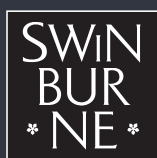


Innovation in the unprecedented era





Centre for the New Workforce

Swinburne's Centre for the New Workforce (CNeW) is a research, analysis and thought leadership initiative that works with organisations to transform their workforce for the digital economy. CNeW finds, frames and solves future of work challenges, and is the only centre in Australia dedicated to developing learning solutions at the firm level. CNeW designs work for humans in the digital economy.

Contents

Executive summary	6
Introduction	10
About the report and methodology	15
Part 1. Results	17
Section 1. Learning in Australian workplaces	18
Section 2. Collaboration in the workplace	25
Section 3. Workplace culture	32
Part 2. Survey Analysis	35
Section 1. Influence of learning and collaboration on innovation culture in Australian workplaces	36
Section 2. Sectoral analysis of the impact of learning and collaboration on workplace culture	40
Section 3. Demographics and diversity	43
Part 3. Recommendations and opportunities	45
Section 1. Building a new innovation architecture	46
Section 2. Innovation architecture: opportunities arising	56
Conclusion	61
Appendices	62
Appendix 1. Constituent workplace culture variables and types of learning	63
Appendix 2. Sectoral breakdown for constituent workplace culture variables with weekly learning and types of collaboration	65
Appendix 3. About this survey	69
Appendix 4. Terms used in survey analysis	70
Endnotes	72
Reference reports and articles	73

Setting the scene

Like its title, this research report is unprecedented. It is the first of its kind to investigate the influence of both workplace learning and collaboration on innovation in Australian workplaces.

Its timing helps to make it unique. Our survey of working Australians was conducted in late November 2019, measuring various forms of learning and types of collaboration in Australian workplaces. The respondents were blind to the objective of understanding the conditions for innovation in their workplace.

With the arrival of COVID-19 in 2020, the data took on new significance. It has become the most up-to-date, business-as-usual measure of culture in Australian workplaces without distortions from COVID-19. To make findings relevant for the post-pandemic era, we pay particular attention to learning and collaboration behaviours in rapidly-changing environments within the Australian economy – and how these inform innovation.

Within this report, we provide expert analysis and recommendations on how leaders can structure their workplaces to strategically align their organisations for complex disruption, how educators can reimagine learning to prepare future workers for the unprecedented era, and how we can reimagine the future of the physical workplace.

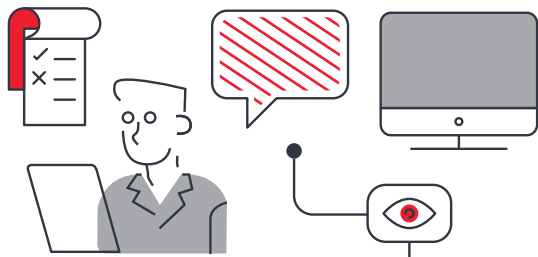
This work builds on CNeW's 2019 *Peak Human Potential*.

The unprecedented era

We are living and working in the 'unprecedented era'. It is extraordinary not only for the scale and gravity of the mega challenges we face, including climate change, a global pandemic and globalisation – for the world has faced similar trials before. It's when these challenges combine with the profound transformation of the economy and society by digital technologies that we find ourselves in an era without precedence.

Perspectives of Australian workers

Learning at work



15%

Spend five hours a week or more on any form of learning.

51%

Spend less than one hour a week on any form of learning.



37%

Are encouraged to share their knowledge and expertise with colleagues.

42%

Had formal training for their work in the previous 12 months.

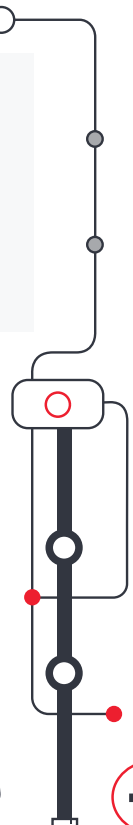


Collaboration



53%

Work collaboratively in their daily job.



1 in 4

Work collaboratively on projects with immediate colleagues.

1 in 5

Work collaboratively on projects colleagues from other parts of the organisation.



Executive summary

There has never been a more important time for organisations to create value and transform their business model, and to do so by empowering their people. The profound disruption wrought by the unprecedented era – in which mega forces such as climate change and the global pandemic combine with the relentless advance of powerful digital technologies – is unleashing rich new opportunities to innovate and drive competitive advantage. Yet organisations have never faced a graver threat. The emergence of both opportunities and dangers gives rise to two profound and intertwined challenges – the erosion of value and the transformation of work.

Since the release of *The Innovator's Dilemma* in 1997, there has been an extraordinary focus by leaders globally on disruptive innovation – whereby new technologies threaten legacy companies. In the years since, established organisations have developed more sophisticated approaches to generate business ideas based on new technologies to avoid being disrupted.

In the unprecedented era, however, disruption is far more complex and unrelenting than that arising from technology alone. At the same time as value is being eroded – such as through ongoing changes to customer expectations and behaviours arising from disruption, work itself is being fundamentally transformed. When times were more stable and slower paced, human work was optimised for productivity. But with the inexorable rise of machines, to continue to dedicate people solely to routine work has diminishing returns, especially when the human competitive advantage – our ability to navigate and understand the unknown – is the best asset organisations have to figure out the future. Productivity is no longer the most valuable measure of human work. Rather, it is creativity.

Creativity is a core component of value. And while innovation is the process that drives creativity, increasingly, it is also a state of the organisation. Innovation must now be continuous with a purpose of either transforming the current business model or developing scalable new business opportunities – or both. This ongoing state of innovation requires a systems-thinking approach that analyses complex interconnected phenomena.

In this rapidly changing world, 'disruption-led innovation' – where organisations steer towards disruption to transform their business model – is emerging as the new normal. New institutional capability is required to generate business ideas from complex disruption, and rapidly advance them to develop



The best time to plant a tree was 20 years ago. The second best time is now.

Chinese Proverb

business models that create and capture this value – all through harnessing the power of people. This is peak human workplace.

A new innovation architecture

We propose a new disruption-led innovation architecture – a model whereby organisations can create value while responding to the transforming nature of work. Innovation becomes the responsibility of every worker, not just the leadership team. The architecture – which drives a new mindset that reimagines work as a pathway to innovation – has three dimensions dedicated to creating value. Each dimension operates at both worker and organisation level.

The first dimension is the 'learning workplace'. It recognises the convergence of work and learning, and supports the continual growth of an organisation's capability by developing skills and expertise to not only perform work, but create knowledge to progress work to new levels.

The second dimension is a system that constantly steers the organisation towards disruption and drives value creation. Leveraging the power of collaboration diversity, it comprises and coordinates two organisational responses to disruption – the exploitation of new ideas arising from disruption witnessed by workers on the frontline, and the exploration of new ideas arising from disruption that appears on the horizon. This idea generation is followed by an incubation phase and ultimately scaling.

The third dimension is an adaptive innovation culture that envelops and enables the architecture, cultivating the organisational values that drive the right innovation behaviours in workers needed to sustain value creation in complex disruption.

INSIGHT

Worker-driven learning and collaboration diversity are vital to transform business models through disruption-led innovation.

KEY FINDINGS AND IMPLICATIONS

Finding the link between learning, collaboration and innovation

In late November 2019 we surveyed more than 1,000 ordinary Australian workers – from bus drivers to salespeople to tradespeople to healthcare workers to CEOs, from casual to full-time workers – in every workplace setting and in every type of organisation. We measured various forms of learning and types of collaboration in Australian workplaces to understand their influence on workplace culture and innovation. That a clear relationship emerges from surveying ordinary workers who were blind to the research objective of understanding the potential for innovation in their workplace – in contrast to surveying captains of industry directly on their innovation activities – is compelling.

According to working Australians, there is a strong positive relationship between learning and collaborating at work and a workplace culture that supports innovation. In particular, we find worker-driven learning and collaboration diversity are the most ideal workplace settings for generating new ideas.

- **Worker-driven learning** – where a worker or team is empowered to take charge of the learning required to progress work; and to create new knowledge to solve a problem where none exists.
- **Collaboration diversity** – where workers of diverse experience, expertise and vantage points come together to produce something new.

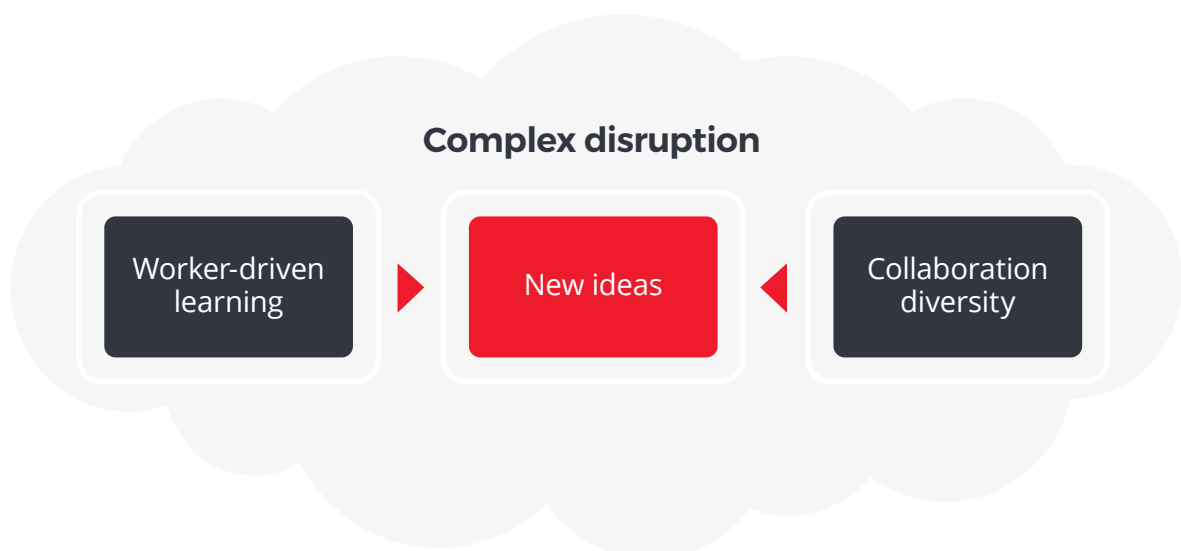
Deeper analysis of economic sectors shows these relationships between learning, collaboration and innovation are strongest in the most dynamic, rapidly-changing environment in the Australian economy.

In Australian organisations, therefore, worker-driven learning and collaboration diversity are the ideal workplace settings for disruption-led innovation.

Flaws in the current system

Despite the powerful influence of learning on workplace culture and innovation conditions, half of Australian workers face serious erosion of their skills, capability and expertise. More than one in two Australian workers do practically no learning at work, even though three in five are concerned their current skill set is not suited for the next five years. Without learning at work, their jobs are moving away from them – which diminishes the potential for innovation in their workplace.

Collaboration intensity is on the rise. Some 53% report working collaboratively on a daily basis up from 46% in 2014. However, collaboration diversity lags. Only one in five workers participate in highly diverse collaboration with different people from across their organisation and wider ecosystem. Collaboration diversity is important both for generating a variety of ideas and scaling them across the organisation. Yet frontline workers like salespeople and factory floor workers – who often bear firsthand witness to disruption – report being some of the least likely to be involved in collaboratively diverse work. Omitting frontline workers in the innovation process is not only a missed opportunity, but a serious risk.



Executive summary

TWO OPPORTUNITIES

Reimagine education for disruption-led innovation

Recognising the growing deficit in skills nationally, governments, employers and education institutions are focused on closing the skills gap and preparing graduates for emerging opportunities in the future of work. But how are we preparing our students and workers/employees to help organisations deal with the erosion of value they face arising from complex disruption? As this study shows, innovation is no longer the domain of MBA graduates but of every worker. Students are no longer just future productive workers but future value creators. An ideal way to demonstrate the ability to create value is through developing a business model.

Experience in disruption-led business model innovation should be an opportunity afforded to all students. Tertiary education institutions need to find ways to prepare graduates for the rapidly-changing digital economy, looking beyond the skills gap to develop different sets of disruption-led innovation competencies – exploration and validation skills, an innovation mindset, and value creation

behaviours. Some of these attributes will no doubt already be included in expected learning outcomes in many institutions' curricula, but it is the purpose of disruption-led business model innovation that is novel.

We recommend that the disruption-led innovation skills, innovation mindset and value creation behaviours are honed *in situ* in real-world disruptive situations through collaboratively diverse settings, as well as imbued in the education delivered in more formal settings. These experiential learning opportunities should be designed through a co-creation process with inputs from academics/educators and industry partners alike. There will be many different types of work-integrated learning opportunities, including the three suggestions we make which reflect the innovation architecture. All have the same objective – to identify a new opportunity realised as a business model. While opportunities might be advanced through ideas that are generated in focusing on a new or improved product or service, this is not the deliverable. The goal is to generate and incubate ideas for new business models.

DISRUPTION-LED INNOVATION SKILLS

Exploration skills (generating ideas)		Validation skills (incubating ideas)	
Search	Scan disruption for patterns	Design the business	Shape and adapt value propositions
Synthesise	Integrate patterns with knowledge to create a value proposition	Ask the right questions	Assess and evaluate the business model
Externalise	Articulate mental models as explicit concepts	Test and learn	Break down ideas into hypotheses for testing

DISRUPTION-LED INNOVATION ATTRIBUTES

Innovation mindset		Value creation behaviours	
Curiosity	Ask questions	Learn continuously	Proactively learn new things
Empathy	Understand others' feelings	Develop narratives	Ability to identify patterns and tell stories
Creativity	Imagination and risk-taking	Collaborate in diverse settings	Work in settings of diverse groups of individuals
Open-mindedness	Listen to others' views and insights	Work on ambiguous, complex problems	Real-world challenges that require multi-disciplinary approach
Self-reflection	Learn about oneself by sharing insights	Share knowledge and insights	Develop an ability to articulate and explain
Systems thinking approach	View problems as parts of an overall system	Create new knowledge	Advance the understanding of a concept

Reimagine the physical workplace for disruption-led innovation

In the unprecedented era, the inexorable rise of machines is forcing more and more human work to shift to knowledge work – regardless of the sector. Given this, a reimagining of the physical workplace is needed. For the first time since offices appeared more than a century ago, their primary purpose is poised to fundamentally evolve from being a place dedicated to productivity to being more focused on value creation. This has enormous implications on the activities, culture and identity of the physical workplace. ‘Coming in to work’ will increasingly mean going to a place dedicated to creating value. A place to challenge the status quo, not reinforce it. Space will become hyper-flexible, with many uses throughout the week and even during the day.

Productive knowledge work will continue in offices and workplaces for years to come – but it must make room for its new bedfellow, value creation work. Organisations that continue to prioritise productive work in the physical workplace – especially routine, repetitive tasks that increasingly can be performed anywhere – are at risk of not being battle-ready to exploit and explore ongoing complex disruption. They will become vulnerable to lurching from crisis to crisis. For work to become a pathway to innovation, the physical office must be the laboratory driving this transformation.

Now is the ideal time to pivot, with many offices and workplaces remaining empty or underutilised, and with the economy continuing to fundamentally transform. There will be many different ways in which architects, designers and workplace specialists transform the physical workplace for disruption-led innovation, including how it integrates with the ever-expanding virtual workplace and distributed workforce.

As the physical workplace is essential to building and maintaining the social capital of connectivity between people that is necessary to drive innovation, we make this recommendation: the physical workplace needs to be the central platform in the organisation’s ecosystem supporting the learning workplace and its value creation system. The physical workplace becomes the nerve centre of the organisation’s disruption-led innovation architecture, and the beacon of the organisation’s thriving adaptive culture.

Introduction

"We are pattern-seeking, story-telling animals," UCLA's Ed Leamer¹ tells newly-minted MBA graduates who are ready to make their mark on the world. He continues, "You may want to substitute the more familiar scientific words 'theory and evidence' for 'patterns and stories'. Do not do that." Seeking patterns *and* telling stories, he asserts, much more accurately conveys our level of knowledge, now and in the future.

When humans first walked the planet, well before civilisation, it was our ability to identify patterns in hostile and unknown environments and pass on stories that allowed us to survive, thrive and evolve. In Australia, indigenous Aboriginal and Torres Strait Islander peoples have Dreamtime, an oral history of the world and its creation. Passed down through generations over 50,000+ years, Dreamtime illustrates rules for living with the natural environment, learned through exploring the unknown.

Fast forward to late 1960s Japan, to Toyota's factory floor. Every employee on the assembly line had just been given the authority to pull an 'andon cord' to stop the entire assembly line if they noticed a defect or quality problem. Other frontline employees would then gather around to probe this product variation and together develop a narrative to inform management. Problem-finding and solving continues to be a measure of success at Toyota today and is a rich source of innovation.²

As increasingly sophisticated artificial intelligence (AI) technologies appear in workplaces across the economy, it is tempting to think AI will take over this role and leave humans to focus on service roles. After all, AI is in the headlines daily for its pattern recognition capabilities. In one recent study, Google's AI was found to be better at diagnosing breast cancer than human specialists.

Don't worry, though. The specialists are probably not going to lose their jobs. As Ed Leamer observes, we are pattern-seeking, story-telling animals who learned how to *analyse*. AI looks for patterns that we have already framed and verified through analysis. We can also program AI to identify unseen patterns, which it does incredibly well. But these patterns remain meaningless until humans make sense of them and verify by analysis.

Even with oceans of data, analysis by itself is not the answer. In the Australian state of Victoria, which suffered a second wave of infections from COVID-19, great confidence was placed in advanced algorithmic modelling to help chart a roadmap back to 'COVID-19 normal' with precise targets. When asked why an easing of restrictions might not occur when a target was met, Premier Daniel Andrews replied "numbers

are important but it's the narrative behind the numbers that matters most."

Dreamtime, the Toyota Production System, cancer diagnosis and more all exemplify how exploring the unknown and observing the unseen can lead to tremendous value-creating potential. It's all about people identifying patterns and crafting compelling narratives ('idea generation'), and following it up with analysis ('idea incubation').

Infosys, the huge Indian tech services company, is a case in point. It is increasingly hiring people without degrees, instead seeking out those with diverse interests across art, literature, science and anthropology. Ravi Kumar, the Infosys president, says he is not looking just for "problem-solvers" such as engineers, but also "problem-finders."³

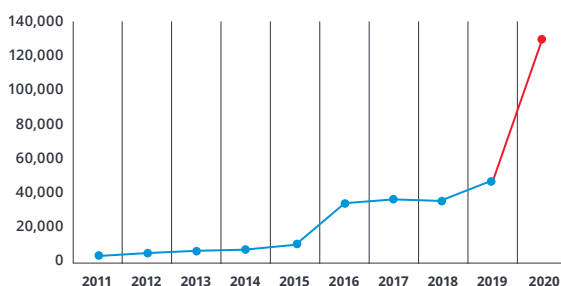
The unprecedented era

Starting in 2020, climate change continues unabated, causing greater destruction at an alarming rate, and a global pandemic barely a year old continues to unfold with devastating impact on millions of lives. The global economy has been pummelled, CBDs sit empty and hundreds of millions of people are working from home. And while some suggest the world will be less integrated post COVID-19, globalisation is likely to keep evolving in unexpected ways and will remain a force of massive transformation.

At the same time, digital disruption continues unrelentingly. A recent survey by McKinsey of 800 global executives reveals 85% of companies have accelerated the deployment of digitisation and automation during the COVID-19 pandemic. In Australia, research by AlphaBeta shows that Australian business accelerated technology adoption and transformation during the pandemic at a rate 10 times faster than historic averages.⁴

"UNPRECEDENTED"

Frequency of the word "unprecedented" in online newspapers and magazines⁶



We are living and working in the ‘unprecedented era’. It is extraordinary not only for the scale and gravity of the mega challenges we face, including climate change, a global pandemic and globalisation – for the world has faced similar trials before. It’s when these challenges combine with the profound transformation of the economy and society by digital technologies that we find ourselves in an era without precedence.

Three fundamental digital dynamics help us understand disruption in this complex evolving ecosystem. The exponential behaviour of digital technologies (arising from Moore’s Law) means the pace of change is accelerating. The digital hyperconnectivity of everything and everyone (internet of everything) is driving vast, complex interdependencies. The proliferation of digital platforms – incredibly efficient and effective online marketplaces for the exchange of anything – are constantly expanding and evolving. These dynamics – pace, interdependencies and expansion/evolution – are the ‘PIE’ of the digital world. Like ‘VUCA’⁵, organisations can use PIE dynamics to frame thinking from a digital transformation mindset.

What does the unprecedented era look like from an organisational perspective? Here are four indicators. It is an era in which:

- Problems are increasingly complex, seemingly intransigent, multidimensional and always evolving
- Existing IP quickly becomes redundant more quickly and new knowledge is in ever greater need
- Competition arises from unexpected sectors
- Digital technologies constantly change the way in which organisations create and capture value

How can organisations navigate such overwhelming uncertainty and extend their competitive advantage? As we will explore in this report, a lot of it comes down to learning and collaboration, which enable innovation.

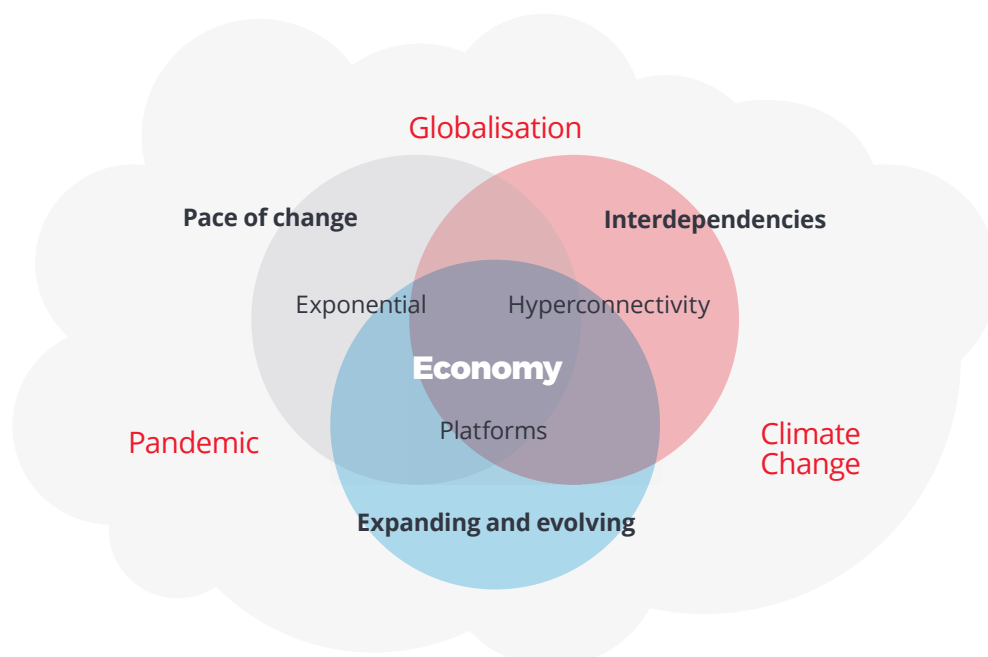
Learning faster

In his 1990 seminal work on learning organisations, *The Fifth Discipline*, Peter Senge was strongly influenced by Arie De Geus’s⁷ statement that:



The ability to learn faster than your competitors may be the only sustainable competitive advantage.

Figure 1. A “PIE” world in the unprecedented era



Introduction

Senge defined a learning organisation as having five essential disciplines: personal mastery, mental models, shared vision, team learning and a systems thinking approach to seeing the organisation as a part of a larger whole. This work has perhaps never been more appropriate, especially as it relates to the roles of workers and teams in organisations.

Personal mastery goes well beyond proficiency in a trade, expertise or profession. Learning is rooted in having a sense of purpose, self-awareness and being able to see reality objectively. According to Senge, while organisations need individuals who learn, individual learning in itself does not guarantee organisational learning. Rather, Senge places the team at the heart of the learning organisation. “This is where ‘the rubber meets the road’; unless teams can learn, the organisation cannot learn.” Team learning – learning together through dialogue and discussion – enables members of a team to be more effective.

Today we recognise team learning as collaboration. Bringing individuals together to collaborate amplifies the ability of an organisation to learn through different people generating, capturing and sharing new knowledge together.

Innovation in disruption

In today's COVID-19 world, uncertainty is next level. The economy we knew is probably a thing of the past, says US Federal Reserve Chairman Jerome Powell: “We’re recovering, but to a different economy.” The pandemic has accelerated existing trends in the economy and society, including the increasing use of technology, telework and automation. According to Powell, the services sector with its lower-paid workers will feel this impact of technology disproportionately hard. From people to companies to countries, there are few not impacted in some way by the unfolding disruption. According to Australian business innovation expert Tim Kastle,⁸ innovation is “the only way to respond to changes in your environment.”

Discovering the new ideas that lead to new knowledge and value creation has always been central to an organisation's competitive advantage. In more normal times, competitive advantage came from continuous improvements or incremental innovation. Things like developing new products, adding new functions to existing ones, and making current processes more efficient.

In rapidly changing and disruptive environments, however, companies become increasingly uncertain

about the road ahead and the decisions that need to be made to navigate a way forward. The work of Charles O'Reilly at Stanford University on innovation in disruptive environments is instructive for organisations:



To succeed in the face of disruptive change requires established firms to master three distinct disciplines: ideation, to generate potential new business ideas; incubation, to validate these ideas in the market; and scaling, to reallocate the assets and capabilities needed to grow the new business.⁹

Companies have little choice but to face disruption and find transformative ideas, fast. With time being of the essence and resources under pressure, disruptive innovation takes on a new urgency. Those that can stress-test existing business models and/or find new ones faster by harnessing the creative power of their people are better placed to succeed.

Innovation in Australian workplaces

Recent studies have investigated the influence of either learning or collaboration on innovation in Australian workplaces.

