

**BUILDING THE ICT INDUSTRY
IN
NORTH SHORE CITY**

**A Report Prepared for
Enterprise North Shore Trust**

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	3
ACRONYMS USED IN THIS REPORT	6
1. INTRODUCTION AND OVERVIEW OF THE STUDY	7
2. NORTH SHORE CITY: FAVOURABLE FACETS	8
2.1 PEOPLE.....	8
2.2 EDUCATION.....	10
2.3 ECONOMIC PROSPERITY	11
2.4 LIFESTYLE	14
2.5 COMMITMENT TO ECONOMIC DEVELOPMENT.....	14
2.5 SUMMARY.....	15
3. BACKDROP: SETTING THE ICT INDUSTRY SCENE.....	16
3.1 DEFINITION AND GROWTH OF THE ICT INDUSTRY.....	16
3.2 SUPPORTIVE NATIONAL ENVIRONMENT AND INITIATIVES	17
3.3 FAVOURABLE REGIONAL INITIATIVES.....	20
3.4 THE ICT INDUSTRY IN NSC	23
4. AN ICT INDUSTRY FRAMEWORK.....	30
5. SCOPE AND RESEARCH APPROACH	33
6. BUSINESS LOCATION DECISIONS.....	35
6.1 LIFESTYLE	35
6.2 INFRASTRUCTURE	37
6.3 SUPPORT	38
6.4 SUMMARY.....	39
7. HUMAN CAPACITY ISSUES: THE ICT WORKFORCE.....	40
7.1 ADAPTABILITY, ATTITUDE	40
7.2 EXPERIENCE, PRACTICAL SKILLS	41
7.3 GRADUATE WORKFORCE.....	43
7.4 EMPLOYEE AND EMPLOYER EXPECTATIONS.....	44
7.5 THE SEGMENTATION ISSUE	45
7.6 MIGRANT EMPLOYEES.....	47

7.7	OTHER ASPECTS AND FINDINGS	49
8.	RESPONDENTS' VISIONS FOR THE FUTURE	52
8.1	FUNDING	52
8.2	INFRASTRUCTURE AND LOCATION	53
8.3	COMMUNICATION AND CO-ORDINATION	54
8.4	CLUSTER DEVELOPMENT	55
8.5	BUSINESS DEVELOPMENT, LEADERSHIP AND INNOVATION	56
8.6	BRANDING	57
8.7	MARKETING.....	58
8.8	TECHNOLOGY AND BANDWIDTH	58
8.9	SKILLS AND EDUCATION	59
8.10	ATTRACTING LARGE FIRMS TO THE CITY	60
8.11	ORGANISATIONS TO LEAD DEVELOPMENT	60
8.12	SUMMARY AND SUGGESTIONS FOR FUTURE DEVELOPMENT	61
9.	WHAT CAN LOCAL GOVERNMENT DO TO HELP?	64
9.1	SIGNAL AND BRAND THE KNOWLEDGE HUB DIRECTION	64
9.2	IMPROVE THE WEB PRESENCE OF NSC	65
9.3	FACILITATIVE INFRASTRUCTURE	65
9.4	ECONOMIC INCENTIVES?	65
9.5	FOSTER UNIVERSITY LINKS	66
9.6	HELP BUILD GLOBAL CONNECTIONS	66
9.7	SMALES FARM TECHNOLOGY OFFICE PARK	68
9.8	A BOLD NEW PARTNERSHIP INITIATIVE?	68
9.9	LOCAL LEADERSHIP AND ADVICE	69
9.10	A KEY PERSON	69
9.11	SUPPORT BUILDING THE REGIONAL INNOVATION SYSTEM	70
9.12	ROLE OF ENTERPRISE NORTH SHORE	70
10.	CONCLUDING COMMENT	74
	REFERENCES.....	75
	USEFUL WEBSITES	77
	APPENDIX 1	78

ACRONYMS USED IN THIS REPORT

AREDS	Auckland Regional Development Strategy
EDS	Economic Development Strategy of North Shore City
ENS	Enterprise North Shore
GIF	Growth and Innovation Framework
FTE	Full Time Equivalent (employees)
ICT	Information and Communications Technology
ITO	Industry Training Organisation
MRI	Major Regional Initiative
NSC	North Shore City
NZTE	New Zealand Trade and Enterprise
SFTOP	Smales Farm Technology Office Park
TEC	Tertiary Education Commission

1. INTRODUCTION AND OVERVIEW OF THE STUDY

North Shore City's (NSC) *Economic Development Strategy*, plans to move the City by 2020 to 'be a world class business setting that is recognised domestically and internationally as a sustainable centre of business excellence' (NSC 2004: 3). The Information and Communications Technology (ICT) industry is now a significant contributor to economic activity in NSC and its growth and sustainability will be crucial to realising this Vision.

This study was commissioned by Enterprise North Shore Trust, the economic development agency for NSC, in order to gain an improved understanding of the ICT industry in the City. Better understanding of the wider context to the operation of the industry and its issues and challenges particularly in relation to the Auckland Region and the City, will be critical in informing how the NSC can better support economic development. On the basis of the views of industry stakeholders and a review of the literature, this study offers insights into the current environment of the industry and provides the background to guide action for building the ICT industry in NSC.

This report is structured as follows:

The first part of the report provides overview material. It commences with a lead-in section which sets out the current favourable general context of NSC. It then follows with an examination of the national and regional background to the ICT industry and supplies further detailed information on the current state of the industry in NSC. Following on from this ICT industry backdrop, a simple framework for understanding the current inter-connections between the various elements of the innovation environment for the ICT industry in NSC is examined.

The second part of the report delineates first the research approach of the study. The research findings are then set-out in ensuing sections. The first of these sections provide the findings on the reasons why existing ICT firms have located in NSC and why they continue to retain the main base of their operations in the City. The findings of the study that specifically focus on human capacity issues that the industry faces are presented next. The following section groups findings in terms of the respondents' 'Visions' for future growth of the industry in NSC. Finally, an attempt is made to draw out actions for NSC's leaders of economic development, to build and support the ICT industry in the City.

At the outset of this report we signal caveats: in light of the range of industry segments and the diversity of stakeholder interests of the ICT community, the study captures perspectives as presented by a limited sample of participants. Generalisation of findings is therefore cautioned. Similarly, since value judgements of the participants are also likely to enter the picture, any comments must be viewed in this light.

2. NORTH SHORE CITY: FAVOURABLE FACETS

This section outlines some general aspects that are part of the overall conducive climate for the development of the ICT industry in North Shore City.

2.1 PEOPLE

The people of North Shore City (NSC) constitute one of the most significant favourable facets in the city's economic development. Recent reports that have highlighted the strategic factors of NSC's economic growth have noted its skilled, educated workforce and community as a key asset (e.g. Spoonley, McLaren and Lysnar, 2002).

NSC is the fourth largest city in New Zealand and as of June 2003 was home to 205,000 people. Recent population census data as given in Table 1, shows that the city was the fastest growing Auckland city during the first half of the 1990s. Although this growth slowed down somewhat in the later period, the city continues to experience significant population growth. Whilst among the four Auckland region cities, Manukau City now stands out as the fastest centre of population growth, this change is influenced largely by the different ethnic composition of that city, especially its higher proportion of youthfulness and faster rate of growth of Maori and Pacific peoples.

Table 1: Population growth 1991-2001

Area	1991 Census	1996 Census	% growth 1991-1996	2001 Census	% growth 1996-2001	% growth 1991-2001
North Shore City	152,646	172,164	12.8	184,821	7.4	21.1
Waitakere City	137,001	155,565	13.6	168,750	8.5	23.2
Auckland City	306,210	345,768	12.9	367,734	6.4	20.1
Manukau City	226,002	254,277	12.5	283,197	11.4	25.3

Source: Statistics New Zealand, 2001 Census of Population and Dwellings

NSC's population, while not characterised by larger proportion of people from Maori and Pacific Island groups, is nevertheless ethnically diverse. Asian people are now the second largest population group in the city, with people from China being the largest group followed by Koreans. NSC is a popular destination for international immigrants and migrants from within New Zealand. Migration has been an important source of population gain for NSC as shown in Table 2 overleaf.

Table 2: Net Migration Gains/Losses for 1991-1996 and 1996-2001¹

Age Range*	NSC		RODNEY DISTRICT		WAITAKERE CITY		AUCKLAND CITY		NZ TOTAL	
	1991-1996	1996-2001	1991-1996	1996-2001	1991-1996	1996-2001	1991-1996	1996-2001	1991-1996	1996-2001
0-4	13.79	6.98	24.39	22.38	10.79	7.94	12.56	6.63	4.72	0.1
5-9	17.25	12.12	24.18	23.89	5.26	0.98	2.98	-3.96	4.4	2.6
10-14	23.52	15.21	16.93	12.11	6.94	1.22	13.07	11.45	5.27	0.97
15-19	23.44	18.3	-1.09	-2.5	7.07	8.4	28.79	18.93	3.27	0.67
20-24	0.69	-4.9	-17.16	-23.22	0.99	1.23	36.74	32.82	-4.13	-8.35
25-29	4.36	-7.1	27.41	11.22	13.25	6.02	15.18	7.94	1.29	-8.64
30-34	17.8	11.43	40.96	35.25	14.02	10.39	10.6	3.34	8.25	2.61
35-39	17.12	10.6	28.61	27.84	7.13	2.68	4.96	-2.28	5.24	1.87
40-44	13.15	8.17	19.82	15.6	5.65	0.25	7.93	-1.96	3.99	0.84
45-49	6.3	2.88	11.2	7.36	2.9	-0.06	7.93	-1.32	2.87	0.16
50-54	0.7	-2.34	21.55	10	1.78	-1.49	3.36	-1.39	1.82	-0.2
55-59	-2.13	-4.02	26.8	12.24	3.38	-1.04	0.36	-1.36	2.37	0.61
60-64	-2.52	-0.95	36.74	13.56	0.88	-0.28	-1.19	0.31	2.89	2.22
65-69	-0.18	-0.03	20.9	12.95	2.71	-1.37	-1.73	-0.81	2.1	2.33
70-74	3.77	1.29	10.36	4.88	5.66	1.72	-1.94	-4.03	1.69	1.04
75+	4.28	1.19	9.36	5.29	3.67	2.03	-2.61	-0.96	-0.36	1.08
ALL Years		4.94		12.96		3.17		3.63		-0.19

Source: Personal communication for the Labour Market Dynamics Research Programme, James Newell (MERA). First citation in Spoonley, McLaren and Lysnar (2002: 21).

¹ Note: the under 5 net migration estimates have high uncertainty/errors. The 60 years and upwards have high errors due to modelled deaths. Figures are based on applying a dated Statistics NZ 1995 parameterised national fertility and mortality model to each ethnic population to arrive at total population estimates for each Territorial Local Authority.

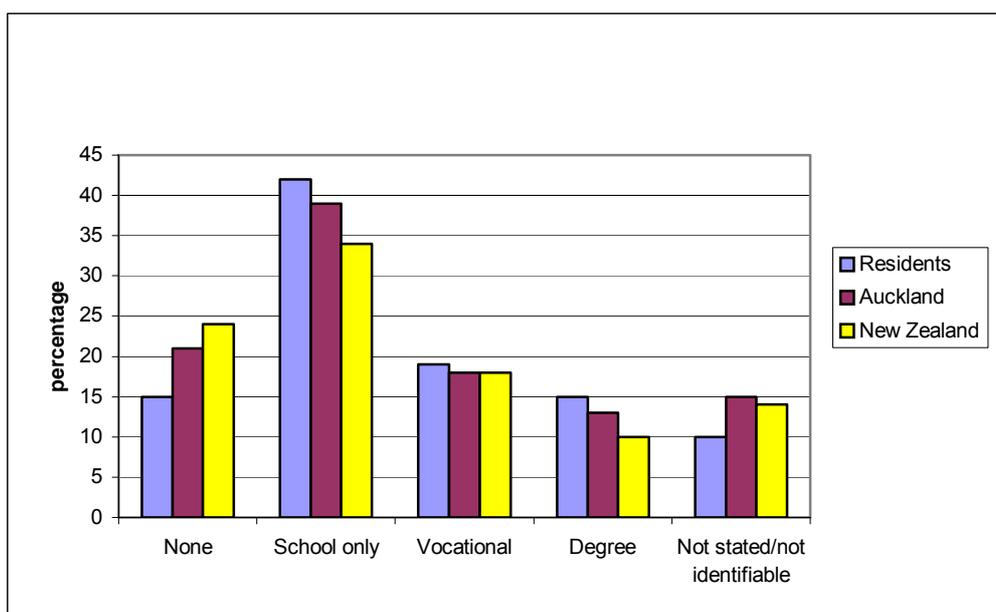
Table 2 provides a detailed analysis of migration rates of different age groups, comparing rates among the territorial authority areas in the Auckland region and New Zealand as a whole. It shows that net migration of 4.94 for North Shore City (1996-2001) is significantly higher than the national total. In particular, migration of people aged 30-44 has increased from 1996 -2001 but this has decreased from the previous analysis period from 1991-1996 commensurate with figures for the other areas and the national totals. Although the Rodney District leads substantially in migration gains, it is interesting to note that in contrast to the Rodney District where the older, over 55 age brackets are also experiencing a noticeable gain, NSC’s migrant population in the 55-69 age groups are declining with a net loss. This decline in the older group coupled with the gains in the prime working age group is of benefit to the city. However, the loss of 25-29 year olds represents a significant human capital loss, which could have implications for the knowledge work-force base in the future.

2.2 EDUCATION

NSC is favoured with the highest proportion of decile 10 schools in New Zealand, a higher percentage of people with tertiary qualifications (37.6%) than New Zealand as a whole (32.2%) and the fewest people with no qualifications (14.7%) compared to the Auckland Region (19.4%).

NSC’s population is well educated and the city is well served with educational infrastructure. It has the highest proportion of decile 10 schools in New Zealand and is the base for three university education facilities – Massey University, Albany Campus, Auckland University Business School and Auckland University of Technology. The other Faculties of Auckland University and the leading Auckland polytechnic Unitec is also in close proximity and easy access to residents.

Figure1: Highest Educational Qualification, 15 Years and Over, 2001



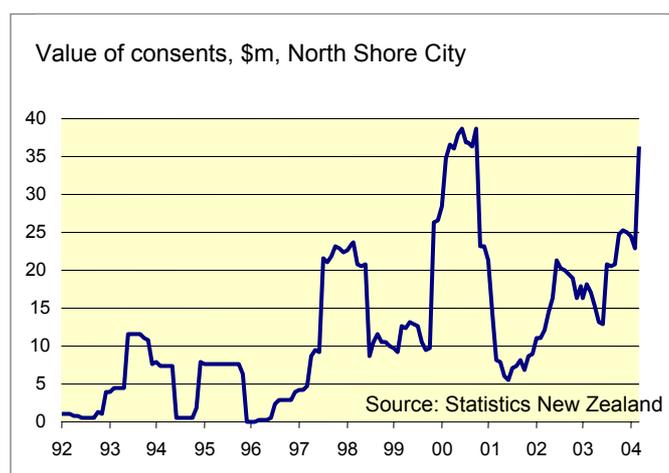
Source: Statistics New Zealand, Census 2001

Figure 1 highlights that:

- NSC residents have higher educational qualifications - degree, vocational and school qualifications, than those in the greater Auckland region and New Zealand;
- Fewer NSC residents (15%) had no educational qualifications compared to 24% of the total New Zealand population.

In its own right the education sector has contributed significantly to the prosperity and economic growth of the city. This is demonstrated for instance by the value of new education building consents which climbed steadily to around \$35 million in the year to February 2004 (Infometrics, 2004) and is as shown in Figure 2 below.

Figure 2: New Education Building Consents



Graph Source: Infometrics (2004)

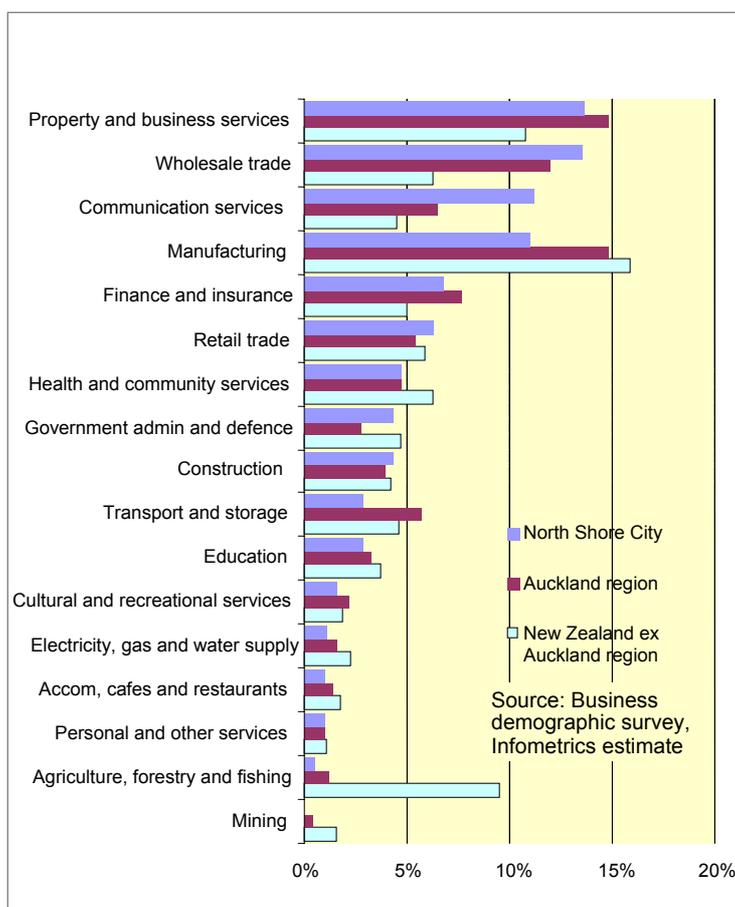
2.3 ECONOMIC PROSPERITY

NSC 'is no longer a dormitory satellite serving the Auckland CBD' (NSC 2004: 6). The economic position of the city has improved steadily over the last decade. With its economic growth rate of 7.1% in the year to March 2003, NSC has continued to experience economic growth significantly higher than the national average. Knowledge intensive industries such as business services and communication services contributed significantly to this growth.

