AI Forum New Zealand
Te Kāhui Atamai Iahiko o Aotearoa

SEPTEMBER 2024 REPORT

AI IN ACTION

Exploring the Impact of Artificial Intelligence on New Zealand's Productivity









In partnership with:

Callaghan Innovation Te Pokapū Auaha

VICTORIA UNIVERSITY OF WELLINGTON TE HERENGA WAKA

Thank you to our Partners

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Table of Contents

SECTION 1

03 - 06 Foreword and executive summary

SECTION 2

07 - 16 Key findings

SECTION 3

14 - 22 Case Studies

SECTION 4

14 - 22 Methodology

Insights to Steer AI's adoption



I'm excited to present the AI Forum's inaugural quarterly snapshot of AI adoption in Aotearoa New Zealand.

Madeline Newman
Executive Director
AI Forum

This initiative marks a significant step in understanding the adoption and impact of AI across all sectors of industry in an era where AI is rapidly transforming industries worldwide.

It has been said often that New Zealand organisations have been slower than their international counterpoints in adopting AI, while other surveys have highlighted a lack of confidence and capability in our firms as holding back uptake of AI.

We set out to test these assumptions by tracking adoption across businesses of all sizes, the applications of AI, impacts on the workforce, and the financial consequences of implementing AI.

It is imperative that we have a clear, evidence-based understanding of how these technologies are being used and their impacts on productivity within our own country.

One of the primary reasons for conducting this survey regularly is to provide a robust, data-driven foundation for decision-making.

Policymakers, business leaders, and academics need accurate, up-to-date information to make informed decisions about AI investment, regulation, and integration.

AI is often surrounded by hype and misconceptions, which can lead to unrealistic expectations or unwarranted fears. The survey data compiled by our partners at Te Herenga Waka—Victoria University of Wellington, will offer a reality check on what exactly AI is delivering for businesses.

The research project kicks off as the Government establishes its work plan to spur uptake of AI and encourage its responsible use. Our surveys will inform our own policy work at the AI Forum, including our recently launched AI Blueprint for Aotearoa which proposes leveraging existing industry initiatives to help drive results and achieve a shared vision.

As we continue to gather and analyse data, we look forward to sharing deeper insights and fostering a more informed and strategic approach to AI in Aotearoa New Zealand.

Responsible AI requires Collective Effort



This initial snapshot offers key insights into AI's use in New Zealand to date and I look forward to revisiting the data as it is updated to reflect the state of play in one of the most rapidly evolving & transformative technologies of the 21st century.

Dr Stefan Korn
Chief Executive Officer
Callaghan Innovation

Having focused on artificial intelligence as part of my doctoral research over 25 years ago, I've long been fascinated by the potential of this technology to assist humans to improve productivity and tackle real-world problems.

The generative AI revolution that kicked off in earnest in late 2022 with the debut of ChatGPT has led to an explosion of interest in AI, and accelerating uptake of it in New Zealand organisations.

That's why I applaud the AI Forum's efforts to undertake regular and methodical research to track uptake of AI, gauge its contributions to improving productivity, and identify the barriers to further adoption.

The recent Cabinet paper on AI released by the Office of the Minister of Science, Innovation and Technology signals the Government's intention to pursue a "light-touch, proportionate, and risk-based" approach to encouraging AI adoption in Aotearoa. As a Crown Agency at the heart of the innovation ecosystem, we are ready to support and operationalise government policy on AI.

Through our support of accelerator and deep tech incubator programmes, the R&D Tax Incentive, and Callaghan Innovation's in-house AI expertise, we are here to assist businesses of all sizes make the most of this technology, responsibly.

Doing so requires a collective effort, which is why the AI Forum's broad reach and support across industries that are adopting AI is so valuable.

This initial snapshot offers key insights into AI's use in New Zealand to date and I look forward to revisiting the data as it is updated to reflect the state of play in one of the most rapidly evolving and transformative technologies of the 21st century.

Executive Summary

In today's rapidly evolving technological landscape, understanding the impact of artificial intelligence (AI) on productivity is more crucial than ever.

Despite the widespread adoption of AI globally, the specific impact of AI in Aotearoa New Zealand remains poorly understood. Until now, no local data of this kind has been collected. This gap in knowledge can lead to misconceptions, uninformed decisions, and missed opportunities for leveraging AI to its fullest potential.

The AI Forum's survey, undertaken in conjunction with our research partner Te Herenga Waka — Victoria University of Wellington, aims to fill this gap by providing an independent, evidence-based snapshot of AI adoption in this country on a regular basis. This research aims to clearly identify how AI is being used, uncover opportunities and pinpoint areas needing support.

This research offers an important snapshot of AI's role in Aotearoa, providing valuable insights for businesses and policymakers. Our vision is to help harness the power of AI to enable a prosperous, inclusive and equitable future Aotearoa.

In our inaugural survey we gained our first understanding of the growing influence of AI in Aotearoa. Key findings reveal a high adoption rate with 67% of respondents using AI, predominantly generative AI.

The benefits of AI are clearly evident, as nearly all reported increased worker efficiency and over half noted positive financial impacts, including operational cost savings.

Interestingly, concerns about job displacement are minimal, with only 8% experiencing it. However, the study also highlights the financial considerations of implementing AI, with the majority of respondents reporting setup and ongoing costs. While most costs are manageable, a few organisations faced significant initial investment.

AI's versatility is also evident, with applications spanning various business areas, especially in marketing and administration. AI is not just reshaping existing roles but also creating new career opportunities, demonstrating its potential to transform the workforce positively.

2024 Snapshot

Key survey findings

67%

High adoption rate

High adoption rate: Out of 232 valid survey responses, 155 organisations (67%) reported using AI, with generative AI being the most common type used (55% of participants who use AI)

50%

Financial benefits

50% of participants reported a positive financial impact on output, and 62% reported operational cost savings. There is a strong correlation between the amount spent on AI and the financial benefits gained.

96%

Increased efficiency

96% of respondents indicated that AI has made workers more efficient.

8%

Minimal job displacements

Only 8% reported that AI had replaced employees, and those who did reported minimal displacement (5-10%).