In a report prepared for Google, Deloitte (2014) found that collaboration in Australian workplaces is a major influence on the degree of novelty of innovation. According to their analysis, diversity of collaboration – collaboration among employees with different roles and responsibilities – was found to be the most important factor for innovation (‘new to the world’ products/services), more so than the intensity of collaboration.

EXHIBIT 1. A BRIEF AND INCOMPLETE HISTORY OF TYPES OF INNOVATION

The concept of innovation in business has been around since the Industrial Revolution. When we talk about innovation, there are generally two types: those that significantly affect existing markets (i.e. business models) and those that do not (i.e. products and services). Clay Christensen of Harvard Business School coined the terms 'disruptive' and 'sustaining' innovation to distinguish the two. Below are different versions of these innovation couples.

	Markets	Products and services
1997 Clay Christensen	Disruptive innovation A new market that provides a different set of values, sometimes called radical innovation	Sustaining innovation A new product or service
2006 Australian Dept of Industry	Frontier, creative innovation A new disruptive business or business model	Adaptive innovation Minor modification of goods and services
2019 Charles O'Reilly	Discontinuous innovation New capabilities and assets Disruptive innovation A new disruptive business or business model in response to threats of disruption	Incremental innovation New products, extending the life of existing ones, refining existing processes to become more efficient, and finding new customer segments to drive revenue growth

Our 2019 report *Peak Human Potential* demonstrated that learning and work are converging. We proposed a way to redefine work, calling it 'learning-integrated work' where the goal for workers in disruptive environments is less about producing results and more learning how to create new value. This approach to work is even more relevant in a post-COVID-19 world.

In this report, where we use the terms disruptive and incremental innovation, we refer to Charles O'Reilly's definitions. However, we also introduce:

- **'Complex disruption'** to describe disruption in the unprecedented era
- **'Disruption-led innovation'** where organisations steer towards disruption to constantly stress-test and transform their existing business model or generate ideas for a new scalable business.

In a recently released report, KPMG (2020) takes an innovation temperature check of Australian organisations during the health pandemic and economic crisis. Their key finding is that COVID-19 is driving an increased focus on innovation. However, it is manifesting more through an increased focus on "incremental innovations with short-term financial returns, and a decline in the pursuit of disruptive

innovation". The KPMG report raises concerns about what they call a 'coming innovation crunch' – characterised by an increased focus on innovation by 73% of surveyed organisations, yet with no increase or reduced investment reported by 65% of respondents.

According to KPMG, most Australian companies are under enormous cost pressures. Empowering workers to focus more on value creation in their work while leveraging the power of diversity of collaboration could be a cost-effective way to de-risk the innovation approach and process; and could generate the new ideas needed to thrive.

The research in this report is the first study to investigate the influence of both learning and collaboration on innovation in Australian workplaces.

From Peak Human Potential to Peak Human Workplace

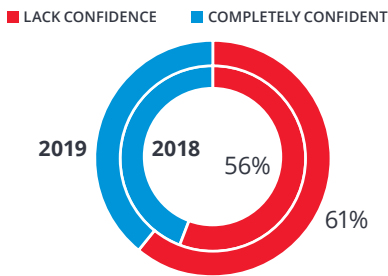
Our 2019 report *Peak Human Potential* focused on preparing Australia's workforce for the digital economy. We found that Australian workers were worried about the future, with 51% fearing loss of their job to AI and automation, and one in two workers lacking confidence in their ability to prepare for the future of work.

Introduction

The pace of change felt by Australian workers was striking: some 56% expected that work in five years would require skills they didn't yet have. For this year's report we asked the same question. In the space of 12 months, there has been a 5% increase: 61% of Australian workers do not think their skill set is suited for the next five years. Put another way, three in five Australian workers expect their job will move away from them in the next five years. We believe this is unprecedented (see Figure 2).

Figure 2. Percentage of Australian workers lacking confidence in their current skill set being suited for the next five years of work

SKILL SET SUITED FOR NEXT 5 YEARS*



*year data was collected

Our 2019 report identified a remarkable trend emerging across the Australian economy. The further an industry is disrupted by digital technologies, the more that workers in those industries value uniquely human 'social competencies' relative to their functional and technical expertise. From collaboration, empathy and social skills to entrepreneurial skills, these social competencies help define our human competitive advantage over intelligent technologies like AI and automation.

For this report we pivot from surveying Australian workers about their attitudes towards the future of work to asking them about their present work and workplace. Drawing on the work of Senge, O'Reilly and many others, as well as CNeW research, we are interested in the ability of Australian workplaces to innovate in the unprecedented era. Our focus is on the learning and collaboration of Australian workers in their workplaces, with the aim of better understanding workplace culture. We seek to answer this primary question: What influence do learning and collaboration in Australian workplaces have on innovation – especially idea generation and idea incubation – in environments of complex disruption?

This report is intended for all organisations from SMEs to large corporations and organisations. It makes practical recommendations for innovation in the unprecedented era.

About the report and methodology

The Centre for the New Workforce conducted this study with our research partner YouGov. In late November 2019, 1,060 working Australians aged from 18 to over 65 years (in a nationally representative sample across the economy) were surveyed. This timing helpfully establishes a baseline for measuring business-as-usual (pre-COVID-19) Australian workplace culture. Further details of the methodology can be found in the Appendix.

We claim no prescience. The original intention of this research was to do a gap analysis of current workplace culture and how it aligned to the future of work. When COVID-19 hit in early 2020, our data took on new significance by being the most up-to-date business-as-usual measure of culture in workplaces across Australia without distortions from COVID-19.

Within this report, we provide expert analysis and recommendations on how:

- Leaders can prepare and structure their workplaces for disruption-led innovation
- Educators can reimagine learning to prepare students to create value
- We can reimagine the physical workplace to figure out the future

This work has been informed by literature, business insights and builds on the Centre's 2019 report *Peak Human Potential*.

There are many levers at the disposal of an organisation across the innovation lifecycle. In this report, we focus on the value drivers of learning and collaboration owing to their central role in innovation and the fact that all organisations have these inputs at their disposal. Learning and collaboration in the workplace occur in many different contexts and dimensions, with meanings that vary from workplace to workplace and from worker to worker. In this study, we measure the extent of learning and collaborative behaviour and activity across Australian workplaces and the culture this creates.

Research framework and methodology

For this study, we consider 22 variables – described as behaviours, activities and values. There are three variables of workplace learning, three of workplace collaboration and 16 of workplace culture. We sought workers' perspectives of the prevalence of each in their workplace.

The 16 values for workplace culture were then divided across four categories: two for innovation

(idea generation and idea incubation), one for productivity and one for what we call 'enablers' (values which support a positive workplace culture across the organisation).

Our approach to this research was as follows:

- We established a baseline, measuring the level of behaviours/activities related to learning and collaboration in Australian workplaces
- We broke each behaviour/activity down to determine respective demographic contributions
- We measured the prevalence of the 16 values for workplace culture
- We analysed the results through correlation of learning and collaboration variables with workplace culture variables, which allowed us to look at how workplace values respond to the differing contributions from each learning and collaboration variable

The respondents were therefore blind to the objective of understanding innovation in their workplace.

For the main analysis, the 22 variables we measured relate either directly or indirectly to an observable behaviour or activity, and thus could otherwise be independently verified. It is acknowledged that measuring factors based on a worker's subjective perception of what they do in the workplace has some limitations, owing to implicit biases.

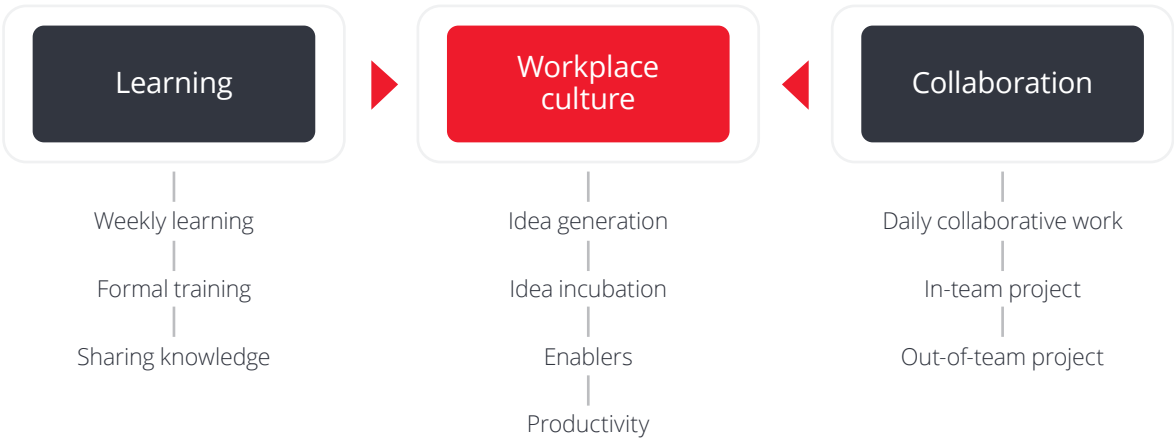
Structure of this report

The report contains three parts:

- Part 1 presents the survey results on learning and collaboration in Australian workplaces, including demographic breakdown
- Part 2 explores the innovation culture of Australian workplaces and presents analysis of the results, including economic sectoral breakdown
- Part 3 makes recommendations for how Australian workplaces can help drive innovation and discusses the opportunities for education and physical workplaces

About the report and methodology

Figure 3. Research methodology and framework for analysis



Part 1. Survey results

Section 1. Learning in Australian workplaces



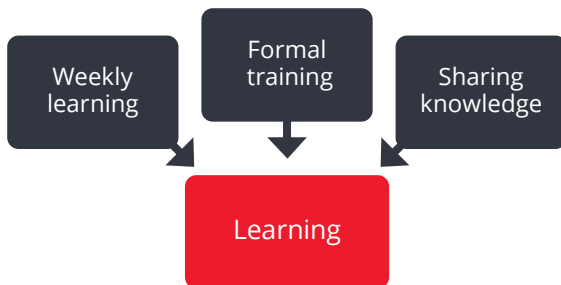
If you're not learning every day, your job is moving away from you.

So says future of work strategist and CNeW adjunct professor Heather McGowan. Our research supports her observation. In the next five years, more than three in five Australian workers (Figure 2, p 14) believe their skill set will not keep pace with the requirements of their job.

Workers want the opportunity to learn at work. In last year's survey, when asked who is responsible for their learning, 59% of workers said 'themselves' and three in four workers were motivated to learn new skills in the next 12 months. Yet are they getting the opportunity to learn at work?

We asked working Australians about the level of learning they do in their workplace in three ways: the **total weekly learning** at work, **formal training** as prescribed by their workplace, and the learning that occurs specifically between workers through **sharing knowledge**. To better understand the results, we performed a demographic breakdown from two perspectives: type of worker (gender, generation, education and work status) and type of job (job function, type of company and type of industry). See Appendix 4 for a full breakdown of each demographic category.

Figure 4. Framework for analysis of learning



QUESTION 1

How many hours do you typically spend a week learning at work?

51%

Half of Australian workers spend less than one hour a week at work on any form of learning.

- **20%** of Australian workers do none
- **31%** spend less than one hour a week
- **34%** of workers spend between one to four hours per week
- **15%** of Australian workers spend five hours a week or more

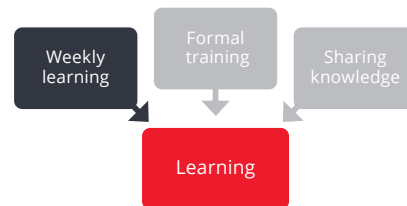
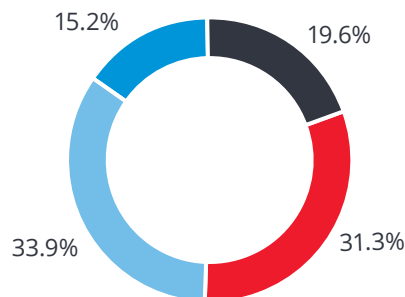


Figure 5. Hours per week learning at work

WEEKLY LEARNING AT WORK

■ No time ■ Less than 1 hour ■ 1-4 Hours ■ 5 or more hours

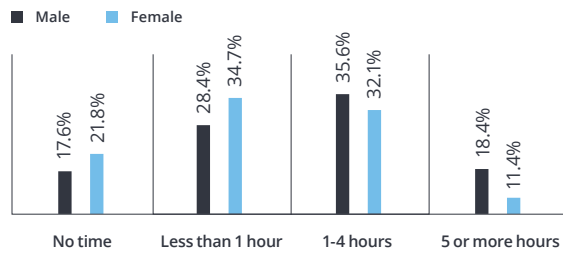


We wanted to gauge the amount of learning a worker does in a week, especially where the worker takes charge of their own learning. Learning is defined as 'prescribed training programs for their work/ worksite/workplace, structured activities (classes, courses, online courses), informal activities (learning from colleagues, searching on Google, listening to podcasts, YouTube), or any other activity that advances your skills, knowledge, capability and career'.

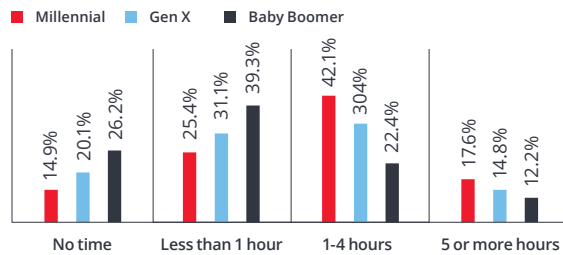
The time categories used in this question correspond to those used in research by Josh Bersin and LinkedIn¹⁰ – which termed ‘light learners’ as those doing less than one hour per week, ‘medium learners’ those doing one to four hours, and ‘heavy learners’ those doing five or more hours each week.

Hours per week learning at work, type of individual*

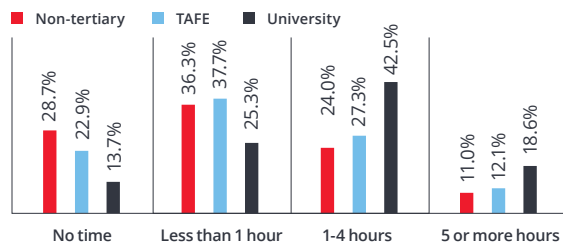
GENDER



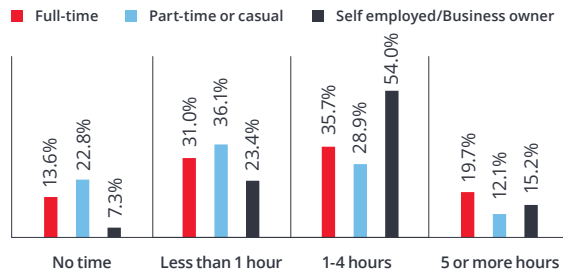
GENERATION



EDUCATION



WORK STATUS



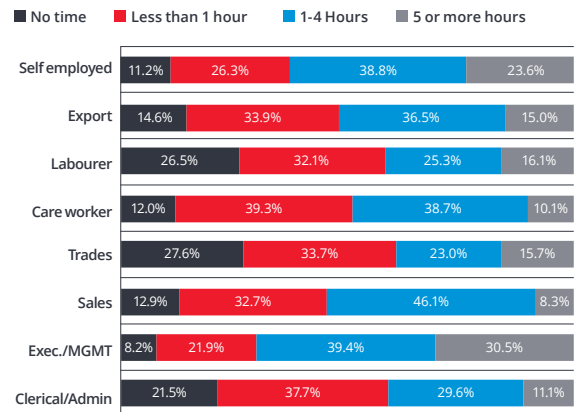
Advantaged: Male, Millennial, university-educated, self-employed or business owners.

Disadvantaged: Female, baby boomer, non-tertiary or TAFE-educated, part-time or casual.

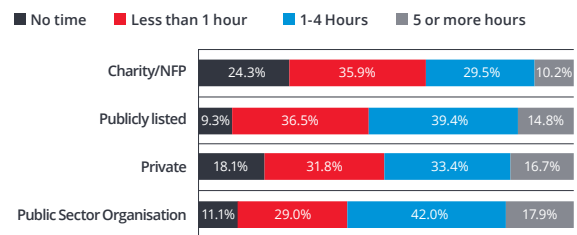
* Includes those in work and those seeking work, N = 1,060

Hours per week learning at work, type of job**

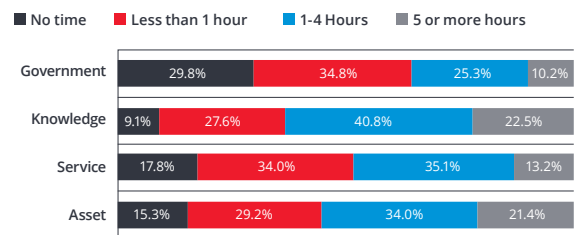
JOB FUNCTION



TYPE OF COMPANY



INDUSTRY GROUPED



Advantaged: Senior executive/management, self-employed, public sector organisation, knowledge or asset sectors.

Disadvantaged: Clerical and administrative, tradespeople and labourers, charity or not-for-profits, government and service sector.

** Includes only those in work, N = 912

Section 1. Learning in Australian workplaces

QUESTION 2

Have you undertaken any formal training for your work in the last 12 months?

42%

Just over two in five working Australians had formal training for their work in the previous 12 months, where formal training is defined as 'any prescribed program designed for work/ worksite/workplace'.

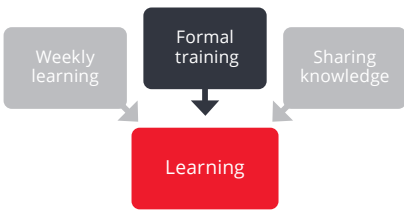
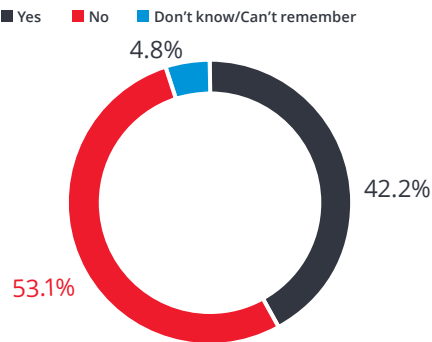


Figure 6. Formal training in Australian workplaces

FORMAL TRAINING

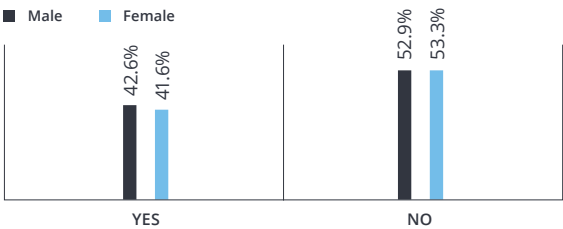


Formal training is considered to be a course run by an educational institution or a prescribed training program designed for the work site, with specified content designed to develop skills and competencies. It is generally accredited or recognised in some manner. It could be vocational training to improve skills or in-house compliance training. Some training takes a few hours, some takes days. Regardless, we are interested in the activity itself rather than its purpose. If an organisation offers formal training, it suggests there is some sort of company or organisation policy and corresponding investment in learning that aligns to an organisational need or objective.

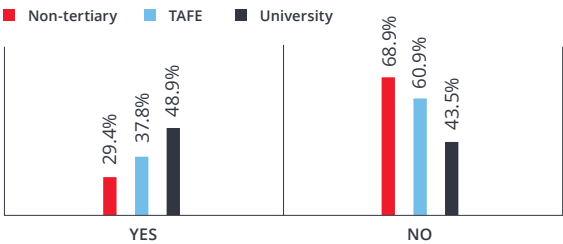
This survey question and definitions were drawn from a 2017 Victorian government survey of employers that sought to determine the prevalence of Victorian employers engaging in training to develop their workforce. In that report, more than half of Victorian workplaces (56%) had used some form of formal training within the previous 12 months.¹¹

Formal training in last 12 months – type of individual*

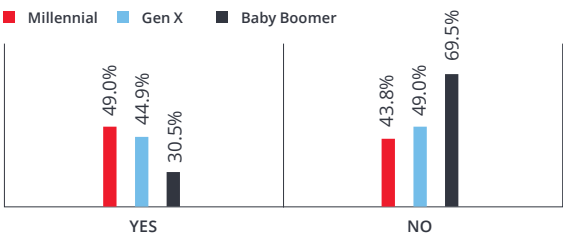
GENDER



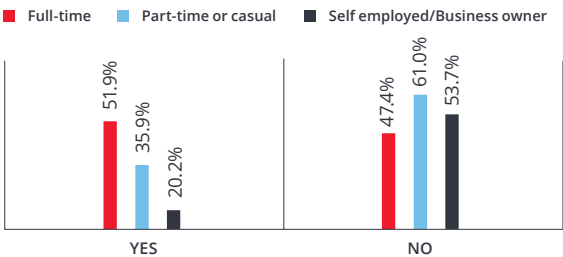
EDUCATION



GENERATION



WORK STATUS



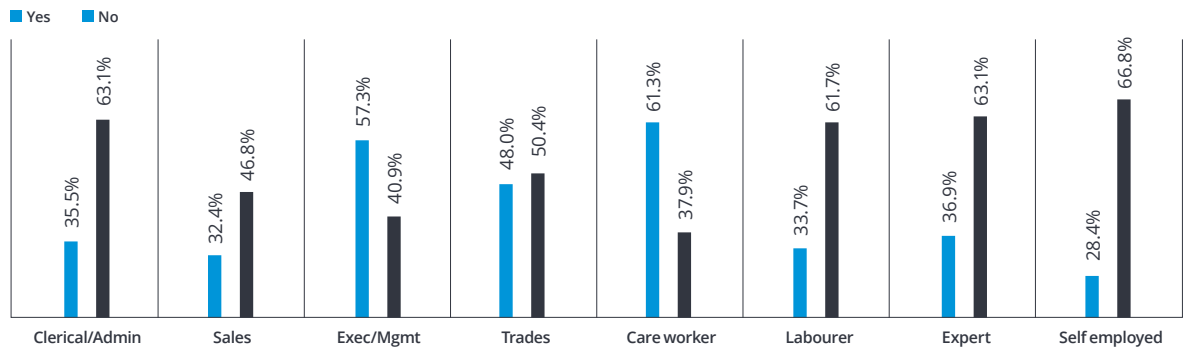
Advantaged: Younger, university-educated, working full-time.

Disadvantaged: Baby boomer, non-tertiary educated, part-time or casual.

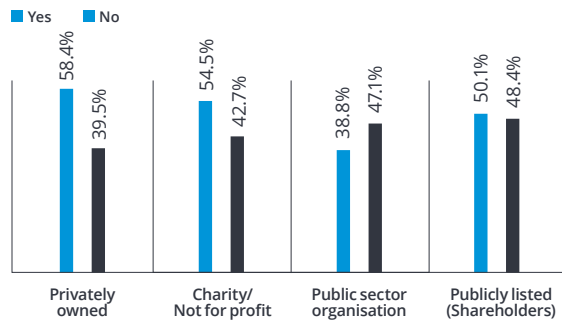
* Includes those in work and those seeking work, N = 1,060

Formal training in last 12 months – type of job**

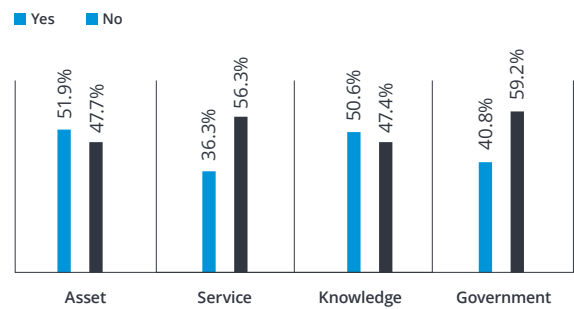
JOB FUNCTION



TYPE OF COMPANY



INDUSTRY GROUPED



Advantaged: Care workers, senior executive or management, public sector organisations and publicly listed companies, knowledge or asset sectors.

Disadvantaged: Self-employed, clerical and administrative, privately owned companies, charity or not-for-profit, service sector.

** Includes only those in work, N = 912

Section 1. Learning in Australian workplaces

QUESTION 3

Does your workplace encourage you to share your knowledge and expertise with colleagues?

37%

Less than four in ten Australian workers say their workplaces encourage them to share their knowledge and expertise with colleagues.

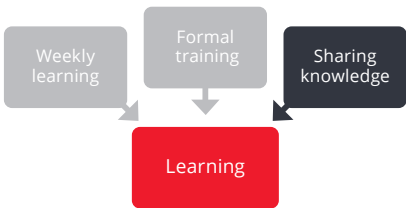
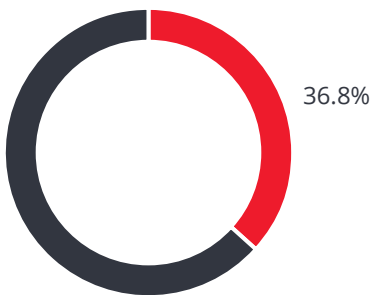


Figure 7. Sharing of knowledge and expertise in Australian workplaces

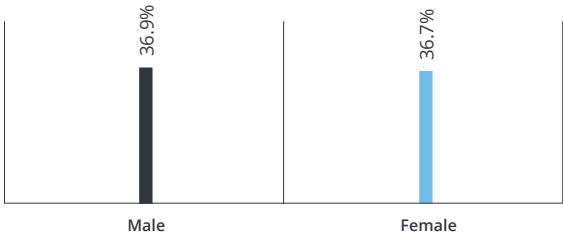
SHARE KNOWLEDGE & EXPERTISE



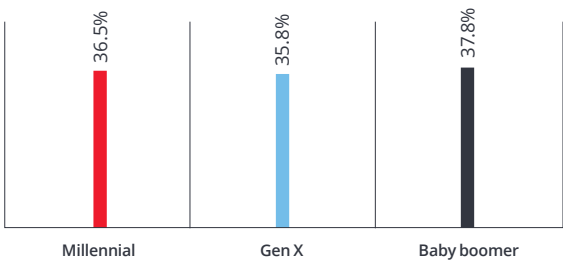
Most of the knowledge within an organisation is tacit in the form of know-how, insights, wisdom and judgement. It exists within people, not in manuals or documents. The sharing of tacit knowledge and expertise between employees is critical to the innovation process and enhancing the competitive advantage of the organisation. This social learning is the most effective way for an individual to learn at work.

