of these three categories of factors that are considered in the literature to determine industry and firm performance are described in more detail below. However, we utilise the information we collected from firms and industry representatives in the case studies to help identify the importance of these three factors or to indicate whether, for the sectors we examined in Auckland, other factors have contributed to the establishment, growth and success of that sector in Auckland.

It is important to note that although this study set out to understand the key drivers of industry success within the Auckland region, none of the firms or industry representatives we spoke to viewed their industry as Auckland-specific (or region-specific). It is however important to understand the inter relationship between industry success and the choice to locate in Auckland. Also, at the industry level, there appears to be little difference between the issues that Auckland-based firms and non-Auckland based firms face. All the firms and industry representatives we spoke to viewed their industry within the national context. However, given our interest in Auckland we have related our findings to Auckland.

5.2 Framework and sector performance

External demand conditions, including the effect of positive and negative macroeconomic conditions, and proactive government intervention, either positive or negative for the industry, are seen as foundational elements for industry growth – providing the base conditions and opportunities from which firms within the industry can take advantage of and grow.

Favourable demand conditions and/or proactive government support are important, but not sufficient conditions for the growth of the industry itself. What is also important is the ability of firms within the industry to take advantage of the favourable conditions and the opportunities that are presented, and the ability of firms to sustain that growth over time. Similarly, when faced with adverse demand or business environment conditions, it is the characteristics of firms within the industry and their ability to respond quickly to changing conditions (e.g. by adapting or changing business models) that determine whether the firm survives or fail.

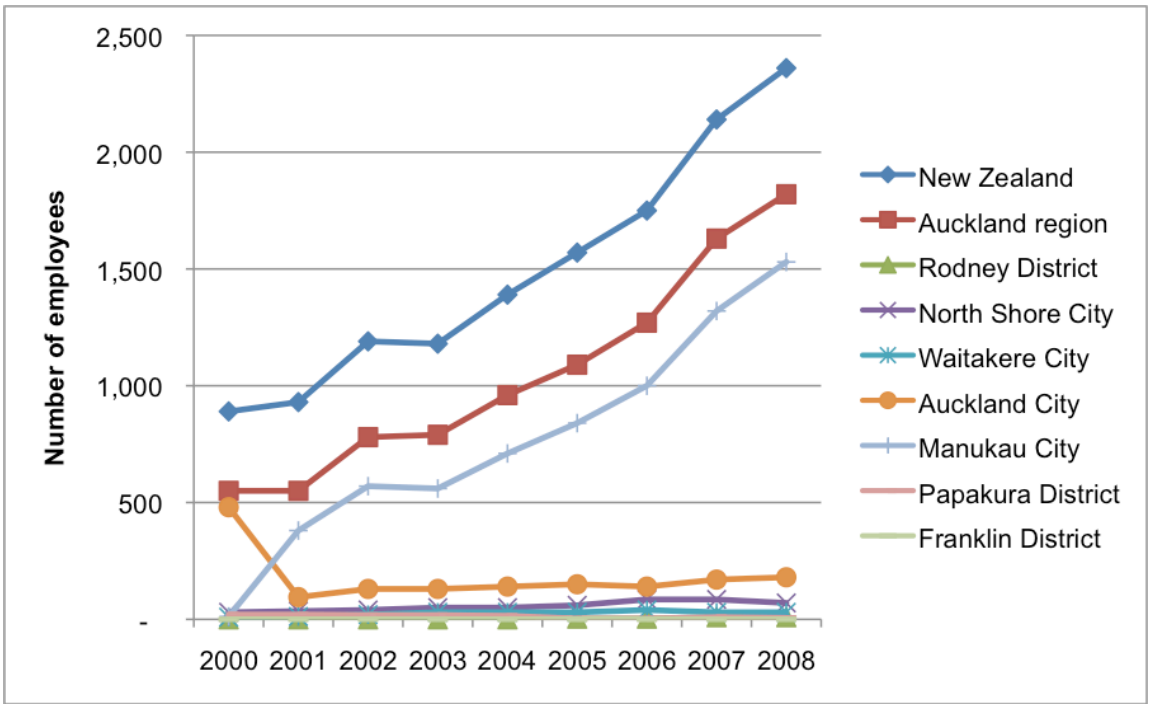
As noted, because industries are made up of individual firms, it is considered that a major determinant of industry growth and success is having many strong, successful, and growing firms that are able to sustain growth over time. The characteristics of firms within the industry are therefore a vital determinant of the performance of firms within the industry as well as the performance of the industry generally.

For example, even within some of the fast growing sectors we chose as case studies (including scientific research/biotechnology firms, electronic equipment manufacturing, and services to agriculture sector), some firms performed strongly and grew over the past five years; other firms had relatively static or even negative growth over the past five years. In fact, much of the growth within these sectors appears to have been driven by a small number of successful firms (mainly large firms) that have performed well globally, rather than an across-the-board strong performance from all firms within the sector.

For example, employment growth in the medical and surgical equipment manufacturing sector in the Auckland region over recent years appears to have been driven solely by the growth of one large global firm – Fisher and Paykel Healthcare. According to Statistics New Zealand, the employment growth trend in the Auckland region between 2001 and 2008 matches exactly the employment growth trend in Manukau City, suggesting that employment growth in the sector within the Auckland region has been driven almost exclusively by employment growth in Manukau City (see Figure 3).

In 2008, 1,820 people were employed in the medical and surgical equipment-manufacturing sector in the Auckland region, and about 1,530 worked in Manukau City. Fisher and Paykel Healthcare (located in Manukau City) currently employs about 1,600 in Auckland, accounting for approximately 80 percent of the people employed within the sector in Auckland. This finding matches almost perfectly to the employment data for Manukau City.

Figure 5.1: Employment growth trend in the medical and surgical equipment manufacturing sector between 2000 and 2008



Source: Statistics New Zealand

Of the 89 firms in medical technology sector in New Zealand, 40 firms are located in Auckland and Fisher and Paykel Healthcare generates approximately 90 percent of the medical technology sector's revenue in New Zealand (Saunders, Kaye-Blake, & Sorensen, 2009).

With such a large dependency on one company for revenue and employment growth, it is unclear how the sector will be impacted if Fisher and Paykel Healthcare shifts part of its manufacturing offshore. One would expect it to have a strong negative impact on the size and relative success of the sector in Auckland (and New Zealand) because a significant amount of local jobs would be moved offshore, thus reducing the size of the local sector in terms of employment size. However, industry representatives believe it will have little impact, arguing the sector is strong and growing, independent of Fisher and Paykel Healthcare.

Another example is the electronics equipment manufacturing sector. Despite appearing to be a fast growing sector based on Statistics New Zealand data on employment growth, a number of stakeholders do not believe that the sector as a whole has grown or is growing. This point was reiterated in our interviews with firms in the sector, where many firms either:

- No longer manufacture locally or in-house, and are therefore are no longer manufacturers in the purest sense. These firms have tended to move their manufacturing capabilities to lower cost countries overseas, or they have outsourced manufacturing to third parties in low cost countries (such as China, Malaysia, Singapore, or Mexico). A small number of firms have contracted the manufacturing function to third parties in New Zealand. Firms that have outsourced or have shifted manufacturing capabilities overseas now tend to focus local operations on different

combinations of the following: product development, marketing and distribution of products developed in-house, and import and distribution of third party products; and

- Still manufacture locally (because they either insist to stay New Zealand-made or are too small in scale to take advantage of offshore manufacturing), but are struggling to compete with cheaper imports.

Only a few of the electronic equipment manufacturers that still manufacture locally appear to be strong and growing. These manufacturers note that the only reason they have been able to grow is because they export their products. Again, this finding suggests that growth in the sector has been driven by a small number of mainly large firms who have been able to expand their business and succeed in international markets.

These themes were also observed in the automotive components manufacturing and agricultural machinery manufacturing sectors, even though these sectors have been declining based on Statistics New Zealand data on sectoral employment.

5.3 The nature and composition of demand

Strong demand for goods or services produced by a sector creates the opportunities and economic incentives for new firms to enter the sector, and for established firms within the sector to grow their business in terms of the volume and value of sales. The nature and composition of demand affects:

- The size of the potential opportunity for firms within the industry;
- The length of time that favourable conditions and opportunities will exist for firms within the industry; and
- The way that firms within the industry perceive, interpret, and respond to buyers' needs (Porter, 1990).

Two ways to assess the nature and composition of demand include examining:

- Whether the demand is driven domestically or internationally; and
- Whether the demand is driven by favourable short-term economic conditions or longer-term structural trends.

These two components are not mutually exclusive.

First, for product-based sectors, even though strong domestic trends and demand is important for sectoral growth, particularly for firms that only sell their products in the domestic market, sectors that tend to have strong and sustained growth are boosted by strong international trends and demand, and the almost limitless opportunities it provides. This is particularly the case because the domestic market is relatively small, and for many sectors, it does not have sufficient depth to sustain high and continued sector growth over time. For the medical and surgical equipment manufacturing sector demand from Auckland based customers did register as an important factor, however, for the other three sectors this factor was not considered to be contributor to the success or location of the industry.

Analyses of the demand conditions for the four specialised manufacturing sectors we focused on in the case studies are presented in the table below.

Table 5.1: Strength and nature of demand – specialised manufacturing sectors

Industry sub-sector	Strength and nature of demand
Medical and surgical equipment manufacturing	Global demand for healthcare products has been strong and growing over recent years, and continues to be strong and growing. This demand is driven by: • An aging global population; • Increased rates of cancer and other diseases/ sicknesses that require hospitalisation and surgery; and • Increased expectations from the general public on the level and quality of health care they receive. For export-focused firms within the sector, the global increase in demand for healthcare products has been, and continues to be, particularly important in driving business growth. For non-export firms within the sector, where global demand trends are less important, firm growth has been driven by local trends, which have been similar to the global trends noted above. Furthermore, strong public spending in the domestic health sector has supported firms that only service the domestic market. It was observed that trends in global healthcare funding around the world have benefited firms within the sector. This situation appears to have benefited manufacturers of personal medical devices in particular. It was recognised that **Auckland's population size and the large concentration of hospitals within the region provided a rationale for the sector presence within Auckland**. There is, therefore, a demand driven rationale for location within Auckland
Electronic equipment manufacturing	The demand for consumer electronics has been strong over recent years. For non-consumer electronics, however, it is more difficult to pinpoint a single driver of demand growth because the types of products produced by manufacturers in this sector vary significantly. However, it appears that, in general, demand for electronic equipment or machinery that improves the productivity and efficiency of business operations has been strong because businesses around the world are moving towards less labour intensive

	processes. Examples of product-specific demand drivers include: • Demand for electronic control systems that are essential for infrastructure systems has been strong – largely driven by increased activity in the domestic oil and gas sectors; • Orders for electronic switchboards have increased in recent years, largely due to increased demand for switchboards from apartment developments and industrial property developments. The demand for switchboards for apartment developments has diminished since the end of the property boom, but demand for switchboards from industrial property developments is strong.
Agricultural machinery manufacturing	Despite agricultural machinery manufacturing being a declining sector in the Auckland region in terms of employee numbers, to the extent that firms within the industry can tap into international markets, the potential for their growth and ability to sustain that growth over time appears to be strong. Worldwide demand for agricultural technologies, including machinery is strong and growing. As the amount of land available for producing food is decreasing around the world farmers are turning to technology and machinery to help increase the efficiency of farming and other primary-related activities. A few of the agricultural machinery manufacturers exhibited strong growth over the past five years. However, these successful exporters tended to have manufacturing capabilities offshore (either in-house or through third party contract manufacturing). This finding suggests that even though the sector in Auckland is declining in terms of number of people employed locally, this could simply be because manufacturing capabilities are increasingly being shifted overseas, rather than the sector being in decline overall in terms of demand, revenue, and profitability. For non-export manufacturers in the sector, where global demand trends might be less important, the demand opportunities within Auckland appears to be more limited. This situation is due to the combination of the small size of the New Zealand market along with the relatively long lifetime of machinery, which further limits demand at any

	one time. The cost of machinery, particularly for large expensive machinery, will further limit the size of the market in Auckland and New Zealand.
Automotive components manufacturing	There is **no domestic automotive industry in New Zealand**, so there is little domestic demand for automotive components manufactured in Auckland. However, global demand for automotive components is significant. To the extent that Auckland's automotive component manufacturers have been able to export to world markets, the opportunities for growth have therefore been noteworthy. Currently, there are important structural changes in the global automotive industry. Although the data obtained for this study do not speak to this issue directly because of timing, the potential for decline in the entire industry, home and abroad, is great.

For service-based sectors where it is more difficult to export, strong domestic demand is important for firm growth. This situation can be seen in the three service-based sectors we did case studies on – consulting engineering firms, scientific research institutes, and providers of services to the agricultural sector. Similarly, the importance of demand in, or within close proximity, to Auckland was seen to be a more important contributor to locational choice of firms and by extension the service based sectors, most notably consultant engineers.

Analyses of the demand conditions for the three service-based sectors are presented in the table below.

Table 2.2: Strength and nature of demand – service-based sectors

Industry sub-sector	Strength and nature of demand
Providers of services to agriculture	There has been a strong demand from farmers over the past few years in Auckland and nationally for third party providers of services to the agricultural sector – driven by the higher levels of income that farmers have enjoyed from high meat and dairy prices. Firms in the sector (both those who provide specialised contract research and development services, and those who provide less specialised services, such as hay baling, harvesting, grass planting etc) noted that another reason for the growth in demand for their services is that it has become cheaper for farmers, who used to do the work in-house, to contract the work out. Because of the service nature of this sector, which makes it

	more difficult to 'export' compared with physical products, domestic demand conditions and the domestic market are more important than international demand conditions and markets. Converse to the overall situation, one of the firms interviewed said that about 85 percent of its business is earned from overseas markets (mainly in the US). The firm provides specialised animal embryo transfer services to farmers and farm hobbyists. The firm's growth over the last few years has largely been driven by high levels of spending in the US to encourage young people to raise animals, and the high levels of prize money associated with animal show competitions.
Scientific research institutes	Firms in the sector, many of which identify themselves as biotechnology firms, think that two demand factors are driving growth in the scientific research or biotechnology sector: • The global push towards improved environmental sustainability and more sustainable production; and • Increased awareness among Auckland firms in general that to be competitive internationally they must produce innovative, value-added products that can be branded, and where the brand can be protected. It was noted that many firms in Auckland no longer have an in-house R&D capability; instead, they prefer to contract out R&D. Many of the scientific research / biotechnology firms have a core business focus on agricultural technologies or human health applications, including medical technologies. As described previously for medical and surgical equipment manufacturing and agricultural machinery manufacturing, there is strong global demand for products that improve healthcare outcomes and improve the efficiency and productivity of farming. One firm noted that Auckland was the best location for food based research as "70% of New Zealand's food industries are from Taupo north." "Auckland is the biggest market in NZ."
"Consultant engineer firms	Over recent years, there has been strong domestic and Auckland demand for consulting engineering services from: • The private, property development sector during the property boom; and • The public sector, as a result of increased

	government spending on infrastructure projects, in particular transport and water infrastructure projects, notably in Auckland. The growth of engineering firms that are oriented toward providing services for the property development sector appear to have been strong over recent years. Property-oriented engineering firms in the sector noted that growth in the sector is typically cyclical – following the economic boom-bust cycle – but that instead of the standard two to three year boom period, the most recent boom period lasted about five years – an unprecedented length of time. The demand for engineering services from infrastructure projects still appears to be strong, particularly with increased central and local government commitment to improving the quality of infrastructure in several regions notably Auckland over the next 10 years, particularly transport and water infrastructure. For many of the companies in this sector, the demand from Auckland strongly influenced sector success. One firm noted that Auckland was the best place for them to be because "in our specific sector this is where things are run. We've got an office in Wellington, we target Central government work but a lot of stuff is driven out of Auckland. And we provide services to the Pacific Islands out of Auckland." Another firm when asked to what extent does being located in Auckland contribute to the success of your business responded "[H]ugely, because it's the centre of population, there's more growth in Auckland than anywhere else." "It's the biggest market so has the biggest potential." Importantly from the industry perspective of industry this respondent confirmed that most of their competitors are located in Auckland.

