

The 2021 KPMG

# FOURTH INDUSTRIAL REVOLUTION BENCHMARK

November 2021

Produced in collaboration  
with Faethm





# Foreword

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The KPMG Fourth Industrial Revolution Benchmark is an annual study that seeks to shine a spotlight on corporate Australia's levels of adoption of advanced and emerging Fourth Industrial Revolution technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Blockchain, robotics, quantum computing, 3D printing, nanotechnology, augmented reality, virtual reality, autonomous vehicles, digital twins, cloud computing and 5G. In collaboration with Faethm, the research also explores the effects of these technologies on Australian industries and workforces.

The Fourth Industrial Revolution (4IR) represents the convergence of the physical, digital and biological worlds enabled by advanced and disruptive technologies. It represents a new epoch in human development that will bring immense opportunities and serious threats. Nations, organisations and policy makers face a tipping point as the speed and depth of the 4IR redefines our understanding of how to create value for economies and people.

Understanding the rate of adoption of advanced technologies from the 4IR is a challenge for many business leaders. The 2021 KPMG Fourth Industrial Revolution Benchmark seeks to identify moves in adoption and the outlook of emerging and advanced technologies over time, to enable Australian business leaders to understand how they compare to peers, and whether they are lagging or leading.

The aim of the 2021 Fourth Industrial Revolution Benchmark is to help Australian leaders understand the state of adoption of 4IR technologies, and the ways they are transforming businesses, investments and our people into the future.

KPMG stands ready to assist our clients navigate the Fourth Industrial Revolution.



**MICHAEL PRIDDIS,**  
CEO, FAETHM

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## A year into a pandemic that sped up technology implementation and led to unprecedented work transformation worldwide, adoption of emerging technologies in Australian businesses remains immature.

### LOOKING BACK OVER THE PAST YEAR

The world is still grappling with the COVID-19 pandemic, and it is still unclear how organisations, communities and workers will continue to be impacted in the months and years to come. Yet, one thing remains certain: the pandemic tested not only economic resilience, but technology and skills readiness.

Organisations and employees across the world had to adopt and adapt to the use of emerging technologies to continue operations, produce cost savings, and reduce human-interaction and risk exposure, and they did so at varying degrees of success. Furthermore, this transformation is far from over.

Across the world organisations are evaluating what this 'new normal' will mean for the workplace, and how it will impact their human, technology and operational capabilities. Organisations in Australia are not the exception. For example, most Australians want to keep a hybrid approach to remote working. This in turn raises a company's needs for cloud computing technologies and cybersecurity skills.

However, as this report unveils, even after the unprecedented circumstances of 2020, businesses in Australia still feel unprepared to deal with technological change.

### LOOKING AHEAD OF THE PANDEMIC

Automation has only just begun, and this technological transformation represents a multi-trillion-dollar opportunity for the Australian market.

The country has infrastructure that facilitates a digital ecosystem, and it has a strong human capital today.

Yet, implementation of new and emerging technologies remains immature, organisations across all industries and sizes feel less prepared than before to deal with the upcoming change, and the skills and capabilities of the workforces are seen as both challenges as well as enablers of new technologies.

These factors make rethinking talent management and strategic workforce planning essential for organisational post-pandemic and Future of Work success. Future-proofing jobs can no longer be an activity exclusively for Human Resource Managers but given its importance and reach should concern everyone from the individual to the Board, C-suite level, and managers across all functions.

Companies are more aware of the importance and need for prioritising upskilling and reskilling their workforces. Still, they will need to do this at a larger scale, as jobs evolve, and skills needs change. Individuals will need to become flexible when approaching their career paths and must make the acquisition of new skills central to their working life.

The challenge is to not only embrace lifelong learning but to know which direction to take and how to pursue it. That is why to do this effectively, companies and individuals' decisions should be underpinned by data.

The world is more complex than ever before, full of opportunities, but also risks. Australian companies can take a lead in lifting human capital readiness and training people for the future. Failure to do so will hinder Australian competitiveness globally.



# Background and Methodology

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Since 2019, KPMG has been conducting annual research, in collaboration with Faethm, among Australian business leaders to gauge their understanding of adoption of advanced and emerging Fourth Industrial Revolution technologies such as AI, IoT, robotics, machine learning amongst others. The research also explores the effects of these technologies on Australian industries and workforces.

The 2021 KPMG Fourth Industrial Revolution Benchmark seeks to identify moves in adoption and outlook of emerging and advanced technologies over time, to enable Australian business leaders to understand how they compare to peers, and whether they are lagging or leading.

The results of this year's research were compiled from a KPMG survey of 336 Australian business leaders between July and August 2021.

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# Key findings

Unchanged since the 2020 Benchmark, understanding of the term 'Fourth Industrial Revolution' (4IR) is known to most, however implementation of associated technologies remains immature.

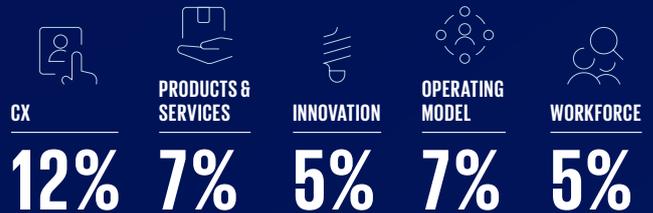
40%

of business leaders surveyed feel they have more than a basic understanding of the term Fourth Industrial Revolution, which is consistent with results of the 2020 Benchmark (44%).



Perceived impact on business of these technologies in five years' time was lower in 2021 overall, relative to the 2020 Benchmark; reduced by 12% since 2020.

Business leaders with a strong understanding of 4IR continue to be significantly more likely to believe that technologies associated with the 4IR will have a higher impact on business, relative to business leaders who have a weak understanding; with a typical perceived impact of ... across business impact areas.



Most organisations, similar to 2020, are still at the consideration stage when adopting technologies, with a typical adoption score across technologies of 2 out of 5.

Companies with \$1 billion turnover continue to be more likely to be at later stages of adoption across several technologies (scoring, on average, 0.5 higher on the maturity scale across 4IR technologies).

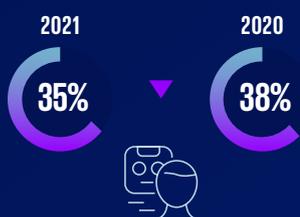
Cloud computing (average adoption score of 3.8 out of 5) continues to be the only technology where organisations report a mature approach to management and delivery.

There is an increasing sense of unpreparedness among companies when considering implementing and adopting 4IR technologies.



Business leaders are eager for change to occur but acknowledge that staff skills are a major barrier and enabler to adoption.

CX and productivity continue to be key continue to be key foreseen benefits for adopting 4IR technology



Only about a third (35%, down slightly from 38% in the 2020 Benchmark) feel that their staff have the necessary skills to implement new 4IR technologies.

Improving the customer experience remains the key reason behind adoption of these technologies with 84% of business leaders selecting this as a key reason for adoption, up from 75% in 2020.





