Discussion Document

Summary: New Technologies and Artificial Intelligence are growing rapidly and their impact on Otago is unavoidable. They are already having significant effects on many jobs and sectors of the economy and over the next ten to twenty years they will drive profound changes in the way the people of Otago and New Zealand live and work.

These innovations present Otago with both challenges and opportunities. There is an opportunity to move with this change and harness the benefits of Artificial Intelligence for productivity gains and the development of new industries whilst alternatively there is a future where Otago as a region is slow to adopt and chances to change the way we work are lost .

Studies such as *"The Impact of Artificial Intelligence on Jobs and Work in New Zealand"* out of Otago University have shown that whilst Artificial Intelligence could potentially displace certain jobs, it can also create new ones, drive innovation and enhance productivity. The key is understanding these dynamics and adjusting and planning accordingly.

The Situation

In Otago, labour market conditions and worker shortages are pushing businesses to turn to technology for productivity and automation gains. This technology is changing the way we live and work, and even the nature of some work, so it is clear that higher level technological skills are vital for our workforce now and into the future. Technology could help Otago address perennial issues surrounding low productivity, ageing population, and the global competition for labour.

But technological change is difficult to quantify. It is challenging to predict what impact it will have on our labour market. It will likely range from increased use of computers and/or AI, the automation of systems and devices, new machinery, updated processes, discontinuation of some sorts of work, emergence of new types of jobs, and biotech.

We do know that technology will significantly change the way we work. There will still be a strong demand for workers, but the nature of many occupations – the tasks and required skills – will likely change. There is a need for an agile education and training system that can support people in Otago – from workers to management and business owners – to develop the skills they need to respond to technology driven change - so our region can maximise the potential that emerging technology will offer.

The Challenges

Otago faces several challenges in moving to adapt to the new environment that development in technology and AI will bring. Some key issues that have been identified by the Otago RSLG include:

1. **Need to upskill.**
Support is needed in all sectors, at all levels, to enable the region to effectively leverage the advantages of technological change. While workers will need the skills to operate new and emerging technologies, those in management will also need the capability to plan, adapt and pivot as technology changes how we work.

2. **Proportion of SMEs**
In 2020, over 85% of businesses in the Otago region had five employees or less. This means that we need to tailor solutions that are cognisant of adoption and capability levels in small business.

3. **Prevalence of low skill**
Otago's population is lower-skilled than that of the New Zealand population. Low skill levels may present a barrier to our people's ability to effectively adopt technology and the gains it represents.
Higher skill levels in Otago are also clustered away from our biggest sectors; data shows that concentrations of workers classified as 'low-skilled' make up large portions of the workforces of the largest sectors in our regional economy, such as food and fibre, and construction.

4. **A need to improve productivity**
New Zealand's productivity record is comparatively poor compared to other OECD countries. While productivity in the Otago region is growing at a faster rate than in New Zealand as a whole, the adoption of new technologies has the potential to accelerate this further. Productivity gains will not only enable us to gain more value per economic unit but will also improve living standards and the quality of life of our workforce through "working smarter not harder".

5. **An ageing population**
Otago's population is older than that of Aotearoa New Zealand. There are 30,730 people in Otago aged 55+, within a decade these people will all be 65+, nominally the age of retirement. This means that in the future there will be less workers to fill job openings that are either driven by replacement or growth. Technology represents a key opportunity to counter this.

6. **Increased international competition for labour**
Otago needs skilled migrants to support the growth and prosperity of our economy. However, we are competing on the international stage to attract them, often with other countries that can offer higher wages and lower costs of living. The ability to consolidate jobs through adoption of technology also presents a counter to relying on the volatile – and competitive – international job market for critical labour supply in our region.

The Opportunity

The first step businesses can take to increase AI awareness is to conduct research and educate themselves on the topic. This can include reading articles, attending conferences, and speaking with experts in the field. By doing so, businesses can gain a better understanding of what AI is, how it works, and what its potential impact on job markets could be.

The second step for businesses to increase AI awareness is to invest in AI education and training. This can include providing employees with access to AI courses and training programs, as well as partnering with universities and research institutions to stay up-to-date on the latest AI developments. By investing in AI education and training, businesses can ensure that their employees have the skills and knowledge to work alongside AI technologies.

The third step for businesses to increase AI awareness is to foster a culture of innovation. This can include encouraging employees to experiment with new AI technologies, providing them with the resources and support needed, and sharing their outcomes. By fostering a culture of innovation, businesses can create an environment that is conducive to AI adoption and that encourages employees to embrace new technologies.