Sharing knowledge – type of individual*

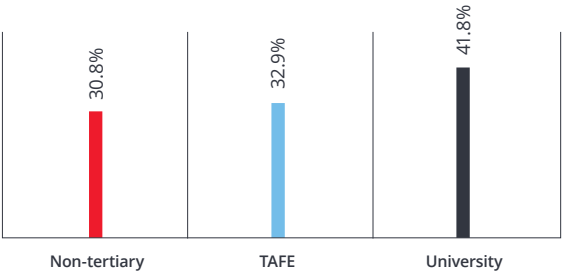
GENDER



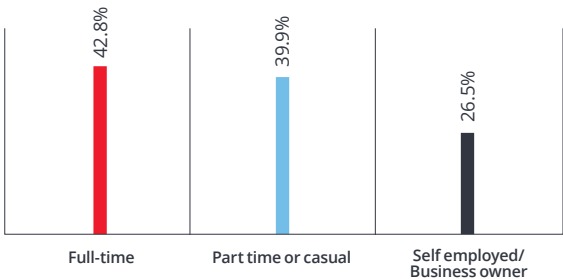
GENERATION



EDUCATION



WORK STATUS



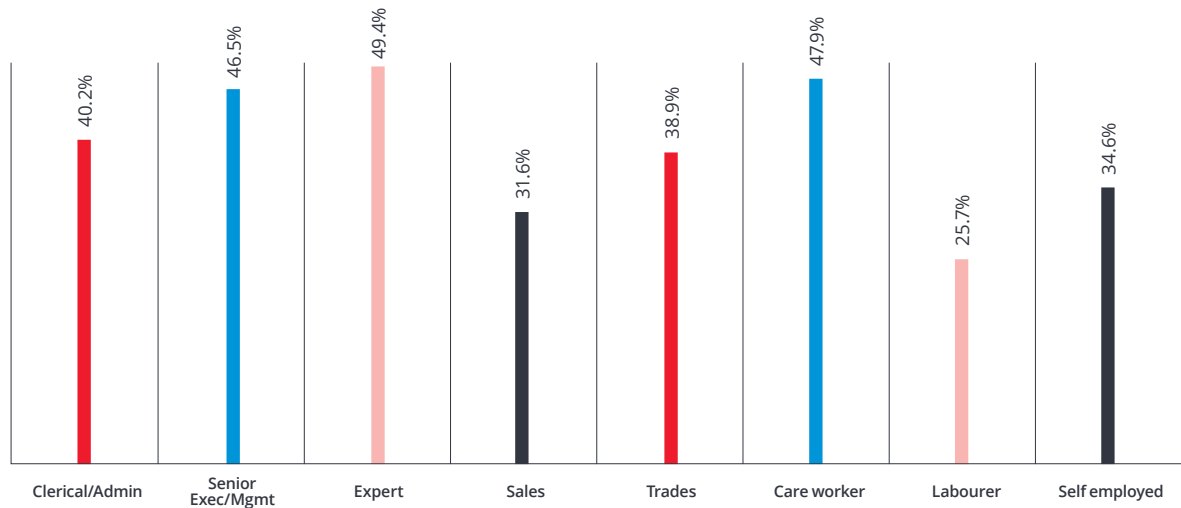
Advantaged: University-educated, full-time.

Disadvantaged: Self-employed, business owners.

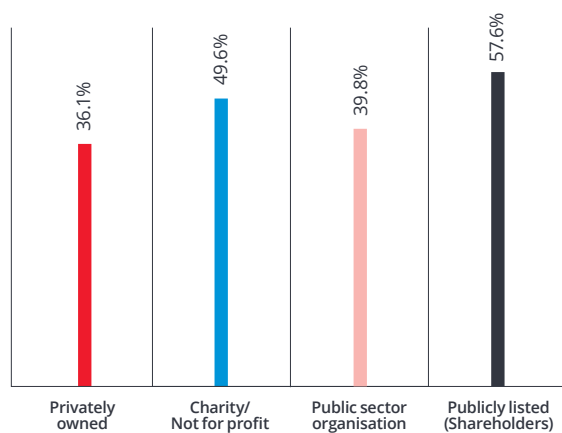
* Includes those in work and those seeking work, N = 1,060

Sharing knowledge – type of job**

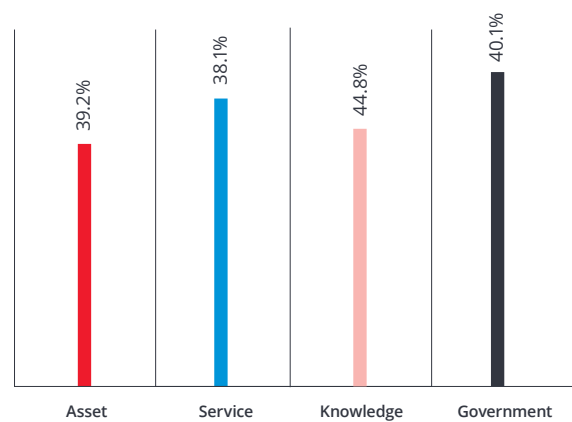
JOB FUNCTION



TYPE OF COMPANY



INDUSTRY GROUPED



Advantaged: Experts (professionals and technical workers), care workers, senior executive or management, publicly listed company, knowledge sector.

Disadvantaged: Salespeople, labourers, tradespeople, privately-owned company, service sector.

** Includes only those in work, N = 912

KEY RESULT **1** Learning at work not keeping pace with rapid change.

SECTION 1 SUMMARY

The skill sets, capabilities and expertise of Australian workers is eroding. Less than half have access to formal training programs, barely a third report their workplace encourages learning through sharing knowledge and expertise with colleagues, and less than half do at least one hour of learning at work per week.

Who learns at work? By and large, the leading indicator is the worker's level of education. Workers with a university education report significantly greater opportunities for formal training. What's more, their workplace is more likely to encourage the sharing of knowledge and they spend significantly more hours each week learning at work than non-university educated workers. Some 61% of university-educated workers report spending more than an hour of learning at work each week compared to 39% of TAFE-educated workers and 31% of workers with no tertiary education.

Comparing formal training and social learning for workers with a TAFE education against those with no tertiary education, there is a slight difference between these two groups. TAFE-educated workers have more access to formal training (37.8% versus 29.4%) but no real advantage in social learning (32.9% versus 30.8%) compared to workers without a tertiary education. This suggests that, unlike their university-educated colleagues, TAFE-educated workers have minimal advantage when it comes to learning opportunities at work.

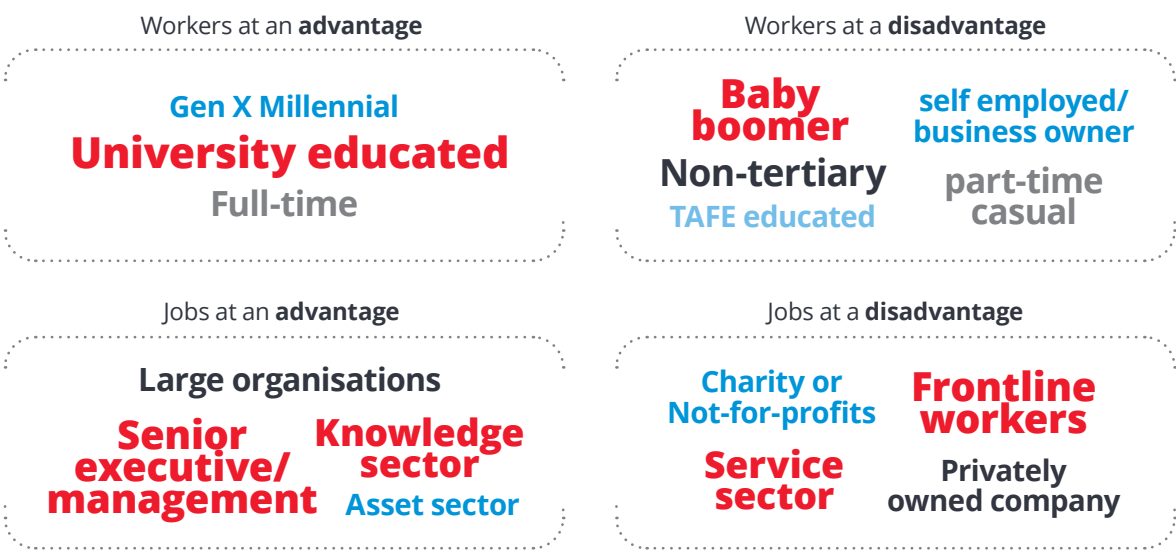
Beyond education level, of those who report learning opportunities at work, it is biased towards younger and

mid-career knowledge workers, especially those in senior executive, managerial, professional and technical roles. Larger organisations in the knowledge or asset sectors provide the best opportunity to learn. Self-employed workers and business owners report high weekly learning but low formal training and sharing of knowledge – suggesting a significant level of learning in the course of their daily work.

While male and female workers report equal access to formal training at work and the sharing of knowledge and expertise, women appear 20% less likely to spend at least an hour per week learning at work than men. On deeper analysis, this can be attributed to women making up a significantly higher proportion of part-time and casual work than men (61.2% versus 38.8%) – they have less hours in the week to learn. When we look at part-time and casual workers who report spending at least an hour each week learning at work, there is no difference between female and male workers. The disadvantage arises from women not having as equal access to full time work as men.

From formal training to informal learning such as just-in-time learning and sharing knowledge and expertise between employees, some workplaces support 'heavy learning' – measured as being at least five hours a week (or an hour of learning a day) at work. We do not expect that these workers are taking an hour out of every day to learn. Rather, it is evidence that work and learning are converging as per our term 'learning-integrated work' (in *Peak Human Potential*).

Learning at work: A word cloud*



*Size of words indicates their significance

Section 2. Collaboration in Australian workplaces

What is collaboration? It means different things to different workers, varying across workplaces and even within them. For this study we defined it simply: ‘collaboration is working with others to produce something’. We believe this definition gave survey respondents clear and consistent meaning across the sample population of Australian workers.

Why measure collaborative activity? By its very nature, collaboration infers producing something that an individual could not produce alone – achieved through some level of coordinated human interaction, communication between workers, and resolution of different perspectives. At its most fundamental level, the mechanics of collaboration (worker interaction) increases the sharing of knowledge and chance association of different ideas.

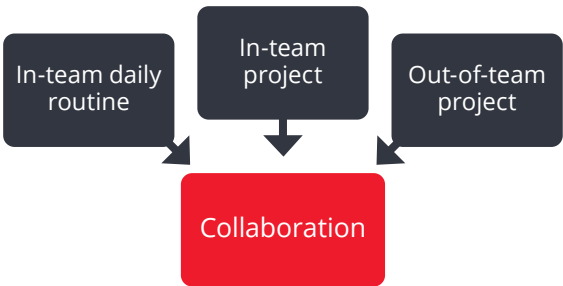
Collaboration is essential to both productivity and innovation in the workplace. In the course of our daily work, where productivity is more the focus, collaboration with immediate colleagues could be coordinating tasks or helping generate solutions to familiar problems by confirming our assumptions. Beyond our daily work, we are sometimes involved in collaborative project work with immediate colleagues of similar roles and responsibilities, or sometimes on projects and initiatives with colleagues from other functions or parts of the organisation – and by extension the organisation’s wider ecosystem – who have different roles, responsibilities and perspectives. Unlike daily work, complex projects require a diversity of views and inputs to create something new.

In the 2014 study of Australian workplaces by Deloitte, it was found that 46% of workers were involved in daily collaborative activity. According to the study, ‘diversity of collaboration’ – collaboration among employees with different roles and responsibilities – was found to be the most important factor for innovation, more so than the intensity of collaboration. The Deloitte study also found that collaborative businesses were 70% more likely to innovate than businesses that do not collaborate.

We wanted to understand the level of collaborative activity and the extent of collaboration diversity in Australian workplaces, as depicted in Figure 8 and described below.

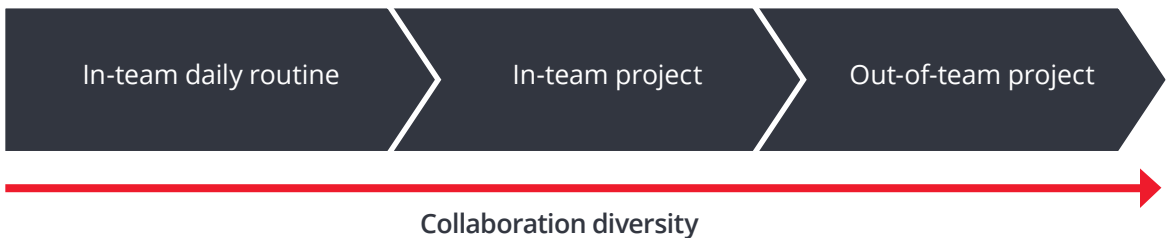
- **In-team daily routine** (question 4) – ‘My work involves working collaboratively with others in the course of my daily job’
- **In-team project** (question 5a) – ‘My work sometimes involves working on collaborative projects/initiatives with my immediate colleagues’
- **Out-of-team project** (question 5b) – ‘My work sometimes involves working on collaborative projects/initiatives with colleagues from other functions/parts of the organisation’

Figure 9. Framework for analysis of collaboration



In recognition of the growing importance of the distributed workforce, we have included workers outside organisations (e.g. self-employed) in these results. Research by CNeW, for instance, shows that almost one in four Australian workers have engaged as consultants in gig and freelance work, predominantly knowledge work. In other words, many are part of the wider ecosystem within organisations.¹²

Figure 8. Diversity of collaboration in the workplace



Section 2. Collaboration in Australian workplaces

QUESTION 4

Does your work involve working collaboratively with immediate colleagues in the course of your daily job?

53%

A slight majority of Australian workers report their work involves working collaboratively with others in their daily job.

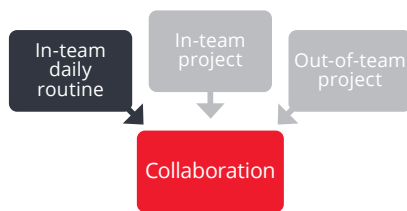
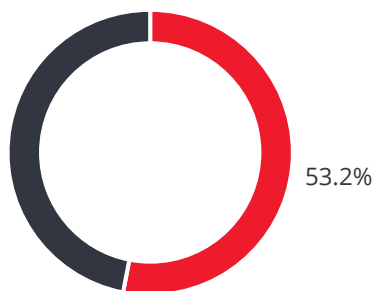


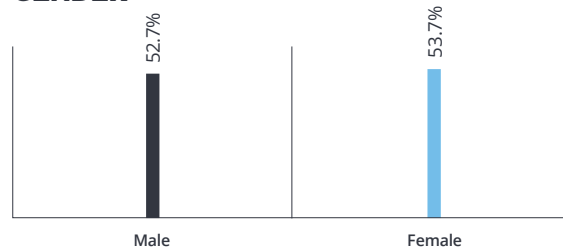
Figure 10. Percentage of workers collaborating each day on in-team routine work

IN-TEAM DAILY ROUTINE WORK

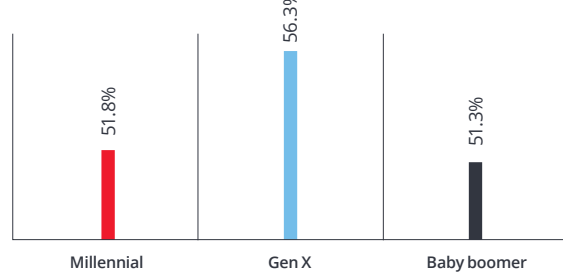


*In-team daily routine collaborative work, type of individual**

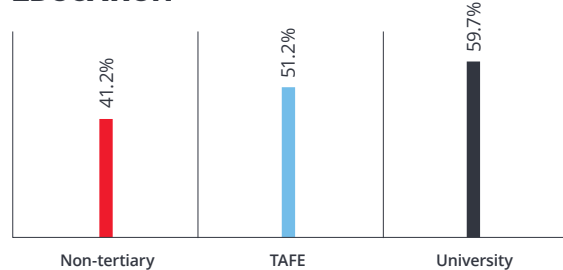
GENDER



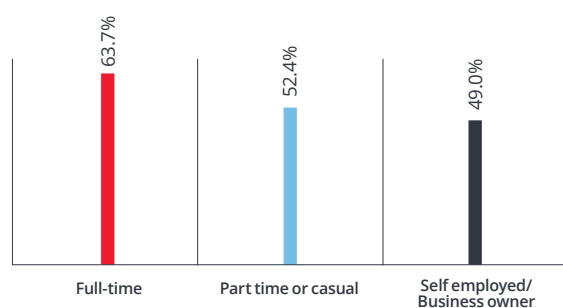
GENERATION



EDUCATION



WORK STATUS



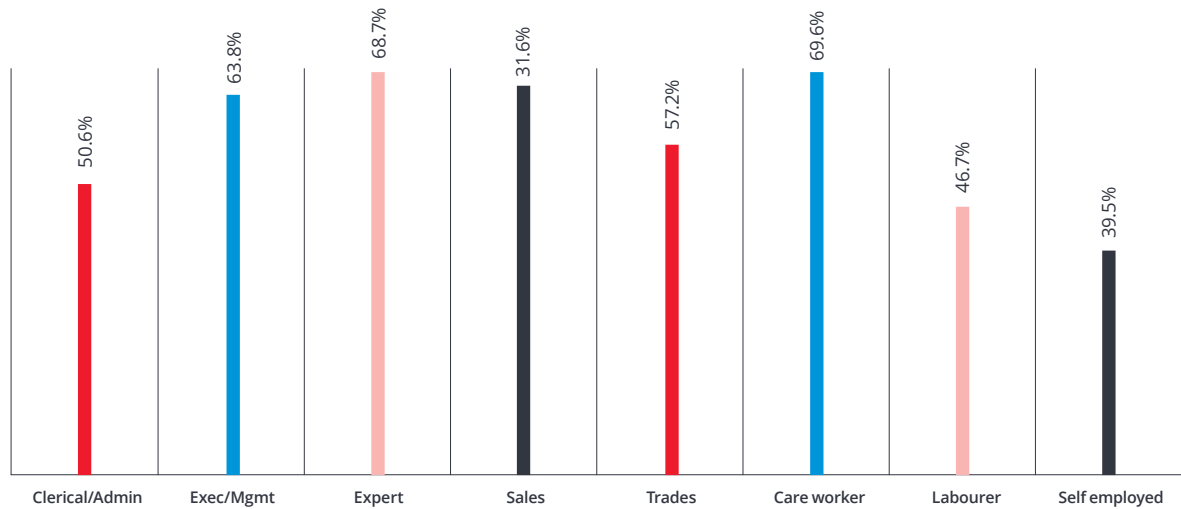
Advantaged: Gen X, university-educated, full-time.

Disadvantaged: Millennial, non-tertiary/TAFE, self-employed.

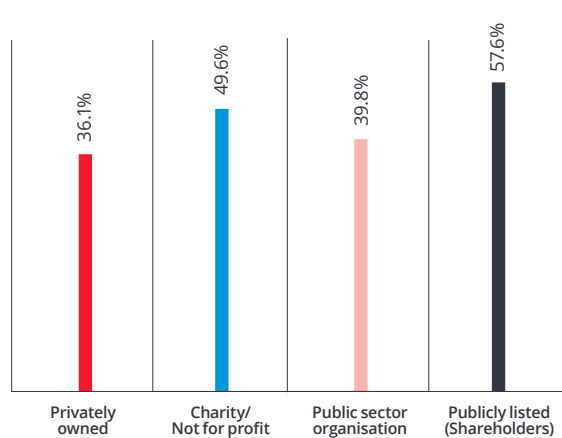
* Includes those in work and those seeking work, N = 1,060

*In-team daily routine collaborative work, type of job***

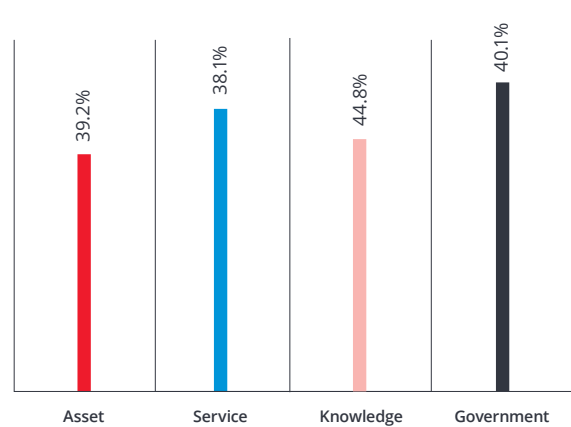
JOB FUNCTION



TYPE OF COMPANY



INDUSTRY GROUPED



Advantaged: Care worker, professionals, sales and senior executives and management, public sector and publicly-listed organisations.

Disadvantaged: Self-employed, clerical, labourers, privately owned companies.

** Include only those in work, N = 912

Section 2. Collaboration in Australian workplaces

QUESTION 5a

Does your work sometimes involve working on collaborative projects/initiatives with your immediate colleagues?

26%

Around one in four Australian workers work on collaborative projects with their immediate colleagues.

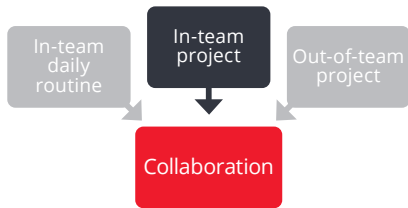
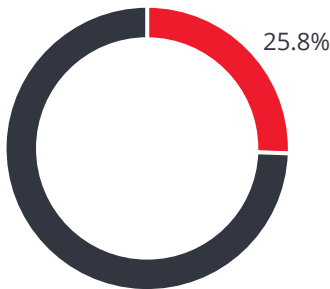


Figure 11. Percentage of workers collaborating with immediate colleagues on in-team projects

IN-TEAM PROJECT



QUESTION 5b

Does your work sometimes involve working on collaborative projects/initiatives with colleagues from other functions/parts of the organisation?

20%

One in five Australian workers work on collaborative projects with colleagues from other areas of the organisation.

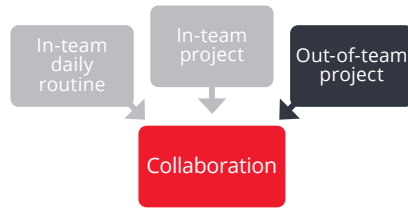
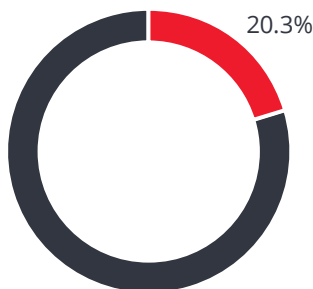


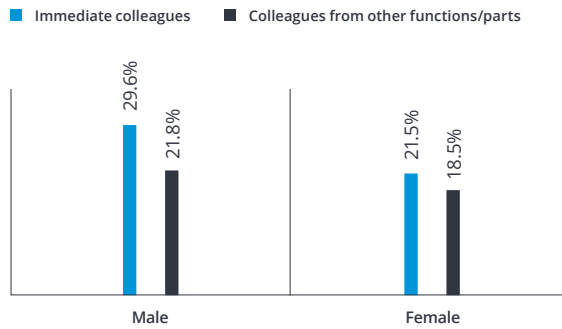
Figure 12. Percentage of workers collaborating with colleagues from across the wider business on out-of-team projects

OUT-OF-TEAM PROJECT

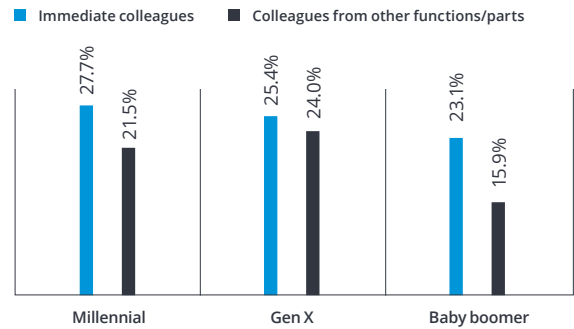


Collaborative projects, type of individual*

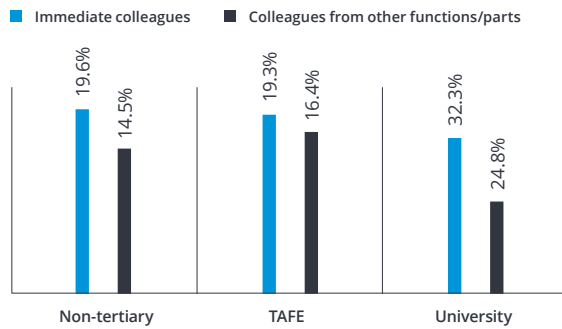
GENDER



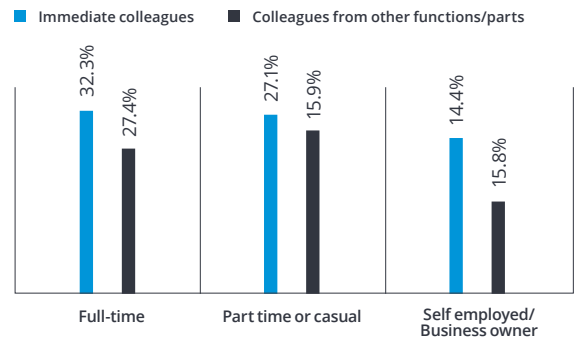
GENERATION



EDUCATION



WORK STATUS



Advantaged: Male, Gen X, Millennial, university-educated, full-time.

