

# Working Group 5: Growing the AI Talent Pool

Report on Interview  
Survey with Employers  
of AI Talent in NZ

*October 2019*



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## AI Forum of NZ

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#### Report on Interview Survey with Employers of AI Talent in NZ

##### Executive Summary

The following ranked themes emerged from a recent non-random interview survey of nine firms working with AI in New Zealand conducted by members of the AI Forum's Working group on Growing the AI Talent Pool. These themes illustrate the kinds of issues that firms using AI face in attracting and nurturing AI talent and developing a sufficiently diverse AI workforce. These themes will inform the working group's future advice on what responses might be considered in New Zealand (in conjunction with other evidence and analysis).

##### **Theme One: Growth in Demand for AI Talent**

- All employers noted that their organisation's focus and prioritisation of AI had increased over the last five years, in some cases from nothing.
- Allied to this growth is significant increase in adding AI expertise through recruitment: almost all organisations noted that they had recruited for AI-related roles in the last few years.
- Some specialised AI start-ups that we interviewed did not even exist five years ago; the emergence of these firms illustrates the growth of the industry.
- The majority of employers indicated that they would be hiring for more AI roles over the next few years, although the means of doing so differed (some employers indicated they would continue to mainly use contractors).
- A prevalent theme from employers was that AI had been incorporated into their organisation's strategy to some extent – with most feeling that AI is likely to become more important to the organisation over time.

##### **Theme Two: Emerging Recruitment Challenges, Especially at the Top End**

- While many employers spoke positively about the quantity and quality of AI graduates emerging out of New Zealand universities, there was a consistent issue around attracting AI workers at a more senior level.

- Many employers spoke of the difficulties in attracting top-level talent, particularly as they tend to reside overseas. The market for this level of talent is extremely competitive, and New Zealand based employers can struggle to match remuneration levels.
- There is a separate issue with attracting high-level AI academic experts: most academics have been in tertiary institutions, or at least a tertiary framework, for quite some time. Convincing such experts to leave for a start-up that is fraught with risk is difficult.
- There are also issues relating to visa processing for employees hired from overseas. Many employers are using committed recruitment agencies.

### Theme Three: Low Diversity of the Current AI Workforce

- Most employers have raised the diversity of the AI talent pool as a serious challenge. While there tends to be some ethnic diversity, gender diversity is often very poor and ethnic diversity is limited.
- In particular, there was a consistent issue with lacking representation among Maori and Pasifika amongst AI workforces.
- Most employers noted that there was a significant lack of women applying for AI-related vacancies.
- There was also, to some extent, a lack of personality-related diversity. Some employers noted that applicants to AI roles tended to lack soft skills (teamwork and emotional intelligence in particular). Most organisations mentioned these as desirable skills and some indicated this as a problem when hiring.

### Theme Four: Few Plans for Training and Educating Current Staff

- While most employers were emphatic about needing to hire more AI-related roles in the future, most did not anticipate large-scale plans for training their current workforce further.
- Most employers consider AI-related work as relatively siloed; meaning that most employees (other than at dedicated technology companies) did not need AI-related skills in order for the organisation to build its AI capability.
- However, some organisations did indicate that they would commit to sending their employees to conferences and courses to build up expertise (for both technical and non-technical roles).
- These organisations tend to be more young, nimble and technologically orientated than the larger employers, who did not see large-scale training on the horizon.

## Further Detail on Survey Methodology, Respondents and Results

### Methodology

During mid-2019, members of the AI Forum NZ's Working Group 5 spoke to a number of different organisations (including private sector companies and public sector organisations) to get their perspectives on their AI talent needs and their AI talent acquisition approaches. This was part of the Group's broad analysis about the approach of employers to AI, including recruitment, human resourcing and training issues. Interviews were semi-structured. The research methodology was qualitative in nature, with some quantitative questions.

Our analysis is organised around the four most prevalent themes arising from our interviews:

- Growth in Demand for AI Talent.
- Emerging Recruitment Challenges
- Low Diversity of the Current AI Workforce

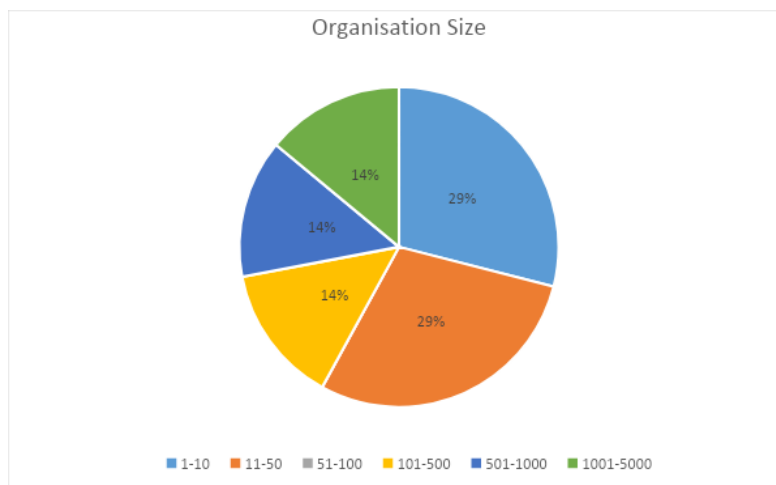
- Lack of Plans for Training and Educating Current Staff

Of course, there were significant divergences from employers as to how they approached different issues. Where these are present, they are noted. The subjective ranking is based on the degree to which they were prioritised or emphasised by employers.