Growth in industries that are driven by longer-term structural demand is expected to be more sustainable than industries that are driven by shorter-term demand, which in turn is driven by positive economic conditions and the associated higher levels of discretionary spending. This is because demand that is driven by high levels of discretionary spending is more susceptible to changes in short term economic conditions compared with demand that is not driven by economic cycles. Firms that rely on international markets are also more susceptible to adverse global economic conditions than domestic firms within the industry.

Within each sector, some product segments will be more resilient to short term economic conditions (such as the current global economic downturn), than other segments of the sector. For example, firms that produce goods or services that have inelastic demand (e.g.

those goods or services that are considered to be essential for maintaining basic standards of living, or core products and services that increases the productivity of business clients) are likely to be more resilient to economic boom-bust cycles than firms that produce goods or services that have elastic demand (e.g. luxury or discretionary-spend goods or services, or services that firms can easily do in-house).

Firms within the medical and surgical equipment manufacturing sector did not appear to be affected or worried by the global economic downturn. They pointed out that healthcare products are largely unaffected by economic conditions because people still get sick and require health treatment. Healthcare is not area where individuals or healthcare funders can easily reduce spending, especially if the healthcare product is essential for maintaining basic qualities of life for patients.

Within the services to agriculture sector, firms that provide specialist contract research and development services are likely to be more resilient than firms that provide generic farming services such as hay-baling and grass growing because it is more difficult for farmers to replicate those specialist capacities in-house. Within the electronic equipment manufacturing sector, firms that produce discretionary-spend consumer electronics are likely to be less resilient than firms that produce electronic equipment designed to improve productivity and reduce costs for business customers. Again, the amount of value that a product or service can provide to its customers is important when considering how resilient a firm is to short term economic downturns.

As described above, the nature and composition of demand within a sector provide the base foundation and opportunities for which firms in the sector can take advantage of and grow from. Firms in sectors that have more favourable demand conditions are more likely to grow than firms in sectors with less favourable demand conditions. However, even in the declining sector of automotive component manufacturing, where there is little domestic demand and there are few firms remaining in the sector, those who have survived appear to be strong and performing well.

Was the strength of local demand from within or around Auckland important in terms of the growth and success of the sector? Generally, no but the exceptions of medical and surgical equipment manufacturing, scientific research institutes and consultant engineer firms provide some support for Auckland demand contributing to locational choice and success of a sector.

In summary, although demand conditions matter, they are not likely to be sufficient on their own to explain industry growth and success. This also appears to be true of the influence of local demand from in and around Auckland on sector location and success. The importance of this factor for sectors in Auckland appears to range from being of no importance to being one of a number of relevant factors, most notably for the consulting engineering sector.

5.4 Government intervention

Industry level public policies can have a major and direct impact on the success of firms within an industry and on the growth or decline of industries.

Government support for particular industries can operate in many different ways. Regulation can reduce the barriers of entry for new entrants, stimulate competition within the industry, and facilitate the growth of firms within the industry.

Other forms of proactive government support can include direct facilitation of industry development, promotion of the industry overseas, development of international markets and linkages for the benefit of firms in the industry, and provision of funding for research and development for firms within the industry.

Similarly, wider government policies were seen by respondents to have a detrimental impact on certain industries, whether intended or not.

The case study sectors that we focused on for this study demonstrated that perceptions were mixed on the positive or negative effects of government interventions (or lack of):

- Two of the fast growing sectors, medical and surgical equipment manufacturing along with scientific research institutes, are part of the biotechnology sector, which has been the subject of strong government support since 2002;
- In one of the declining sectors, automotive component manufacturing, respondents believe it has suffered from the demise of the local automotive manufacturing sector in New Zealand as a result of deregulation of the sector in the 1980s; and
- Respondents felt that government policies have hindered the growth of the agricultural technology sector, which includes agricultural machinery manufacturers and firms that provide technology-related goods and services to the agricultural sector, by presuming agricultural-related industries to be sunset industries.

It should be noted very clearly in regard to this issue that we are reporting the responses we received from surveys. This reflects individual's views and does constitute a critique of policy settings in this area. In fact it appears to highlight the potential disconnect between self interest and overall welfare that underpins the rationale for considering when market intervention is justified.

It should also be noted that when considering the location-related factors that have led to the establishment, growth, and continued success of industry sectors direct government intervention is not a significant factor. What can make a difference to industry success and location is government expenditure, for example on infrastructure or health.

5.4.1 Positive effects in biotechnology

The biotechnology industry, which covers many of the firms in the scientific research and medical technologies sector, including medical and surgical equipment manufacturing (Ahn, Meeks, Ross, Bednarek, & Dalziel, 2008) is an industry that has received substantial government support since 2002 with the adoption of the Growth and Innovation Framework under the previous Labour Government.

The Growth and Innovation Framework set out a framework for achieving New Zealand's economic and social goals through creating an *"innovative New Zealand"*. In particular, the Growth and Innovation Framework identified three sectors for the government to *"more aggressively focus its policy intervention in relation to innovation and growth"* (New Zealand Government, 2002, p. 49). The three chosen sectors were biotechnology, information and communications technologies, and the creative industries. These three sectors were chosen as the areas for particular Government support because they were considered as having high growth potential and because the technologies or capabilities that are involved are enablers of activity across the economy more generally (Ministry of Economic Development, 2005). A sum of $110 million was allocated over four years in the 2003/04 Budget to fund the initiatives under the Growth and Innovation Framework.

Within the biotechnology sector, the Government, through the Ministry of Science and Innovation (previously the Ministry of Science and Technology and the Foundation for Research, Science and Technology), focused its efforts on three main areas – community engagement, growing the sector, and enhancing the regulatory environment (Ahn et al., 2008). Since 2002, key developments within the sector that have been facilitated by government include:

- Development of an industry growth strategy;
- Establishment of a new industry body, NZBio;
- Enhancement of the profile of the biotechnology sector in New Zealand and overseas;
- Expansion of provisions for research incentives in tax legislation;
- Expansion of the New Zealand Venture Investment Fund; and
- Creation of the Australia-New Zealand Biotechnology Partnership Fund to facilitate trans-Tasman collaboration.

At the national level, a number of central government agencies, including the Ministry of Science and Innovation, the Tertiary Education Commission, and the New Zealand Trade and Enterprise, have dedicated initiatives focused on supporting and strengthening the biotechnology sector.

The interviews revealed that there has been a growth in the number of spin-off firms from universities in the last few years, and this development has been partially driven by changes to the criteria for Ministry of Science and Innovation funding (previously provided via the Foundation for Research, Science and Technology), which has sought to foster greater levels of collaboration between the public and private sectors. Industry respondents indicated that this initiative created the incentive for universities to create spin-off firms, and partnering with them, to make funding applications appear more favourable.

The potential contribution of the biotechnology sector to the Auckland regional economy has also been recognised at local and regional government levels in Auckland. Auckland City Council has provided funding (in the order of about $100,000 per annum) since 2007 to help promote and facilitate linkages within the biotechnology sector – both within Auckland City, and with Auckland City's international Sister Cities. The model is said to be working well, and has expanded to include other local authorities in the Auckland region. The biotechnology sector (also called the 'biosciences' sector) is now one of five business sectors that Auckland Plus (the Auckland region's economic development agency) is targeting in its work programme to help lift the economic performance of the Auckland region.

5.4.2 Negative effects in agricultural technology

Although the Growth and Innovation Framework provided significant profile and support for innovative emerging high growth sectors such as the biotechnology sector, a number of firms and industry representatives in the agricultural technology sector believed that the Growth and Innovation Framework marginalised their sector.

Firms in the agricultural technologies sector thought that despite New Zealand being a world leader in agricultural technologies and systems (they noted that New Zealand is probably

five years ahead of the world in agricultural technologies) and having a strong global reputation for efficient agricultural and farming systems, there is lack of funding and support from the Government to help promote New Zealand agricultural technologies overseas, and to develop international markets for the industry. Either real or perceived, a number of firms believed that the Government is treating agriculture and the agricultural technologies sector (to the extent that it is not biology-related) as a sunset industry. Instead, the Government has chosen to support 'sexy' emerging sectors such as the biotechnology sector – sectors where New Zealand does not have any comparative or reputational advantage over other countries.

5.4.3 Negative effect in automotive components

As for automotive components manufacturing, the growth and decline of the sector can be partly attributed to government policies that have impacted on the sector indirectly. For example, the automotive components manufacturing sector piggy-backed off the growth of the vehicle assembly industry in New Zealand, which like other manufacturing businesses during the 1950s to 1970s, were heavily protected from imported products by government import substitution policies. Miller and Whitcher (2003) found that those automotive component manufacturers that supplied components to the New Zealand vehicle assembly plants were able to earn large sums of revenue – up to and beyond $50,000 per month.

However, in the 1980s, when it became evident that the New Zealand vehicle assembly industry was uncompetitive compared with larger operations overseas, the Government reduced the rate of protection on domestic industries, including reducing tariffs on imported new vehicles (Miller & Whitcher, 2003). This decision resulted in the closure of all the significant vehicle assembly plants in New Zealand by 1998 as foreign-own assembly plants rationalised production locations overseas.

From our interviews, and also the interviews undertaken by Miller and Whitcher in 2003 with firms in the sector, it is apparent that the closure of the New Zealand-based vehicle assembly plants had an immediate and significant impact on firms in the automotive components manufacturing sector. As one firm representative put it, the work *"dried up overnight"*. The closure of local vehicle assembly plants forced some automotive component manufacturers to close. In other instances, it forced some firms into export, some into distributing imported third party products, and others to diversify their product range into other markets and applications (Miller & Whitcher, 2003).

At a more general level, cross-sectoral government policies, as opposed to sector-specific policies, can affect the business environment in which firms operate – making it easier or more difficult for firms to operate in. For example, competition policy affects the degree of domestic rivalry within industries, regulations can influence demand conditions and affect business costs, investment in education and training can affect the size of the labour force and the number of skilled workers, and government expenditure can increase domestic demand in certain industries.

In the course of our interviews with firms across the different sectors, it became apparent that three sets of government policies have had particular impact on the competitiveness and relative profitability of firms over recent years. These include the government's approach to monetary policy, New Zealand's Free Trade Agreement with China, and taxation rules in general. These policies are discussed in more detail below under the section, 'cost of doing business'.

5.5 Factors that have contributed to the failure of firms in industry sectors

We elicited a range of responses to this question including:

- A lack of domestic competition was seen as an issue for specialized manufacturing. So too, however, was competition from overseas, notably China.

- Consulting engineers suggested that deficient demand due to a lack of finance available to developer clients contributed to firm failures in the sector.

- In the scientific research institutes sector it was observed that although NZ firms are as inventive as anybody else and come up with great ideas, we seem to find it very difficult in executing those ideas, building a business out of them. Also considered that "we either lack the ability or the capital to [build] a brand around things, marketing, getting things in someone's distribution channel etc. That's where we fall over."

The open-ended responses provided to the question "What factors do you think are responsible for the failure of businesses (if any) in your industry" were analysed in order to identify a group of key themes for business failure. The frequency of these themes is noted in the table below:

Table 5.3 Response frequencies – factors responsible for business failure

Business Failure – Themes	Frequency
Financial management/decisions • Low profit margins • Overspending, poor cashflow management • Over-extending and under-pricing • Too much debt, borrowing, or risky cost structures	√√√√√√√√√ √√√√√
Management/Leadership • Poor management – lack of leadership, lack of foresight • Poor systems and business planning • Lack of motivation/passion • Insufficient networks/contacts	√√√√√√√√√ √√√
Government factors • Government regulation (central and local) – high compliance costs • Lack of government support • Infrastructure costs (traffic congestion, fuel costs)	√√√√√√√√√
Quality of service or product • Negative customer perceptions • Poor workmanship, service, product • Not meeting customer needs	√√√√√√√√

Staffing issues • Insufficient staff training – inexperienced staff, qualified staff shortages • Staff retention/turnover	√√√√√√√
Innovation • Lack of investment – including in R&D • Lack of innovation - design • Inability to change to meet the market	√√√√√√
Economic factors • Boom-bust cycle • Economic uncertainty • Exchange rates	√√√√
External vulnerabilities (international) • Competition with Asia • Lack of success overseas • Reliance on importation (finished product)	√√√√
Location/visibility	√√

Although the frequency of responses provides some indication of the relative importance of the factors, it is important to note that the overall number of responses received from the web-survey was relatively small. However, it is interesting to note that locational factors did not count strongly in the respondent's views of the causes of firm failures within industry sectors.

5.6 Other important locational factors respondents linked to industry sector success

We asked a number of open ended questions of firms designed to help elicit whether other locational factors may influence industry success including; do you consider Auckland to be the best place for the business, what cities in NZ to be key competitors in this industry and where are your key competitors located?

To examine the responses to the question to what extent does being located in the Auckland region (or not being located in the Auckland region) impact on the success of your business (open ended question) we analysed and categorised the range of open-ended responses as either:

- **Significant impact**- i.e. 'being located in Auckland has a significant impact on our business success'
- **Insignificant impact**- i.e. 'being located in Auckland is insignificant in relation to our business success'
- **Neutral –** i.e. 'being located in Auckland has neither a significant or insignificant impact on our business success.