52%

Setup and ongoing costs

52% of participants reported initial setup costs, and 62% reported ongoing costs. These costs were generally on the lower end, except for some high initial setup costs.



Diverse applications

AI is utilised across numerous business areas, but use in marketing and administration is the most prevalent.



New career opportunities

Nearly half of the respondents reported that AI has created new career opportunities within their organisations.

Key Take Aways

/08
How is AI Adoption trending?

/11
What are the financial costs and impact?

/13
Exploring the financial benefits

/15
What is the real human impact?



Strong adoption, widespread efficiency gains

Since generative AI systems like ChatGPT became widely available late in 2022, Aotearoa New Zealand firms have accelerated their use of AI, exploring how they can apply the technology to help achieve their business goals.

How is AI adoption trending?

Productivity

"Respondents reported rapid progress towards automation, as their software developers increased their output and reduced errors."

Dr Andrew Lensen

But to what extent are organisations in experimentation mode with AI, rather than applying it in an operational capacity? Our research uncovered how AI adoption is trending, costs, financial benefits and the real human impact.

67%

Reported using AI, with generative AI being the most common type used.

Our research on AI adoption highlights a significant trend in how organisations are embracing AI technologies. With a high adoption rate, it's clear that many organisations see value in incorporating AI, particularly generative AI, into their operations.

Across the different areas of AI usage, there was a wide range of responses for what proportion of staff use AI. The most common answer, at 25% of responses, was that all staff in that area utilise AI.

When AI is adopted within a business, it tends to follow one of two patterns: either as an integrated tool that all employees are making use of, or as a specialised tool for specific users.

In many cases, all staff in that area use AI tools, which suggests AI is being integrated as a core part of daily operations, essentially for every team member.

This could be because the AI tools provide broad benefits, for example automating routine tasks, improving efficiency, or enhancing decision-making which are useful to everyone in that area.

However, there are also instances where fewer than half of the staff use AI. This indicates a more specialised application, where AI tools are tailored to specific roles or tasks that require particular expertise or are designed to address specific business needs.

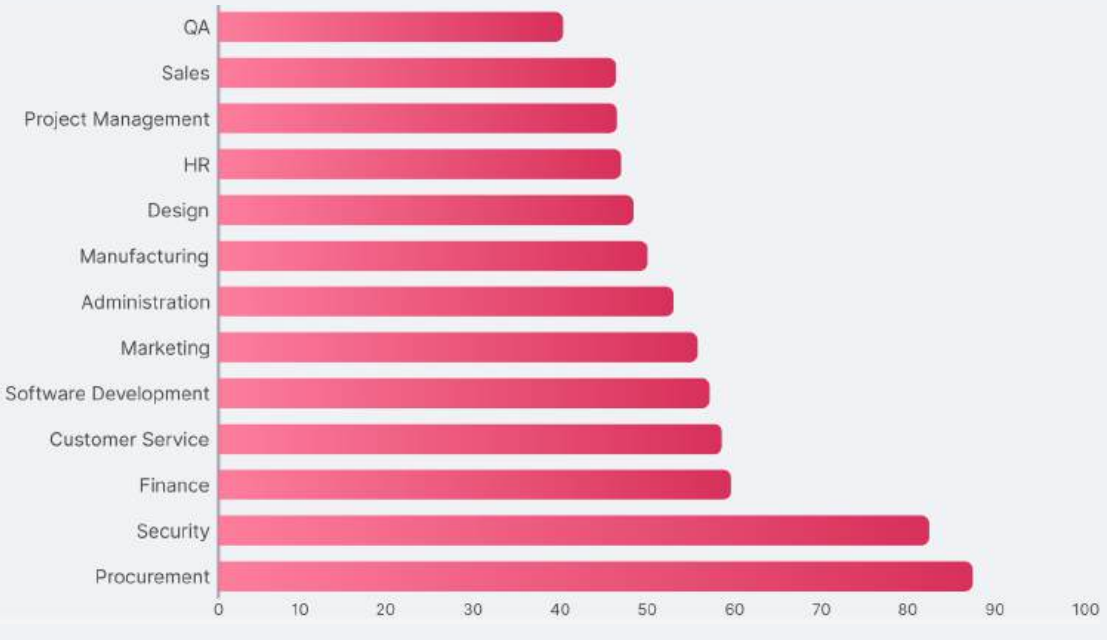
This split usage pattern shows that while AI is versatile, its implementation is often strategic, with businesses choosing to deploy it where it can have the most impact. This dual trend also reflects the flexibility of AI technologies and the varying needs of businesses. Whether AI is used by all employees or a select few, its adoption is driven by the goal of enhancing productivity and streamlining processes. Ultimately, it is being implemented to drive better business outcomes.

The figure below shows a histogram of how many staff use AI across difference industries, and across different functions within businesses. A caveat in interpreting these data is that some industries had a relatively low number of respondents. We excluded any industries with fewer than five responses.

Businesses using AI by industry



Businesses using AI by function



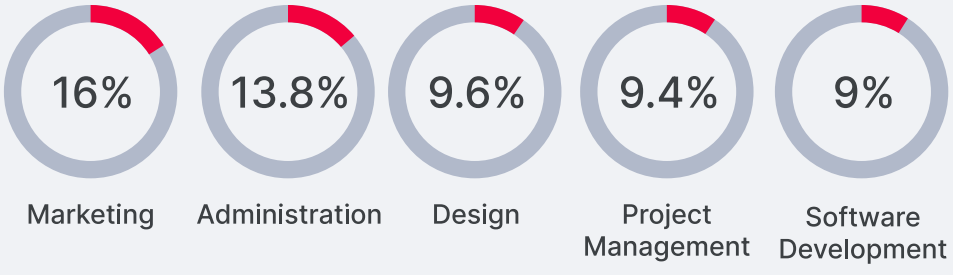
Diverse applications

AI is being used across businesses in various innovative ways, enhancing operations, improving customer experiences and driving growth. However, our research found marketing and administration are currently the most prevalent areas of use in New Zealand.

While AI is being adopted in a diverse set of areas, our research found individual organisations also utilising AI across multiple areas at once.

