



**ICT Industry Skills Gaps  
and  
Ultra Fast Broadband Roll-out  
Skill Requirements**

**Prepared by**

**Chris Mitchell  
Axcel Institute**

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## 1.0 Background

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The shortage of suitably qualified and experienced staff available to work in the New Zealand ICT industry is a perennial issue that has reportedly limited the growth of the industry for many years. This shortage is not limited to New Zealand. The shortage of suitable ICT staff is a global phenomenon.

Addressing this issue has been a key priority for the Ministry of Economic Development and New Zealand Information and Communications Technology (NZICT) Group. The New Zealand Ministry of Economic Development asked the NZICT Group to assist in a membership survey to ascertain the extent and nature of ICT skills shortages being experienced in the ICT industry.

An initial survey of NZICT members and potential members was completed in April 2009. This was the first time that such a comprehensive skills survey had been undertaken. The survey was revised and extended to a wider group of ICT companies and other relevant organisations.

This report includes the responses from the first survey of NZICT members as well as the responses from the wider group of ICT companies.

An online questionnaire was identified as the most efficient and effective way to undertake this survey.

The development of the online questionnaire was a collaborative effort involving Ministry of Economic Development, NZICT and Chris Mitchell, Axcel Institute, who hosted the online questionnaire and prepared this report.

The scope of the questionnaire developed for the NZICT Group members was extended in the wider survey to canvas skills requirements related to the Government's Ultra Fast Broadband Roll-out initiative and to identify experiences of companies in employing recent migrants. A full copy of the questionnaire is provided in Appendix 1.

Upon completion of the draft report, an interview with Brett O'Riley Chief Executive of NZICT, provided additional information that is also incorporated into this report.

This report presents the findings from the initial and subsequent survey as well as the interview with Brett O'Riley, and makes recommendations for further action.

## 2.0 Methodology

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NZICT asked a number of industry group representatives and government departments to promote the completion of the questionnaire to their members and contacts. Additionally, a link to the online questionnaire was provided on the NZICT website. The completion deadline was extended a number of times and finally closed on 25<sup>th</sup> September. One hundred and one respondents started the questionnaire, and 77 (76%) completed it. There were a variety of types of questions included in the survey, including open ended, drop down menus and rating scales.

In the open ended questions respondents could write as much, or as little as they liked in response. These data were analysed using a content analysis technique. Responses are counted under headings that the writer has identified, often using respondents' words. They are presented as frequency of responses.

Skip logic was used with some questions to enable respondents to skip over questions not relevant to them.

Upon completion of the first draft of the report, the writer held a meeting with Brett O'Riley, who advised other activities currently being undertaken by NZICT.

## Executive Summary

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The New Zealand Ministry of Economic Development asked the NZICT Group to assist in a membership survey to ascertain the extent and nature of ICT skills shortages being experienced in the ICT industry.

The scope of the questionnaire developed for the NZICT Group members was extended in the wider survey to canvas skills requirements related to the Government's Ultra Fast Broadband Roll-out initiative and to identify experiences of companies in employing recent migrants.

One hundred and one respondents started the questionnaire, and 77 (76%) completed it. The results of the questionnaire were analysed and major findings identified.

The findings of the questionnaire indicate that companies are planning for continued growth in the number of staff and contractors.

More than twice as many experienced staff have been recruited from within New Zealand compared with recruitment from overseas. Industry certification features strongly as a criterion for selection.

Almost half of the companies with 100+ staff are having difficulties recruiting technical staff.

For technical roles, 'industry certification' (8) and 'ICT related bachelor degree' (8) are equally sought.

Bachelor degrees in any discipline' are the most sought qualification for management (7) and sales or marketing (7) roles.

All responding companies were primarily seeking advanced or intermediate skills with more than three years experience across the categories of management, sales/marketing and technical.

Eighty three percent of companies say that recruitment difficulties have a medium or major impact on their business.

*"More applicants now than last year where 4-5 might apply for a position, now 60 apply but this does not mean that there are people of quality applying."*

Retraining current staff and online job sites are the most successfully used approaches to recruitment.

More than 50% of companies are planning to appoint new technical staff and 'attitude' is the most important quality other than qualifications, skill and experience.

Eleven companies require a total of 13 project managers. A total of 19 developer programmers are required by seven companies. The vast majority of respondents are seeking staff with advanced or intermediate skills and more than three years of experience.

On average ICT companies invest strongly in staff training. Median expenditure \$1,000 - \$1,500 and mode is \$2,000 - \$3,000 per FTE.

Although too early to be certain, ten companies (42%) stated that there is likely to be a skill shortage in the Government's Ultra Fast Broadband Roll-out plan and 14 (58%) did not think a skill shortage is likely. Major areas of shortage are predicted to be network architects/designers/engineers and telecommunications technicians.

The United Kingdom is the major source of migrant employees for most companies followed by South Africa and Europe. Most companies indicate that migrant issues such as language are either 'not a problem or 'challenging but manageable'.

The majority of respondents who had used interns or project students had a positive or neutral experience. Most respondents who are not using interns or project students are not willing to consider or reconsider. The most common reason stated is 'too consuming for resource allocation'.

A vast majority of companies involved with graduate recruitment have a positive experience with graduate recruitment. More than half the companies not involved with graduate recruitment are willing to consider or reconsider.

Only 12% (8) companies have more than 50% of their revenue from exports and 76% (50) companies have nil or less than 10% of sales from exports.

In an interview, Brett O'Riley, CEO, NZICT advised that NZICT is currently:

- Working with the Ministry of Education as part of the changes being made to the Digital Technology curriculum to ensure that the content of the curriculum maps to industry skill requirements.
- Supporting NZ Computer Society (NZCS) in their industry certification programme and talking with NZCS about the possibility of NZCS hosting a mentoring programme for ICT graduates which links students to becoming members of NZCS.
- Working with Accelerating Auckland and IPENZ's programme, Futureintech to advance opportunities to introduce students at secondary and tertiary level to digital careers.
- Working with the Computer Clubhouse and Computers in Homes to drive the expansion of their programmes to provide digital skills to school children and their families.

## Recommendations

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1. That NZICT and the Ministry of Economic Development note that the NZICT industry still faces difficulties in recruiting qualified, skilled and experienced staff. These difficulties are having a medium to major effect on 83% of respondents.

### **That NZICT:**

2. Continues to support and develop further initiatives with industry and government groups such as the Ministry of Education, NZ Computer Society, Accelerating Auckland, IPENZ, Computer Clubhouse and Computers in Homes.
3. Identifies and publicises the current opportunities and future career prospects that exist in the NZICT industry. The publicity should complement and build on the efforts of other groups, focus on eliminating the preconceptions about ICT employment and promote the wide range of career options for those with the right skills, experience and attitude.
4. Addresses the skill requirements for the Ultra Fast Broadband Roll-out by working with key stakeholders to ensure there are no disruptions to the rollout caused by skills shortage.
5. Ensures the findings of this report are widely circulated to encourage discussion and debate on how best to address the issues identified by ICT companies.
6. Repeats this survey in 2010 as the next stage in a regular annual survey to gauge progress and identify new skills related issues as they emerge.
7. Increases the response rate to this survey in 2010 by contacting companies directly rather than through third parties. The use of industry groups to encourage participation by their members produced only a limited number of additional responses in 2009.

## 3.0 Findings

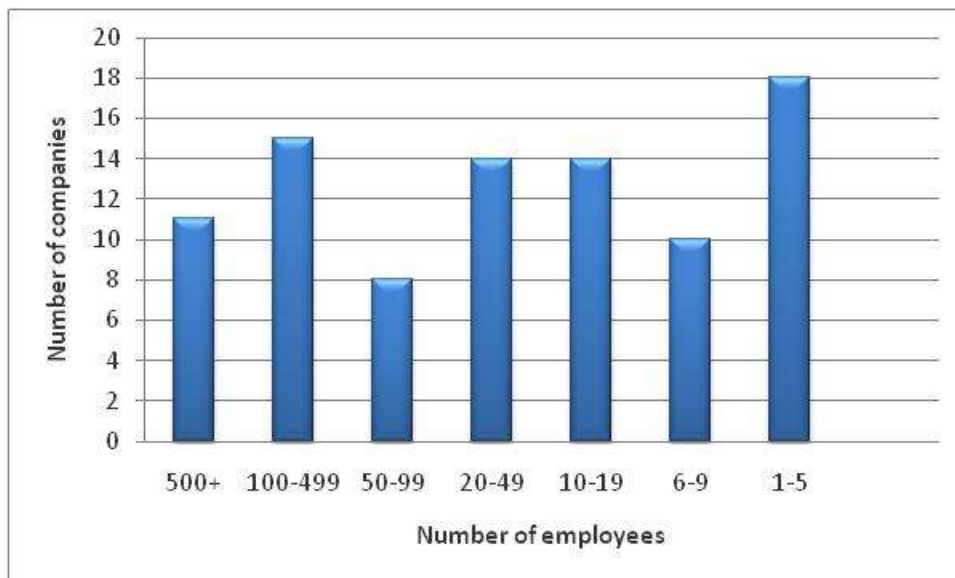
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### 3.1 Company profile and overall staffing plan

#### 3.1.1 Company size

Respondents were asked to identify the number of current staff in their company. Graph 1 shows the number of Full Time Equivalent (FTE) staff (excluding contractors) currently employed by companies. The purpose of the question was to identify the 'big picture' scale of each business.