Table 5.4: Importance of Auckland location for business success

Extent that being located in Auckland impacts on the success of your business?
SIGNIFICANT IMPACT (62% of survey participants) Typical themes found in these responses included: • Auckland has the largest population and therefore the largest marketplace • Most of our customers or clients are located in Auckland (with advantages including the value of face-to-face contact, ease of access, being close to customer base) • The advantage of being near other manufacturers/suppliers • Auckland offers the largest talent pool and access to skilled labour Some respondents who noted that being located in Auckland had a significant impact on their success, also offered some caveats to their response however, e.g.: • Being located in Auckland is of 'limited [significance] internationally, but good internally as it is close to our supplier base' • 'Access to skilled labour force [in Auckland] is important, however poor infrastructure (e.g. transport) affects our efficiencies' • [Being located in Auckland] is 'not important to our product or investment market, but in proximity to other businesses/professional services it is crucial.'
INSIGNIFICANT IMPACT (23% of survey participants) Most of these respondents simply noted that being located in Auckland was not important or had minimal or no impact on success. Some specific reasons were: • 'No benefit to being in Auckland as none of our customers are in Auckland' • 'Stores located in Auckland are our least profitable due to high rents/staffing costs'
NEUTRAL (15% of survey participants) Responses assessed as neutral include: • 'Handy but not essential' • 'Good to have an office in Auckland for image but we could actually do our work from anywhere'

A range of the actual responses to this question recorded included the following:

- In the scientific research sector an Auckland location was "partly a result of history" but it was noted that "conceivably, the choice of location was between Auckland or Christchurch (where the two legacy business were head-quartered), but the bulk of the activity for the merged business is in Auckland". Also "proximity to the airport and university" were important attributes. An Auckland location mattered for the "attraction and retention of appropriately skilled people."
- "The only advantage (of Auckland) is employment"

- "You would assume its because there is a better pool of staff. I like being in Auckland."
- "Better pool of suppliers and ancillary – metal shops"
- "Legacy effect (always based/started up in Auckland), but if a 'clean sheet' whether Auckland is the best place to be would be an open question. Comes back to history. Guess Auckland does offer better pool/market/access for recruitment of key staff (managerial, sales, marketing, product management)."
- Why is Auckland the best place for you to be located? "Because there are more small companies doing things here. We have very few companies outside Auckland."
- "In terms of finding people, subcontractors etc, then Auckland is the right place to be."
- "It was where the business was when we bought it. It's a good location because it's close to the airport (for freight) and to the seaport for shipping. And there's a good labour pool."
- "Labour is a key element."

5.7 Summary of findings

There is an underlying (and not unsurprising) theme to these results, that the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities, product market size, complementary suppliers, infrastructure investments and international connectivity. All of the advantages that one would expect to be associated with a large city.

This points to a possible conclusion; it appears that, from the sectors we have examined, the location-related factors which have led to the establishment, growth, and continued success of industry sectors in Auckland are essentially a product of Auckland's scale. This may sound a little glib. It is not. Many commentators speculate on the possibility of optimal city size and the natural capping effect of growth. What we appear to have observed is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Given Auckland's long history as New Zealand's major urban centre this suggest that responses that cited history as the driver of locational choice could also confirm, rather than deny this view.

The review of the literature led to a focus of enquiry on three main drivers of industry success:

- The strength, nature, and composition of domestic and international demand.
- Proactive sectoral development support from the Government.
- Having many fast growing and successful firms within the sector.

We have found that, as would be expected, when considering the importance of these determinants for industry location and success in Auckland there are differences between sectors. The consulting engineering sector is strong in Auckland partly because demand is

strong, but again this is demand driven by the requirements of keeping pace with Auckland's continued growth, so Auckland's scale essentially drives demand. Similarly, the significant expenditure on health services within the region, related to the size of population and Auckland's role in providing specialist health services nationally provides the medical technology sector with a ready market. Other manufacturing sectors do not see the Auckland market as being better or more important.

Government intervention was considered in some detail. Historically, this has strongly influenced the success and/or failure of some sectors, e.g. automotive component manufacturing. However, when considering the location-related factors that have led to the establishment, growth, and continued success of industry sectors direct government intervention was not found to be a significant factor. What does make a difference to industry success and location is government expenditure, for example on infrastructure or health. As this is often related to scale again it points to the reinforcing nature of Auckland's growth.

Firm specific characteristics influence industry success. For example, even within some of the fast growing sectors we chose as case studies some firms performed strongly and grew over the past five years; other firms had relatively static or even negative growth over the past five years. Much of the growth within these sectors appears to have been driven by a small number of successful firms (mainly large firms) that have performed well globally, rather than an across-the-board strong performance from all firms within the sector.

However, we did find almost universal agreement on one point. The importance of Auckland as a source of labour. The most important single locational advantage Auckland offers to industry sectors is its deep and specialised labour markets. Auckland provides a distinct advantage actors of production.

Therefore, returning to Porter's Diamond briefly, from an industry sector perspective, Auckland as a location would appear to more heavily weighted towards factor conditions, with labour being the predominant factor. Demand conditions register as important with some sectors but the relevance of related and supporting industries is clearly impeded upon by the aversion to clustering identified in our responses.

However, it would be wise not to lose sight of the fact that, when considering the location-related factors which have led to the establishment, growth, and continued success of industry sectors in Auckland, location choice is often strongly influenced by individual's preferences. As one Auckland respondent pointed out;

> "Our major global competitor is located in Hamilton and that's an accident of fate because that's where the founder was born and grew up and created his business. But this business, or indeed his business could be in Auckland, Wellington, Hamilton, Dunedin, Christchurch, Sydney, Melbourne, Adelaide, Perth – it could literally be anywhere.

6 Firm success factors

6.1 Introduction: Defining firm success

Even though many of the firms surveyed had positive revenue growth over the past five years, faced with the current global economic downturn some firms said they are unconcerned with the current downturn and are optimistic about the future, whilst other firms (even within the same industry) said they are struggling and are worried about the ability of the firm to continue operating in the immediate or near future. So what makes some firms more successful (and resilient to change) than others?

First, to define success mean for firms in Auckland, we asked, both in the web survey and in the interviews, what success means to them. A quantitative assessment of the open-ended responses received revealed the following key 'success' themes. The frequency with which these themes occurred in the survey responses is detailed in the table below.

Although the frequency of responses shown below provides some indication of the relative importance of the factors, it is important to note that the overall number of responses received from the web-survey was relatively small; thus, the frequencies are treated as indicative rather than prescriptive. These themes, and their relative importance, were reiterated in our interviews.

Table 3.1: Key business success themes

Business success – Key themes	Frequency
Increased profit • Growth in revenue, return to shareholders, etc	√√√√√√√√√√√√√√√
Business is growing • Increasing market share, employing more staff, increasing capacity/delivery	√√√√√√√√√√
Repeat business/sustainability • High customer satisfaction, building long-term client/customer relationships, perception of value for money	√√√√√√√√√√
Pride • Including pride and personal satisfaction in developing an innovative product, and having a strong organisational culture	√√√√√√√
Providing a quality product/service • Including providing more than an off-the-shelf solution, and ability to develop new products	√√√√√√
Being efficient • Achieving high rates of return for hours worked, delivering greater capacity	√√√√
International success • Including offshore stock-market listing, acquisition by offshore company	√√√

6.2 Drivers of firm success

Moving on to the drivers of firm success, we asked firms, participating in the web survey, to identify the three most important factors for business success. This query elicited approximately 26 different success factors. The table below shows the different success factors mentioned along with the relative frequency factors were mentioned.

Table 6.2: Factors for business success

Success factors	Frequency
Quality - service	√√√√√√√√√√
Skilled staff	√√√√√√√√√√
Innovation/knowledge/R&D	√√√√√√√√√√
Quality - product	√√√√√√√√√
Strong customer/client base	√√√√√√√√
Reputation/brand	√√√√√√
Speed/efficiency	√√√√√
Culture/happy staff	√√√√√
Strong national economy	√√√√√
Customer satisfaction	√√√√√
Growth	√√√√
Location	√√√
Reduced compliance costs	√√√
Favourable exchange rate	√√√
Leadership/business confidence	√√√
Balancing the books	√√√
IT/technology investment	√√
Strong global economy	√√
Profit	√√
Competitive	√√
Business planning	√√
Professional relationships	√√
Access to products/suppliers	√
Access to markets	√
International revenue	√
Strong supplier relationships	√
Other	√√√√√√√

Face to face discussions with firms then provided more detailed insights about drivers of firm success and failure. These are discussed below under the following key themes:

- Competition, innovation and product development;
- Market size and access to customers;
- Access to capital;
- Access to factors of production;
- Cost of doing business; and
- Business leadership, strategy, and responsiveness to change.

6.3 Competition, innovation, and product development

6.3.1 Level of industry competition

A number of commentators, including Porter (1990) and Busch (2006) believe that strong domestic competition within local industries increases the competitiveness of firms within those industries. Porter's analysis of the industries in ten countries suggested that globally successful firms within an industry often have a number of strong domestic rivals, even in small countries (Porter, 1990). Porter argues that strong domestic rivalry creates the pressure on firms to improve and innovate because local rivals push each other to improve the quality of products and/or service, and to lower costs and improve productivity through developing more efficient business processes. Conversely, there is a risk that firms that have little or no direct domestic competition can become complacent, inefficient, and lose the ability to innovate and respond to changing business environments.

To be able to benefit from the effects of strong domestic competition, there must be a large enough number of firms that compete in the same product market. Within New Zealand, many industries – particularly specialised manufacturing industries – appear to be long and thin, in the sense that firms within the same industry produce a diverse range of products, but there are few large firms competing directly with each other within specific niche product types. Busch (2006) made this observation for the New Zealand electronics industry.

This finding was reflected in our interviews with firms. For example, a number of firms in the medical and surgical equipment manufacturing, agricultural equipment manufacturing, and electronic equipment manufacturing sectors said they either have little or no direct competitors in New Zealand. However, many of these niche manufacturers also told us that they rely more on international markets, as opposed to the domestic market, for sales and revenue.

Therefore, the level of competition, or lack of it, that these firms face domestically is probably less important because they are faced with strong competition from similar overseas manufacturers.

6.3.2 Innovation and product development

At the most fundamental level, firms are in business to sell their products or services. Having a superior product range or service offering that adds value to customers' personal lives or businesses is perhaps the single most important source of firms' competitiveness, and potential for growth and export.

This assertion is backed-up by the responses we received in both the interviews and web-survey, where it was noted that:

- In the case of firms that produce physical products, making a quality product, developing new products, and expanding the product line to cater for a broader customer base are important for firms to gain or maintain their competitive advantage and expand customer base (including through new applications of technology or intellectual property and access to customer segments and new markets internationally); and

- In the case of the firms that produce services, delivering a quality service on time and within budget is essential for firms to develop credibility and to get repeat business from existing customers (a key source of work for many service-based firms) or get new work through word-of-mouth referrals.

Assuming there is demand for a product, the type of product and segment of the market that firms choose to compete in directly affects the amount of competition they face, both domestically and globally, and thus their ability to grow and be profitable. Many of the firms and industry representatives said that Auckland's competitive edge is in our ability to develop innovative ideas. They believed that Auckland firms should compete on the basis of quality, high-value knowledge-based products, rather than compete on price, where developing countries such as China and India have a competitive advantage.

To amplify the above point, respondents pointed out that many of the fast growing and successful manufacturers export their products, and they compete on the world stage by focusing on niche (usually high-tech), high value, and low volume productions, particularly in market segments where there is little direct competition, especially from low cost countries. These manufacturers believe that low cost countries such as China are not a significant threat to them because they tend not to compete in the high-value, low-volume market segment given that their competitive advantage is in high volume production. Furthermore, many of these same firms compete in the niche, knowledge-based space that focuses on products designed to improve customers' efficiency and productivity (in the case of business customers), or add value to people's lives (in the case of households). They also tend to focus on developing products that have a high level of intellectual property that can be protected through patents.

On the other hand, many of the struggling manufacturers tend to produce generic, low-margin products with little intellectual property (or with unprotected intellectual property) – products that other competitors, including Chinese manufacturers, can easily replicate and directly compete with. In particular, one firm that produces piping stock feeders for the agricultural sector noted that, *"it's easy for them [competitors] to buy one of our products, look at it, and try to make it."* Other examples include generic semi-processed electrical or mechanical components.

In addition, a number of manufacturers, particularly those that compete on the basis of price, complained about New Zealand's free trade agreement with China, which has reduced the

barriers of trade between both countries – including making it easier for products made in China to be imported to New Zealand.

Having direct competition from Chinese manufacturers is a major issue for local manufacturers, particularly if the quality of the product is just as good as locally manufactured products. This situation exists because Auckland manufacturers tend to have higher cost structures (including labour and land) than firms in developing countries such as China, so they are not able to compete on the basis of price. For example, local manufacturers of electronic components appear to be struggling because they face both strong price and quality competition from Chinese manufacturers. Conversely, other electronic equipment manufacturers that compete on the basis of providing an overall value-added solution for customers appear to be doing well. The firms in this category tend to focus on providing different combinations of the following to clients: providing quality value-added electronic equipment, product installation services, software development and support, and after-sales support service.

In summary, in order to be internationally competitive (both in domestic and international markets), Auckland firms believe that they must compete on the basis of the quality and the value-add of products, rather than price. It appears that firms also have more potential to grow bigger and faster in market segments where there is little existing or potential future competition, compared with market segments where competition is very strong. Firms must also focus on developing new innovative products (including expanding the application of existing technologies to cater for a broader base of customers), improving existing products, and bringing new products to market faster than competitors in order to stay competitive and maintain or grow market share.

6.3.3 Research and development

Nearly all the firms believed that investment in research and development (R&D) is critically important for the development of new products, as well as being able to bring new products to market faster than competitors. Although R&D is not usually associated with service-based firms, many firms (particularly those operating in specialised areas such as engineering or those whose services are based on applying new technologies) noted that being able to keep up to date with latest developments in their field is important to remain competitive.

Many respondents believe that a key reason why some firms in their sector have failed is because they simply stopped investing in product development and improvement, and hence stopped innovating. Building on this notion, the types of firms that appear to be most vulnerable to losing any competitive advantage and market share they may possess are those firms that focus solely on product improvement rather than developing new innovative products. Firms fitting into this category of not carrying out R&D tend to be either:

- Small firms, because the amount of R&D they can do is limited by the amount of revenue and profit they make. It was observed that focusing R&D on new innovations can be too risky for small firms, and they might not be able to afford to risk scarce resources on ideas that might fail technically or commercially. Despite this assertion, it is ironic that many respondents thought that small firms are a key source of innovative ideas in Auckland; or

- Large firms, because as one firm puts it, they *"do not have the culture to innovate"*. It was noted that large firms tend to focus on improving existing products rather than proactively developing new ones – probably because large firms tend to already have

an established market share. So, rather than trying to grow it, the focus might shift to simply not losing that market share. Alternatively, many large firms, particularly large foreign-owned firms, have a tendency to buy smaller firms that have innovative products and technology, because it is more value-for-money than undertaking R&D from scratch, and this avenue minimises the internal cost and risk of failure.

We received mixed views on the Government's planned abolishment of the R&D tax credit. On the whole, the disparity of views tended to be between large firms and SMEs. Large firms were highly critical of the planned abolishment of the R&D tax credit, because of the reduced value of the cost off-set for them. On the other hand, many SMEs said that the abolishment would have little impact, because even though R&D is an important part of their business, they never took advantage of the tax credit in the first place. They argued that too much time and effort is required to set up the systems to record and administer the amount of R&D spent, and that overall, it was not worth the effort.

A number of industry representatives also believed that the current R&D tax credit model is flawed, in the sense that it is too cumbersome for SMEs to access, and easy for large firms to take advantage of (including potentially including expense items that are not normally considered to be R&D). Nevertheless, they believed that incentives for firms to invest in R&D is important, and that another vehicle should be introduced to replace the current R&D tax credit model – preferably one that is less administratively cumbersome and fairer for SMEs. Moreover, they desire incentives that encourage firms to take a longer term view of R&D.