Figure 3 illustrates the high percentage of the North Shore economy that the Business and Property services sector contributes. Many business services in this sector provide

ICT related services. Statistics New Zealand (www.stats.govt.nz) classifies the Information Technology sector within this Business and Property Services sector but includes a separate communications sector. The communication services industry on the North Shore is also significant to the economy, accounting for 11% of economic activity, compared to around 5% for New Zealand, excluding the Auckland region. The communications sector is relatively large in NSC and employment in the sector has expanded by 5% per annum on average over the last five years. As figure 3 shows, communications activity now exceeds the contribution of the manufacturing sector to City's economy.

Figure 3: Industry's share of the NSC economy
As at February 2003, share of GDP

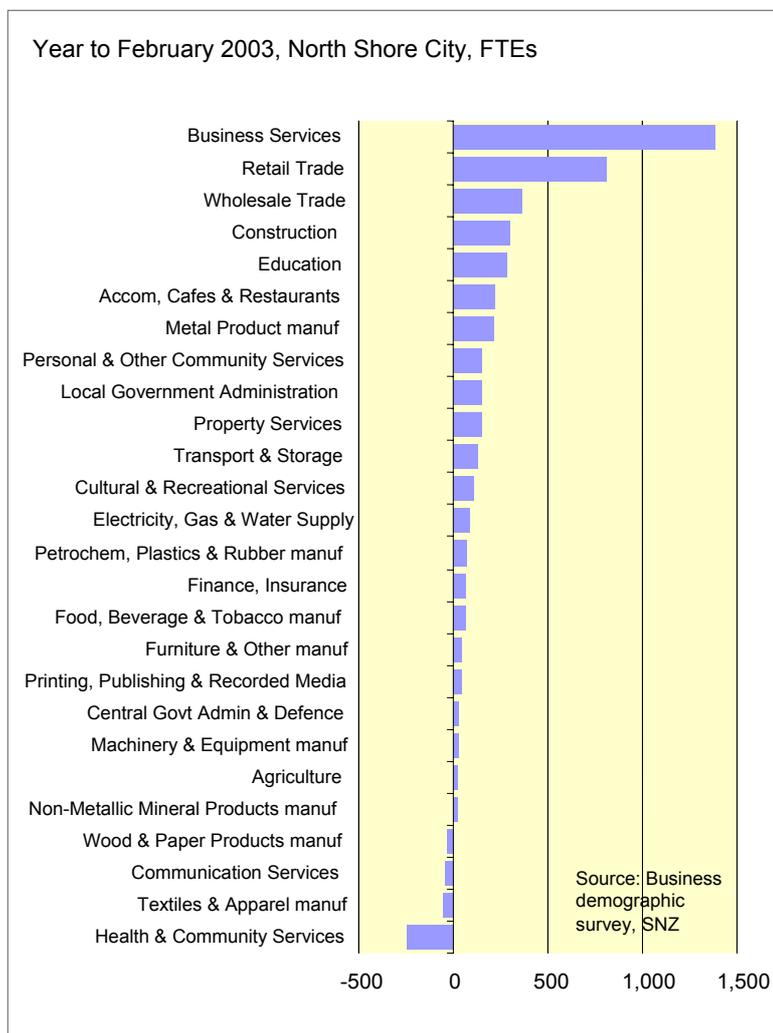


Graph Source: Infometrics (2004)

Further detailed information on business and property service employment in NSC and the communication services is provided in Tables 7 and 8, later in this report.

The sound growth of NSC's economy has resulted in a 6% increase in employment for the year ended February 2003. Infometrics (2004) estimates indicate that NSC experienced faster employment growth than the Auckland region (4.7%) and New Zealand as a whole (4.0%) over the same time frame, and at February 2003 there were 76,250 FTE (full time equivalent) jobs in the city – an increase of 4,360. The following Figure 4 shows the industry contribution to employment increase.

Figure 4: Additional jobs created in NSC



Graph Source: Infometrics (2004)

As in previous years, the Business Services industry has contributed significantly to the increase creating 32% of the additional FTE positions. Although employment in the communications services sector has fallen slightly in the year to February 2003, the growth of the sector has been quite phenomenal over the last decade (see Table 8 in Section 3.4 of this report for details).

2.4 LIFESTYLE

NSC: 'New Zealand's lifestyle city'

NSC is labelled 'New Zealand's Lifestyle City' and is described as one of the most desirable places in New Zealand to live and work (<http://www.enterprisens.org.nz/>). A pleasant warm climate and natural beauty of 160 kilometres of accessible coastline, good sporting and leisure amenities, and superior educational infrastructure support the high quality of life of the city. The interviewees in this study confirmed that lifestyle plays an important role in the decision to locate business on the Shore (See Section 6.1).

Currently there is a growing consensus that a city's advantage in a knowledge economy hinges on its ability to attract high quality human capital. For argument along these lines, the writing of Florida (2002) is often cited. As Florida (2002) has phrased it, regions and cities that are successful in the new global age are those that become centres of the 'creative class', in contrast to regions with a high proportion of working-class or service-class people. The essence of the creative class is knowledge-based workers and entrepreneurs in high technology fields. An important consideration in the location decisions of the creative class is the overall quality of life that an area offers. Hence, good schooling, amenities such as parks and reserves, sporting and leisure activities are all part of the holistic lifestyle that this class seeks out. In this respect therefore, NSC can be argued to be well placed to cater to the creative class.

2.5 COMMITMENT TO ECONOMIC DEVELOPMENT

North Shore City's *Economic Development Strategy* has articulated the fundamental strategic choice of positioning the City 'as a centre of excellence for knowledge and creative industries' (NSC 2004:7). Enterprise North Shore (ENS), as North Shore City's economic development agency will be the vital catalyst in implementing much of the action to progress this goal. These actions will necessarily be in partnership and collaboration with other agencies and stakeholders. The need for such a partnership element is highlighted in the Strategy as well.

Established in 1993, Enterprise North Shore serves as the City's primary driver for sustainable economic development, and supports the development of local and regional strategies for the creation of a vibrant and buoyant economy. It is the City's advocate for business and supports, promotes and encourages business growth, investment and employment in the City.

Enterprise North Shore facilitates a wide-ranging array of alliances with industry organisations, business agencies, experienced business mentors, funding, financial and legal services and a range of investment opportunities, to actively assist NSC businesses to enhance their profile, grow and flourish in the City. An important but often less visible aspect of its work is the liaison and work with a variety of organisations, individuals and especially central government agencies such as Investment New Zealand, to bring-in new businesses into the City.²

2.5 SUMMARY

NSC is well positioned at an overarching level, for building high skill, high value industry such as the ICT industry. Facets which favour this include:

- A growing population including a net migrant inflow providing a diverse migrant pool to be tapped into for wealth creation.
- A rich endowment of human capital and the built-in potential for further enhancement of this capital.
- A vibrant, growing and prosperous economy.
- An enviable lifestyle.
- A firm commitment at the local government level, to building excellence in the knowledge and creative industries.

Some overall challenges that NSC faces however should also be drawn attention to at this stage. These include:

- The net migration outflow of young people in the 20-24 and 25-29 age cohorts. Coupled with the low reproductive rates in NSC and its older than average population, this loss could have important human capital implications for the City in the future.
- A declining amount of greenfield business land in the City, requiring a need for planned and targeted business activity and support (NSC 2004: 6).
- A national skills shortage which is currently at a 25 year high³ that can impact on business growth in the City.

² See www.enterprisens.org.nz for additional Enterprise North Shore information.

Refer also two recent reports: *Economic Development Trends and Opportunities: North Shore City* (Beynon and Spoonley 2003), and *Developing the North Shore: Strategic Considerations for Economic Development* (Spoonley et al. 2002) for further general material on the business and growth context of the City and perspectives on the economic development issues and opportunities for the City and Enterprise North Shore.

³ Refer <http://www.dol.govt.nz/lmr-skills.asp>

3. BACKDROP: SETTING THE ICT INDUSTRY SCENE

3.1 DEFINITION AND GROWTH OF THE ICT INDUSTRY

“ICT is an integral component of every sector of the New Zealand economy (as an enabler) and is also a sector in its own right” (ICT Taskforce, 2003: 10). Therefore difficulties arise in providing an encompassing definition for the ICT industry. The ICT Taskforce report released in June 2003 provides a classification of ICT as being “products and services that are underpinned by the combination of electronics and/or software and/or telecommunications. It includes information technology and networks (including the internet)”. Available data sources, however, such as Statistics New Zealand, do not categorise ICT in the same way. As a result sectors that are strongly linked to the ICT sector, such as communications, business services and electronic equipment manufacturing are all investigated in this report, in an effort to provide a comprehensive overview of the ICT industry.

At the national level, growth of the ICT sector with a sharply rising employment trend in occupational categories linked to the industry is indicated in Table 3 below. For example, compared to 23% growth across all occupations, ICT sector occupational growth has been quite phenomenal, with over 500% change in the number of computer applications engineers and over 400% change in systems analysts and computer support technicians, over the decade to 2001.

Table 3: ICT Occupations
(Derived from last 3 Censuses 1991, 1996 and 2001)

	1991	2001	% change
Computer Applications Engineer	1,335	8,199	514.2
Systems Analyst	2,136	11,484	437.6
Computer Support Technician	987	5,010	407.6
Electronic and Telecommunication Engineer	936	1,767	88.8
Information Technology Manager	2,067	3,099	49.9
All Occupations	1,400,400	1,727,271	23

Source: Personal communication for the Labour Market Dynamics Research Programme, James Newell (MERA).

It should be mentioned here however, that there is a paucity of accurate statistical data on New Zealand’s ICT sector. The ICT Taskforce therefore placed high priority on the need for improved alignment and timeliness of ICT statistics, especially to track the changes in the ICT sector, identify issues and growth opportunities and to have internationally comparable data. It is therefore encouraging that as part of the Growth and Innovation Framework’s (see next section 3.2.1) related statistics initiatives, Statistics New Zealand is now engaged in developing surveys to give improved statistical data for the sector and also to have these statistics align with OECD standards. An annual publication of all ICT statistics will be prepared with a view to providing a statistical base for monitoring progress towards the ICT industry’s

‘growth target’ (see next Section 3.2.1). The first annual publication is to be released in 2005/06.

3.2 SUPPORTIVE NATIONAL ENVIRONMENT AND INITIATIVES

3.2.1 The ICT Taskforce

At the strategic national policy level, the Government’s Growth and Innovation Framework, ‘Growing an Innovative New Zealand’, or what has come to be commonly known as GIF, was released in February 2002. GIF recognised the ICT sector as a leading potential contributor to the future economic growth and international competitiveness of New Zealand. In response to this, an ICT Taskforce was convened by the Government. The Taskforce, comprising mainly a group of New Zealand ICT industry leaders, was charged with addressing the chief issues that impede growth of the industry, and formulating a strategy for industry growth. After wide consultation including obtaining feedback on ideas in a draft report, the Taskforce set out its recommendations and strategy for sustainable growth of the industry in the June 2003 (ICT Taskforce 2003).

The ICT Taskforce identified enormous potential for growth of the industry and the barriers preventing this growth. It set an industry growth target of 100 ICT companies, each earning over \$100 million in sales per annum, by 2012. It thus identified the potential for the sector to grow from 4.3% to 10% of GDP within a 10-year timeframe (ICT Taskforce 2003: 4). Given the small size of the domestic market, this growth would come mainly from export growth and strategic expansion that fits within the global value chain.

3.2.2 New Zealand Trade and Enterprise

New Zealand Trade and Enterprise (NZTE) as a lead agency in the Government’s GIF Framework has a special focus on assisting the development of the ICT industry. It has dedicated resources for strategic initiatives in this sector, and gives support for implementation of the ICT Taskforce ‘go global’, international competitiveness growth plan. NZTE’s emphasis is on working with growth companies across the whole of the ICT sector. In particular it utilises its industry and networks around the world, to identify global opportunities for niche markets and match these to New Zealand company capability.⁴

The NZTE Beachhead Programme which is designed to assist with setting up of overseas offices and intended to provide gateways to emerging NZ firms to gain a foothold in overseas markets is an example of a particular initiative to stimulate links with NZ companies and other overseas firms. The ICT industry has utilised the

⁴ See <http://www.nzte.govt.nz/section/11757.aspx> ‘ICT: growing our high-tech advantage’. Accessed 25/07/04.

Beachhead scheme to establish an office in Silicon Valley and another office in Wales⁵ is being investigated.

3.2.3 Investment New Zealand

Investment New Zealand is the central government investment agency that seeks to attract investment funds and bring quality foreign direct investment to the country. It brings the capability of New Zealand companies to the attention of investors. The work of Investment New Zealand is important in attracting overseas investment in the ICT industry. For instance Investment New Zealand played a significant role in facilitating the investment connection between Brunswick New Technologies, and North Shore City's electronics firm Navman.⁶ The deals brokered by Investment New Zealand not only directly benefit the company concerned but also contributes to the growth of other companies and the region, through the 'multiplier effect'. The multiplier effect of the Navman deal means that growth of Navman will in turn substantially benefit other New Zealand businesses particularly their electronics suppliers, and also more generally the NSC and Auckland region through the spending effect of the increased employment in the area. Additionally, foreign investors not only bring capital but can also provide pathways and access to markets, expertise, management capability and technology that would otherwise takes years for New Zealand companies to build themselves.

A government grant of \$1.5m in 2003 from Investment New Zealand's Strategic Investment Fund has also assisted another NSC ICT business - EDS New Zealand. EDS has achieved its first employment creation target, creating over 200 jobs in 15 months. Further jobs are expected to be created to bring the total to more than 360 new jobs by March 2006.⁷ As with the Navman case mentioned above, this example illustrates that growth of the ICT industry in NSC is linked to central government initiatives and the overall national innovations system framework. (See Figure 10 for a simple diagrammatic illustration of these links).

3.2.4 Tertiary Education Initiatives

All of the GIF Taskforces, including the ICT Taskforce, emphasised the importance of education to their sector's future success. They recognised that their competitive advantage was based on the knowledge, innovation, creativity and entrepreneurship of individuals and effective teams. The development of an industry-relevant education

⁵ See hyperLINK contents: Issue 37, February 19 2004, <http://www.canterburysoftware.org.nz/news04feb19.htm#feature2> Accessed 11/05/04; Webb (2004).

⁶ See 'NZ \$56 million plus for a \$20,000 investment is a good return', 3 March 2004. <http://www.investnewzealand.govt.nz/section/13569/9535.aspx> Accessed 20/7/04.

⁷ Hon Jim Anderton: Government partnership with EDS pays off email@executive.govt.nz on behalf of announce@executive.govt.nz 27/07/2004.

system and ‘appropriately trained ICT tertiary graduates to match forecast industry requirements’ (ICT Taskforce 2003: 18) was considered essential to the provision and development of future skills and talent requirements.

The tertiary sector is currently in the process of education reforms that are focused on improving linkages and industry relevance and include changes in mainstream funding and policy mechanisms (such as Charter & Profile requirements, Performance-based Research Fund, Industry Training Fund, etc) - as articulated in the Tertiary Education Strategy for 2002-07, with the Tertiary Education Commission (TEC) designated as the key body charged with implementing this strategy and allocating funding according to national economic and social priorities (Ministry of Education 2002). The TEC is also developing special initiatives to specifically assist with building the capability of the tertiary system in response to the Taskforces’ issues (<http://www.tec.govt.nz/>). TEC’s Growth and Innovation Pilot Initiatives (Growth Pilots) are in the focus sectors – including ICT, biotechnology and design.⁸

3.2.5 The HiGrowth Project

The HiGrowth Project, established as a charitable trust, is a neutral, industry-driven and governed body. It works as a catalyst within New Zealand’s ICT industry to facilitate the growth of the ICT Taskforce target of 100 companies with a turnover of \$100 million or more over the next decade – the 100¹⁰⁰ programme. It aims to recruit these companies to the programme, and help establish them in the global market and champion New Zealand’s ICT industry both domestically and internationally. The HiGrowth Project working collaboratively, and in partnership with government, will help the ICT industry remove barriers to growth, namely: a lack of access to capital, low retention of key employees, poor commercialisation skills and the experience to grow a business globally. See www.higrowth.co.nz for more detail on the Project.

⁸ See http://www.tec.govt.nz/funding/strategic/growthpilot/growth_pilot.htm Media releases at this site give information on the two pilot initiatives: *Enterprise Training for Emerging Industries* (\$11.55m over four years); *Entrepreneurship & Knowledge Transfer* (\$10.00 m over four years) is specifically targeted at addressing a lack of commercial and entrepreneurial skills among graduates and existing decision-makers in business.

3.3 FAVOURABLE REGIONAL INITIATIVES

3.3.1. Auckland Regional Economic Development Strategy Initiatives

The Auckland Region is home to one third of New Zealand's population. Implementation of the Auckland Regional Development Strategy (AREDS) will not only be critical for sustained and strong economic growth of the region, but also crucial to the achievement of the GIF's objectives. The Strategy aims to generate a virtuous cycle of business growth and skills development on the basis of a partnership approach – through partnerships between business, central and local government, Maori, Pacific people, educationalists, migrant communities, economic development agencies and the communities of the Auckland region.

AREDS seeks to deliver positive economic growth through eight programmes, within an overall outward focus (AREDS 2002):

1. Promote the Auckland Region
2. Encourage innovation
3. Develop overseas markets
4. Support exports
5. Provide a high quality living environment
6. Build an entrepreneurial culture
7. Produce a skilled and responsive labour force
8. Deliver a high quality responsive Government

As with GIF, AREDS focuses on the “knowledge sectors” which have high growth potential and thus the ability to contribute to significant economic transformation. Hence the ICT industry is one of the sectors that AREDS has targeted, with the other two being biotechnology and the creative industries.

3.3.2 Auckland Technology Network

Dedicated steps are being taken at the Auckland regional level to accelerate growth of the high technology⁹ sector. The technology sector however is broader than the ICT industry, including the biotechnology industry as well. In order to provide a foundation for growth, a Technology Business Growth Network Major Regional Initiative (MRI) proposal has been developed by AREDS. This proposal has been put forward to NZTE for MRI funding.¹⁰

⁹ ‘A concrete definition of a technology company being a company for people with innovative, proprietary knowledge, know-how and technology’ (personal communication – interviewee).

¹⁰ See http://www.areds.co.nz/stocktake/stocktake_default.asp for details. Accessed 14/07/04.

The development of an *Auckland Technology Network* is now underway as part of the MRI programme. It draws on the lessons of international best practice networks and alliances, for example UCSD CONNECT San Diego¹¹ model, and the Cambridge Network in the United Kingdom¹² and is attempting to replicate their success in creating value in technology markets and mitigating problems of fragmentation for the Auckland region.

