Callaghan
Innovation
Te Pokapū
Auaha

Industry 4.0

2025 Insights Survey

Foreword

New Zealand manufacturing is entering a new era. To the innovators, engineers, and leaders helping shape it - we are excited to share the results from the final Callaghan Innovation Industry 4.0 manufacturing survey, which marks the culmination of five years tracking New Zealand's journey in adopting advanced manufacturing technologies.

This year's findings are especially promising, reflecting another year of strong progress. In particular, it is encouraging to see a 10.5% increase in technology adoption since our 2023 survey. In my experience, when these technologies are paired with a culture of continuous improvement, the impact can be genuinely transformative - especially for small manufacturers.

One of the most profound shifts we've observed through our events and engagements is a change in mindset: Industry 4.0 is no longer seen as a passing trend, but recognised as a powerful suite of tools for driving efficiency, resilience, and profitability. This evolution in perspective has accelerated progress across the sector, and it has been inspiring to witness.

Looking ahead, I'm excited about the opportunities presented by the new Investment Boost scheme, and enhancements to the R&D Tax Incentive (RDTI). These policy developments are well-timed to further accelerate technology uptake and capital investment, ushering in a new chapter of growth for New Zealand's manufacturing sector.

Lastly, I want to extend my sincere gratitude to everyone who has participated in our events, shared their experiences, or supported others on this journey. Your openness, collaboration, and commitment have not only strengthened your own businesses, but the wider manufacturing ecosystem as a whole. At its heart, Industry 4.0 is about more than productivity gains – it's about building a smarter, more sustainable and globally competitive economy for Aotearoa. It's been a pleasure to help lay that foundation together.

Sean Doherty
Product Manager
Callaghan Innovation

Introduction

Callaghan Innovation Te Pokapū Auaha

This final Industry 4.0 Insights Survey captures a pivotal moment: Kiwi manufacturers are no longer just talking about digital transformation – they're making it happen at pace.

This report distils our latest findings into four powerful insights that showcase how manufacturers are seizing this opportunity and setting the stage for a more competitive, productive future.

- **Strong Growth in Technology Adoption:** Since 2023, there has been an 11% increase in the number of manufacturers implementing Industry 4.0 technologies, signalling a clear acceleration in digital transformation across the sector.
- **Changing the Industry 4.0 Narrative:** Manufacturers are increasingly shifting their focus from piloting technology for its own sake to leveraging these tools for tangible gains in profitability and productivity.
- **Upskilling the Existing Workforce:** The survey highlights a pronounced commitment among manufacturers to invest in upskilling their current workforce, prioritising people development as a cornerstone of successful technology adoption.
- **Smart Factory Assessment Programme:** Insights gathered from 197 manufacturers participating in our Smart Factory assessment programme provide valuable lessons on the practical challenges and opportunities encountered on the Industry 4.0 journey.

The attached data offers a comprehensive view of these trends, underscoring the sector's relentless pursuit of productivity, innovation and competitiveness. We remain proud of the collective progress made and are confident that New Zealand manufacturers will continue to seize the opportunities presented by Industry 4.0.

2025 Industry 4.0 Survey

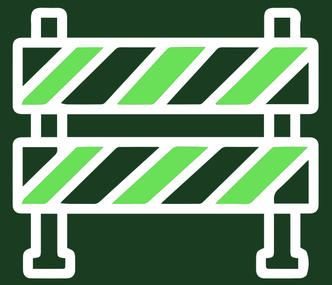
KEY INSIGHTS

Callaghan Innovation Te Pokapū Auaha

80%

of people surveyed understand or are now implementing Industry 4.0 solutions.

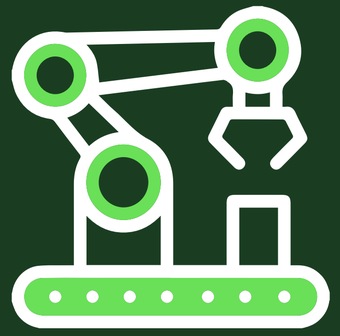
Auckland
manufacturers lead the implementation of Industry 4.0 technologies.



The top 3 barriers to adoption remain **lack of funding, reluctance to change** & **no clear strategy.**

Food and beverage
manufacturers lead the implementation of Industry 4.0 technologies out of 15 industries measured.

Nearly **40%**
of survey responders are implementing Industry 4.0 technologies – that's an **11% increase** on 2023.



Smart Factory Assessment Programme

KEY INSIGHTS

Callaghan Innovation Te Pokapū Auaha

98%

of survey respondents who completed the programme indicated they will adopt the recommendations.

Otago and **Taranaki** lead in emissions & waste reduction planning and implementation.

There is generally a low awareness of ESG unless driven by **customer or export requirements.**

Construction has the lowest ESG ranking across all industries measured, except in waste reduction planning, where it ranks in the **top 2 out of 15**.

Medical device manufacturers lead in the adoption of ESG, with **75%** already well into their ESG journey.

Contents

Industry 4.0 Survey Insights

Current State of Industry 4.0 Uptake

YEAR-ON-YEAR PROGRESS ON UPTAKE

39.5% of respondents are actively installing Industry 4.0 technologies – up **11%** from 2023.

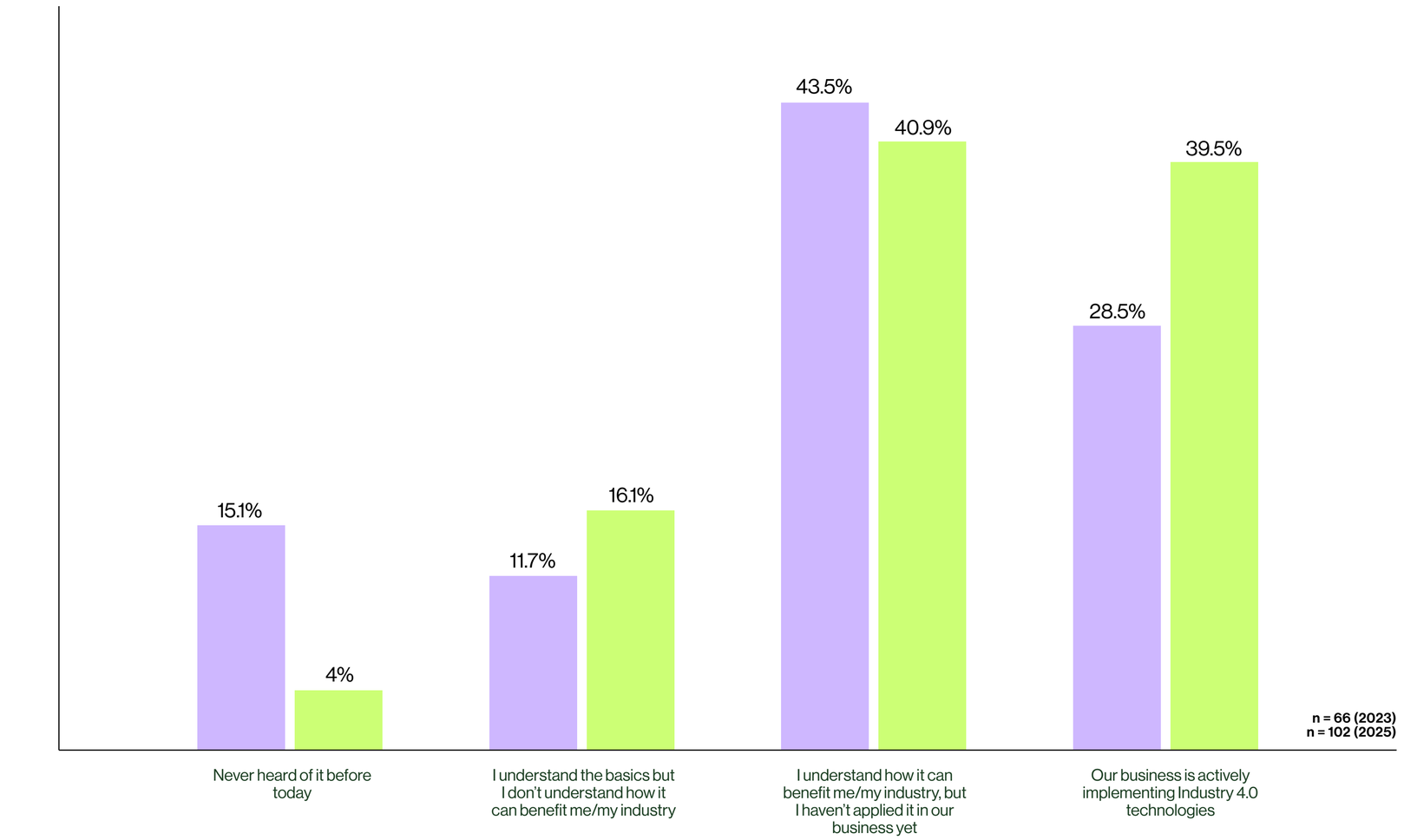
80% of respondents understand the benefits or are implementing Industry 4.0 solutions.

Only **4%** of respondents were unaware of Industry 4.0 – a significant drop from **20%** in 2020.

Auckland manufacturers are leading the way in the implementation of Industry 4.0.

Awareness Level - 2023 vs 2025

What is your level of awareness of Industry 4.0?



Readiness Review

BARRIERS TO ADOPTION

The top 3 barriers remain unchanged from previous surveys: **Lack of funding, reluctance to change,** and **no clear strategy**.

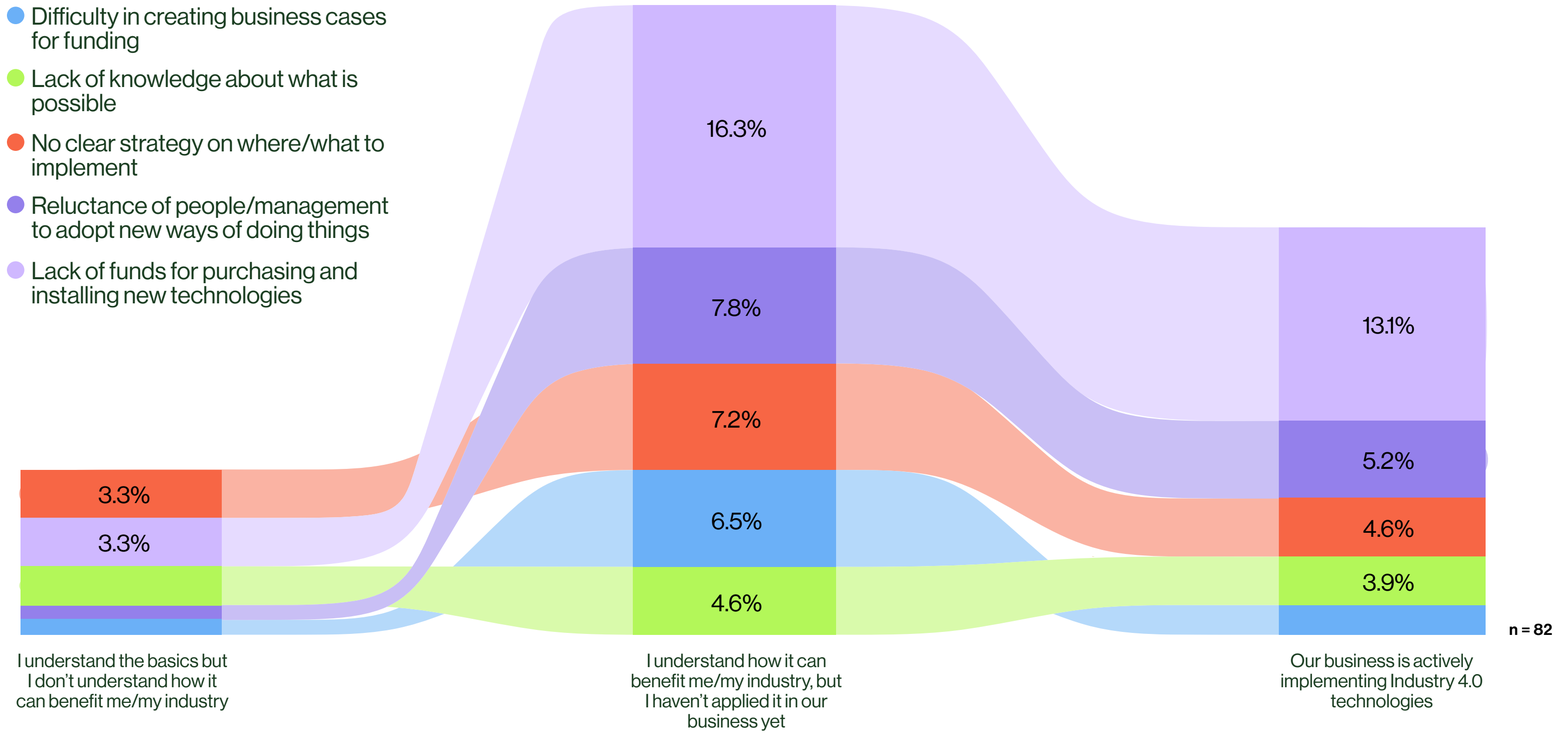
Manufacturers working in **metal products / general engineering** had the biggest barriers to change, according to **68%** of respondents. This industry was also slow in technology implementation compared to other industries.

Food and beverage manufacturers lead the sector in implementation, while also ranking lowest in barriers to advancement.

Responders experiencing barriers

Are you experiencing any barriers preventing you from implementing Industry 4.0 technologies in your business?