**Graph 1: Number of FTE employees, excluding contractors (n=91)**



The distribution across all company size groupings are relatively even (range 11- 20) with 54% over 20 FTE staff and 46% under 20FTE staff.

Respondents were also asked to identify current numbers of FTE contractors.

Table 1 shows that at the top of the list, five companies engage between 100 and 499 FTE contractors. At the bottom of the list 17 companies stated that they do not use any contractors. However as n=73 compared with 91 who responded in Graph 1, it can be assumed that a total of 25 (38%) respondents do not employ contractors\*

**Table 1: Number of FTE contractors (n=73)**

Number of contractors	Number of companies
100 - 499	5
50 - 99	2
20 - 49	3
10 - 19	6
6 - 9	11
1 - 5	29
0	17 (25)*

### 3.1.2 Plans to increase overall staff levels

Companies were asked to identify their plans to increase the quantity of staff or contractors within the next six months. Table 2 shows company recruitment plans for the next six months.

**Table 2: Plans to increase FTE staff or contractors**

Level of increase	Staff FTE	Contractor FTE
no increase	22	33
+1	11	6
+2	8	7
+3	2	2
+4	1	2
+5	7	2
+7	2	0
+10 - 14	7	3
+15-19	1	0
20+	3	1
<b>Number of responses</b>	<b>64</b>	<b>56</b>

These figures show that 66% (42) of respondents to this question plan to increase staff FTEs in the next six months. Of the 42 who plan to increase staff 11 (26%) plan to increase staff FTE by 10 or more.

The approach to engaging contractors appears to be more cautious. Only 41% of respondents plan to increase contractor FTEs compared with the 66% who plan to increase staff. Of those who do plan an increase in contractors, overall the quantity is lower than the level of staff increases.

### 3.1.3 Plans to decrease overall staff levels

Companies were asked to identify their plans to decrease the quantity of staff or contractors within the next six months. Table 3 shows that the majority of companies do not plan to decrease staff (32/39) or contractors (28/40) in the next six months.

**Table 3: Plans to decrease FTE staff or contractors (n=40)**

Level of decrease	Staff FTE	Contractor FTE
no decrease	32	28
-1	1	4
-2	0	1
-3	0	1
-4	2	0
-5	0	1
-6	0	1
-9	0	1
-10 to -14	3	2
-20+	1	1
<b>Total responses</b>	<b>39</b>	<b>40</b>

The combined planned increases (Table 2) and decreases (Table 3) in staff and contractors indicate plans for a continuing growth in staff and contractors.

## 3.2 Recruitment for technical roles in last six months

### 3.2.1 Scale and origin of technical staff or contractors

Respondents were asked to identify the scale and origin of technical staff recruited in the last six months. Four non exclusive options were provided, with the invitation to add comments.

- Experienced staff/contractors from New Zealand
- Experienced staff from overseas

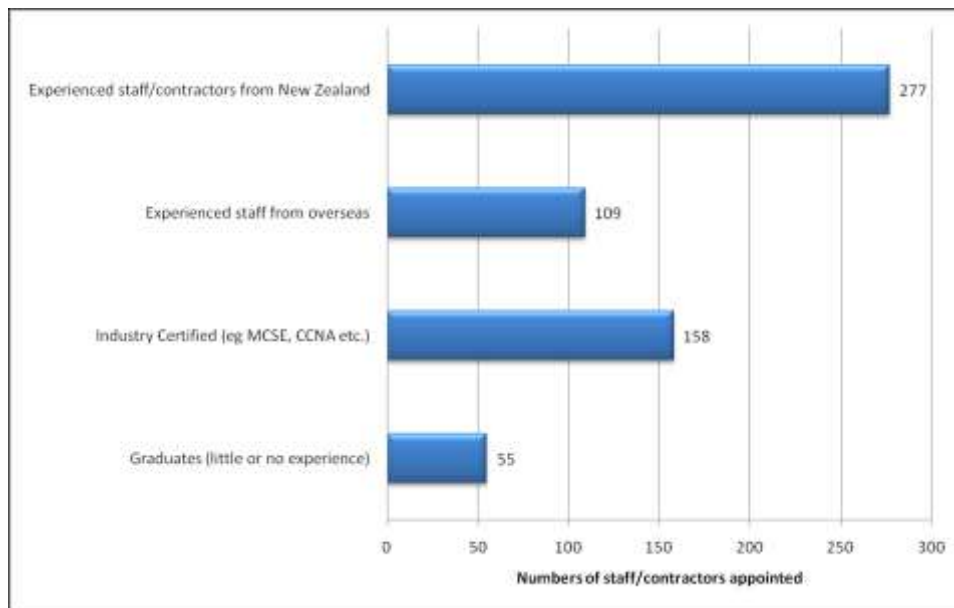
- Industry certified (eg MCSE, CCNA etc)
- Graduates (little or no experience)

**Table 4: Scale and origin of technical staff in the last six months (n=56)**

<b>Number appts</b>	<b>Recruiting from NZ</b>	<b>Recruiting from overseas</b>	<b>Recruiting industry certified staff</b>	<b>Recruiting Grads</b>
1	10	7	3	9
2	8	6	5	4
3	4	0	2	3
4	4	1	2	1
5	5	0	4	0
6	0	2	0	0
7	1	0	0	0
8	1	0	0	0
9	2	0	0	0
10-14	2	2	3	0
15-19	1	0	0	0
20+	5	2	3	1
<b>Total responses</b>	<b>56</b>	<b>50</b>	<b>45</b>	<b>43</b>

It is not possible to ascertain from these responses the precise number of technical staff recruited. Graph 2 shows the proportion between each of these groups based on the following assumptions: Band 10-14 staff based on assumed mean of 12, band 15-19 an assumed mean of 16 and responses of 20+ an assumed mean of 25 staff.

**Graph 2: Source of technical staff in last six months (n=57)**



More than twice as many experienced staff have been recruited from within New Zealand compared with recruitment from overseas. Industry certification features strongly as a criterion for selection. The level of recruitment of graduates appears to indicate some commitment to long term investment in nurturing new talent. Difficulties associated with graduate recruitment are detailed in Section 3.8 Nurturing Young Talent.

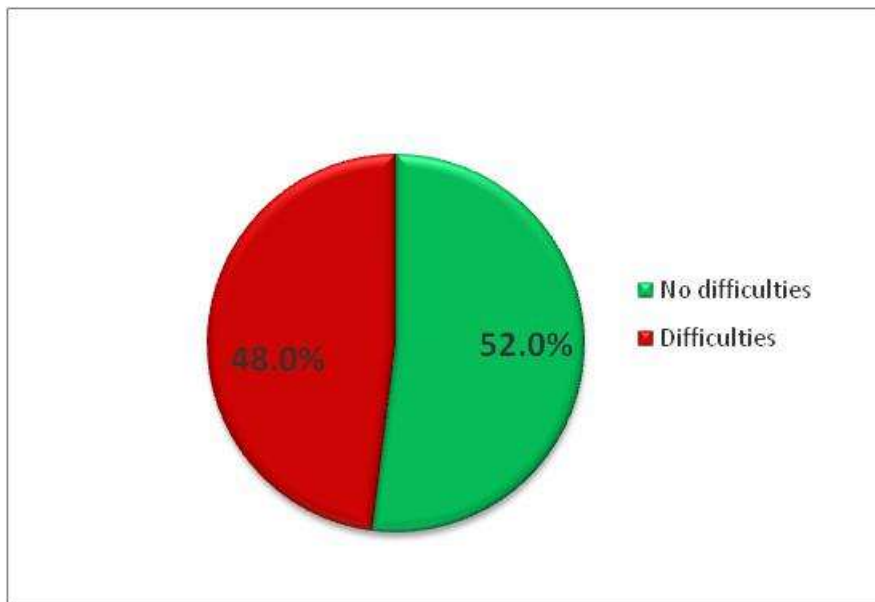
### **3.2.2 Difficulty in recruitment for technical roles in last six months**

The questionnaire asked if companies had difficulty recruiting for ICT roles over the last six months.

For all companies (n=90), 43.3% (39) stated that they did have difficulties and 56.7% (51) stated that they did not have difficulties.

For companies with 100+ staff (n=25) 48% (12) stated that they did have difficulties and 52% (13) stated that they did not have difficulties.

**Graph 3: Large companies (100+ staff) having difficulties recruiting technical staff (n=25)**



Graph 3 shows that almost half (12) of the companies with 100+ staff are having difficulties recruiting technical staff.

### **3.2.3 Qualities sought**

Companies were asked what qualifications they sought in staff or contractors.