The Auckland Technology Network is designed to accelerate the growth of new technology-based innovative firms in the region. Currently these firms have significant obstacles to growth in terms of networking and collaboration; developing growth management competencies; and funding. The Auckland Technology Network will mitigate these obstacles by linking up both the demand and supply sides through a network of technology sector participants, including technology businesses, service providers – finance, education, research and professional services, and public sector support.

Figure 5

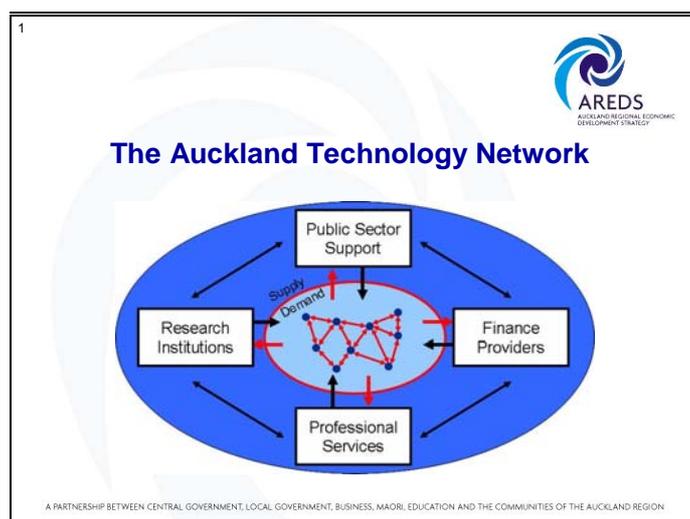


Figure source: AREDS (personal communication)

¹¹ The CONNECT model, was initially in San Diego but has been emulated elsewhere e.g. Scotland, where technology networks are in operation.

¹² See <http://www.cambridgenetwork.co.uk/>

Crucial to the success of the Network, will also be the global connections that will be established. Figure 6 below illustrates potential connectivity.

Figure 6

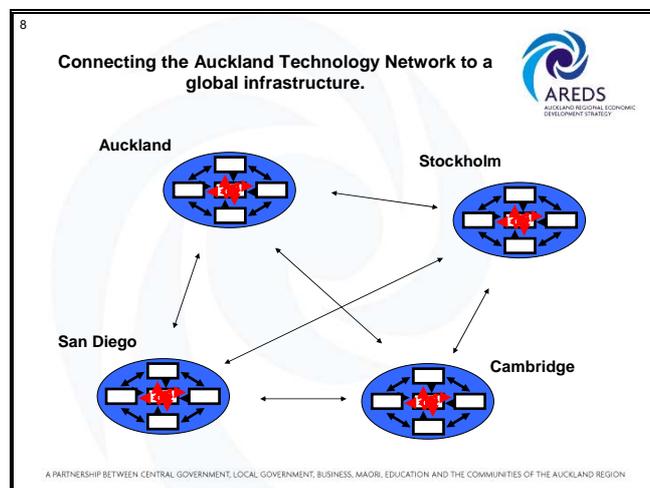


Figure source: AREDS (personal communication)

See Appendix 1 for comprehensive details of the Auckland Technology Network.

3.3.3 ICT Skills Forum

The Auckland Regional ICT Skills Forum is yet another regional initiative that is being driven by AREDS. The Forum is in response to Programme 7 of the AREDS Strategy – ‘Produce a skilled and responsive labour force’ (see Section 3.3.1). An objective of the ICT Skills Forum is to seek funding through the Tertiary Education Commission’s Growth and Innovation Pilot Programme (see Section 3.2.4). The Forum provides a means to bring together ICT businesses, tertiary providers, and other stakeholders such as representatives of economic development agencies to tackle the skills and education issues and challenges facing the ICT sector. An issues paper prepared by an industry training organisation (ITO) in the industry - ETITO¹³, provided the springboard for conversations at the Forum. Issues were discussed under four themes (ETITO 2004):

- Industry Skill Demand
- Tertiary Education Provision
- The Talent Pipeline
- Connectivity and Collaboration: Industry and the Tertiary Sector.

On the basis of the feedback received at the first Forum, the issues paper will be revised and follow-up meetings of focus groups for each of the themes are being held in the first and second weeks of August 2004.

¹³ The ETITO provides human capability solutions for the Electrical, Electronics, Call Centre, Telecommunications and Security industries (<http://www.etito.co.nz/about/about.html>).

3.4 THE ICT INDUSTRY IN NSC

**NSC's 'key strategic choice' is 'to become a knowledge hub'
(NSC 2003: 10)**

Building the ICT industry in NSC will be a core component in moving the city toward a knowledge hub. The *Economic Development Strategy* designates ICT as a 'target' industry¹⁴ and articulates the City's 'strategic preference for knowledge and creative enterprises'. Growing a 'knowledge economy' is acknowledged as a fundamental part of the *Strategy*. This knowledge economy is one where products are services rather than commodities; where workers produce intellectual property rather than manufactured goods; which taps into the knowledge and creativity of its people and where information technology tools are used to release this potential to global economies for local gain and which leaves a small footprint on the environment ensuring NSC retains its quality of place for future generations (NSC 2003: 3).

3.4.1 Current Status and Growth Potential

The ICT industry in NSC already has a sound platform for growth.

The following tables (Tables 4-6) gives an illustration of the extent of ICT enterprises in the North Shore compared with other areas in the greater Auckland region.

Table 4 below shows the growth of the North Shore City's ICT units in relation to that of the wider Auckland Region over the past 4 years. The number of North Shore ICT units has remained steady, making up over one fifth of the total Auckland region industry. In February 2003 ICT units on the North Shore made up 22.34% of the total ICT units in the region.

Table 4: Share of ICT units

Number of North Shore City ICT units as a percentage of the wider Auckland region	
1999	21.60%
2000	21.41%
2001	21.99%
2002	22.60%
2003	22.34%

Source: Statistics NZ (www.stats.govt.nz)

¹⁴ The other target sectors are business and financial services, education, health, sport and leisure, retail, and niche manufacturing (e.g. publishing, marine and toolmaking).

Table 5 which gives the sector breakdown of ICT units in 2003 shows the magnitude and importance of computer services enterprises in the city. NSC is second to Auckland city but leads among the other territorial authorities in terms of numbers of ICT units in the greater Auckland region.

Table 5: Sector Classification of ICT units in the Auckland Region
As at February 2003

	Electronic Equipment Manufacturing ¹⁵	Computer Services ¹⁶	Telecommunication Services	Total
NSC	31	745	38	814
Auckland City	63	1731	106	1900
Waitakere City	25	297	13	335
Manukau City	21	384	15	420
Rodney District	3	167	4	174
Total	143	3324	176	

Source: Statistics NZ (www.stats.govt.nz)

The size of the ICT units operating on the North Shore in 2003 is indicated by Table 6. It shows an above average number of ICT units with 0-5 FTE positions. Of the 814 ICT units operating on the shore, only 11 have more than 20 FTE positions with only 3 having more than 100. Of significance therefore is the fact that the bulk (93.4%) of the ICT units in NSC are micro enterprises with less than six FTEs, SMEs (small and medium enterprises) comprise 6.3% and large enterprises account for the balance - less than one percent (0.4%) of ICT units.¹⁷ Of the SMEs, only one percent were medium sized with 20-49 FTEs and the rest (5.3%) were small enterprises.

¹⁵ Electronic Equipment Manufacturing includes:

- Computer and Business machines
- Telecommunication, Broadcasting and Transceiving equipment manufacture

¹⁶ Computer services include:

- Data Processing Services
- Info Storage and retrieval
- Computer consultancy
- Computer Maintenance

¹⁷ The definition of SMEs varies across countries and within countries. Differentiation is often on the basis of numbers of full-time equivalent (FTE) employees. In New Zealand, small firms are those with fewer than 50 FTEs and large firms have more than 100 according to Cameron and Massey (1999), yet government agencies (e.g. Ministry of Economic Development) often define 'small' firms as those with 6-19.5 FTEs, 'medium' firms are those with 20-49.5 FTEs and 'large' firms 50 and more employees. Micro enterprises are those with less than 6 employees. Large firms comprise only around 1% of total firms, according to the latter classification. For purposes of this study, as well as the associated Labour Market Dynamics Research Programme study on skills in NSC, we use the latter SME definition.

Table 6: Size of ICT units in North Shore City
As at February 2003

FTE Size	0 to 5	6 to 9	10 to 19	20 to 49	50 to 99	100+	Total
NSC	760	28	15	8	0	3	814
NZ Total	6722	330	240	145	36	55	7528
Percent	11.31	8.48	6.25	5.52	0.00	5.45	10.81

Source: Statistics NZ (www.stats.govt.nz)

Summarising the information presented in Tables 4-6, it is seen that NSC has in total 814 ICT units or 22% of the total for the wider Auckland region, second only to Auckland City which has 52% of the units. The proportion of ICT units on the North Shore has remained constant over the past 4 years, averaging one fifth of the total ICT units in wider Auckland. The ICT units on the North Shore are most commonly micro enterprise units which have 0-5 FTE positions and small enterprises. Taken together units with less than 20 FTEs comprise 98.6% of total ICT units. Only a handful (1.4%) of units employs more than 20 people in FTE roles.

Although comprising mainly small scale units, the ICT sector is of vital importance to the NSC economy. As previously pointed out, in Figure 3 of Section 2.3, the Business and Property Services industry makes the largest contribution to the NSC economy. Table 7 below now provides the breakdown of these services. It shows Information Technology as a significant contributor of 1865 jobs and recorded the fastest growth of all the sectors in the group.

Table 7: North Shore City Business and Property Service Employment

FTE data as at February 2003, growth is annual				
	FTE jobs	Share	Growth	
			North Shore	NZ
Finance/insurance services	2734	18%	2%	4%
Property services	1967	13%	8%	4%
Management, research, HR	3510	23%	21%	14%
Information technology	1865	12%	25%	6%
Other business services	1803	12%	16%	4%
Legal, accounting, advertising	1620	11%	2%	2%
Architecture/engineering	1528	10%	8%	4%
Total business services	10326	69%	15%	6%
Business and property services	15027	100%	12%	5%

Source: Business demographic survey, SNZ

Table source: Infometrics (2004)

Table 8: North Shore City's Communications Industry

FTE data as at February							
	1994	2003	National share	Growth - North Shore		Growth - NZ	
			2003	1994-2003	2002-2003	1994-2003	2002-2003
Postal Services	170	2,040	14%	1100%	6%	268%	0%
Courier Services	260	150	3%	-42%	-6%	-29%	2%
Telecommunication	400	880	11%	120%	-15%	-30%	-10%
Total communications	830	3,070	11%	270%	-1%	22%	-3%

Source: Business demographic survey, SNZ

Table source: Infometrics (2004)

Table 8 shows that telecommunications within the communications industry, has grown 120% over the last 10 years. Although there was a decrease in communications employment in the year to February 2003, this decrease is a reflection of the national trend. 11% of national communications jobs are in NSC, despite the city's total workforce accounting for 5% of total national jobs (Infometrics 2004).

The growth potential of ICT enterprises in NSC have been identified with 41 companies involved with the HiGrowth Project. The extent of the involvement of the Shore businesses with the Project, together with the support of Enterprise North Shore and the e-centre for this Project in an indication of the potential of the industry to advance toward being a significant presence on the Shore. As one interviewee commented:

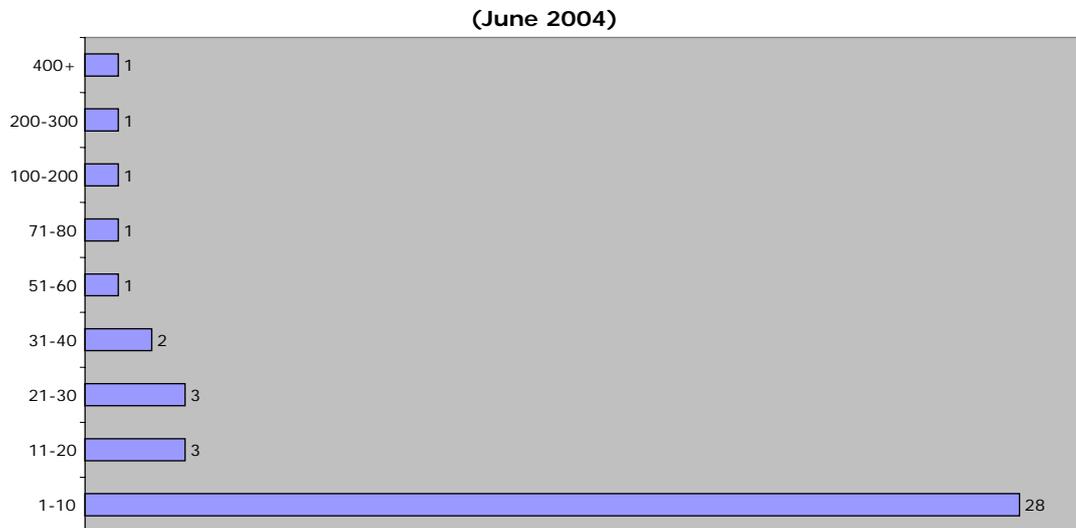
Forty-one per cent of the companies with the HiGrowth Project are from the North Shore. That shows the ICT industry is pretty strong in the City.

The development of the North Shore ICT Growth Project (see the following Section 3.4.2 for further detail), has also been influential in encouraging local businesses to participate in the HiGrowth Project.

Figures 7-9 highlight the details of the NSC HiGrowth companies.

Figure 7 below complements the information in Table 6 earlier that showed that the majority of NSC businesses are SMEs. It can be seen in Figure 7, that only 5 or 12% of NSC HiGrowth companies are 'large' firms, with 51 and more employees. The majority (28 firms or 68%) have 10 or fewer employees. Of those that might be classified as medium sized firms with 21-50 FTEs, were 5 in number or 12% of the total.

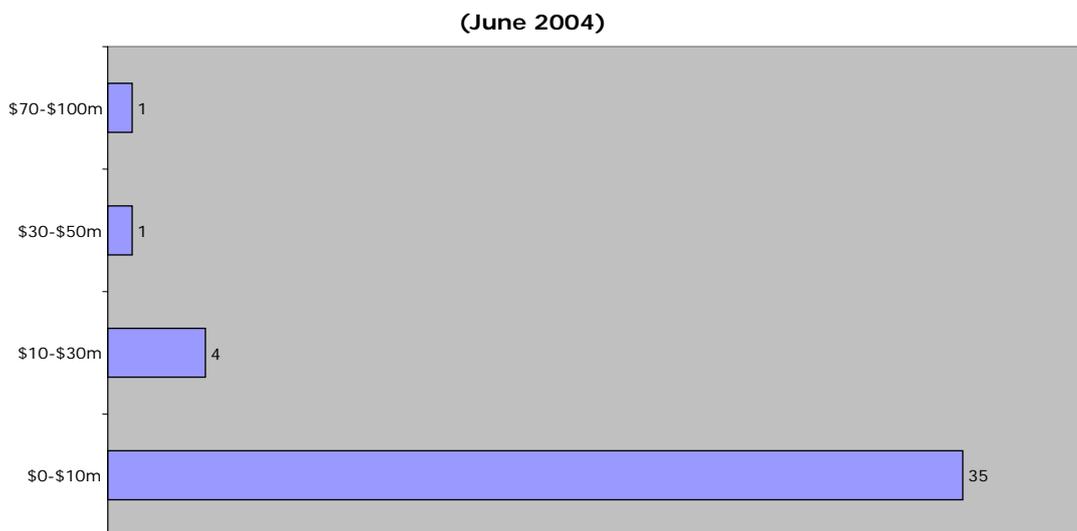
Figure 7: North Shore City's 41 HiGrowth Companies: Employees



Source: The HiGrowth Project Trust 2004

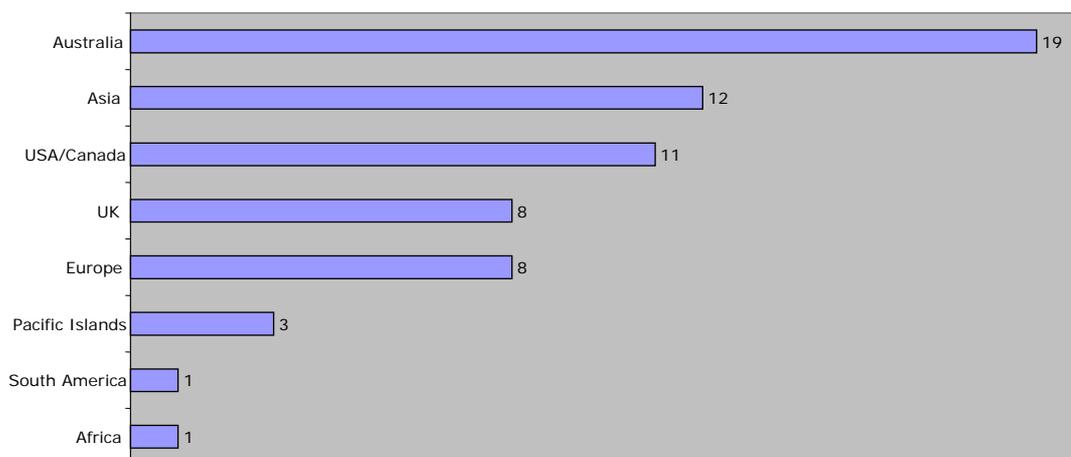
Figure 8 below which presents annual turnover details shows that 28 or 68% of the firms have turnover of \$10 million or less, highlighting that there is much to be done if these firms are to achieve the targeted \$100 million mark.

Figure 8: North Shore City's 41 HiGrowth Companies: Annual Turnover



Source: The HiGrowth Project Trust 2004

Figure 9: North Shore City 41 HiGrowth Companies: Current Exports
(June 2004)



Source: The HiGrowth Project Trust 2004

Figure 9 gives the diversity of export markets for the companies with neighbour Australia being the most common destination.

3.4.2 Supportive North Shore Initiatives

The key role in NSC's economic development that high value, high skills businesses in the ICT sector can play has been recognised, and dedicated efforts to grow the industry are underway mainly through the *North Shore ICT Growth Project* initiative.¹⁸

In the latter part of 2003, government support and recognition for NSC to become one of New Zealand's centres for the ICT sector was publicised.¹⁹ An ICT Industry 'Project Manager' was employed on a contract basis by Enterprise North Shore to assist with the initiation of the Project. Together with the identification of ICT businesses in NSC to participate in the Project, the Manager worked on a benchmarking exercise for accelerating the growth of the sector. Quantel International Ltd at the e-centre provided the Quantel System electronic assessment system that was used to assess the performance of selected ICT companies participating in the project. Customised assessments were conducted on 15 companies with the strengths and weaknesses of the business highlighted.