Some participants in the study thought that existing government funding available for R&D is overly focused on the research side, with not enough emphasis on the product development and commercialisation side of the equation. Many firms and industry representatives, particularly in the scientific research/biotechnology sector, believed that a greater proportion of government funding for R&D should be channelled to the product development and commercialisation phases because these are areas that Auckland businesses are not good at in general (in particular, start-ups led by scientific researchers with little commercial experience).

6.3.4 Collaboration

Multi-party collaborations or partnerships can accelerate the discovery and commercialisation of new products through the sharing of knowledge and ideas. However, there is little collaboration between firms, or with public research institutes (including universities, Crown Research Institutes (CRIs), hospitals etc) within the different sectors we studied. A number of industry representatives also believed that public and private sector collaboration among universities, CRIs, and industry is a major area of weakness within domestic industries.

First, there appears to be little inter-firm collaboration in Auckland or more broadly in New Zealand. Respondents believe that this is because firms are too competitive to collaborate with other firms within the same sector on R&D projects, particularly with direct competitors. In addition, they note that it is not in a firm's best interest to collaborate with other firms within the same industry because it is important to protect their intellectual property, which is the source of many firms' competitive advantage. Furthermore, some firms also noted that they have to be careful not to break Commerce Act rules on anti-competitive behaviour when considering collaborations with similar firms in the same industry.

In general, firms across the different sectors agree that there is little value in collaborating with other firms within the same industry. As an alternative, some firms indicated that there would be more value in collaborating with other firms in the value chain that do not compete with them directly, and where all parties involved can gain mutual benefits.

Secondly, when collaborations do happen, they appear to be mainly between large firms and universities and/or CRIs. Some medium and large firms mentioned that they have international collaboration partners, but the extent of these relationships was not probed in this research. As discussed below in the 'market size and access to customer' section, some firms outsource their R&D to international partners in order to leverage off the networks and relationships of their international partners, thereby making it easier to break into international markets.

Many SMEs do not have any collaboration with universities or CRIs. SMEs noted that a major barrier they face is not knowing what channels to go through to initiate contact, including finding out who to talk to, because universities and CRIs are so large. Furthermore, a number of firms and public research institutes also noted that a lot of the collaboration that happens is based on who knows who, even between CRIs and universities, rather than at the organisation level. This can explain why it is mainly the large firms (and not SMEs) that have collaborations with public research institutes – because larger firms are more likely to have the networks and relationships with individuals at public research institutes.

Another reason noted for the current low levels of public and private sector collaboration is that research interests do not align. For example, a number of manufacturers, including large global firms, indicated that it was difficult to work with university researchers because their research interests are too theoretical in focus, and they are in general not interested in the commercial applicability of the research. On the other hand, respondents accepted that it could be difficult for public research institutes to work with firms because whilst public research institutes tend to take a long term view of projects, many firms (particularly SMEs) tend to take a short term view.

6.3.5 Clustering

There has been much interest in recent years within government circles about the potential role that the physical clustering of firms and other institutions in a specific area of specialisation can play in increasing the innovativeness, competitiveness, and productivity of firms within the cluster. On the topic of innovation, cluster theory (introduced by Porter in his *Competitive Advantage of Nations* framework) argues that the spatial agglomeration of firms specialising in similar and complementary activity types intensifies inter-firm rivalry as well as external knowledge spill-overs associated with the informal exchange of information by professionals located close to each other. These relationships, in turn, are said to stimulate innovation, higher productivity, and consequently the export competitiveness of the firms in the cluster.

When asked how important being located close to other firms or organisations undertaking similar or complementary activities is for growth, nearly all the firms said that they see no value in being located in close proximity to similar firms, particularly competitors. They adopt this stance because they are in direct competition with competitors, and have to

protect their intellectual property. They note, however, there could be benefits in being located in close proximity to other firms in the same value chain.

A number of firms go on to say that NZTE's approach to facilitating physical clustering is wrong because it creates an artificial incentive for firms to locate physically close to each other. Because the clustering has been artificially induced, it may or may not generate the innovation and productivity gains sought – particularly if firms do not interact. Firms thought that if there was value in locating close to similar or complementary businesses, they would do so regardless of external incentives.

The only types of firms that thought there could be value in being physically close to other similar firms were in the biotechnology sector – particularly small start-ups that have little business experience or sectoral knowledge, and have few established networks or relationships. These firms think that being physically located close to other similar firms can facilitate networking, the sharing of ideas and business experiences, and even collaboration.

Building on this, it was also noted that the facilitation of networking, knowledge-sharing, and collaboration can be replicated by creating virtual clusters – essentially, a virtual club or network of firms within the same value chain who interact with each other. So in effect, they believe that there is no need for firms to be physically located close to each other to reap the benefits noted above.

In summary, while being spatially close to one another allows firms to operate more productively in sourcing inputs, accessing global markets, sharing knowledge and technology, and motivating competitiveness, these advantages can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so. It suggests that instead of trying to promote the physical clustering of firms undertaking similar activities, the Government should facilitate the development of knowledge and relationship-sharing networks (e.g. through industry bodies).

6.4 Market size and access to customers

Having developed a quality product, a firm's ability to grow is dependent on its ability to sell its product to customers. The number of potential customers comes into play in this second instance. A number of firms specifically noted that the small size and depth of the New Zealand market is a barrier to growth. Many firms also said that within New Zealand, they rely on a small base of customers for the majority of their revenue. New Zealand's relatively small market size and depth has important implications on the direction that firms choose to grow their customer base.

New Zealand has often been described as a country of generalists rather than specialists. From our interviews with firms, it is apparent that this is driven by New Zealand's low market depth. With the exception of very small firms that have limited production capacity and are not looking to grow (e.g. sole traders), firms that only service the domestic market, in particular service providers, cannot afford to specialise in niche areas if they want to grow in New Zealand because it further limits what is already a small market. For example, a firm that provides services to the agricultural sector noted that it had to increase its service offerings in order to grow – changing from being a niche service provider to being a provider

of a full range of farming services. Similarly, nearly all the consulting engineering firms provide a range of multi-disciplinary engineering services.

In contrast, firms that produce niche, highly specialised products tend to have to export to much larger international market(s) in order to escape the constraints of the domestic market. This is particularly the case for manufacturers of expensive machinery or equipment that have long life cycles (e.g. medical devices and agricultural machinery).

Access to international markets and customers are particularly important for firms in the automotive components manufacturing sector, because there is no automotive industry in New Zealand. Of the few manufacturers that survived the deregulation of the 1980s and have grown in recent years, all appear to rely heavily on export markets for product sales. This contention was supported by our interviews with firms in the sector, and also by Miller and Whitcher (2003), who found that some automotive component manufacturers took proactive action to secure export agreements at the end of the 1980s and 1990s.

For nearly all the strong, fast growing, and successful manufacturers, revenue from exports makes up a substantial proportion of total revenue. They tend to produce niche, high value, and knowledge-intensive products that are protected through patents. They also tend to be medium to large in size, and some even have offshore manufacturing, along with sales and distribution capabilities. These observations suggest two things:

- To the extent that firms within an industry can access international markets, strong international demand can enable firms to gain economies of scale, increase their competitive advantage, and grow much bigger in scale; and
- It is difficult and costly for small firms to break into and succeed in international markets. Firms that tend to succeed are those that have sufficient capital to resource an effective entry into a foreign market, including having effective market intelligence about the foreign market, being able to hire business-savvy people to market and distribute the product, and/or to set up operations overseas.

These finding are consistent with the findings of previous research (summarised in Wilson, 2002) which conclude that the internationalisation of firms is strongly associated with growth, and the significant international performance of some of New Zealand's larger firms is associated with the exploitation of some proprietary knowledge.

A few small firms said they have previously tried to break into international markets, but had bad experiences, including trusting the wrong people. This was also noted in the 2002 Government report, *"Growing an Innovative New Zealand"* (also known as the Growth and Innovation Framework). The report posed possible reasons why many New Zealand firms that have invested offshore have done poorly and have lost substantial amounts of money on their investments. Possible reasons noted include a lack of management skills within New Zealand firms and firms not being able to access risk capital and expertise to help with overseas expansion. Again, medium to large firms are more likely to succeed in breaking into overseas markets because they have access to more resources, including the funds and corporate expertise, to support the expansion.

Local manufacturers that have strong global affiliations (for example, being a local division or subsidiary of a large multinational firm) also have an obvious advantage in exporting to other countries, as they are able to leverage off the structures and relationships of their global parent. In some cases, this includes selling products directly to divisions or subsidiaries located in other countries for distribution.

As mentioned previously, some firms believe that there is a trend for firms to outsource their R&D to organisations in much larger foreign markets such the US, Europe, and China, in order to break into those markets. They do so by leveraging off the relationships and networks of their collaboration partner(s). One firm noted in particular that one of its former collaboration partners had outsourced all its R&D work to a university in China because, although it was more efficient and cheaper to do the work in New Zealand, they wanted to break into the Chinese market.

Overall, there is a general lack of knowledge within New Zealand firms about how they can break into international markets. It was also noted that firms have a lack of knowledge and market intelligence about foreign markets. Support in the development of international markets and linkages for industry, including lifting the profile of New Zealand firms and industries, was generally seen to be an area that the Government, with its vast international relationships and networks, can assist in and facilitate.

Language and cultural barriers (e.g. not knowing who to trust in China) are major deterrents for some New Zealand firms to enter non-English speaking markets (e.g. China) to pursue business opportunities.

Real or perceived, it was noted that with the exception of a small number of successful flagship New Zealand firms, and specific sectors that are targeted by Government for sector development, there is little government support to assist firms to break into international markets, particularly for SMEs who appear to need the most help. In particular, the agricultural technology sector noted that they receive little or no support from the Government to help promote and raise the profile of New Zealand agricultural technologies overseas. Instead, the role of international market development is picked up by the industry association, New Zealand Agritech Inc, which promotes New Zealand agricultural technologies overseas, helps its members to break into overseas markets, and provides support to members going to international trade shows.

Furthermore, some firms noted their frustration in having to pay their own way to go to international trade shows, and find out that attendees from other countries have been subsidised by their governments to attend. Based on our interviews with firms, the level of assistance provided by NZTE to assist firms to go to international trade shows appears to differ for different types of firms and sectors. Real or perceived, there is a view that government support is biased towards large successful firms (who probably do not need the assistance in the first place), and sectors that the government has picked to be winners, rather than supporting the types of firms that need the most assistance (i.e. SMEs).

6.5 Access to capital

Having sufficient access to cost-efficient capital is an important component of firm growth and success as it provides the monetary resources required to allow firms to do what they need to do to remain competitive and grow. This includes being able to invest in increasing production capacity, R&D and product development, hiring the expertise and skills required to grow the business, marketing, and even expanding into overseas markets.

At the more operational level, capital is important for the purchase or rental of land and building(s), to extend customer credit, build inventories, and even to fund start up losses.

Excessive debt and borrowing, and poor cashflow management was identified by firms to be a major reason for poor firm performance and failure.

In some sectors, the need to invest large amounts of financial resources in order to compete is a major barrier of entry for new firms. For example, in sectors like biotechnology and high-tech medical devices development and manufacturing, where high levels of investment in R&D (and commercialisation of that R&D) is essential for the success of firms within the sector, the barriers of entry for new firms would be substantially higher than sectors such as consulting engineering services, or services to the agriculture sector, where small firms with little start-up capital can easily enter the market and do well in.

In addition, in sectors such as biotechnology and high-tech, high-value medical devices manufacturing (as opposed to low-tech, low value medical and surgical equipment), where the development and pay-back periods are long (in the order of 20 years or more for many biotechnology companies), access to a constant stream of capital is required for business continuity. This is particularly the case in the initial phases of R&D (before firms have a marketable product) when firms have large cash outflows, but little cash inflow in the form of product revenue.

For example, in the high-tech, high-value medical devices manufacturing sector, many of the firms are actually a division or a subsidiary of a larger firm that operates in an unrelated sector. They therefore benefit from the financial support of their parent company, which in effect subsidises any losses – at least initially until the medical division matures and becomes profitable and self-sufficient. For example, Fisher and Paykel Healthcare initially had the support of Fisher and Paykel Appliances, Adept Medical is supported by Adept Plastics, and Mercer Medical is supported by Mercer's wider stainless steel business.

In the biotechnology sector, difficulty in accessing capital appears to be particularly acute. Access to funding is a major determinant of whether firms in the sector (particularly new private sector start-ups) succeed or fail. It is particularly difficult to access private sector funding in New Zealand (through Angel investment funds, venture capital etc) because capital markets here are small and thin, and highly competitive.

Furthermore, many firms also noted that New Zealand investors are significantly more risk adverse than investors in other countries (e.g. Australia and the US). Particular comments we received include:

- New Zealand investors tend to expect firms to have a tangible product before they are willing to invest in it. It therefore makes it very difficult for firms in the initial R&D phase of business to secure private funding because they would not have developed a tangible product yet. An industry representative estimated that probably only about half of the biotechnology firms in New Zealand currently have a product; and

- Unlike American investors, New Zealand investors do not understand the risk of entrepreneurship and failure associated with the R&D of leading edge technologies. They note that American investors are willing to invest in firms for the long term, with the knowledge that there might be failures in the short term. In contrast, it was noted that New Zealand investors take more of a short term view, and are less tolerant to short term failures – even if it is a technical product failure which is beyond anyone's predictions. As one firm stated, *"one failure, and you're marked as being useless… and almost certainly, companies die at that point"*.

Many private sector scientific research / biotechnology firms, particularly new start-ups, also noted that government funding can be just as difficult to access, because firms have to compete with often much larger CRIs and universities for the funding.

In addition, a few private sector biotechnology firms were particularly critical of the attitude and behaviour of FRST. Comments received about FRST include their bureaucratic approach, lack of vision, bias towards favouring larger and more established firms, universities, and CRIs, and being too risk adverse. Real or perceived, firms noted that:

- Some small new start-ups have been denied seed funding from FRST because they have not been able to supply financial information about the company's operations for the previous three years; and
- FRST is too risk adverse – being more receptive to incremental innovations, rather than cutting edge new innovations.

One biotechnology firm noted that because of a lack of funding, it was forced to consolidate its business operations, and sell off a large part of its business. Another firm said that it might have to sell some of its microbes (i.e. base inputs for its R&D) in order to raise funds.

Porter (2008) argues that in theory, if industry returns are attractive and are expected to remain so, and if capital markets are efficient, investors will provide entrants with the funds they need, despite the high capital requirements. However, for the reasons described above, it appears that capital markets are not very efficient in New Zealand.

Many innovative New Zealand firms, particularly SMEs in the biotechnology sector, have been and are seeking direct foreign investments in order to grow, or simply to ensure business continuity. In some cases, innovative New Zealand firms are simply sold to larger foreign-owned firms. Depending on the intentions and strategy of the new foreign owners, the firm can either thrive, or get hollowed-out and fail. This will be discussed in further detail below.

Overall, difficulties in getting access to capital in New Zealand can partially explain why there is such a high proportion of SMEs in New Zealand (many of which do not export), and such a low proportion of truly global exporters. Access to capital is likely to be a major barrier.