Sixty nine respondents skipped this question. The responses for the minority who did respond are as follows:

'Bachelor degrees in any discipline' are the most sought qualification for management (7) and sales or marketing (7) roles.

For technical roles, 'industry certification' (8) and 'ICT related bachelor degree' (8) are equally sought.

Respondents who answered 'industry certification' specified:

Microsoft (3), Networking (2) and Project Management (2). Other single responses included ITIL, service management, Telco quals, Fibre Optics and COBIT.

Microsoft specific qualifications required included:

Microsoft Certified Trainer, Microsoft Certified Professional Developer (C#), Microsoft Certified Information Technology Professional (Server 2008, SQL 08, Exchange 07), Microsoft MCSE, MCSA, CRM and Sharepoint.

Additional comments included:

*Experience more important than qualifications (4)*

*Looking to add more graduates to the team*

*Most graduates require extensive additional training to become effective*

Table 5 shows that all responding companies were primarily seeking advanced or intermediate skills across the categories of management, sales/marketing and technical.

**Table 5: Required skill levels (n=26)**

	Management	Sales/Marketing	Technical	Other
<b>Advanced</b>	14	14	12	4
<b>Intermediate</b>	4	5	13	1
<b>Basic</b>			1	1

Table 6 shows that all companies required a minimum of three years experience in management roles and a wider range of experience in technical roles.

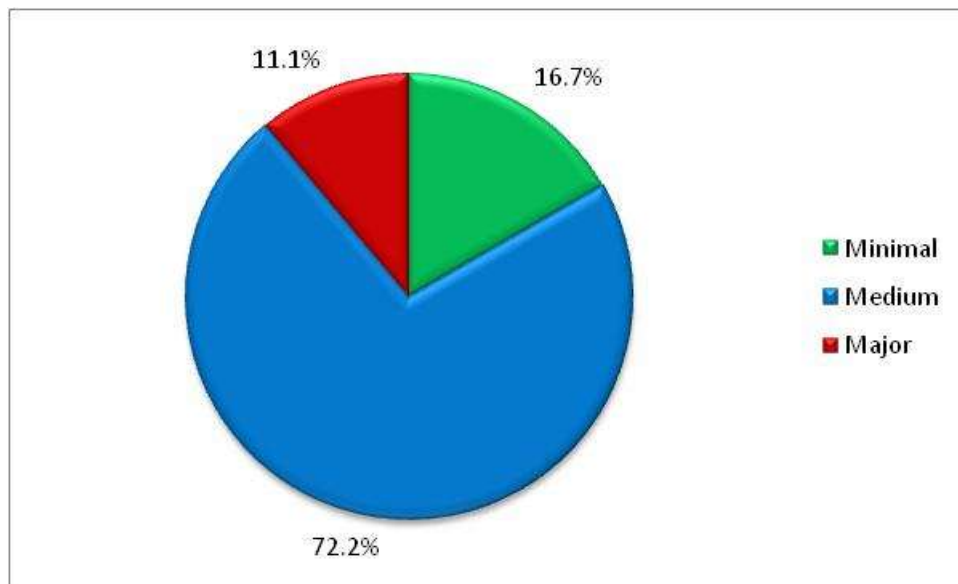
**Table 6: Required work experience (n=26)**

	Management	Sales/Marketing	Technical	Other
<b>5+ yrs</b>	16	12	9	3
<b>3-5 yrs</b>	1	4	6	2
<b>2-3 yrs</b>	0	1	5	0
<b>1-2 yrs</b>	0	1	5	0
<b>0-1 yrs</b>		1	1	1

### 3.2.4 Impact of technical recruitment difficulties on businesses

Only 18 companies responded to the question about the impact of technical difficulties on business with the following results.

**Graph 4: Impact of recruitment difficulties on companies (n= 18)**



Although it is not possible to generalise from the limited number of responses, 83% of companies say that recruitment difficulties have a medium or major impact on their business. Comments from six respondents included:

*“Limited ability to attract right skill set and this puts pressure on current staff” (2)*

*“Inability to grow the business in the way we would like to and had to let opportunities go by” (2)*

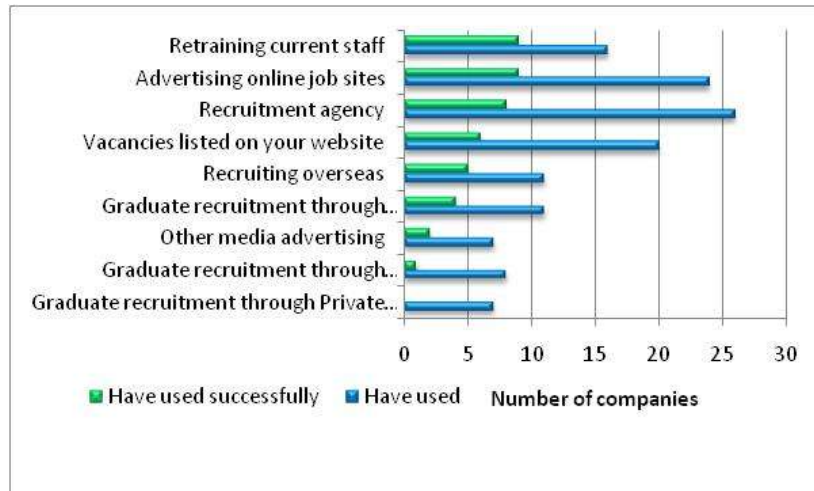
*“Costs in educating and managing temporary resources are high –resource costs, training costs, lost opportunity costs, retraining costs.”*

*“More applicants now than last year where 4-5 might apply for a position, now 60 apply but this does not mean that there are people of quality applying.”*

### **3.2.5 Technical recruitment actions**

Respondents identified the actions they had taken to recruit staff over the last six months and which of these have been successful.

**Graph 5: Technical recruitment actions (n=32)**



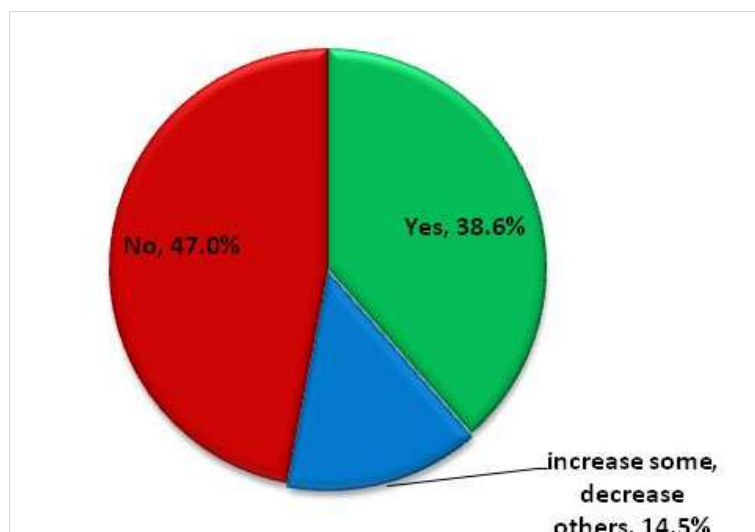
Graph 5 shows that retraining current staff (9) and online job sites (9) are the most successful actions, followed by recruitment agencies (8). The most commonly used recruitment actions are recruitment agencies (26) and online job sites (24).

Comments (12) included word of mouth (5), referrals from current staff (2) networking (4) and shoulder tapping/head hunting (3). Some respondents specified more than one method.

### 3.3 Plans to increase technical staff levels

All respondents were asked if they plan to increase technical staff levels in the next six months.