AI is transforming how businesses operate, helping them become more efficient, responsive and innovative.

Top 5 use cases



The figure below shows the distribution of AI use across different areas.

- Marketing 16%
- Administration 13.8%
- Design 9.6%
- Project Management 9.4%
- Software Development 9%
- Security 2.1%
- QA 4.2%
- Customer Service 8.6%
- Procurement 2%
- Finance 4.2%
- Sales 7.4%
- Manufacturing 1.4%
- Human Resources 4.3%



What are the costs and financial impact?

There are various AI tools available, ranging from free and open-source options to paid commercial solutions.

Privacy

"Some respondents highlighted concerns about aggressive selling by providers, and some toolsets where AI 'features' are turned on without consent, raising data privacy issues.

We created the www.aigovernance.nz website to help users of technology put AI governance in place that provides their people with well understood practices to help avoid time wasters and technology that is outside their risk tolerances,"

Madeline Newman

Many AI tools are available as open-source projects, which means they can be used and distributed for free. For example, TensorFlow, PyTorch and Meta's Llama models. These tools often have active communities that contribute to their development. Open-source tools are ideal for businesses that have in-house technical expertise as they offer flexibility to be customised. These models are becoming increasingly powerful and more suitable for businesses to utilise in-house.

While some AI tools are free, businesses may choose to pay to gain access to additional features and dedicated customer support, depending on their specific needs. These may include a subscription or one-time payment. For companies adopting AI there may be costs associated with licensing software, proprietary algorithms and ensuring compliance with data privacy laws and regulations.

The cost of using AI tools stems from several factors related to the development, maintenance and operation of these systems. For example, creating AI tools requires significant investment in research and development (R&D). This includes costs related to data collection, model training, software development and testing.

AI tools, especially those based on machine learning, require powerful hardware for training and running models. This can include services, cloud computing resources and storage. These infrastructure costs can be substantial, especially for large-scale AI applications. AI systems also need regular updates to ensure they are functioning correctly, remain secure and adapt to new data. Meanwhile, high-quality AI models rely on large amounts of data which can be costly to acquire, clean and manage. Often AI tools require ongoing access to updated data to function effectively.

52%

Our research showed most respondents reported both set-up and ongoing costs, reflecting the investments needed to purchase, operate, and maintain AI systems. Set-up costs were reported by just over half (52%) of respondents, while 62% noted ongoing costs.

We noted a high statistical correlation between set-up and ongoing costs that suggests high initial investments often lead to high maintenance costs, with manufacturing being an exception. Financial benefits were also noted.

Examining the financial costs

50%

Half reported positive impacts on financial output and 62% experienced operational cost savings.

Interestingly, while some participants reported costs without financial benefits (especially in design and marketing), others noted financial gains from using free tools like ChatGPT and Grammarly without associated costs.

Examining implementation costs

The majority of respondents reported set-up and ongoing costs associated with their use of AI which reflects the capital and operational investments often required to purchase, operate, and maintain AI systems.

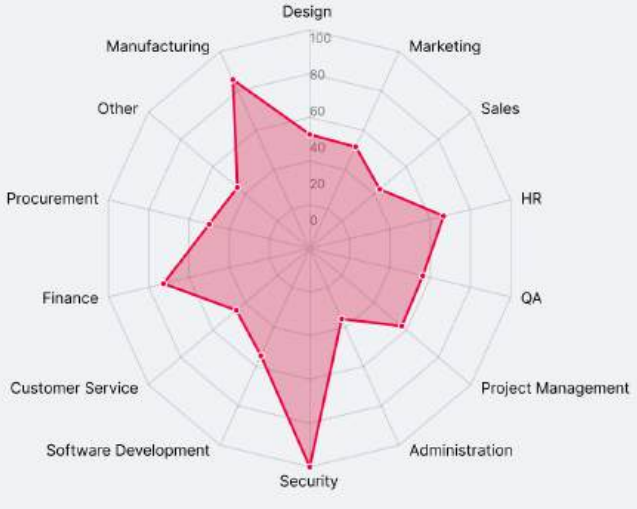
While acknowledging there were costs to set up and run, these costs were generally on the lower end, except for some high initial set-up costs exceeding $50,000. Those large investments may include purchasing or developing specialised AI systems such as data analytics platforms, or computer vision systems.

The graphs below show the percentage of respondents who reported operational and setup costs related to AI in various business functions.

Operational cost



Setup cost



Exploring the Financial Benefits

Using a diverse range of AI tools can deliver financial benefits to businesses in several ways, by improving efficiency, reducing costs and helping drive revenue growth.

Quality

"Some respondents found the quality of some tool sets was not good enough, meaning the output could only ever be used as a first draft,"

Dr Andrew Lensen

For example, cost savings can be gained with the automation of routine tasks, including data entry, document processing and customer support. In these situations, AI can reduce the need for human labour in these areas which is better used elsewhere. This is coupled with the efficiency gains delivered by automation, for example, streamlined processes, speed and reduction of errors. This allows employees to focus on higher-value tasks which improves overall productivity.

Meanwhile, AI also provides data-driven insights. AI tools can analyse vast amounts of data at speed, to uncover patterns that may be missed by human analysis. This helps businesses make informed decisions and avoid costly mistakes. Customer experience is another area where AI can analyse customer data to create personalised marketing campaigns and product recommendations. Enhanced customer service can lead to better customer retention, which reduces associated costs.

Other financial benefits include optimising supply chain operations by predicting demand and managing inventory.

AI tools can also reduce utility costs by optimising energy usage in manufacturing or facilities management.

Predictive maintenance also plays a role in minimising downtime and ensuring timely maintenance. Security is another area where AI tools can detect fraudulent activity and breaches in real time. Alongside this loss prevention, AI can help businesses ensure compliance with regulations, avoiding fines and penalties.

There is a strong positive correlation between the costs of implementing an AI system and the financial savings[1] it delivers across all categories, with a slightly lower correlation for project management.

62%

Half of the respondents reported a positive impact on financial output and 62% savings on operating costs.