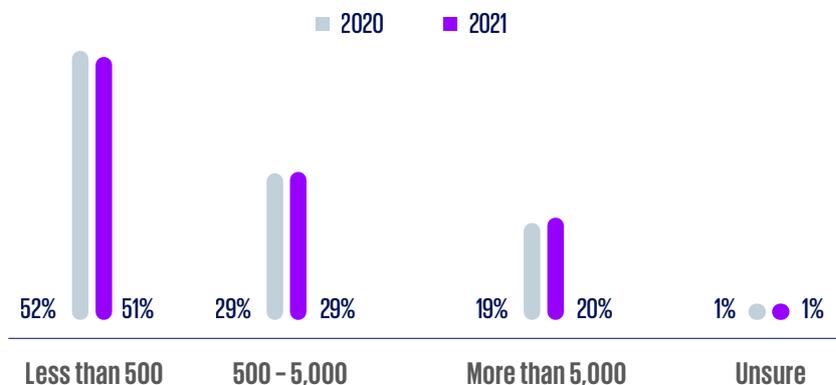
# Respondent Profile

The 2021 respondent profile was comparable to the 2020 Benchmark in terms of business size and annual revenue. However, the sample of business leader respondents is drawn from a broader, more representative range of sectors compared to 2020.

**Q.**

What is the total number of employees in your organisation?

## COMPANY SIZE - EMPLOYEES



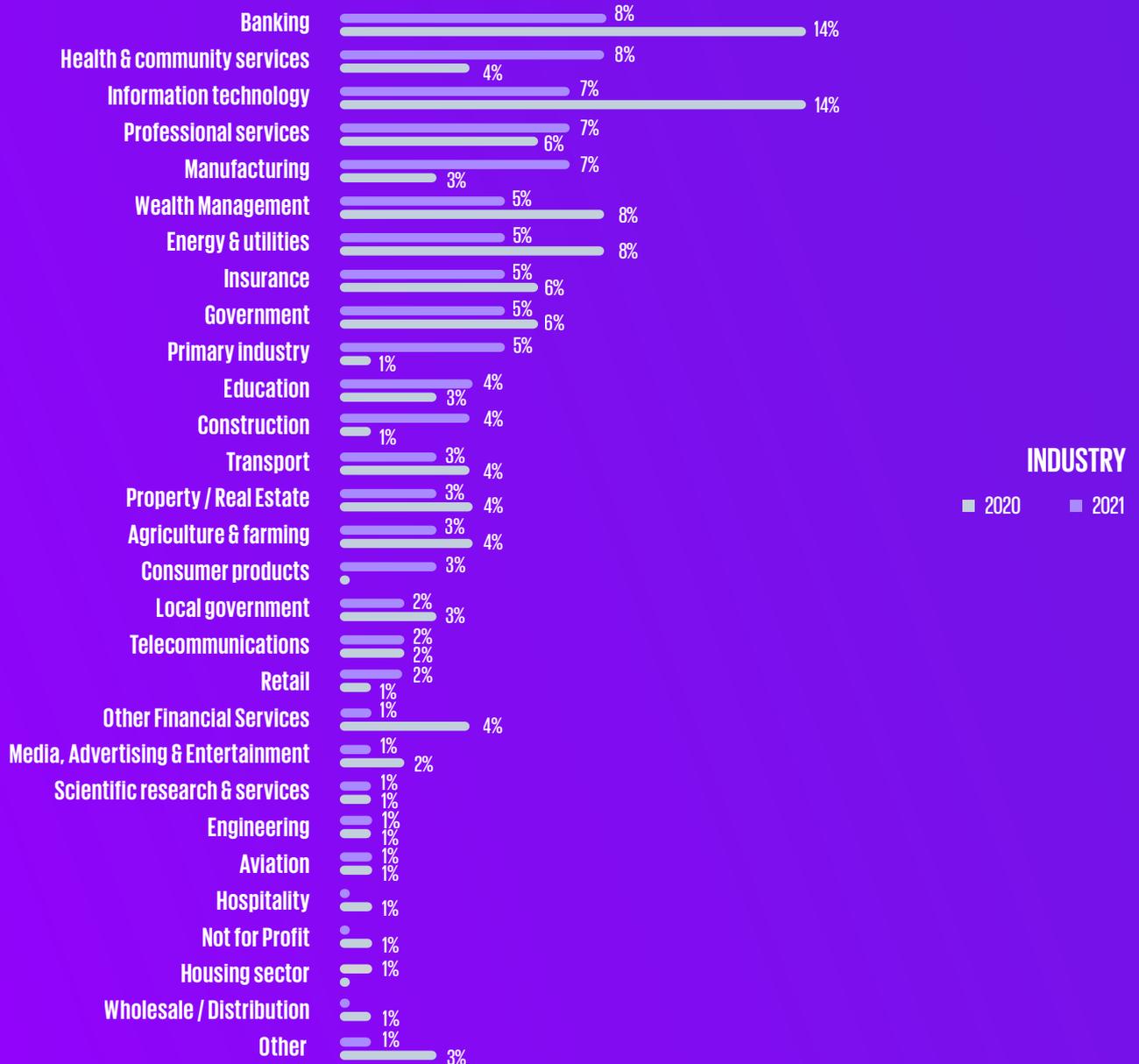
Q.

What is your company's total annual revenue? Base: 2021 n=336, 2020 n=196



Q.

What industry does your organisation operate in? Base: 2021 n=336, 2020 n=196



# Awareness of 4IR concepts

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## Level of awareness of the Fourth Industrial Revolution

Fewer than half of business leaders surveyed feel they have more than a basic understanding of the term Fourth Industrial Revolution, reflecting little change in awareness since the last benchmark. However, only 6% had never heard of the concept – down from 9% in the 2020 Benchmark.