**Graph 6: Plans to increase technical staff levels (n=91)**



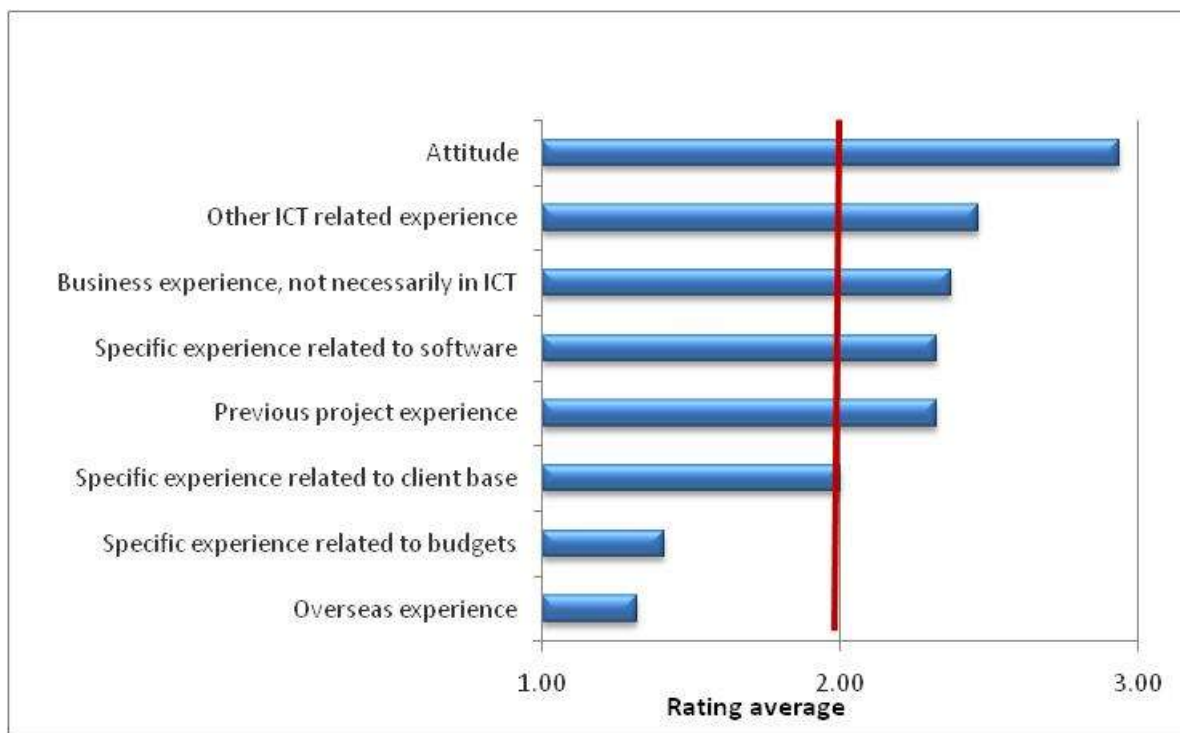
Graph 6 shows that more than 50% of companies are planning to appoint new technical staff.

Only those who responded 'Yes' or 'Increase some, decrease others' went on to answer the next questions. Those who responded 'No' skipped to Section 3.4.

### 3.3.1 Importance of other qualities in new technical staff or contractors

Respondents were asked to indicate the importance of factors not related to qualifications. On a 3 point scale from 3 = very important to 1 = not important, the red line represents the midpoint. Values to the right of the red line are more important.

**Graph 7: Importance of other qualities (n= 34)**



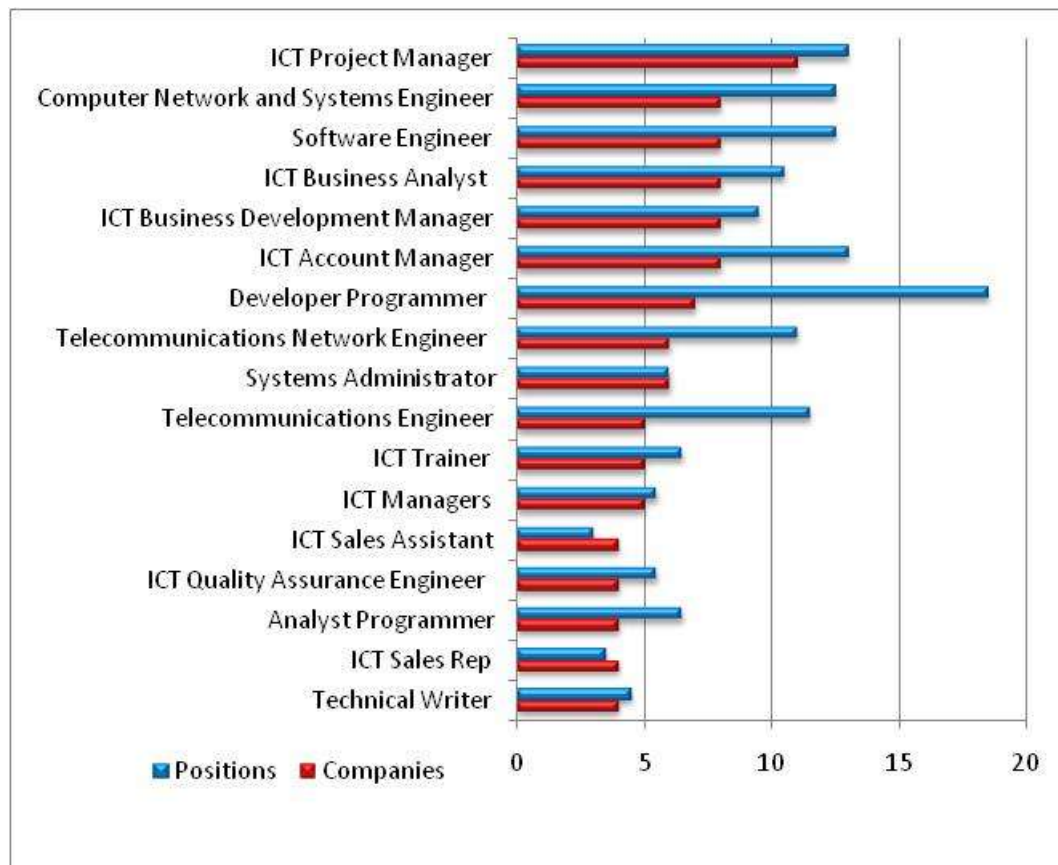
Graph 7 shows that attitude is the most important quality.

### 3.3.2 Technical staff increases in next six months.

Respondents were asked to identify the quantity of staff or consultants they wish to employ from a selection of 51 categories developed by OECD. The 17 occupational groupings listed here represent all positions identified by four or more companies.

Graph 8 shows the responses in descending order of number of companies that wish to employ each occupation. Where respondents identified a requirement of <1 FTE, this was converted to 0.5 FTE in the graph.

**Graph 8: Technical staff increases in next six months (n=37)**



Graph 8 shows that at the top of the list, 11 companies require a total of 13 project managers. A total of 19 developer programmers are required by seven companies. The vast majority of respondents are seeking staff with advanced or intermediate skills and more than three years of experience.

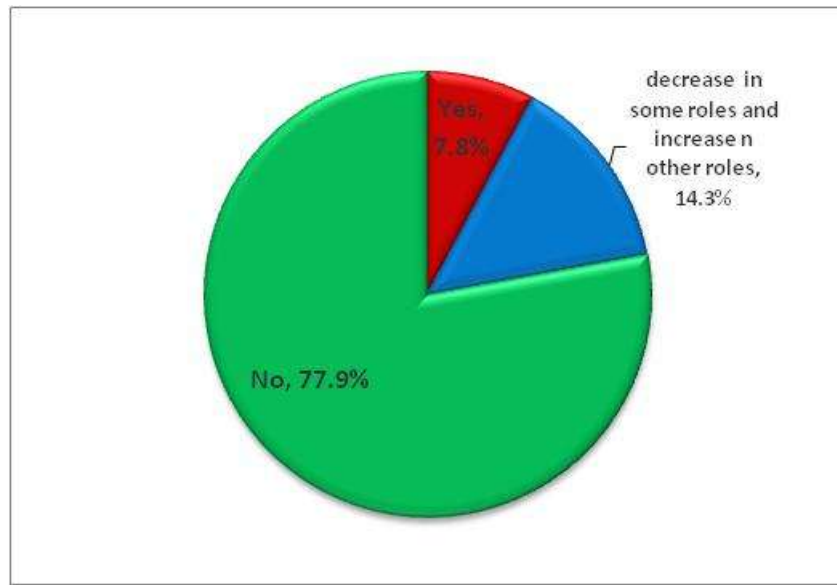
### 3.3.3 Increased demand for languages

Respondents who require programmers were asked to identify the languages in which new staff should be competent. Five identified 'English' and one each identified Mandarin, Cantonese and Portuguese. Computing languages identified by two or more companies included C# and .net or both (11), Java (5), Ruby on rails (2), SQL (2) and PHP (2).

### 3.4 Plans to decrease technical staff levels

All respondents were asked if they had plans to decrease staff. Graph 9 shows that an overwhelming majority of companies do not plan to reduce technical staff in the next six months.

**Graph 9: Plans to decrease technical staff levels (n=77)**



Only those who responded 'yes' or 'decrease in some roles and increase in other roles' went on to answer the next questions. Those who responded 'No' skipped to the questions in Section 3.5.

#### 3.4.1 Technical staff decreases in next six months

Apart from one company that identified significant reductions (>20) in specific categories, other decreases were minimal: a reduction of one position in each of six categories and two positions in each of two categories.

Such a low response to these questions could mean either that companies are truly confident that they will be able to maintain current staff levels, or they may be reluctant to advise their full intent in this questionnaire despite the assurance of confidentiality. Observations of industry performance and future annual questionnaires will provide evidence of the veracity of responses and to these questions.