6.6 Availability of Factors of Production

6.6.1 Availability of Labour

Human capital and knowledge is a major production input for all firms participating in the study. Depending on the nature of the firm, the availability of skilled, low-skilled, and casual labour is important for the continued success and growth of firms.

Nearly all respondents believe that the growth and success of their business is dependent on having good, productive employees that have a good fit with the firm's organisational culture. In fact, many firms noted that being able to attract and retain good staff is a key business success factor, and that it is important to keep good staff happy.

In contrast, having bad or unproductive staff that do not fit well within the business's culture can have significant impacts on the firm's productivity and cost, because they can affect the morale and productivity of other staff. In addition, bad staff can even cause reputation loss for the firm. For example, one firm noted that it had previously had problems with having some "dodgy" engineering staff on its team, which compromised the quality of the products produced, and resulted in reputational damage and loss of market share for the firm. Many firms noted that the employment laws in New Zealand is particularly challenging for business owners, as it makes it very difficult and costly (in terms of time) for firms to fire bad employees. This is discussed in further detail in the next section.

Many firms thought that the availability of low-skilled and casual labour in Auckland is good in general. A number of SMEs contended that an advantage of being in New Zealand is that they are able to access and attract top graduates and skilled talent, whereas it would be nearly impossible to do so if they were in countries such as the US. In general, it is easier for SMEs to compete with large multinational firms for skilled labour in New Zealand, compared with countries such as the US. Potential reasons for this could be because the pay differential between what large and small firms offer is not as large, and the competition for skilled labour is not as stiff relative to the US.

The main issue appears be the availability of skilled staff – particularly those with engineering, including electrical, or science training and experience. Many firms, particularly knowledge-intensive firms, said that it is hard to find skilled staff, even in Auckland – New Zealand's largest city. Many firms have recruited or are looking to recruit highly skilled staff (in particular experts in particular fields) from overseas. However, it can be difficult for firms to attract skilled people from overseas to come to Auckland, because relative to other global cities, the cost of living in Auckland is high whilst income levels are low.

In particular, the difficulty in finding skilled staff appears to be more acute for large and fast-growing companies that have a high demand for skilled staff. In particular, both Fisher and Paykel Healthcare and Navman noted that the relatively low supply of skilled staff in New Zealand, university graduates in particular, have either previously been, or is still a major constraint on their growth. For example, Fisher and Paykel Healthcare noted that it was looking to hire 40 graduates this year, but was only able to fill 13 of those positions. If the company continues to grow at current rates, it could be looking to employ up to 100 graduates at some point in the future, but they doubted that they would be able to fill them all given the status quo of the current education system and labour market.

Many firms believed that the Government should play a role in helping to improve the pool of skilled labour in New Zealand. Key areas of action for government include:

- Improving the education system, and providing incentives for education institutes to train more students in areas where there are skill shortages;
- Providing incentives for students to train in areas where there are skills shortages, and providing incentives for them to stay in New Zealand after completing training;
- Improving the attractiveness of Auckland as a place to live, and to make foreign skilled labour want to move here; and
- Relaxing immigration policies for skilled foreign labour to migrate to New Zealand.

6.6.2 Availability of other factors of production

Other production inputs that some firms noted were important, but is currently a constraining factor for their growth include access to:

- Efficient transport networks for moving people and goods (noted by nearly all firms);
- High speed broadband (specifically noted by scientific research institutes); and
- Reliable and secure electricity supply (specifically noted by manufacturing firms and other major electricity-intensive firms). In particular, one high electricity-intensive manufacturer noted that because of cable constraints in the area that it is located in, there is a limit on how much electricity it can use. In order to increase the capacity of electricity that can be delivered to the factory, the firm noted that they have to install a transformer on site at their own cost (in the order of $50,000).

The availability of other factors of production, such as land and building premises, raw materials or components, and other production inputs did not appear to be areas of concern. The only exception to this statement appears to be for highly specialised components, where firms face the risk of not being able to source these components if its supplier goes out of business. Firms in this situation note that they are either looking for other suppliers or are increasingly manufacturing specialised components in-house to mitigate the potential risk to supply continuity. Access to other factors of production such as favourable natural climate was not noted by the firms we spoke to (because it is not directly relevant to them), but it is relevant for firms that are involved in land-base production, such as agriculture, horticulture, and viticulture.

6.7 Cost of doing business

The underlying objective of firms is to be profitable and to provide a financial return to investors. In order to increase or maintain competitiveness and profitability, it is essential that firms are able to manage costs effectively, including being responsive to changes in the business environment, which may put upward pressure on the cost of doing business. The nature of the cost component can also affect the ability to which firms can respond – i.e. some costs are more difficult than others to manage.

Many firms thought the cost of doing business in Auckland, and New Zealand in general, has increased over recent years – in particular, the cost of labour, the cost of land, buildings and facilities, costs associated with having a volatile exchange rate, and the cost of regulatory compliance. These cost pressures affect different types of businesses in different ways.

In general, the cost of manufacturing products in New Zealand, particularly low-margin products, has become high, at least in terms of global competition. This fact, combined with the increased competition from cheaper imports from China as a result of New Zealand's free trade agreement with China, appears to be forcing many firms that previously manufactured in New Zealand to shift the manufacturing component, wholly or partially, to lower cost countries overseas. Some of these manufacturers have contracted the

manufacturing component to third parties, and some have developed its own manufacturing capabilities overseas.

Many of the firms that have shifted the manufacturing component overseas are transitioning from being a traditional manufacture and export company, to becoming a product development, and marketing and distribution firm. Many stakeholders believed that this was the way for traditional New Zealand manufacturers to go in order to survive. As one stakeholder put it, manufacturing should be a firm's lowest cost base. In making this point, however, a number of firms, particularly SMEs, asserted that it is difficult for them to access cheaper outsourced manufacturing in China because their production volumes are not high enough to interest Chinese manufacturers. In contrast, many firms, including ex-traditional manufacturers and scientific research institutes, believe there is a still a role for New Zealand to play in R&D and product development because there are highly skilled and innovative people in New Zealand, and they are relatively low cost when compared with other high skilled staff in other developed countries.

6.7.1 Cost of labour

The cost of labour is probably the highest source of business operating cost for most firms. Firms noted that the cost of labour in Auckland has been high and increasing in recent years – driven by strong domestic economic growth and demand for labour, shortages in skilled labour, and record unemployment rates in New Zealand. Pressure for pay increases in Auckland in particular, have also been strong in recent years because the cost of living in Auckland have also increased.

Other sources of upward pressure on labour costs in recent years include increased minimum wages, compulsory employer contributions to employees' KiwiSaver schemes, and the time cost associated with complying with employment law, and dealing with labour unions. In particular, these issues appear to affect SMEs and manufacturing firms more than others because:

- SMEs have little time or resources to dedicate to employment relations disputes, regulatory compliance and the paper work that is associated. In particular, a number of SMEs noted that they are extra cautious when hiring new staff – tending to choose people based on their goodness of fit within the organisation, rather than their skills base alone – to avoid the time cost and hassle involved with dealing in potential employment conflicts and disputes.

- Manufacturing firms are major employers of low skilled, low cost labour, and are therefore more susceptible to strike action and having to deal with labour unions.

While most firms noted that their employees are their greatest assets, when there is not enough work and there is excess labour capacity, it is important for firms to downsize in order to effectively manage overall labour costs. Firms that do not downsize quickly enough are likely to run into cashflow difficulties and not be able to survive. Given the current global economic downturn, faced with much weaker demand and workloads, and high labour overheads, many firms noted that they have had to make some staff redundant in order to manage costs and survive. Some firms are also moving towards a four-day working week, while others have had to reduce employees' salary / wage rates.

6.7.2 Cost of land and premises

A few firms noted that the cost of land and premises have increased substantially over the past decade, and this is adding to the cost structure of firms (in particular, manufacturers) in the form of higher rental costs, property rates, and/or the opportunity cost of capital tied up in land.

For example, increased land and property developments in previously greenfield sites such as East Tamaki and Highbrook have pushed up the price of land in the area substantially. Whilst many manufacturers note that they currently own the land they are located on, and are therefore not subject to increases from rental costs, some note that a key issue for them is the opportunity cost of the capital tied up in the land. They note that being located on expensive land is not a good use of the capital, and rising land values is forcing manufacturers to consider moving further south where land is still relatively cheap.

In the biotechnology sector, access to low-cost laboratory space is important. It is particular important for small start-up firms that are in the initial phases of research (where it is unclear whether the research will be technically or commercially feasible), because they have little capital to invest in expensive laboratory facilities. Access to subsidised shared laboratory facilities or laboratory-based incubators (even for an initial 6 to 12 month period) can help facilitate the growth of these small start-ups, because it allows them to work on their project(s) under a much lower cost structure, and if the project is successful, it allows them time to raise capital to fully take off. However, if they find that the project is not going to work (technically or commercially) and decides to stop, it saves them from wasting money entering a lease, buying specialist equipment and fitting out a laboratory. A few small start-ups appear to be currently benefiting from subsidised shared laboratory facilities at Industrial Research Limited's Parnell facilities, or through UniServices' facilities (though it seems that UniServices' facilities are only availability for projects that have spun out of the University of Auckland). However, subsidised shared laboratory facilities appear to be scarce in Auckland (and New Zealand).

6.7.3 Cost of raw or semi-processed materials

A few firms noted that the cost of raw materials (e.g. steel and copper) has been increasing. Overall however, the cost of raw or semi-processed materials or component inputs does not appear to be a major concern for most firms.

A number of firms mentioned they import components directly from China, and are therefore able to take advantage of the lower component costs there. However, they note that it is important for New Zealand firms to be able to differentiate between Chinese suppliers that are trustworthy and supply good quality products, and Chinese suppliers that are misleading or supply poor quality products.

Furthermore, firms that import production inputs from China also note that they have to buy in very large volumes. Although the production inputs are cheaper overall, firms need to weigh up whether they can afford to tie up capital in inventory – potentially over a long period of time if it is slow moving inventory.

6.7.4 Cost of exchange rate volatility

Many product-based firms, including exporters, importers, and even non-export manufacturers, said that New Zealand's volatile exchange rate in recent years has had a significant impact on the cost of doing business in New Zealand – affecting the relative

international competitiveness and profitability of New Zealand firms. The exchange rate can affect firms' competitiveness and profitability in the following ways:

- High exchange rates affect the volume or profitability of exports depending on what currency the product is sold in. For products sold in New Zealand dollars, high exchange rates can reduce the volume sold because the product becomes relatively more expensive to foreign buyers. For products sold in a foreign currency (a number of exporters noted that their products are sold in US dollars), sales become less profitable when converted into New Zealand dollars. Conversely, low exchange rates makes New Zealand products more competitive;

- High exchange rates can reduce the cost of production inputs imported from overseas, thus reducing input costs for importers. Conversely, low exchange rates can increase the cost of imported production inputs; and

- High exchange rates can reduce the cost of goods imported from overseas for resale in New Zealand. This can affect the relative competitiveness of domestic manufacturers who sell domestically, particularly in products and market segments where price competition is high, because imported products become cheaper, and much more competitive than locally produced goods. Conversely, low exchange rates increase the cost of imported products, and make them less price competitive in New Zealand.

In recent years, the New Zealand dollar (relative to the US dollar) has fluctuated between 50 cents and 80 cents – making it very difficult for businesses to plan ahead and strategise. For example, one exporter noted that it had seriously considered ceasing to export goods overseas when the exchange rate was in the order of 80 cents against the US dollar. Another manufacturer, who sells only in the domestic New Zealand market, said that when the New Zealand dollar was high (in the order of 80 cents against the US dollar), and faced with the threat of cheaper imported products from overseas, the firm shifted its manufacturing to China in order to take advantage of cheaper labour costs. The same firm notes that even though the New Zealand currency has dropped to the order of 50 cents against the US dollar, and imports have become more expensive and are much less of a threat to the firm now, it is too late to bring the manufacturing back to New Zealand.

Furthermore, many firms, particularly SMEs, do not have foreign exchange hedge contracts, and have therefore been highly exposed to the significant exchange rate volatilities that New Zealand has experienced in recent years. Even for firms that do have hedge contracts, some noted that the hedge contract is not sophisticated enough to protect earnings from the very large exchange rate appreciations and depreciations that we have seen in the New Zealand dollar in recent years.

Many firms called for the Reserve Bank of New Zealand to stop using the Official Cash Rate to control inflation, and to consider other monetary policy tools.

6.7.5 Cost of taxation

Taxation reduces the amount of after-tax profit that firms make, and is therefore a major cost of doing business. The corporate tax rate has recently been reduced from 33 percent to 30 percent, and has therefore reduced the cost of doing business in New Zealand.

However, a number of firms noted specific tax rules that act as disincentives for them to grow their business. In particular:

- The double taxation of income earned offshore act as a disincentive for some firms to grow their business internationally. The double taxation means that the profits of firms with business operations in other countries are firstly taxed in the overseas country where the profit was earned, and then taxed again in New Zealand when firms try to bring the profits back to New Zealand to distribute to shareholders;

- The tax rules around not being able to continue accumulation of tax losses when firms acquire new shareholders appears to be a major factor that hinders the growth of biotechnology firms. Biotechnology firms note that often there is a very long lead time before they make a major breakthrough and become profitable (it is not atypical of biotechnology firms to make losses for 20 years or more), and during this period they will often need to raise capital (and acquire new shareholders) to sustain ongoing research and development. However, the economic value of their accumulated tax losses is lost whenever they acquire new shareholders. Firms in the sector believe that an exception to this tax rule should be made for the biotechnology sector to take into account the special nature of the biotechnology sector compared with other sectors; and

- The combination of poor incentives for R&D in New Zealand (compared with other countries such as Singapore), double taxation of revenue earned from overseas operations, and the lack of a capital gains tax in New Zealand does not provide incentives for firms to grow their business domestically or internationally. Instead, these tax structures, encourage firms to shift their R&D overseas (to take advantage of better overseas incentives), build up the brand and company value in New Zealand, and then sell the business (with no capital gains tax).

6.7.6 Cost of regulatory compliance

Many firms noted that the cost of complying with government regulations add to the cost of doing business in New Zealand. As noted previously, SMEs find it difficult to dedicate the time and resources to administer and comply with what they call bureaucratic processes or red tape, and to keep up to date with changing rules and regulations. Examples include processes associated with taxation, employment relations, KiwiSaver administration, and other sector-specific regulations such as complying with quality standards, clinical trials, biosecurity and Customs, and dealing with hazardous substances.

In addition, the length of time and cost involved in getting resource consent under the Resource Management Act to build or extend existing premises is a major source of frustration for many firms. One manufacturer said that it took approximately 13 months and cost the firm approximately $100,000 (in engineering, architecture and surveying services) before getting an approved resource consent to build a relatively small extension to what is already a large warehouse facility in a highly industrial area. The firm also mentioned that the long delays in getting the consent almost cost the firm the amount of money its foreign parent company had committed for the building extension.