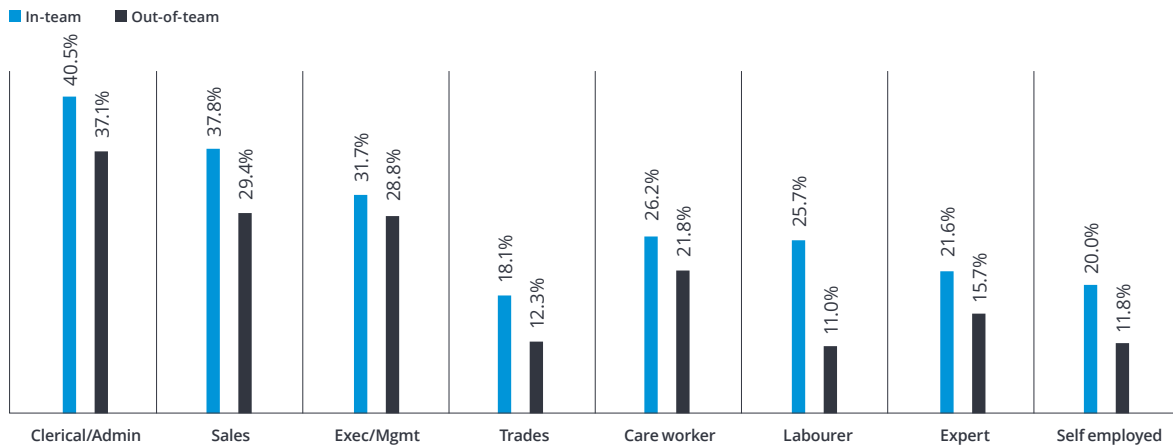
Disadvantaged: Female, baby boomer, part-time, casual, self-employed/business owner.

* Includes those in work and those seeking work, N = 1,060

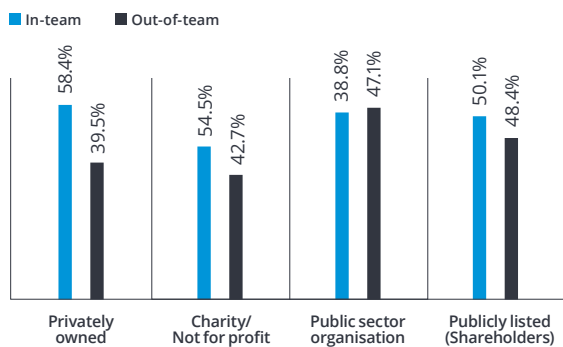
Section 2. Collaboration in Australian workplaces

Collaborative projects, type of job**

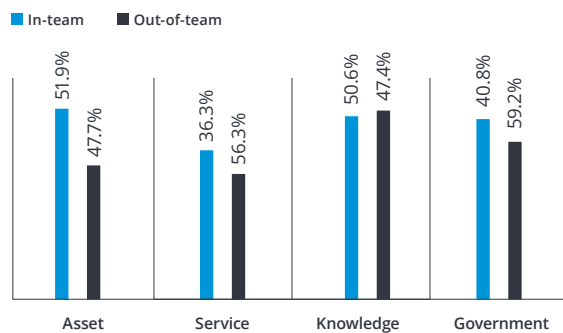
JOB FUNCTION



TYPE OF COMPANY



INDUSTRY GROUPED



Advantaged: Experts and senior executive, management; knowledge sector.

Disadvantaged: Labourer, care worker, tradespeople, salespeople; privately-owned companies; service sector.

** Include only those in work, N = 912

KEY RESULT

2

Collaboration intensity increasing but collaboration diversity lags.

SECTION 2 SUMMARY

More than half of working Australians (53%) report working collaboratively in their daily jobs, up from 46% reported by Deloitte in a comparable 2014 survey. This suggests work is becoming more complicated and requires greater collaboration to complete it.

Daily collaborative work is likely to be some form of teamwork between workers of related expertise. It is prevalent in a broad cross-section of the Australian workforce – frontline workers such as care workers and salespeople; professionals and experts; and especially those mid-career with a university education, working full-time and in larger organisations. Daily collaborative work is split evenly across female and male workers. It is less prevalent amongst low-educated workers in low-skilled jobs.

No more than a quarter of Australian workers are involved in collaborative project work where problem-solving occurs. And only around 20% of Australian workers are engaged in the most collaboratively diverse project work – cross-disciplinary complex problem-solving.

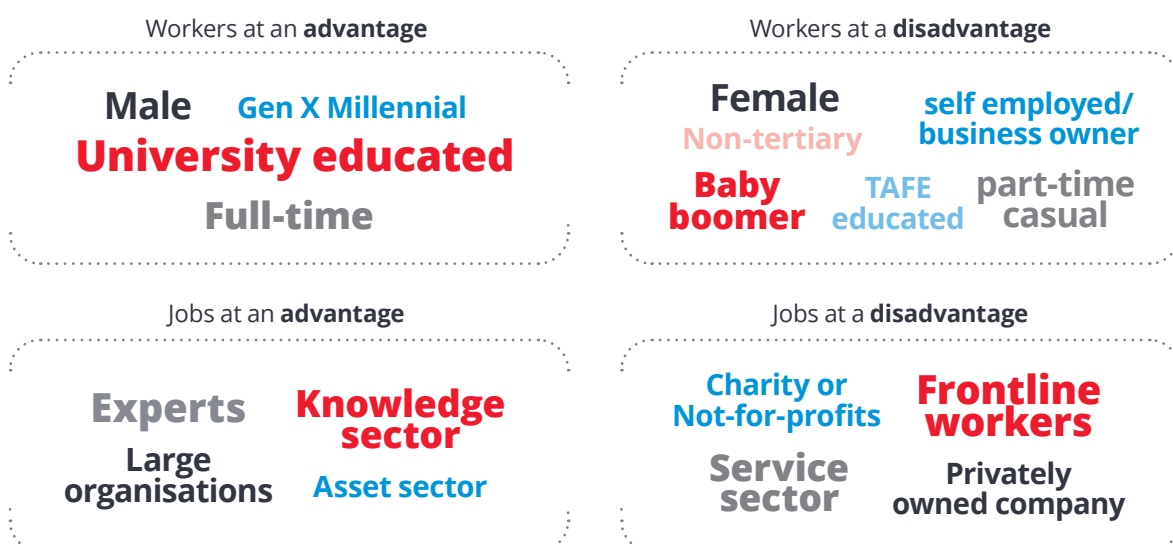
Compared to daily collaborative work, there is less diversity when it comes to collaborative project work. Generally, those involved in project work are younger, male, university-educated, and professional or technical experts in the knowledge sector.

Ironically but worryingly, the most complex projects – that is, those that would benefit most from diversity of ideas and experience – have the lowest levels of worker diversity. Organisations tend to pull in people with university degrees to collaborate on complex projects, favouring expertise over experience. Valuable input can be missed, for example:

- Salespeople, by virtue of their job, are at the coalface of customer interaction – where new problems arise and some of the greatest value is to be created. Yet professionals and executives are more than twice as likely as part-time salespeople to be involved in complex project work.
- Despite their wealth of experience, judgement and wisdom gained through years of experience – in both work and life – fewer older generation Baby Boomers are involved in project work.

In the unprecedented era, as problems become more open-ended and complex, involving ever more diverse groups of stakeholders, experience becomes as essential as expertise in finding solutions. Collaborative diversity must be a synthesis of expertise and experience.

Collaboration: A word cloud*



*Size of words indicates their significance

Section 3. Workplace culture and innovation

Tacit knowledge is the essence of any organisation. In the unprecedented era it becomes invaluable. Even if they find it hard to articulate, employees often implicitly know what value is; they have an intrinsic understanding of the value proposition of their business which increases with experience. This tacit knowledge unleashes ideas, insights, hunches and know-how – which in turn powers both innovation and productivity. For tacit knowledge sharing to thrive, workplace culture is critical.

We are interested in the conditions that support the discovery of new ideas and their development, and how these compare with productivity. We asked working Australians about 16 values and behaviours

that describe the culture of their workplace. These values are arranged into four categories – idea generation, idea incubation, productivity and ‘enablers’ (cultural values that support what we call a positive workplace culture and are essential for innovation and productivity). See Figure 13 and Table 1; and Appendix 4 for full descriptions of each term.

This is not intended as a comprehensive list of all the values that define the culture of a workplace. In choosing these 16, we sought workplace values that have a common understanding across all workers and across all workplaces. We recognise some values might apply across different categories but we have allocated them based on alignment to their principal category.

Figure 13. Values and behaviours of workplace culture

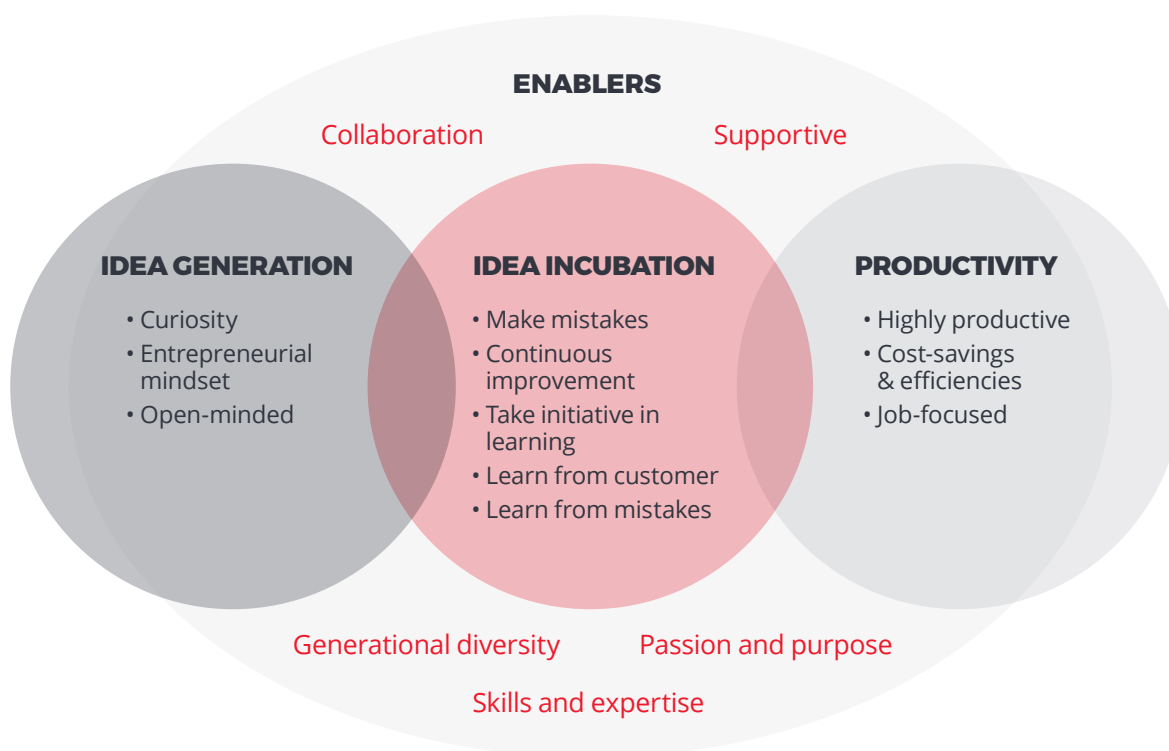


Table 1. Values and behaviours in Australian workplaces

IDEA GENERATION – VALUES AND BEHAVIOURS THAT SUPPORT IDEA DISCOVERY	
Curiosity	Ask questions, challenge assumptions, think outside the box
Entrepreneurial mindset	Imagination and creativity, risk-taking, trial new things or ways
Open-minded	Open to the sharing of new ideas and insights
IDEA INCUBATION – VALUES AND BEHAVIOURS THAT SUPPORT IDEA VALIDATION	
Make mistakes	OK to fail
Continuous improvement	Iterative and longer-term
Take initiative in learning	Empowering workers to take responsibility in overcoming work hurdles
Learn from customer	Market-test new ideas
Learn from mistakes	Support experimentation
PRODUCTIVITY – VALUES AND BEHAVIOURS THAT DRIVE OUTPUT AND EFFICIENCY	
Highly productive	Increase output
Find cost savings and efficiencies	Decrease input
Job-focused	Only do your job
ENABLERS – VALUES AND BEHAVIOURS THAT SUPPORT A POSITIVE WORKPLACE CULTURE, WHICH IN TURN GENERATES AND INCUBATES IDEAS, AND IMPROVES PRODUCTIVITY	
Generational diversity	Emotional intelligence, different experience
Supportive	Social intelligence, helping one another, empathy
Collaboration	Working together, social learning
Passion and purpose	Find meaning in our work, motivation to push through, aspiration to achieve/improve oneself
Skills and expertise	Task-related capabilities, existing knowledge

The survey described these values in a way that workers would likely understand or easily recognise. We therefore believe these definitions would have consistent meanings across different workplaces.

We acknowledge that measuring factors based on a worker's subjective perception of cultural values in the workplace has some limitations, owing to implicit biases. The absolute score of each value is less important here. More important are:

- The *comparative* scores between workplace values.
- The *change* in the value of these scores (dependent/ response variables) relative to changes in learning and collaboration inputs (explanatory/independent variables), which helps determine the relationship between them. The change is presented in the next section of this report.

We further acknowledge that the values that help define idea generation and incubation do not distinguish between incremental versus disruptive innovation, but support both. It is the *context* of the inputs (changes in learning and collaboration) from which we can infer a distinction.

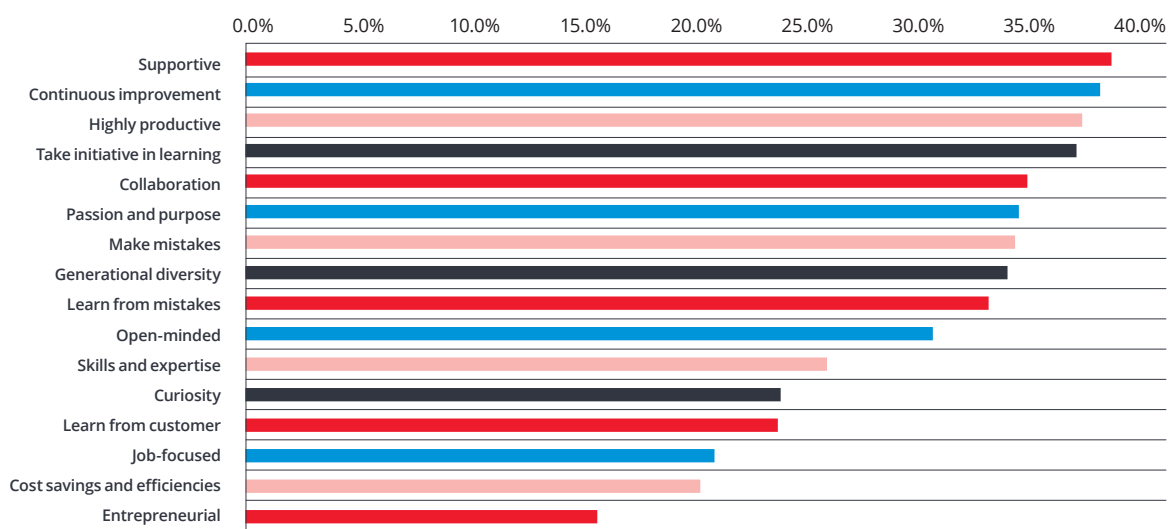
Section 3. Workplace culture and innovation

QUESTION 6

Which of the following describe the values and culture in your current workplace?

Support – encompassing social intelligence, helping one another and empathy – is the most predominant value within Australian workplaces, followed by continuous improvement and productivity. The least common value is an entrepreneurial mindset.

Figure 14. Prevalence of workplace values and culture



Going back to the four categories of values, Australian workers report a higher frequency of the enablers that support what we might call a positive workplace culture, and those values and behaviours that support ideas incubation.

The average score of values in each of four categories are as follows:

- Enablers – **33.7%**
- Idea incubation – **33.5%**
- Productivity – **26.7%**
- Idea generation – **24.1%**

Part 2. Survey analysis

Section 1. Influence of learning and collaboration on culture in Australian workplaces

How important are the inputs of learning and collaboration in creating the right conditions for competitive advantage? To answer this, we break down learning and collaboration into sub-groups and then analyse each sub-group's influence on workplace culture.

Three types of learning

- Weekly learning at work
- Formal training
- Sharing knowledge

Three types of collaboration

- In-team daily collaborative work
- In-team project work
- Out-of-team project work

Figure 15. Framework for analysing the impact of learning and collaboration on workplace culture



For each of the following analyses, the results for each category are the average of the constituent values in that category, as defined in Table 1 on p33. Please refer to Appendix 1 for a full breakdown of results for each constituent variable.

ANALYSIS 1

Influence of the amount of weekly learning on workplace culture

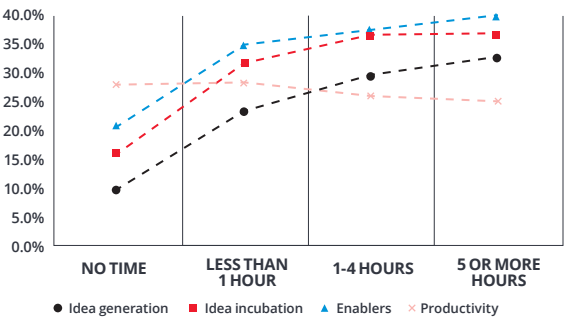
Compared to those who spend no time learning, Australian workers who spend five hours or more each week learning at work believe that their workplace encourages values supportive of idea generation, idea incubation and positive workplace culture. These workers are:

- **23% more likely** to experience values that support **idea generation**
- **21% more likely** to experience values that support **idea incubation**
- **19% more likely** to experience values that support **positive workplace culture**
- **3% less likely** to experience values that support **productivity**



Figure 16. Influence of the amount of weekly learning on workplace culture

WORKPLACE CULTURE



Learning at work is strongly and positively related to values that support idea generation and idea incubation, followed by enabler values that support a positive workplace culture. Increasing the amount of weekly learning at work has the strongest positive influence on idea generation. When it comes to idea incubation, there is no difference between medium levels (from one to four hours of weekly learning) and heavy learning. Overall, the more learning that a worker can do, the more likely their organisation is innovative.

The higher the level of learning per week, the more likely this learning is driven by the worker, not the organisation.

In contrast, productivity is modestly enhanced by a low level of weekly learning at work (less than one hour a week). As workers spend more time learning at work, their productivity is likely to fall slightly.

ANALYSIS 2

Influence of formal training on workplace culture

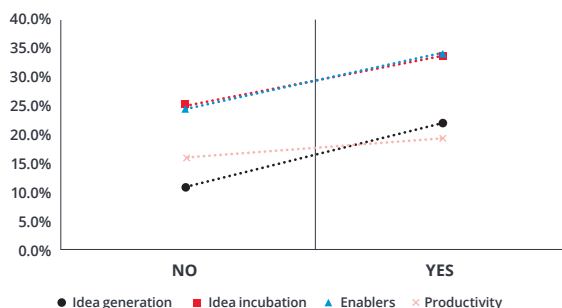
Compared to those who had no formal training,

- **8% more likely** to experience values that support **idea generation**
- **7% more likely** to experience values that support **idea incubation**
- **7% more likely** to experience values that support a **positive workplace culture**
- **2% more likely** to experience values that support **productivity**



Figure 17. Influence of formal training on workplace culture

WORKPLACE CULTURE



Australian workers who had undertaken formal training in the previous 12 months are:

Formal training has a modest positive influence on the values that support idea generation and idea incubation; as well as those that enable a positive workplace culture. There is a marginal positive correlation between formal training and productivity.

ANALYSIS 3

Influence of sharing knowledge on workplace culture

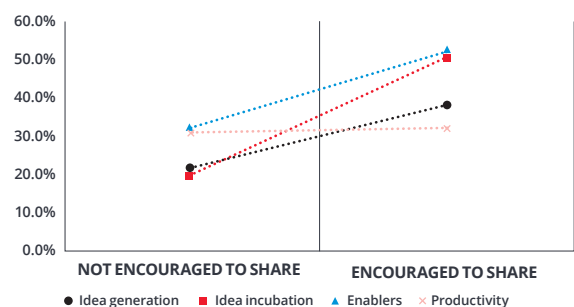
Compared to those whose workplaces that don't encourage the sharing of knowledge and expertise, Australian workers who are encouraged to share knowledge and expertise with colleagues are:

- **31% more likely** to experience values that support **idea incubation**
- **20% more likely** to experience values that enable a positive **workplace culture**
- **17% more likely** to experience values that support **idea generation**
- **1% more likely** to experience values that support **productivity**



Figure 18. Influence of sharing knowledge on workplace culture

WORKPLACE CULTURE



Sharing knowledge at work has a strong positive influence on the values that support idea incubation, followed by values that enable a positive workplace culture, and then idea generation.

On the other hand, sharing knowledge has a negligible impact on workplace values that support productivity.

Section 1. Influence of learning and collaboration on culture in Australian workplaces

ANALYSIS 4

Influence of collaboration diversity on workplace culture

Compared to workers who work collaboratively on a daily basis through in-team daily collaborative work (least collaboratively diverse), Australian workers involved in out-of-team collaborative projects with other parts/functions of the organisation (most collaboratively diverse) are:

- **12% more likely** to experience values that support **idea generation**
- **6% more likely** to experience values that support a positive **workplace culture**
- **5% more likely** to experience values that support **idea incubation**
- **2% more likely** to experience values that support **productivity**

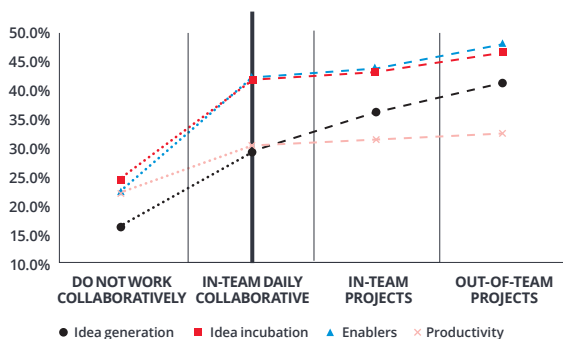


There are two key results here denoted by the vertical line in Figure 19. Firstly, when compared to workplaces which do not work collaboratively, those that promote collaborative work experience strong, positive growth in idea generation, idea incubation and productivity; as well as a more positive workplace culture.

Second, increasing the diversity of collaboration has a much stronger positive influence on idea generation than it does on idea incubation and cultural enablers. The relationship between diversity of collaboration and productivity is neutral.

Figure 19. Influence of collaboration on workplace culture

WORKPLACE CULTURE



KEY RESULT**3**

Worker-driven learning the most important factor for idea generation and idea incubation.

KEY RESULT**4**

Collaboration diversity is the most important factor for idea generation, collaboration intensity for idea incubation.

SECTION 1 SUMMARY

Learning

All forms of learning for work contribute to an innovation culture of idea generation and idea incubation. However, worker-driven learning (learning at work + sharing knowledge between colleagues) has a far greater positive impact on idea generation and incubation than organisation-driven learning (formal training)

Worker-driven learning

- Amount of weekly learning at work – the more learning that workers are empowered to do at work at their initiative, the more idea generation (23%) and idea incubation (21%) are enabled.
- Sharing knowledge and expertise at work with colleagues – makes idea incubation more favourable by 31% and idea generation by 17%.

Organisation-driven learning

- Formal training has a smaller positive impact on enabling novelty of innovation - idea generation (8%) and idea incubation (7%).

An important observation here is that organisations which encourage increased learning in the workplace enhance their innovation culture but not at the expense of productivity. Even when workers report learning five hours or more weekly (at least an hour a day), there is only a minimal fall in values aligned to productivity.

Of course, it is self-evident but worth noting that while learning at work fosters conditions that support value creation, it also advances the skills, knowledge and expertise of workers.

Collaboration

Routine collaborative work (versus none) strongly enhances conditions for both innovation and productivity in Australian workplaces. However, according to Australian workers:

Idea generation: the greater the diversity of collaboration, the more idea generation is enabled.

Idea incubation: the higher the intensity of collaboration, the more idea incubation is enabled.

Productivity: medium levels of collaboration intensity (e.g. daily collaborative work) enable better productivity. Increasing collaboration diversity (i.e. project work) has no additional effect on productivity.

Section 2. Sectoral analysis of the impact of learning and collaboration on workplace culture

Where in the Australian economy are worker-driven learning and collaboration diversity most favourably correlated to conditions that support innovation?

In this analysis, we compare three non-government sectors of the economy – the knowledge-intensive sector ('knowledge'), the service sector ('service'), and the asset-intensive sector ('asset'). See Appendix 4 for definitions of these sectors.

Having evaluated the impact of both learning at work and collaboration diversity on each of the four categories of workplace culture, we now break these results down into sectors – looking at total weekly learning at work and diversity of collaboration – to better understand the contribution each sector makes to the trends we see economy-wide.

For each of the following analyses, the results for each category of workplace values are the average of the constituent values in that category. Please refer to Appendix 2 for a full breakdown of results for each variable.