For both of these, a large proportion of participants reported the impact to be between $1,001 and $50,000, suggesting a clear benefit to using AI.[2]

In general, an increase in the cost of the AI system is correlated to an increase in the positive financial impacts of using that system.

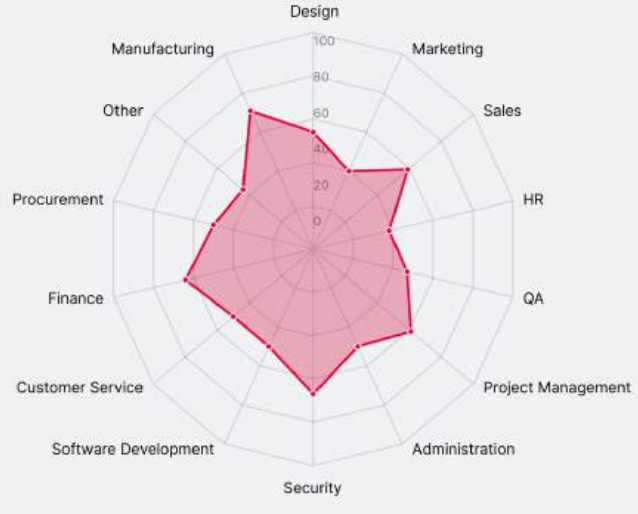
[1] The Spearman's correlation between overall financial output and savings is 0.83 (very strong). In one business function (project management), there was a notably weaker correlation of 0.45.
[2] The correlation between each cost and each positive impact is between 0.68 and 0.78, indicating a strong correlation.

Examining the financial impacts and cost savings

In general, an increase in the cost of the AI system is correlated to an increase in the positive financial impacts of using that system. For example, one respondent reported a $5,001-$10,000 set-up cost for an in-house custom GPT-4 tool, while also reporting a $1,000-$50,000 saving in operating costs.

Looking at trends across specific responses, many participants reported some form of cost associated with AI use but no increase in financial output or savings. Two major contributing areas to this are design and marketing. The graphs below show the percentage of respondents who reported experiencing a positive financial impact or operational savings as a result of implementing and using AI.

Financial impact on output



Operational cost savings



What is the real human impact?

As AI continues to reshape industries, its impact on the New Zealand workforce is becoming increasingly clear.

Jobs

"While overall reductions in employees were relatively rare, there were some reports of changes in the role types within organisations, with operational roles being lost in favour of recruiting more developers,"

Madeline Newman

96%

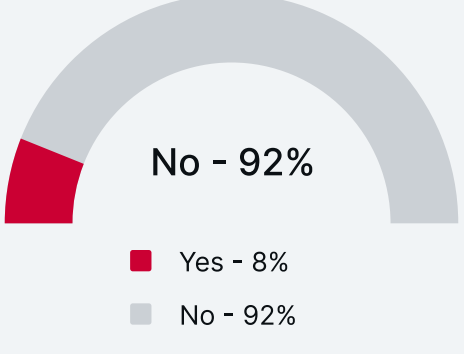
An overwhelming 96% reported that AI had significantly boosted worker efficiency.

This highlights the potential to enhance productivity, even if the financial gains aren't always immediate.

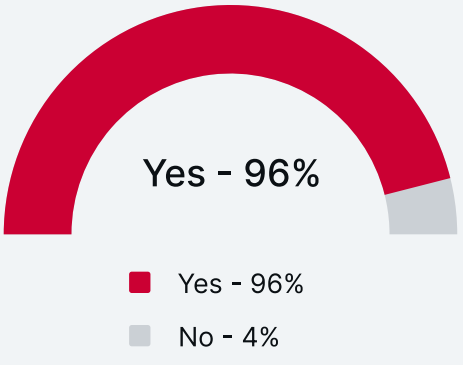
Interestingly, the perceived fear that AI will replace human jobs is largely unrealised as of November 2024. Only 8% of respondents indicated any worker replacement due to AI.

This strongly suggests that for most organisations, AI is being used to complement, rather than replace human labour.

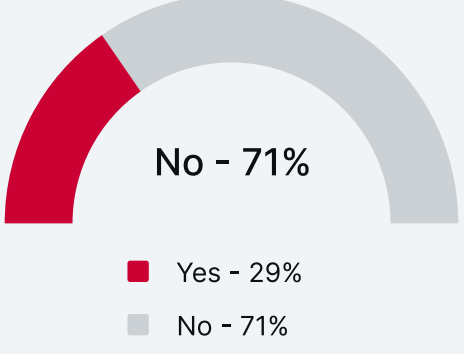
Has AI replaced any workers?



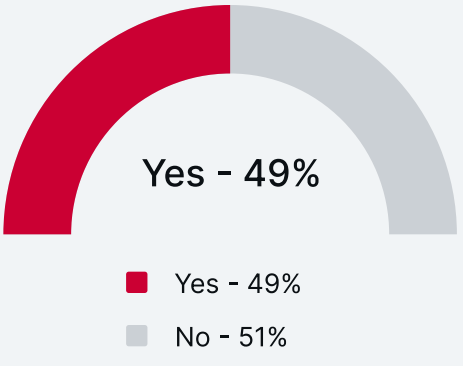
Has AI made workers more efficient?



Has AI resulted in less need to hire employees?



Has AI created new career opportunity for your workers?



Research Conclusions

This initial snapshot offers new insights into the current stage of AI adoption across various industries in New Zealand, including into the demographics, types, and areas of AI use, as well as the associated costs and financial impacts.

The research shows that even with high initial and ongoing costs associated with AI, the financial benefits often outweigh these costs, with strong correlations between the amount spent on AI and these financial impacts.

This highlights the importance of strategic investment in AI. Even in organisations where there are no reported financial benefits, in almost all cases, it is reported that there is a positive impact on worker efficiency through the use of AI.

Improving the survey

The next step for this initiative is to refine the survey methodology based on initial feedback and our initial findings.

The largest of these findings is that the structure of the "per area" questions, while providing useful data for analysis, deterred many participants from completing the survey. This will need to be revised to increase the retention of these participants.

Efforts will also be made to increase survey participation, especially in underrepresented sectors, as this will provide a more comprehensive view of AI's impact across all industries.