6.7.7 Other costs

Another major cost noted is the cost of transportation – both in terms of moving goods and people around. This includes both monetary costs such as petrol, and the opportunity cost of time lost when delayed in traffic congestion. However, apart from heavy freight-users and those that need to travel for business, traffic congestion appears to be more of an inconvenience (in terms of travel time to and from work) rather than a significant operating business cost.

6.8 Business leadership, strategy and responsiveness to change

6.8.1 Business leadership

The ability to which firms can take advantage of opportunities, respond to change, and grow a successful business depends on the strategy and leadership of firms. We were surprised to learn from some SMEs that they (or the firm's previous owners) were not interested in growing the business – i.e. they were not interested in proactively developing new and better products, or seeking new customers and markets.

This theme also came through strongly when we asked firms what factors are constraining New Zealand businesses and sectors from growing faster and becoming larger and more successful. A number of stakeholders noted that in general, New Zealanders tend to have a laissez faire attitude to doing business compared with other countries (e.g. they are slow to respond to customer enquiries and opportunities), and they tend to focus more on chasing short term opportunities than developing the foundations for longer term growth.

Many also commented that SME business owners lack the hunger, drive and ambition to grow the firm into a large successful business. They note that once SMEs achieve a certain level of success (and its owners achieve the lifestyle that they seek), many owners lose the hunger to succeed even more, and become disinterested in growing the business further.

6.8.2 Business strategy

From our discussions with firms, it also became apparent that many business owners go into business with the goal of growing a successful business (not necessarily to a large scale), and then make a large capital gain from selling the business.

As discussed previously, the combination of poor incentives for R&D in New Zealand (compared with other countries such as Singapore), double taxation of revenue earned from overseas operations, and the lack of a capital gains tax in New Zealand does not provide an incentive for firms to grow their business domestically or internationally. Instead, it was noted that these tax structures, encourage firms to shift their R&D overseas (to take advantage of better overseas incentives), build up the brand and company value in New Zealand, and then sell the business (with no capital gains tax).

Indeed, many firms contended that there is a trend for large, often foreign-owned firms to buy out successful innovative New Zealand firms for their intellectual property, and/or to reduce competition.

Depending on the strategy, intention, and business culture of the new owners, having a large foreign-owned firm buy out an innovative New Zealand firm can either have positive or negative effects on the local sector and economy. The impact would be negative if the innovative ideas and technology are taken off-shore, and the previously successful New Zealand firm gets hollowed-out, because New Zealand loses out both on the job front (as jobs get shifted off-shore), and the opportunity cost of lost revenue from the innovative technologies. Conversely, the impact is likely to be positive if the technology stays in New Zealand, because having foreign ownership could increase the potential for the firm to grow larger and faster because it may be able to leverage off the capital, resources and relationships of the larger firm.

Nevertheless, many firms, including firms that have been the subject of a foreign take-over, observed that in recent years, successful and innovative New Zealand-owned firms that have been purchased by larger foreign-owned firms have tended not to have grown. In many cases, they have become less successful, or have failed in the sense that the firm no longer has any presence in New Zealand. A fundamental reason for this is because the new owners have no real intention of growing the business in New Zealand.

As discussed above, two of the main reasons why firms take over other firms is to accumulate intellectual property, and to reduce competitive threat. These two reasons are not mutually exclusive, and in many cases the new owners take the firm's intellectual property offshore, and stop investing in local R&D – eventually hollowing out the local firm and eliminating a competitive threat.

Even if there is an intention for the new owners to grow the business in New Zealand, some firms noted that a potential culture clash between the new owners and existing employees could cause the firm to lose key personnel and institutional knowledge, and therefore lose any competitive advantage that it previously had. In particular, it was noted that foreign-owned firms, in particular American firms, tend to have a culture of heavy cost-cutting and organisational restructuring.

For example, a large successful firm that was recently purchased by a foreign-owned company said its business has been split into multiple divisions. Instead of focusing on developing new innovative products, which the company was known for, it now simply focuses on incremental product improvement, and reacting to what competitors are doing. It is unclear yet which of the above two scenarios this firm fits into, but what is clear from our discussion with this firm, is that what role this firm might play in New Zealand moving forward is unclear.

In summary, these factors can partially explain why there is such a low proportion of large home-grown firms in New Zealand. That is:

- Once many SMEs achieve a certain level of success, their owners lose the desire and hunger to grow the firm further and achieve a greater level of success; and
- Many innovative New Zealand firms (SMEs and large firms) are being bought out by larger foreign-owned firms who are either not interested in growing the firm in New Zealand, or are ineffective in growing the firm in New Zealand due to culture clash.

This presents a major paradox for industries in New Zealand. That is, industry growth is driven by the success of many firms within the industry. However, successful firms tend to get bought out by larger (mainly foreign-owned) firms, and often becomes less successful (or no longer have any presence in New Zealand) as a result. This would reduce the size of the industry and its potential to grow, since the remaining firms are less successful overall.

6.8.3 Responsiveness to change

As described at the beginning of this section, given that firms operate in a dynamic business environment that is continually changing over time, an important factor that affects the ability of firms to grow, maintain competitive advantage, or simply to survive, is being able to recognise positive opportunities and adverse change (including cost pressures) and being responsive to it. In many respects, this links back to having strong leadership.

Many successful firms in the fast growing sectors, and surviving firms in the declining sectors, have shown that they are responsive to customer demand and changes to the

industry. Many of these firms were able to adapt their business model and reduce cost structures in a timely way in order to continue to survive and thrive. Examples include:

- Many manufacturers across different manufacturing sectors no longer manufacture locally or in-house. Instead, they are increasingly shifting their manufacturing to lower cost countries, including through outsourcing arrangements, and are focusing their New Zealand operations on product development, distribution and/or marketing;
- Some manufacturers have recognised the importance of having some degree of control over the distribution of its products, and have acted accordingly – including developing its own overseas sales, marketing and distribution capacities rather than relying on third party distributors. One firm we spoke to bought an ownership stake in one of their third party distributors;
- Many manufacturers are increasingly importing third party products for resale in New Zealand. A number of exporters started doing this when exchange rates were very high to help offset foreign exchange losses from exports;
- Some manufacturers are changing their focus on what products to develop in the face of the current global recession. A number of firms noted that they are becoming more focused on developing core products that help business customers improve productivity and reduce cost, and developing products that are easy to sell;
- Many electronic equipment manufacturers have diversified from simply producing hardware, to producing both hardware and software to expand customer base and sales;
- Surviving firms in the automotive component manufacturing sector started to export (or expanded their export markets) once the local vehicle assembly industry in New Zealand disappeared;
- Many consulting engineering firms that were previously focused on chasing the private property development market have shifted their focus to getting work from the infrastructure sector; and
- An Auckland seed and grass company that used to service the agricultural sector shifted focus to servicing schools and parks (where there is strong demand) when demand from the local (North Shore) agricultural sector diminished.

6.9 Summary and conclusions

We consider that at a broad level, there are six main drivers of firm success, which are also strongly influenced by location:

- Competition, innovation and product development (consistent with Porter's efficiency and mix of production inputs utilised)
- Market size and access to customers (consistent with Porter's nature and strength of demand)
- Access to capital

- Access to/availability of factors of production
- Cost of doing business
- Leadership, strategy and responsiveness to change

Our research reveals that the following findings from firms in Auckland in relation to these factors:

6.9.1 Competition, innovation, and product development

Many firms and industry representatives said that Auckland's competitive edge is rooted in New Zealanders' ability to develop innovative ideas.

Many respondents believed that a key reason why some firms in their sector have failed is because they simply stopped investing in product development and improvement, and hence stopped innovating. Building on this notion, the types of firms that appear to be most vulnerable to losing any competitive advantage and market share they may possess are those firms that focus solely on product improvement rather than developing new innovative products.

Mixed views were received about the relative importance of collaboration and clustering for innovation.

6.9.2 Market size and access to customers

The small size and depth of the New Zealand market is a barrier to growth. Auckland firms that only service the domestic market cannot only specialise in niche areas in New Zealand if they want to grow, because it further limits what is already a small market. These firms must provide a range of services or products.

Firms that produce niche, highly specialised products have to export to larger international markets to escape domestic market constraints.

To the extent that firms within an industry can access international markets, strong international demand can enable firms to gain economies of scale, increase their competitive advantage, and grow much bigger in scale.

However, it can be difficult and costly for small firms in particular to break into and succeed in international markets. Firms that tend to succeed are those that have sufficient capital to resource an effective entry into a foreign market, including having effective market intelligence about the foreign market, being able to hire business-savvy people to market and distribute the product overseas, and/or to set up operations overseas.

6.9.3 Access to capital

Having sufficient access to cost-efficient capital is an important component of firm growth and success. This includes being able to invest in increasing production capacity, R&D and product development, hiring the expertise and skills required to grow the business, marketing, and even expanding into overseas markets.

Excessive debt and borrowing, and poor cashflow management was identified by firms to be a major reason for poor firm performance and failure.

In sectors like biotechnology and high-tech medical devices development and manufacturing, high levels of investment in R&D (and commercialisation of that R&D), which is essential for the success of firms within the sector, creates a barrier to entry for new firms

Difficulties in getting access to capital partially explains why there is such a high proportion of small and medium sized enterprises (SMEs) in New Zealand (many of which do not export), and such a low proportion of truly global exporters.

6.9.4 Access to factors of production

The growth and success of Auckland businesses depends on having productive employees that have a good fit with the firm's organisational culture. Auckland offers a good pool of low-skilled and casual labour so this area was not seen as problematic. SMEs revealed that access to graduates, who represent the skilled labour market, is a benefit to being located in Auckland because is easier for SMEs to compete with large multinational firms for skilled labour compared with countries such as the US.

It can be challenging for firms to attract skilled people from overseas to come to Auckland, because relative to other global cities, the cost of living in Auckland is high whilst income levels are relative low. The difficulty in finding skilled staff is more acute for large and fast-growing companies, which have strong demand for skilled labour.

6.9.5 Cost of doing business

The cost of doing business in Auckland, and New Zealand in general, was perceived to have increased in recent years – in particular, the cost of labour, the cost of land, buildings and facilities, costs associated with having a volatile exchange rate, and the cost of regulatory compliance.

The cost of manufacturing products in New Zealand (particularly low-margin products) has become high, at least in terms of global competition. This fact, combined with the increased competition from cheaper imports from China as a result of New Zealand's free trade agreement with China, means firms are shifting manufacturing to lower cost countries overseas. Some are contracting the manufacturing component to third parties while others have developed their own manufacturing capabilities overseas.

Some firms that have shifted the manufacturing component overseas are transitioning from being a traditional manufacture and export company to becoming a product development, marketing, and distribution firm. Firms and industry leaders believed this was good strategic move for manufacturers that wanted to stay in Auckland. SMEs asserted that it is difficult for them to access cheaper outsourced manufacturing in China because their production volumes are not high enough to interest Chinese manufacturers.

Many firms, including ex-traditional manufacturers and scientific research institutes, believe there is a role for Auckland to play in R&D and product development because there are highly skilled and innovative people in New Zealand, and they are relatively low cost when compared with highly skilled staff in other developed countries.

6.9.6 Business leadership, strategy, and responsiveness to change

The ability to which firms can take advantage of opportunities, respond to change, and grow a successful business depends on the strategy and leadership of firms. We were surprised to learn from some SMEs that they (or the firm's previous owners) were not interested in

growing the business – i.e. they were not interested in proactively developing new and better products, or seeking new customers and markets.

This theme also came through strongly when we asked firms what factors are constraining New Zealand businesses and sectors from growing faster and becoming larger and more successful. A number of stakeholders noted that in general, New Zealanders tend to have a laissez faire attitude to doing business compared with other countries (e.g. they are slow to respond to customer enquiries and opportunities), and they tend to focus more on chasing short term opportunities than developing the foundations for longer term growth.

Many also commented that SME business owners lack the hunger, drive and ambition to grow the firm into a large successful business. They note that once SMEs achieve a certain level of success (and its owners achieve the lifestyle that they seek), many owners lose the hunger to succeed even more, and become disinterested in growing the business further.

The combination of poor incentives for R&D and double taxation of revenue earned from overseas operations also provides little incentive for firms to grow their business domestically or internationally.

From the research, it was also apparent that many business owners go into business with the goal of growing a successful business (not necessarily to a large scale), and then make a large capital gain from selling the business.

Many innovative New Zealand firms (SMEs and large firms) are being bought out by larger foreign-owned firms who are either not interested in growing the firm in New Zealand, or are ineffective in growing the firm in New Zealand due to culture clash. This situation presents a paradox for industries in New Zealand. That is, industry growth is driven by the success of many firms within the industry. However, successful firms tend to get bought out by larger (mainly foreign-owned) firms, and often become less successful or no longer have any presence in New Zealand as a result. Thus, these buyouts reduce the size of the industry and its potential to grow.

Successful firms in the fast growing sectors, and surviving firms in the declining sectors, are responsive to customer demand and changes to the industry. Many of these firms adapted their business models and reduced cost structures to continue to survive and thrive.

7 Summary of findings

This section summarises the main findings of the surveys before interpreting these results to address the key questions set out at the beginning of this report.

7.1 Drivers of firm location

We considered the questions of why firms choose to locate in the Auckland region, negative factors associated with Auckland that might cause firms to locate to other cities or regions and to what extent being located in Auckland impacts on success?

The key finding is the obvious one – location does matter for firms. The data demonstrates clearly that there are business-related drivers for firms to be located in Auckland, as opposed to other locations within New Zealand.

For firms that said being located in Auckland is important and has a significant impact on the success of the firm, they note that being in Auckland is important because Auckland has the largest population and highest number of businesses in New Zealand. They therefore have better access to the largest pool of labour (in particular skilled labour), customers, and suppliers and other supporting businesses, compared with elsewhere in New Zealand.

Positive features that attract and retain firms in Auckland include:

- Access to a larger pool of highly qualified specialists, as well as skilled, unskilled, and casual labour;
- Better connectivity to regional and international markets as well as supply chains;
- Access to a larger customer base;
- Stronger potential to attract international corporate visitors; and
- Easier in attracting and retaining skilled labour from overseas.

These are not surprising results. They are, however, a useful confirmation, from the individual firm's perspective, of the theoretical underpinnings of agglomeration.

Negative factors that might lead to a firm leaving Auckland included costs involved in dealing with local authority regulations (e.g. zoning and consents), traffic congestion, and the higher costs of doing business in Auckland compared with other parts of New Zealand. Firms observed that there is a double-edged sword in being located in Auckland because the cost of living, employees' salary expectations, and labour costs are higher in Auckland compared with other parts of New Zealand.

Again, this is consistent with much of the work on the economics of urban areas, where productivity gains from increasing concentration of activity are offset by external costs (e.g. congestion) and private costs including land costs and actual travel costs (time and money).

To what extent is locating in Auckland a determinant of a firm's success? Importantly, despite the disadvantages noted, the research found that the majority of firms believed that being located in Auckland is important and has a significant impact on their success. A

number of firms believed that their businesses might have a better chance of growth and survival if they were located elsewhere because their key markets are based in other parts of New Zealand or overseas. This would again appear to be consistent with the theoretical predictions – it is just the opposite of firms who are attracted to Auckland for the same reasons.