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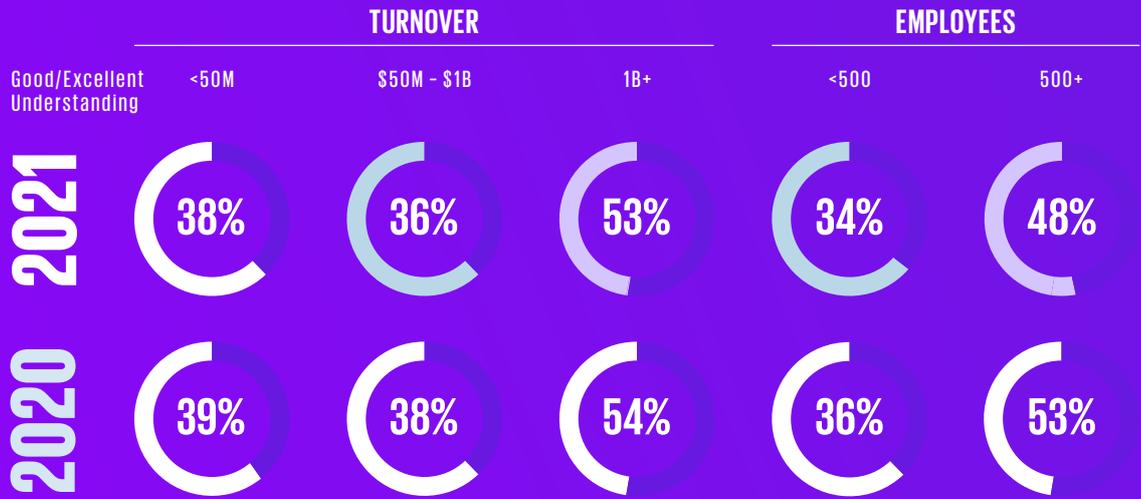
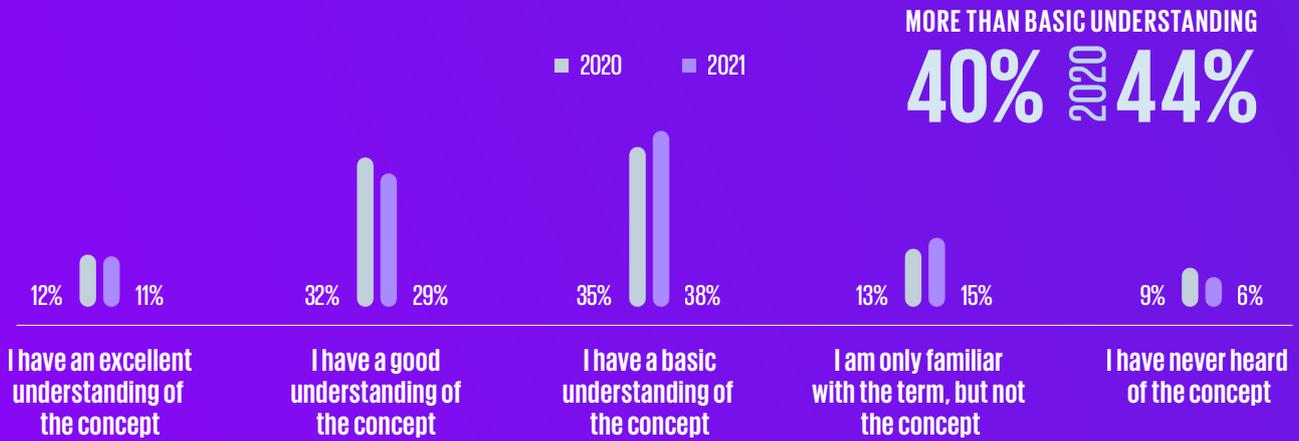
**“Today’s major trends in these complex Fourth Industrial Revolution technologies are only understood by a very small number of the population they affect. They have the potential to increase the divide between those that can use these technologies and those that can’t. This has the potential to impact nations at scale.”**

**DAVID SPENCE,**  
CHAIRMAN OF THE IOT ALLIANCE AUSTRALIA

Businesses with more than \$1 billion turnover and more than 500 employees continue to be more likely to have an excellent or good understanding of the concept (53% and 48% respectively), where there is little change in business awareness of 4IR when considering company turnover and employees. Although awareness generally decreased (from 48% in 2020, down to 40% in 2021), this was variable dependent on industry; with only 19% of Health and Community Services businesses having a good to excellent understanding of 4IR compared to Manufacturing where 63% of respondents had a good to excellent understanding of the concept. Financial Services demonstrated an increase to 42% (from 35%, 2020) regarding a good to excellent awareness of 4IR.

# Q.

How familiar are you with the term the "Fourth Industrial Revolution"? Base: 2021 n=336, 2020 n=196



▼ Significantly higher/lower than 2020



# Impact of 4IR technologies

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## Perceived level of impact in the next five years

When made aware of technologies associated with 4IR, perceived impact in 2021 is significantly lower relative to the 2020 Benchmark results across all aspects.

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**Although level of awareness seems to have influenced level of perceived impact in 2021 compared to 2020, there appears to be no change in perceived impact when comparing industries or country size.**

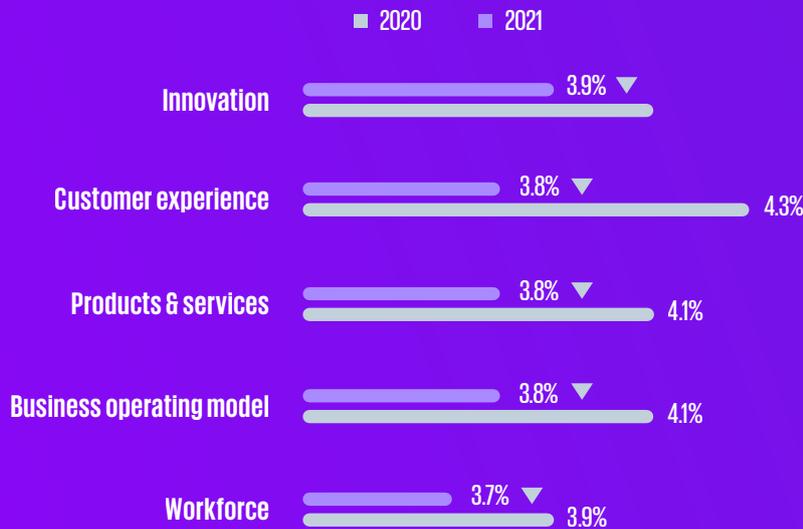
When made aware of technologies associated with 4IR, perceived impact in 2021 is significantly lower relative to the 2020 Benchmark results across all aspects.

Unlike 2020 where the biggest impact of these technologies was expected to be on the customer experience (4.3 average in 2020 compared to 3.8 in 2021), in 2021 businesses are predicting that innovation (the ability for an organisation to innovate its products or services) will have a slightly greater impact (3.9).

Business leaders with a strong understanding of 4IR are significantly more likely to believe that technologies associated with the 4IR will have a higher impact relative to business leaders who have a weak understanding. However, the impact of 4IR remains largely unchanged from 2020, whereby level of impact remains at similar levels, regardless of industry, level of 4IR awareness and company size.

**MEAN SCORE**

1 (low) – (high)



▲ Significantly higher/lower than 2020

**“Conceptually, advanced and emerging technologies [of the Fourth Industrial Revolution] is simple but the level to implement it to is more difficult to gauge as is the ROI to be expected.”**

- SURVEY RESPONDENT

Q.

On a scale of 1 to 5, with 1 being low and 5 being high, how would you rate the level of impact that you believe technologies associated with the Fourth Industrial Revolution will have on the following areas of your organisation in the next 5 years? Base: 2021 n=336, 2020 n=196

		4IR AWARENESS		TURNOVER			EMPLOYEES	
		Strong	Weak / None	<\$50M	\$50M-\$1B	1B+	<500	500+
Customer Experience (CX)	2021	4.1	3.7	3.8	3.9	3.8	3.8	3.9
	2020	4.4	4.2	4.1	4.3	4.6	4.2	4.4
Products & Services	2021	4.1	3.6	3.9	3.7	3.9	3.8	3.8
	2020	4.2	4.0	3.9	4.2	4.4	4.0	4.2
Innovation	2021	4.2	3.6	3.8	3.8	4.1	3.8	3.9
	2020	4.2	4.0	4.1	4.0	4.3	4.1	4.1
Operating Model	2021	4.1	3.7	3.8	3.8	4.0	3.8	3.9
	2020	4.2	3.9	3.9	4.0	4.3	4.1	4.1
Workforce	2021	3.9	3.7	3.7	3.7	3.9	3.7	3.8
	2020	4.1	3.7	3.7	3.9	4.0	3.9	3.9



# The 2021 Benchmark

## Adoption maturity of key 4IR technologies

Businesses are still only at the early stages of adoption.

Larger companies (500+ employees), those with \$1 billion turnover or those with a strong awareness of the 4IR continue to be more likely to be at the later stages of adoption across several technologies.