### 3.5 Staff training

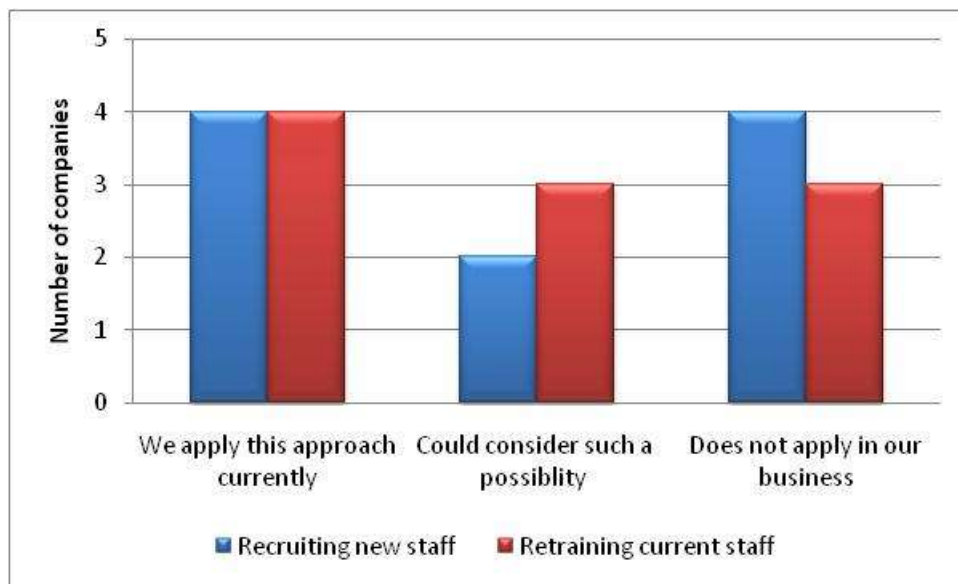
#### 3.5.1 Technical staff with no prior ICT qualifications

Respondents were asked the extent to which they agree with this statement:

*It is not always necessary to employ someone in an ICT related role with an ICT related qualification. A positive track record of previous employment in a non-ICT sector can be a good predictor of success. Current staff who know and understand our business are good candidates for retraining and learning on the job in an ICT related role. It is more important to have someone who understands business imperatives, can think and is ready to learn because the technological skills required change constantly.*

Graph 10 shows the responses to recruiting new staff and retraining current staff.

**Graph 10: Employing staff with no prior ICT qualifications (n=10)**



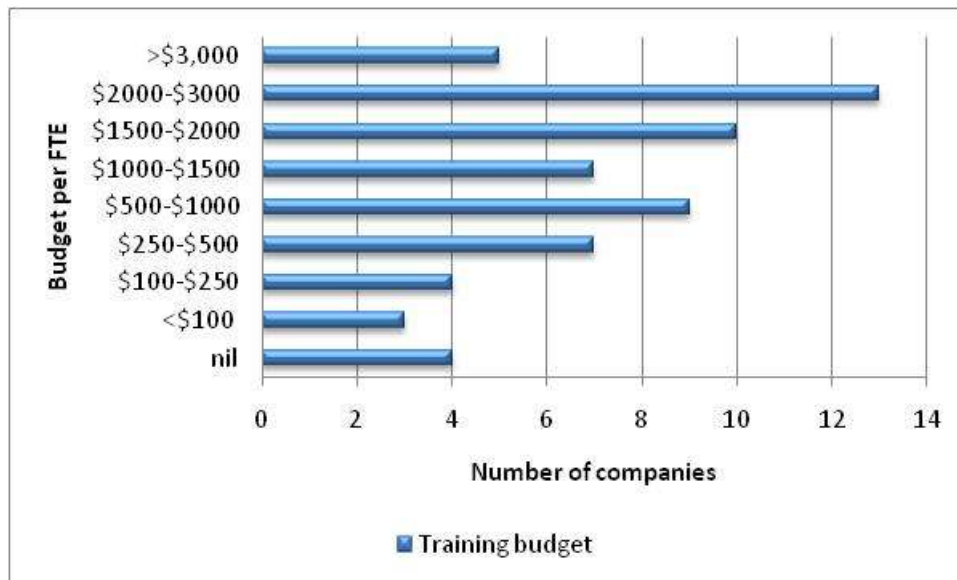
Although graph 10 shows that 40% of responding companies currently use this approach and another 30% could consider this approach with current staff, the results have no statistical validity as the response rate is low and must be treated with caution.

Additional comments (2) included being wary of retraining business staff as ICT staff as both are important and the overriding importance of attitude and behavior of staff.

### 3.5.2 Staff training budget

Respondents were asked to identify their annual training budget per FTE.

Graph 11: Staff training budgets (n=62)



Graph 11 shows that the median expenditure is \$1,000 - \$1,500 and the mode is \$2,000 - \$3,000 per FTE. This indicates that on average ICT companies invest strongly in staff training.

### 3.6 The Government's Ultra Fast Broadband Roll-out

Twenty four companies responded that they hope to be involved in the Government's Ultra Fast Broadband Roll-out (UFBR). Ten companies (42%) stated that there is likely to be a skill shortage and 14 (58%) did not think a skill shortage is likely. Auckland (5), Wellington (4) and Christchurch (3) were identified as the most preferred regions for skilled staff to be located.

The potential shortages identified by a total of four companies were:

#### Network architects/designers/engineers

Three companies identified a requirement for individual staff in this category with two companies each requiring, within 1-3 years, >20 network engineers with advanced skills and 5+ years experience.

#### Telecommunications technicians

One company requires >20 such staff within 1-3 years in 13 regions with intermediate skill levels and 3-5 years experience.

**Application engineers (2) and Business development staff (1)** were also identified by others.

The survey acknowledged that it is impossible for companies to accurately predict future UFBR skill requirements at this stage, but asking similar questions in subsequent years may provide some more clarity in requirements.

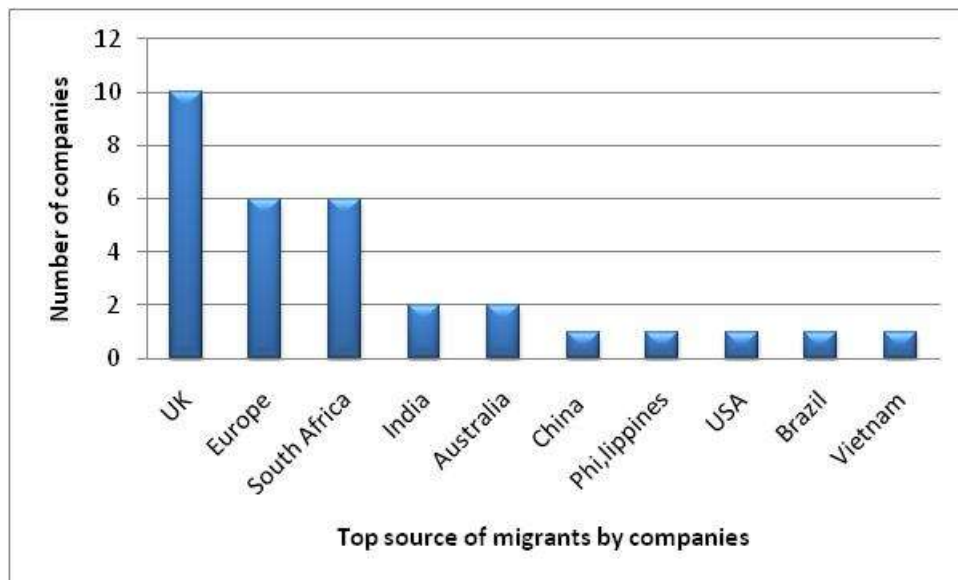
### 3.7 Migrant employment

Respondents were asked if they employ or contract ICT staff who are new or recent migrants (less than 5 years ICT experience in New Zealand). Forty one percent (39) said **yes** and 59% (57) said **no**.

#### 3.7.1 Most popular source countries

Graph 12 shows the countries that are most popular as sources of migrants.

**Graph 12: Most popular sources of migrants (n=32)**



Graph 12 shows that 10 companies identify the UK as their largest source of migrants. Six companies each identify either Europe or South Africa as their largest source of migrants.

### 3.7.2 Advantages and disadvantages of employing recent migrants

Respondents were asked to list the advantages and disadvantages of employing recent migrants. The comments of respondents and their frequency (in brackets) are below.