¹⁸ For details see also http://www.enterprisens.org.nz/ict_project/index.html Accessed 7/06/04.

¹⁹ Media Release 14 October 2003 'Government recognition for North Shore's high tech sector' www.ens.org.nz/mediareleases/2003/oct_14.htm Accessed 4/06/04.

On December 4th 2003, the North Shore ICT Growth Project was formally launched. The partners in the project are Enterprise North Shore, the HiGrowth Project and the Massey University e-centre. A series of meetings/seminars have now been organised. These include three meetings around the theme of 'Entering New Markets' dealing with Funding, Marketing and Trade Shows. These seminars fit in with an important aim of the ICT Growth Project, which is to generate a supporting range of businesses that will contribute to developing the larger businesses and infrastructure in the City.

3.4.3 ITCentral Cluster

ITCentral or the Auckland IT Cluster Inc. (<http://www.itcentral.co.nz/>) is an Incorporated Society set up in 2003. Although not exclusive to ICT businesses in NSC, nevertheless its approximately 84 members are predominantly North Shore based. The cluster primarily comprises small businesses with about 5-10 staff. It has a broad spectrum of members who specialise in diverse aspects of the industry. They are mainly programmers, trainers and software product companies. The main focus is on the export market, through using the leverage of the cluster. Thus it was mentioned that the cluster was involved in sending a trade delegation to Malaysia. Mention was also made, by an interviewee, of three companies from the cluster that joined to put in a tender for a New Zealand Government project. This group had been short-listed for the next stage, yet another bigger company on the Shore had 'gone it alone' and had not been successful. The latter example illustrates the scope for cooperating for success through the cluster network.

4. AN ICT INDUSTRY FRAMEWORK

This section provides a stylised framework to understand the current status and the key linkages involved in building NSC's ICT industry. Figure 10 portrays the interconnected facets that combine to form the current environment of NSC's ICT industry. It is intended to demonstrate that growing the ICT industry on the Shore involves advancement on several fronts.

In this new global era, technological innovation is viewed as the foundation of competitive advantage and lies at the core of the development of regions and cities. However, innovation does not revolve on the activity of a single firm, but requires an active search for new knowledge and technology, involving various actors (OECD 1999). An innovation friendly environment is required and institutions that enable knowledge spillovers are vital. Building a *Regional Innovation System* is necessary to sustain innovation.

Kominos defines a regional system of innovation as 'a multilevel system of institutions supporting knowledge and learning processes. The main components of the regional innovation system are the organizations for: (1) research and development, (2) technology transfer, (3) the use of technology, (4) innovation funding, and (5) the provision of technological information' (2002:9). There is an exchange of knowledge among the whole network that makes up the system. (See e.g. Komninos (2002) for a comprehensive discussion on cities and regions based on technological innovation processes, high-tech firms, research, technological cooperation networks and infrastructure, as well as regional innovation strategies).

In the Auckland region, there is a very weak regional system of innovation. Nevertheless, the elements for the system and for strengthening it are now moving into position. The environment of innovation evolves and developing simple structures such as clusters and science parks are all part of moving toward a viable and strong regional system of innovation. It well known for instance, that the development of clusters is a key contributory factor for industry growth (see e.g. Porter 2000).

The conceptualisation in Figure 10 is that of creating a Virtuous Circle of Innovation to make possible self-sustaining growth of the ICT industry in NSC and the Auckland Region.

At the national level, is the National Innovation Systems Framework of the GIF, supported by a variety of national initiatives to assist with the implementation of the GIF ranging from the Industry Taskforces, the Growth and Innovation Advisory Board activities, reform of the tertiary education system, increased funding for research, to more ICT industry specific initiatives such as those of NZTE, provides the overarching umbrella to move New Zealand toward being a better player in the global innovation stakes.

At the regional level, Auckland is a late starter compared to Canterbury in its attempts to put in place a regional system of innovation. The fragmentation of the region on account of a multiplicity of local governments – 4 cities, 2 districts and the Auckland

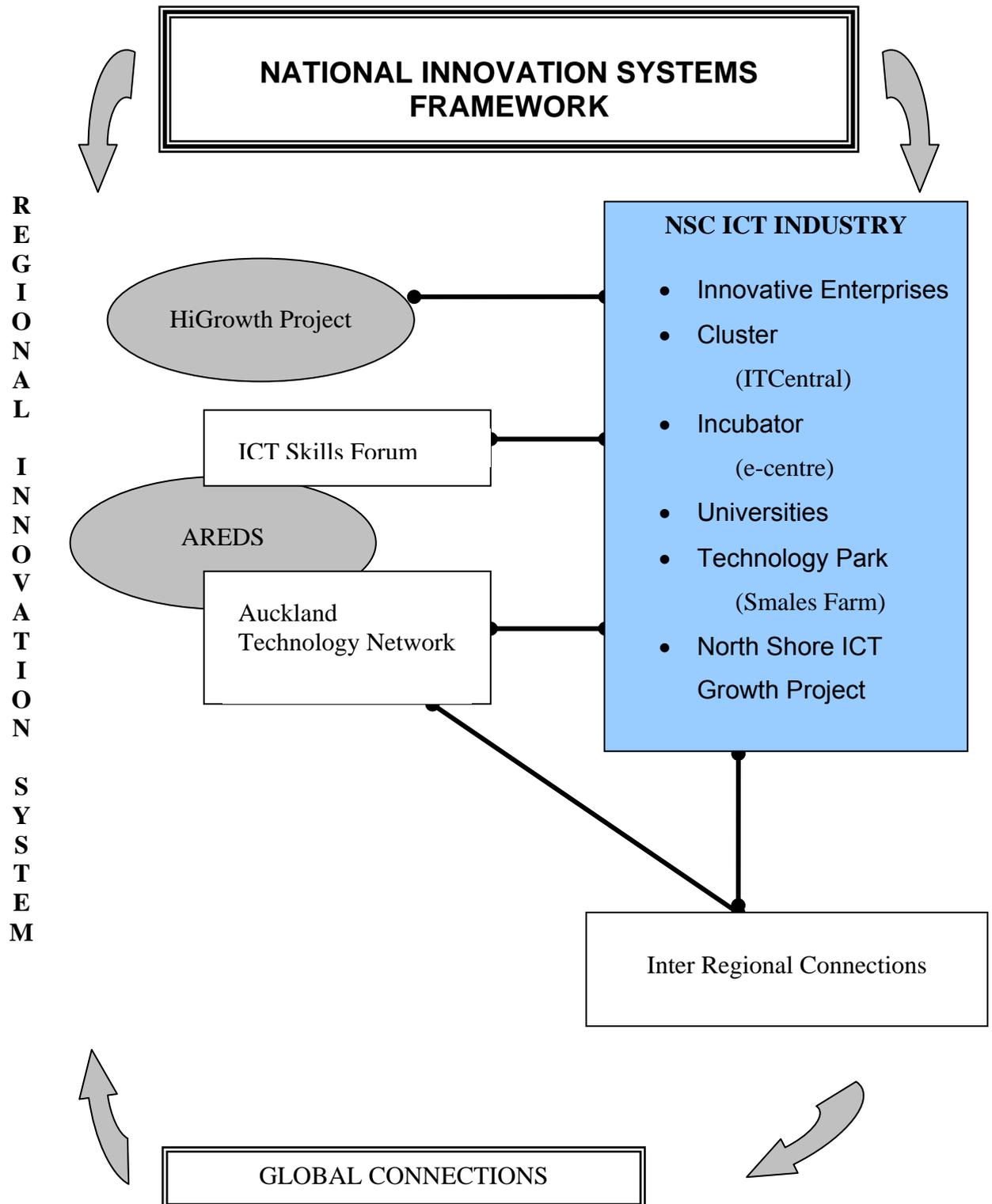
Regional Council, has made it more difficult to strategise with a 'single voice'. Nevertheless, now through the efforts of AREDS there is some progress and the embryonic development of a RIS strategy is taking shape especially with the proposed development of the Auckland Technology Network. Similarly the HiGrowth Project signals the strong ICT industry commitment to work in partnership to grow innovative enterprises. Hence figure 10 shows the two-way connections of all these initiatives to NSC's ICT Industry.

An examination of the rectangle portraying NSC's ICT Industry, shows that the City has the basic institutional prerequisites that will enable the industry to be part of the emerging innovation dynamic of the region. Thus, as section 3.4.1 of this report highlighted, there are a growing number of ICT enterprises in the City and as many as 41 of these enterprises have identified growth potential. University research and linkages with Universities in the vicinity, an incubator facility - Massey University enterprise centre - e-centre, Smales Farm Technology Office Park in Takapuna, which is one of New Zealand's largest technology parks and the first to have a university linkage; are all advantageous elements that augur well for growth of the ICT industry in NSC. Some firms in the City belong to the ITCentral cluster, which albeit is in its infancy is another element that can assist growth of the industry. A few other City firms work with other established clusters of their sub-sector e.g. health. The ICT Growth Project of ENS is underway and is an indication of the willingness and commitment at the local government economic development agency level to support building the industry in the City.

An integral part of the growth of the ICT industry in the region is the inter-regional and global connections to the industry. Thus, for instance, links with Canterbury initiatives would be an obvious way forward and global connections would be also necessary to feed into the growth of the Region's and City's ICT industry. As one interviewee for this study aptly put it, "IT is bigger than our own backyard".

Building the ICT industry in NSC involves strengthening all the facets of the 'Virtuous Circle of Innovation' as shown in Figure 10 and the development and consolidation of the links of the interconnected parts of the circle. This would comprise both partnership efforts e.g. supporting and tapping into the benefits of AREDS initiatives, as well as some NSC specific initiatives and efforts.

**Figure 10: THE INNOVATION ENVIRONMENT FOR NSC ICT INDUSTRY:
The Virtuous Circle of Innovation**



5. SCOPE AND RESEARCH APPROACH

This study was designed as a broad qualitative assessment of the current state, issues and challenges faced by the ICT industry in North Shore City (NSC). In addition to an examination of relevant literature, the study comprised the conduct of seventeen in-depth interviews, with a flexible semi-structured interview process being used to enable the sharing of knowledge and experiences. To supplement the dedicated research conducted for this ICT project, we draw on some of the findings from a related project of the Labour Market Dynamics Research Programme (McLaren, Maidment and Spoonley 2004). This associated project, also commissioned by Enterprise North Shore Trust, examined employment and skills issues in several industries important to NSC's economy. We use the material from the sub-set of twenty eight ICT sector firms on the North Shore that were surveyed for this project.

Another source of information for this research was the first meeting of the AREDS ICT Skills Forum. This meeting took place on 23 July 2003 and was attended by the first author of this Report. It provided an opportunity to listen to conversations of several ICT industry stakeholders in relation to skills and talent building issues for the sector. Some of the attendees were also spoken to on a one-to-one basis to gauge their opinions on ICT matters as they related to business location and other developments in NSC.

At the outset of this project it was decided that data would be collected using a face-to-face interview to elicit richness and depth from respondents and to enable them to answer questions fully. An interview guide was used to ensure that the respondents were asked the same questions and therefore ensure consistency in the data collection process. This interview technique also allowed the respondent and interviewer to pursue areas of particular relevance and interest as they arose throughout the interview. The rationale was that the researcher's perspective does affect the questions asked, but giving respondents the opportunity to extend their responses into areas that they considered relevant, gave a fuller perspective to the investigation. The semi-structured format also gave the respondents the opportunity to raise any issues that they felt were of particular relevance to their business or occupation. The interviews were taped and transcribed.

In order to glean a representative overview of the ICT industry on the North Shore a variety of participants were identified as key operators and these people were approached via a variety of methods and asked to participate in the research. It was deemed important to select participants from different sectors of the industry as well as those at different development stages in their business life-cycle. The business people that were approached comprised mainly those in the small-medium enterprise sector. Some of these people ran start-up businesses that had been operating for less than one year while others' businesses were well-established and had been successfully trading for up to thirty years. To complement the data from business operators, ICT respondents from local enterprise agencies, business incubators, cluster groups and educational institutes were sought and several agreed to participate.

As is often found in research projects the sample of respondents used is determined by availability of access and this was the case in this ICT research. All of the potential respondents approached were 'time-poor' and finding the time to spend with a researcher in their busy schedules was a difficult task for most. Those that declined to participate cited this lack of time as the key reason for non-participation and in many cases were actually on overseas business trips during the proposed data collection phase. Extra respondents were acquired for the project through the 'snowball' technique of being recommended by colleagues and associates that had already participated and this proved an effective method of contacting respondents. 'Key' people for the project were identified using a variety of sources. Names were supplied by local enterprise agencies, those involved in running cluster or networking groups, and by researching local companies on the internet. Personal contacts were also used in the attempt to widen the variety of respondents, represent different business sectors, and to achieve multiple perspectives of data input.

The conduct of this research encountered some difficulties that should be mentioned. As cited earlier, demands on peoples' time was a key constraint in obtaining respondents for the research. The time constraint became further apparent during some interviews as busy managers were interrupted or had to briefly attend to pressing tasks during the discussion. Initial contact with some participants included several phone calls or emails in order to discuss a mutually suitable time and some participants that felt their own contribution was irrelevant to the project were kind enough to suggest an alternative colleague to contribute. A couple of respondents who declined to be interviewed due to the time constraint however, agreed to answer a few questions by email.

There was also the perception that many other overlapping research projects were underway and potential respondents were being approached repeatedly with similar requests for participation. This resulted in a feeling of 'research fatigue' and prompted the response that it was time for all of the different teams and initiatives to combine and offer some integrated solutions and assistance. Concurrent research initiatives and surveys are being conducted by other central governmental and local business and enterprise agencies. Many respondents were aware of, and had been asked to participate in these other initiatives.

Despite these constraints and difficulties, we feel the data collected is of value and depth, offering a broad perspective and 'snapshot' of current development and also providing material for suggestions for future development of the ICT industry on the North Shore.

6. BUSINESS LOCATION DECISIONS

In order to gain an understanding of how NSC can further build its ICT industry, an initial question asked was:

Why have existing ICT firms located in NSC and are they likely to re-locate elsewhere?

Our interviews therefore sought to gain specific information on whether or not NSC was considered an attractive business location. In analysing respondents replies to the question regarding why they based their business in North Shore City, over thirty different reasons were cited. Upon further analysis it became apparent that these varied responses could be grouped into three key categories that summarised respondents' reasons. These categories were loosely identified as: lifestyle; infrastructure; and support; and are discussed below. Although some respondents were not running businesses but were involved with NSC in different capacities, such as support and educational organisations, these respondents also gave similar reasons for business activity on the North Shore, supporting these three category demarcations.

6.1 LIFESTYLE

All of the respondents that have based their businesses on the North Shore also live in the area. A key component that emerged as important to respondents was time spent in travel. Several stated that they had become tired of the continual 'battle' with travelling across the Auckland Harbour Bridge and this had provided the impetus to locate their business on the North Shore to coincide with their residency.

I live on the Shore and I found that I was spending more and more time travelling. I have only been living on the Shore since 1994 and since then the time taken from here to a business across the bridge has become four times-five times longer. You can even easily spend two hours a day in traffic if you are living on the Shore and working for example in Parnell.

As well as less time spent travelling if their business was North Shore based, respondents emphasised that they enjoyed the lifestyle offered on the North Shore. Factors highlighted as desirable lifestyle components were: the proximity to beaches and water recreation, 'good' people and the advantages offered by any major city coupled with a more 'relaxed' style of working.

...it doesn't have that high approach protocol state thing that they have in the city and most staff are very relaxed in their dress and what they do. It just seems a more relaxed way of doing business over here. I think that once you go across and you are close to the beaches you take on -not quite a holiday atmosphere- but it certainly is a more relaxed atmosphere.

Other research too has identified that easy access to water-based recreation facilities (a feature of the North Shore) is a "particularly desirable" environmental element for

attracting and retaining residents (Spoonley, McLaren & Lynsar 2002). Comparing the North Shore to Auckland City one of our interviewees said:

...it is still part of the city and it is not so deep in the city. We still feel like we are, you know, not suffocating.

Another interviewee summed it up neatly saying:

This whole area had a sort of a nice feel to it.

Previous research has shown that the most important factor for locating a business in NSC was proximity to home for senior staff and management (McDermott & Fairgray, 2001). This was also a key factor cited by respondents in this project – if the senior staff member(s) or founder(s) lived on the Shore this had played a major part in the decision to base the business on the Shore. As the business developed further, employees were recruited and for the most part these staff members also lived on the Shore as “ease and speed of transport becomes a critical factor in attracting people and businesses” (Spoonley et al., 2002: 59). The respondents in this study further confirmed this:

...about ninety percent of our staff are on the Shore. As well it's easy for them in terms of commuting and things like that. So it is nice being on the Shore.

All of our staff, all twenty four live on the North Shore... and there are a lot of good people living in this area.

For the purposes of this study we specifically sought out an entrepreneur who has his business based in NSC but had recently moved his residence to Christchurch. Since Canterbury is generally considered New Zealand's leading electronics business region (see e.g. Saunders and Dalziel 2003), this case was of further interest as there could be speculation that this entrepreneur might relocate his business there. It was found that this person had moved mainly because of schools in a particular area of Christchurch and the lifestyle of the South Island, since after living in the North Island for some time, the family had experienced all that that region had to offer. The business however, would continue to remain in NSC and any local government and other support offered in Canterbury was irrelevant. As it also turned out, contrary to assumption, this person had also not originally lived in NSC but in a neighbouring District.

Lifestyle factors were the key aspects influencing the choice made by respondents to work and live on the North Shore. Residency of senior staff members was the most important component in determining work location and basing businesses on the North Shore.

6.2 INFRASTRUCTURE

Infrastructure for business and economic development emerged as the next key determinant for locating a business on the North Shore. The respondents in this project cited reasons such as less traffic, better parking and ease of transport around the Shore as a key component in their business location decision. There was also a perception that costs were lower on the North Shore particularly in regards to renting premises and parking. These comparisons were made with the costs associated with running a business in the Auckland CBD area which many of the participants had previously done.

...and the other aspect was the costs of running a business in Auckland City were a lot higher than running a business on the North Shore so it made economic sense and practical sense for me to set up an office here rather than to continue to work in Auckland.

Although some respondents did have some grievances regarding parking issues, particularly around the Smales Farm development, most agreed that parking in other areas of the Shore, such as the Albany Basin, was reasonably adequate and problem-free. Several respondents highlighted that renting premises with plenty of attached parking for customers and suppliers was a major benefit of locating their business on the North Shore.