Top 5 Types of Barriers by Awareness Level



n = 82

Strategy Barriers

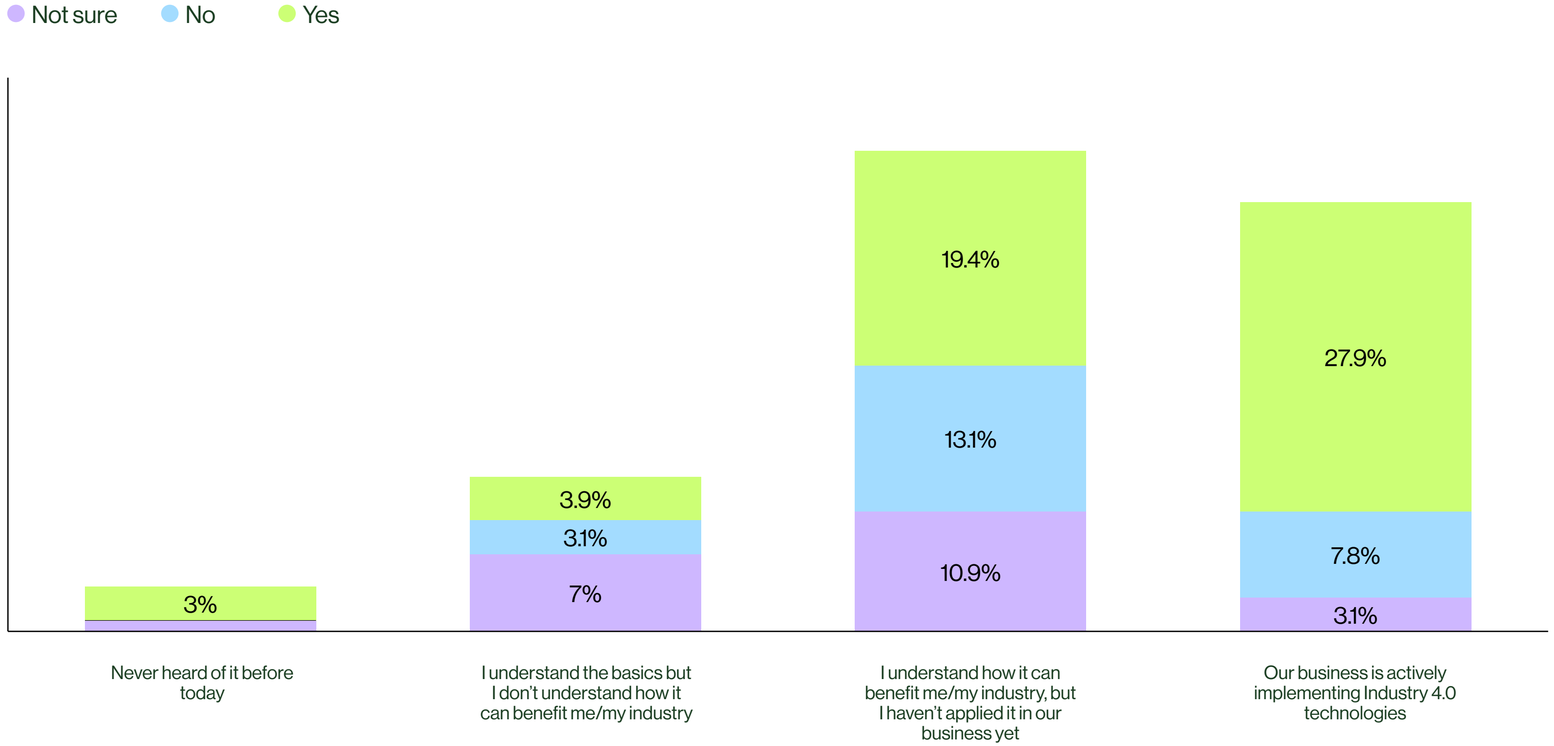
BUSINESS STRATEGY RESOURCES

When asked if manufacturers had the people, resources and technology to support implementation, responses were mixed.

However, only **1/3** of respondents felt they had the resources they need to implement Industry 4.0 into their businesses.

Do you have the business strategy resources in place to support Industry 4.0 implementation in your organisation?

Business Strategy Resources by Awareness Level



Strategy Barriers

PEOPLE & TALENT RESOURCES

When asked if manufacturers had the people, resources and technology to support implementation, responses were mixed.

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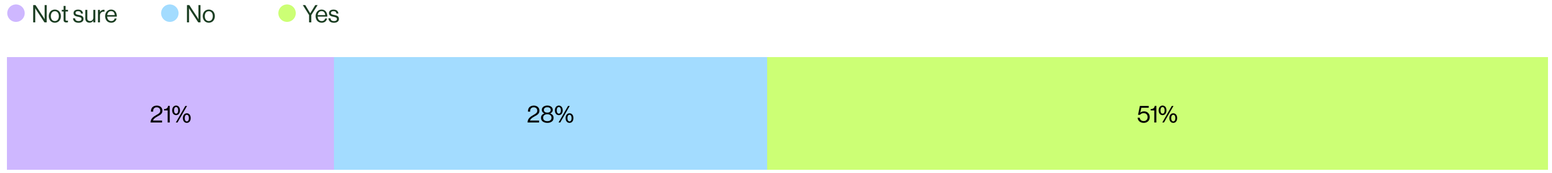
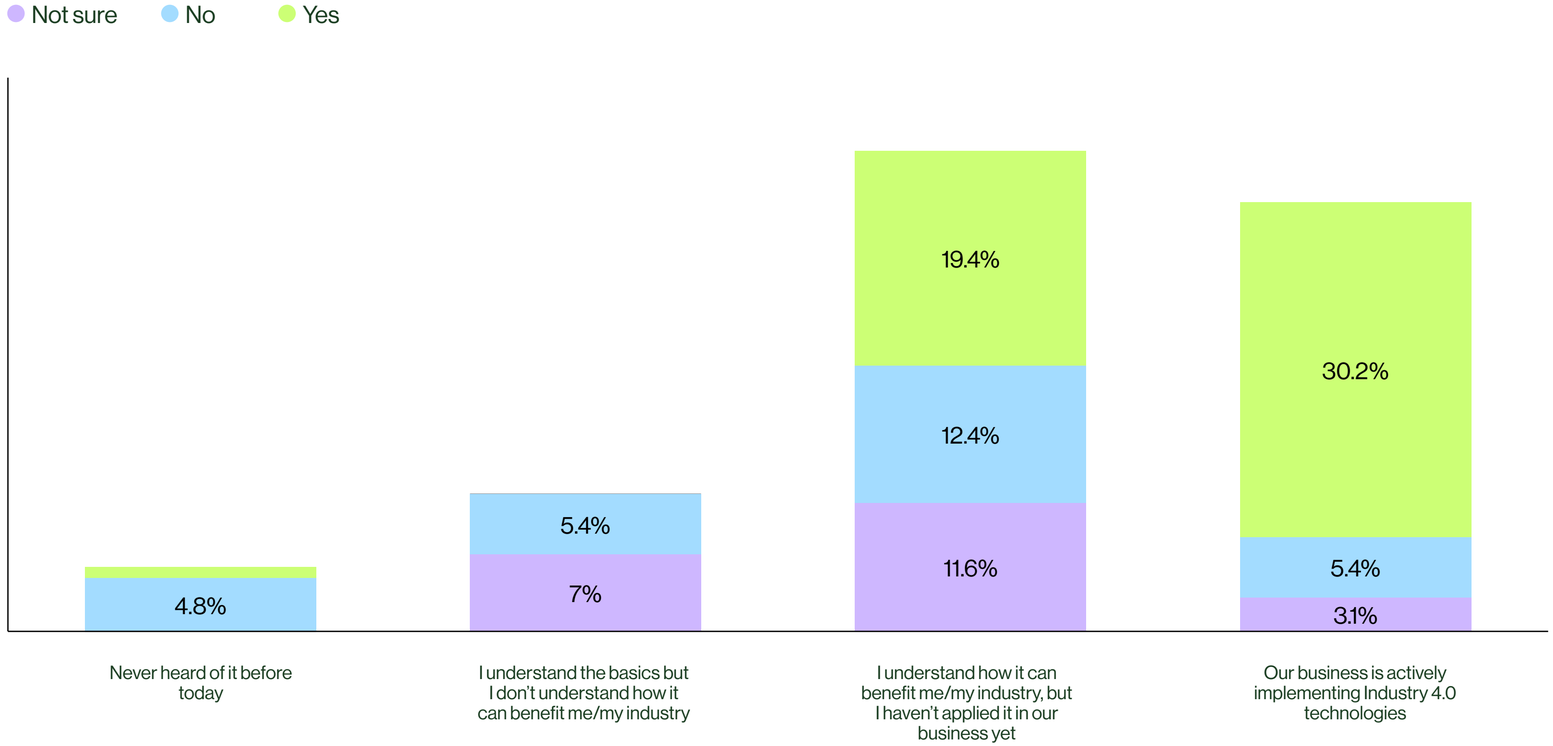
Do you have the people & talent resources in place to support Industry 4.0 implementation in your organisation?



People & Talent Resources by Awareness Level



Strategy Barriers

TECHNOLOGY RESOURCES

When asked if manufacturers had the people, resources and technology to support implementation, responses were mixed.

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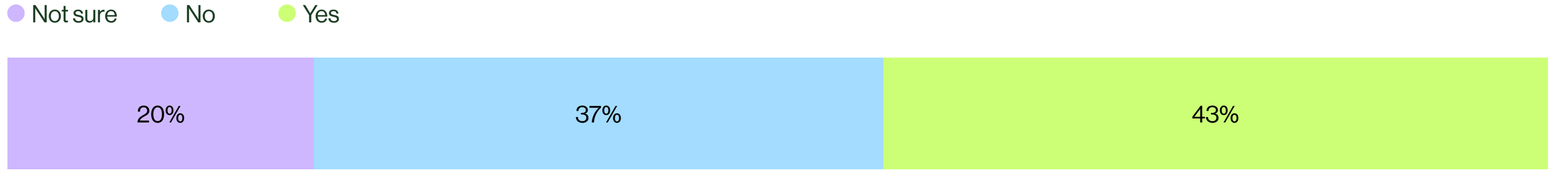
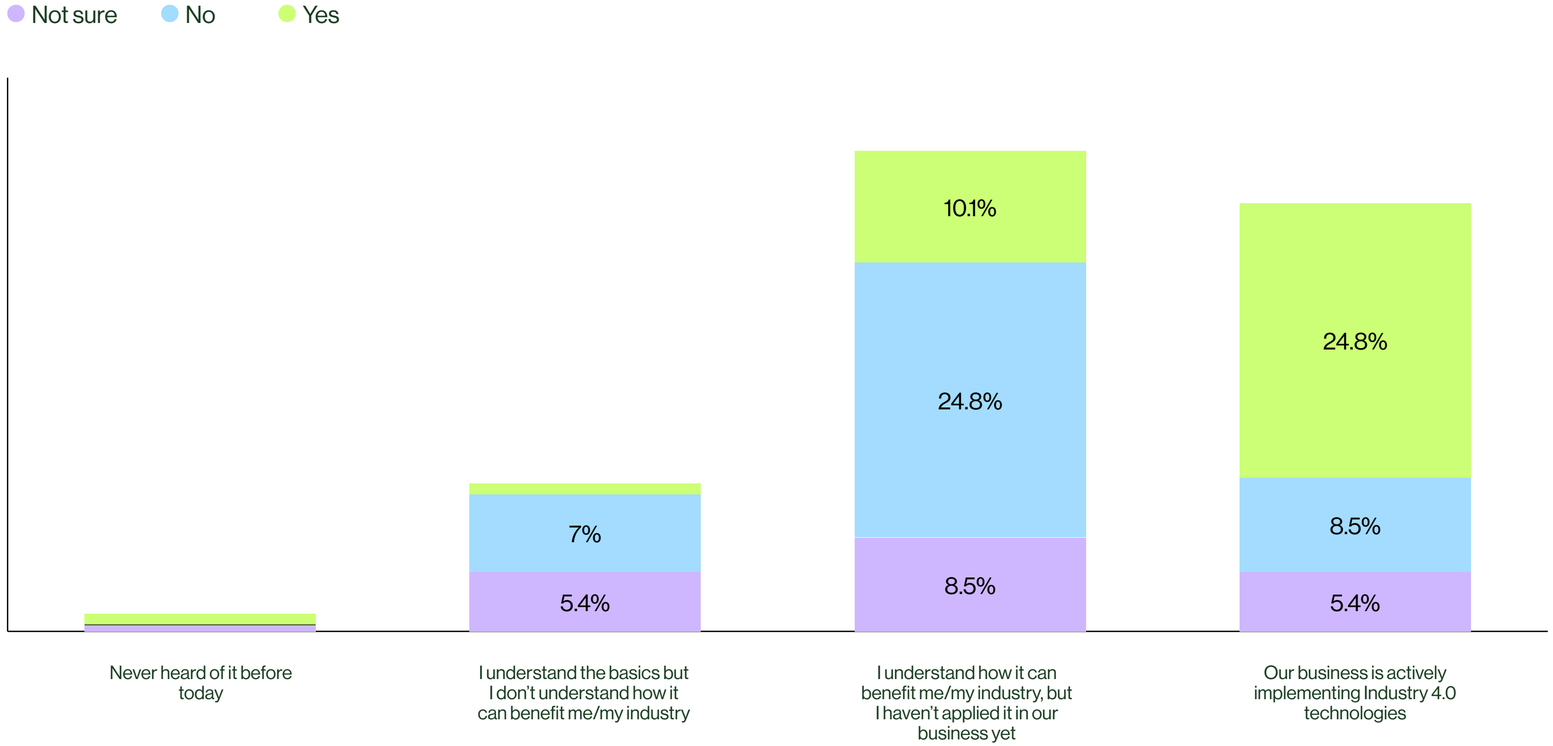