**Table 7: Advantages and disadvantages of employing recent migrants**

Advantages (n=26)	Disadvantages (n=25)
Skills (10)	Adjusting to NZ culture and business style (9)
Experience (9)	Language (7)
Availability (5)	None (4)
Attitude/enthusiasm (5)	Settlement issues (3)
Knowledge (4)	Difficult to assess skills and qualifications (2)
Cost effective/lower salary (4)	Permits and residency applications (2)
New perspectives/culture (2)	

Specific comments included:

Advantages:

*“Generally very good skillset and experience; strong work ethic and desire to get ahead; generally a very good attitude”.*

*“Huge knowledge of offshore markets, highly motivated, global perspective, prepared to consider sweat equity arrangement.”*

*“Means there are more people for me to choose from as an employer of skilled IT people”*

Disadvantages:

*“Language, no connections within the NZ industry, methods of working that may not be applicable”*

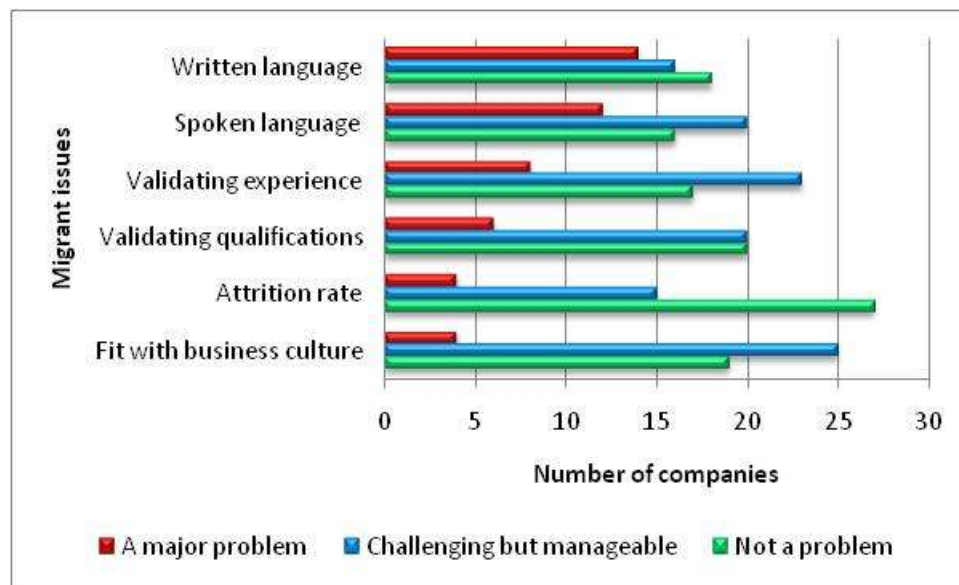
*“Culture clash, understanding the market here - smaller deals to work on.”*

*“Need to adjust to Kiwi approach to business and lifestyle as more different than they anticipate. For this reason we normally employ migrants that have had a chance to settle.”*

### 3.7.3 Extent of impact of migrant issues on your business

Respondents were asked to identify the extent to which the following migrant issues impact on their business. Graph 13 shows the responses of companies to each issue under the categories of 'not a problem', 'challenging but manageable' or 'a major problem'

**Graph 13: Extent of impact of migrant issues on your business (n=49)**



Graph 13 shows that 'written language' is the biggest problem for the largest number (14) of companies. However, the majority of companies (34) consider written language either challenging but manageable (16) or not a problem (18).

Additional comments include:

*"Our experience ranges from brilliant to disastrous but there is no correlation with country of origin. The more experienced and older recruits have been the most successful."*

*"I have to say I was impressed how quickly the Immigration Dept. processed the work visa applications that we sponsored. Having skilled migrants has been the key to growing our business."*

*"I occasionally perceive cultural narrow-mindedness of kiwi employees as a problem"*

*"All of the issues are valid selection criteria. They have been indicated "not a problem" as all these will be verified as meeting our requirements"*

### 3.8 Nurturing young talent

All respondents were asked to identify if they had experience of internships, student projects and graduate recruitment. A number of companies responded that this question did not apply to them as the nature of their business meant that they were unable to have unskilled staff on their payroll.

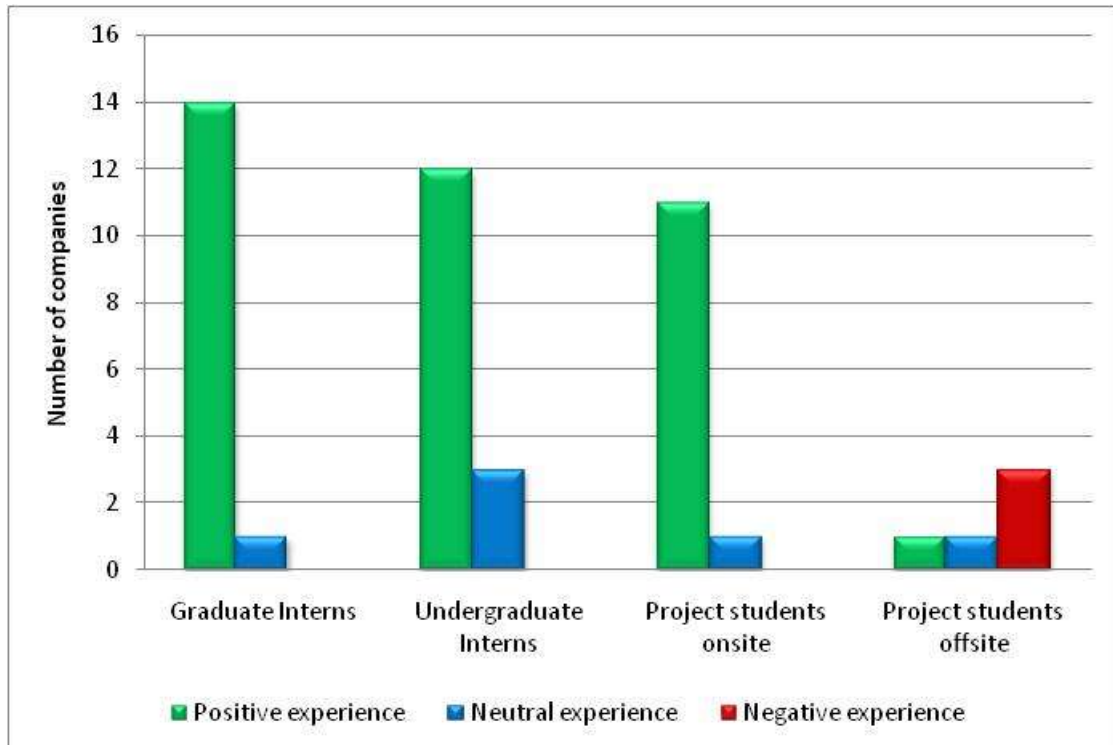
#### 3.8.1 Internships and student projects

Internships were defined as involving students for a minimum of six months and student projects were defined as involving students for a minimum of three months, regardless of payment or non-payment.

Respondents currently involved with interns and student projects were asked to categorise their experience as positive, neutral or negative.

Graph 14 shows that the majority of respondents who had used interns or project students had a positive or neutral experience. The only exception is 'project students offsite' where three respondents had a negative experience.

**Graph 14: Companies experiences with interns and project students (n=15)**



Institutions identified by respondents included AUT (2) ACE Training and Weltec all of which were positive experiences. One company stated that graduate internships from UoA has led to subsequent employment for two interns but students on three month projects have been less successful.

Additional comments (20) included the following:

*“In current economic climate cannot afford to have highly skilled individuals mentoring students/interns”*

*“When the business model is the provision of advice based on many years of experience, junior staff are not an option”*

*“I know many people need the start from a graduate type situation into the workplace. Though in this business very hard to get people up to speed quickly to the type of level we'd require.”*

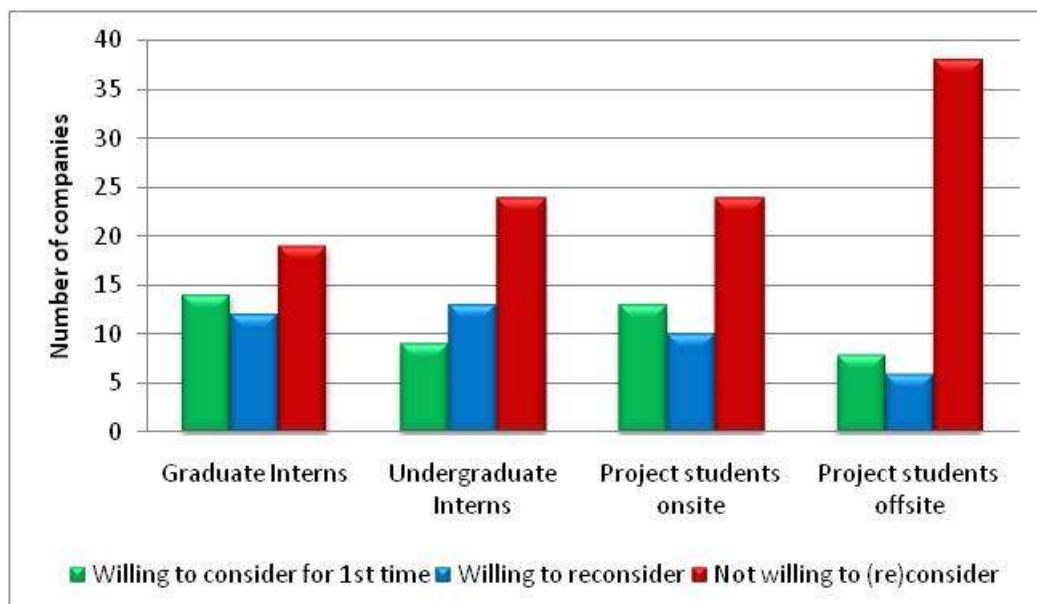
*“Had 1 student from [Name] University doing a stage 3 project. Negative productivity resulted. Another student working part-time in the office while finishing their degree is working out fine.”*

*“...Our technology is very complex and challenging to grasp over a 10 week period. This year we will take on fewer interns as we are taking more grads and our mentoring and supervision resources will only stretch to a certain degree.”*

Respondents currently not involved with interns or student projects were asked if they would consider for the first time, be willing to reconsider or are not willing to (re)consider.