ANALYSIS 5

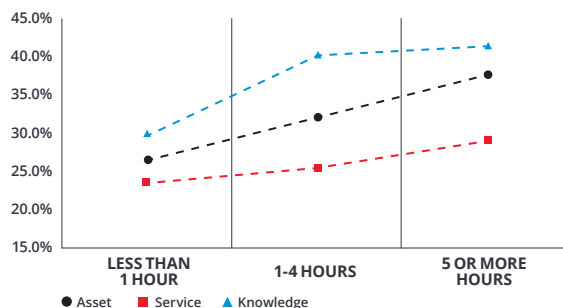
Sectoral contributions to weekly learning and workplace values

As the graphs in Figure 19 demonstrate, the strongest signal for each category of workplace values (sector + amount of learning) are as follows:

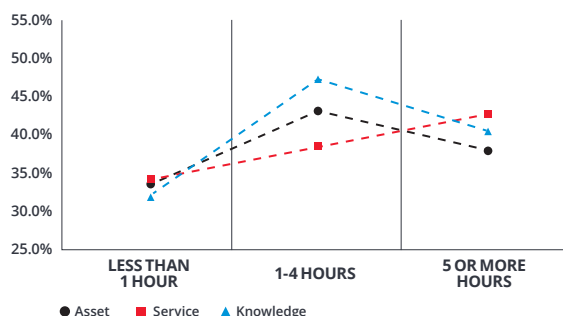
- **Idea generation:** knowledge + 5 hours or more
- **Idea incubation:** knowledge + 1-4 hours
- **Enablers:** asset + 5 hours or more
- **Productivity:** knowledge + 1-4 hours

Figure 19. Sectoral contributions to learning per week and workplace values.*†

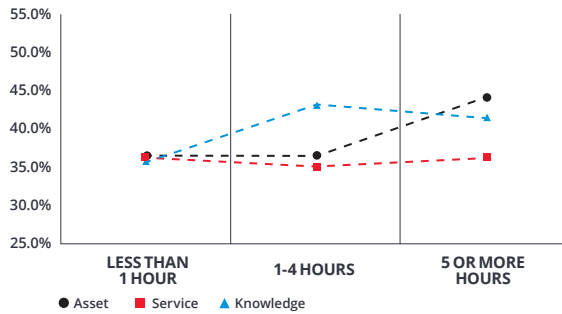
IDEA GENERATION



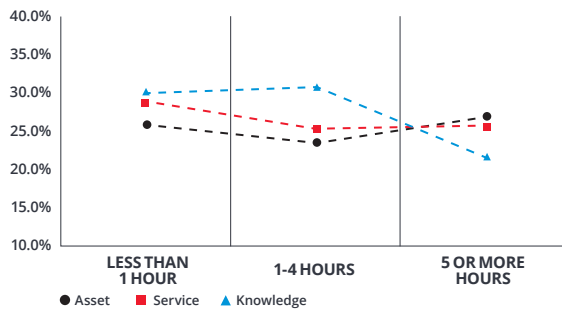
IDEA INCUBATION



ENABLERS



PRODUCTIVITY



* "No time learning per week" excluded owing to small N
† values add up to more than 100% owing to each datum point being the average of several scores

ANALYSIS 6

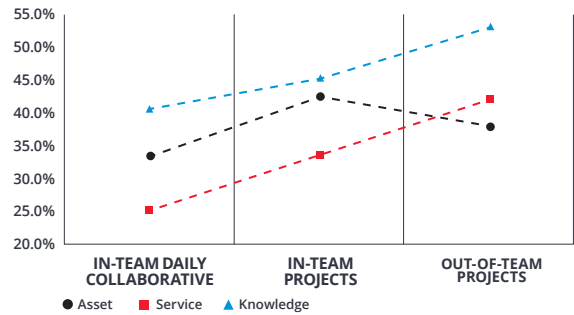
Sectoral contributions to collaboration diversity and workplace values

As the graphs in Figure 20 demonstrate, the strongest signal for each category of workplace values (sector + level of collaboration diversity) are as follows:

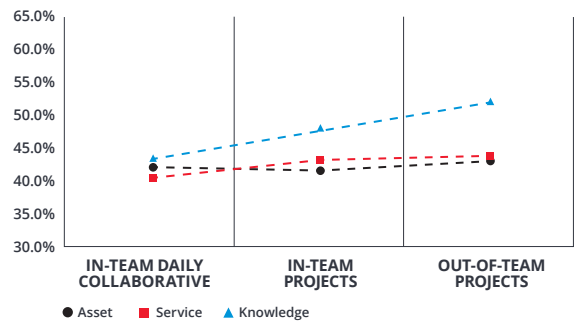
- **Idea generation:** knowledge + out-of-team
- **Idea incubation:** knowledge + out-of-team
- **Enablers:** all sectors + out-of-team
- **Productivity:** service + out-of-team

Figure 20. Sectoral contributions to collaboration diversity and workplace values.*†

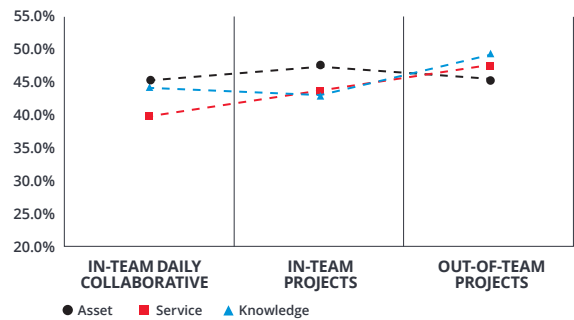
IDEA GENERATION



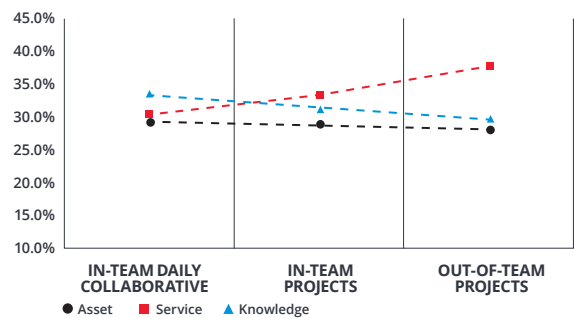
IDEA INCUBATION



ENABLERS



PRODUCTIVITY



* "do not work collaboratively" excluded owing to small N
† values add up to more than 100% owing to each datum point being the average of several scores

Section 2. Sectoral analysis of the impact of learning and collaboration on workplace culture

KEY RESULT 5 Worker-driven learning and collaboration diversity are the ideal workplace settings to generate and incubate ideas from complex disruption.

Digitally disrupted environments resemble the conditions of the unprecedented era

Of the sectors in the Australian economy, the knowledge sector is most favourable for the type of learning and collaboration that best supports idea generation and incubation.

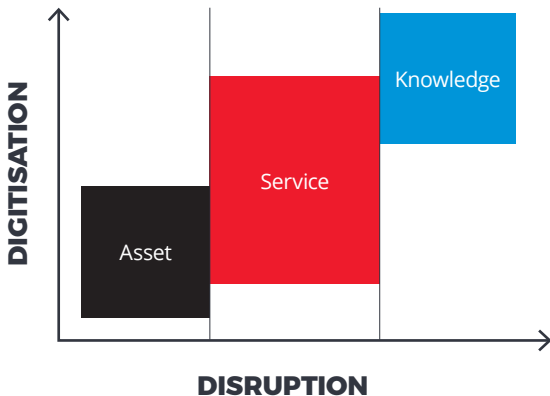
Based on McKinsey modelling (2017), the knowledge sector is also the most digitally disrupted sector of the Australian economy (see figure 21) and thus most likely resembles the fast-paced and rapidly-changing environment unfolding the unprecedented era.

SECTION 2 SUMMARY

Deeper analysis of economic sectors shows the relationships between learning, collaboration and innovation are strongest in the most dynamic, rapidly changing environment in the Australian economy – the knowledge sector – bearing the closest resemblance to the conditions unfolding in the unprecedented era.

In Australian organisations, therefore, worker-driven learning and collaboration diversity are the ideal workplace settings for disruption-led innovation – the ability to generate and incubate ideas from complex disruption.

Figure 21. Digitisation levels and corresponding extent of disruption in non-government sectors of the Australian economy



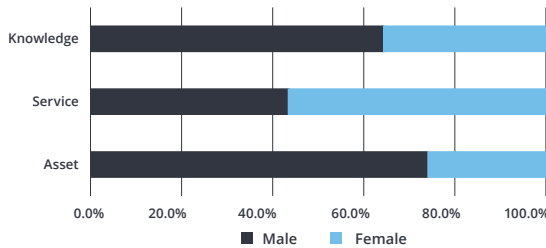
Section 3. Demographics and diversity

To better understand sectoral contributions in section 2, we examined the demographic breakdown of gender, generation, education and work status across the three sectors of the Australian economy (see Figure 21). Notable demographic insights include:

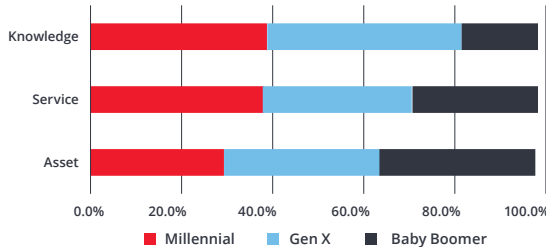
- High levels of university-educated workers in the knowledge sector
- The asset sector is male-dominated
- The service sector has the lowest level of full-time workers, compared to high levels in both the asset and knowledge sectors

Figure 21. Demographic variations per sector

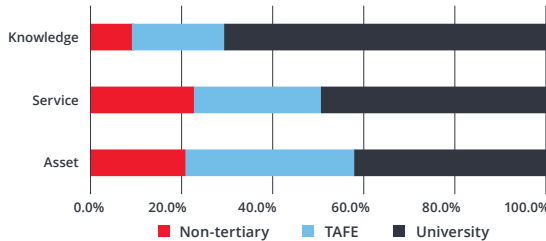
GENDER



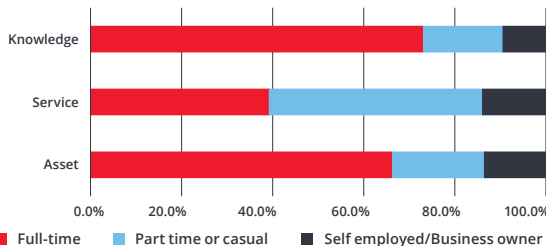
GENERATION



EDUCATION



WORK STATUS



We then determined the diversity of each sector according to these demographics – with 1 representing the most diverse (smallest standard deviation among contributions to that demographic) and 3 being least diverse (largest standard deviation among contributions) (see Table 2).

Table 2. Demographic diversity of each sector

	Asset	Service	Knowledge
Gender	3	1	2
Generation	1	2	3
Education	1	2	3
Work status	2	1	3

The service sector – which is also the largest sector, employing more than three in five Australian workers – is the most demographically diverse, closely followed by the asset sector. The knowledge sector is the least demographically diverse, ranking last in generation, educational attainment and work status.

Lack of diversity increases risk

The conditions that best support idea generation in Australian workplaces are the integration of learning and work, and high collaboration diversity (out-of-team project work). By far the leading demographic indicator for whether a worker has the opportunity to participate in worker-driven learning or high collaboration diversity is their education background. Those with university degrees, regardless of the sector, are more privileged.

Across sectors, workers who do out-of-team project work are over-represented by those with a university qualification (see Table 3). This is despite the fact that most workers in the asset and service sectors do not have university qualifications. Knowledge workers in these sectors are most likely to be involved in collaboratively diverse opportunities – which leads to the risk that the projects are not, in fact, truly diverse.

Diversity of collaboration is not only important for generating a variety of ideas, it is also important for getting these ideas off the ground. According to Fleming, ideas that are developed deep within cohesive teams (in-team projects) are 43% more likely to be rejected by the broader organisation because they have not benefited from the socialisation across the organisation that occurs with highly diverse collaborations (out-of-team project). Connections to other parts of the organisation can help “unleash the excitement and energy necessary to facilitate diffusion”, and are critical to scaling ideas beyond small teams.¹³

Section 3. Demographics and diversity

Table 3. Percentage of workers involved in out-of-team project work versus their proportional representation in that sector

	Non-tertiary	TAFE	University
Knowledge	15.2% (8.9%)	16.7% (20.6%)	68.1% (70.4%)
Service	14.6% (22.8%)	24.9% (27.7%)	60.5% (49.5%)
Asset	10.7% (20.7%)	37.7% (37.5%)	51.7% (41.9%)

Salespeople and factory floor workers are some of the least likely to be involved in out-of-team project work. As we discuss in the next section, these frontline workers are potentially witness to significant disruption. Excluding these workers from the innovation process is not only a missed opportunity, but potentially a significant risk.

Finally, while these results tell us that a university education provides an advantage when it comes to participating in value-creating knowledge work, it's clear, however, that workers don't need a degree to perform this knowledge work. There are plenty of workers with no tertiary education getting involved.

Part 3. Recommendations and opportunities

Section 1. Building a new innovation architecture

There has never been a more important time for organisations to create value and transform their business model, and to do so empowering their people. The profound disruption wrought by the unprecedented era, combined with the advance of more powerful digital technologies, is unleashing rich opportunities to innovate and drive competitive advantage. At the same time, organisations are facing one of the gravest threats to their existence. For some, the COVID-19 crisis has been the equivalent of an extinction event in an already rapidly evolving ecosystem. For others, the full impact has yet to be felt, thanks to temporary government financial support.

With complex disruption in mind, potential opportunities and dangers are emerging simultaneously, and will be ongoing and unrelenting. This gives rise to two closely-linked challenges for organisations: the erosion of value and the transformation of work.

The erosion of value

Since the release of Clay Christensen's *The Innovator's Dilemma* in 1997, there has been an extraordinary focus by leaders globally on disruptive innovation – the phenomenon where a new technology disrupts the value of an existing market, giving rise to new entrants and threatening legacy companies. In the years since, established organisations have developed more sophisticated approaches to generate business ideas based on new technologies to avoid being disrupted.

In the unprecedented era, however, disruption is far more complex and unrelenting than that arising from technology alone. 'Disruptive innovation' must now become 'disruption-led innovation' with a purpose of either transforming the current business model or developing scalable new business opportunities – or both. This requires a systems thinking approach that analyses complex interconnected phenomena.

Organisations must not only embrace complex disruption but transform themselves to reflect the evolving nature of the world around them. They need to approach innovation as a dynamic system within the organisation,¹⁴ and institutionalise this capability as an organic network that constantly learns and evolves at the pace of change around it. As our research shows, when problems are complex, diversity of thought and experience is fundamental to innovation. Workers' perspectives are as important as the perspective of leadership; institutional innovation must be organisation-wide.

The transformation of work

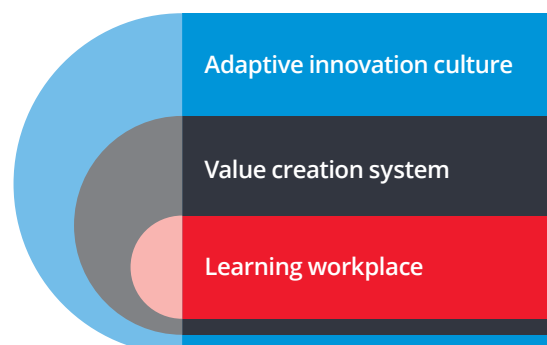
At the same time that value is being eroded, work itself is being fundamentally transformed. Previously, when work was more stable, human work was optimised for productivity. Modular work functions – in which skilled workers performed repetitive, routine tasks – were efficiently integrated with one another.¹⁵ Increasingly, machines are doing this predictable work. In its latest *The Future of Jobs Report*, the World Economic Forum projects that by 2025, the hours of work performed by machines and people will be equal for the first time.¹⁶ To continue to dedicate people solely to routine work has diminishing returns, especially when the human competitive advantage – our ability to navigate and understand uncertainty – is the best asset organisations have to figure out the future. In the unprecedented era, productivity is not the most valuable measure of human work.

A new disruption-led innovation architecture

We propose a new disruption-led innovation architecture in which organisations are dedicated to creating value while responding to the transforming nature of work. This architecture operates at both the organisation and worker level, integrating seamlessly into daily work and overlaying the entire organisation.

The architecture consists of three dimensions. At its core is the 'learning workplace', a fundamental driver that delivers continual growth in the organisation's capability and fuels its innovation capability. Above this sits a value creation system that constantly steers the organisation towards disruption and leverages the power of collaboration to catalyse innovation. Finally, an adaptive innovation culture envelops the architecture, cultivating the right behaviours for learning, collaboration and value creation in complex disruption (see Figure 22).

Figure 22. Innovation architecture to institutionalise value creation from complex disruption



INSIGHT

Productivity is not the most valuable measure of human work in the unprecedented era.

The disruption-led innovation architecture operates alongside regular work activities. Day-to-day work not only serves productivity but also acts as a surveillance capability onto emerging disruption. Workers take on the elevated responsibility of identifying variations, exceptions or problems to business as usual and helping to figure out how to respond. Each sign of disruption presents opportunities for both organisational learning and value creation. The architecture therefore helps drive a whole new mindset to reimagine work as a pathway to innovation.

INSIGHT

In the unprecedented era, continual transformation of the business model must be the new normal. As innovation is the responsibility of every worker, the workplace becomes the engine of innovation, where work is reimaged as a pathway to innovation.

The following sections make specific recommendations for each dimension of the innovation architecture.

RECOMMENDATION 1

Create a learning workplace

An ideal setting for innovation in the workplace is where learning is integrated into and converges with work. To facilitate this convergence, organisations need to create a learning workplace, integrating two complementary yet distinct pathways to learning at work – organisation-driven and worker-driven learning (see Figure 23 and Table 4).

Figure 23. The learning workplace

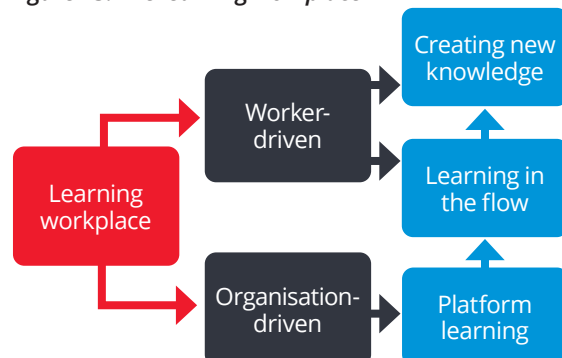


Table 4. How the two pathways of learning compare

Organisation-initiated	Worker-initiated
Needed to perform work	Needed to progress work
Aligned to business objectives and project outcomes	Aligned to work problems
Existing knowledge	Existing and new knowledge
Accredited	Validated, created
Individual	Individual and team
Structured	Informal

Organisation-driven learning

Digital technologies are transforming how businesses capture and create value – impacting everything from business processes and service offerings to essential operations. Workers need to keep up with these rapidly changing technologies, which is where organisation-driven learning comes in. And 'platform learning' is emerging as a valuable way to deliver it.

Unlike formal training, which is often a one-size-fits-all approach to developing skills, platform learning is a platform of modular learning components that can be customised to meet the ongoing skills demands of the organisation, while also aligning to the career aspirations of the worker. It enables employees to continually build upon the skills and expertise – especially digital capabilities – required to perform increasingly sophisticated work in the digital economy. By being flexible and responsive, platform learning aligns to ever-changing business objectives.

Delivered in small units of micro- or even nano-learning, with optional accreditation, platform learning requires focus and some time away from work. According to research by CNeW senior research fellow Eva Kyndt, however, for structured learning to be effective, new knowledge and skills need to be applied immediately in the workplace to ensure the most effective transfer of training.

Platform learning also helps workers to create meaningful career paths. Whereas traditional formal training is one size fits all, micro-learning courses are increasingly curated to the individual's specific needs or aspirations. Not only does this allow them to stay ahead of the digital disruption of their job or industry, but also to pivot to new career opportunities. As an example, Voith, a mechanical engineering company, has developed an e-learning platform (DRIVE) which offers upskilling courses to improve digital readiness, and which can be tailored to each learner's journey.

Section 1. Building a new innovation architecture

EXHIBIT 2. TOYOTA PRODUCTION SYSTEM

The primary goal of the TPS is to increase profits by reducing costs. To achieve this, production must be able to react quickly and flexibly to changing market conditions. But it is about more than production processes – it's also about the mindset and workplace culture that supports it.

Deloitte's John Hagel reflects on the TPS:

"When a problem occurs, workers exercise curiosity to ask questions that can help identify the problem and the conditions surrounding it. They use social and emotional intelligence to bring colleagues together effectively around the problem. They use imagination to play with the boundaries of the problem and probe constraints of systems and tools. [And they use creativity to develop] a new approach or technique."¹⁷

This requires a clear leadership expectation that workers will focus on problem-solving, precisely the right workplace conditions for innovation.

Versions of the TPS have been adopted by many companies globally.

The creation of new knowledge could range from creating new learning content that shows how to perform a new task (e.g. an augmented reality video), through to advancing our fundamental understanding of a concept. At Siemens Australia, a multinational technology company, for instance, new apprentices with Industry 4.0 expertise are encouraged to solve existing problems in new ways or to identify new problems that cannot be solved within existing knowledge frameworks.

We want to stress here that most learning is not done by individual workers in isolation. We also want to emphasise the importance of social learning – where individuals and teams share knowledge – which is widely recognised as the most effective form of learning in the workplace. As problems become more complex and demand input from many workers, sharing knowledge becomes even more relevant as it amplifies learning outcomes. According to Peter Senge, this 'team learning' – building something together – is essential for organisational learning and competitive advantage.

Our research shows that all forms of learning at work play a role in supporting workers to perform and progress work, and in creating the right culture for innovation in disruptive environments. By creating a learning workplace, organisations not only empower workers with agency to make decisions but they also create a culture that encourages workers to be curious, imaginative and creative, and encourages them to learn from customers, take risks and learn from mistakes. In the unprecedented era, the learning workplace is fundamental for an organisation's capability and ability to create value.

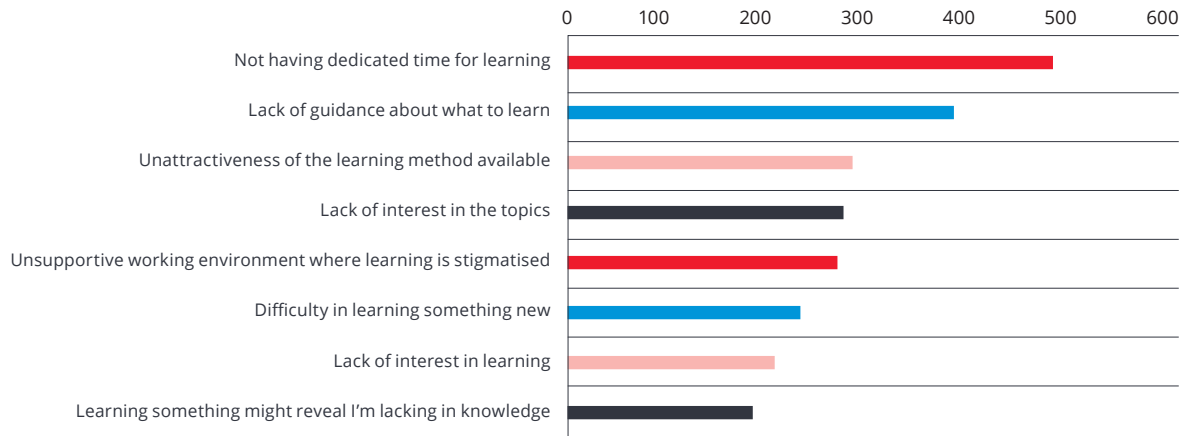
Worker-driven learning

Using platform learning as a springboard, worker-driven learning is where a worker or team is empowered and entrusted to take charge of the learning required to progress work when and how they need it; and to create new knowledge to solve a problem where none exists. Josh Bersin coined the phrase 'learning in the flow of work' to recognise the enormous value of just-in-time learning for workers that need assistance in progressing over work hurdles.¹⁸

At the same time, unforeseen hurdles in work problems will continue to arise in this era of complex disruption. Increasingly, there won't be an instructive online video or a colleague with the right know-how to solve novel problems. In such cases, new micro-knowledge needs to be created by the worker and their team to solve the problem – in a process that we termed 'learning-integrated work' in our 2019 report *Peak Human Potential*.¹⁹ Creating knowledge becomes increasingly relevant in disruptive environments and it is an essential complement to learning in the flow of work.

Barriers to learning at work

We asked Australian workers about the main barriers to learning at work. Unsurprisingly, the main challenge they cited was not having enough dedicated time for the task. Another key barrier was a 'lack of guidance about what to learn'. We think workplaces need to empower workers to determine what they need to learn rather than waiting to be told what to learn.

Figure 24. Main barriers to learning at work*

*Cumulative scores from top three responses

RECOMMENDATION 2 — ○

Build a value creation system

Value creation from complex disruption ultimately has two objectives – to transform existing business models and/or develop new scalable business opportunities; as well as inform strategic direction and competitive advantage.

Organisations need to be able to source ideas and innovation opportunities at the pace of disruption around them. Often, the source is the frontline. For example, call centre workers are the first to know if a customer's needs, expectations or behaviours change. Sales people know exactly when existing products and services become inadequate. Factory workers will know straight away if a new part needs new digital capabilities. These frontline experiences could be early warning signs of significant disruption.

Disruption can also appear on the horizon when new breeds of products and services or unexpected competitors enter the market. Think of the rise of digital finance in China challenging banking in America.

There could be bigger disruptive forces at play, too. Looking much further afield, for example, might identify emerging crises such as the next COVID-19.

A dual focus is required to exploit specific work problems and explore bigger picture patterns, and the workplace must empower all workers from leadership to experts to frontline workers.