Future reports will delve deeper into the data, allowing us to begin looking at trends developing from this initial survey round.

This will allow more detailed analysis, and allow us to track the continued impact AI has on business in our country. By continuing to track and analyse AI adoption and its impacts, this ongoing initiative will provide valuable insights that can guide evidence-based decision-making for government, researchers, and the business community.

Case Studies

/18
Dr Andrew Lensen
Researcher,
University of Victoria
Wellington

/20
Andrew Goodin,
Chief Information Officer at
Classic Group

/22
Fraser Paine,
Chief Director of Sales,
Aware Group

/24
Andy Abel
Digital Solutions Manager,
University of Otago

Our researchers view

The value in finding our AI baseline



Dr Andrew Lensen

"With a lot of generative AI the cost is not significant, unless you're doing something quite bespoke with it."

In the absence of a regular and independent survey of AI adoption in New Zealand, the AI Forum's quarterly snapshot plays a crucial role, says the report's lead researcher Dr Andrew Lensen, Senior Lecturer in Artificial Intelligence at Te Herenga Waka - Victoria University of Wellington.

"As a scientist, what I want to see is some data that can allow us to have a more evidence-based, more informed dialogue about AI," says Lensen.

"And it's not just at a government level. This applies to the business world as well, because business leaders want to have an understanding of how much uptake there is in their industry and among their competitors," he adds.

The first quarterly snapshot sets a useful baseline, with feedback from the first cohort of survey respondents also helping to refine the survey methodology for subsequent surveys.

Lensen says the key survey findings are largely in line with his expectations revealing New Zealand businesses are highly engaged in using AI and seeing tangible benefits in terms of cost savings after deploying AI.

But firms would have to closely monitor their ongoing spending on AI to gauge the extent to which they continued to experience efficiencies and cost savings. While only 7 - 8% of respondents reported AI replacing workers in their organisation, Lensen suggests we should treat the finding with caution.

"In some cases it's going to be difficult to get a truthful answer to that, because there's a risk of public backlash or reputational damage if you are too upfront about that."

But he suggests the impact of AI on the workforce may be more subtle anyway.

"It's not just about whether or not you're getting rid of people as a result of using AI. It may mean that you don't have to make as many future hires and can have a sort of sinking lid due to use of the technology."

While the relatively high uptake of AI is pleasing to see, Lensen suggests that with a third of New Zealand firms, from SMEs to large companies, yet to adopt AI, a more proactive approach is needed.

"I think there's an opportunity out there right now to get ahead of the pack and achieve a competitive advantage in doing so," he says.

"But it requires having good change management processes and actually understanding how to adopt the technology effectively and responsibly. That's a skill that I think businesses need to start developing now so that when technology is out of the box, they can be faster movers in adopting it."

"I think there's an opportunity out there right now to get ahead of the pack and achieve a competitive advantage in doing so."

Dr Andrew Lensen

Researcher at Victoria University of Wellington

Classic Group

From hackathon to AI productivity hack



Andrew Goodin

"We really are applying AI to finding a needle in a haystack."

If you are undertaking a large-scale building project in Aotearoa you'll likely end up dealing with dozens of suppliers, hundreds of products and pricing that varies by project and by region.

That makes the financial side of the construction business a complex area where incorrectly applied pricing can threaten to blow out budgets. Tauranga-based Classic Group has long grappled with this problem as a developer of residential and commercial buildings since 1996, and the operator of lifestyle villages and a property management company.

Classic Group also includes Classic Technology, a division dedicated to offering technical services to the group. It was out of this team of 20 that an answer emerged that draws on generative AI.

"We really are applying AI to finding a needle in a haystack," says Andrew Goodin, Classic Group's Chief Information Officer.

The company's software developers were spending up to two hours at a time troubleshooting complex activity based pricing data that supported purchase order processes.

"It wasn't just the time hunting for the right data, it was also the time spent context switching, then getting back into the groove of work," he adds.

His colleague Tim Turner, Classic Group's Software Development Manager, explains further:

"The challenge was identifying the specific factors that influenced the rate applied to a purchase order. The rate selection process involves complex business logic with significant variation, applying across a broad range of suppliers, projects and multiple regions," he adds.

With AWS as its technology partner, Classic Group was already experimenting with Large Language Models (LLMs) on Amazon's Bedrock platform. The tech team used one of Classic Group's regular company-wide hackathons to apply AI to the purchase order pricing problem.

The Claude Sonnet AI platform was trained on data from Classic Group's existing supplier and product rate selection parameters.

"It was worthwhile taking a bit of a punt on AI which had the potential for our business colleagues to do the job in a fraction of the time, and a fraction of the cost of going to the service desk and then to a software developer," says Goodin.

The purchase order assistant has been a huge success. People can simply ask the AI assistant to generate and check the latest pricing details that are aligned in a purchase order.

"In the interface, you just press a button to trigger the AI to go looking for the exact data you are seeking," says Turner.

A process that took up to two hours now happens in 15 seconds with 98% accuracy.

"It has also helped us to improve the upstream master data quality," says Goodin.

"It still requires smart people to consider or check the output, but it just makes the process a whole lot faster."

Classic Group is now looking at applying generative AI to other parts of its business and sees major potential to improve its clients' experience working with the firm.

But Goodin advises any organisation seeking to leverage AI to do adequate planning upfront, including getting accurate, relevant data in a format that can be used to train the AI.

"You also have to understand your business, the elements of your process and what you're wanting to achieve. Be clear on that otherwise you've just got a fancy tool looking for a problem."

"You also have to understand your business, the elements of your process and what you're wanting to achieve. Be clear on that otherwise you've just got a fancy tool looking for a problem."

Andrew Goodin

Chief Information Officer at Classic Group

Aware Group

AI is a pivotal tool for enhancing competitiveness



Fraser Paine

"We've reduced a five hour process of creating the statement of work down to being a sub 10 minute task. So it's over four and a half hours saved every single time a statement of work goes out the door."

As a partner on AI projects with more than half of New Zealand's 20 largest companies, Hamilton-based Aware Group has a frontrow seat from which to observe AI transforming how our businesses operate.