Technology Resources by Awareness Level



Hopes for the Future

BUSINESS FUNCTION IMPROVEMENT

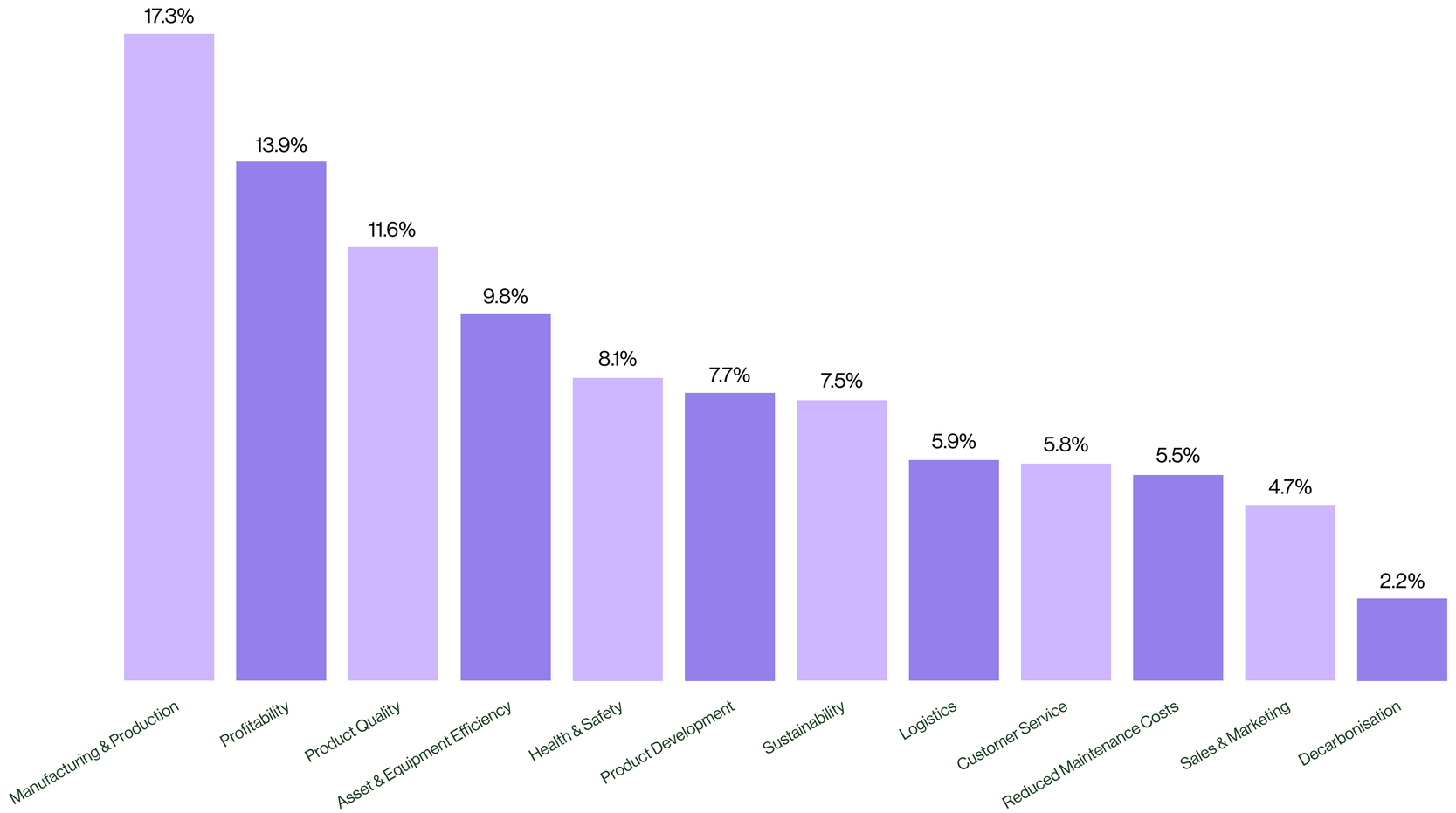
Unsurprisingly, manufacturing and production is the highest priority for respondents at **88.9%**.

Decarbonization is the lowest priority for most respondents (this trend is also reciprocated in the Smart Factory Assessment data which showed **81%** of respondents had no decarbonization plan).

There's a growing focus towards technology that solves quality issues – this is an increase on previous surveys.

Business Function Improvement Hopes

What business functions or metrics would you hope to improve by implementing Industry 4.0? (Select all that apply)
n = 153 unique responders



Hopes for the Future

VALUE-ADD TECHNOLOGIES

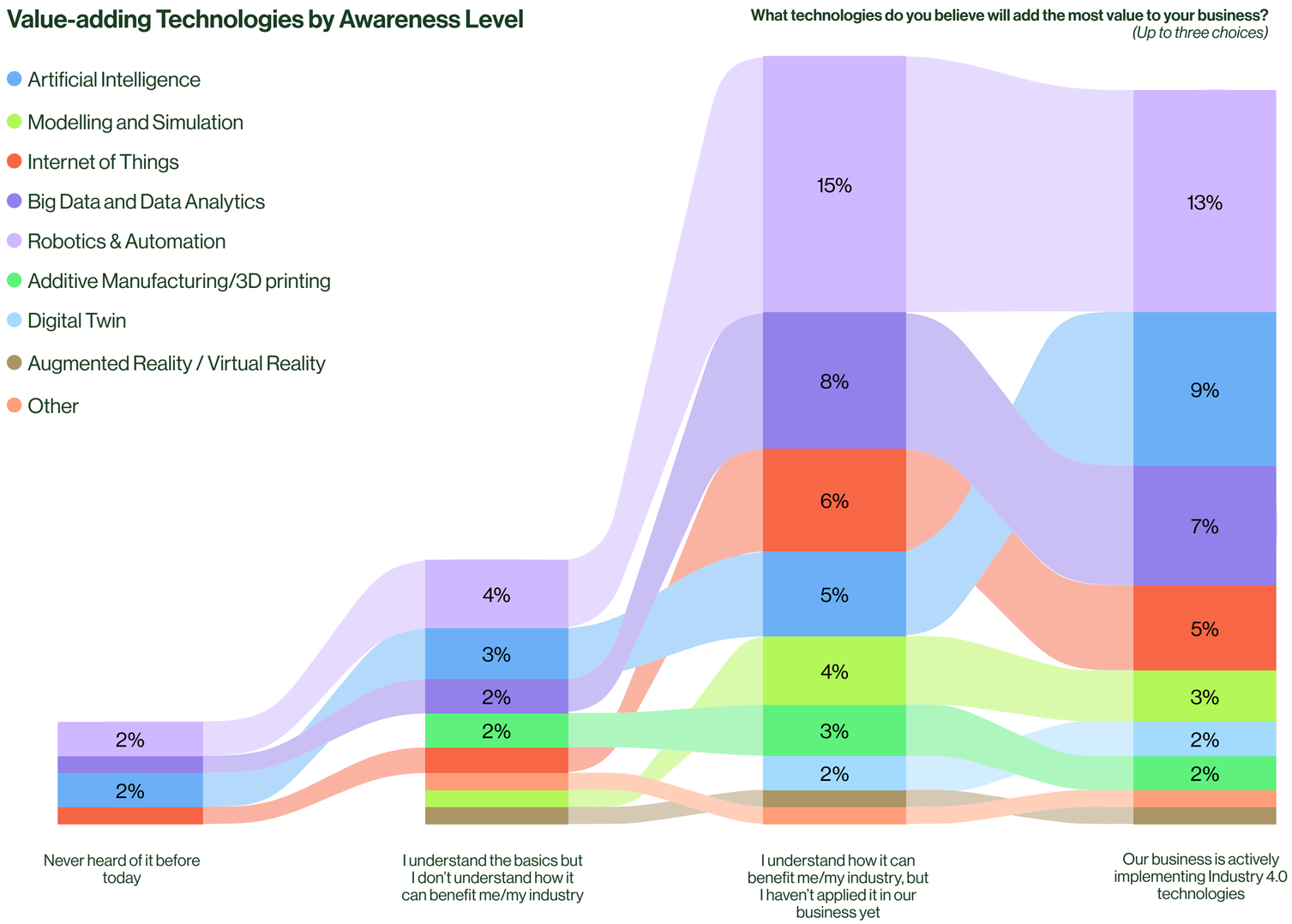
Robotics and Automation remains the primary value-add technology.

AI is the second-most desired technology, overtaking data and analytics among those already implementing technology.

Additive manufacturing / 3D printing continues to fall in rank.

Value-adding Technologies by Awareness Level

What technologies do you believe will add the most value to your business?
(Up to three choices)



Hopes for the Future

INTEREST IN VALUE-ADD TECHNOLOGIES

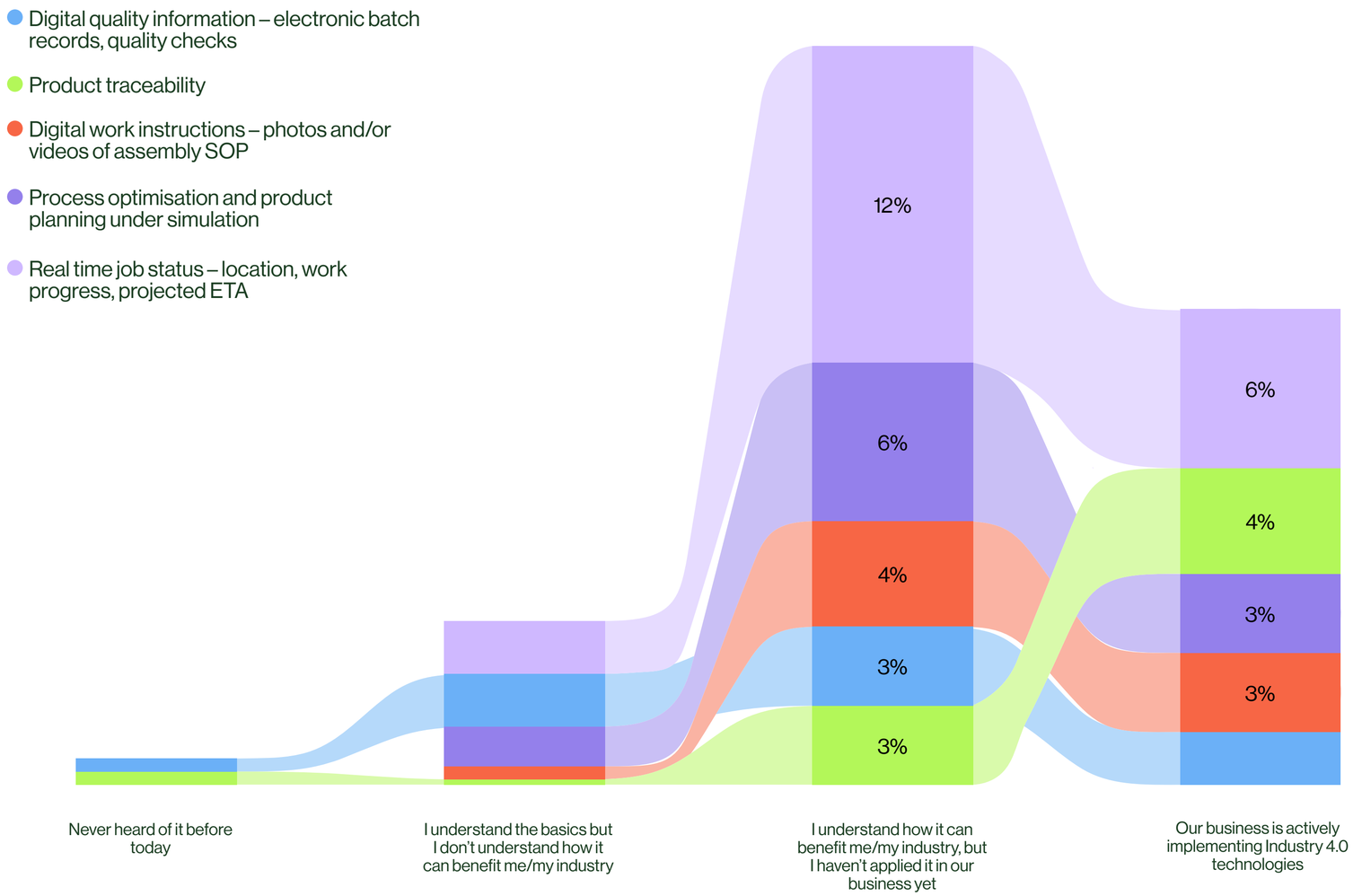
Consistent with previous years, an **understanding of job progress** or **projected work ETA** is important to responders, sitting in the top 3 across all awareness stages.

Among those already implementing technologies, **product traceability** has become a priority and risen up the ranks to 2nd place – it was 6th in the previous survey.

Facility monitoring and **new connected products** is a low priority across all respondents.

Top 5 Digital Solutions Interested in Implementing by Awareness Level

What digital solutions are you most interested in implementing in the near future? *(Please select up to three choices)*



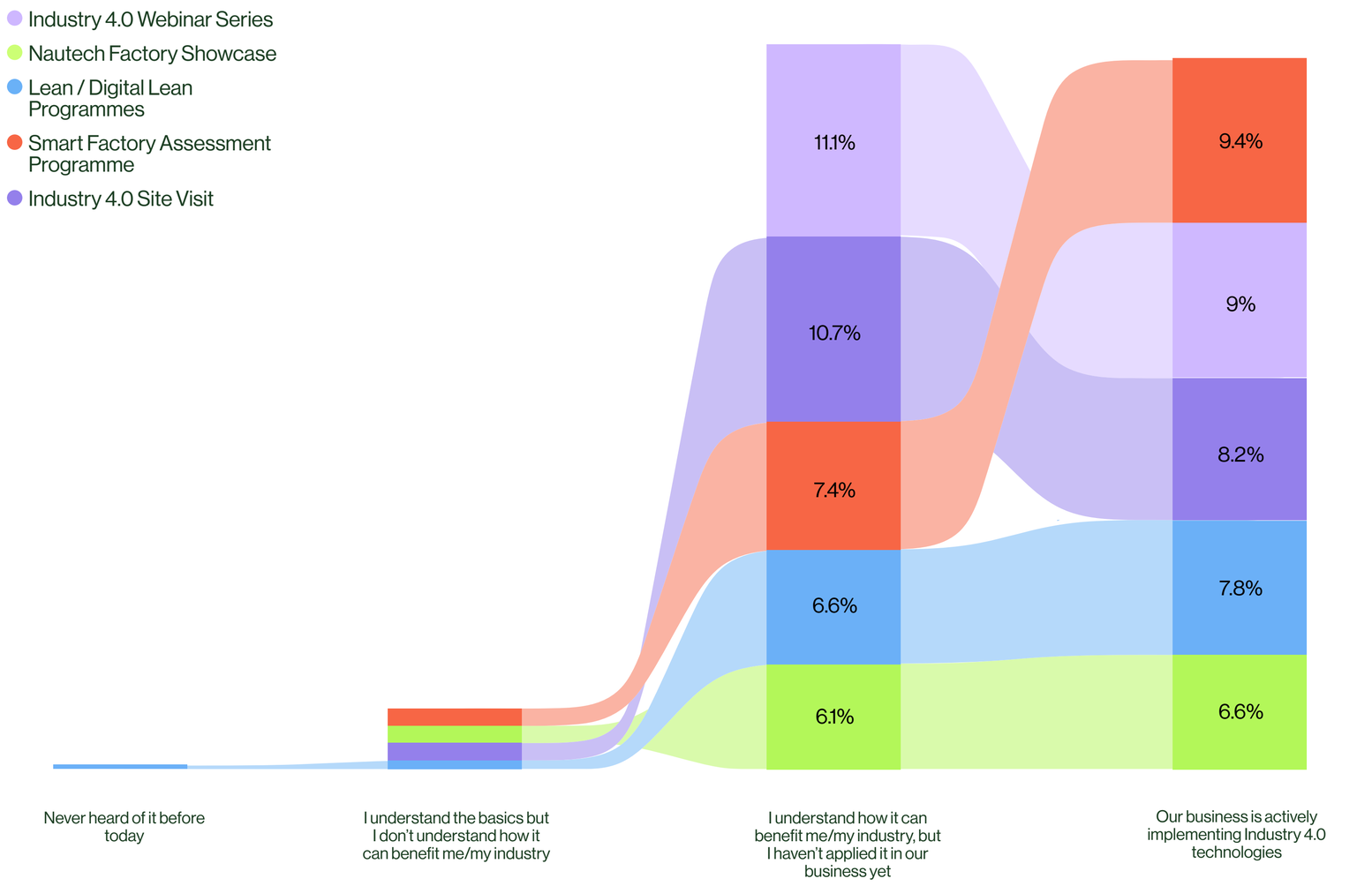
Callaghan Innovation Industry 4.0 Programme

DEMONSTRATION NETWORK PARTICIPATION

The Callaghan Innovation Industry 4.0 programmes have successfully helped manufacturers improve their understanding of Industry 4.0 and its value.