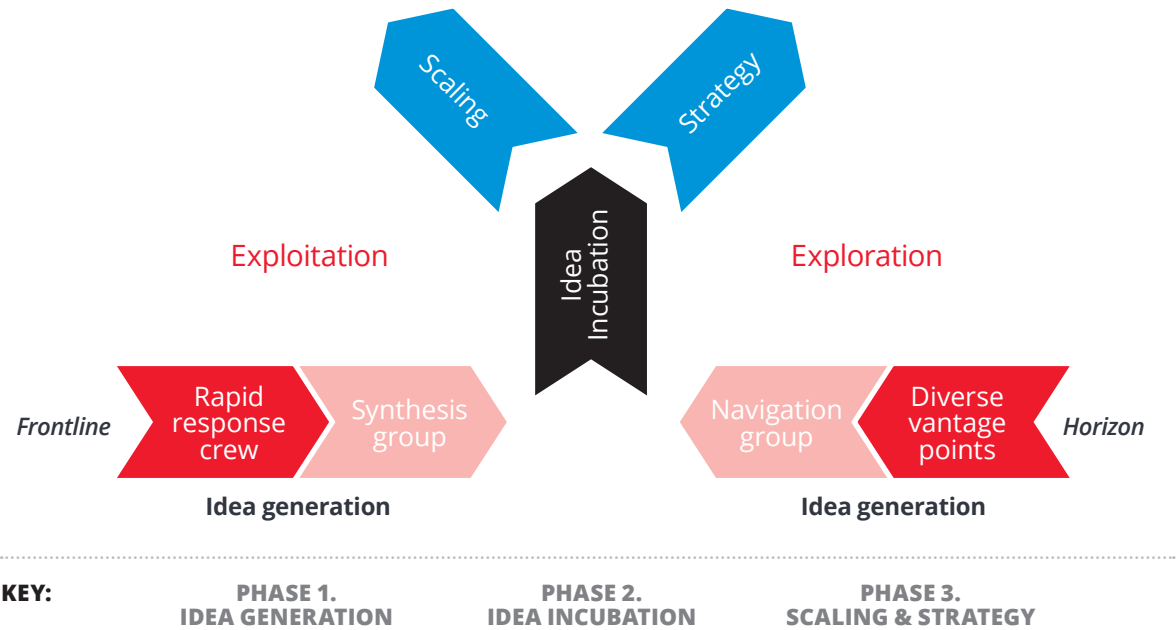
Harnessing collaboration diversity for disruption-led innovation

We propose organisations establish a value creation system that responds quickly to disruption by leveraging the power of collaboration diversity. Like the learning workplace, this value creation system can be organisation- or worker-initiated. As such, the system comprises and coordinates two responses to disruption – the first is worker-initiated and focuses on exploitation of ideas arising from disruption on the frontline, the second is organisation-initiated and is dedicated to exploring ideas arising from disruption emerging on the horizon (see Figure 25).

To adapt O'Reilly's model (see p13) for complex disruption a surveillance capability is required. The value creation system draws on the 'zoom in, zoom out' approach (see Exhibit 3). To identify opportunities for value creation, it places surveillance capabilities on the frontline and the horizon to work. Identified patterns of disruption then flow into the three primary phases of innovation in disruptive environments as

Section 1. Building a new innovation architecture

Figure 25. The three-phase value creation system combining worker-initiated exploitation (frontline) and organisation-initiated exploration (horizon)



proposed by O'Reilly – idea generation, validation (idea incubation) and scaling.

In this research, we are most interested in the discovery of new ideas that catalyse innovation in complex disruption, so we focus attention on the idea generation and incubation phases of the value creation system.

EXHIBIT 3. A ZOOM APPROACH TO VALUE CREATION

In a rapidly-changing world, organisations must be able to respond to immediate challenges as well as adapt to longer-term trends. The 'zoom in, zoom out' approach first proposed by Rosabeth Moss Kanter of Harvard Business School provides a helpful framework. Key to the zoom approach is a recognition that different perspectives in organisations are vantage points, not fixed positions. Organisations need to zoom in on specific problems (e.g. frontline) while zooming out to scan the horizon and "move across a continuum of perspectives to get the complete picture" to inform strategy.²⁰

PHASE 1. IDEA GENERATION

Exploitation

Rapid response crew (low-medium collaboration diversity)

Key to the success of the Toyota Production System, is that when a problem, variation or issue (i.e. a new pattern) is first observed, workers are empowered to self-assemble to discuss and debate the issue before informing management (see Exhibit 2, p48).

In disruptive environments, whether the issue is first observed by a worker or by a workgroup, a rapid response crew would form from immediate colleagues to develop a micro-narrative – a fragment of the overall story – of what's going on. This 'in-team collaborative' approach of low-medium collaboration diversity ensures the micro-narrative can be developed rapidly. Limiting diversity across roles in the rapid response crew means less time spent resolving conflicts, and high levels of trust among colleagues. The developed micro-narrative can be presented to the relevant upline senior leaders, who then consider whether it warrants more serious consideration through forming a synthesis group.

Synthesis group (high collaboration diversity)

A synthesis group consists of around a dozen people from across the organisation, comprising a diversity of authority (leadership), expertise and experience. This group is formed on an as-needs basis to consider whether micro-narratives from rapid response crews pose a significant threat or opportunity. This is akin to 'out-of-team project collaborative work' and is where idea generation is resolved.

The group has the authority to quickly seek complementary input and data from functions in other areas of the business to create a more comprehensive view. The diversity of membership of the group (see Box 'Group membership') ensures a broad range of perspectives to determine whether the micro-narrative:

- Is a suitable incremental innovation opportunity, or
- Can be synthesised into a more compelling vision for significant value creation – that is, generate a new business idea.

EXHIBIT 4. REAL DIVERSITY OF COLLABORATION ESSENTIAL TO DEAL WITH DISRUPTION

A leading ICT company conducted a series of workshops with different groupings of employees to determine the organisation's level of 'disruption readiness'. The perspective of the leadership team towards disruption differed considerably from that of a group of employees drawn from all levels of expertise, experience and responsibility across the organisation. This demonstrated to the company the importance of bringing together perspectives from different vantage points across the organisation to face disruption.

Exploration

Navigation group with diverse vantage points (high collaboration diversity)

A regular survey across the ecosystem is needed to identify patterns on the horizon that might signal emerging crises and approaching disruption. Aligned to quarterly business reviews,²¹ the navigation group of around twenty people meets quarterly with the key objective of validating/updating existing business models or pursuing new business ideas. The group

draws membership from diverse expertise, experience and authority, plus stakeholder representation. Each member brings a different vantage point into the wider ecosystem. Unlike the synthesis group, the regular timing of the navigation group allows inclusion of friendly externals, too – such as customers, clients and collaborators.

For the navigation group to be effective, exploration should not be a fishing expedition. The ultimate goal is to stress-test and extend an existing business model or generate ideas for a new scalable business. O'Reilly suggests two practices to help produce ideas suitable for validation and scaling. The first is to set 'the scale of ambition equal to the opportunity or threat of disruption'. Revenue targets, for instance, are a common way to ensure the scale of the ambition is appropriate and to avoid incremental innovation. The second is to establish 'hunting zones' where boundaries are placed on idea generation such as by defining the markets, business models, types of problems, or customers to focus on. Some examples of hunting zones for idea generation include:

- Ensuring the new business leverages the organisation's deep expertise (Corning)
- Ensuring the new business leverages across all offerings of the company and offer a new source of customer value (IBM)
- Establishing a guiding principle, such as Amazon's "think big"²²

We suggest that the navigation group has a core membership plus a rotating membership of various frontline and business function workers, who are each invited to attend two or three consecutive meetings. This will provide opportunities for workers across the organisation to provide input and gain experience in idea discovery. It's also an opportunity to widely socialise innovation approaches. Any agreed actions would progress to the next phase for incubation/validation.

INSIGHT

For SME organisations, the value creation system is a simplified hybrid of the exploitation and exploration responses. This disruption group meets quarterly with individuals from across the organisation to consider signs of disruption from both the frontline and horizon with a view to stress-test or transform the existing business model.

Section 1. Building a new innovation architecture

Group membership

Within synthesis and navigation groups, certain roles are necessary to ensure the value creation system succeeds. These are similar to some of the roles in agile team approaches.

Innovation lead – this person facilitates group gatherings, coaches development of narratives, and creates trust among the membership.

Problem owner – a senior leader within the organisation who represents the stakeholders of the value creation, ensures alignment with strategic business objectives, and is able to influence the allocation of resources to validate and scale ideas. The problem owner is responsible for the idea through all innovation stages.

Frontline workers – both groups need a few relevant frontline workers (e.g. from the shop floor or factory floor), representing key external stakeholder groups such as customers or suppliers.

Technical and subject matter experts – these people bring the knowledge of technology and expertise in domains relevant to the idea being generated. Legal, finance and regulatory expertise could also be included, as required.

PHASE 2. IDEA INCUBATION

Exploitation and Exploration

Validation unit (medium collaboration diversity)

New business ideas – in the form of a hypothesis or proposition – that come from the synthesis group or the navigation group are sent to a validation unit or team, which determines whether the idea can be incubated, translated into a minimum viable product or business, and then meet a market test. A validation tool like the business model canvas²³ is helpful here. This is a set of nine business building blocks that encapsulate the fundamental value, cost and financial drivers of a new venture. The structured approach helps the validation team to systematically think through their business model and identify elements needed to test the original hypothesis.

According to O'Reilly, to incubate ideas successful companies like Amazon perform hypothesis testing in an "iterative loop between an assumption about the market opportunity, actual experience with customers that confirms or refutes that assumption, and adaptations to the model based on learning."

We refer to the idea incubation values in Table 1 on page 33. As the validation phase places a high value on learning through many small failures, based on the findings presented here, idea incubation in disruptive environments is best suited to teams of medium levels of diversity that collaborate intensively and

learn quickly. This is similar to 'in-team project collaborative' work, which has medium levels of collaboration diversity as it requires some diversity of expertise and experience balanced with focus.

If all or most of the hypotheses underpinning the business plan are validated through experimentation, say in the form of a minimum viable product, the idea progresses to phase 3 scaling. Some ideas might be deemed more suitable for incremental innovation and are integrated back into the relevant business function of the organisation to develop or improve a product or service.

PHASE 3. SCALING AND STRATEGY

Once ideas have been validated and are in the form of a minimum viable product or similar, they need to be scaled out across an organisation. Ideas validated for scaling are allocated resources tasked with establishing a new business entity. Like all start-ups, the aim is to rapidly grow the customer base to take advantage of any market opportunity. At the same time, validated ideas should inform the strategic direction of the organisation.

The scaling phase is beyond the scope of this study, and we refer readers to O'Reilly's detailed discussion on growing a new venture across an organisation.

INSIGHT

The future workplace connects and brings together people from across the organisation – in physical and virtual realms – for the ultimate purpose of creating value.

RECOMMENDATION 3

Establish an adaptive innovation culture

Being able to learn faster than your competitors through value creation can be the difference between surviving and thriving. To enable a disruption-led innovation architecture, you need to establish an adaptive culture tailored for innovation in complex disruption. This manifests as values at the organisational level and behaviours at the worker level.

Research by Costanza et al.²⁴ indicates organisations with adaptive cultures are more likely to survive over

time in dynamic environments. In particular, there are two dimensions most relevant here. 'Values about change' requires the organisation to be externally focused to read and interpret signals from their environments, and to proactively work to identify problems with a future focus. 'Action-orientation' requires the organisation to be open to change, and receptive to innovation and new ideas. Collaboration between business units is essential to proactively and reactively develop solutions to problems.

Likewise, O'Reilly et al. have found adaptive workplace cultures that support innovation are those that encourage behaviours of "risk-taking, willingness to experiment, innovation, personal initiative, fast decision-making and execution, and an ability to spot unique opportunities."²⁵

We have identified five values couplets that drive an adaptive innovation culture in disruptive environments. These behaviours should be practiced every day.

Values + Value	<ul style="list-style-type: none"> • Embrace a values based mission • Create value for the organisation
Empower + Entrust	<ul style="list-style-type: none"> • Empower people to lead, not just leaders • Entrust workers to use their judgement
Above + Beyond	<ul style="list-style-type: none"> • Lift workers' perspectives above their role • See beyond the organisation
Now + New	<ul style="list-style-type: none"> • Stress-test existing business models • Pursue new ideas for scalable businesses
Practiced + Proficient	<ul style="list-style-type: none"> • Practice 'exploit and explore' every day • Be disruptive proficient

Section 1. Building a new innovation architecture

Values + Value

Strategy and direction will constantly change in complex disruptive environments. More than ever, organisations need a strong values-based mission to provide a beacon for employees, partners, customers and collaborators to navigate uncertainty. At the same time, upholding the values-based mission will help ensure individual business functions are creating value for the whole organisation, not just themselves. In a recent study by Accenture, when organisations developed their capability for the digital economy, there was often no unifying principle of value creation. Each function of the organisation defined value as they saw fit, resulting in functions creating value for themselves rather than the company.²⁶

Recommended behaviours:

- Articulate and broadcast a clear values-based and compelling vision
- Create a common organisation-wide goal that everyone can pursue
- Regularly bring people together from across the organisation to share ideas, learn and collaborate

Empower + Entrust

Empower people to lead right across the organisation, regardless of their level of responsibility. Leadership will be required in many forms – from pulling together a rapid response crew, to taking the initiative to develop a diversity of connections with colleagues across the organisation, to being a project owner, to maintaining colleagues' focus on an objective. As working conditions become increasingly dynamic and organisations need to become ever more agile and adaptive, entrust workers and teams to use their judgement and make decisions in the flow of work – fast. According to McKinsey, one of the reasons agile organisations navigated the initial impact of the COVID-19 pandemic better than most is that decision-making was already delegated to employees at the coalface.

Recommended behaviours:

- Encourage workers and teams to take the initiative in progressing work
- Empower workers to make decisions and solve problems
- Entrust workers to use their judgement

Above + Beyond

The greatest value is created at the edge of disruption, be it at the frontline or on the horizon. Encourage workers to broaden their perspective by lifting themselves above their role and looking beyond the organisation. Provide opportunities for diverse collaboration focused on big picture challenges. Aim to involve all employees over time in exploit and explore activities.

Recommended behaviours:

- Encourage all workers to share ideas, insights and hunches they have about the organisation or the ecosystem more broadly
- Listen to customers
- Encourage devil's advocacy
- Let the youngest person in the room speak first

Now + New

In a rapidly-changing world, value creation opportunities abound. Yet failure to exploit disruption will lead to value destruction. Stress-testing and evolving existing business models is as important as developing new scalable business ventures.

Recommended behaviours:

- Act immediately when signs of disruption emerge
- Encourage continuous improvement
- Support the learning workplace
- Reward spotting new opportunities, celebrate curiosity and imagination
- Encourage risk-taking and experimentation
- Learn from the customer

Practiced + Proficient

Setting up an innovation architecture in itself is not enough. To truly institutionalise it, your organisation needs to learn how to exploit and explore disruption. To become competent and skilled in identifying patterns and crafting narratives requires regular practice and a willingness to experiment. Being proficient is critical, especially for when a crisis

emerges. Becoming adept at navigating uncertainty is necessary to ensure your organisation's crisis response is natural, immediate and effective.

Recommended behaviours:

- Practice and continually improve your 'exploit and explore' activities
- Respond immediately to disruption threats and opportunities
- Involve all workers, respect their insights, and ensure everyone learns

Beyond value creation – additional benefits of an innovation architecture

While the innovation architecture provides a framework to institutionalise the organisation's capability to leverage complex disruption, there are significant additional organisational benefits beyond value creation:

- Improve the ability of workers to not only find issues but with practice to recognise the significance of problems and determine how to prioritise.
- Improve adaptability, 'expand horizons' and increase meaning²⁷ by lifting workers above their job and to see beyond their organisation.
- Cross-pollinate talent by working with colleagues of diverse expertise.
- Improve social capital – greater diversity of collaboration increases 'bridging' connections across the organisation. This increases the outward looking perspective of otherwise highly focused teams, which is essential to progress initiatives. It helps grow connections and build trust, which is essential to be able to scale minimum viable products or solutions across an organisation.
- Boost empathy and understand context to help workers see the world through the eyes of colleagues, customers and clients.
- Enhance workplace well-being by valuing everyone's view.
- Help build psychological safety by creating a culture where it is safe to speak up, express their concerns.

Section 2. Innovation architecture: opportunities arising

OPPORTUNITY 1

Reimagine education for disruption-led innovation

We know that work is undergoing massive transformation because of the impact of digital technologies like AI and automation. These fast-changing shifts have resulted in a widening gap between the skills needed by employers and the skills of their own workforces, and even the labour market is unable to fill the gap. Governments and employers alike are focused on closing the gap by ensuring graduates and workers are prepared for the future of work. Tertiary education is focusing more on the functional skills and expertise required for work in the rapidly-changing digital economy, especially through responsive micro-learning formats (e.g. digital short courses).

But how are we going to prepare students – our future workers – to help tackle the increasing erosion of value organisations face in complex disruption? As this study has shown, innovation is no longer the domain of MBA graduates or experts in the R&D department. Rather, every worker contributes. Students are no longer just future productive workers but future value creators. An ideal way to demonstrate the ability to create value is by developing a business model.

Experience in disruption-led business model innovation should be an opportunity afforded to all students. It aims to develop three different sets of competencies – exploration and validation skills, an innovation mindset and value creation behaviours. It is essential for the skills, mindset and behaviours to be developed *in situ* in real-world settings.

Exploration skills

The ability to navigate disruption to generate ideas. We propose three fundamental exploration skills:

- **Search** – Ability to establish a ‘hunting zone’ that defines boundaries to search for ideas through scanning for evidence of disruption, which are then distilled to identify and determine patterns.
- **Synthesise** – Ability to assess the information gained from the search by recombining and integrating it with insights, technologies and assets, and synthesising into a narrative in the form of a unique proposal or value proposition.
- **Externalise** – Ability to externalise tacit hunches, insights and thoughts by articulating mental models as explicit concepts.²⁸ This skill is fundamental to both search and synthesise abilities.

Validation skills

The ability to incubate (validate) ideas as new scalable businesses. For instance, according to Strategyzer there are three critical skills required to develop a business model:

- **Design the business** – Ability to shape and constantly adapt value propositions and business models.
- **Ask the right questions** – Ability to ask the right questions to assess and evaluate the business model.
- **Test and learn** – Ability to break down ideas into hypotheses for testing to determine which ideas are worth pursuing.

The innovation mindset and value creation behaviours, as outlined in Table 5 (p58), must likewise be honed in real-world situations through collaboratively diverse settings, as well as imbued in the education delivered in more formal settings. Some of these attributes will already form part of expected learning outcomes in many institutions’ curricula, however the context is critical here. The development of skills, mindset and behaviours through disruption-led business model innovation is novel.

Work-integrated learning opportunities

These should be designed through a co-creation process with inputs from a diversity of vantage points: academics/educators and industry partners alike (e.g. a government department or agency, private sector company, community organisation). While there are a multitude of work-integrated learning opportunities, we make three suggestions below which reflect the innovation architecture with a business-model focus. In all such opportunities, students should be empowered to initiate their own additional learning as they see fit.

Idea generation projects

Characteristics: *Exploration skills, collaboration diversity, exposure to breadth of expertise and experience, focused on insights and discovering ideas, developing a hypothesis.*

These projects are similar to those that synthesis and navigation groups work on and develop search, synthesise and externalise skills to generate ideas. They focus on a specific disruptive challenge facing the project sponsor in the context of a complex environment. The objective is to identify a new business opportunity, such as a new business model

through improving a product using smart technology or developing a service that responds to changing customer behaviour. While the opportunity might be advanced through ideas that are generated in focusing on a new or improved product or service, this is not the deliverable. We stress that the goal is to generate ideas for new business models.

The project includes students from a variety of disciplines and with diverse experience, as well as a project owner from the host organisation and other relevant industry partners. It could also be an ideal opportunity for the industry partner to involve some of its workers to gain innovation experience in generating ideas, alongside students. The output of the co-creation process is a hypothesis, a prototype or proposed solution.

Idea incubation/validation projects

Characteristics: *Validation skills, collaboration diversity, more expertise-dependent, focused on market-testing a hypothesis, developing a minimum viable product or service.*

Similar to the validation phase in the innovation architecture, proposed solutions from idea generation projects are market-tested by a group of students (of relevant expertise) and industry partner representatives, including the original project owner to ensure continuity. This would involve building a business model canvas, followed by testing its key assumptions and then refining the value proposition. Some students from the idea generation phase could continue to this validation project, providing an opportunity to experience the evolution of an idea to a minimum viable product.

Innovation architecture opportunities in industry

Characteristics: *Exploration skills, high collaboration diversity, breadth of expertise and experience, focused on insights and discovering ideas, developing a hypothesis.*

One of the key findings from our 2019 report *Peak Human Potential* was that younger generation workers have a different mindset and understanding of work in the digital economy than older generation workers. Not only do younger workers possess the skills mindset required in the digital economy, but their perspective on complex disruption is likely to significantly differ to the decision makers in the organisation. With this in mind, students could be embedded in organisations' navigation groups to help them explore complex disruption. This could provide

an excellent opportunity for tertiary education institutions to engage with industry partners to help them set up an innovation architecture, starting with the exploration approach of the navigation group.

While all these types of student projects take effort to organise, they should not be limited to a particular course or even to a particular institution. Arts students should collaborate besides engineers; PhD candidates alongside graduate certificate students; TAFEs with universities; and so on. At KU Leuven, a leading Belgian university, its Product Innovation Project brings together a mix of students with various backgrounds (engineering, economics, humanities, etc) to deliver a working prototype and a business case for an industry partner.

Communities of practice should be established to share insights and learn from experience in idea generation and incubation projects, and to inform improvements in subsequent projects. Appropriate recognition of student achievement in exhibiting an innovation mindset and demonstrating value creation behaviours is encouraged. For example, an awards program could be established.

Section 2. Innovation architecture: opportunities arising

Table 5. Innovation mindset and value creation behaviours to be embedded in education, and honed in situ in real-world situations. The following list is not exhaustive but represents core elements.

Innovation mindset
<ul style="list-style-type: none"> • Curiosity – confident in asking questions, especially to help frame problems • Empathy – able to understand others’ feelings, concerns and responses • Creativity – able to take risks that are proportionate to their level of expertise and experience • Open-mindedness – always listening to others’ views and insights, especially in diverse settings of expertise and experience • Self-reflection – willing to share insights and ideas as a way to advance a discussion and learn about oneself in the process • Systems thinking approach – able to view problems as parts of an overall system, rather than reacting to a specific part or singular event
Value creation behaviours
<ul style="list-style-type: none"> • Learn continuously – proactively learn new skills, capabilities and expertise • Create narratives – identify patterns and tell stories, especially by analogy; data visualisation skills • Collaborate in diverse settings – experience in working and collaborating in settings of diverse groups of individuals • Work on ambiguous complex problems – practice focusing on ill-defined real-world challenges requiring a multi-disciplinary approach • Share knowledge and insights – practice sharing knowledge and insights, develop confidence and an ability to articulate thoughts in a sophisticated manner • Create new knowledge – solve new problems and work hurdles, such as the know-how to perform a new task (e.g. a one- to two-minute micro-video) or advancing a fundamental understanding of a phenomenon

INSIGHT

Tertiary education graduate attributes should be expanded to include the skills, mindset and behaviours required for disruption-led business model innovation, gained *in situ* in real-world situations.

EXHIBIT 5. GAIN EXPERIENCE IN NEW WAYS OF WORKING

Research by CNeW has shown that a significant component of the Australian workforce,³⁰ nearly one in four working-age Australians (23.1%), have had experience in gig and freelancing roles through digital platforms. Of the recent graduates (defined in this research as 18- to 34-year-olds) who have worked in the gig and freelance sector, 68% are university-educated and 14% have vocational education. Universities, TAFEs and vocational colleges have a tremendous opportunity to begin preparing ‘job-ready graduates’ for these new forms of work. Such experience would empower students to learn skills in the flow of work, work in diverse settings of people, and prepare them for the rise of distributed working.

OPPORTUNITY 2

Reimagine the physical workplace for value creation

In response to COVID-19, hundreds of millions of knowledge workers across all sectors worldwide began working from home, and a significant proportion continue to do so, even after lockdowns have begun easing.

As observed by many, this has led to at least two related developments. The first is the rise of the distributed workforce, with digital technologies enabling work from anywhere. AlphaBeta research, for instance, shows the take up of collaboration tools in Australia has been strong during the pandemic, including videoconferencing which has increased 54% compared to before COVID-19. The second is the dismantling of what seemed to be a universal truth: that the physical office/workplace is necessary

for productive knowledge work at scale. Workers, it seems, can be productive anywhere. While longer-term studies are required to be definitive, several recent studies suggest productivity has not suffered, and might have improved.³¹

In the unprecedented era, with the inexorable rise of machines and the growing urgency for organisations to create new value, human work across all sectors is gradually shifting to knowledge work. Productivity is no longer the most valuable measure of human work, especially in the physical workplace. This raises a question that would have been almost unthinkable a year ago – what kind of work is best suited to the physical space?

As companies begin returning to the physical workplace, COVID-19 has shown we need to rethink the workplace. Mirvac, a property company, puts it this way: “If meetings and task work can be done at home or near home, then this leaves the office as a place focused on bringing people together to collaborate and connect.”³²

Physical presence in an increasingly virtual world

The data in this study was collected in late November 2019, before COVID-19 and remote working became a reality. Workers were still in physical offices and workplaces. To make recommendations that are relevant for the post-pandemic era, we pay particular attention to learning and collaboration behaviours we observed in rapidly-changing environments, and how these inform innovation. The main findings – that in Australian organisations, worker-driven learning plus collaboration diversity and intensity are the conditions most ideal for idea generation and incubation in complex disruption – therefore stem from physical workplaces.

It has long been known that the physical presence of workers and their physical environments directly relate to the amount and quality of communication. Proximity leads to serendipity. That is, the more proximate the physical distance between people, the more likely they are to interact, share knowledge, foster diverse collaboration, learn and build trust.

Can this only occur in the physical workplace? After all, we have seen that productivity is no longer inextricably linked to the physical office.

By virtue of its increased prevalence, online collaboration has a growing role to play in driving innovation across an organisation’s ecosystem. However, there is some evidence that innovation might be suffering in the online realm, and not just

because businesses are committing less resources. According to research done for Atlassian,³³ while daily collaborative work has become easier in this period of remote work, it has become more intentional and narrower. Fewer people get invited to meetings; meetings are more frequent, formal and efficient; and outcomes are highly documented and sanitised. This hampers innovation potential by narrowing perspectives, and carries an opportunity cost from loss of sharing tacit knowledge and diminished social learning.



Organisations need to find a way to decrease the amount of time spent in structured meetings and increase opportunities for people to be creative.

says Ben Hamer, Director, People and Organisation at consultancy PwC and CNeW adjunct industry fellow.

Put another way, online daily collaborative work is minimising the casual interactions that build trust and cooperation, strengthen community, and feed positively into organisation culture. In complex disruption, therefore, the culture that enables innovation might develop faster and more effectively – and endure longer – in the physical workplace than online.