It is convenient – there is nothing you can't get on the Shore.

Universally, respondents cited traffic ease as an important advantage of operating locally and expressed hope that this would continue. Some concern was raised at current traffic problems while developing the motorway link to Greenhithe and respondents stated that staff that lived in West Auckland were experiencing traffic delays; however, there was a general feeling that this would soon be completed with better functionality in this route.

An area of concern that was highlighted by several of the respondents in regard to infrastructure on the North Shore, was that of affordable and accessible broadband communication services. One respondent had been denied broadband capability and emphasised that this was due to supplier issues regarding ownership of the necessary cables.

We are an IT company and we can't get Jet Stream and yet we have Telstra Clear within a visual distance and they are a customer of ours and they can't sell us Jet Stream. No- not allowed it because of a Telecom junction box in the building so Telstra aren't allowed to sell it to us.

Several respondents discussed the monopoly of cables and ownership of broadband capability as a deterrent to establishing successful North Shore based businesses. It was suggested that deregulation of broadband connection and opportunities for local suppliers may benefit ICT businesses overall but it was recognised that these issues still needed to be addressed at a national level and that this was a new and difficult area to manage. As one interviewee emphasised:

Ultra high speed communications are going to be an absolute necessity ...and I don't think that the Council would have to outlay a lot of money - you could probably just encourage other companies to take the initiative to do it on their own or have some sort of -you know- industry cooperation.

6.3 SUPPORT

The third major category of response to location questions emerged in the area of support for business. Respondents were all aware of the role of Enterprise North Shore and their support for local business. Many positive comments were made and in general respondents were satisfied with the support offered by this agency. Most respondents were aware of business projects and initiatives operating and many referred to the HiGrowth Project and several had had some involvement with this project. There was positive feedback regarding local ICT clusters although not all respondents belonged to these types of networks, usually citing lack of time as the key reason for non-involvement.

Most respondents made positive comments about the development of the e-centre to assist start-up businesses and cited this as another contributing factor to being located on the Shore. There was the feeling that future initiatives of this kind would be developed and that this would create a positive environment for ICT business on the North Shore. The proximity of Massey University and relationships with this institution were also mentioned as a positive contributor to local business progression and several respondents expressed the desire to have closer ties with Massey University in the future.

... but obviously a lot of companies moved here from all over Auckland to be in this area because the University is there, the e-centre is there and there is more infrastructure earlier than we thought. Enterprise North Shore have done some good work for us so we are constantly trying to find ways to use that structure to our benefit.

Generally there was a positive outlook and these respondents felt that they were supported in their business activities by a range of agencies and that this support was another important reason for continuing their business operations in North Shore City. A feeling of excitement was alluded to and a generally optimistic and upbeat 'snapshot' was formulated from the responses of these enthusiastic and forward-looking respondents.

...we did recognise that the Shore was 'for' the ICT industry – there's a lot of help and growth here. That's why we have stayed here really.

There is a lot of support here and also it is quite an exciting place to be with all of the industries developing in the Albany basin and then with the incubator up there.

6.4 SUMMARY

Three main categories of response were identified from respondent's answers to questions about why they operated their business or agency on the North Shore. These were classified into lifestyle, infrastructure and support sections and are summarised below.

Lifestyle

- Senior staff or business founders that lived on the North Shore and enjoyed the lifestyle offered, also based their business on the North Shore.
- Opportunities for water-based recreation activities contributed to the desire to live and work on the North Shore.
- Conducting business on the North Shore was more "relaxed" than carrying out similar activities elsewhere.
- Living and working on the North Shore meant less time spent in traffic and this was a desirable lifestyle factor.

Infrastructure

- Respondents stated that there was less traffic, more parking and ease of transport movement around the North Shore. These were desirable factors for operating businesses.
- The North Shore offers all of the key services required in a city.
- Rental costs and some other associated business costs appear to be lower than those in Auckland's CBD.
- Accessible and affordable broadband delivery is a necessity for ICT business development and some business operators currently do not have this need met.

Support

- Respondents felt well-supported by local agencies such as Enterprise North Shore and the e-centre.
- Respondents have a sense of optimism about business support and future development on the North Shore.
- Massey University is perceived as an organisation that may offer support and development to ICT businesses.
- Respondents felt that relationships with support services (such as Enterprise North Shore) and educational institutions (such as Massey University) were valuable contributors to economic development and growth for local ICT businesses.

7. HUMAN CAPACITY ISSUES: THE ICT WORKFORCE

The match between job opportunities and the supply of relevant skills will be critical to achieving sustained growth of the ICT industry in North Shore City (NSC), as well as the wider Auckland region and at a national level. The ICT Taskforce (2003) too has highlighted the crucial importance of growing, sustaining and retaining a highly skilled ICT workforce.

In our interviews with ICT sector stakeholders in NSC, we probed human capacity issues and the extent to which skills were constraining growth of the sector in the region. In terms of the skills requirements of the workforce our interviewees highlighted several key aspects. These aspects ranged from the specification of formal qualifications, to the need for learning on-the-job, work experience and the 'right attitude'. We report our interview findings in this section. In addition to the information gathered from our in depth interviews, we include the findings on skills from the 28 ICT sector firms on the North Shore, that were telephone surveyed in the related project of the Labour Market Dynamics Research Programme, as previously mentioned in Section 5. This project, only included companies with four or more full time equivalent employees and whose business had been in operation for more than a year (McLaren et al. 2004). The findings and comments from the respondents to these telephone surveys are used to supplement our in-depth interview data.

7.1 ADAPTABILITY, ATTITUDE

The ICT industry is fast-moving with constantly evolving technology. Many of the face-to-face interviewees emphasised that adaptability and the ability to learn were key attributes for the workforce in the industry. The rapidly changing nature of the industry meant that 'IT skills need continuous updating' with 'ever-changing IT programs'.

I think I would have said once that the key thing is that the people are able to learn cause one of the things about ICT is it changes all the time. So whatever skill you come out with, people are going to find they are obsolete. But I know I don't know if you can teach this. ... but attitude is a really key thing as well.

Another interviewee pointed out:

I have seen these people come out and go into managerial roles and they burn out too quickly because they don't have the attitude.

The ability to learn and self-teach oneself was emphasised as important, especially in light of the rapid changing pace of the industry:

One of the biggest things is a passion for it and really keen to learn because it is such a fast moving industry and it is just changing all the time and you have to be constantly up-skilling yourself and learning. So ... we are quite a young

company, a lot of quite young employees. A lot of them are either self taught not even necessarily even from University cause you have to really be able to teach yourself. You know, no classes or anything. You have to know how to research and find this information out yourself.

The ability to keep up with changes in software was stressed. The telephone survey also found that software skills were considered by many firms in the industry to be more relevant and important in the next 2-3 years to ensure economic development. Flexibility was also mentioned as a desirable personal attribute.

‘Attitude’ of workers was an aspect which was referred to by several of the participants in the study. As one of our interviewees, from a larger (around 30 FTEs) sized electronics manufacturing firm, pointed out:

In electronics manufacturing there is very little formal qualifications that suit. ... More and more we are focusing on getting the right sort of attitude more than anything else.

Yet another interviewee – a CEO of a communications sector of the industry with around 30 employees, also stressed the importance of attitude over and above tertiary qualifications:

We have people in the company who are the best and they have no degrees. And then we have people with degrees that are fine but not exceptional. ... I mean education always helps but it’s not a guarantee that you are the best. You can have the smartest person and if they are not motivated or they don’t have the right attitude they are partially useless.

An openness to change, adaptability to changes and new environments, and ability to self-teach and the right attitude were stressed as important skills for the ICT workforce. Perhaps the following quote encapsulates the feeling of many employers in the industry:

Yeah, getting a good work force is one of the hardest things there is. Lots of IT fallout people at the moment because there was this big boom and everyone located to designing websites and that sort of thing. ... But finding the right people with the right attitude is still a really hard task. Probably one of the hardest things that we have to contend with.

7.2 EXPERIENCE, PRACTICAL SKILLS

While on the one hand it was maintained that there were no barriers to building a fully proficient team ‘as long as there is a willingness to learn’, on the other hand ‘young age, peripheral knowledge and little experience’ was also listed among the barriers.

Formal tertiary based qualifications when necessary were not the only skill prerequisite for employees. Coupled with formal qualifications was the need to have a sound practical base:

We are looking for somebody with NZCE or BE electrical, with other degrees possibly, computer science, but they have to have good practical skills. Turn out people with good practical skills I guess. I mean of the people that we see, that's the thing we look for and the biggest problem for us.

While some employers look to the tertiary institution to provide workers pre-equipped with technical and practical skills, others had a different outlook. They saw institutional learning as the vehicle for providing sound theoretical understanding and the employer in the role of providing the practical skills:

I think it would from the theoretical perspective I think that there is little that could be done. I think that it is hard to imagine how any institution could help in the practical electronics side and maybe it is a thing where people have to just come out with a degree of theory and we build that technical know-how.

Especially for the micro/small businesses in the sector, the ability of their employees to turn their hand to more practical tasks and be more multi-skilled, was stressed:

We would need somebody if our PC fell over, who could probably fix it themselves, or you know, have a go about it rather than if they were working for a big company - they would just call up the IT person and they would come and take the PC away and leave another one there. We are not big enough to support that kind of arrangement. So you have to be a bit of a jack of all trades really and that relates to the background of the two partners in the company.

Experience in the industry and in the business world was considered quite an essential skill set and a formal university qualification was not always a prerequisite:

We find a lot of the people in our cluster that have their own business as developers or programmes, don't have any formal University qualification. What they have they support themselves and they have learnt it either through the business schools or they can communicate to the clients and they find that is all they need. Sometimes you get someone who has done a University thing and they are pretty clever and they want to tell you how clever they are. But the actually technicality is actually pulling it all together for a project...sometimes they can only do one part of a project depending on what their skills are. Like you take someone with a computer science degree - they might know how to programme. But they can do a Java script or can they put that Java script in a form and then send it somewhere else and do they know the other stuff? A lot of that comes down to experience as they know the text book answer.

7.3 GRADUATE WORKFORCE

The ICT Taskforce identified ‘the supply of appropriately educated graduates’ as ‘the second biggest constraint to the growth of the ICT sector’. (ICT Taskforce 2003: 18-20). Several of our respondents believed that a prerequisite of ‘appropriate’ graduate education for the ICT industry was thought to be one that had an industry experience component to it:

Probably I think the key thing for any institution would be typically in late years I would like to see students doing a design type project where they do something typically real life. I mean I know the rest is a bunch of theory papers and tests and then in the second and final years they do some sort of actual practical project where they are building something often interfacing with business. I would say those and also my own experience having done that. I remember heaps. So picking those sort of industry projects. I know that University often has to link with industries and say look give us a project and we can give it on to one of our students to do and they are often coming in to work with the business to achieve things.

The need for business experience was highlighted by quite a few interviewees:

They should be spending more time in the business world. That is the only way you are going to be able to pick those up and actually spending a block amount of time of each semester whether you are gradable or not but actually spending that time in business and on real life programmes and real life work. I mean you can come out of University and how do you know you are even going to like the job that you have just spent the last three years training for? Because you may never have actually done that job and most of them will be doing a computer degree but in the holidays they are off painting a house. They are not doing anything to do with their degree in their spare time and of course they have got a student loan and everything to pay off as soon as they leave University so their expectations can be quite high too and its quite daunting when someone says to you, yes your qualifications are great but you have no experience whereas if they had this experience that was related to the skills that they had which I guess is the biggest thing. I mean we are always getting faxes from Immigration and that we have got all these people from whatever country that are qualified that they need experience they will come and work for you for six weeks you know you are always getting those faxes and that there is a lot of qualified people out there that lack the experience.

The need for communications skills coupled with experience was also stressed:

Lots of students come out with a lot of knowledge and not much experience and so as an employer you kind of look and you think, 'right I need a database programmer'. But you may know database programming but can you speak to my clients. You know, do you know how to communicate to my clients? Do I have to go with you and hold your hand while you do the work? That sort of thing and that I have found a problem when I have contacted people who either are at University or that sort of thing. When I use those sorts of people I can't send them in to the clients on their own either because of their level of maturity or their level of business experience.

As also referred to in the previous section, it was felt that graduates should have developed the competency of 'learning':

I think that the learning to learn is a big one. ... so that they know that they can teach themselves.

The ability to apply theory to more real world situations was also seen to be essential for tertiary trained graduates:

Yeah I mean that's the theory but I think it is up to the students as well to make that link between here is the theory and this is the real forum.

The difference between a university-based education and workplace-specific requirements was similarly stressed. One interviewee from the tertiary university sector, but independent of the New Zealand education system and who may be considered as not therefore biased toward the current status quo in the country, believed that universities should provide an education, equipping students with generalised skills able to adapt to any technology:

A business should not expect universities to produce say Oracle or SAP experts. They have chosen the software and they must train in that software or the polytechs must – that's what they are there for.

Perhaps it should be drawn attention to here, and as pointed out in the conversations listened to at the AREDS Skills Forum, the term 'graduate' needs to be defined. Interpretation of the term 'graduate' and 'graduate qualifications' varies and could be a source of confusion.

7.4 EMPLOYEE AND EMPLOYER EXPECTATIONS

Inappropriate expectations of job applicants and especially of new entrants into the industry were of some concern to interviewees. Yet as an interviewee commented, high expectations could be seen as a positive:

We do get applicants with this notion of superiority. But we see this as something positive, as long as they are willing to live up to it.

Unrealistic expectations of beginners regarding the nature of the job and pay was commented on. As one interviewee phrased it:

(students) leave Polytechs and university with over inflated expectations which are easily frustrated when entering the world of work.

Expectations of the employer however, must also be taken into consideration. These can be realistic or unrealistic. Realistic expectations of an employer with a stand alone IT business with employees in the 10-20 range, is highlighted by the quotation below:

No one is fully proficient and perfect. We have to make allowance for that.

This employer never had the problem of hard-to-fill vacancies. The need for realistic employer expectations came through from another interviewee as well who stated that:

...usually our positions are not hard to fill because there is no 'perfect' employee. Employers have to compromise.

When asked about 'hard to fill' vacancies an IT firm emphasised that there were 'None' because there are always keen learners among the applicants.

The fact that employer expectations and adaptability was viewed as a key to understanding skills gaps was emphasised by one of the interviewees:

New Zealand is known for its DIY culture, supposedly its adaptability and creativity. Let me take an example: If you are an engineer trying to build a bridge, you use the material that is on hand. ... Make different calculations on how to reconfigure this. But with the ICT businesses, if they don't have the material they won't build the bridge. These businesses have to be more creative in using what we have here. ... The whole home growth of ICT expertise issue ... There will never be enough, for want of a better term, Pakeha ICT experts. I remember a Biblical expression: You can either curse the darkness or light a candle. Businesses should go with the local talent that is coming out of universities and get on with it.

7.5 THE SEGMENTATION ISSUE

What was termed the 'segmentation issue' at the AREDS ICT Skills Forum is of relevance in understanding the nature of training and skills needs of the ICT sector. An aspect of the segmentation issue is that the varying sizes of employer and the different industry sectors in which they operate, matters when examining the skills needs of employers in the area. This point is supported by research findings included in this Report. Thus a participant who was in the telecommunications sector of the ICT industry with over 100 employees said there were no human capital and workforce problems because extensive in-house training is provided. By contrast, a

micro enterprise in the industry might not have the resources to provide the in-house training that the larger company could afford. This was highlighted by a comment by one of the respondents who suggested the need for subsidies for on-the-job training since small businesses are unable to bear the added cost imposed by such training.

The diversity of the ICT industry meant that the skills needs and constraints that were faced depended on the particular market space which the employer occupied. Thus for instance, a successful company in the specialist health software sector preferred not only IT knowledge but also a background in health management and the health sector:

I guess what we could see at that stage was although we could hire IT people, we could hire health people but there weren't that many people who had had training in both sort of IT and health management. ... There is a dearth of understanding within the health sector about the impact of IT on health ...it actually changes the whole way you can provide health services. So it's, you know, there is quite a lot of learning that needs to go on in that area.

The wide spectrum of skills required in the ICT sector is also of relevance. Several of our study participants mentioned that although it was currently easy to fill vacancies at the lower end, it was quite difficult to get people at the higher end of the skills hierarchy. This finding is in keeping with that of the ICT Taskforce who drew attention to the critical skills shortages in the specialist areas such as electronics, radio frequency and production engineering (ICT Taskforce 2003: 20). Thus for example, when asked about the ease with which staffing requirements can be filled one of the interviewees replied:

Yeah we can. Although I suppose what we are lacking is in the higher end. There is quite a range from the simple assembly line to an assembly career. It can be quite complex understanding of electronics and production engineering and I think at the higher end we are always struggling to get enough people.

The need for complementary skills that reinforce the more ICT specific skills was also highlighted. These include the ability to work in a team environment:

... skills need to be developed. They need to have good typing skills. Good designers have to have good graphic skills and our sales guy - they have to fit with our team. Honesty is another good one.

Some companies had no problems in filling vacancies of a particular type, yet others faced some particular skills constraints. Illustrating the former point is the comment by an interviewee who said:

Yes there seems to be a good pool of out-of-work developers out there and also designers. A lot of sort of struggling web designers and developers who you know ... used to be our competition, who are just really struggling for work and they want a job. So it has been quite good in terms of employees.

Illustrative of the latter point and also of the segmentation issue is the fact that some employers did have a variety of 'Hard to Fill Vacancies' as indicated by the telephone survey and there were other skills requirements/vacancies pointed out by interviewees as well. These were:

- Programmer – ongoing vacancy
- Programmer/data analyst ongoing
- IT specialist – 3 months
- Electrical engineer, microbiologist (vacancies in an IT Engineering business)
- Systems developer (The lack of obtaining a systems developer was mentioned as leading to loss of business to competitors and difficulties in introducing technological change)
- Technical engineers
- Java developers and designers
- Radio Frequency engineers (It was claimed that these people are extremely rare as this is an engineering specialisation rather than ICT expertise)
- Marketing Manager

It should be pointed out, however, that job vacancies may be related to the inability or willingness of employers to offer the 'right' market price for the level of skill that they are seeking as the quotation below might illustrate:

We don't have a marketing manager but we haven't been able to find anyone that we thought was inspiring at the right price. We are not a huge company so we do need to be frugal with our money. There is a few key positions that we could fill that would make us grow a lot faster.