Top 5 Callaghan Innovation Industry Events Participation by Awareness Level

Which of the following Callaghan Innovation events/ programmes have you participated in? *(Select all that apply)*

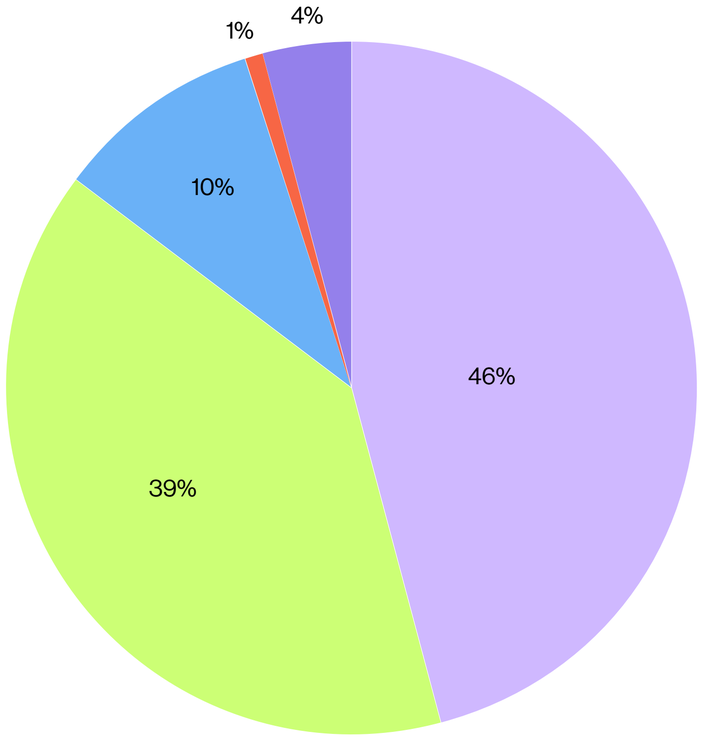


Callaghan Innovation Industry 4.0 Programme

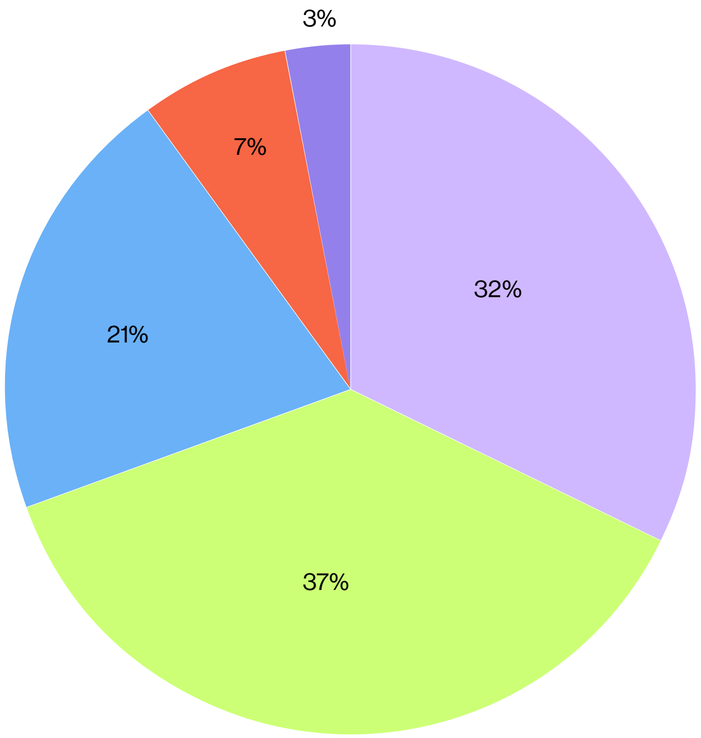
DEMONSTRATION NETWORK PARTICIPATION

We're delighted to see that participation in our programmes has also helped facilitate change in the sector.

Participation helped improved understanding



Participation helped facilitate change



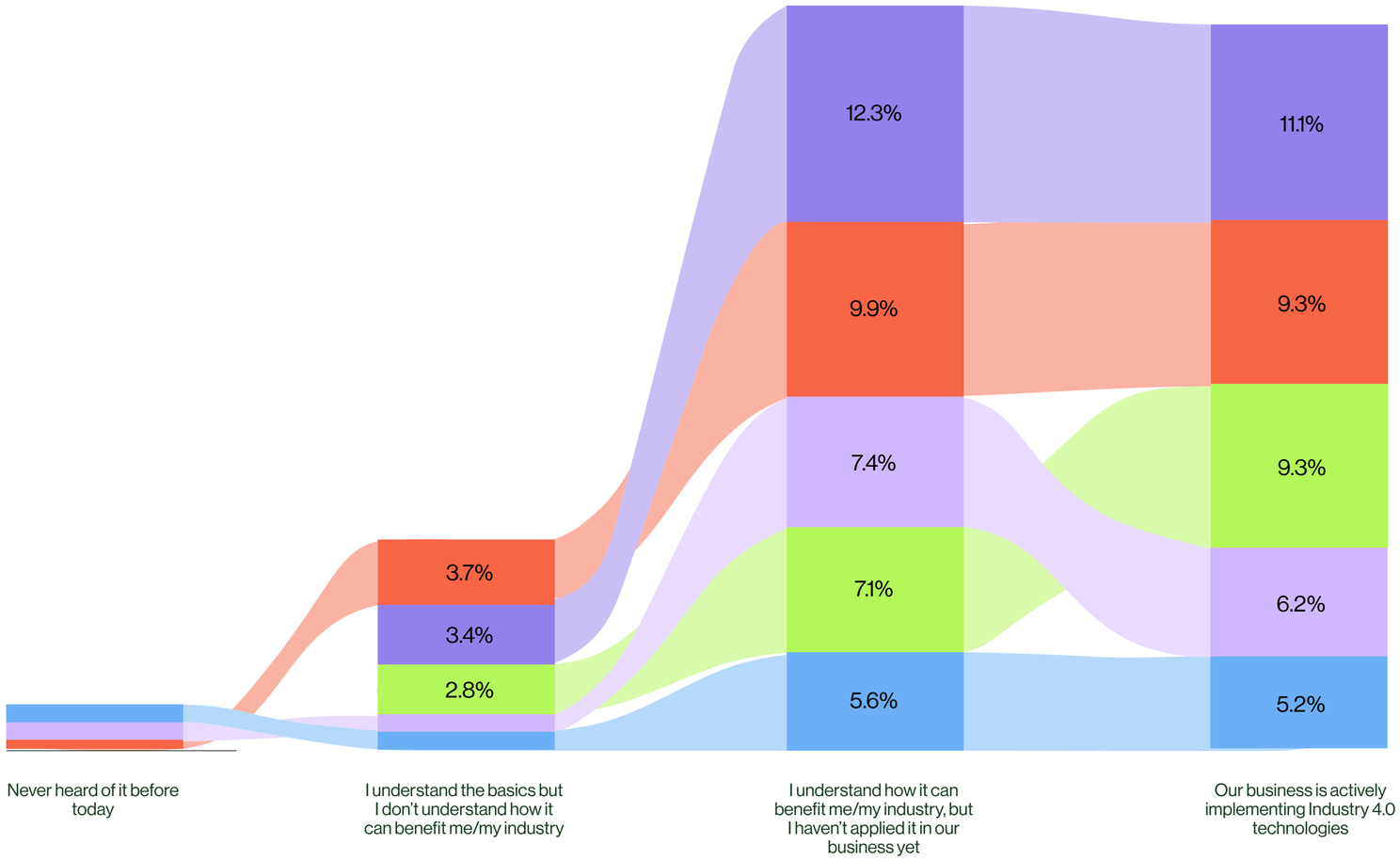
Readiness Review - Available Resources

BUILDING ON EXISTING RESOURCES

Callaghan Innovation Industry 4.0 Resources by Awareness Level

- White papers / Technical information
- Access to a NZ online community to share ideas
- A guide to Industry 4.0 suppliers in NZ
- Information on workshops and meetings
- Webinars on Industry 4.0 case studies within NZ

What resources would be helpful to you? (e.g. to take away from our events or access from our Industry 4.0 Webpage)
(Select all that apply)



Readiness Review - Support Required

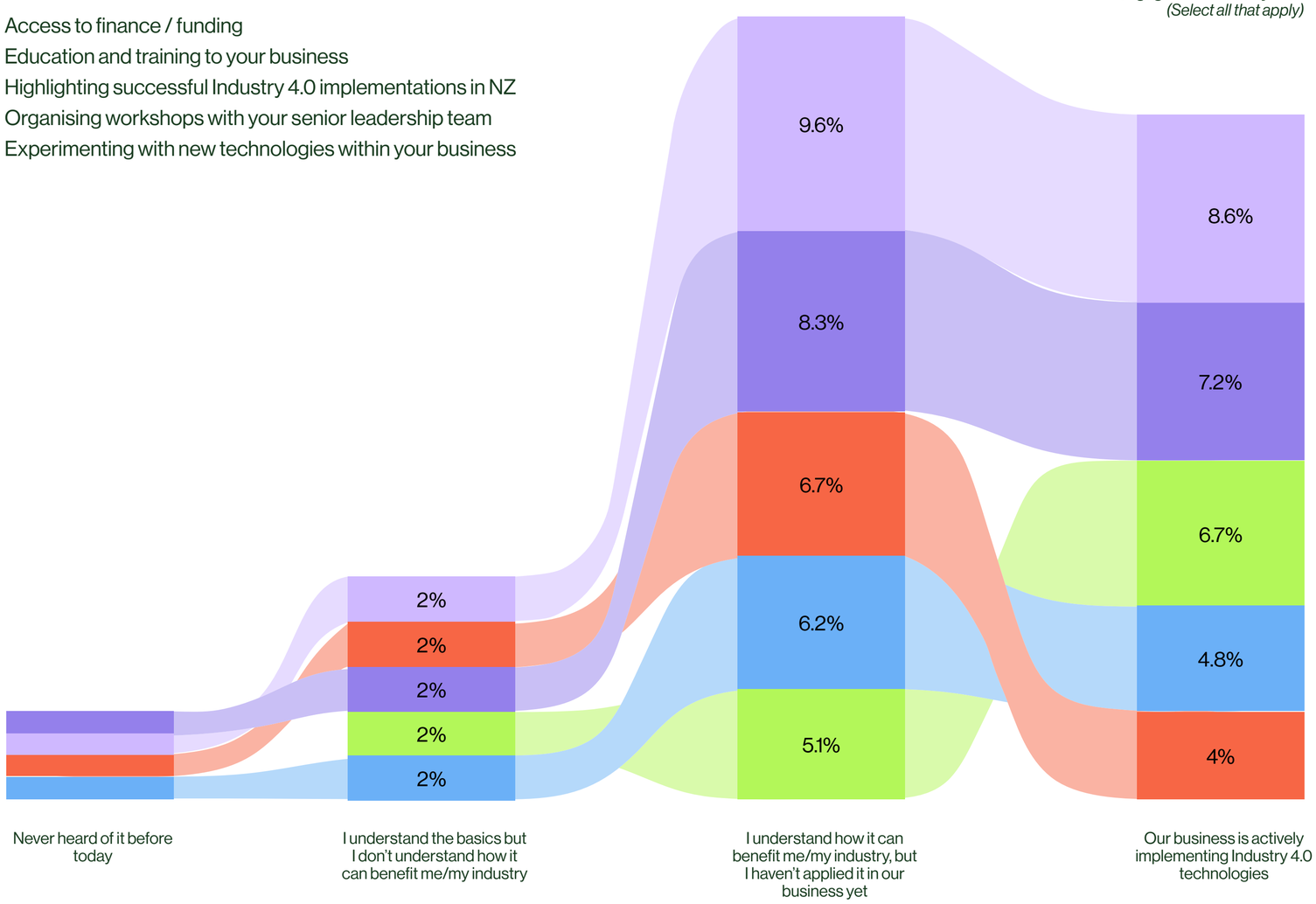
POSSIBILITIES FOR THE FUTURE

Respondents indicated a move towards **1:1 intervention** is required, a significant shift from previous years where education and understanding the benefits was once a priority.