While we have committed to not identifying interviewees and involved organisations by name, we do refer to differences between private and public sector approaches, and between small and large organisations where appropriate.

**Profile of Organisations Interviewed**

The survey results are based on interviews with eight organizations and one recruitment firm. Organisations interviewed varied in size from small to large as illustrated below.



**Growth in Demand for AI Skills**

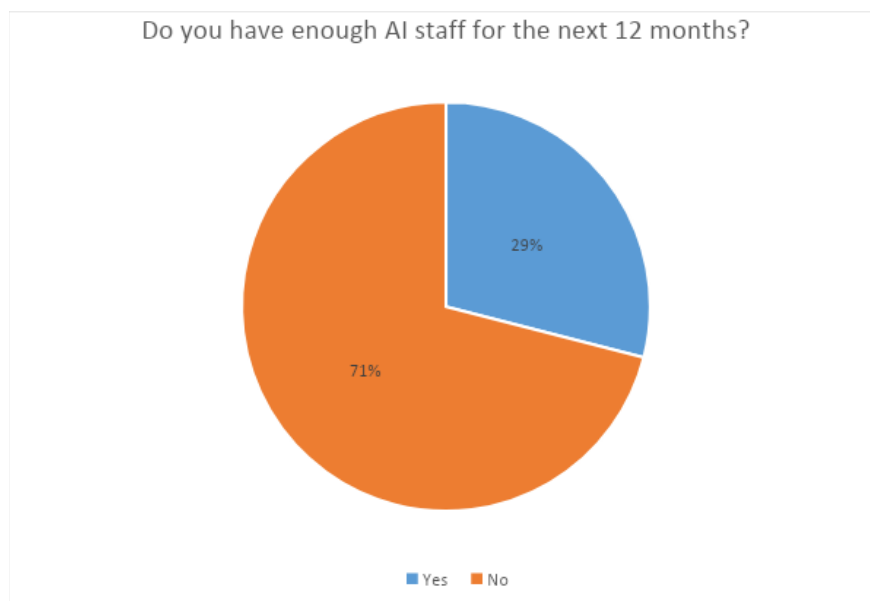
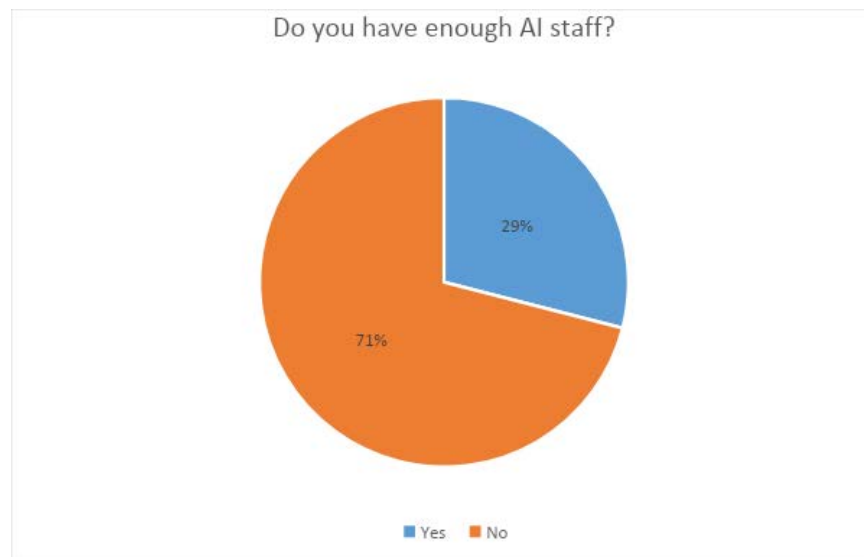
All employers noted that their organisation’s focus and prioritisation of AI had increased over the last five years, in some cases from nothing. 100% think that AI will have an impact on their business and the majority of firms. All but one firm have included AI in their business strategy to some extent.

Allied to this growth is significant increase in adding AI expertise through recruitment: almost all organisations noted that they had recruited for AI-related roles in the last few years. Our respondents included some specialised AI start-ups, which did not even exist five years ago; the emergence of these firms illustrates the growth of the industry.

The majority of employers indicated that they would be hiring for more AI roles over the next few years, although the means of doing so differed (some employers indicated they would continue to mainly use contractors).