7.6 MIGRANT EMPLOYEES

The general importance and contribution of migrants to the ICT workforce in the City, was highlighted both in our face-to-face interviews and telephone survey responses. There is no doubt the Asian ethnic population comprise a key part of the ICT workforce on the North Shore. As one of the interviewees pointed out:

It is interesting when we advertise for electronic technicians we get inundated with probably three main groups which would be Chinese, Philippines and Indians. We have very little traditional New Zealander - white New Zealand. I don't know if I want to put it quite like that, but our labour force is predominantly of those three groups and it doesn't seem to be any shortage of, when we advertise, getting applications.

The question on migrant employees in the telephone survey was an open ended one. It sought to gauge if there were any salient issues in relation to migrant employees and company needs. There were 26 respondents who chose to answer this question but since a few of the respondents gave dual-natured responses, the total number of responses categorised was 29. Illustrating the duality or coupling of responses would

be comments such as migrants had a strong work ethic though language is a barrier. Table 9 below summarises responses in terms of broad category labels.

The majority of respondents had no problems with regard to migrant workers. Thirty-one percent or nine responses indicated that migrant workers were no different to non-migrants and for three, the question did not apply and hence they could not comment. Another two respondents believed that migrant workers suited their needs well especially in light of selection processes and therefore the issue of differentiating between migrant and non-migrant workers did not arise. A further respondent commented that as long as the worker spoke English, the migrant issue was not relevant. One respondent claimed that migrants are better skilled than New Zealanders because they have undergone quality training overseas and that there was a higher standard of training schemes i.e. in Europe. Aggregating these four groups of responses therefore, 52% of responses either had no separate issues concerning migrants or favoured the migrant workforce. In fact as the quote below sums up, migrants were a strong positive to the industry:

We employ 20 different ethnic cultures. Without well suited migrants we would not be able to operate effectively.

Language and communication difficulties were raised in 21% of responses. Responses were however mixed. For example, one respondent's views were strident: 'we don't employ them because you can't understand a word they are saying'. Other responses were much more tempered and also depended on the tasks concerned. Thus for example, one respondent said that the firm employed Germans, Indians, and English. For the first two, language barriers make their job of customer care hard. Counteracting the language and communication difficulties view was that of another respondent who stated that New Zealanders have as much of a problem with language and communication as migrants. This response, however, was counted among the 'other' category in Table 9. The 'other' category includes five miscellaneous responses, some of which comprised dual responses. For instance the statements of one respondent: 'Some migrant groups are more diligent than others but generally; skills and attitude are personality issues' was included in the table as a work ethic issue as well as in the 'other' category. One of the telephone survey respondents stressed that generally migrants make the choice to come to New Zealand to do well. Thus many of them are high achievers and this is reflected in their work output. This was another of the 'other' category responses. In similar vein, though not pertaining only to migrants was another 'other' comment that there are 'achievers across all groups of people. It is a personal attribute'. Amongst the 'other' comments was one which demonstrated the tendency that some employers may have of racial stereotyping. Thus a respondent who was a large employer where work demanded creativity, ingenuity and flexibility in thinking and problem solutions, mentioned that:

Some cultures are more orientated to adhering to instructions and following routine strategies at work. They are less creative than New Zealanders.

Table 9: Migrant Worker Issues: Telephone Survey

Category label	Number	% of Responses
No different to non-migrants	9	31.0
Doesn't apply/can't comment	3	10.3
Works well/not an issue	2	6.9
More skilled	1	3.4
Language/Communication difficulties	6	20.7
Work ethic/motivation/reliability	2	6.9
As long as understand English & are qualified	1	3.4
Other	5	17.2
Total (no. of responses and %)	29	100.0

One of the face-to-face interviewees commenting on the reluctance of some employers to employ Asians and forcefully stated that:

There are cultural barriers to a lot of skills shortages. Eventually these cultural barriers will be overcome ... Skills constraint is in the mind. Employers have a cultural mind that they close ... Good students - Chinese students especially, can't find a job ... shouldn't want NZ experience in the IT field. ... If a company needs a local person to interact with the business community as a front man - that's fine. Send 2 people. ... Find out if they work or not.

7.7 OTHER ASPECTS AND FINDINGS

7.7.1 Organisational culture

The importance of maintaining an invigorating organisational culture was commented on by the manager of a medium sized IT firm. Judging from our available data it would appear that this is an important factor in the retention of employees. Given the mobility of the highly educated and skilled worker, a conducive work environment plays a role in 'holding-on' to such workers.

7.7.2 Retraining

Short courses to re-train particularly more mature people entering the ICT industry from other industries and the Defence Forces, was offered as a good solution for dealing with any skills constraint in the industry:

...you know, up to three months that gives an overview to mature people coming out of the services or out of some other industry, particularly people who have been in somewhere else and concentrate on preparation on the outlook and that would be invaluable. It is almost how to institutionalise people making them old.

Rather than a three year degree, a concentrated two or three month period of re-training was considered a good idea:

...they have got the knowledge; it's just a matter of trying to get it into one package.

...what you would do is you turn over a mature person into a productive field much quicker. A lot of propel. Like I was... I started to try and find jobs to get out three or four years out of the Air force and rapidly found without any qualifications no one wants to know you.

7.2.3 Provider Connectedness with Industry Skill Needs

The need for tertiary education providers to be aware of changing industry skills needs was also stressed by respondents.

These days I have found that some of them are coming out with skills that perhaps, you know, they might have taken an influx because there was a shortage in that area and now there maybe no demand for that particular skill anymore. So this needs to be looked at - whether they (students) are rounded and keeping in touch with what businesses need.

7.7.4 Industry Training

There was also some positive feedback from respondents on the Industry Training Organisations for their respective sector segments. One business mentioned that they get all their job applicants through their sector ITO, citing this as an extremely satisfactory arrangement.

7.7.5 Employment Outlook and Barriers to Growth

Generally, firms in the telephone survey reported an overall negative outlook for employment growth in the next 12 months. Results are summarised in Table 10 below, with 'yes' answers indicating that the firm expected an employment increase in New Zealand employment and so on. Sixty nine percent of valid responses expected that they would not increase employment in the next year. Of these firms, three were down-sizing their business; two companies claimed that government

policies discouraged employment. A small IT business with employees who all lived overseas mentioned that under current government policies, they would not employ New Zealanders as they could not cope with the costs. Outsourcing to cheaper labour countries, e.g. China, was the outcome. Other reasons for negative responses included comments that the business would recruit overseas; there was a positive employment outlook but this was not for the New Zealand job market as the company was only outsourcing; increase apprenticeships but not jobs; and a general downturn in the job market. Interestingly, only one company indicated problems of finding skilled staff as the reason for its bleak employment outlook. Once again this might be an indication of the segmentation issue coming into play (see earlier Section 7.5). For one segment of the industry there might be skills shortages, yet for others there were none. One of the face-to-face interviewees strongly indicated the absence of appropriate applicants for vacancies:

...so generally we will go through as many candidates as we can possibly find and if we don't find anyone that is really good then we just won't hire and one of the things what is limiting more than anything is the ability to find enough good staff. If I could hire twenty people that I need tomorrow, I would.

Table 10: Employment Outlook - Telephone Survey

	Frequency	Valid Percent	Cumulative Percent
Yes	4	18.8	18.8
No	11	68.8	87.5
Possibly	2	12.5	100.0
Total	16	100.0	
No response	12		
Total	29		

8. RESPONDENTS' VISIONS FOR THE FUTURE

The North Shore has a well-educated population cocoon created against Auckland transport problems, student pool to be capitalised on and history of companies that have succeeded. (Interviewee)

Respondents identified several areas that require improvements to ensure local ICT development in the future. Assistance and initiatives in the areas of funding, particularly at the start-up business phase, and the communication of available assistance were deemed important areas for development. Leadership and the growth of local innovation were also seen as important factors for future development and the point was made that many innovative businesses lacked the necessary marketing and business skills to further their industry progress. Respondents highlighted the need for support with premises and shared administration services, as well as accessible and affordable broadband access for all. The ICT workforce requirements and issues were examined in considerable detail in Section 7 of this report; hence this section only picks up some general perspectives on the topic. Respondents covered a variety of dimensions of development of the ICT industry such as developing clusters and attracting new industries to the shore, so these issues are covered in this section under this 'catch-all' Visions heading. The final segment of this section explores the need for one or two key organisations to lead and co-ordinate expansion, assistance and development rather than many fragmented projects and initiatives.

8.1 FUNDING

Local funding initiatives were considered to be a crucial component for future ICT development. Sponsorship was recommended as well as company subsidies and access to sources of venture capital.

Several respondents emphasized that funding was available for start-up businesses and ICT development but that knowledge of where to obtain such financial assistance was sketchy and time was required to research these initiatives to obtain assistance. This created a conflict of interest, as in the early phases of business development respondents felt that they were too busy to spare the time to track down possible funding and grant schemes that could help their growth. It was suggested that an overall 'funding' expert be made available to businesses to collate, collect and advise on the many different financial options, grants, loans and sponsorships available. This would then leave innovative ICT companies to pursue their key business objectives rather than get sidetracked in pursuing capital and investment for future progress.

...half the time in the Budget there has been money and you say I don't know what or who they are, and how do I seek that out? If someone had that expertise and was able to seek it out and was available for us to say, "Hey- you know this was available and this is how we can help" - it would be good.

Provide an expert in collating and collecting all sources of funding that are available, and then evaluate each business and provide a low cost subsidy.

Concern was also expressed that ICT innovation may be lost offshore without adequate funding assistance locally. One respondent articulated that his vision for the future was that ICT could be developed on the North Shore so that his children could live locally and work locally:

We think that on the Shore there is a necessity for businesses like this surely to grow and employ people on the Shore and obviously at the end of the day when our children want to get jobs we would rather they get them closer to home rather than overseas. So if we don't provide the environment for them who will?"

Other respondents supported this position adding;

Keep the money and jobs in New Zealand so we will need to find venture capitalists in New Zealand.

It was also suggested that start-up businesses could be assisted with compliance costs at the outset of their business life, through sponsorship or grants, and then left on their own to continue developing once it was ensured that they were succeeding.

8.2 INFRASTRUCTURE AND LOCATION

Responses reported here clarified visions of infrastructure requirements and preferred locations to foster ICT industry development. Many respondents highlighted the need for affordable office space and a common vision emerged depicting clusters of small businesses sharing low-rent premises with communal boardrooms and shared administration facilities.

Shared infrastructure - and I imagine if you had lots of businesses all together in the same building complex it would provide them more with high speed connection and I guess you could have things like a conference room and shared rooms where people could book - that kind of thing.

If you move them into the office with other companies 'gee whiz' they start talking and swapping ideas and sharing the same accountant and negotiating for better access for broadband. You get twenty people in at once in one building your bargaining power is so much more.

It was suggested that future developments such as shared premises or technology parks need to be near to the main motorway system and being close to Massey

University, Albany Campus, was also listed as a desirable factor. The Albany Basin was named by most respondents as a potential area for a centre for ICT industry with the added proviso that technology systems for fast connections were developed and planned from the outset.

The next logical place would be Albany - adjacent to the University would be ideal but as long as we have got all the infrastructure there, and infrastructure meaning car parking access and IT communications infrastructure.

Parking was raised as a key issue to be addressed for future infrastructure provisions

All respondents agreed that there were already many advantages to being located on the North Shore, such as transport ease and that these advantages should be maintained and improved upon in future development.

There was some support for a Whenuapai Airport to reduce travelling time to and from Auckland's International Airport and this was seen by some as a positive future development for exporting activities.

One respondent mentioned the need for more high quality hotel accommodation for visiting business people rather than having to stay in central Auckland.

Respondents considered that the North Shore had more potential space for infrastructure development and that local people would be able to maintain their desirable lifestyle and work successfully in the area that they loved if future progress facilitates and encourages ICT industries locally.

8.3 COMMUNICATION AND CO-ORDINATION

It was highlighted that many small businesses at the start-up phase are unaware of relevant help and support that is available to them. The opportunity to join a like-minded cluster for support and networking and even sharing of resources was seen as a positive benefit particularly in the early days of businesses life. The problem however was making this information known to small operators as many new and innovative ideas are developed by sole-operators working out of their own home/garage and unaware of similar or complementary ventures. Respondents emphasised that future ICT development would be enhanced by coordinated efforts and sharing of ideas but that the challenge was the communication of this ideal to ICT participants. One suggestion was to use Inland Revenue as a distributor of local cluster information as it was the only common organisation that all businesses must interact with at some stage;

...get the word out there - use Inland Revenue- it would be more useful if at that time they could give you a couple of pages outlining that these are the local organisations like Enterprise North Shore.

Communication and coordination of resources and initiatives were part of peoples' visions for the future of ICT on the Shore. It was stated that "there is no-one leading

the charge” and that alliances with trade and enterprise agencies, clusters and business groups was desirable.

I would like to see more of the Shore know who its community are, have a better idea of who its business people are, what they do and one of the criteria is purchasing products or services that's its provided from a local company and I think we have probably got one of everything on the Shore”.

Synergy is exactly what's needed- get the local people together. You can get pretty amazing things can happen.

There was recognition of current initiatives such as the HiGrowth Project, the recent MIT report (Caballeros et al. 2004) and the constant work and development by Enterprise North Shore. More such projects were encouraged for the future but with wider development and overall coordination. Clusters were praised as a useful and constructive means of business network development but it was raised that these too were fragmented, time-consuming and often aligned with Auckland developments rather than being specifically North Shore focussed. It was suggested that future clusters that supported ICT development on the North Shore should also be physically located on the Shore to bring local ICT professionals together.

...a cluster type thing but with a social centre. That would be invaluable and would have synergy resulting from the fact that people were physically located near to each other and connected by other means like product and social, yeah - that would be a good thing.

The overall message from respondents regarding future programmes and initiatives was emphasised by a respondent thus:

Keep communicating... keep communicating!

8.4 CLUSTER DEVELOPMENT

Strengthening embryonic cluster development – developing ITCentral, was considered to be essential to growing the ICT industry on the Shore. A founding member of ITCentral maintained that with the right leadership the cluster can have:

A significant impact as a clearing house for collaborative work on the North Shore.

In relation to cluster leadership, it was mentioned that while there is a suspicion of central government driven leadership, but an NGO (non governmental organization) or consortium would be the ‘right way to go’. It was explained to the interviewer how small software companies tend to go after small work. However, if the SMEs would join together with complementary skills to bid for larger projects ‘they would provide competition for the likes of Data Com’. Initially they could just break-even on projects to establish themselves as a viable group that is known to deliver.

For further development of the cluster an interviewee stated that the cluster needed to differentiate itself from other groups in New Zealand:

Establish as a group some niche. In the grand scheme of competition this is important.

It was suggested that perhaps the cluster could lead on quality. It was recommended that this quality differentiation of the cluster be patented or trademarked in some way.

Getting sponsorship of the ITCentral cluster in order that it might move to the next level, was another recommendation that came through in an interview.

The usefulness of cluster contacts was highlighted by another member of the cluster.

Yip and within the clusters I use programmers and that's for databases. I don't deal with SQL or anything of that level so I bring in SQL database developers and things like that and that comes from the cluster which is good because then I know they are people I know and people I trust and I already know their skills and their development otherwise I would be lost to try and find someone.

8.5 BUSINESS DEVELOPMENT, LEADERSHIP AND INNOVATION

Business development for the future was described in several ways but key among these was the need for leadership in innovation, strategic development and developing business skills in small innovative companies.

Respondents stated that “New Zealand is good at innovation and design” and credited the small New Zealand market with the freedom to experiment and develop proven systems. This position reinforces findings by the HiGrowth Project (Caballeros et al., 2004) that highlight New Zealanders’ strong skills as innovators but with limited resources. This research team suggested that ICT companies develop new ideas and technologies locally and then move headquarters to locations outside of New Zealand (‘The Export Model’)²⁰. North Shore respondents however, were keen to see both innovation and expansion occur locally with more support from local agencies.

To support local innovation and development it was suggested that incubators were a superior option to assist in business growth and that the current e-centre is a positive development for ICT growth on the North Shore. There was support for expanding this type of business development further to assist more companies and to facilitate not only exports but to keep young talented future ICT workers in the area by providing a thriving local industry:

²⁰ An argument that was advanced to support the Export Model was the strong preference of private equity investors for the company’s headquarters to be in close geographic proximity to where they (the investors) are located.

...something on the North Shore where people, where the brightest young people can go, and they will find a challenge. They will have the diversity that they need and they will find the income that they need rather than having to go to Australia or the UK or whatever.

There was a strong call for an organisation to lead the direction for further development rather than the fragmented and diverse schemes that are currently perceived by respondents. Respondents believe that a coordinated effort by one (or two) key entities or an alliance with a well-known (local) industry leader will result in cost savings due to non-replication of research and administration and that this will provide more opportunities and assistance for all. However there was also the recognition of the independent spirit of Kiwi entrepreneurs that tend to work autonomously on their ideas, adopting the ‘number-eight-fencing-wire mentality’ to completing tasks. It was agreed that reaching such operators could be difficult and convincing them of the need for assistance even harder.

Respondents were enthusiastic about the development of technology ‘parks’ that offered subsidised rents and shared facilities that would also provide the opportunity for frequent informal interaction with other ICT businesses and would promote sharing of ideas and innovation.

It comes back to the same thing - hundreds of organisations working from home will not talk to each other - if you move them into an incubator or a business park or some large building where they have to talk to each other at least once a day you might find that they all have common ideas and goals and aspirations and they can actually work together.

It would be a centre of business excellence but make it a place almost like a drop-in centre. You have got the companies who are there in a post-incubator phase but you also have people like yourself who are driving it, drop in and do a bit of networking and do a bit of business at the same time but they are open to anyone. Their knowledge, and the knowing of the people, and the where to go, and the buttons to push, and that’s sort of knowledge that has been wasted. There isn’t the space where you can go and listen.

8.6 BRANDING

Respondents suggested that future ICT development needed to be branded and the ICT industry on the Shore either needs to create its own name and brand, or tie it to an already established identity such as Enterprise North Shore or a local industry leader such as Telstra Clear or EDS. One well-established local business respondent articulated very clearly that the name “North Shore” was inappropriate as many overseas countries have their own ‘North Shore’ and that this was not definitive enough to represent the region.

North Shore has a bad name - how do you have an ICT industry built around the North Shore? The North of what? North Shore can't have an identity of its own because it is part of Auckland. You go overseas and say "I'm from the North Shore"- well North Shore of what? You never say "I'm from the 'Shore'" - you say "I'm from Auckland". It is basic branding if you are going to build ICT, any kind of thing on the North Shore- that it is going to have any kind of name to hang it on - it can't be called the North Shore. It has got to have a better name. Call it Albany.