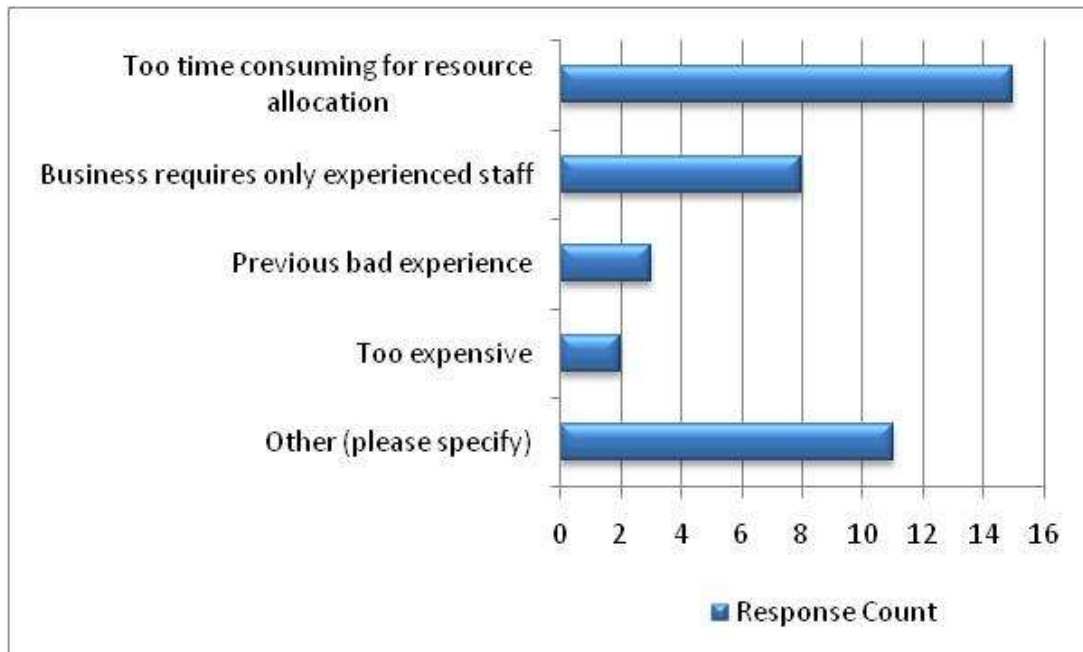
Graph 15 shows that most respondents are not willing to consider or reconsider graduate and undergraduate interns, with respondents least willing to consider project students offsite.

**Graph 15: Companies not involved with interns and project students (n=52)**



Respondents who stated they were not willing to (re)consider were asked why not?

**Graph 16: Reasons for not being willing to (re)consider internships (n=28)**



Other reasons given (n=11) were:

*“Whilst we acknowledge the value of internships, being a small start-up we are simply not in a financial position to participate in such a programme at the present time.”*

*“Drain on existing staff means the extra unskilled person is unlikely to add to productive output of studio - and because it's a temporary arrangement that investment won't pay off”*

*“We can find qualified experienced staff - no reason to hire graduates”*

*“No requirement/specialised industry”*

*“[Nationality] student did one project; a lot of time was spent by our staff for little result & the student went home (overseas) after the project was complete with no positive outcome.”*

### **3.8.2 Guidelines available to help engage with an intern**

Respondents were asked if they would find it useful to have access to a template and guidelines for how to engage with an intern in New Zealand. The responses (n=43) were:

No: 23 (53.5%)

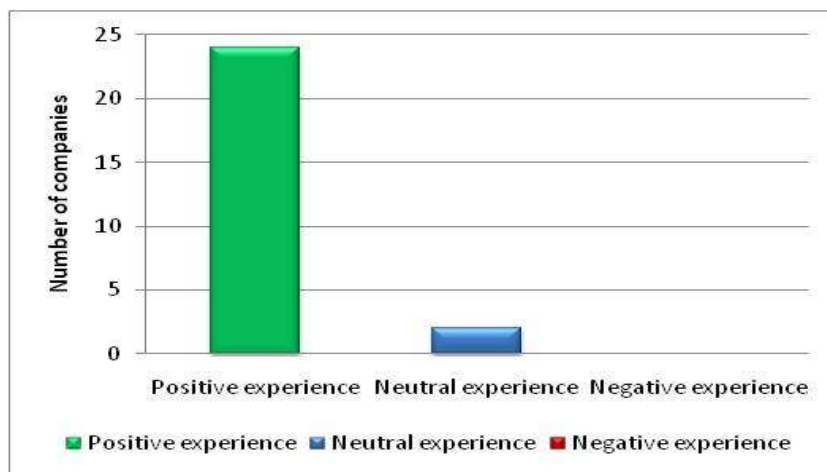
Yes: 20 (46.5%)

Fifteen of the 20 who responded positively provided their contact details at the end of the survey.

### 3.8.3 Graduate recruitment

Respondents currently involved with graduate recruitment were asked to categorise their experience as positive, neutral or negative. Graph 17 shows that the vast majority of respondents have a positive experience with graduate recruitment.

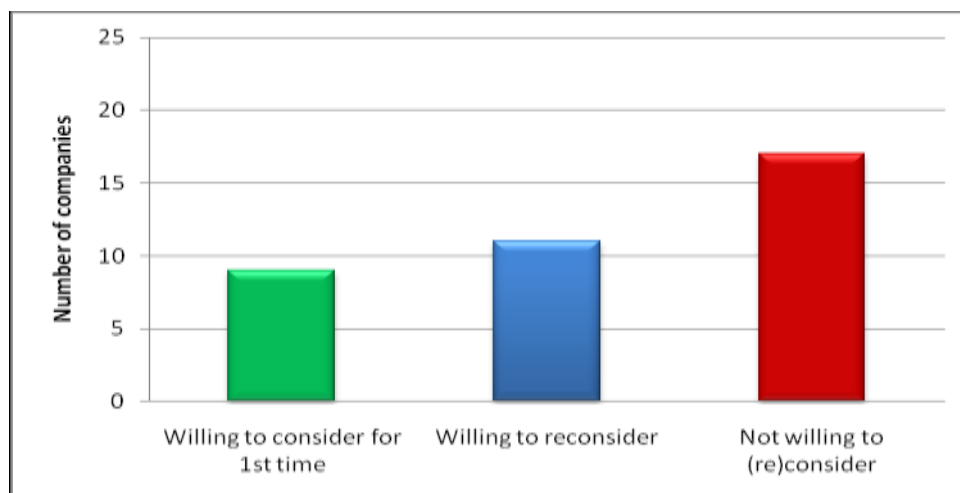
**Graph 17: Companies experiences with graduate recruitment (n=26)**



Respondents currently not involved with graduate recruitment were asked if they would consider for the first time, be willing to reconsider or are not willing to (re)consider.

Graph 18 shows that most companies who are not already involved in graduate recruitment are not willing to (re)consider.

**Graph 18: Companies not involved with graduate recruitment (n=37)**



The following positive and negative comments about graduate recruitment help identify the reasons for these responses:

Positive: (7)

*“We have a current graduate recruitment programme covering all Universities. This has been a positive experience and intend to continue this - it is a two year programme for the grads’.*

*‘Until this year we ran a graduate recruitment program to hire the new bright talent into our organisation. This is not been run formally this year due to current view of not needing sufficient numbers to justify costs given current downturn’.*

*‘Could be in a position to consider in 12 months’*

*‘Mostly from UoA. Have had some fantastic experience also some not so good’.*

*‘Variety of institutions over the years. Most success with Otago, Massey and Canterbury. Sometimes up to 8, sometimes only 1 per annum’*

*‘We take on 2 to 4 grads each year as junior network administrators. They attended a wide range of tertiary institutes’*

*‘We have recruited grads from Auckland University in the past and had good results’*

Negative (4):

*‘Ramp up time until new graduates become productive is very high’*

*‘Finding many younger people's opinion of their skills and worth far exceeds reality’.*

*‘Difficult to determine suitable people from large list of people’*

*‘When we are recruiting a small number of staff on an annual basis, we tend to focus on people with the experience and skill sets to be immediately productive’*

## **3.9 Company demographics**

### **3.9.1 Business classification**

Respondents were asked to identify their business classification using the OECD Harmonised System (HS). This is the same method of business classification used by Statistics NZ in their annual survey of **Information and Communications Technology Sales of Goods and Services**.

Table 8 shows that all respondents classified their business in one of nine of the possible 13 categories, with 40% of respondents classifying their business as IT design, consulting and development services.

**Table 8: Major business classifications OECD Harmonised System (n=39)**

<b>Major business classification</b>	<b>Number</b>	<b>%</b>
IT design, consulting and development services	21	36%
IT technical support services	7	12%
Published software	6	10%
Computer and related equipment	3	5%
Training and education in ICT	5	9%
Hosting and IT infrastructure provisioning services	4	7%
Internet access & internet telecommunications devices	4	7%
Telecommunications equipment	3	5%
Telecommunication and program distribution services	2	3%
Renting and leasing	1	2%
Other	3	5%
<b>Total</b>	<b>59</b>	<b>100%</b>

Comments from respondents who chose 'Other' included, 'We are an end to end ICT company' and 'we cover several of the classifications'.