### Emerging Recruitment Challenges

The majority (over two thirds) of large and small organisations interviewed stated they need more AI capable staff to perform the work they currently have underway (see figure below). As an example, one large firm in the insurance sector is looking to make 10 AI hires over the next 2 years. Smaller organisations are looking to hire senior experienced individuals.



Not all organisations face immediate shortages of AI talent. For example, a large government department with extensive data science capacity reported that it currently has enough staff. Conversely, a start-up with enough AI staff at present noted that things can change quickly.

Organisations that are seeking to appoint senior AI/ML staff look mostly for skills and experience in AI/ML and cloud technology. When seeking graduates, some organisations stated a preference for computer science, math and statistics majors. However, large and small organisations alike are looking for, or have hired, AI/ML PhDs for

senior roles.

Implementing intern programmes was mentioned by more than one firm partly in response to a large number of unsolicited applications by juniors and recent graduates.

Soft skills were seen as very important to critically important by organisations seeking to hire AI/ML staff. This was particularly the case in client facing industries. A large government organisation identified a lack of people skills as a problem in the field.

A number of organisations are using specialist recruitment agencies to identify AI talent. In at least one case this was the result of a failed search advertising on Seek, and also because of the very large number (dozens if not hundreds) of applications, including spam and low-quality applications for some roles.

Other channels used to source AI talent include: LinkedIn, personal networks, specialist reddit threads and meetups groups, developer channels, and university faculties. However, the experience is still one of it being hard to find top tier talent.

Some organisations have hired AI/ML talent from overseas, but most applications are from New Zealand. Senior roles are more likely to be filled from overseas. However, barriers to overseas hires include the time taken for visa processing (when startups and the market are moving fast).

Some salaries being offered locally in New Zealand are in the top quartile of industry range.

A number of firms have no plans for further AI/ML education of their staff. When plans for ongoing education were in place this ranged from a plan to educate the entire employee base of a large business in AI, through to targeted specialist training via conferences and courses to ensure high-quality staff remain at the cutting edge.

A professional recruiter reported that candidates were relatively easy to find. Academia is a huge talent resource, but that getting candidates interested in roles, and to accept roles, was much harder. One issue was that candidates want to know that an organisation is successful and growing, and that is hard for new businesses to demonstrate. Communicating a vision and pathway to success is important for firms that are hiring.

Other recruitment challenges identified through our interviews include:

- Difficulty persuading people to move into the regions - most NZ candidates want to work in Auckland or Wellington.
- The global market for AI talent is very competitive and delays can be problematic
- Recruitment of senior roles takes time
- Those conducting interviews may not have enough technical knowledge to identify the best candidates

### **Poor Diversity of AI Workforce**

Most employers have raised the diversity of the AI talent pool as a serious challenge. While there tends to be some ethnic diversity, gender diversity is often very poor and ethnic diversity is limited. In particular, there was a consistent issue with lacking representation among Maori and Pasifika amongst AI workforces. Most employers noted that there was a significant lack of women applying for AI-related vacancies.

Furthermore, some respondents noted a lack of personality-related diversity. For example, applicants to AI roles tend to lack soft skills (teamwork and emotional intelligence in particular). Most organisations mentioned this as a problem when hiring.

### **Few Plans for Training and Developing Current Staff**

While most employers flagged the need to hire for more AI-related roles in the future, most did not anticipate large-scale plans for training their current workforce further. Most employers consider AI-related work as relatively siloed, in the sense that most employees (other than at dedicated technology companies) do not need AI-related skills in order for the organisation to build its AI capability.

By contrast, some organisations did indicate that they would commit to sending their employees to conferences and courses to build up expertise (for both technical and non-technical roles). These organisations tend to be more young, nimble and technologically orientated than the larger employers, who did not see large-scale training on the horizon.

### **Possible Ways to Address the Growing Demand for AI Talent and Emerging Recruitment Issues**

Some suggestions mentioned during interviews included:

- considering flexible working arrangements (such as part time, or a hybrid academic/consulting role)
- using recruiters to make the talent search easier
- offering clearer pathways to interesting, challenging and important work
- building talent from the ground up through internships and internal training programmes
- planning for the recruitment of senior roles to take time.



The Artificial Intelligence Forum of New Zealand is a non-government association with a mission to harness the potential of Artificial Intelligence (AI) to help bring about a prosperous and inclusive Future New Zealand.

The rapid development of AI technologies presents major opportunities and challenges for our country: from creating world leading AI businesses, nurturing a pool of talented AI engineers, applying AI technologies to our agriculture, government, manufacturing and service industries to holding a meaningful national debate on the broader implications for society, New Zealand needs to actively engage with AI now in order to secure our future prosperity.

The Forum brings together citizens, business, academia and the government connecting, promoting and advancing the AI ecosystem to help ensure a prosperous New Zealand.

[Working group: Growing the AI Talent Pool](#)

#### DISCLAIMER

Any opinion and analysis presented in this Discussion Paper are the opinion of the author of the paper, not the opinion of the members of the AI Forum unless individually quoted in the paper.

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