8.7 MARKETING

There was recognition of marketing having a key impact on future ICT development particularly in regards to exporting activities. Several respondents suggested that while small New Zealand companies were strong at innovation, they lacked the appropriate marketing skills to further develop ideas and therefore many of our best ideas got sold to overseas developers.

The biggest weakness most New Zealand companies have is lack of marketing.

I expect them (ICT companies) to have good marketing concepts, understanding of business plans and business development, so essentially they can take their products and behave as a world class environment because they have to be leaders.

There is a risk of missing out on international opportunities... I don't think people should be afraid to compete on a world stage but I think sometimes New Zealand companies, you know, build a fantastic product but without the right marketing skills and attributes and can't put it together. They will create something that is fantastic but it will basically be not recognised as such because it doesn't have the right mix altogether.

8.8 TECHNOLOGY AND BANDWIDTH

Many respondents highlighted that affordable and easily accessible broadband connections was a key to technology innovation and delivery for the future. Several respondents had experienced frustration in meeting their connection requirements and felt that this issue must be addressed in order for ICT development to move forward.

Ideas and visions of technology parks with wireless networks included in the rental costs were put forward. Technology parks and clusters that could share communications services were posed as an ideal solution. Cost could be decreased due to sharing resources and to buyer 'power' ensuing as a result of negotiating as a group.

It is more essential to our business to have internet access than it is to have telephone lines so anything that improves that and removes the stupid obstacles that exist is crucial.

Several respondents cited issues such as line monopoly being factors in holding this area of technology advancement back.

8.9 SKILLS AND EDUCATION

At a broad level, there was some criticism of the education system in general. It was asserted that there was a need for improvement of the general education system in New Zealand. Education should focus more on the meaning of learning and goal orientation. It was asserted that schools, polytechnics and universities were not generating achievers and negative behaviour such as procrastinating and not delivering was rewarded. One respondent went on to say that:

The whole education system needs revamping – raise the standards and reward excellence.

It was mentioned that for businesses to compete internationally, NZ training must meet international standards. There was a need to match international standards to compete globally. One respondent gave the following example – a simple skills test was done with a MA graduate and the graduate did very poorly. A respondent from medium-sized IT software company mentioned a ‘reality gap’ between what is learned in school and training and work requirements. Comments were also made on the scope for University education in key areas. For instance it was mentioned, citing the example of Navman, that there is a huge potential for electronics in NZ. Universities therefore need to train in clever electronics (electronics with software) which is an area which will generate a lot of royalties.

Canterbury University’s engineering graduates - excellent people coming out of university – producing ‘smart cookies’ for the region’s electronics industry. ... Make sure the universities produce the ‘smart cookies’ for growth of NSC’s ICT industry.

The low standard of verbal English /communication skills of in new entrants into the job market and generally the low standard of communication skills in NZ was frequently highlighted.

With regard to the issue of on-the-job training, it was asserted that Government policies are not supporting small businesses in their training expenses to keep up with international standards.

Reduce the administration and training costs for small businesses. Our problems are a government issue!

It was also commented that a negative perception of employers should be modified:

There needs to be a change in cultural values. Employers need to be supported in creating jobs and not seen as ‘exploiters’.

8.10 ATTRACTING LARGE FIRMS TO THE CITY

The impact of firm size and the compounding of ICT productivity is highlighted in the Taskforce report (see figure ...ICT Taskforce 2003: 39). Labour productivity doubles from an average of \$50,000 per full time equivalent employee (FTE) when annual sales are around \$1million to approximately \$100,000 when turnover is \$40million, and doubles again to nearly \$200,000 per FTE at \$100million turnover. With larger firms there is enhanced capability to reduce risks through diversification of the product range and undertake more research and development. There are also multiplier effects and growth opportunities for other firms involved in the supply chain of larger firms in the region. This issue of building critical mass was mentioned by an interviewee who stressed that there was a need for a couple more 'lead' or 'flagship' firms for NSC:

You should be looking to attract larger IT companies to the North Shore. ... There are also the bits that come along the edges. North Shore does not have any major business like that.

This sentiment that there was a need to attract more firms to a region was also expressed by participants who gave their views on how to grow the High-Tech sector in Canterbury (Saunders and Dalziel 2003: 18). An interviewee for the study phrased it neatly saying:

If North Shore was a business that was looking to jump up to the next level - there are two ways you can achieve this. Either develop the product in-house or acquire companies that have the product.

8.11 ORGANISATIONS TO LEAD DEVELOPMENT

A common theme emerged in responses to our questions of visions for the future was that a 'leader' was required to bring together all of the research projects, grants schemes, funding options, clusters and programmes that were already in operation and the future ones too. There was a perception that there were many exciting initiatives and schemes but that these were fragmented and being coordinated by many different organisations and groups. There was strong support for the need to unite the initiatives under one key administration and for a collaborative effort to guide future development. One respondent stated that he was aware of at least 70 different initiatives that were currently operating, and most respondents were aware of several different projects and schemes. In their already-busy schedules they felt unable to get involved with several schemes and resorted to choosing one or two that best served their business and personal needs. Therefore one overall programme, broken down into relevant sections but coordinated by a central committee or body was suggested as a viable development path for the future of local ICT. Generally the respondents suggested that this co-ordination role would be played by Massey University or a local agency such as Enterprise North Shore or even a conjunction of the two with joint goals and objectives.

*Massey University can become, and in my view **should** become, the real centre for development.*

... businesses can then tend to relocate around that centre of excellence and my expectation out of this would be that the University aligns itself to becoming that centre of excellence.

...I am a strong advocate of incubation and roles that a University plays but even equally more important the roles that can be played as a part of a regional initiative ... to help facilitate knowledge-intensive businesses on the North Shore.

We take a parochial view that Massey University aligns its programmes with the growth expectations of the North Shore

One respondent articulated a vision of the North Shore as a “smart city” and outlined that such a place would have “broadband right across the city” and would employ:

...strategies which overtly help create an environment that attracts smart people, where you compete globally for people. So what you want to do is attract smart people to the North Shore as currently smart people travel mainly in ICT space. Just create a smart city and if you create a smart city you'll attract smart people. If you attract smart people they will fund the Universities. The Universities should be doing this conjointly with the land developer.

Accessibility to development organisations was another aspect of future development. Respondents suggested that they envisaged closer ties to local Universities and enterprise and development agencies as part of ICT progress. It was asserted that the North Shore had a well-educated population with a strong student pool of resources and a good campus and these factors would assist in incubating local companies.

Excellence in research would also attract ICT participants and this could be developed as a distinctive feature of the Massey campus and linked to local industry development. The Massey e-centre and its links to the University, Enterprise North Shore and local business, was cited as a positive addition to the local ICT industry and the clusters and groups that it supports. Although some respondents felt that the e-centre was only serving a select few, there was generally positive recognition of its development and many respondents had some involvement with the e-centre via their business networking in the region.

8.12 SUMMARY AND SUGGESTIONS FOR FUTURE DEVELOPMENT

The respondents in this research project had many and varied ideas for the future such as visions centred on shared administration facilities and premises, a clustering of like-minded ICT developers and businesses, and affordable, easily-accessible broadband connection. Suggestions for future development summarised below have come directly from these respondents.

Funding

- Provide subsidised workspaces that share administrative facilities such as boardrooms, photocopiers and support staff for ICT businesses.
- Make a funding 'expert' available to assist ICT businesses with locating sources of capital, grants and sponsorships.
- Encourage venture capitalists to invest in local ICT businesses and foster communication and cooperation between local businesses and fund managers.

Infrastructure

- Develop new technology parks or centres where ICT companies can share premises and facilities and can easily communicate with each other on a day-to-day basis.
- Ensure that such developments include ample parking.

Communication

- Use a central agency to distribute information to ICT businesses regarding schemes and initiatives that may assist them.
- Encourage the continuing operation of ICT cluster groups that are based on the North Shore and meet the specific needs of North Shore businesses.
- Co-ordinate current development initiatives and provide a clear unified direction for ICT development.
- Find ways of communicating to local businesses the array of services and assistance available to them.

Business development

- Assist ICT businesses to develop the necessary marketing and strategic skills to encourage progress and growth and maximise innovative excellence.
- Establish a central 'hub' where ICT developers can seek advice, share ideas and experiences and businesses at all stages of growth can meet and network.

Cluster Development

- Work toward constructing cluster-based competitive advantage by strengthening the ITCentral cluster.
- Differentiate the cluster on the basis of a niche, perhaps quality differentiation (cluster branding).
- Acquire sponsorship for the cluster.
- Explore enhanced links with Massey University. Establish a formal engagement with the University.
- Enhance cluster facilitation and leadership.

Branding and marketing

- Develop a 'brand' including a name and logo that encapsulates the North Shore and represents local ICT excellence locally, nationally and internationally.

- Offer assistance to ICT businesses in developing marketing and business skills such as creating business plans and marketing strategies to support their innovation.

Technology and bandwidth

- Ensure that developments and new buildings include cabling capabilities for affordable broadband connection.
- Address the technological issues of line monopoly and the implications for technological development.

Skills and education

- Education quality issues are important and training to meet international standards is highlighted.
- Pay attention to developing communication skills for the workforce.
- Consider subsidising on-the-job training for small businesses. Many of these businesses cannot afford the time and financial costs to provide this training.
- Recognise the value and contribution that skilled migrants can make to the ICT industry. (Immigration policy is a however also a consideration here).

Large Firms

- Build critical mass of the industry in NSC.
- Work on attracting a couple of new 'lead' firms to NSC.

Organisations

- Enterprise North Shore already has recognition and status as a champion of local business. This relationship should continue and may need to be further extended to focus more specifically on ICT issues.
- The e-centre provides a useful link between business and Massey University. Continue and expand this relationship and strive to offer help and support to even more ICT innovators along a similar model.
- Foster the relationship between Massey University and ICT businesses to continue skills and research development that support local ICT industries.

9. WHAT CAN LOCAL GOVERNMENT DO TO HELP?

This section draws on points made by respondents in the study, the literature review, including Internet research, to highlight and comment on directions that North Shore City and its economic development arm – Enterprise North Shore (ENS), might move toward in order to support the development of the ICT industry in the City.

NSC's *Economic Development Strategy* (EDS) affirms the City's 'strategic choice to become a knowledge hub'. Achieving this goal as the *Strategy* itself acknowledges, requires the City to move beyond its historical role of providing infrastructure and the 'traditional core services' (NSC 2004: 14). Effective implementation of a strategy to move the City toward a knowledge hub would involve action at an overarching level to generate a general climate conducive to economic growth in the City and to position and promote the City as being geared toward the knowledge economy.

It has been contended that city governments can 'become strategic brokers that influence their city's ... position in the global hierarchy', with appropriate planning and support required (World Bank, 2000: 136). Other cities in New Zealand and elsewhere are actively seeking to manage their place and success in the global economy and perhaps NSC needs to proactively step-up to do so as well. It is therefore suggested that NSC take measures both at the more overall level to provide a sound platform for the general growth of knowledge businesses in the City and also consider dedicated ICT industry specific initiatives to stimulate the growth of the industry on the Shore.

9.1 SIGNAL AND BRAND THE KNOWLEDGE HUB DIRECTION

There must be increased national and international awareness of NSC as a desirable place to locate 'knowledge'/ ICT type businesses. 'City Promotion' is recognised as an interrelated part of the 'Virtuous Circle of North Shore City Economic Development' in the EDS (NSC 2004: 17). However, other than 'likely measures' that appear to involve the general NSC branding, there is no suggestion in the EDS that there be branding for the strategic economic direction of the City. Thought should therefore be given as to whether the City needs to signal its strategic direction and/or more specifically an ICT business 'centre' path, if that is the *desired* road forward.

As already mentioned in Section 8.6, respondents in this study were concerned about appropriate branding for the City and the industry. There appears to be a need to better promote and raise profile, in the first instance especially with central government agencies/agents and then with wider, targeted audiences, of the existing capability and potential of the ICT industry in NSC.

9.2 IMPROVE THE WEB PRESENCE OF NSC

This recommendation flows on from section 9.1. Other NZ cities and regions ‘sell’ themselves better than NSC and the Auckland Region on the web. For instance the Wellington region promotes itself actively as a ‘home for smart businesses’.²¹ How the NSC web site and focus should reflect and effectively indicate the Vision of the City of ‘world class business setting that is recognised domestically and internationally as a sustainable centre of business excellence’ (NSC 2004: 3), should be re-examined. There are also several instances where NSC should and does not feature in web-based general promotions. For example, as mentioned in Section 7.6 and generally recognised by industry stakeholders, skilled migrants are an important human capital source for the ICT industry, yet NSC does not feature in the ‘move to NZ’ web page.²² These web presence shortcomings should be rectified.

9.3 FACILITATIVE INFRASTRUCTURE

Many of the respondents included infrastructure, particularly broadband connection and its ease and affordability, as an infrastructure matter that needed to be addressed for the growth of the ICT sector in the NSC. The EDS has specifically recognised that ‘fast broadband access is an integral part of every global city’s infrastructure. ... The quality of the telecommunications infrastructure established in North Shore City will globally define our city and its ICT capabilities’ (NSC 2004: 22). It is therefore suggested here that steps should be taken at the City level to ensure and expedite infrastructure availability. Other infrastructure constraints to growth, such as parking of course fall within the traditional ambit of the city activity.

9.4 ECONOMIC INCENTIVES?

The use of economic incentives for local business development is highly controversial (see e.g. Bradbury, Kodryzcki and Tannenwald 1997), yet people (and cities) are often quick to believe that businesses can be attracted and retained through incentive packages. These incentives are usually offered without sound economic justification or assessment if similar outcomes might have occurred had the incentives not been in place.

Some of the respondents in this study too recommended the use of economic incentives to achieve growth of the industry on the North Shore. However, unlike some depressed urban environments where economic incentives might be of merit,

²¹ See <http://www.smartwellington.co.nz/welcome/index.asp> The IT industry features ‘Among the 10 Top Reasons ‘Why Wellington? Here’s why’: IT, Multimedia, Web Design – these are not just buzzwords. These are successful core businesses supported by cluster industries and the local government in Wellington. Wellington is a region with a definite focus on the future.’

²² See <http://www.movetonz.govt.nz/Bml/away/links/links-general-business.htm#inz> NSC does not feature among the cities listed in the North Island, yet Auckland and Waitakere are listed. Accessed 11/7/04.

NSC's many favourable facets already provides a sound underpinning for the location of knowledge businesses and workers. Nevertheless it is suggested here that a tax neutral environment would be a better option than economic incentives. An interviewee commented on the relatively higher tax and rates burden that businesses in NSC had to bear:

ARC is taxing business at a higher rate than anywhere else. There should be rates relief rather than taxing them for coming to the NS.

Thus it should be ensured that the tax burden for businesses in the City is no higher than that of comparable urban locations. Economic incentives, for example to attract businesses to invest in New Zealand and thereby NSC, could be left in the domain of central government. At the local level, a tax neutral, an improved (simplified) regulatory and business compliance environment coupled with the promotion of a general business friendly climate in the City, is recommended here as the preferred option for the NSC. Compliance issues were cited as a barrier to industry growth and the comment below encapsulates the frustration that is sometimes felt with compliance burdens of regulations and other governmental requirements:

A lot of businesses come despite the government. Every time the government or council steps in, it actually takes the business away from their core business. Businesses are sick of government and councils imposing restrictions.

9.5 FOSTER UNIVERSITY LINKS

The benefit that links with universities and research institutions can bring to the growth of innovative enterprises and the development of a region is indisputable. For NSC too, further fostering of such links will be of tangible benefit. A suggestion made by an interviewee was that links could be fostered through allowing for a claim back by businesses of costs for R&D projects undertaken through universities. This would involve:

Tax rebates and at the local level – rates rebate. Businesses will then be more tuned to universities.

Although the role of economic incentives such as that proposed above is debateable (see also Section 9.4 above), ways of developing further the existing University links that the City has and looking at new links, will undoubtedly be beneficial and need to be explored.

9.6 HELP BUILD GLOBAL CONNECTIONS

As was highlighted in Section 4 and Figure 10, as well as in Figure 6 of Section 3.32 of this report, global connections are an integral part of advancing the ICT industry. NSC action to help build these international links is therefore recommended.

Recently, the views of Navman CEO Peter Maire were reported (Thompson 2004). Maire had wondered if the Singapore/Taiwan science models, rather than those inherited from Europe, were models that New Zealand should follow. Maire had mentioned that he spends a lot of time in Taiwan, where he says he finds some of the best strategic thinkers on Earth. Looking to Asia and Taiwan in particular to establish connections to the benefit of Shore businesses, could be a feasible action for the City Council to support.

Relevant here is that the NSC has one formal sister city relationship with Taichung in Taiwan. Earlier research on sister cities in New Zealand (Cremer, de Bruin and Dupuis 2001) has revealed that the sister city relationship can be used to foster economic goals. The EDS too looks to sister cities as a means of city promotion: 'Develop a portfolio of sister city relationships to reach new overseas markets' (NSC 2004: 31). Certainly several other New Zealand cities have more than one sister city relationship, compared to NSC's single relationship with Taichung. Whether or not the City seeks to develop a 'portfolio' of these relationships or focuses its resources on the single existing relationship is a matter for debate, but what is clear is that Taichung could be used by the City and its community to progress the interests of the ICT and high-tech sector. The Council should act purposefully to facilitate deriving the potential economic benefit of the Taichung link.

Taichung is Taiwan's third largest city. It is reported that Taiwan's Ministry of Economic Affairs 'has targeted Taichung as the base for Taiwan's only aerospace industry zone. When completed, it will attract such high-tech aerospace-related industries as precision machinery, electronic equipment, aerospace chemicals, electronics and information, premium aerospace chemicals, premium aerospace materials, and the maintenance industry. Further, the government has taken initial steps in the planning of a central region science park in the Taichung area, featuring a projected 100 to 300 hectares of property, with an additional 50 to 100 hectares of surrounding satellite area. ... (also encouraging) such hot industries as optoelectronics, information, and biotechnology, while encouraging machinery and aerospace industry firms with a strong foundation to move in so as to forge a diverse community of high-tech industries.'²³ Taichung is a city that is eminently suited to the setting up of formal partnerships and links for the benefit of the ICT industry. Furthermore the Chinese concept of 'face' and 'giving face to somebody' is also a valid reason why city officials should be involved in these sister-city activities whenever possible (Cremer et al. 2001).