The final step businesses can take to increase AI awareness is to develop an AI strategy. This should include identifying areas where AI could be implemented to improve efficiency and productivity, as well as identifying potential risks and challenges associated with AI implementation. By developing a comprehensive AI strategy, businesses can ensure they are well-prepared for the potential impact of AI on their workforce.

Discussion Document

What will drive Artificial Intelligence uptake in Otago:

Competitive pressure is the key driver for businesses to adopt AI. This competitive pressure leads to a subset of five main drivers for AI adoption as shown below. The dominant driver being an attempt to make sense of the vast amounts of data being generated. This is becoming increasingly important as organisations create more data, share more data, and value data more.

Figure 3 – Top 5 Drivers of AI Adoption in New Zealand

Source: AI Forum National AI Survey, 2018
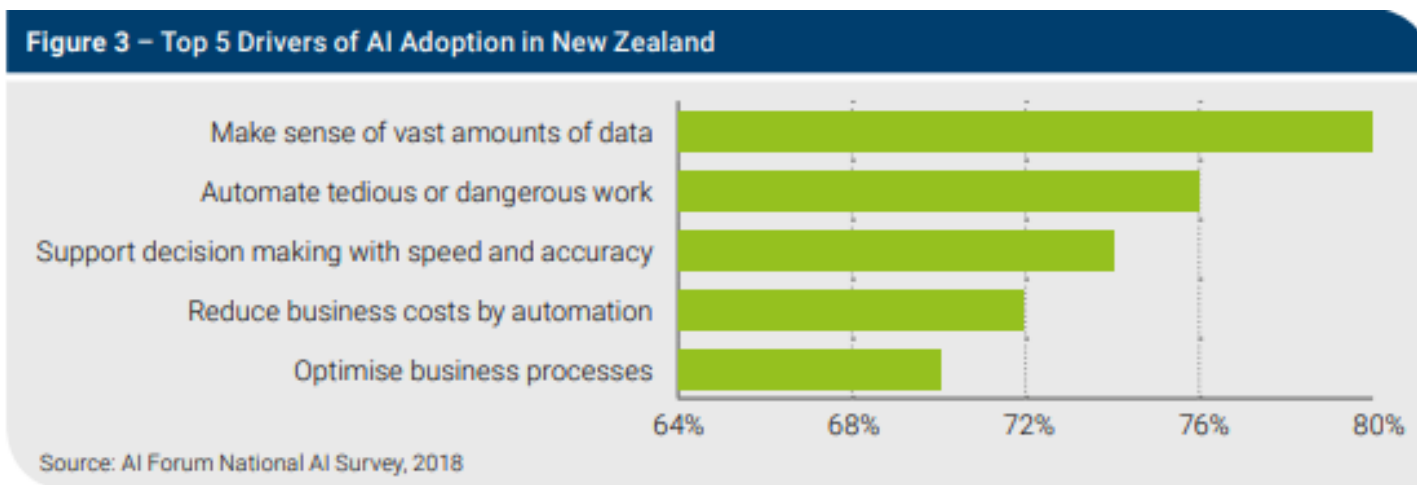
Opportunities for New Zealand Businesses

- **Robotic Process Automation**: Large enterprises often contain large administration teams. These roles usually involve repetitive manual data tasks, transferring data from one system to another. The branch of AI known as Robotic Process Automation (RPA) enables machines to learn how to do repetitive clerical roles, which will no longer be prone to human error nor reliant on people in the office.
- **Predictive Modelling:** There are opportunities in many sectors, to reduce waste and improve quality by using predictive modelling and just-in-time logistics. This is particularly critical in the food industry where produce is perishable.

Some examples of Artificial Intelligence productivity gains:

- <u>Improving business processes.</u> Machine learning algorithms used to build new and better business processes.
- <u>Augmentation of current applications.</u> Leveraging machine learning cloud services such as facial recognition to augment current applications.
- <u>Process automation</u>. Robotic Process Automation (RPA) software to handle transactional processes such as payments and billing.
- <u>Cybersecurity.</u> Automated threat intelligence and prevention systems.
- <u>Customer service.</u> Automated conversational interfaces ("chat bots") and "digital employees" to automate customer service scenarios.

"New Zealand organisations are tech savvy, willing to experiment. We need to get people to see what AI is and rethink how we do a lot of things. With AI, we can't just assume "she'll be right""

AMY FLETCHER, University of Canterbury

https://www.mbie.govt.nz/dmsdocument/5754-artificial-intelligence-shaping-a-future-new-zealand-pdf