**“The Fourth Industrial Revolution and its advanced technologies including IoT, AI and robotics amongst others, is enabling the data-driven digital transformation of the agrifood sector with the potential to deliver immense benefit right across the supply chain including the capacity to increase yield, mitigate risk, reduce cost and add billions of dollars of value to one of Australia’s most important sectors”.**

**THE HON. NIALL BLAIR,  
STRATEGIC (INDUSTRY) PROFESSOR FOOD  
SUSTAINABILITY, CHARLES STURT UNIVERSITY**

Notably, there continues to be a strong focus on cloud computing where companies are still largely exploring the broader portfolio of 4IR technologies and with nanotechnology and quantum computing still in an early adoption stage.

Notably, for AI, IoT, 3D printing, autonomous vehicles and RPA, there is a high level of variability between maturity adoption based on 4IR awareness business size and industry.

### Industry

Although level of adoption for most technologies remains similar across industries, the level of adoption maturity for 3D printing, virtual and augmented reality and IoT is significantly lower in Financial Services when compared to other industries. Financial Services continues to have a higher level of adoption maturity relating to RPA technology; however, adoption maturity remains largely unchanged from 2020. Health and Community Services demonstrated a lower maturity across nearly all technologies, when compared to other industries, apart from Blockchain - which was largely in line with the low maturity expressed by other industries. Conversely, Manufacturing

respondents demonstrated equivalent or higher maturity when adopting 4IR technologies - in particular showing notably higher levels of maturity, when compared to other industry respondents, in 3D printing, Robotics and IoT.

### Size

Level of adoption across all technologies continues to be higher for \$1B+ companies when compared to <\$50m companies. This is particularly prevalent for RPA technology; where <\$50m companies rated maturity at an average of 1.8, when compared to \$1B+ companies having a maturity score near 3.0.

### Awareness

Level of adoption across most technologies continues to be higher for those with a strong awareness when compared to those with weak to no awareness of 4IR technology. Notably, level of awareness appears to have little impact on adoption maturity of nanotechnology and quantum computing, where adoption continues to be low (~1.0) for these technologies.

# Q.

How would you describe the maturity of your organisation in terms of adopting the following technologies associated with the Fourth Industrial Revolution? Base: 2021 n=336, 2020 n=196



Fourth Industrial Revolution technologies such as artificial intelligence, internet of things, robotics and machine learning have the power to make a significant impact on a student's education journey. AI can provide real time feedback to teachers and students to support personal learning styles, IoT can be used to filter and monitor air quality to ensure students have the best physical environment within which to learn.

The use of robotics in the classroom can provide opportunities for group/project based learning that is engaging for students whilst contributing to students mastery of fine motor skills, innovation and critical thinking, problem solving, teamwork, logical thinking and creativity. Embedding these technologies in the learning journey is imperative to prepare students to engage in everyday life and future work.

ELIZABETH WILSON - CIO, DEPARTMENT OF EDUCATION AND TRAINING  
- SURVEY RESPONDENT

## MEAN MATURITY SCORE (OUT OF 5) SHOWN FOR 2021

	AIR AWARENESS		INDUSTRY				TURNOVER			EMPLOYEES	
	Strong	Weak / None	FS	Hlth.	Mfg.	Other	<\$50M	\$50M-\$1B	\$1B+	<500	500+
AI	2.8	2.1	2.6	1.7	2.5	2.3	2.2	2.2	2.8	2.2	2.6
IoT	2.7	2.2	2.0	1.9	3.1	2.5	2.3	2.3	2.7	2.3	2.5
5G	2.3	2.0	1.9	1.8	2.2	2.2	1.9	2.1	2.4	2.0	2.2
Blockchain	1.7	1.4	1.8	1.7	1.5	1.5	1.5	1.4	1.8	1.4	1.6
Cloud computing	3.9	3.7	3.7	3.4	3.8	3.8	3.7	3.7	3.9	3.7	3.8
3D Printing	2.0	1.5	1.4	1.1	2.8	1.8	1.5	1.7	1.9	1.5	1.8
Robotics	2.3	1.9	2.2	1.3	3.3	2.0	1.7	2.0	2.7	1.8	2.3
Autonomous Vehicles	1.8	1.5	1.4	1.2	2.2	1.7	1.3	1.6	2.0	1.4	1.8
RPA	2.5	2.0	2.6	1.7	2.5	2.1	1.8	2.1	2.9	1.8	2.5
Nano technology	1.3	1.2	1.2	1.0	1.4	1.2	1.3	1.2	1.3	1.2	1.2
Virtual Reality	2.1	1.8	1.5	1.8	2.2	2.0	1.7	2.0	2.2	1.7	2.1
Augmented Reality	2.0	1.5	1.4	1.3	2	1.8	1.5	1.7	1.9	1.5	1.8
Digital Twin	2.1	1.4	1.5	1.2	2.1	1.8	1.6	1.7	2.0	1.6	1.8
Machine Learning	2.7	2.1	2.4	1.7	2.7	2.3	2.2	2.2	2.8	2.1	2.5
Quantum Computing	1.3	1.4	1.3	1.0	1.6	1.3	1.3	1.2	1.5	1.5	1.3



# Reasons for adoption

The top drivers of 4IR technology adoption remain unchanged since 2020; to improve the customer experience, increase productivity and innovate. However, compared to 2020, there was a greater emphasis on increasing productivity as a key reason for adopting 4IR technologies, particularly within industries outside Financial Services and where annual turnover is under \$50m or exceeds \$1b.

**'Similar to the digital revolution, the public sector has a huge role in leading the economy to adopt fourth industrial revolution technologies. From demonstrating the power of these technologies through the creation of intelligent, data-driven solutions to manage critical infrastructure and planning, through to supporting the supply of a skilled workforce and hubs of research excellence.'**

**DR AMANDA CAPLES**  
BSC (HONS) PHD, GAICD

## Industry

Across most industries there was an increased focus on productivity, up from 13% in 2020 to 20% in 2021, when compared to Financial Services; where focus on productivity remains largely unchanged.

For Financial Services, customer experience remains the primary driver for adoption of 4IR technologies; with nearly one in three Financial Services respondents rating this as their primary driver (despite decreasing since 2020). This was similar across other industries such as 37% and 29% of Health and Community Services and IT respondents, ranking CX as their primary driver for adopting 4IR technology. Interestingly, CX was a low priority for driving 4IR adoption in Manufacturing, with the top three drivers being product and service innovation, increasing productivity and generating new business insights for this sector.