Support Areas by Awareness Level

- Access to finance / funding
- Education and training to your business
- Highlighting successful Industry 4.0 implementations in NZ
- Organising workshops with your senior leadership team
- Experimenting with new technologies within your business

What sort of support would help you engage with Industry 4.0?
(Select all that apply)



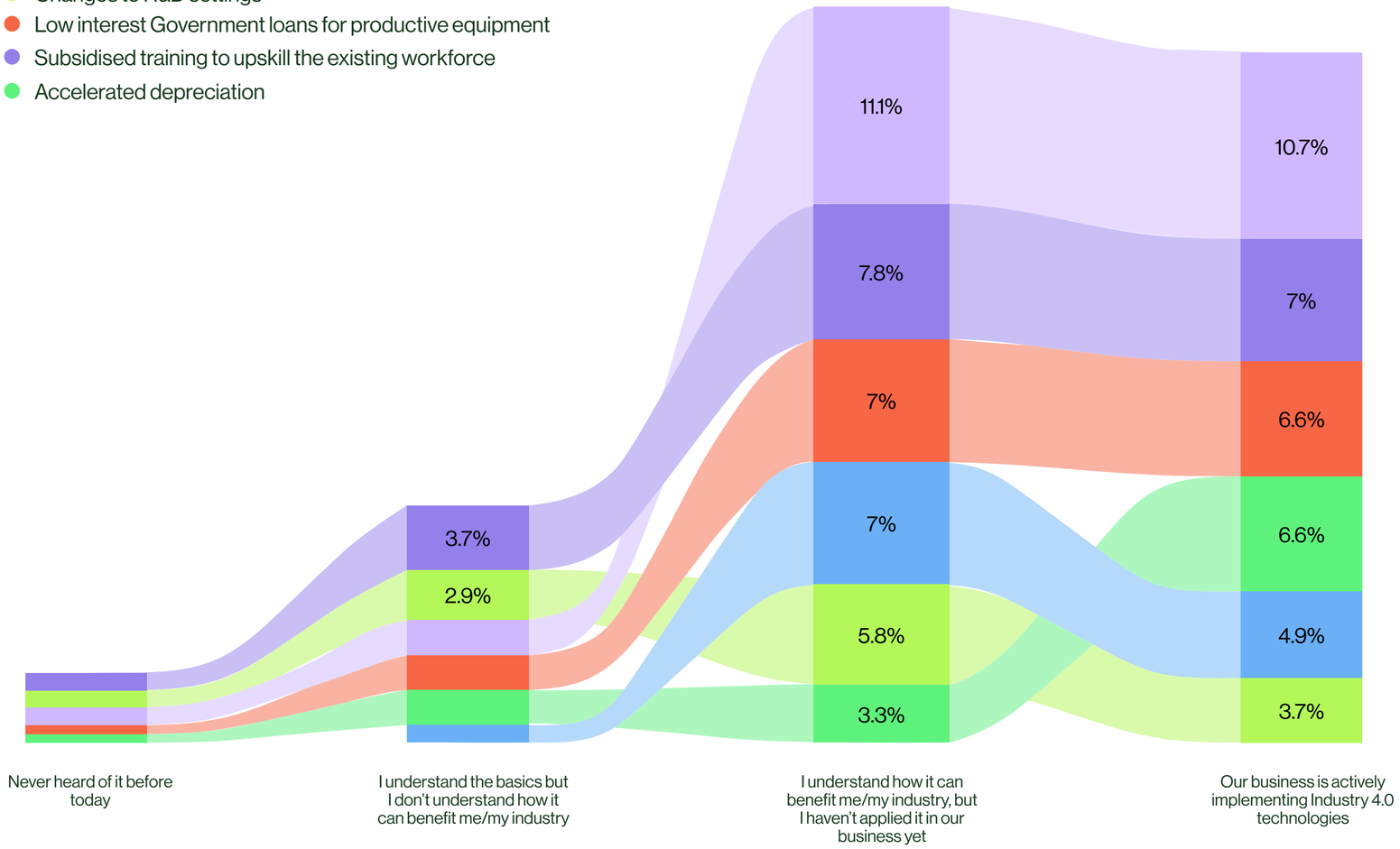
Readiness Review - Funding Mechanisms

WHAT WOULD NZ MANUFACTURERS WANT?

It was surprising to see **subsided training for upskilling the existing workforce** come in second when other funding options were available.

Funding Mechanisms by Awareness Level

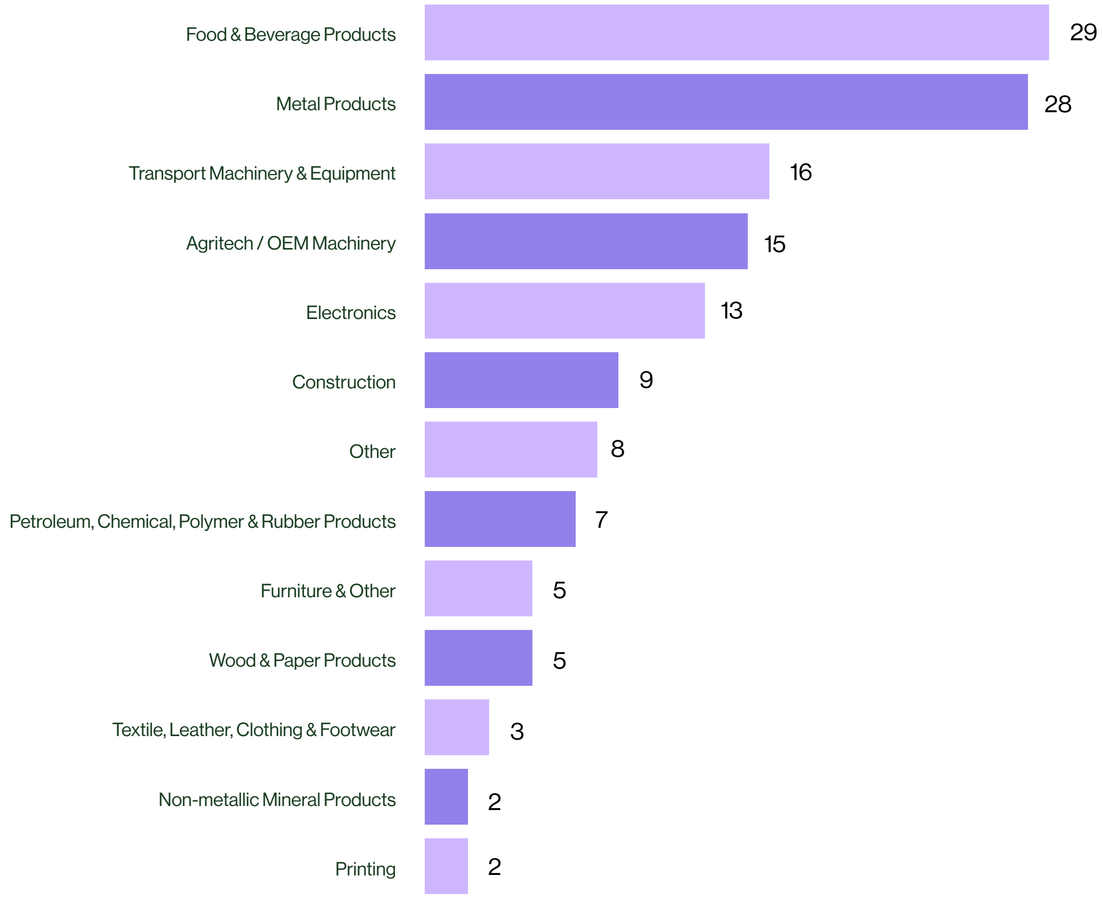
What funding mechanisms do you think would have the most impact on New Zealand's productivity problem?
(Please select up to two answers)