### 3.9.2 Head Office location

Respondents were asked to identify the location of their head office. Table 9 shows that the majority of respondents (53.9%) have their head office in Auckland and the next highest (18.4%) have their head office in Wellington.

**Table 9: Head Office location (n=68)**

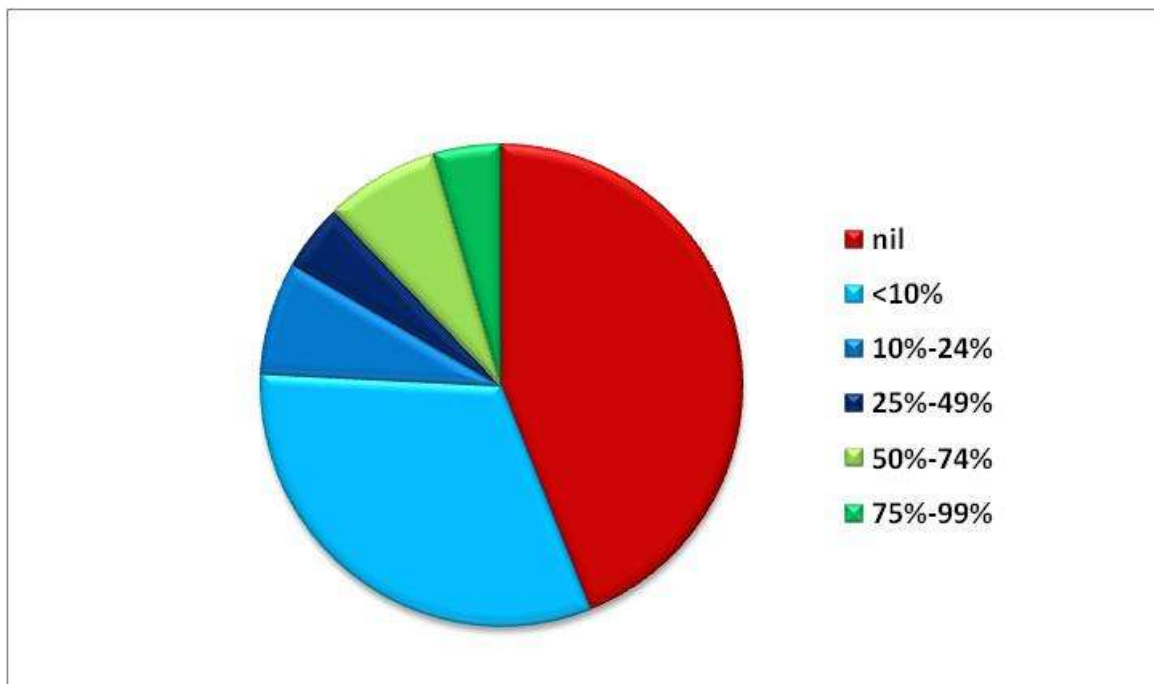
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
Overseas	14.5%	11
Auckland	53.9%	41
Wellington	18.4%	14
Christchurch	5.3%	4
Other Location	7.9%	6

### 3.9.3 Percentage of revenue from exports

Respondents were asked to identify the percentage of their revenue earned from exports.

Graph 19 shows that 12% (8) companies have more that 50% of their revenue from exports and 76% (50) companies have nil or less than 10% of sales from exports.

**Graph 19: Percentage of revenue from exports (n=66)**



### **3.10 Interview with Brett O'Riley**

During a meeting with Brett O'Riley, CEO NZICT, Brett advised that NZICT is already actively involved in a number of initiatives focused on addressing the skills issue including:

1. Working with the Ministry of Education as part of the changes being made to the Digital Technology curriculum to ensure that the content of the curriculum maps to industry skill requirements.
2. Supporting NZ Computer Society (NZCS) in their industry certification programme and talking with NZCS about the possibility of NZCS hosting a mentoring programme for ICT graduates which links students to becoming members of NZCS.
3. Working with Accelerating Auckland to advance Accelerating Auckland initiatives of :
  - 3.1. Building and maintaining an understanding of existing and emerging skill requirements of the ICT sector
  - 3.2. Advocating ICT careers to different population segments
  - 3.3. Promoting tertiary education and training opportunities available in ICT to appropriate student markets
  - 3.4. Enhancing the relevance of ICT and related programmes to industries traditionally not involved with ICT
  - 3.5. Developing incentives and interventions to encourage targeted student populations, in particular Maori, Pacific and international students, into ICT programmes and careers.
4. Working with the Institution of Professional Engineers New Zealand (IPENZ) and their government funded initiative Futureintech.
5. Working with the Computer Clubhouse and Computers in Homes to drive the expansion of their programmes to provide skills to school children and their families.

## 4.0 Conclusions

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The ICT sector in New Zealand is proving to be particularly resilient despite the uncertainty of market conditions of the last 12 months.

Of the 66% of companies who plan to increase overall staff levels, 26% plan to increase staff levels by 10 or more.

Almost half of large companies surveyed (100+ staff) are still having difficulty recruiting qualified, skilled and experienced staff.

The roles being sought by the largest number of companies are:

- 1 Project Managers
- 2= Network and Systems Engineers
- 2= Software Engineers
- 2= Business Analysts
- 2= Business Development Managers
- 2= Account Managers

There is also high demand for Developer Programmers and Telecommunications Engineers.

ICT companies continue to seek skilled staff with intermediate to advanced skill levels with more than three years of experience. Companies are planning to employ staff at a faster rate than contractors.

The major source of recruitment of technical staff in the past six months is within New Zealand. The recruitment of experienced staff from overseas comes a distant second.

The most successful recruitment action undertaken by companies is 'retraining current staff' first equal with 'advertising online job sites'.

The level of investment in training is notable, with the most commonly chosen budget level in the range of \$2,000 - \$3,000 per FTE and the company-wide median \$1,000 - \$1,500 per FTE.

The qualities being sought in staff can be summarised as follows:

### **Qualifications:**

Industry certifications and ICT related bachelor degrees are equally in demand.

### **Skills:**

Companies are seeking intermediate to advanced skills with a minimal requirement for basic skills.

**Experience:**

A minimum of three years' experience is required for most technical positions.

**Other Qualities:**

Attitude is by far the most important other quality sought. Other important qualities include 'other ICT related experience', and 'business experience, not necessarily related to ICT'.

A major challenge remains for interns and graduates to gain the skills and experience companies require. This issue has already been identified by NZICT as an issue and this report confirms that it should remain a key area for NZICT to address.

While there were notable comments from some large companies on their success with and commitment to graduate employment and to a lesser extent their use of interns and project students, the gap between qualified students and their move to successful ICT related employment remains. A majority of companies are not currently engaged in graduate or intern recruitment.

Companies who expect to be involved in the Government's Ultra Fast Broadband Roll-out indicated that their major likely requirements 1-3 yrs out are in the areas of network architects, designers and engineers. This provides an early signal to the market of upcoming skill requirements. It is timely to consider now how these skills may best be secured to ensure that a lack of skills does not hinder the development of this key priority for the New Zealand economy.

The most popular markets for recruiting new migrants are the UK, followed by South Africa and Europe. There were no dominant issues related to migrant employment, with equal numbers of advantages and disadvantages noted by respondents. Although the 'permits and residency process' was cited as a disadvantage, the helpfulness of New Zealand Immigration Service staff was noted in more than one comment.

NZICT is already working collaboratively with a number of other organisations that are active in building and maintaining a skills based for the ICT sector and wider New Zealand economy.

## 5.0 Recommendations

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1. That NZICT and the Ministry of Economic Development note that the NZICT industry still faces difficulties in recruiting qualified, skilled and experienced staff. These difficulties are having a medium to major effect on 83% of respondents.

### **That NZICT:**

2. Continues to support and develop further initiatives with industry and government groups such as the Ministry of Education, NZ Computer Society, Accelerating Auckland, IPENZ, Computer Clubhouse and Computers in Homes.
3. Identifies and publicises the current opportunities and future career prospects that exist in the NZICT industry. The publicity should complement and build on the efforts of other groups, focus on eliminating the preconceptions about ICT employment and promote the wide range of career options for those with the right skills, experience and attitude.
4. Addresses the skill requirements for the Ultra Fast Broadband Roll-out by working with key stakeholders to ensure there are no disruptions to the rollout caused by skills shortage.
5. Ensures the findings of this report are widely circulated to encourage discussion and debate on how best to address the issues identified by ICT companies.
6. Repeats this survey in 2010 as the next stage in a regular annual survey to gauge progress and identify new skills related issues as they emerge.
7. Increases the response rate to this survey in 2010 by contacting companies directly rather than through third parties. The use of industry groups to encourage participation by their members produced only a limited number of additional responses in 2009.

## **Appendix 1 Survey Questionnaire**

Available as a separate attachment