Social capital that supports innovation decays in virtual environments

The physical workplace optimises ‘bridging social capital’ – out-of-team connections with colleagues from other functions or departments of the organisation – by virtue of proximity. These bridging connections of people from diverse roles are essential for both idea generation and in scaling initiatives. Bonding connections (also known as ‘bonding social capital’) on the other hand are those that develop with your immediate colleagues and are essential for idea incubation.

Bridging connections are far more fragile when compared to bonding connections as they are more susceptible to rapid decay. In one study, it was shown that up to 90% of newly formed bridging connections deteriorated within one year of being established where not maintained.³⁴

Section 2. Innovation architecture: opportunities arising

Michael Arena writes that the decay of bridging connections is even more pronounced with disruptive events. The decay rate of bridging social capital intensifies when other bridge connections erode within the network. In other words, decay compounds decay. “Such rapid decay of bridging relationships creates a bleak picture for innovation in a virtual environment. Especially when it comes to generating new ideas and then scaling innovations across an organisation for broader support.”³⁵

The physical workplace as the nerve centre of innovation

While further research will be required post-pandemic, especially given the rise of the distributed workforce and online collaboration, we firmly believe the physical office/workplace will continue to be central to optimising an organisation’s social capital, and therefore its ability to learn faster and create the value it needs in the unprecedented era.

According to Robbie Robertson, Virtual Office Managing Partner at Deloitte and CNeW adjunct associate professor:



We believe businesses must start by thinking about their workplace ecosystem – integrating physical and digital worlds – from a human connection perspective, and where data drives the decision making for the design to continually adapt the spaces as the nature of work evolves.

We need to reimagine the physical workplace not just from a design perspective to enhance learning and collaboration but more profoundly. For the first time since the advent of the office/workplace more than a century ago, its primary purpose is poised

to fundamentally evolve from productivity to value creation. This has enormous implications on the activities, culture and identity of the physical workplace. Rather than doing productive work, ‘coming in to work’ will increasingly mean going to a place dedicated to creativity; a place where workers can challenge the status quo, not reinforce it. Robertson suggests space will become hyper-flexible, with many uses throughout the day or during the week.

Productive knowledge work will continue in offices and workplaces around the world for years to come but it must make room for its new bedfellow, value creation work. Organisations that continue to prioritise productive work in the physical workplace – especially routine, repetitive tasks that can be performed anywhere – are at risk of not being battle-ready to exploit and explore ongoing complex disruption. These organisations will become vulnerable to lurching from crisis to crisis. For work to become a pathway to innovation, the physical office must be the laboratory driving this transformation.

Now is the ideal time to pivot, with many offices and workplaces remaining empty or underutilised, and with the economy continuing to fundamentally transform. There will be many different ways in which architects, designers and workplace specialists transform the physical workplace for disruption-led innovation, including how it integrates with the ever-expanding virtual workplace and distributed workforce.

As the physical workplace is essential to building and maintaining the social capital of connectivity between people that is necessary to drive innovation, we make this recommendation to organisations: the physical workplace needs to be the central platform in the organisation’s ecosystem supporting the learning workplace and its value creation system.

INSIGHT

The physical workplace will become the nerve centre of the organisation’s disruption-led innovation ecosystem. Its primary purpose will evolve from productivity to creating value and challenging the status quo.

Conclusion

In a world of growing complexity, unexpected crises and accelerating digital disruption, traditional mechanistic organisational models for innovation become inadequate. To succeed in the unprecedented era, organisations need to shift their approach. They need to elevate to a systems view of their world, to recognise patterns in dynamic and complex disruption, and to evolve from a laser-focus on productivity to include more effort on new ways of creating and capturing value.

Like the organisms in any ecosystem, organisations must constantly adapt to survive – now more so than ever. To ensure approaches to disruption-led innovation are fit for purpose, they must embrace complex disruption and make innovation core business. They need to institutionalise new capabilities that source and develop new ideas rapidly by leveraging the most valuable asset they have in uncertainty – their people.

The research conducted here provides valuable insights about how to enable innovation in Australian workplaces, and compelling evidence for action relating to learning and collaboration. These findings have implications for the education sector in preparing workers for a future of knowledge work, and implications for the future of the physical workplace/ office. Leaders need to recognise that the risk of being timid and doing little (or worse, nothing) to transform their workplace and their organisation is greater than the risk of being bold.

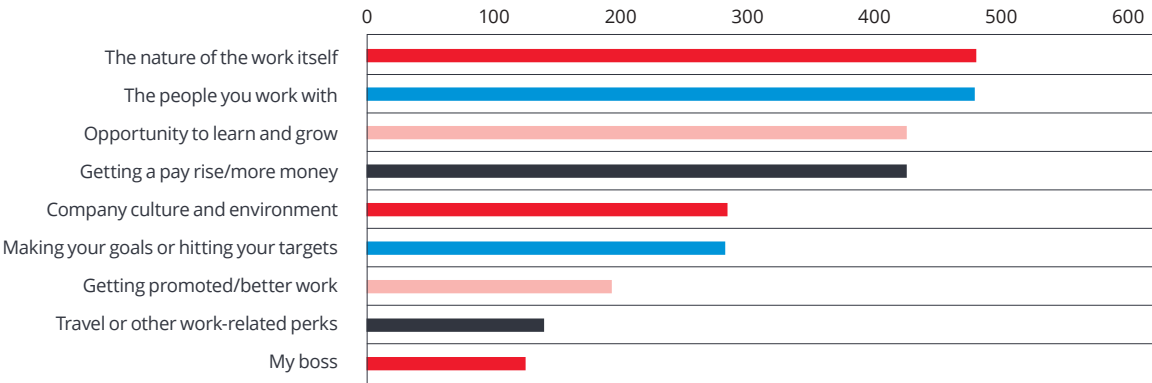
The innovation architecture, as described in this report, is one way to think about how your organisation can respond to complex disruption. There will no doubt be other approaches to disruption-led innovation. However, we believe that any response should have the basic components of a learning workplace, some form of surveillance capability that leverages people and catalyses innovation, and the right culture.

As a Chinese proverb observes, “The best time to plant a tree was 20 years ago. The second best time is now.” In the unprecedented era, disruption-led innovation of the business model itself must become core business, hardwired into the organisation’s DNA. It becomes the responsibility of every worker and the workplace becomes the engine room of creativity.

Implementing an innovation architecture delivers many benefits. We leave you with a compelling reason. An innovation architecture aligns to your workers’ aspirations; it gets them out of bed to go to work each day. When we asked what makes them happy and fulfilled about their work (Figure 26), Australian workers were unequivocal: they want to learn, to collaborate and to be inspired.

Figure 26. In your current job, what’s the main thing that inspires you, makes you happy and want to work harder?

EMPLOYEE MOTIVATION



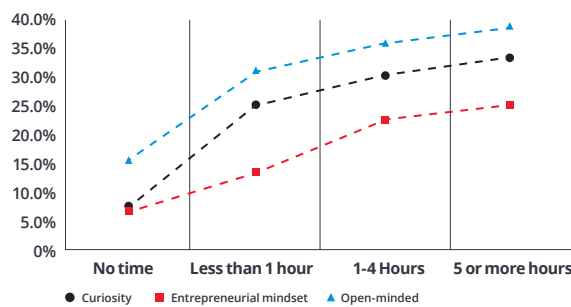
Appendices

Appendix 1.

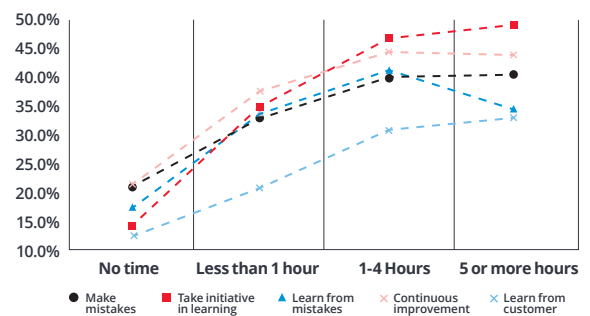
BREAKDOWN OF EACH CATEGORY INTO RESULTS FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH TYPES OF LEARNING.



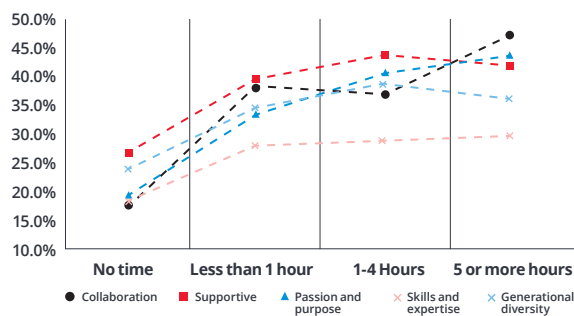
IDEA GENERATION



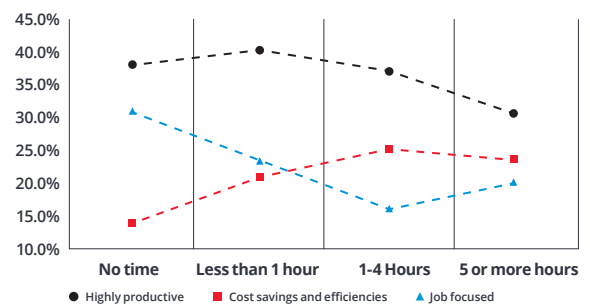
IDEA INCUBATION



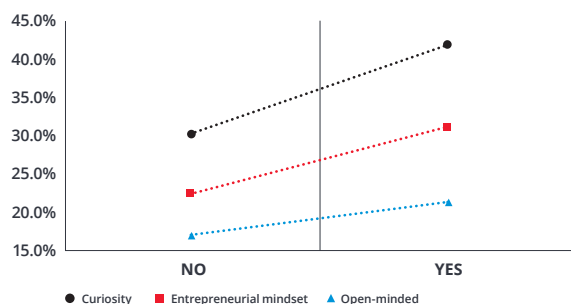
ENABLERS



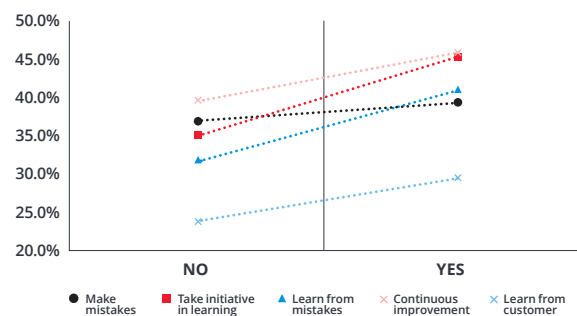
PRODUCTIVITY



IDEA GENERATION



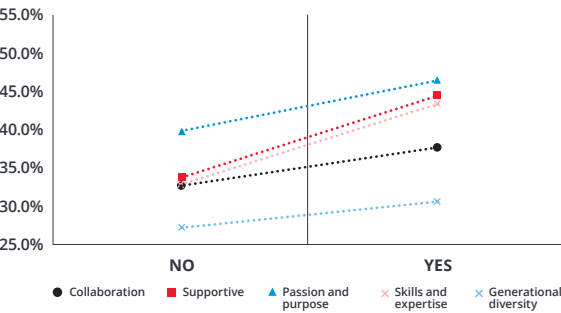
IDEA INCUBATION



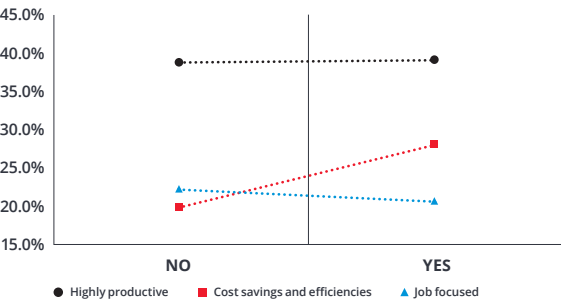
Appendix 1.

BREAKDOWN OF EACH CATEGORY INTO RESULTS FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH TYPES OF LEARNING.

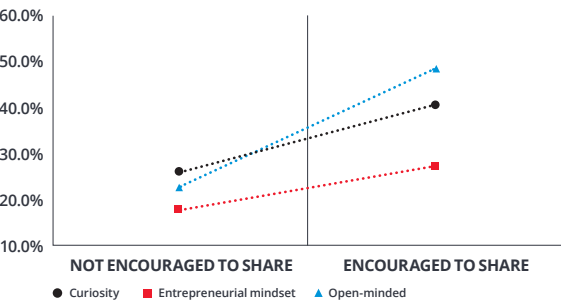
ENABLERS



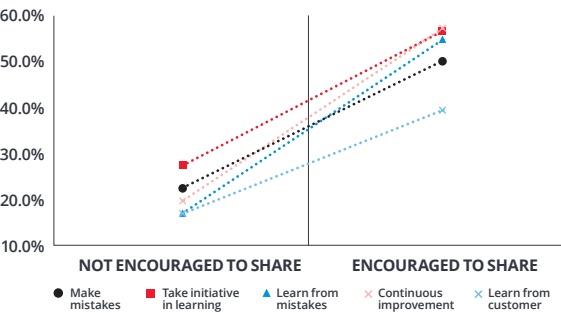
PRODUCTIVITY



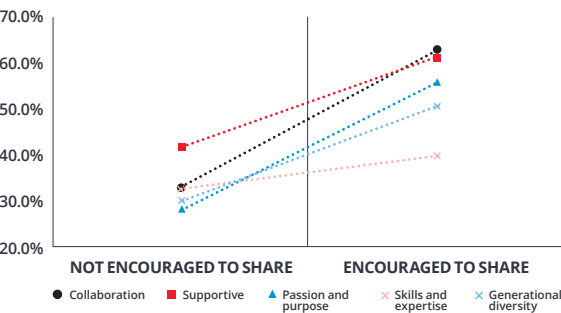
IDEA GENERATION



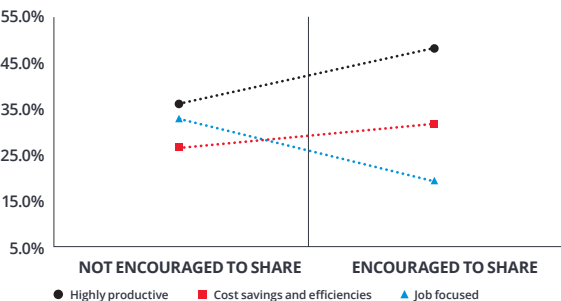
IDEA INCUBATION



ENABLERS



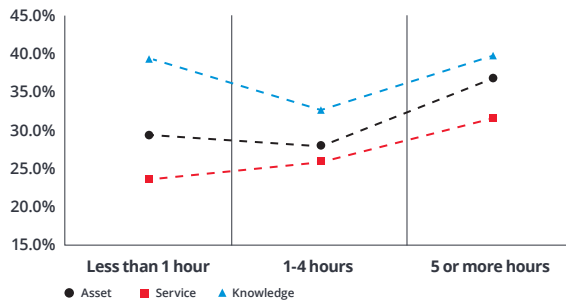
PRODUCTIVITY



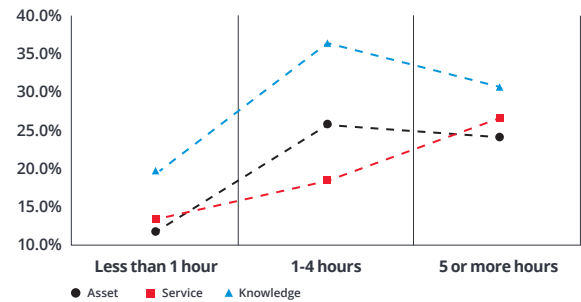
Appendix 2.

SECTORAL BREAKDOWN FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH HOURS SPENT LEARNING WEEKLY AT WORK.

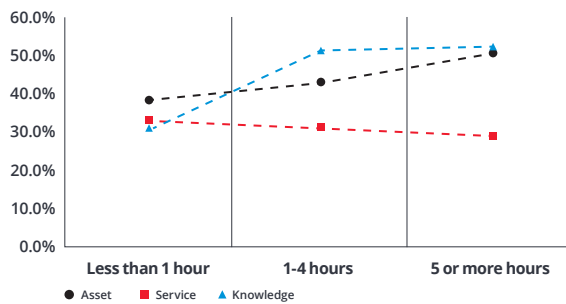
CURIOSITY



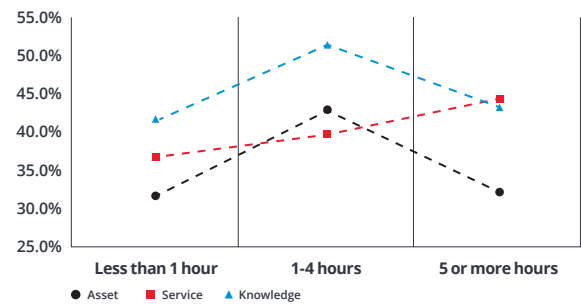
ENTREPRENEURIAL MINDSET



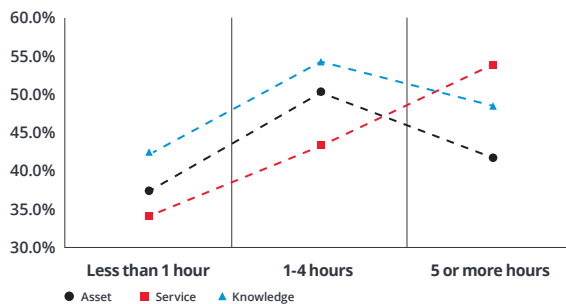
OPEN-MINDED



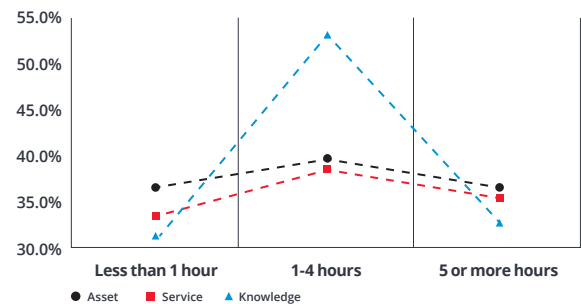
MAKE MISTAKE



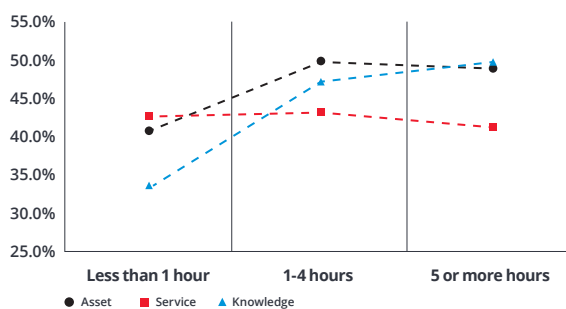
TAKE INITIATIVE IN LEARNING



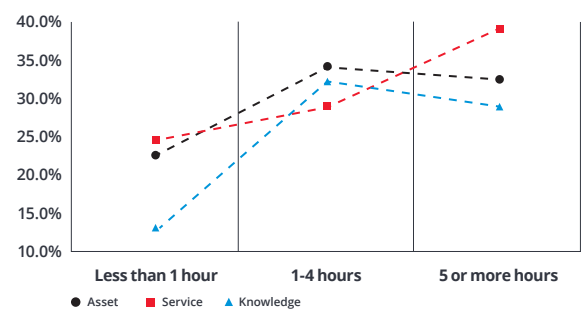
LEARN FROM MISTAKES



CONTINUOUS IMPROVEMENT



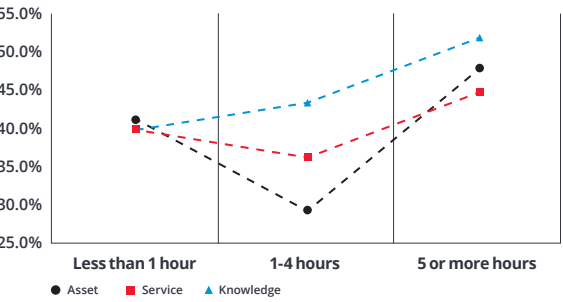
LEARN FROM CUSTOMER



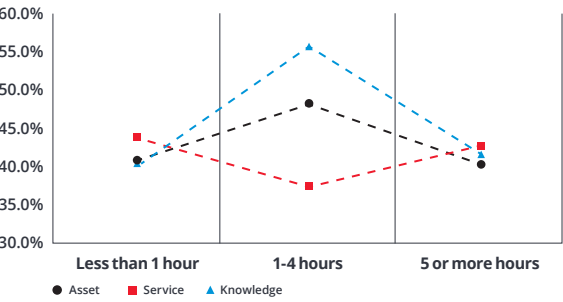
Appendix 2.

SECTORAL BREAKDOWN FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH HOURS SPENT LEARNING WEEKLY AT WORK.

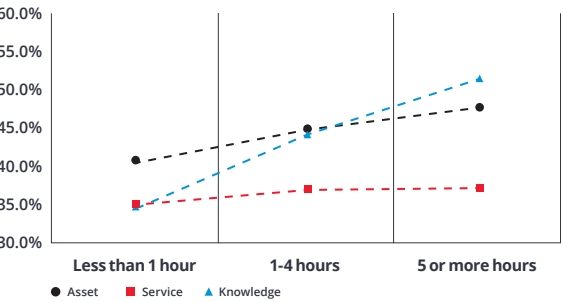
COLLABORATION



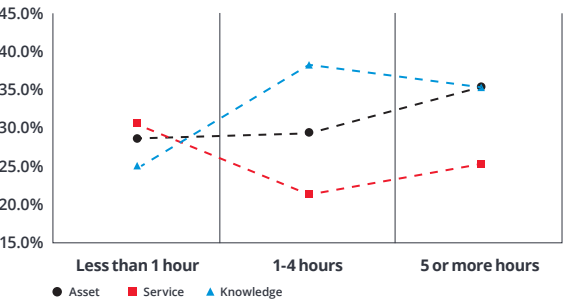
SUPPORTIVE



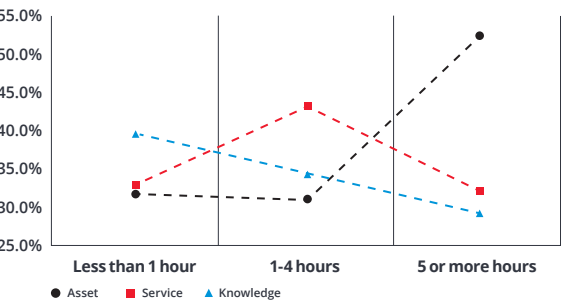
PASSION AND PURPOSE



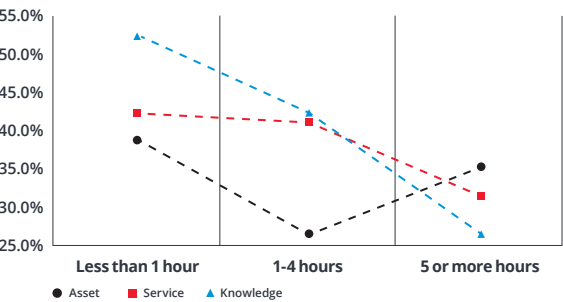
SKILLS AND EXPERTISE



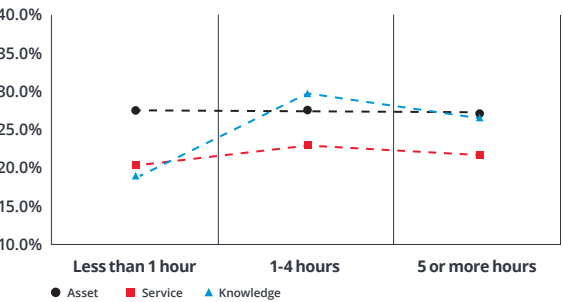
GENERATIONAL DIVERSITY



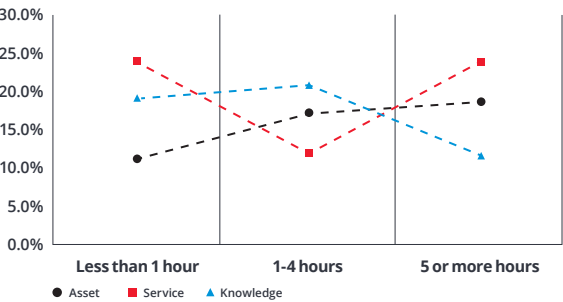
HIGHLY PRODUCTIVE



COST SAVINGS AND EFFICIENCIES

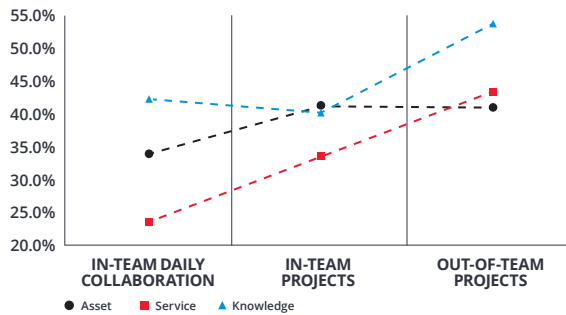


JOB-FOCUSED

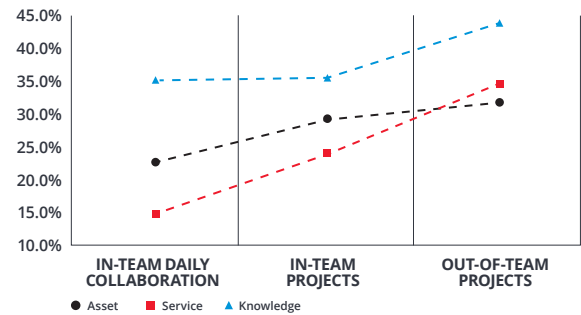


SECTORAL BREAKDOWN FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH TYPES OF COLLABORATION.