However, the data reveals that biotechnology firms, in particular, are attracted to overseas countries because of better access to private equity and government incentives to stimulate research and development. The question of the availability of incentives opens up the debate around 'picking winners' and whether a more interventionist approaches from the public sector e.g. through subsidies or other related measures would be beneficial. We did not canvas this further as the policy environment in New Zealand is very clear on this matter and although it is relevant in relation to locational choice at the country level it is not a determinant of locational choice between Auckland and other parts of New Zealand.

Biotechnology firms were also unique in terms of seeing the benefits of clustering. These benefits can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so.

An interesting finding, seemingly unrelated to the drivers listed above, is that firms, especially small ones, stay in Auckland because it is where the owner lives, and where he or she wants to keep the business. However, one must consider why this is and is it in fact similar to the consideration of why skilled labour supply is higher in Auckland and what attracts these workers?

7.2 Drivers of industry success

The review of the literature led to a focus of enquiry on three main drivers of industry success:

- The strength, nature, and composition of domestic and international demand.
- Proactive sectoral development support from the Government.
- Having many fast growing and successful firms within the sector.

We have found that, as would be expected, when considering the importance of these determinants for industry location and success in Auckland there are differences between sectors. The consulting engineering sector is strong in Auckland, partly because demand is strong, but again this is demand driven by the requirements of keeping pace with Auckland's continued growth, so Auckland's scale essentially drives demand. Similarly, the significant expenditure on health services within the region, related to the size of population and Auckland's role in providing specialist health services nationally provides the medical technology sector with a ready market. Other manufacturing sectors do not see the Auckland market as being better or more important.

Government intervention was considered in some detail. Historically, this has strongly influenced the success and/or failure of some sectors, e.g. automotive component manufacturing. However, when considering the location-related factors that have led to the establishment, growth, and continued success of industry sectors direct government intervention was not found to be a significant factor. What does make a difference to industry

success and location is government expenditure, for example on infrastructure or health. As this is often related to scale again it points to the reinforcing nature of Auckland's growth.

Firm specific characteristics influence industry success. For example, even within some of the fast growing sectors we chose as case studies some firms performed strongly and grew over the past five years; other firms had relatively static or even negative growth over the past five years. Much of the growth within these sectors appears to have been driven by a small number of successful firms (mainly large firms) that have performed well globally, rather than an across-the-board strong performance from all firms within the sector.

However, we did find almost universal agreement on one point. The importance of Auckland as a source of labour. The most important single locational advantage Auckland offers to industry sectors is its deep and specialised labour markets. Auckland provides a distinct advantage actors of production.

Therefore, in relation to Porter's Diamond briefly, we suggest that from an industry sector perspective, Auckland as a location would appear to more heavily dominated by factor conditions, with labour being the predominant factor of production. Demand conditions register as important with some sectors but the relevance of related and supporting industries is clearly impeded upon by the aversion to clustering identified in our responses.

Overall, the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities, product market size, complementary suppliers, infrastructure investments and international connectivity. All of the advantages that one would expect to be associated with a large city.

This points to a possible conclusion; it appears that, from the sectors we have examined, the location-related factors which have led to the establishment, growth, and continued success of industry sectors in Auckland are essentially a product of Auckland's scale. This may sound a little glib. It is not. Many commentators speculate on the possibility of optimal city size and the natural capping effect of growth. What we appear to have observed is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Given Auckland's long history as New Zealand's major urban centre this suggests that responses that cited history as the driver of locational choice could also confirm, rather than deny this view.

7.3 Drivers of firm success

We identified six main drivers of firm success, which are also strongly influenced by location. Our research:

- Competition, innovation and product development (consistent with Porter's efficiency and mix of production inputs utilised)
- Market size and access to customers (consistent with Porter's nature and strength of demand)
- Access to capital
- Access to/availability of factors of production
- Cost of doing business

- Leadership, strategy and responsiveness to change

Our research reveals that the following findings from firms in Auckland in relation to these factors:

Competition, innovation, and product development

Many firms and industry representatives said that Auckland's competitive edge is rooted in New Zealanders' ability to develop innovative ideas.

Many respondents believed that a key reason why some firms in their sector have failed is because they simply stopped investing in product development and improvement, and hence stopped innovating. Building on this notion, the types of firms that appear to be most vulnerable to losing any competitive advantage and market share they may possess are those firms that focus solely on product improvement rather than developing new innovative products.

Mixed views were received about the relative importance of collaboration and clustering for innovation.

Market size and access to customers

The small size and depth of the local market is a barrier to growth. Auckland firms that only service the domestic market cannot only specialise in niche areas in New Zealand if they want to grow, because it further limits what is already a small market. These firms must provide a range of services or products.

Firms that produce niche, highly specialised products have to export to larger international markets to escape domestic market constraints.

However, it can be difficult and costly for small firms in particular to break into and succeed in international markets. Firms that tended to succeed are those that have sufficient capital to resource an effective entry into a foreign market, including having effective market intelligence about the foreign market, being able to hire business-savvy people to market and distribute the product overseas, and/or to set up operations overseas.

Access to capital

In some sectors, like biotechnology, high-tech medical devices development and manufacturing, the need to invest large amounts of financial resources in order to compete is a major barrier of entry for new firms. Where development and pay-back periods are long (in the order of 20 years or more for many biotechnology companies), access to a constant stream of capital is required for business continuity. In Auckland's high-tech, high-value medical devices manufacturing sector, many of the firms are actually a division or a subsidiary of a larger firm that operates in an unrelated sector.

In the biotechnology sector, difficulty in accessing capital appears to be particularly acute. Access to funding is a major determinant of whether firms in the sector (particularly new private sector start-ups) succeed or fail.

Many innovative Auckland firms, particularly SMEs in the biotechnology sector, have been and are seeking direct foreign investments in order to grow, or simply to ensure business continuity.

Overall, difficulties in getting access to capital in New Zealand can partially explain why there is such a high proportion of SMEs in New Zealand (many of which do not export), and such a low proportion of truly global exporters. Access to capital is likely to be a major barrier.

Access to factors of production

In line with the findings on industry success drivers, a major strength for firms in Auckland is the scale and depth of the labour market.

Auckland offers a good pool of low-skilled and casual labour so this area was not seen as problematic. The difficulty in finding skilled staff is more acute for large and fast-growing companies, which have strong demand for skilled labour.

SMEs revealed that access to graduates, who represent the skilled labour market, is a benefit to being located in Auckland because is easier for SMEs to compete with large multinational firms for skilled labour compared with countries such as the US.

However, there are (or at least have been) constraints in labour supply. It can be challenging for firms to attract skilled people from overseas to come to Auckland, because relative to other global cities, the cost of living in Auckland is high whilst income levels are relative low.

Other growth constraints include access to efficient transport networks, high-speed broadband, and a reliable and secure electricity supply. The availability of other factors of production, such as land and building premises, raw materials or components, and other production inputs do not appear to be areas of concern.

Cost of doing business

The cost of doing business in Auckland has increased in recent years – in particular, the cost of labour, the cost of land, buildings and facilities, costs associated with having a volatile exchange rate, and the cost of regulatory compliance.

The cost of manufacturing products in Auckland has become high, at least in terms of global competition. Some firms that have shifted the manufacturing component overseas are transitioning from being a traditional manufacture and export company to becoming a product development, marketing, and distribution firm. Firms and industry leaders believed this was good strategic move for manufacturers that wanted to stay in Auckland.

SMEs asserted that it is difficult for them to access cheaper outsourced manufacturing in China because their production volumes are not high enough to interest Chinese manufacturers.

Business leadership, strategy, and responsiveness to change

Many commented that SME business owners lack the hunger, drive and ambition to grow the firm into a large successful business. They note that once SMEs achieve a certain level of success (and its owners achieve the lifestyle that they seek), many owners lose the hunger to succeed even more, and become disinterested in growing the business further. A number of stakeholders noted that in general there was a focus more on chasing short term opportunities than developing the foundations for longer term growth.

The combination of poor incentives for R&D and double taxation of revenue earned from overseas operations also provides little incentive for firms to grow their business domestically or internationally.

From the research, it was also apparent that many business owners go into business with the goal of growing a successful business (not necessarily to a large scale), and then make a large capital gain from selling the business. As a result, many innovative New Zealand firms (SMEs and large firms) are being bought out by larger foreign-owned firms. Some are either not interested in growing the firm in New Zealand, or are ineffective in growing the firm in New Zealand due to culture clash.

This situation presents a paradox for industries in New Zealand. That is, industry growth is driven by the success of many firms within the industry. However, successful firms tend to get bought out by larger (mainly foreign-owned) firms, and often become less successful or no longer have any presence in New Zealand as a result. Thus, these buyouts reduce the size of the industry and its potential to grow.

7.4 Summary: Tying the findings together

This research has explored and gathered substantial information on the drivers of firm location, industry success and firm success in the Auckland region. The purpose of the study is to use this information to understand six questions faced by firms and industry leaders in the Auckland region:

1. What location-related factors lead to the establishment, growth, and continued success of industry sectors?
2. What factors are responsible for the failure of firms within the industry sector?
3. What sources of positive and negative factors impact on firms' location decisions?
4. What roles do skills availability, research centres, universities, and other educational institutions play in industry development?
5. What factors are important for public policy, and what hypotheses can be formed for future quantitative analyses?
6. What specific actions, if any, are required to improve agglomeration benefits?

This section brings together our findings in order to provide a comprehensive set of answers to these questions.

7.4.1 What location-related factors lead to the establishment, growth, and continued success of industry sectors?

Auckland is the largest city in New Zealand, and firms have access to the benefits associated with that fact – including the largest market for most sectors in New Zealand, the largest pool of skilled, unskilled, and casual labour in New Zealand, and better access to international destinations (and people) than any other part of New Zealand.

The review of the literature led to a focus of enquiry on three main drivers of industry success:

- The strength, nature, and composition of domestic and international demand.
- Proactive sectoral development support from the Government.
- Having many fast growing and successful firms within the sector.

We have found that, as would be expected, when considering the importance of these determinants for industry location and success in Auckland there are differences between sectors. The consulting engineering sector is strong in Auckland, partly because demand is strong, but this is demand driven by the requirements of keeping pace with Auckland's continued growth, so Auckland's scale essentially drives demand. Similarly, the significant expenditure on health services within the region, related to the size of population and Auckland's role in providing specialist health services nationally provides the medical technology sector with a ready market. Auckland is home to the largest district health board (DHB) in New Zealand, has the highest concentration of DHBs located in the same region, and is home to world leading research on specific health issues such as diabetes and fertility. These factors could be key attractors for firms in the medical and surgical equipment manufacturing sector to locate in Auckland.

Government intervention was considered in some detail. Historically, this has strongly influenced the success and/or failure of some sectors, e.g. automotive component manufacturing. However, when considering the location-related factors that have led to the establishment, growth, and continued success of industry sectors direct government intervention was not found to be a significant factor. What does make a difference to industry success and location is government expenditure, for example on infrastructure or health. As this is often related to scale again it points to the reinforcing nature of Auckland's growth.

Firm specific characteristics influence industry success. For example, even within some of the fast growing sectors we chose as case studies some firms performed strongly and grew over the past five years; other firms had relatively static or even negative growth over the past five years. Much of the growth within these sectors appears to have been driven by a small number of successful firms (mainly large firms) that have performed well globally, rather than an across-the-board strong performance from all firms within the sector.

An important reason for many scientific research/biotechnology firms locating in Auckland is the ease of access to private equity in Auckland compared with other parts of New Zealand. This is because there are more large businesses and wealthy individuals in Auckland, and New Zealand's largest angel investment organisation, ICE Angels, is located in Auckland.

However, we did find almost universal agreement on one point. The importance of Auckland as a source of labour. The most important single locational advantage Auckland offers to industry sectors is its deep and specialised labour markets. Auckland provides a distinct advantage actors of production. There is a bigger pool of labour (skilled, unskilled, and casual) in the Auckland region, and it is easier to find staff (particularly skilled staff) compared with other parts of New Zealand. Access to a pool of skilled labour is particularly important for very large firms that have high demands for skilled labour as well as firms that need a reasonably large number (e.g. 10 to 15 plus) of highly qualified specialists in niche fields (e.g. scientists).

Therefore, in relation to Porter's Diamond, we suggest that from an industry sector perspective, Auckland as a location would appear to more heavily dominated by factor conditions, with labour being the predominant factor of production in this regard. Demand conditions register as important with some sectors but the relevance of related and

supporting industries is clearly impeded upon by the aversion to clustering identified in our responses.

Overall, the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities, product market size, complementary suppliers, infrastructure investments and international connectivity. All of the advantages that one would expect to be associated with a large city.

Therefore, from the sectors we have examined, the location-related factors which have led to the establishment, growth, and continued success of industry sectors in Auckland are essentially a product of Auckland's scale. This may sound a little glib. It is not. Many commentators speculate on the possibility of optimal city size and the natural capping effect of growth. What we appear to have observed is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Given Auckland's long history as New Zealand's major urban centre this suggests that responses that cited history as the driver of locational choice could also confirm, rather than deny this view.

A few firms also noted it is easier to do business in Auckland in general compared with other parts of New Zealand. They believe there is better access to (and choice of) supporting services (e.g. legal, accounting services), and many of their clients have head offices in Auckland. So, although their clients may not be based in Auckland, many visit Auckland frequently for business. One firm claimed that there are, *"more small firms in Auckland doing innovative things"* than anywhere else in New Zealand, and there is a more innovative environment in Auckland in general.

7.4.2 What factors are responsible for the failure of firms within the industry sector?

A key reason that was given as to why some firms in a sector had failed was because they simply stopped investing in product development and improvement, and hence stopped innovating. Building on this notion, the types of firms that appear to be most vulnerable to losing any competitive advantage and market share they may possess are those firms that focus solely on product improvement rather than developing new innovative products.

We elicited a range of responses to this particular question including:

- A lack of domestic competition was seen as an issue for specialized manufacturing. So too, however, was competition from overseas, notably China.
- Consulting engineers suggested that deficient demand due to a lack of finance available to developer clients contributed to firm failures in the sector.
- In the scientific research institutes sector it was observed that although NZ firms are as inventive as anybody else and come up with great ideas, we seem to find it very difficult in executing those ideas, building a business out of them. Also considered that "we either lack the ability or the capital to [build] a brand around things, marketing, getting things in someone's distribution channel etc. That's where we fall over."

The open-ended responses provided to the question "What factors do you think are responsible for the failure of businesses (if any) in your industry" also emphasised management, leadership and financial themes as being leading causes of failure. The key finding was that here was little if any evidence to support the notion that locational factors were a significant contributor to the failure of firms within an industry sector.

Although the frequency of responses provides some indication of the relative importance of the factors, it is important to note that the overall number of responses received from the web-survey was relatively small. However, it is interesting to note that locational factors did not count strongly in the respondent's views of the causes of firm failures within industry sectors.

7.4.3 What sources of positive and negative factors impact on firms' location decisions?

The key finding is the obvious one – location does matter for firms. The data confirms that there are business-related drivers for firms to be located in Auckland, as opposed to other locations within New Zealand.