While not coming under the official sister cities programme, there also are a number of groups in the City that have overseas affiliations and also schools that have signed official agreements with overseas schools. Importantly there are the connections of the immigrant population of NSC. NSC should actively facilitate and support all these global connections so as to bring economic benefit to the City and particularly to the ICT industry.

²³ <http://www.globalsecurity.org/military/world/taiwan/taichung-c.htm> Accessed 29/07/04.

9.7 SMALES FARM TECHNOLOGY OFFICE PARK

Smales Farm Technology Office Park (SFTOP) in Takapuna is one of New Zealand's largest technology parks and the first to have a university linkage - with Massey University (Auckland). The Park currently has two high profile ICT companies – TelstraClear Head Offices and EDS (Electronic Data Systems). Building and plans are underway for further development of the Park. It is forecast that SFTOP will be a leading centre in New Zealand for technology-based industries and knowledge-based economic development. Taking into consideration the multiplier effect, as well as direct output, it is estimated that SFTOP may contribute \$NZD 775 million annually to the regional economy (Schumacher and Arin 2004: 13). The SFTOP therefore is a significant and valuable development for the City. Its presence could be given a higher profile at the City level. For instance a web link from NSC's business web page to the SFTOP home page, might be one simple possible first step to be explored. NSC has an early-start competitive advantage in terms of the SFTOP as other Parks are merely in the early planning stage.²⁴ This early start advantage can be capitalised on better.

The use of the SFTOP as a 'facilitator' in building the ICT industry on the Shore was commented particularly by one of the informants²⁵ for this research. In order to grow the ICT industry, it was mentioned that the Council should consider basing a business mentor for the ICT industry in the SFTOP. This possibility might also be examined within a partnership model – possibly a tripartite arrangement with NSC/Enterprise North Shore, Massey University and Smales.

9.8 A BOLD NEW PARTNERSHIP INITIATIVE?

The concept of 'municipal-community entrepreneurship' has been put forward as a crucial facet of urban entrepreneurial and economic development strategies (Dupuis, de Bruin and Cremer 2003). This idea involves opportunities responded to by municipal governments through opportunity-related strategic behaviour, usually in partnership with other actors in the community. The authors elaborate on the case of the e-centre partnership with Massey, NSC and the Tindall Foundation as a highly successful example of municipal-community entrepreneurship.

It is suggested that the time has now come for NSC to actively involve itself in a new partnership venture to build the ICT industry on the Shore. Earlier discussion in this report (see e.g. Section 8.2) indicated strong support for common workspaces with shared administrative facilities such as boardrooms, photocopiers and support staff for ICT businesses. Such visions might be encapsulated in partnership developments for

²⁴ Recently plans have been announced of an integrated development of an 'innovation precinct' in the Tamaki area linked to Auckland University's Tamaki Campus and with active support of the Auckland City (Collins 2004). It is reported that the city council is about to appoint a Development Enterprise Board to buy land as part of this development.

²⁵ It might be worth mentioning here that this informant was not a person with a vested interest in SFTOP but an independent 'honest broker'.

a 2nd incubator or 2nd technology park with NSC as a key player. The first partnership initiative of NSC has been recognised by respondents in this study as highly beneficial for building the industry. It sets the precedent for further ‘bold initiatives’.

The EDS drew attention to the finite supply of business land and the need for anticipating future business needs. It specified ‘Council-purchase of land to provide the ability to control and influence developments’ (NSC 2004: 22). There is nothing surprising in such a recommendation. Auckland City Council for instance recently announced its support of an ‘innovation precinct’ in the Tamaki area and is about to appoint a Development Enterprise Board to buy land as part of this development (Collins 2004). NSC’s provision of land for a new venture that will make possible the support of ‘a development corridor’ for the ICT industry in the City might be one possible way to move forward on infrastructure support for realising the vision of a new incubator or technology park. The e-centre financial support model may also be an approach to follow.

9.9 LOCAL LEADERSHIP AND ADVICE

NSC support and building of the ICT industry must be founded on sound advice and informed decision making. Future development of the industry in the City requires entrepreneurial leadership and strategic direction. Toward this end it is recommended that City initiatives be driven at the highest City level through involvement for instance of a ‘Mayor’s ICT Industry Advisory Board’²⁶. This Board would be a representative group with the expertise and commitment to implementing a vision of a vibrant ICT industry in NSC. The terms of reference for the group would include advice and proposals on significant partnership initiatives – as e.g. discussed in the previous Section 9.8.

9.10 A KEY PERSON

Appointment of a dedicated person to facilitate the growth of ICT enterprises on the Shore was a well supported support measure. As one interviewee phrased it:

Appoint a person. This is their only job – but must have very good experience in the IT industry and also have strong company management skills. A credible person.

As mentioned in Section 8.12, assistance to ICT businesses in developing marketing and business skills such as creating marketing strategies to support their innovation, was thought to be a way to develop the industry. This activity therefore could be included in the job description of the appointee, though it should be noted that ENS already organises workshops/seminars to help such skills development (see also

²⁶ A North Shore ICT Industry Trust model might be another option. See Saunders and Dalziel (2003) for their proposal for a Canterbury High-Tech Trust. Note however, that the stage of development of the Canterbury electronics and software clusters are further advanced and Canterbury is a recognised region for the High-Tech industry.

Section 3.4.2). Consideration might be given to upgrading the expertise of ENS to include a person with 'credibility' to assist the growth of innovative ICT enterprises and market the City's ICT industry.

9.11 SUPPORT BUILDING THE REGIONAL INNOVATION SYSTEM

As emphasised in Section 4 of this report, growth of innovative enterprises is not shaped by intra firm product and process development in isolation, but through the interplay of a multiplicity of dimensions that constitute the regional innovation system. The innovative environment of the Auckland region is unfortunately largely underdeveloped and fragmented. Strengthening this environment of innovation requires cooperation and collaboration. AREDS initiatives such as the Auckland Technology Network (see Section 3.3.2) and other regional initiatives to build the sector must receive strong support from NSC, so that then the City's ICT industry might integrate within the wider system and reap the external benefits of this connectivity.

9.12 ROLE OF ENTERPRISE NORTH SHORE

The general positive response to the support and initiatives of Enterprise North Shore (ENS) was mentioned earlier in this report (e.g. Section 6.3). It is felt that ENS could play a positive and important role in furthering the development of the ICT industry in NSC, particularly in association with other initiatives such as HiGrowth, AREDS and the e-centre.

9.12.1 Foster Networking

Business clustering, networking and development. These aspects of business development are fundamental to the growth of the North Shore region.

An important role for ENS in building the industry is to foster networking among firms, agencies and institutions such as universities, mainly at the local level. As one of the interviewees highlighted:

In the past two years Enterprise North Shore has repositioned its offering, from advice to 'corner dairies' to working on developing export and hi tech clusters. This is not a function that can be undertaken by the private sector because of potential conflicts of interests and is not a role for central government as their focus is on the strategy end not the operational end. In my experience with the e-centre companies and their North Shore development, the ability to have a network/cluster group developed outside by Enterprise North Shore and interacting with the e-centre will be a major contributor to the success of the companies.

Another interviewee stressed that building local networks in NSC would be a role that ENS could concentrate on, if the broader networks such as with venture capitalists

and finance suppliers, and research and other professional service providers, are built at a regional level. The case of Hillington Park, a local incubator initiative in Glasgow, was cited as a good illustration of how more local growth initiatives benefit from broader technology networks, with mutual benefit being reaped:

So actually creating this regional system allows local networks to develop more effectively, because Enterprise North Shore can focus on developing the companies in the North Shore rather than trying to access and figure out how do we get people to know we are here and what we are doing. So in Scotland and in Sweden some of the strongest participants in the technology network are the public sector equivalents that you have in Enterprise North Shore and NZTE and the other places. I guess a good example is Hillington Park in Glasgow. It's a wireless incubator that's trying to help develop wireless companies. It's got the competencies in-house to provide and support business planning and business guidance and know-how to grow companies. It provides them with shared infrastructure, shared admin resource and it's a very very good facility. It participates in the technology network to promote what it did and find companies and to identify people that had the skills particularly the fundraisers that you want to talk to for technology companies. The network benefited because all the lawyers, accountants and fundraisers that participate in the network got visibility with the Hillington Park centre and were able to identify very quickly the companies that they thought would be their future clients. So for every relationship in there, there's a win-win. You actually need this sort of infrastructure because there are so many different initiatives not necessarily on the North Shore but companies on the North Shore are doing similar things.

Working together with key actors to foster cluster development (see Section 8.4) in NSC can be an important contribution of ENS. Although considerably more advanced in their life than ITCentral, Canterbury region clusters have cluster facilitators²⁷ or managers. Searching out sponsorship and helping forge partnerships for the ITCentral cluster could be aided by ENS, especially until such time as a dedicated facilitator for the cluster becomes possible.

9.12.2 Skills Initiatives

As highlighted in Section 7 and elsewhere in this report, the human capacity challenge of building a skilled workforce aligned to current and future labour market needs of the various sectors of the ICT industry, is crucial to growing the industry in the NSC and at the regional and national levels. NSC specific skills initiatives undertaken by ENS, however, were commented on by respondents in this study, as important to enterprise growth in the City.

²⁷ For example, Canterbury Software Incorporated employs a part-time cluster facilitator.

9.12.2.1 Workshops to Build Skills

Currently ENS is instrumental in the organisation of seminars/ workshops for skills building in the industry. Generally our respondents indicated positive reception to these types of initiatives. There was however, also feedback that these seminars have to be carefully targeted to needs of the varied spectrum of industry participants and their outcomes should be measured and evaluated. It was the perception of one respondent that ENS has not previously measured outcomes.

ENS representatives are also part of the AREDS ICT Skills Forum initiative (see Section 3.3.3). Working closely with regional skills initiatives are integral to dealing to skills challenges of NSC's ICT industry.

9.12.2.2 A Job Matching Initiative?

One of the respondents in this study thought that a solution to the human capital difficulties of the ICT sector which ENS could progress was a job matching scheme which would channel employees into organisations, possibly for a free trial period:

One of the hard things, coming back one of the key challenges that we have got is getting the staff so maybe a Shore sponsored program. What we have found is we have used a number of recruitment companies and ...I think that what they tend to do is they tend to get a whole lot of people on their books and then as soon as you have a job application of anyone that fits and they say if you hire them say well that's your responsibility and they go yeah lets get some money so we have had some bad experiences... but if there was a Shore sponsored, you know kind of graduate or employee matching kind of scheme, I think that would be really helpful.

...where they send, you know, people who will come and work for free for a trial or whatever and I often think things like trial periods are really good because these days being an employer it is kind of terrifying and we had a case where basically an employment agency sent us someone who was completely inappropriate but because we didn't have any time anyway and we had to move them out so they took us to employment court saying that we wouldn't fill the job. It was an unhappy situation because we didn't want to have to get rid of them. They were a nice person but we are a business and they were affecting other staff. They just wouldn't produce ... We had a trial and training and everything and they had a degree ...

9.12.2.3 Skills Research

ENS has recognised the value of research to assess the state of employment and skills demand and issues in the development of a strategy for sustainable employment and prosperity for the City. An associated skills research project is therefore also being undertaken (McLaren et al. 2004). On-going information and research on education and skills issues and challenges for the City will be a necessary part of informing the

City and ENS in the process of strategy and policy formation and implementation, not only in relation to the ICT industry but also other targeted areas of the City's economic development strategy.

9.12.3 Outward Orientation?

Actively working to attract new, larger businesses to NSC was thought to be one possible way of building the critical mass of the ICT industry on the Shore (see Section 8.10). In relation to this objective a respondent suggested that ENS needed an outward orientation as well and could work toward this end.

ENS is focused inwards. Give someone an air ticket and get them out there to get businesses to locate here. ... North East of England trying to attract business. It is a cold hole there.

Attention is drawn to the fact that ENS already works with central government agencies such as Investment New Zealand (see Section 3.2.3), to bring businesses to the Shore.²⁸ It could be contended therefore that ENS' inward focused support of the ICT industry might be a more efficient use of resources especially in the light of limited funding of ENS and the global connectedness of Investment New Zealand and the overseas offices of NZTE.

9.12.4 Coordination

The lack of coordination of various and numerous initiatives in NSC and the region, was often cited as a shortcoming (see e.g. Section 8.3). The question of 'who should be the coordinator?' was variously answered by respondents. In the absence of an industry driven coordinating agency, it might be suggested that this overarching role of coordination should be shouldered by ENS. It might be worth repeating at this point that there was no consensus among respondents on who should be the 'leader' and coordinator. Section 8.11 provides additional discussion on who should take this lead role.

9.12.5 Information Broker

Especially small businesses and new start-up businesses with limited resources are often unaware of services, grants and other assistance available to them. The sharing and communication of knowledge as well as technology, was believed to be important for the success of many small operators. A central agency to distribute information to ICT businesses regarding schemes and initiatives that may assist them was a suggestion that was frequently aired. ENS could be an effective information broker

²⁸ More recently the successful re-location of ACNielsen's of its Sydney telephone interviewing call centre operations from Sydney to the North Shore eventuated from one such lead.

for the industry. Function specialisations among ENS personnel could for instance also see fulfilment of a condition put forward by several respondents: that of making a funding ‘expert’ available to assist ICT businesses with locating sources of capital, grants and sponsorships. A named, specialist business funding person at ENS therefore is worth looking into.

10. CONCLUDING COMMENT

I like that the Shore has got everything it needs to become a centre of excellence for the industry. (Interviewee)

This Report has shown that NSC already has an existing capability in the ICT industry. With dedicated local efforts within a partnership model and with strong co-operative engagement with various agencies, e.g. AREDS, in the development of the regional innovation system, NSC has the potential to be one of the country’s major centres for ICT business. As depicted by the simple framework for ICT industry – the ‘Virtuous Circle of Innovation’ (see Section 4), building the industry necessitates concerted multi-level action to strengthen and develop all the linkages of the system. At the local level, however, both straight forward general initiatives and specific bold new initiatives based on informed advice of industry stakeholders, and targeted at fast-tracking the growth of the ICT industry in the City, would be invaluable to any move to making NSC a centre of excellence for the industry.

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USEFUL WEBSITES

<http://www.northshorecity.govt.nz/> Click on 'Business' to download the Economic Development Strategy, and other research reports.

<http://www.enterprisens.org.nz/> The website of Enterprise North Shore.

<http://www.nzte.govt.nz> New Zealand Trade and Enterprise website has links to all the industry taskforce reports and also the commissioned report on the Canterbury High-Tech sector – Saunders and Dalziel 2003. Also archived at this site See: <http://www.nzte.govt.nz/section/13680.aspx> are the four taskforce reports (and related documents) that were previously available at: www.industrytaskforces.govt.nz.

<http://lmd.massey.ac.nz> This website has the Labour Market Dynamics Research Programme's publications that can be downloaded.

<http://www.newkiwis.co.nz> This website is an employment project by the Auckland Chamber of Commerce that is funded by the NZ Immigration Service. It attempts to match employer demand for skills with that of new migrants.

<http://www.areds.co.nz/> AREDS (Auckland Regional Development Strategy) website that has downloads of commissioned background reports on the region and details of current initiatives being undertaken to accelerate regional economic growth. The latest regional development strategy is among the downloads available:

<http://www.areds.co.nz/downloads/AREDS-strategy.pdf>

<http://www.giab.govt.nz> The Growth and Innovation Advisory Board (GIAB)

APPENDIX 1

5



Observations on the Auckland Technology Sector:

- Key issues for companies relate to the themes of Networking and Collaboration; Developing Growth Management Competences; and Funding:
 - There is little collaboration/networking between companies;
 - Companies stall at the “chasm”;
 - It is difficult to access appropriate growth finance.
- The sector is highly fragmented.
- Advice tends to be formal (slow/expensive) as opposed to informal (quick/efficient).
- Various issues relating to failure, ownership, control and exits.
- A fundamental weakness is the regional innovation system.

A PARTNERSHIP BETWEEN CENTRAL GOVERNMENT, LOCAL GOVERNMENT, BUSINESS, MAORI, EDUCATION AND THE COMMUNITIES OF THE AUCKLAND REGION

2



Technological progress is not translated into economic benefits and jobs by governments, countries, or sectors, but by innovative firms.

The Auckland Technology Network will support and accelerate the growth of exceptional innovators in the Auckland region, new technology-based firms (NTBFs).

- NTBFs are companies whose business growth and success is dependent on the development of one or more technologies or on the development of products or services which require significant technological innovation;
- NTBFs have unique characteristics, resource/skills requirements, and offer an exceptional challenge to any seeking to grow such a business.

A PARTNERSHIP BETWEEN CENTRAL GOVERNMENT, LOCAL GOVERNMENT, BUSINESS, MAORI, EDUCATION AND THE COMMUNITIES OF THE AUCKLAND REGION

9



The Auckland Technology Network

The Auckland Technology Network (ATN) will deliver a competitive ecosystem to support and accelerate the development of the region's new technology-based firms (NTBFs) in international markets. The Network will provide a single, inclusive facilitation point and advocate for the interests of the region's NTBFs.

As an expert, honest-broker and hands-on facilitator, the ATN will help NTBFs work through the challenges of growth, develop and test their business model and sales & marketing strategies, and provide access to the most appropriate skills and resources to support their implementation.

A PARTNERSHIP BETWEEN CENTRAL GOVERNMENT, LOCAL GOVERNMENT, BUSINESS, MAORI, EDUCATION AND THE COMMUNITIES OF THE AUCKLAND REGION

10



The Auckland Technology Network will work with existing agencies and organizations to:

1. Stimulate and facilitate networking and collaboration;
2. Deliver roundtables and other practical support to help NTBFs recognize their key business development and management issues;
3. Expedite the development of NTBFs growth management competences and business plans, primarily through pragmatic, people-based and informal processes; and
4. Enable NTBFs to efficiently and effectively access and/or acquire the complementary skills and resources essential to the successful delivery of their plan.

A PARTNERSHIP BETWEEN CENTRAL GOVERNMENT, LOCAL GOVERNMENT, BUSINESS, MAORI, EDUCATION AND THE COMMUNITIES OF THE AUCKLAND REGION

6



Expected Outcomes

- Increase in the number of firms growing successfully in international markets;
- Increase in the number of firms able to secure investment finance to fund growth;
- Increase in employment by companies in the knowledge and creative industries;
- The expected addition to GDP in the Auckland region is \$24.9m;
- The expected addition to employment is 754 high-value FTEs.

A PARTNERSHIP BETWEEN CENTRAL GOVERNMENT, LOCAL GOVERNMENT, BUSINESS, MAORI, EDUCATION AND THE COMMUNITIES OF THE AUCKLAND REGION