"If you've got something with digital inputs and digital outputs, there's a really good chance that if you can't fully automate it, you can significantly accelerate the processing of that data," says Fraser Paine, Aware Group's Director of Sales.

By working with customers to build bespoke AI systems, and leverage third-party large language models (LLMs) and AI platforms, Aware customers have been able to make dramatic efficiency gains.

Some of those successful AI-related projects include:

- A contact centre for a major transport company saving several minutes on average per call and significantly reducing call hold times by assisting contact centre agents using generative AI to answer customer queries. This efficiency translates to several million dollars in projected savings a year.
- Developing an AI system for an engineering consultancy that has reduced the time it takes to produce complex technical reports from 30 - 40 hours per report, to as little as 20 minutes, and allowing engineers to focus on more critical tasks.
- Helping an animal health company improve the accuracy of a cell-based disease testing system it was developing. Off the shelf AI models only achieved 47% accuracy, which Aware raised to 93%, using a custom built AI model created by Aware Group. The combined innovation of this process has reduced testing turn-around from several days to around 12 seconds.

As an AI company through and through, Paine says Aware Group has also been eating its own dog food, developing in-house AI applications to make its business processes more efficient. One productivity breakthrough has come in

the form of a statement of work (SOW) application Paine developed himself for sizing up and pricing customer projects.

It took Paine and his team two days to develop the app, which pulls data from their Excel quoting spreadsheets and restructures it with Generative AI. The payback has been instant.

“We’ve reduced a five hour process of creating the statement of work down to being a sub 10 minute task. So it's over four and a half hours saved every single time a statement of work goes out the door,” he says.

"This automation saves us hundreds of hours monthly, allowing our team to focus on more strategic tasks rather than administrative work."

The return on investment (RoI) is “certainly there” for customers deploying AI, he adds. But many organisations still have a lot of work to do to improve the quality of their data and make it accessible in the right formats for AI systems to process.

His advice to businesses is to also think about the business case, which doesn’t necessarily rely on using AI to reduce headcount.

“We're not talking about automating jobs here, we're talking about automating tasks,” he explains.

“What effort is being done and how much is it costing you? If you can automate those tasks, you can make things easier for your team and that could represent huge value for the business.”

“What effort is being done and how much is it costing you? If you can automate those tasks, you can make things easier for your team and that could represent huge value for the business.”

Fraser Paine

Chief Director of Sales at Aware Group

University of Otago

Helping young learners map out their academic options



Andy Abel

"It then uses this data to generate personalised course recommendations, complete with detailed rationales explaining why each suggestion might be a good fit."

It's no surprise that the education sector represented the biggest single category of respondents to the AI Forum's inaugural quarterly snapshot of AI adoption.

The sector has been an early adopter of AI, and the recent wave of generative AI tools offers huge potential in areas such as personalised learning.

The University of Otago has numerous AI-related projects underway, including a GenAI-powered addition to its website that helps prospective students explore study options and make informed decisions about their academic future.

The project was spearheaded by Andy Abel, Digital Solutions Manager for the University of Otago's Web Transformation Project, working with AI solutions partner ElementX.

The system works by collecting information from students through a series of questions about their academic history, interests, and personal attributes. It then uses this data to generate personalised course recommendations, complete with detailed rationales explaining why each suggestion might be a good fit.

"We ask the user for a bit of information about their academic history including, if they have one, their NSN (National Student Number)," explains Abel.

"We also try to understand their values and what motivates them."

The results presented to website users draws on generative AI to explain what course options may be suitable based on their academic track record and survey responses.

One of the key features of this AI tool is its ability to provide tailored explanations for each recommendation. For example, it might suggest a biology program based on a student's interest in contributing to society, care for the environment, analytical thinking skills, and previous enjoyment of biology in high school.

"This level of personalisation and transparency has been well-received by students during initial testing," says Abel.

The development process prioritised speed and efficiency, with a working app ready for testing within "weeks, not months".

The system was designed to integrate seamlessly with Otago's existing technology stack, minimising the need for additional infrastructure or maintenance," says Ming Cheuk, ElementX's Chief Technology Officer and co-founder.

"We also purposely constrained the inputs to reduce the risk of producing unhelpful results or erroneous content," he adds.

While the tool is not yet publicly released, initial concept testing with students has been promising, says Abel, who sees the study-planning tool having the potential to increase enrollments and engage prospective students.

"The development process prioritised speed and efficiency, with a working app ready for testing within "weeks, not months."

Andy Abel

Digital Solutions Manager for the University of Otago

Appendix

/09
About the survey

/30
Response numbers & demographics

Methodology

The survey saw good engagement across various industries, with the highest participation from the education and training sector (22.4% of responses). Responses were relatively evenly spread across small, medium, and large businesses.

About the survey

The survey was split into two major parts:

1. Simple multi-choice and numeric questions to collect demographic data and consistent data on the adoption of AI in different fields and application areas.

2. Text-based long-form questions aimed at collecting information for case studies. Completion of this section also requires completion of an external consent form, supplied as a second Qualtrics survey.

The survey saw good engagement across various industries, with the highest participation from the education and training sector (22.4% of responses). Responses were relatively evenly spread across small, medium, and large businesses.

The research was approved by the Te Herenga Waka—Victoria University of Wellington Human Ethics Committee (approval number 31454).

As this is the first report, the following sections summarise and justify each question asked in the survey.

Demographic information

There are three demographic questions asked of participants.

1. **The primary industry of the business/ organisation.** The options are primarily taken from the ANZSIC classifications.[3]

A few classifications are further split into multiple options to allow finer-grained data. For example, "Public Administration and Safety" was split into "Public Administration" and "Safety". The option to select "Other" was also added for participants unfamiliar with the ANZSIC classifications, where we manually allocated an ANZSIC classification in our data processing.

2. **The number of employees in the business/ organisation.** The options are taken from business sizes provided by MBIE and the Small Business Council.[4]

3. **Whether the business/organisation uses AI.** If they do, they are routed to the rest of the survey. If they do not, they are then asked about future plans for using AI, with the survey then ending.