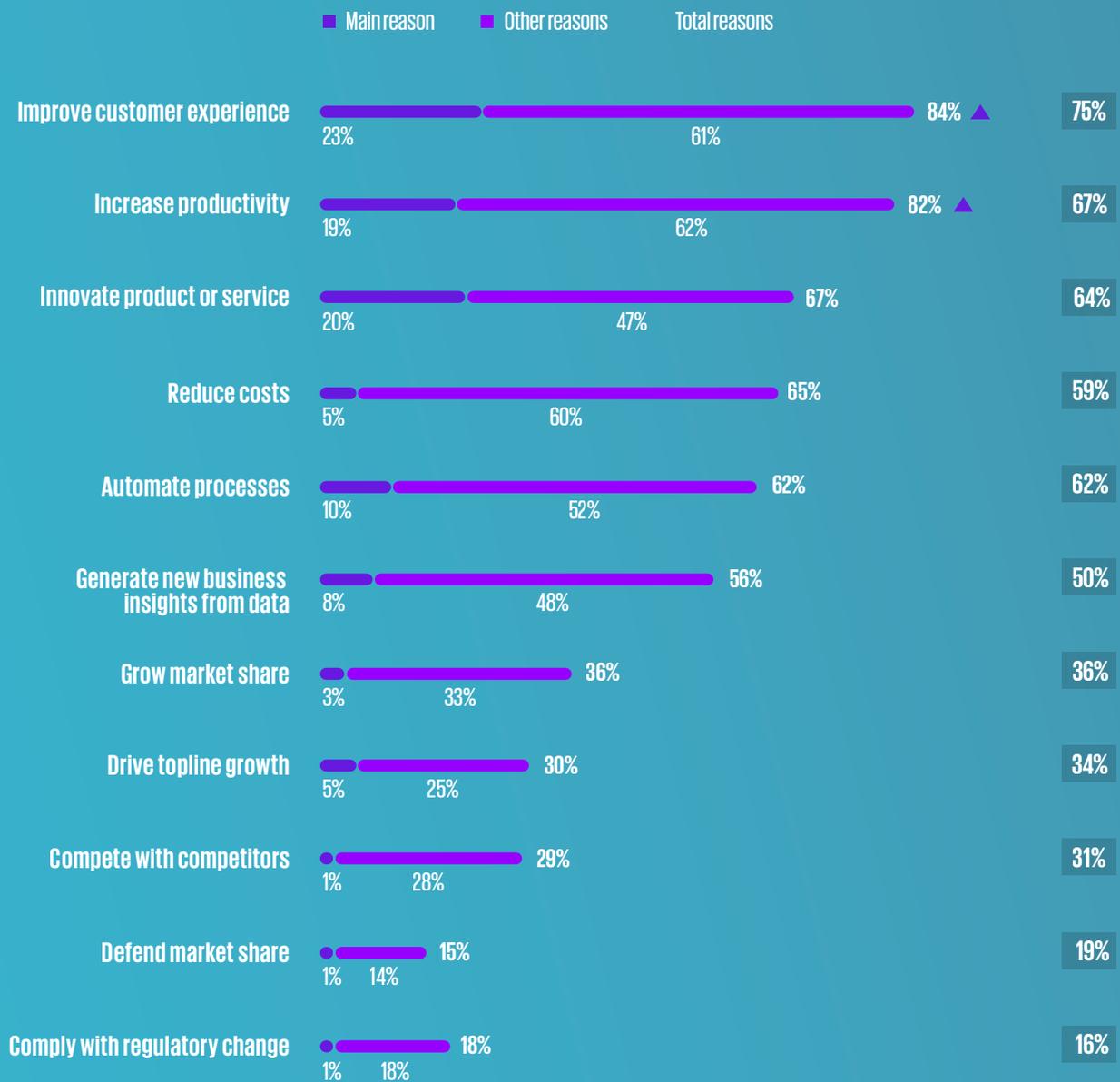
## Awareness

Level of awareness appears to have little influence on companies' reason for 4IR adoption when it comes to customer experience and productivity. However, one in four of those with a strong level of awareness note innovation as a primary driver to adoption, compared to less than one in five of those with a limited to no awareness of 4IR.

## Size

Improving CX continues to be a priority for one in five companies with \$1B+ turnover and one in three mid-market companies (\$50m - \$1B). Innovation continues to be the primary driver for <\$50m companies; with one in three rating this as the primary driver. Interestingly, productivity has become a larger driver for both small (<\$50m) and large (>\$1B) companies; with 17% and 25% of respondents, respectively, rating this as the primary driver, up from 8% and 16% in 2020, respectively.

## 2021 TOTAL REASONS



▲▼ Significantly higher/lower than 2020

# Q.

What is your organisation's primary purpose for adopting or planning to adopt these new technologies? Base: 2021 n=336, 2020 n=193

What are the other reasons your organisation adopted or is planning to adopt these new technologies? Base: 2021 n=336, 2020 n=193

## MAIN REASON

		TOTAL	4IR AWARENESS		TURNOVER			EMPLOYEES	
			Strong	Weak / None	<\$50M	\$50M-\$1B	1B+	<500	500+
Improve CX	2021	23%	23%	23%	18%	30%	22%	21%	25%
	2020	24%	20%	28%	18%	30%	24%	24%	25%
Increase productivity	2021	19%	19%	20%	17%	17%	24%	18%	20%
	2020	14%	14%	14%	8%	18%	16%	11%	17%
Innovate	2021	20%	24%	18%	26%	20%	15%	24%	17%
	2020	23%	29%	19%	31%	16%	26%	25%	22%
Automation	2021	10%	7%	12%	9%	13%	6%	8%	12%
	2020	9%	9%	8%	11%	5%	8%	12%	5%
Reduce costs	2021	5%	3%	7%	5%	5%	6%	6%	5%
	2020	7%	6%	8%	5%	11%	4%	5%	9%

# R&D expenditure

Research and development spending on technologies associated with the *Fourth Industrial Revolution* is lower in 2021, relative to 2020, with 17% allocated to expenditure on average allocated to these technologies in 2021 compared to 24% in 2020.



▲▼ Significantly higher/lower than 2020

## Q.

Approximately what proportion of R&D expenditure has your organisation allocated to these new technologies? Base: 2021 n=333, 2020 n=185

	4IR AWARENESS		TURNOVER			EMPLOYEES	
	Strong	Weak / None	<\$50M	\$50M - \$1B	+\$1B	<500	500+
2021	20%	16%	18%	17%	19%	19%	17%
2020	30%	20%	30%	23%	23%	27%	22%

# Readiness for change

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## Readiness to deal with forthcoming 4IR change

There has been a decrease in perceptions that organisations are ready to deal with the forthcoming technological change of 4IR since 2020. Close to two thirds (up from about one in two in 2020) of business leaders surveyed feel their organisation is not well prepared to deal with changes resulting from the 4IR.

Businesses with more than \$1 billion turnover are more likely to be prepared relative to businesses turning over less – although perceptions of preparedness have fallen relative to 2020 across all turnover bands. Notably, regardless of strong or weak awareness of 4IR, businesses still felt they were less prepared, than in 2020, to deal with changes resulting from 4IR.

### Awareness

Nearly half those with a strong awareness feel well prepared for 4IR when compared to 25% of those with a low level of understanding. However, level of preparedness has reduced significantly across both those with a strong and limited awareness since 2020.

### Industry

Level of preparedness for Financial Services was largely in line with the industry average in 2021; where it slightly decreased from 37% in 2020 to 32% in 2021. However, level of preparedness varied across industries where Health and Community Services expressed a low level of preparedness; with only 11% of respondents rating their preparedness at 4 or 5, compared to 42% of Manufacturing respondents rating at this level.

### Size

Companies with >\$1B turnover continue to feel more prepared than those with lower turnover; with mid-market (\$50m - \$1B) companies feeling the least prepared, where 2 in 3 rating their preparedness level at average or below. Interestingly, the number of employees seemed to have little bearing on the level of preparedness of companies.

Q.

On a scale of 1 to 5, with 1 being 'not at all prepared' and 5 being 'very prepared', how would you rate your organisation's readiness to deal with forthcoming technological change?