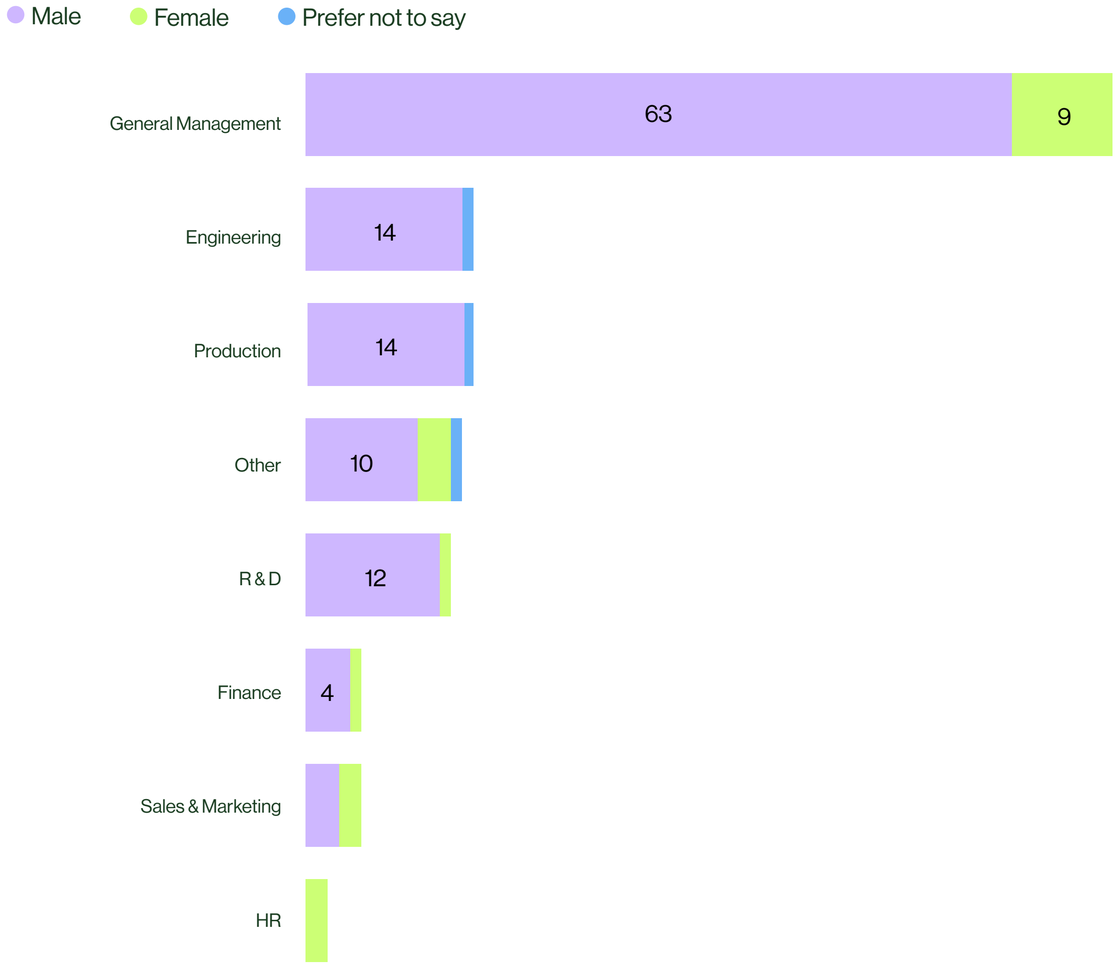
Demographics of Survey Responders

BUSINESS SECTORS & FUNCTIONS

Business Sector

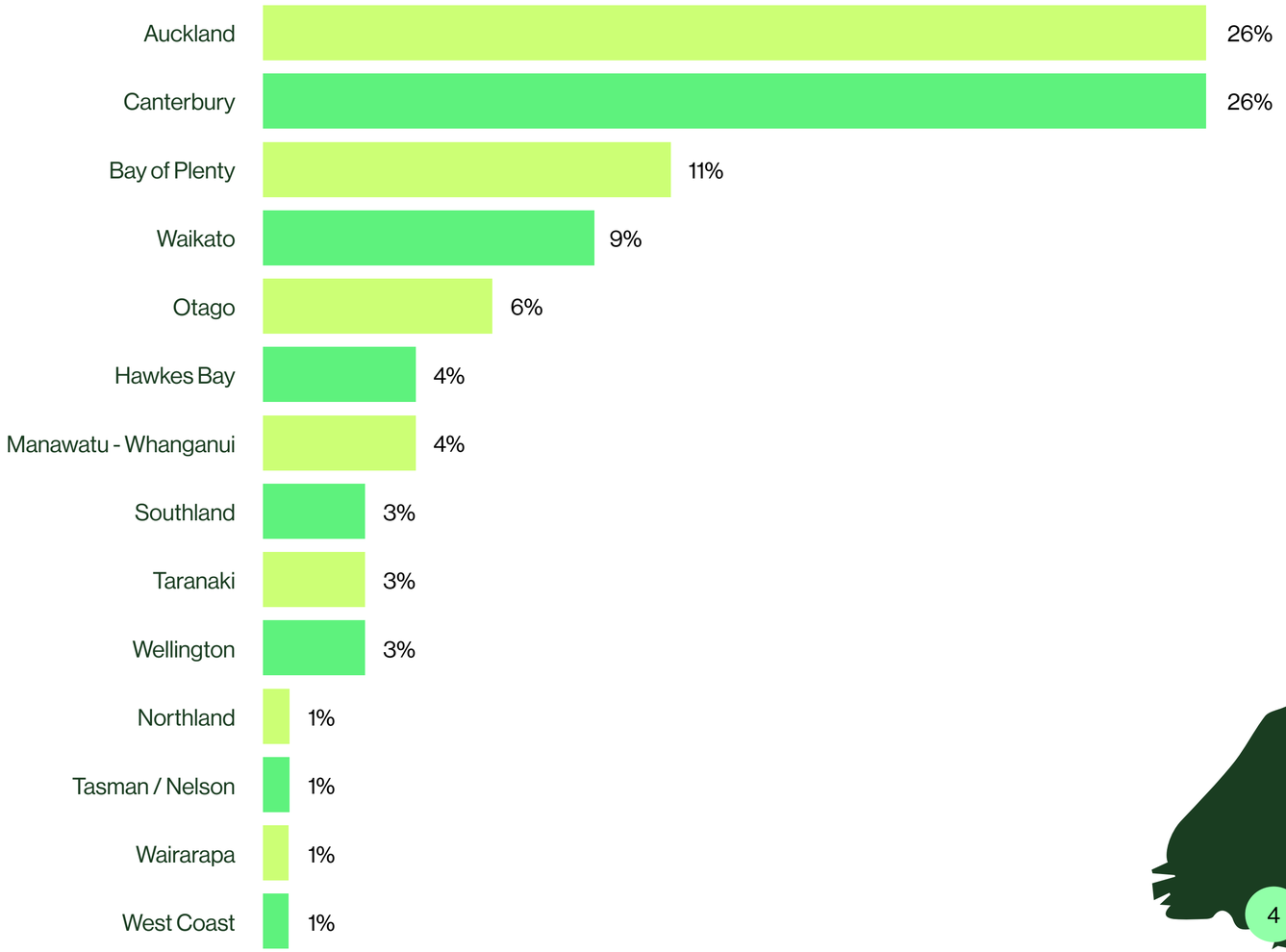


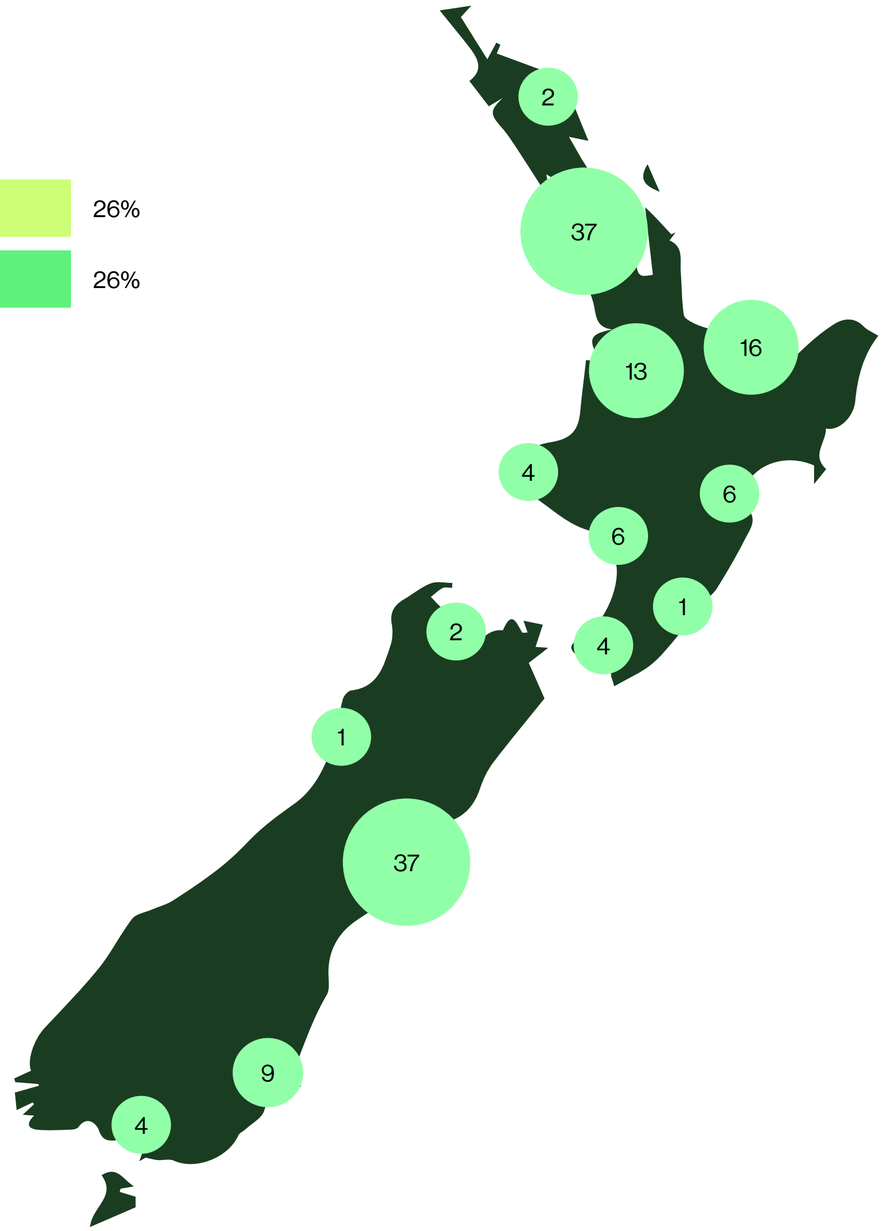
Respondent's Business Function



Demographics of Survey Responders

BUSINESS REGIONS





n = 142

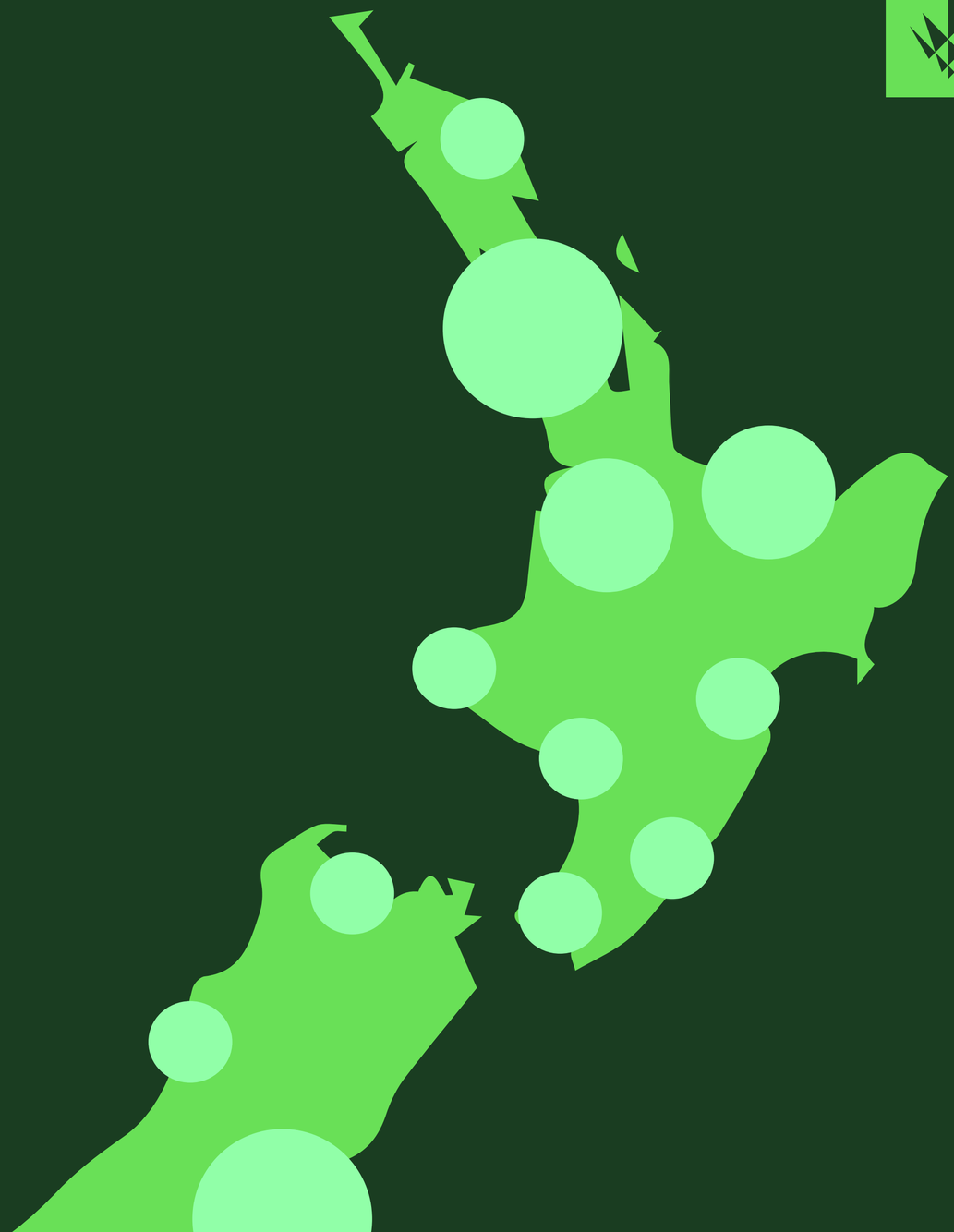
Smart Factory Assessment Programme Insights

Data Overview

After conducting 197 assessments as part of the Smart Factory Assessment Programme, we are delighted to share the insights and findings from this journey.

The Smart Factory Assessment Programme was set up to help manufacturers continue to evolve and develop and deliver even better products and services to their customers. It is based on the Smart Industry Readiness Index (SIRI), a globally recognised set of tools, frameworks and metrics, developed specifically to support manufacturers accelerate their Industry 4.0 journey. While the SIRI assessment results are unique to the manufacturer, we can share ammonized insights we captured along the journey.

It's important to note that the assessments focused on smaller manufacturers (fewer than 150 FTEs), and therefore may not fully reflect the work and experiences of larger manufacturing organizations nationwide.



Callaghan Innovation Te Pokapū Auaha

Partner Insights

Email
LinkedIn
Website

Mike Pond

I think many small to medium sized manufacturers in New Zealand struggle to relate to Industry 4.0 (as it's typically presented) as they lack the scale to justify these highly automated and integrated systems.

However, there is a lot of opportunity to move down the digitisation pathway regardless of scale. Some common opportunity areas included:

» Real time data showing the status of the shop floor (and even better, integration with planning functions)

» Providing data in actionable format for teams – for example, dashboards, curated exception reports, trends, alerts, etc.

» Streamlining enterprise (office based) processes through the use of more digital systems (and not spreadsheets!)

As for the SIRI assessment process itself, the consistent feedback I received from manufacturers was that having an independent view of their business, following a structured, well thought out framework really engaged the teams in getting started on Industry 4.0.

The framework breaks it down into manageable chunks to enable them to see what small bites they can start with to begin eating elephant.

Partner Insights

Callaghan Innovation Te Pokapū Auaha

lmac
Digital **Transformation** for
Tomorrow's Manufacturing

James Leek

Since leading NZ's first SIRI assessment in 2020, it has been an exciting journey helping manufacturers across the country begin to embrace practical Industry 4.0 applications as part of this programme. At LMAC we've seen manufacturers realise gains in productivity, accelerate product innovation and use emerging technology to unlock additional revenue streams. Throughout, our team has seen several common themes emerge:

Upskilling is a game changer
We consistently see real value in building internal capability at every level. Hands on workshops can train and engage shop floor teams and give leaders the confidence to adopt new technologies.

Technology roadmaps must link to business strategy
Clear alignment between vision, competitive advantage, and the digital transformation roadmap is essential to ensure prioritisation is driven by impact and avoids the hype of new tech.

System connectivity is maturing
Data is flowing more freely across systems, particularly in SMEs, as API accessibility increases. That means smarter, faster decisions based on accurate, timely information.

AI interest is high but discipline is key
Enthusiasm for AI is real, but value comes from deploying AI agents against specific use cases that prove ROI and deliver clear operational benefits.

The right foundations are critical for sustained success
The businesses that avoid digitalising bad processes by embedding Operational Excellence practices see the biggest and most sustainable gains.

While progress has been impressive, there's still work to do. We encourage manufacturers to keep strengthening foundations, embrace the right technologies to support strategic goals, and continually lift productivity. With focus and the right support, manufacturing can remain a dynamic engine at the heart of New Zealand's economy.

Email
LinkedIn
Website

Partner Insights

Email
LinkedIn
Website

Callaghan Innovation
Te Pokapū Auaha

Ivo Gorny

These assessments help to identify gaps and opportunities guided by a framework that helps cast a foundation to build a factory-of-the-future on. The biggest learning effect happens when everybody on the leadership level gets together in one room, is taken out of their daily routine and talks to each other – how processes are implemented versus how they are planned.

Data is the gold of tomorrow, they say, but just collecting data without knowing what to do with it is a waste of time at best. Therefore, it is highly recommendable to identify the future look of the business, identify the data that can be generated or will be needed, and then implement a solution geared towards this future.

Ownership of the process, the data and the investment within the company is very important. If a company identifies a capability as crucial for their future success, they might want to try everything to grow or keep the required knowledge in-house.

Another important insight is that not everything must (or can) be digitized in the first step. Picking the battles and the low hanging fruits offers the opportunity to 'build the plane while flying it' – that sounds scary, but it is not. Dreaming big and starting small, with room for errors, will eventually lead to success. Speaking of which – the process of modernizing a factory (or any business) is an ongoing effort – it never ends.

Partner Insights

Email
LinkedIn
Website

Argon&Co

Scott Adams

The Callaghan Innovation Smart Factory Readiness Assessment has proved to be an excellent means to assess the current capability of a manufacturing company to apply technology, using the Industry 4.0 framework, and to then plan for and produce improved results. I have worked with a broad range of companies and there was a consistent high level of engagement and considerable praise for the assessment.

For each of the clients I assessed we always got value from being able to clearly identify, through the prioritised dimensions, how to move the business forward which was then incorporated into, or became the basis of, the business plan. Though it is still early in the improvement process for these clients the momentum the Smart Factory Readiness Assessment has generated is amazing and is, without doubt, the best assessment tool I have used in my 13+ years of consulting because it not only scores, it prioritises, it globally benchmarks, and it clearly identifies a path forward with a little bit of help from myself.

Partner Insights

[Email]
[LinkedIn]
[Website]

Andrew Cowie

One of the most encouraging things I've seen through the assessments is how actively companies are building the culture and capabilities needed for digital transformation — laying strong foundations for long-term success in the era of Industry 4.0. It's clear that organizations are thinking carefully about the skills and mindsets they'll need for the future. There's also a real groundswell of energy and enthusiasm: people from all kinds of roles and backgrounds are stepping forward with ideas, embracing the challenges, and showing a genuine eagerness to be part of the journey.

There are still some significant hurdles to overcome — a common challenge is that many businesses aren't treating their data as the critical asset it is.

While there's a lot of optimism around the potential of data-driven decision-making (and AI in particular), there's often less recognition that this value will depend on building high-quality data assets—something that takes time, focus, and sustained investment.

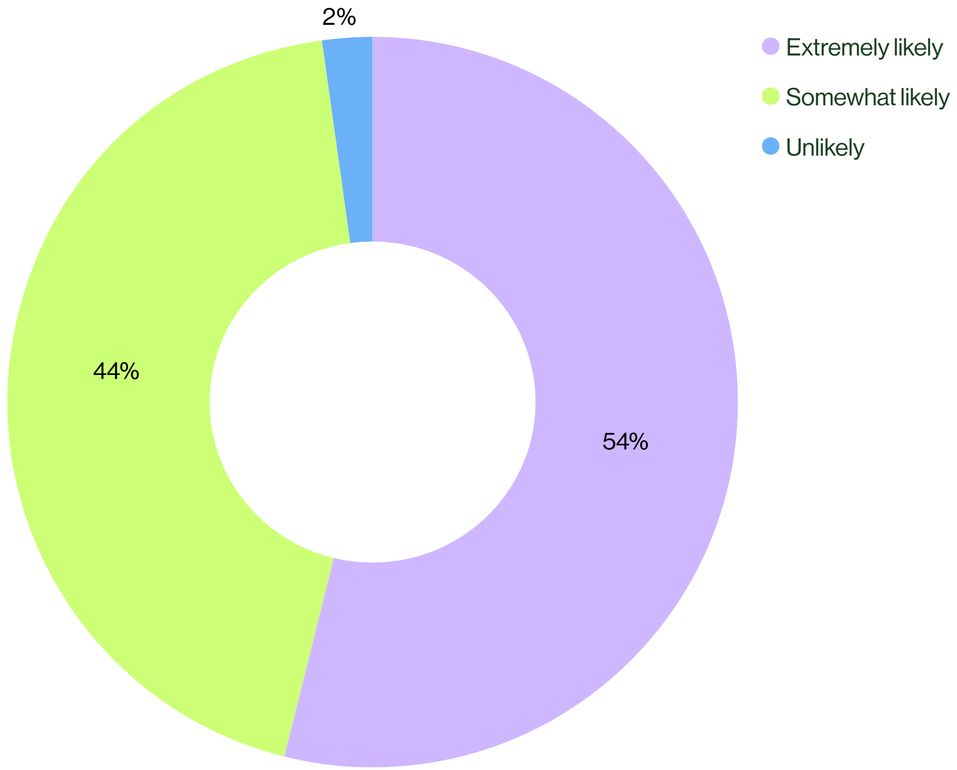
Another gap I've noticed is in core manufacturing systems, especially among smaller businesses. It's not just about tool availability, but also about organizational fit and the expert advice needed to select and implement them . . . there are still a lot of manual systems and spreadsheets out there trying to 'fill the gaps' in key processes!