Simple AI questions

Two initial questions about use of AI in the business/ organisation are asked:

1. **The general types of AI that are used.** The options provided are widely accepted categories of AI in the research literature, with a further "Other" option also provided.

2. **The areas in which AI is used in the business.** These cover a wide range of known AI use cases, with a further "Other" option also provided.

[3] https://www.abs.gov.au/statistics/classifications/australian-and-new-zealand-standard-industrial-classification-anzsic/2006-revision-2-0/

[4] https://www.mbie.govt.nz/assets/defining-small-business.pdf

About the survey continued...

"Per area" questions

For each area that was selected, five further questions are asked:

1. The percentage of staff that use AI in the given area. This provides an idea of the scope of AI use in the business/organisation.
2. Whether there was an initial set-up cost for using AI in the given area. If there was, participants were asked for that cost (from a list of dollar ranges). The ranges were those suggested by Stats NZ.
3. Whether there is an ongoing cost for using AI in the given area. If there was, participants were asked for that cost (from a list of dollar ranges). The ranges were those suggested by Stats NZ.
4. Whether there is a financial impact on output that can be attributed to using AI in the given area. If there was, participants were asked for the amount of impact (from a list of dollar ranges). The ranges were those suggested by Stats NZ.
5. The use of financial impact as a measure of output was an important one in designing the survey, as it had to balance being simple for a participant to answer with a "true and representative" measure of the productivity impact of AI.
6. If there are any savings on operational costs that can be attributed to using AI in the given area. If there was, participants were asked for the amount of savings (from a list of dollar ranges). The ranges were those suggested by Stats NZ.

This provides the other side of the productivity equation compared to the prior question, and the combination of the two allows for a strong picture to be painted of the productivity impact of AI use.

Usage impact questions

Four final questions are asked about the "human" impacts of using AI in the business/organisation.

1. **Whether AI has replaced any employees.** If the participant answers "yes" to this question, an approximate percentage is asked.

2. **Whether AI has made employees more efficient** in their work.

3. **Whether AI has resulted in fewer hires** of new employees.

4. **Whether AI has produced any career opportunities** for employees.

Simple case study questions

First, the participant is asked if they wish to participate in the second section of the survey, and if they have completed the consent form for this section. If they are participating in this section, three questions are then asked:

About the survey continued...

The name of the business/organisation. This allows the response to be linked to the consent form, as well as allowing the business/organisation to be contacted if any of their quotes are to be used in the report.

If the business/organisation has clearly-defined AI governance and/or data governance policies. A free-text question on the overall impact of AI on the business/organisation. This allows participants to provide an overview of the overall use of AI in the business.

"Per area" case study questions

As in the first part of the survey, two questions are asked for each area that was previously selected as a business area of AI:

1. What AI tools are used in the given area.

2. The specific impact AI has in the given area. Participants are provided examples of error reduction/prevention and increases in efficiency to give a baseline for the level of detail being asked.

Final case study questions

Two final questions are asked in the survey:

1. If there are any other stories or case studies that can be shared. This is the final place for participants to share information of how AI is being used in the business/organisation.

2. If there is any future use of AI planned, and what that is. This is similar to the question asked in the beginning when participants are routed out of the survey.

Response numbers & demographics

In total, Qualtrics reported 276 responses from users. Of these, 232 are considered valid responses, in which either the participant reports that their organisation does not use AI or answers up to the end of the "Simple AI Questions" section. Of these 232 responses, 155 reported using AI and 77 reported no use of AI.

Breaking down these two categories:

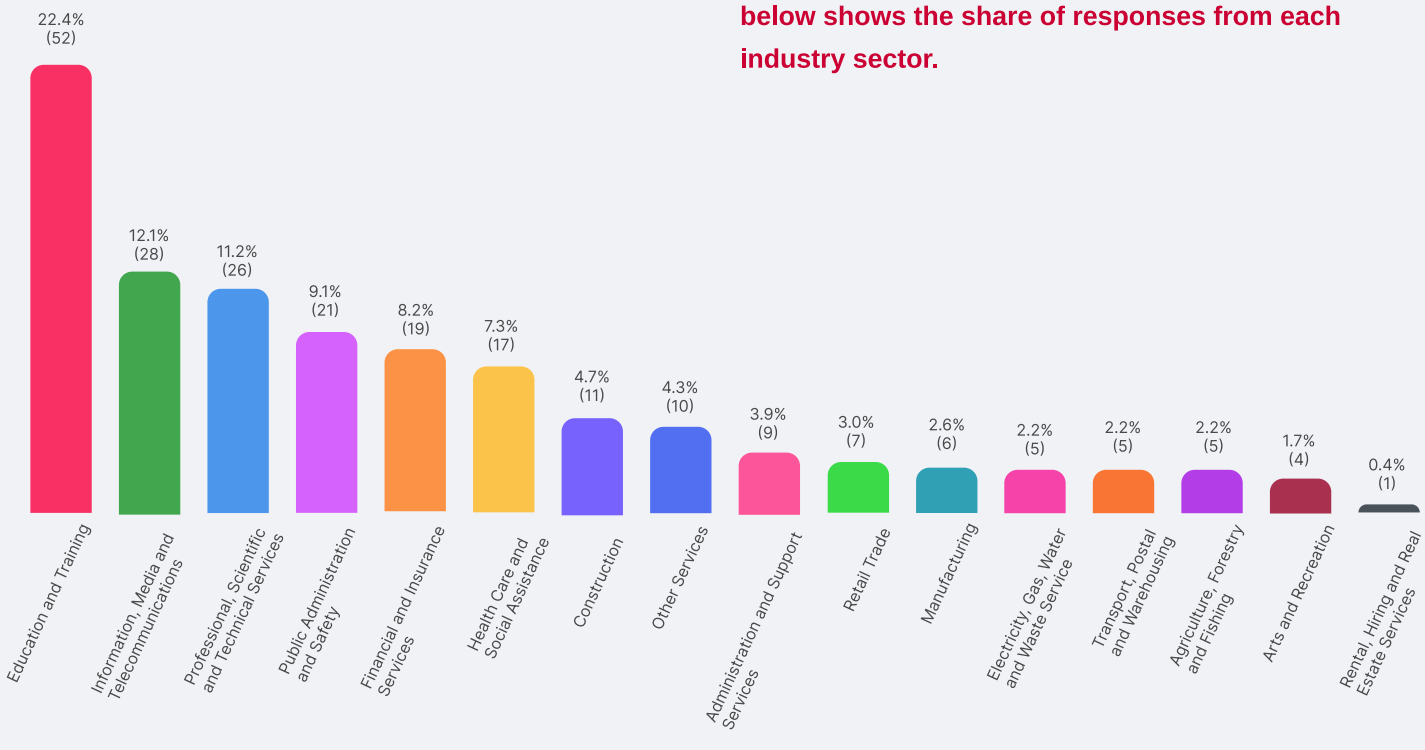
- Of those that use AI, the mean completion percentage reported by Qualtrics was 68.2%. 93 participants completed Part 1 of the survey, and 16 participants began Part 2.
- Of those who do not use AI, 43 participants reported plans to use AI in the near future, and 34 reported no plans.