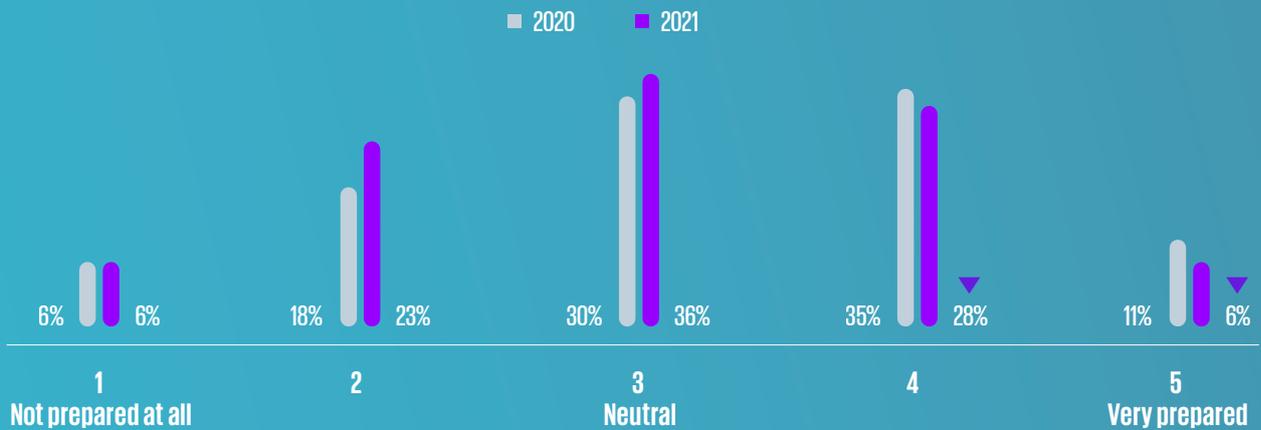
Base: 2021 n=336, 2020 n=196

65% RATED 3 OR BELOW ▲

2020 46%

34% RATED 4+ ▼

2020 46%



▲/▼ Significantly higher/lower than 2020

		4IR AWARENESS		TURNOVER			EMPLOYEES	
		Strong	Weak / None	<\$50M	\$50M - \$1B	1B+	<500	500+
% Rate 4-5	2021	49%	24%	37%	25%	44%	34%	34%
	2020	57%	36%	50%	35%	58%	46%	46%
% Rate 1-3	2021	51%	75%	61%	75%	54%	65%	65%
	2020	43%	63%	48%	65%	42%	53%	54%



# Reasons for lack of readiness



Lack of skills in the workforce, legacy technology, reluctance to embrace change and an absence of strategy are some of the most common themes as to why business leaders are not feeling confident to deal with 4IR. This is demonstrated by both the viewpoints expressed by respondents and their assessment of key enablers and challenges to implementing 4IR.

## EMBRACING CHANGE

“Despite being an underfunded NFP that could use FIT technologies to make us more efficient and easier for staff, and make us an employer of choice in the space, there is strong reluctance and some active opposition to change in the organisation. While I am seeking to make change in this space, as COO, the opposition to the way we do things has come from all levels.”

“Lack of understanding of the potential of these technologies and how they can be leveraged, resulting in no coherent vision of how these technologies will impact the future of work in, and service delivery by, our organisation.”

“Many of these technologies and their impacts have the potential to be transformational, which in turn requires a transformational change response. Most organisations – be they public or private sector – struggle with transformational change.”

“Preparedness has focused on risk or crisis scenarios, rather than opportunity.”



## STRATEGY

“We have begun to explore some technologies and are committed to develop a long-term strategy but do not currently have a vision or understanding of how they will impact our business.”

“Still happening in a siloed way by products or divisions, vs across business end to end hampers readiness.”

“We are a small business and with things evolving so rapidly it is difficult to know how much to invest and when without technology becoming redundant.”



## LEGACY TECHNOLOGY

“Lack of telecommunications options in very remote Australia. Cost of satellite-based technology / plans. Skill level (literacy) of delivery staff.”

“Little to no investment in 4IR with most expenditure and effort stuck in existing (legacy) products.”



## WORKFORCE AND SKILLS

“The organisation (leadership) is very focused and ready to move forward with technological change however both the willingness and skill-set of the current staff does not match the rate at which the organisation wishes to progress.”

# Challenges & enablers to adoption

The top three challenges and enablers facing organisations in adopting these new technologies remains relatively unchanged since 2020; with staff, technology complexity and legacy technologies perceived to be the biggest barriers in preventing adoption of these technologies.

**The top three enablers are staff, leadership, and strategy. However, skill and capability of staff is seen to be even more important (51% in 2021 vs 42% in 2020) and legacy technologies have become a notably lower challenge for businesses (30% in 2021 vs 45% in 2020). Interestingly, an unproven business case has become a challenge for nearly one in three companies (up from just over one in five companies in 2020).**

## Industry

For Financial Services, necessary staff skills and capability became a greater challenge since 2020, with over 54% of Financial Services businesses in 2021 (compared to 47% in 2020) rating this as a top challenge, compared to only 44% on average across other industries. Therefore, it is unsurprising that staff skills has increase to 62% in 2021 (up from 39% in 2020) as a top enabler for Financial Services businesses. This sentiment was similarly expressed by Health and Community services; with 52% of respondents listing this as a top challenge. However, this challenge was outweighed by a lack of capital to fund investments (59% of respondents) as the top challenge in Health and Community Services.

Staff skills was less of a challenge in Manufacturing and IT (listed as a challenge by only 25% of respondents) yet staff skills and capability were noted as a top three enabler across these industries: at 63% and 46%, respectively. Interestingly, Health and Community Services highlighted culture (42% of respondents) as a top enabler, when compared to other industries (26% of respondents).