The highlight of the Smart Factory Assessment Programme for me has been just how inspiring the people and businesses are. It's incredibly motivating and humbling to see the creativity, resilience, and determination people bring to solving real business challenges. Hearing the stories behind the solutions and innovations companies have developed really underscored the ingenuity of the industry.

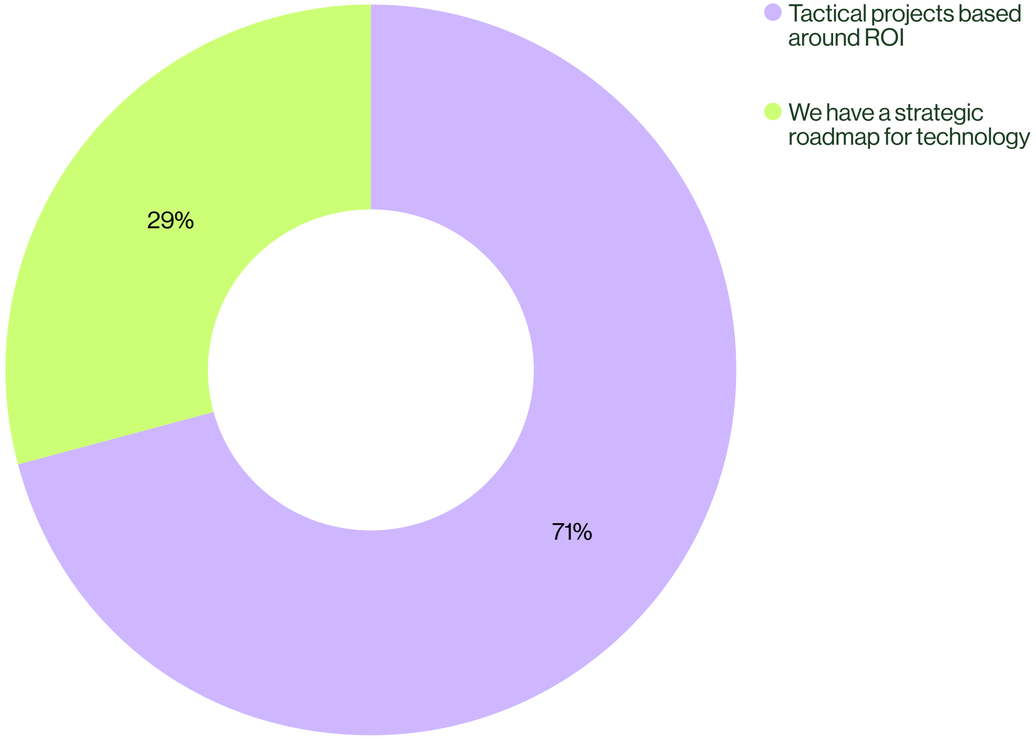
Smart Factory Assessment Programme

INSIGHT DATA

Likelihood to Implement Report Recommendations



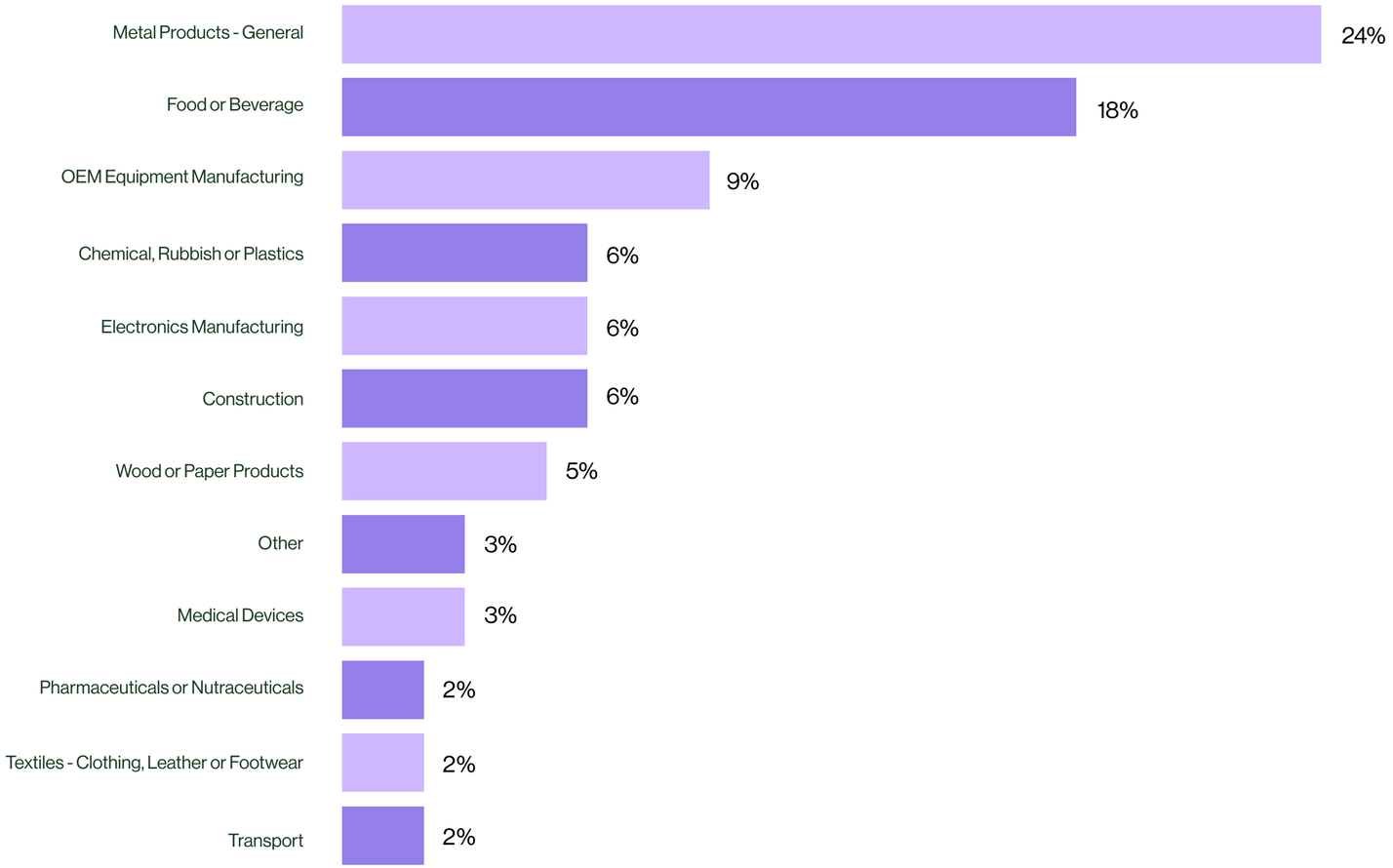
Approach to Technology



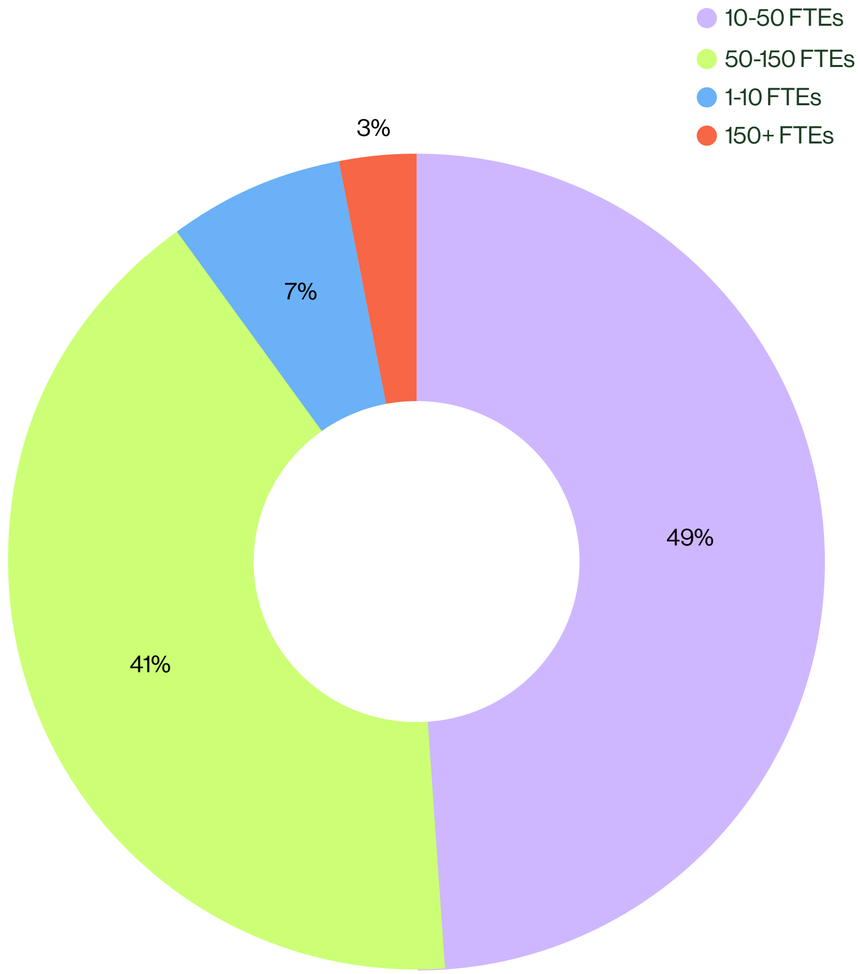
Smart Factory Assessment

ASSESSMENT DEMOGRAPHICS

Business Sector



Company Size



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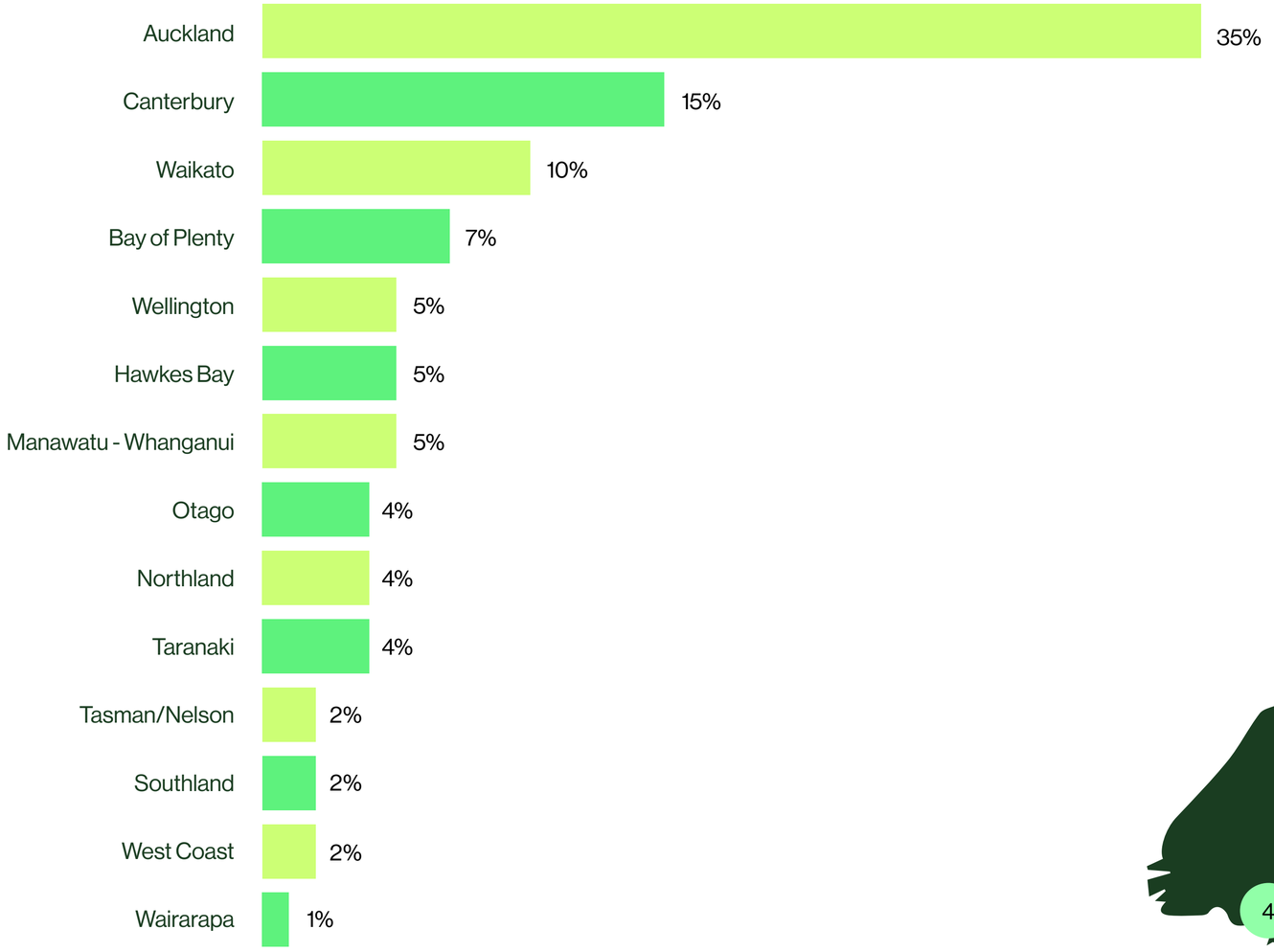
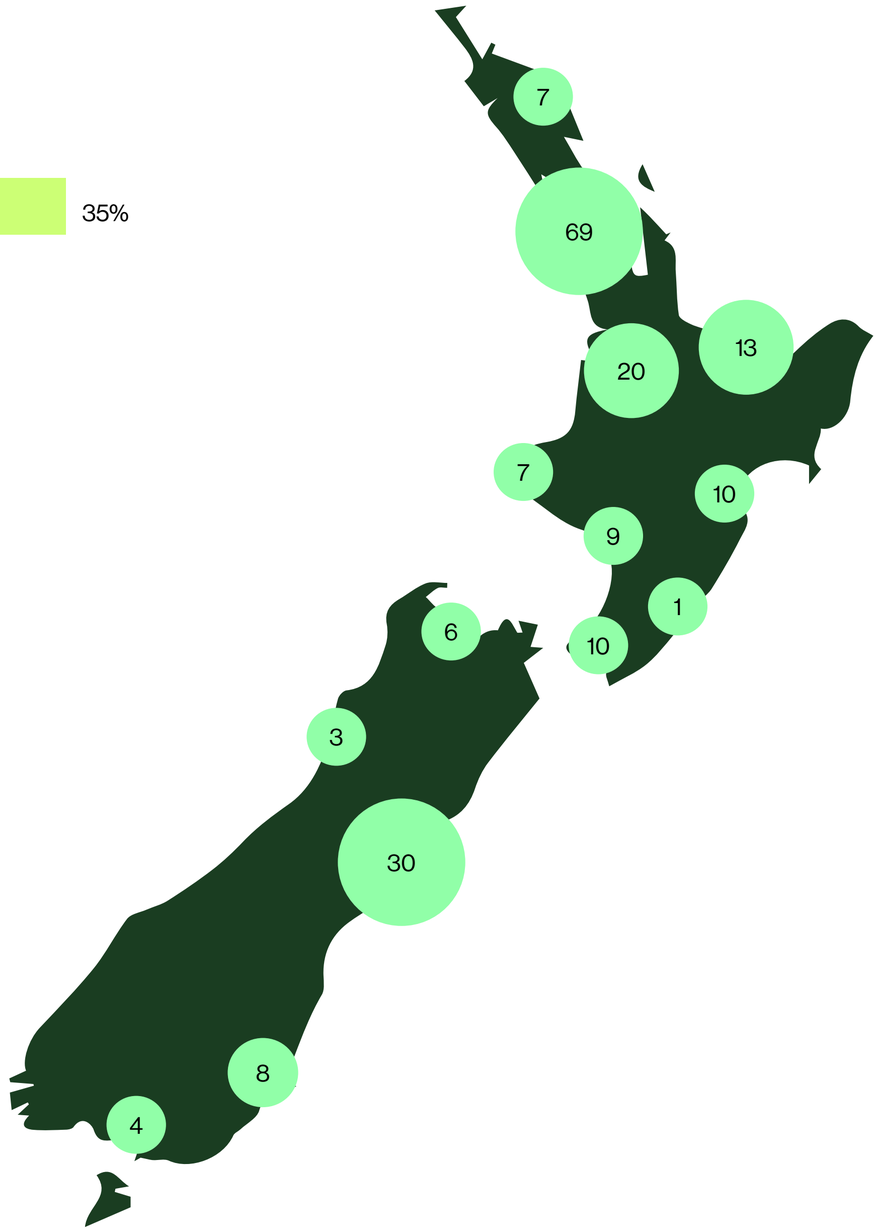
Smart Factory Assessment