These are promising response numbers considering this is only the first round of this initiative and they provide a good range of data to analyse.

Demographics

The survey had good engagement from across the industry space. In terms of ANZSIC divisions, only Division B (Mining) and Division H (Accommodation and Food Services) had no responses. All responses marked as "Other" were able to be placed in the appropriate classification except for a small number of respondents who only reported their industry as "nonprofit".

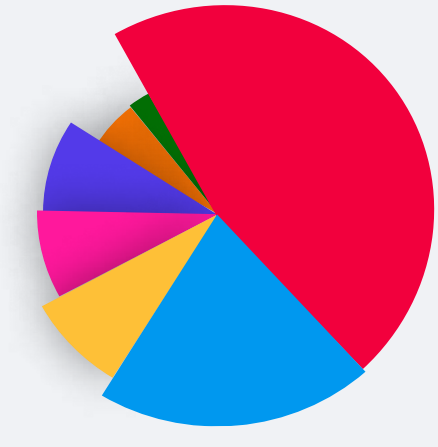
The largest division in terms of responses was Education and Training, with 52 responses representing 22.4% of the total count. The figure below shows the share of responses from each industry sector.



Response numbers & demographics continued..

While there is no strict definition for a small, medium, or large business, taking commonly accepted ranges shows a relatively even spread across different business sizes. 36% of responses were from organisations with 0-19 employees, representing small businesses, 19% of responses were from organisations with 20-99 employees, representing medium businesses; and 46% of responses were from organisations with 100+ employees, representing large businesses. The figure below shows the share of responses from each queried organisation size.

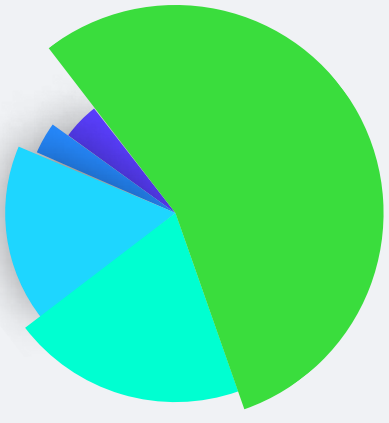
Employees



- 100+ (46.1%) - 107
- 1-5 (19.4%) - 45
- 20-49 (9.5%) - 22
- 50-99 (8.2%) - 19
- 10-19 (6%) - 14
- 6-9 (8.2%) - 19
- 0 (2.6%) - 6

Of the four given types of AI, generative AI was the most used, with 55% of participants reporting some level of generative AI use (such as ChatGPT). The figure below shows a breakdown of the responses of which types of AI are used within businesses.

What types of AI does your business use?

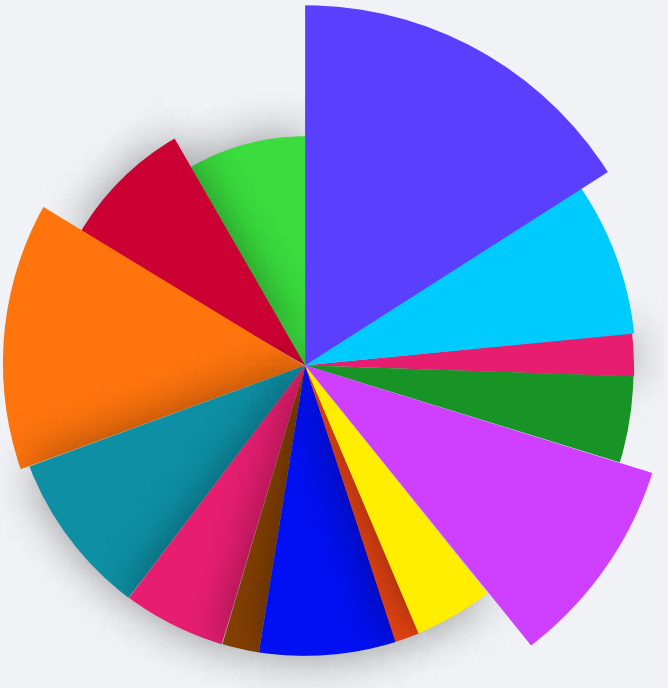


- Generative AI (e.g Chat GPT, LLMs, Copilot, Grammarly) - 55% (147)
- Machine Learning - 19.5% (52)
- Predictive AI (e.g financial modelling, customer analysis) - 17.6% (47)
- Advanced Manufacturing - 3.4% (9)
- Other (please specify) - 4.5% (12)

Response numbers & demographics continued..

There was a good range of uses of AI reported by participants. The largest area was marketing, followed by administration. AI is being adopted in a diverse set of areas, with individual organisations utilising AI across multiple areas at once. The figure below shows the distribution of AI use across different areas.

- Marketing 16%
- Administration 13.8%
- Design 9.6%
- Project Management 9.4%
- Software Development 9%
- Security 2.1%
- QA 4.2%
- Customer Service 8.6%
- Procurement 2%
- Finance 4.2%
- Sales 7.4%
- Manufacturing 1.4%
- Human Resources 4.3%



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