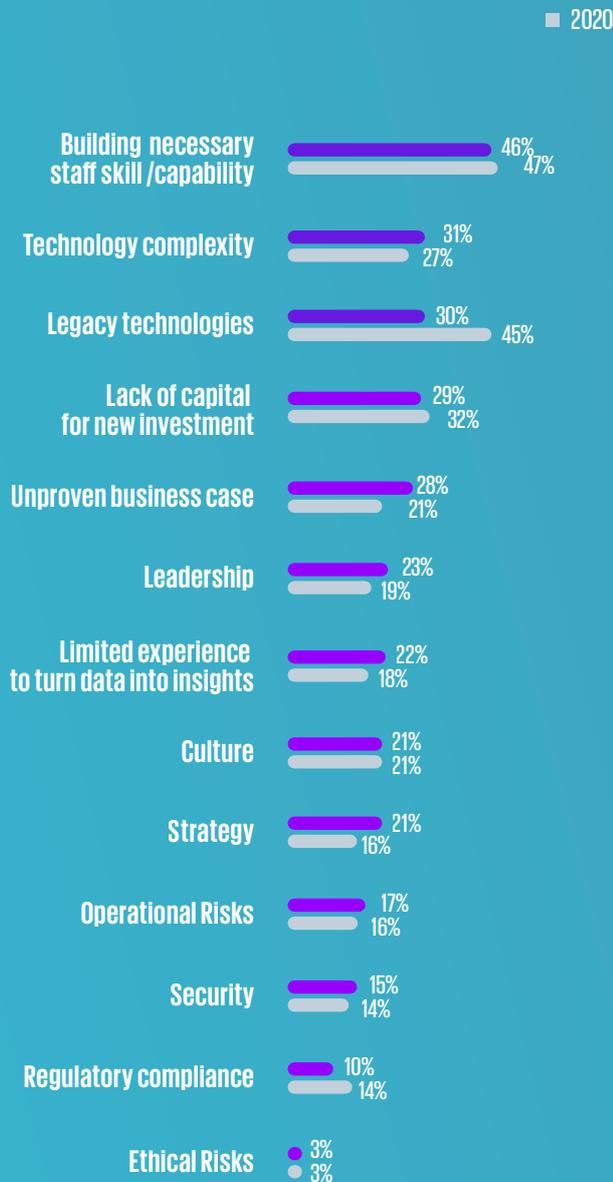
## Awareness

Those who have a greater level of awareness continue to rate legacy technology as a greater challenge for adopting 4IR technologies, with 38% of those with strong awareness, compared to 26% of those with a lower level of awareness. Interestingly, over 50% of those with a strong awareness rated staff skills as a key enabler, up from 38% in previous years. Leadership and strategy as key enablers remained largely unchanged from 2020, regardless of awareness level.

## Size

Legacy technology was seen as a notably lower challenge for <\$50m companies (affecting only 18%) when compared to larger companies at >\$1B; where nearly half (46%) of these respondents rating legacy technology as a top challenge. However, legacy technology as a barrier was down across all companies – down from 32% and 60% in 2020 for <\$50m and >\$1B respectively. Notably, a greater portion of companies at small (<\$50m) and mid-tier (\$50m - \$1B) rated leadership as a key enabler at 49% and 59% respectively, compared to larger companies (>\$1B) at 42% (down from 56% in 2020).

### % TOP 3 CHALLENGES



### % TOP 3 ENABLERS



Q.

In your opinion, what are the top three challenges facing your organisation in adopting these new technologies?

In your opinion, what are the most important factors enabling adoption of new technologies in your organisation Base: 2021 n=336, 2020 n=196

## TOP 3 CHALLENGES

		4IR AWARENESS		TURNOVER			EMPLOYEES	
		Strong	Weak / None	<\$50M	\$50M-\$1B	1B+	<500	500+
Necessary staff skill/capability	2021	49%	44%	46%	45%	46%	46%	45%
	2020	51%	45%	44%	54%	44%	45%	51%
Tech complexity	2021	30%	31%	33%	26%	35%	33%	28%
	2020	29%	25%	27%	27%	26%	31%	23%
Legacy tech	2021	38%	26%	18%	33%	46%	21%	40%
	2020	50%	42%	32%	47%	60%	38%	54%

## TOP 3 ENABLERS

Staff skills	2021	51%	51%	49%	52%	54%	49%	52%
	2020	38%	45%	40%	45%	42%	40%	46%
Leadership	2021	55%	47%	49%	59%	42%	45%	56%
	2020	57%	46%	45%	54%	56%	50%	53%
Strategy	2021	41%	37%	37%	36%	44%	38%	38%
	2020	35%	39%	32%	42%	38%	42%	32%

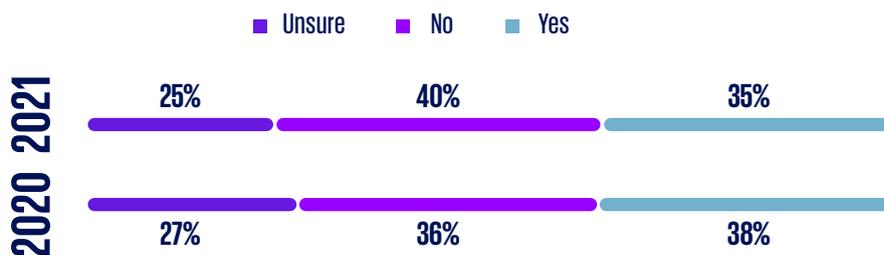
## Workforce and Staff Skills

With staff skills seen as both a key enabler and current challenge for most companies when adopting 4IR technologies, it is unsurprising that staff readiness in 2021 is polarised; where about a third feel their staff have the necessary skills to implement new technologies, two in five feel they do not, and one in four are unsure.

Similarly to 2020, those with a strong level of awareness feel their staff are more equipped with the necessary skills to adopt 4IR technologies when compared to those with a limited understanding (at 45% and 29%, respectively). The lower perception of staff skills in Financial Services continues from 2020 into 2021; with 29% of Financial Services respondents feeling their staff have the necessary skills (compared to 37% in other industries). This is unsurprising given the higher number of Financial Services respondents rating skills and

capability as a top challenge (>50% of respondents) for adopting 4IR technologies. However, this was not felt across all industries, where four out of five IT respondents believed their staff were equipped with the necessary skills to implement 4IR technology.

It is worth noting that staff readiness was perceived lower among larger companies (30%) versus smaller organisations (41%), despite both expressing a similar readiness of change and equivalent proportion of R&D expenditure on 4IR.

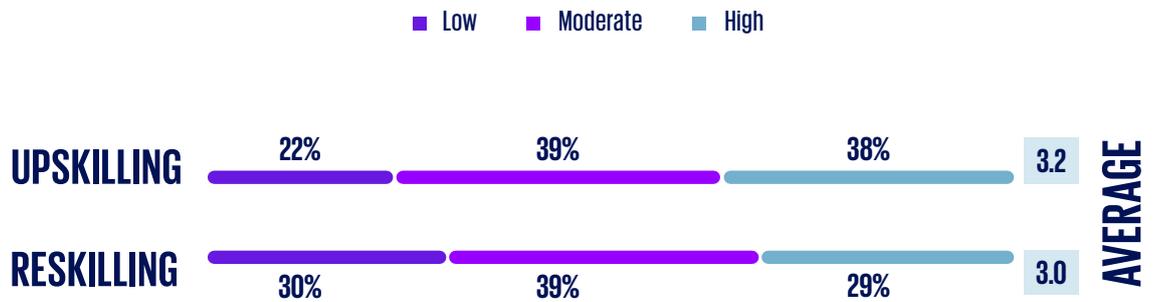


**Do you feel that your staff have the necessary skills to implement these new technologies?**  
Base: 2021 n=336, 2020 n=196

	4IR AWARENESS		TURNOVER			EMPLOYEES	
	Strong	Weak / None	<\$50M	\$50M - \$1B	+\$1B	<500	500+
2021	45%	29%	38%	34%	33%	41%	30%
2020	45%	32%	48%	30%	40%	44%	32%

### Future proofing workforce

Based on the perceived readiness of current staff capability, it is unsurprising business leaders are placing a higher priority on upskilling their workforce rather than reskilling to future-proof jobs impacted by new technologies. Those with a strong 4IR awareness have a greater focus on upskilling (at 46%) when compared to those with a lower level of awareness (32%).