ASSESSMENT DEMOGRAPHICS





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A perspective from the Energy Efficiency & Conservation Authority

Improving energy efficiency is a growing priority for manufacturers to enhance productivity and manage rising costs. EECA's Manufacturing Pathway supports businesses by offering a structured set of free tools, resources, and expert guidance tailored to the needs of the sector.

By first understanding a site's energy intensity, businesses can identify where the greatest efficiency gains can be made and prioritise efforts accordingly. Energy assessment checks available through the pathway provide insights into energy use and highlight practical, cost-effective opportunities for optimisation.

"Energy efficiency presents a clear opportunity for manufacturers to reduce costs and improve operational performance. EECA supports business with targeted tools, expert advice, and assessments that support informed, strategic decision-making. It's a practical framework that helps businesses take control of their energy costs."

Richard Briggs
General Manager - Delivery & Partnerships EECA

Why Environmental, Social and Governance (ESG) measurements are important

Callaghan Innovation Te Pokapū Auaha

Why ESG matters for New Zealand exporters

For New Zealand exporters, ESG is becoming critical for market access. Over 80%, by value, of New Zealand's exports now go to countries with climate-related disclosures proposed or in force. While many New Zealand exporters may not be directly subject to these regulations, they are likely to be impacted through their position in global supply chains.

Reporting on, at minimum, carbon emissions will be essential to support customer compliance obligations. In parallel, multinational corporations are setting expectations that often exceed regulatory baselines. Companies such as Nestlé, McDonald's, and Mars are requiring suppliers to develop and disclose carbon reduction plans across most markets. Financial institutions are also increasingly integrating climate risk into lending and investment decisions.

Strengthening ESG practices is becoming fundamental to securing contracts, attracting investment, and ensuring long-term resilience in a changing global economy.

Florence Van Dyk
Global Sustainability Lead
NZ Trade & Enterprise

Sustainable Business Maturity

KEY INSIGHTS FROM SMART FACTORY ASSESSMENT

Callaghan Innovation Te Pokapū Auaha

Climate Change Readiness Index

0 – None

Currently not a business priority.

1 – Formalisation

The organisation acknowledges it needs a plan but has not started to document or create actionable steps.

2 – Development

Planning stage, developing a plan to address the concern.

3 – Validated

The plan is in place and is starting the implementation process, still a work in progress towards full implementation.

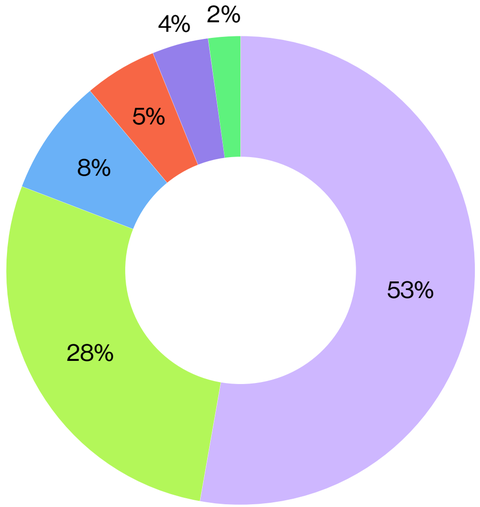
4 – Implemented

Has implemented the plan and can see actionable outcomes.

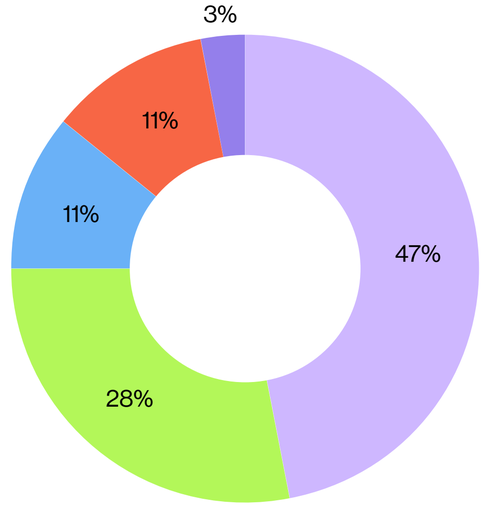
5 – Adaptive

The organization actively adapts their plan to changes to market needs and requirements.

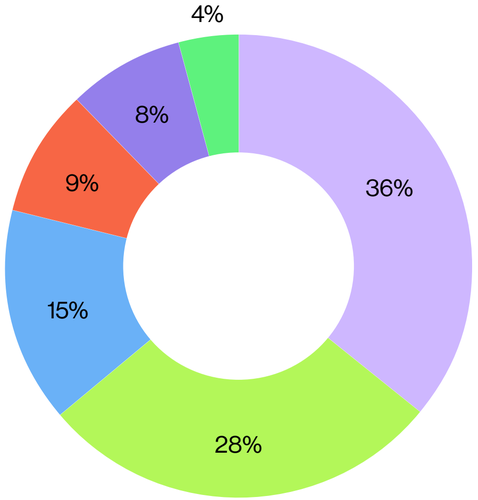
Emissions Reduction Plan



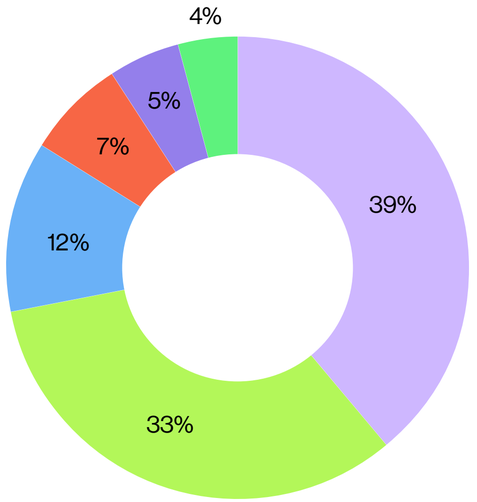
Energy and Water Savings Plan



Waste Reduction Plan



Environmental Policy



Sustainable Product Design Maturity

KEY INSIGHTS FROM SMART FACTORY ASSESSMENT

Callaghan Innovation Te Pokapū Auaha

Climate Change Readiness Index

0 – None
Currently not a business priority.

1 – Formalisation
The organisation acknowledges it needs a plan but has not started to document or create actionable steps.

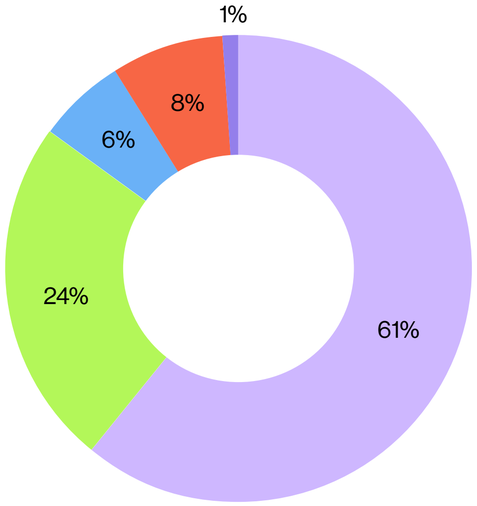
2 – Development
Planning stage, developing a plan to address the concern.

3 – Validated
The plan is in place and is starting the implementation process, still a work in progress towards full implementation.

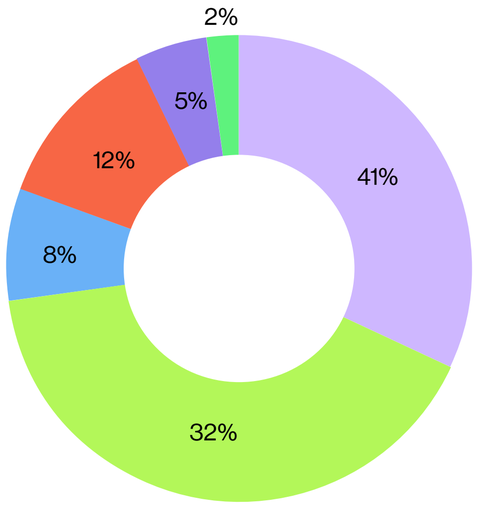
4 – Implemented
Has implemented the plan and can see actionable outcomes.

5 – Adaptive
The organization actively adapts their plan to changes to market needs and requirements.

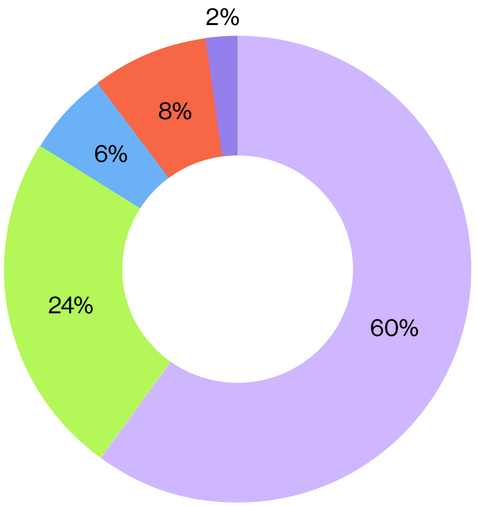
Cradle to Grave Design



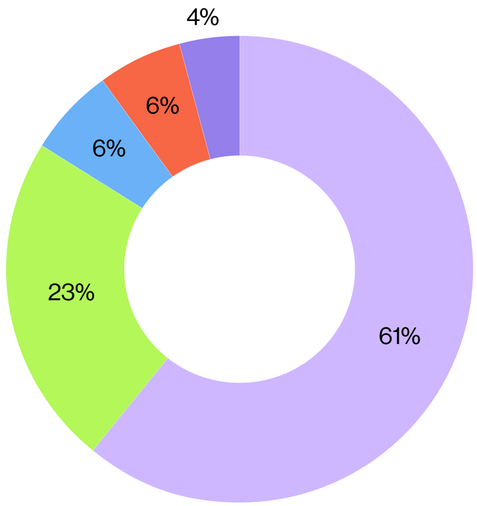
Sustainable Product Design



Sustainable Purchasing Policy



Circular Economy Plan



Appendix A

2025 INDUSTRY 4.0 INSIGHTS SURVEY QUESTIONS

Callaghan Innovation Te Pokapū Auaha

01. Do you manufacture a product in New Zealand?
02. What is your level of awareness of Industry 4.0?
03. What manufacturing programs have you participated in the last three years? (Tick all that apply)
04. What business functions or metrics would you hope to improve by implementing Industry 4.0? (Select all that apply)
05. Are you experiencing any barriers preventing you from implementing Industry 4.0 technologies in your business?
06. What is preventing your organisation from implementing Industry 4.0 technologies? (Please select up to three answers)
07. What funding mechanisms do you think would have the most impact on New Zealand's productivity problem? (Please select up to two answers)
08. What technologies do you believe will add the most value to your business? (Please select up to three answers)
09. What digital solutions are you most interested in implementing in the near future? (Please select up to three answers)
10. Do you have the resources below in place to support Industry 4.0 implementation in your organisation?
11. Which of the following Callaghan Innovation events/programmes have you participated in? (Select all that apply)
12. Please indicate to what extent you agree with the below statement: *Participating in one or more Callaghan Industry 4.0 events/programs has helped improve my understanding of Industry 4.0.*
13. Please indicate to what extent you agree with the below statement: *Participating in one or more Callaghan Industry 4.0 events/programs has inspired me/my business to make a change.*
14. What sort of support would help you engage with Industry 4.0? (Select all that apply)
15. What resources would be helpful to you? (e.g., to take away from our events or access from our Industry 4.0 Webpage). (Select all that apply)
16. What sector is your business in?
17. What part of the business do you mostly work in?
18. What region are you in?
19. How many full-time equivalent (FTE) employees does your business have?
20. What gender do you identify as?
21. What is your position within your organisation?
22. Is there anything we did not ask, that you feel would accelerate manufacturing in New Zealand?

Rukuhia te wāhi ngaro, hei maunga tātai whetū

Explore the unknown, pursue excellence.