For firms that said being located in Auckland is important and has a significant impact on the success of the firm, they note that being in Auckland is important because Auckland has the largest population and highest number of businesses in New Zealand. They therefore have better access to the largest pool of labour (in particular skilled labour), customers, and suppliers and other supporting businesses, compared with elsewhere in New Zealand.

Positive features that attract and retain firms in Auckland include:

- Access to a larger pool of highly qualified specialists, as well as skilled, unskilled, and casual labour;
- Better connectivity to regional and international markets as well as supply chains;
- Access to a larger customer base;
- Stronger potential to attract international corporate visitors; and
- Easier in attracting and retaining skilled labour from overseas.

These are not surprising results but they are a useful confirmation, from the individual firm's perspective, of the theoretical underpinnings of agglomeration.

Negative factors that might lead to a firm leaving Auckland included costs involved in dealing with local authority regulations (e.g. zoning and consents), traffic congestion, and the higher costs of doing business in Auckland compared with other parts of New Zealand. Firms observed that there is a double-edged sword in being located in Auckland because the cost of living, employees' salary expectations, and labour costs are higher in Auckland compared with other parts of New Zealand.

Again, this is consistent with much of the work on the economics of urban areas, where productivity gains from increasing concentration of activity are offset by external costs (e.g. congestion) and private costs including land costs and actual travel costs (time and money).

To what extent is locating in Auckland a determinant of a firm's success? Importantly, despite the disadvantages noted, the research found that the majority of firms believed that being located in Auckland is important and has a significant impact on their success. A number of firms believed that their businesses might have a better chance of growth and survival if they were located elsewhere because their key markets are based in other parts of New Zealand or overseas. This would again appear to be consistent with the theoretical predictions – it is just the opposite of firms who are attracted to Auckland for the same reasons.

However, the data reveals that biotechnology firms, in particular, are attracted to overseas countries because of better access to private equity and government incentives to stimulate research and development. The question of the availability of incentives opens up the debate around 'picking winners' and whether a more interventionist approaches from the public sector e.g. through subsidies or other related measures would be beneficial. We did not canvas this further as the policy environment in New Zealand is very clear on this matter and although it is relevant in relation to locational choice at the country level it is not a determinant of locational choice between Auckland and other parts of New Zealand.

Biotechnology firms were also unique in terms of seeing the benefits of clustering. These benefits can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so.

An interesting finding, seemingly unrelated to the drivers listed above, is that firms, especially small ones, stay in Auckland because it is where the owner lives, and where he or she wants to keep the business. However, one must consider why this is and is it in fact similar to the consideration of why skilled labour supply is higher in Auckland and what attracts these workers?

Considering key policy implication of these findings, the first observation is the close parallel between our findings and the direction given through much of the agglomeration and urban economics literature. In general, interventions which unlock productivity gains from the concentration of economic activity and reduce or mitigate the rising costs associated with locating in Auckland will provide a good starting point. Policies that positively influence access to customers and suppliers and to appropriately skilled labour will be beneficial. Investing in core infrastructure is a general policy prescription. Investing in specific networks that promote these outcomes, based on an understanding of the effectiveness of different transport modes to influence different outcomes is a good step forward.

7.4.4 What roles do skills availability, research centres, universities, and other educational institutions play in industry development?

This builds on the answers above. Skills matter for all sectors examined here. Auckland's large and skilled labour force is a key reason given for firms' choosing Auckland as a location. For firms that told us that being located in Auckland is important and has a

significant impact on the success of the firm, being in Auckland was seen as important because it gives access to the largest pool of labour (in particular skilled labour), compared with elsewhere in New Zealand. The evidence was universal on this point - skills availability plays a fundamental role in firms' choice of Auckland as a location and firm success underpins industry development across all sectors examined.

However, there was less uniform evidence on the role of universities in industry development. Whilst evidence from the scientific research institutes underlined the vital role of proximity to universities other respondents actually cited universities as either competitors or, in one case, a blockage to development.

7.4.5 What factors are important for public policy, and what hypotheses can be formed for future quantitative analyses?

Considering key policy implication of these findings, the first observation is the close parallel between our findings and the direction given through much of the agglomeration and urban economics literature. The research revealed that the primary benefit that firms derive from being located in Auckland is that within New Zealand, it is the city with the largest critical mass. Simply because it is the largest city in New Zealand, firms have direct access to the largest pool of customers (for most sectors) and, most importantly, skilled labour. Firms also find it easier to attract skilled foreign labour to a large city such as Auckland, compared with other parts of New Zealand.

In general, interventions which promote the concentration of economic activity and reduce or mitigate the rising costs associated with locating in Auckland will provide a good starting point. Auckland's greatest advantage comes from the size of its population. Simplistically, the key policy implication of these findings is that the public sector should support measures that focus on allowing Auckland to continue to grow.

Investing in core infrastructure is one general policy prescription. This includes infrastructure that can enhance Auckland's connectivity to other regions, nationally and internationally, as well as infrastructure oriented within the region. Both have potential to stimulate Auckland's population and economic growth. Identifying specific infrastructure investments based on an understanding of the effectiveness of these investments to mitigate against the negative aspects of growth and to facilitate the benefits of scale and density would be a good approach. Obvious measures within the region would be those that improve accessibility of workers into key economic centres and work to manage or constrain the growth of traffic congestion. So too might be initiatives that make Auckland a more affordable place for workers to live. The region's connectivity would be served through investment in telecommunications or transport networks between Waikato, Bay of Plenty and Northland.

Skills matter too. Auckland's large and skilled labour force is a key reason given for firms' choosing Auckland as a location. Investing in skills development is important but so too is the attraction and retention of skilled workers. Although firms did not consider amenity as being very important, if skilled workers do, then interventions that maintain and improve amenity will be beneficial.

The following sets out our key hypotheses about firm location and industry success in the Auckland region:

Table 7.1 Key hypotheses about firm location and industry success in Auckland

Potential hypotheses	Comment on inputs to analysis
Hypotheses about Firm Location	
Auckland is a good place for SMEs to grow and do business in (particularly non-exporters), but it is not a prime location for large firms.	○ Calculate location quotient of Auckland region for small non-exporters vs. large export firms
Auckland is a good place for firms to undertake product development activities, including R&D, but it is not a good place to do the actual manufacturing of the product, particularly in product areas that have strong price competition from imports. Product development occurs in Auckland more so than manufacturing, over time	○ Examine whether firms which report being 'product development innovators' in previous surveys have reduced or stopped manufacturing over time (e.g. using the Statistics NZ Longitudinal Business Database).
Owner-operator firms have a marked preference to locate within close proximity of the owners place of residence	○ Analyse Census area unit data to show proximity of self-employed persons place of residence and their place of work (can also analyse by occupation type, industry type, age group and income).
SMEs in the tradeable goods sector (i.e. imports or exports make up a significant component of firm output) have improved their physical accessibility to seaports and airports in the region in order to avoid congestion	○ Analyse changes in spatial distribution over time of firms with over 20% of output in imports and/or exports, in relation to motorway and rail links to the main sea and air ports
Growth in agricultural services and other industries in Franklin District associated with the primary sector are increasingly oriented to the Waikato regional economy rather than Auckland	○ Analyse location of suppliers and customers of firms in the primary production sector and related industries located within Franklin District ○ Analyse place of work of employees in the primary production sector and related industries located within Franklin District
Hypotheses about Industry Success	
Growth within Auckland industries is largely driven by the growth and success of a small number of firms (mainly large firms) that have been successful in capturing global markets – rather than an overall growth in all or most firms within the industry.	○ Examine composition of industry output growth split between large and small firms

Industry growth is driven by the growth of successful firms within the industry, but the success of firms can also put the industry in a vulnerable position – particularly if they are bought out by larger foreign-owned firms and the intellectual property and major operations are shifted offshore.	○ Analyse output and employment levels over time for industries comprising a significant share of foreign owned firms and compare against performance of non-foreign owned firms.
Government sector development policies and strong demand (international and domestic) can increase the number of firms in the industry, but not the actual success of the industry itself. Industry success is dependent on the ability of many firms within the industry to grow and succeed, and to sustain that growth over time.	○ Analyse average output levels over time for industries comprising firms where a significant majority have been subject to sector development or business assistance initiatives (e.g. using the Statistics NZ Longitudinal Business Database).
Hypotheses about Firm Success	
Successful Auckland firms have good access to capital and resources, strong leadership, and are responsive to changes due to customer demand and the wider business environment.	○ Analyse output growth results for firms reporting 'responsive' business practices in previous surveys (e.g. using the Statistics NZ Longitudinal Business Database).
Medium and larger sized firms have better ability to grow and succeed than small firms, including successfully entering foreign markets.	○ Analyse output or employment growth results for firms by employment size
SME business owners' attitudes to growth, including lack of interest in growing the business, particularly if owners have achieved a satisfactory level of success, are important barriers that inhibit SMEs' growth into larger and more successful firms.	○ Analyse output growth results for firms reporting their 'motivating' business practices in previous surveys (e.g. using the Statistics NZ Longitudinal Business Database)
The success of SMEs in manufacturing and business services industries in Auckland is not a function of their intra-regional location	○ Examine whether there are any significant differences in the spatial distribution of successful and unsuccessful firms in different industries over time (e.g. measured by relative employment and/or sales revenue; and controlling for relocations due to expansion in floorspace/site area). ○ Identify whether firms that have relocated sites have concentrated in particular areas in the region

7.4.6 What specific actions, if any, are required to improve agglomeration benefits?

Overall, the locational advantage of Auckland for industry sectors would appear to be related to its scale; most notably deep and specialised labour markets, access to universities, product market size, complementary suppliers, infrastructure investments and national and international connectivity. All of the advantages that one would expect to be associated with a large city contribute to the productivity of its industries and can be summarised as drivers of scale and density.

As noted above, what we appear to have observed in Auckland is a reinforcing cycle of growth, with population growth creating demand but more importantly providing additional productive resources. Therefore, agglomeration is important. However, in general this study did not reveal any new or ground breaking insights into the specific actions that would lead to greater benefits from concentrating economic activity beyond those already well understood:

- Public sector intervention to lift the constraints to further concentration of economic activity through improved accessibility and amenity.

The research did not identify significant industry locational advantages or disadvantages at the intra-regional level. However, there was one interesting finding, a strong and deep aversion to geographic clustering in a number of industry sectors. Whilst theory suggests that being spatially close to one another allows some firms to operate more productively in sourcing inputs, accessing global markets, sharing knowledge and technology, and motivating competitiveness, these advantages can only be realised if firms talk to, and interact with, one another. Our research suggests that most firms in Auckland are too competitive to do so. It might be useful, therefore, to consider finding ways of encouraging firms to collaborate when developing business strategy.

7.5 Conclusion

Auckland is the largest city in New Zealand. The firms located here have direct access to the largest market for most sectors in New Zealand, the largest pool of skilled, unskilled, and casual labour in New Zealand, and better access to international destinations (and people) than any other part of New Zealand. Auckland's strength is it's scale. The advantages offered by Auckland's scale drive firm success which translates into industry success. The competitiveness of cities or regions is not just about successful industries, but also successful firms – Auckland is no different.

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Appendix 1: List of firms and industry representatives interviewed and profile of firms from survey data

	Organisation	Industry Sector
1	Fisher and Paykel Healthcare	Medical and surgical equipment manufacturing
2	GE Healthcare	Medical and surgical equipment manufacturing
3	Adept Medical	Medical and surgical equipment manufacturing
4	Baxter	Medical and surgical equipment manufacturing
5	Mercer Medical	Medical and surgical equipment manufacturing
6	Smith & Nephews	Medical and surgical equipment manufacturing
7	Industrial Research Ltd	Medical and surgical equipment manufacturing; Scientific research
8	Food and Plant Research	Scientific research; Biotechnology
9	Genesis Research and Development	Scientific research; Biotechnology
10	Biodiscovery New Zealand	Scientific research; Biotechnology
11	Auckland UniServices Ltd	Scientific research
12	Living Cell Technologies	Scientific research; Biotechnology
13	Alphatech	Scientific research; Biotechnology
14	ViaLactia Biosciences	Scientific research; Biotechnology
15	Actronic Technologies	Electronic equipment manufacturing
16	Electronic and Transformer Engineering	Electronic equipment manufacturing
17	Macvalves	Electronic equipment manufacturing
18	Provenco Cadmus	Electronic equipment manufacturing
19	Senztek	Electronic equipment manufacturing
20	Electropar	Electronic equipment manufacturing
21	Endace	Electronic equipment manufacturing
22	Navman Technologies	Electronic equipment manufacturing
23	Lynn Electrical	Electronic equipment manufacturing
24	Harrison Grierson	Consulting engineering services
25	Thurlow Consulting	Consulting engineering services
26	Davis Ogilvie	Consulting engineering services
27	Opus	Consulting engineering services
28	Beca	Consulting engineering services
29	AWT Water	Consulting engineering services
30	Hella New Zealand	Automotive component manufacturing
31	Airplex Industries	Automotive component manufacturing
32	Trimtech	Automotive component manufacturing
33	Tru-Test	Agricultural machinery manufacturing
34	Autogrow Systems	Agricultural machinery manufacturing
35	Compac Sorting Equipment	Agricultural machinery manufacturing
36	Lynx Horticulture Systems	Agricultural machinery manufacturing
37	AgBrand Products	Agricultural machinery manufacturing
38	Caddy Agricultural Services	Services to agriculture
39	Premier Genetics	Services to agriculture

40	Peracto New Zealand	Services to agriculture
41	Grass Works Ltd	Services to agriculture
42	Fence-Pro Ltd	Services to agriculture
43	RD1 (Helensville)	Services to agriculture
44	Bomac Laboratories	Agricultural technologies
45	Ancare Scientific	Agricultural technologies
46	Apex Valves	Agricultural technologies
47	Fonterra	Export agriculture

	Industry Representative	**Industry Sector**
48	Medical Technologies Association of New Zealand	Medical and surgical equipment manufacturing
49	New Zealand Trade and Enterprise	Medical and surgical equipment manufacturing
50	New Zealand Trade and Enterprise	Specialised manufacturing
51	NZBio Auckland Regional Committee	Scientific research; biotechnology
52	Kangela	Scientific research; biotechnology
53	Auckland Biotechnology Institute, University of Auckland	Scientific research; biotechnology; medical and surgical equipment manufacturing
54	University of Auckland	Scientific research
55	University of Auckland	Scientific research
56	Founder of Navman	Electronic equipment manufacturing
57	E-centre, Massey University	Electronic equipment manufacturing
58	NZ Agritech Inc	Agricultural technologies
59	Former New Zealand Trade and Enterprise Agritech and Biotechnology Sector Manager	Agricultural technologies

Question 1: Which of the following best describes your ownership structure?

Type of ownership structure	No. of responses	Percentage
Private/family owned/managed	28	72%
Private owned/ independently managed	6	15%
Not-for-profit organisation	0	0%
Subsidiary of overseas firm	5	13%
Public company	0	0%
Other (please specify)	0	0%

Question 2: How many full time employees, including the owner, does your firm employ in NZ?

Size of business	Frequency	Percentage
Small (up to 20 staff)	20	53%
Medium (21-100 staff)	10	26%
Large (101-251+ staff)	8	21%