## Q.

On a scale of 1 to 5, with 1 being low and 5 being high, how would you rate the priority your organisation gives to future-proofing your workforce as jobs are impacted by technologies?  
Base: 2021 n=336, 2020 n=196

	4IR AWARENESS		TURNOVER			EMPLOYEES	
	Strong	Weak / None	<\$50M	\$50M - \$1B	+\$1B	<500	500+
Upskilling - L&D to stay relevant in the current job, as it evolves	46%	32%	38%	39%	38%	39%	37%
Reskilling - L&D to do a different job in the organisation	32%	27%	29%	26%	33%	28%	30%



# Implementation

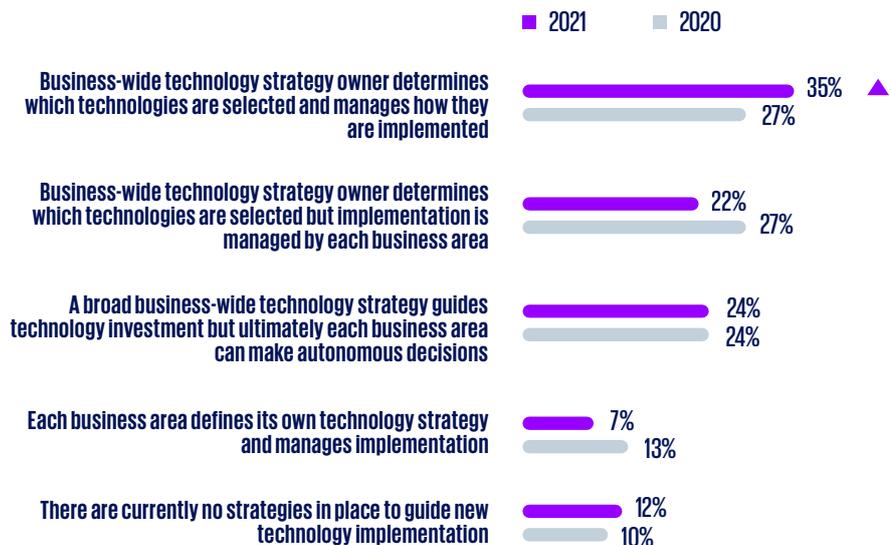
## Approach to implementation

More than a third (35%) of respondents have an enterprise-wide strategy and implementation owner for 4IR technologies, significantly up from 27% in 2020.

Similarly to 2020, a greater number of companies with <\$50m turnover have an enterprise implementation strategy compared to larger companies >\$1B; with 39% compared to 26% respectively. Level of awareness and industry continues to have little

impact on whether a company has an implementation strategy or not.

Smaller organisations with less than 500 employees (40%) continue to be more likely to have a business-wide strategy and implementation owner.



## Q.

Which of the following statements best describes your organisation's approach to implementing these new technologies: Base: 2021 n=336, 2020 n=196

%Business wide owner/ implementation	4IR AWARENESS		TURNOVER			EMPLOYEES	
	Strong	Weak / None	<\$50M	\$50M - \$1B	+ \$1B	<500	500+
<b>2021</b>	35%	35%	39%	37%	26%	40%	30%
<b>2020</b>	28%	25%	37%	25%	20%	34%	20%

# Final thoughts

Business leaders were asked for any additional feedback they had on the 4IR.

Business Leaders generally focused on the opportunities the 4IR revolution will bring and the need for businesses to adapt to overcome the associated challenges.

**“The Fourth Industrial Revolution will mean different things to each business, the most challenging process in adopting or even developing a strategy that utilises this technology-led spectrum is being able to frame the context in which it will be placed and foresee the potential. Once this has achieved relevance with stakeholders, cascading strategies can then be developed integrating identifies possibilities across.”**

IR policies in Australia inhibit adoption of labour-saving technologies in many areas because it is not worth the grief.”

**“It will be increasingly relevant, and companies need to gear up for it.”**

**“I think it is not well known in the business community. I do not think I have ever seen it as a key item on a board agenda on any of the boards I am on. I will be raising the issues for discussion and direction.”**

“There are many opportunities however quite a lot needs to be done on foundational capability before getting to the fun stuff.”

**“I think the concept is poorly understood and even more poorly defined across industry sectors. It is seen by many as just robotic automation. The technology is not the hard part it’s the change management and process discipline that are the limiters of adoption, but they get very little airtime.”**

“It is something the whole of business needs to understand so they get the WIFM (what’s in it for me). This requires invites to educate all areas of business – not just invites to CIO/COO/CFO.”

**“We need to overcome the same issues as with the arrival of computers and industrial robots in the 1980s. Jobs will change, but economic value remains the creation of traded human labour matched with current needs. It is the transition that needs the focus as much as the end points.”**

# Conclusion

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The Fourth Industrial Revolution holds great promise for a reimagining of not just how organisations function but how society operates. This benchmark shows that the awareness and readiness to use the technologies that make up the building blocks of the 4IR is at best mixed. There is a clear view that opportunities to innovate, transform customer experience and drive productivity are there to be realised. Overcoming access to skills, transforming legacy technology environments and navigating increased complexity and interconnectivity of 4IR technologies are key challenges to be worked through. And, for those organisations that get this right, there is an opportunity to accelerate competitive advantage while establishing the foundation for the next generation of Australian prosperity.

Doing this successfully means having a clear view on where to start and how to engage with 4IR technologies. The organisations at the front of this revolution have a plan, allocate funding and actively engage in research and development activities with a clear view to value creation.

# About

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## KPMG Digital Delta

KPMG Digital Delta is different by design. We re-imagine and re-invent organisations to become world class digital enterprises using advanced technologies, data and human insights.

We help our clients unlock value from data through strategies, policies and solutions which generate trusted insights, enable more confident decision making and drive more meaningful actions.

We work with our clients to design and implement innovative strategies and solutions to enable the digitisation of experiences, channels, functions, processes, and business models, with the trust and assurance needed to operate in the digital-era.

Our view is that successful digital organisations are not just digital leaders – they are data leaders – they win by collecting and generating more knowledge about their customers (or citizens) and by deploying this knowledge in a relevant and controlled manner to achieve highly differentiated outcomes.

## KPMG Futures

KPMG Futures work at the intersection of signals of change across society, technology, economics and politics to identify and understand emerging trends and their potential to reshape and reimagine our world. We identify opportunities for innovation and disruption to explore new business model hypotheses that drive profitable business growth with the aim of creating sustainable value for all stakeholders.

KPMG Digital Delta and KPMG Futures are divisions of KPMG Australia which has a long tradition of professionalism and integrity, combined with our dynamic approach to advising clients in a digital-driven world. We have approximately 7,200 people, including 556 partners, with offices around the country. We work with renowned companies to help them solve complex challenges, steer change, disrupt sectors and grow. Collaboration and innovation are ingrained in our approach, with our people aiming to provide genuine, sustainable value for our clients.

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## Faethm

Faethm is the world's data source for the Fourth Industrial Revolution and the Future of Work.

Faethm is a fast-growth and globally unique AI Analytics SaaS Platform. Launched in Sydney in late 2017, Faethm is already helping companies and governments in North America, Europe and Asia Pacific to create economic and social value from the impact of emerging technologies.

Faethm shows you the huge opportunities for companies and governments that get ahead of the curve. Faethm has made it possible to visualise and measure how to transition people, companies and industries, with the right skill development, infrastructure, investment and services.

Faethm shows leaders how they can equip their businesses and communities for the future.

Faethm [Fath-uh m], (–the original Celtic spelling of Fathom), Noun and verb, to learn, a measure of depth, "the span of outstretched arms"; and a welcoming gesture for the future.

[www.faethm.ai](http://www.faethm.ai)





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