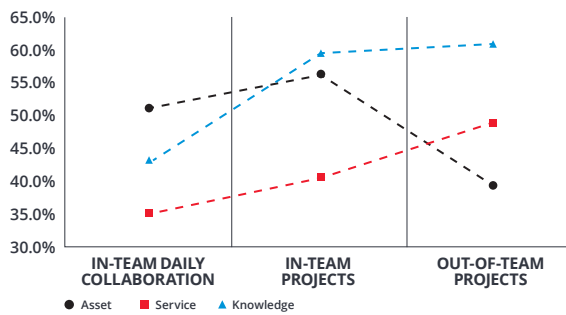
CURIOSITY



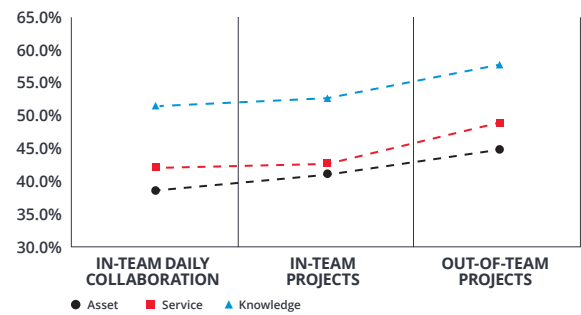
ENTREPRENEURIAL MINDSET



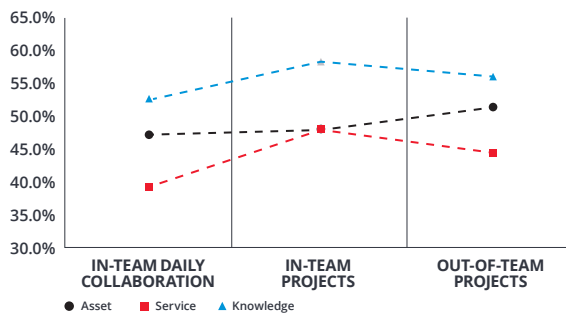
OPEN-MINDED



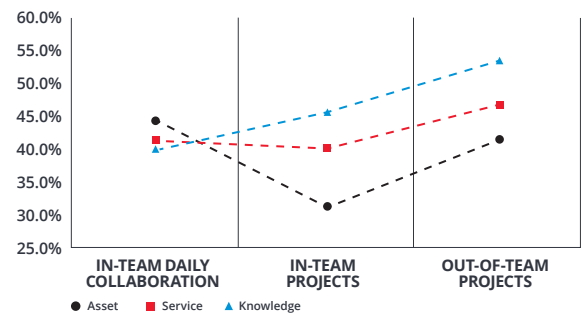
MAKE MISTAKE



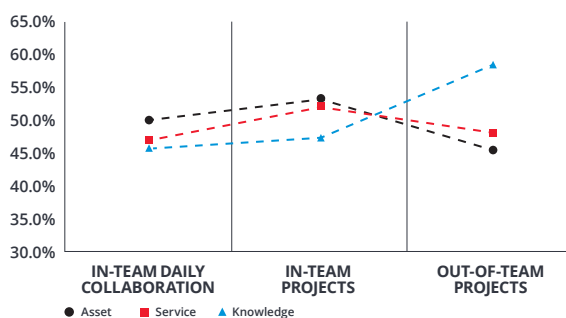
TAKE INITIATIVE IN LEARNING



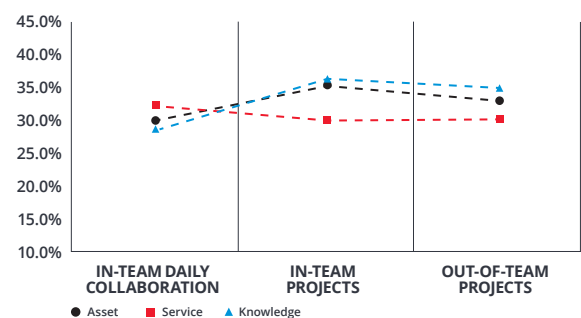
LEARN FROM MISTAKES



CONTINUOUS IMPROVEMENT



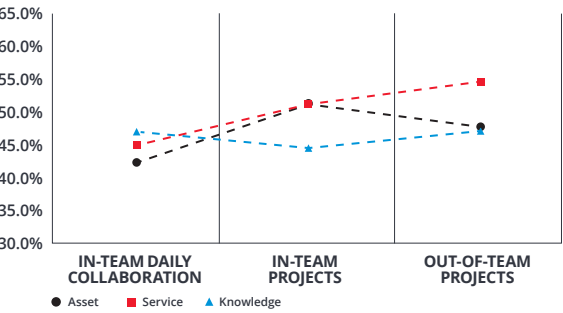
LEARN FROM CUSTOMER



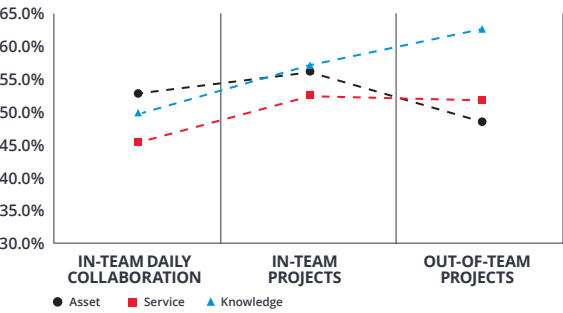
Appendix 2.

SECTORAL BREAKDOWN FOR EACH CONSTITUENT WORKPLACE CULTURE VARIABLE IN THE CORRELATION WITH TYPES OF COLLABORATION.

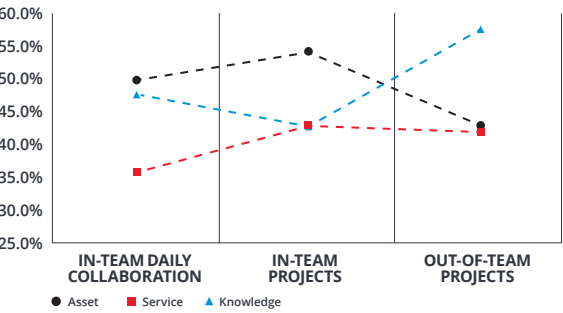
COLLABORATION



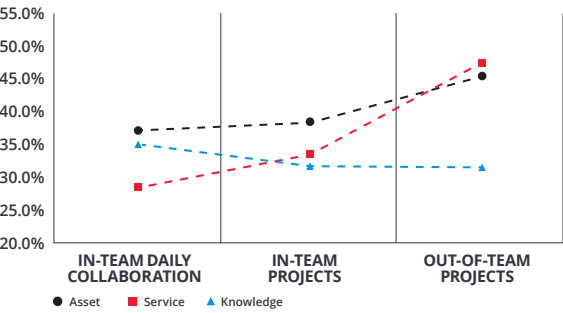
SUPPORTIVE



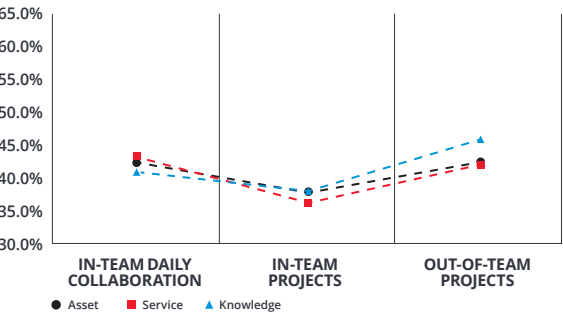
PASSION AND PURPOSE



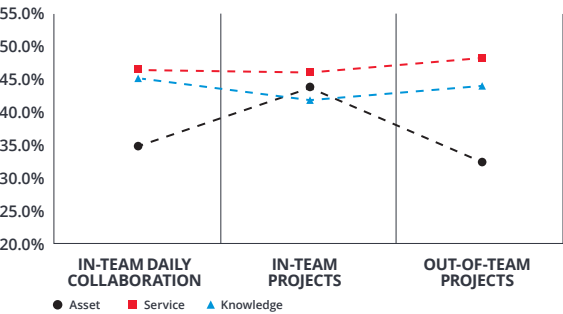
SKILLS AND EXPERTISE



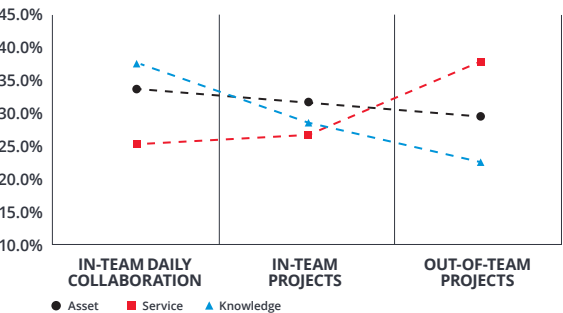
GENERATIONAL DIVERSITY



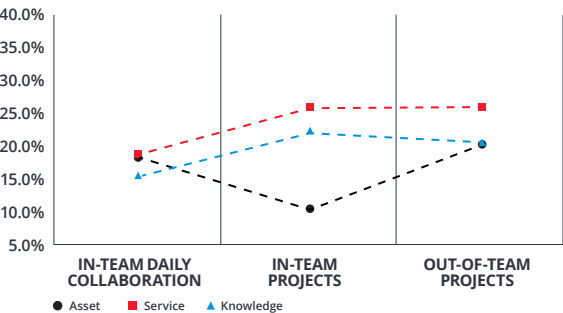
HIGHLY PRODUCTIVE



COST SAVINGS AND EFFICIENCIES



JOB-FOCUSED



Appendix 3. About the survey

In this research, the 1,060 Australians surveyed were either currently in the workforce (906) or currently actively looking (154).

To better understand the sample population, respondents were first asked a range of demographic questions (sex, age, geography, income, household and industry), and asked to self-select the most appropriate response in categories such as income, residence, education level, work status, job function, type of company and industry.

The main body of the survey was divided into 14 questions. Where multiple responses were possible (e.g. 'select all that apply'), responses were rotated randomly for respondents. Where ranking of responses was required, the order of options was randomised.

Throughout this report, we have provided breakdowns by sub groupings, such as by generation, industry sector and education levels. Any noted differences between these groups have been statistically tested to determine significance with 95% confidence.

It is important to note that there are several inherent issues in interpreting survey data. However, we believe that our results are nevertheless indicative of the true value/measure within a reasonable margin. We make these comments.

- It is possible that there are biases in the survey sample. We have used a nationally representative sample of 1,060 workers to minimise these biases.
- Survey respondents could interpret questions differently.
- Survey respondents could misjudge the level of learning and collaboration, either understating or overstating their exposure to both. This survey focuses less on absolute scores and more on the change in scores relative to different input variables.
- Issues with correlation are well documented. While we find that learning and collaboration have a strong positive influence on workplace culture, it is possible that causation is in the opposite direction or that there are other unobservable variables driving the links. But we believe the direction of causation reflects a business reality as learning and collaboration are inputs. The results are also consistent against theory for a range of six different correlations.

Appendix 4. Terms used in survey analysis

Demographic categories

Below are the demographic terms used in this report with the full description that was used in the survey.

TERM USED THE SURVEY	DEFINITION
Gender	
Male	Male
Female	Female
Generation	
Millennials	18-34 year-olds
Gen X	35-49 year-olds
Baby Boomers	50-65+ year-olds
Education	
No tertiary	No tertiary
TAFE	TAFE, vocational education
University	University
Work status	
Full time	Currently employed full time
Part time or casual	Currently employed part time or on a casual basis
Self-employed/Business owner	Self-employed/Business owner
Job function	
Clerical/Admin	Clerical or Administrative Worker
Exec/Mgmt	Senior Executive/Management
Self employed	Self Employed/Business Owner/Proprietor
Sales	Salesperson
Trades	Tradesperson/Plant & Machine Operator/Driver
Care worker	Community or Personal Service Workers
Labourer	Labourer/Related Worker/Farmer
Expert	Professional/Technical worker
Type of company	
Charity/NFP	Charity/Not for profit
Publicly listed	Publicly listed (shareholders)
Private	Privately owned
Public sector organisation	Government

TERM USED THE SURVEY	DEFINITION
Type of industry	
Asset (Asset-intensive)	Mining; manufacturing & production; electricity, gas, water & waste services; construction
Service (Service-focused)	Wholesale trade; retail trade; accommodation and food services; transport, postal and warehousing; rental/hiring, education & training; healthcare; arts and recreation; other services
Knowledge (Knowledge-intensive)	Professional, scientific and technical services; information, media and technology; financial and insurance services; administrative and support services
Government	Government

Values and behaviours of workplace culture

Below are the values and behaviour terms used in this report with the full description that was used in the survey.

TERM USED THE SURVEY	DEFINITION
Idea generation	
Curiosity	My workplace encourages its employees to be curious
Entrepreneurial mindset	My workplace encourages an entrepreneurial mindset in its employees
Open-minded	My workplace encourages me to share my ideas, insights, and hunches on ways to improve to my organisation more broadly
Idea incubation	
Makes mistakes	My workplace tolerates me making mistakes when I'm learning something new
Continuous improvement	My workplace encourages continuous improvement in everything we do
Take initiative in learning	My workplace encourages me to take the initiative in learning
Learn from customer	My workplace encourages learning from the customer/client
Learn from mistakes	When a mistake/error is made at work, my workplace encourages us to reflect on and learn from what went wrong
Productivity	
Highly productive	My workplace values its employees being highly productive
Find cost savings and efficiencies	My workplace regularly asks employees to find cost savings and/or efficiencies
Job-focused	My workplace expects its employees to focus only on doing their jobs
Enablers	
Generational diversity	My workplace values the different views and perspectives of all generations of workers
Supportive	My workplace values people helping each other
Collaboration	My workplace encourages collaboration between employees
Passion and purpose	My workplace values its employees having passion and feeling purpose in their jobs
Skills and expertise	My workplace values skills and / or expertise more than anything else

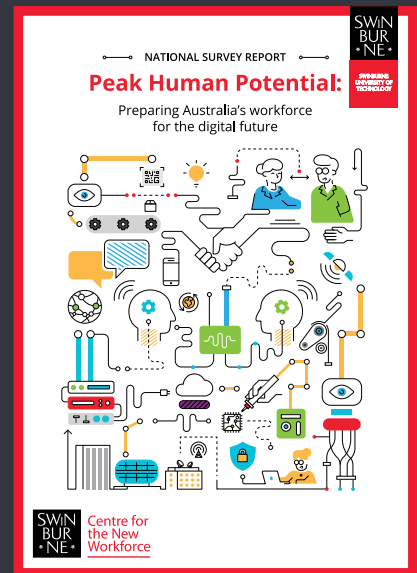
Endnotes

- 1 Edward Leamer is the Chauncey J. Medberry Professor of Management, Professor of Economics and Professor of Statistics at UCLA.
- 2 <https://flevy.com/blog/14-principles-of-lean-toyota-production-system-tps/>
- 3 <https://www.nytimes.com/2020/10/20/opinion/covid-education-work.html>
- 4 <https://3er1viui9wo30pkxh1v2nh4w-wpengine.netdna-ssl.com/wp-content/uploads/prod/sites/583/2020/09/AlphaBeta-research.pdf>
- 5 VUCA is an acronym that was first used in 1987 to describe the “volatility, uncertainty, complexity and ambiguity” in multilateral environments.
- 6 <https://www.english-corpora.org/now/>
- 7 Royal Dutch/Shell Oil head of planning in 1980s
- 8 Tim Kastelle is Associate Professor in entrepreneurship and innovation at the University of Queensland Business School
- 9 The Three Stages of Disruptive Innovation: Idea Generation, Incubation, and Scaling, Charles O'Reilly and Andrew J. M. Binns; California Management Review 2019, Vol. 61(3) 49-71
- 10 <https://www.linkedin.com/pulse/want-happy-work-spend-time-learning-josh-bersin/>
- 11 Victorian Skills and Training Employer Survey, 2017, Department of Education and Training, Government of Victoria
- 12 <https://www.linkedin.com/pulse/work-experience-digital-platforms-way-future-sean-gallagher/>
- 13 Fleming L, Mingo S, Chen D. Collaborative Brokerage, Generative Creativity, and Creative Success. Administrative Science Quarterly. 2007;52(3):443-475.
- 14 For instance see <https://www.bcg.com/publications/2014/growth-rethinking-your-innovation-system>
- 15 For instance refer to Deloitte's Center for the Edge report New architectures of resilience
- 16 <https://www.weforum.org/reports/the-future-of-jobs-report-2020>
- 17 Capabilities more important than reskilling – Deloitte Center for the Edge
- 18 <https://joshbersin.com/2018/06/a-new-paradigm-for-corporate-training-learning-in-the-flow-of-work/>
- 19 Peak Human Potential
- 20 <https://hbr.org/2011/03/managing-yourself-zoom-in-zoom-out>
- 21 For example see <https://www.mckinsey.com/business-functions/organization/our-insights/the-organization-blog/quarterly-business-review-how-to-extract-benefits-beyond-transparency>
- 22 O'Reilly ibid
- 23 Osterwalder, Alexander; Pigneur, Yves; Clark, Tim (2010). Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers. Strategyzer series. Hoboken, NJ: John Wiley & Sons.
- 24 (1) (PDF) The Effect of Adaptive Organizational Culture on Long-Term Survival. Available from: https://www.researchgate.net/publication/284076000_The_Effect_of_Adaptive_Organizational_Culture_on_Long-Term_Survival [accessed Nov 16 2020].
- 25 The Promise and Problems of Organizational Culture: CEO Personality, Culture, and Firm Performance
- 26 Charles A. O'Reilly, III, David F. Caldwell, Jennifer A. Chatman, Bernadette Doerr Journal of Organizational Behavior Volume: 39 issue: 6, page(s): 595-625
- 27 https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-3/Accenture-IndustryXO-Out-Collaborate-the-Crisis.pdf
- 28 Deloitte -Cultivating and nurturing human capabilities
- 29 For example, refer to Nonaka's Four Modes of Knowledge Conversion which includes externalisation: Nonaka, Ikujiro; Takeuchi, Hirotaka (1995), The knowledge creating company: how Japanese companies create the dynamics of innovation, New York: Oxford University Press
- 30 <https://www.strategyzer.com/blog/three-critical-skills-to-get-you-from-big-ideas-to-a-real-business>
- 31 <https://www.linkedin.com/pulse/work-experience-digital-platforms-way-future-sean-gallagher/>
- 32 <https://www.cushmanwakefield.com/en/insights/covid-19/the-future-of-workplace>
- 33 https://mirvac-cdn-prd.azureedge.net/-/media/Project/Mirvac/Corporate/Main-Site/Corporate-Theme/images/Office/About/Resources-and-knowledge/Mirvac_COVID-19-and-the-changing-world-of-work_2020.pdf?la=en
- 34 <https://3kllhk1ibq34qk6sp3bhbox1-wpengine.netdna-ssl.com/wp-content/uploads/2020/10/reworking-work-atlassian-and-papergiant.pdf>
- 35 Burt, R., Attachment, decay, and social network, Journal of Organizational Behavior 22 (2001): 619-643. Burt, R., Bridge decay, Social Networks 24 (2002): 333-363
- 36 <https://www.hrexchangenetwork.com/hr-talent-management/columns/innovation-erosion-in-a-virtual-working-environment>

Reference reports and articles

- Accenture 2020, 'Together Makes Better: How to out-collaborate the crisis', viewed October 2020, https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-3/Accenture-IndustryXO-Out-Collaborate-the-Crisis.pdf
- AlphaBeta, 2020, 'Building Australia's digital resilience', viewed October 2020, <https://3er1viui9wo30pkxh1v2nh4w-wpengine.netdna-ssl.com/wp-content/uploads/prod/sites/583/2020/09/AlphaBeta-research.pdf>
- Atlassian 2020, 'Reworking Work: Understanding The Rise of Work Anywhere' viewed October 2020, <https://3klhk1ibq34qk6sp3bhtox1-wpengine.netdna-ssl.com/wp-content/uploads/2020/10/reworking-work-atlassian-and-papergiant.pdf>
- Burt, R., Attachment, decay, and social network, *Journal of Organizational Behavior* 22 (2001): 619-643. Burt, R., Bridge decay, *Social Networks* 24 (2002): 333-363
- Christensen, C, 1997, 'The Innovator's Dilemma', Harvard Business Review Press; 1st edition
- Costanza, D, Blacksmith, N, Coats, M, 2016, 'The Effect of Adaptive Organizational Culture on Long-Term Survival', *Journal of Business and Psychology* 31(3)
- Cushman & Wakefield 2020, 'The Future of Workplace', viewed October 2020, <https://www.cushmanwakefield.com/en/insights/covid-19/the-future-of-workplace>
- Deloitte 2014, 'The Collaborative Economy', viewed August 2020, <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-collaborative-economy-google-170614.pdf>
- Deloitte 2018, 'Voice of the workforce in Europe', viewed November 2019, <https://www2.deloitte.com/content/dam/Deloitte/ce/Documents/about-deloitte/voice-of-the-workforce-in-europe.pdf>
- Deloitte 2019, 'Four Practices to Embed Learning in the Flow of Work', viewed August 2020, https://www2.deloitte.com/content/dam/Deloitte/us/Documents/human-capital/us-human-capital-berns-litfow-embed-learning_05-2019.pdf?nc=1
- Deloitte's Center for the Edge 2020 'Human Inside: How capabilities can unleash business performance' viewed May 2020 https://www2.deloitte.com/content/dam/insights/us/articles/6799_cultivating-and-nurturing-human-capabilities/DI_Cultivating-and-nurturing-human-capabilities.pdf
- Deloitte's Center for the Edge 2020 report 'New architectures of resilience', viewed June 2020, https://www2.deloitte.com/content/dam/Deloitte/ec/Documents/strategy/DI_New-architectures-of-resilience.pdf
- Department of Education and Training, Victoria, 2017, 'Victorian Skills and Training Employer Survey', viewed November 2019, <https://education.vic.gov.au/Documents/training/employers/industry/trainingskillssurvey.pdf>
- Fleming L, Mingo S, Chen D, 2007, 'Collaborative Brokerage, Generative Creativity, and Creative Success', *Administrative Science Quarterly*. 2007;52(3):443-475.
- Gallagher, S 2019, 'Peak Human Potential: Preparing Australia's workforce for the digital future'
- Hughes, J., What Value Creation Will Look Like in the Future, viewed October 2020, <https://hbr.org/2013/05/what-value-creation-will-look-like-in-the-future>
- Kanter, R, 2011, 'Managing Yourself: Zoom In, Zoom Out', *Harvard Business Review*, viewed September 2020, <https://hbr.org/2011/03/managing-yourself-zoom-in-zoom-out>
- KPMG 2020, 'Innovation Trends 2020', viewed September 2020, <https://home.kpmg/au/en/home/insights/2020/07/digital-innovation-trends-survey-2020.html>
- McKinsey and Company 2017, 'Digital Australia: Seizing opportunities from the Fourth Industrial Revolution', viewed May 2019, <https://www.mckinsey.com/featured-insights/asia-pacific/digital-australia-seizing-opportunity-from-the-fourth-industrial-revolution>
- McKinsey and Company 2020, viewed September 2020, <https://www.mckinsey.com/business-functions/organization/our-insights/the-organization-blog/fitter-flatter-faster-how-unstructuring-your-organization-can-unlock-massive-value?cid=other-eml-alt-mip-mck&hlid=3afd51bb37284018bf49d04c8833a961&hctky=9572529&hdpid=c3919323-4c03-4866-94ec-72d2b4b5a808>
- Mirvac 2020, 'COVID-19 and the changing world of work', viewed October 2020, https://mirvac-cdn-prd.azureedge.net/-/media/Project/Mirvac/Corporate/Main-Site/Corporate-Theme/images/Office/About/Resources-and-knowledge/Mirvac_COVID-19-and-the-changing-world-of-work_2020.pdf?la=en
- O'Reilly, C, Caldwell, D, Chatman, J, Doerr, B, 2014 'The Promise and Problems of Organizational Culture: CEO Personality, Culture, and Firm Performance', Charles A. O'Reilly, III, David F. Caldwell, Jennifer A. Chatman, Bernadette Doerr Group & Organization Management Volume: 39 issue: 6, page(s): 595-625
- O'Reilly, C, Binns, A, 2019 'The Three Stages of Disruptive Innovation: Idea Generation, Incubation, and Scaling', Charles O'Reilly and Andrew J. M. Binns; *California Management Review* 2019, Vol. 61(3) 49-71
- Osterwalder, A, Pigneur, Y, Clark, T, 2010, 'Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers', Strategyzer series. Hoboken, NJ: John Wiley & Sons
- Senge, P, 1990, 'The Fifth Discipline: The Art & Practice of The Learning Organization', New York, NY: Random House
- Straub, R. 2019 'What Management Needs to Become in an Era of Ecosystems' viewed September 2020, <https://hbr.org/2019/06/what-management-needs-to-become-in-an-era-of-ecosystems>
- World Economic Forum, 2020, 'The Future of Jobs Report 2020', viewed October 2020, <https://www.weforum.org/reports/the-future-of-jobs-report-2020>

Page left intentionally blank.



Dr Sean Gallagher is one of Australia's leading experts on the future of work. He works with business leaders to transform their organisations, with the mission to build sustainable workforces and meaningful careers for their workers. The 2019 report "Peak Human Potential" he authored sets out how organisations can create value in the digital economy through learning-integrated work. The report was widely endorsed, including by APEC, as a "very useful reference for member economies with practical ideas for APEC economies preparing for challenges to the fourth industrial revolution". Dr Gallagher was the invited opening keynote at APEC Chile 2019 in Human Resources Development in the Digital Age.

PUBLISHER

Centre for the New Workforce
Swinburne University of Technology
John Street, Hawthorn VIC 3122 Australia
Email: new-workforce@swin.edu.au
Web: swinburne.edu.au/new-workforce

RESEARCH PARTNER

YouGov Asia-Pacific

REPORT MANAGEMENT

Owner and author: Dr Sean Gallagher
Coordinator: Tracey Wright
Copy editor: Squidink Communications
Cover design, infographics and illustration, design and layout: Washington Creative
Report sponsors: Swinburne PAVE and Swinburne Research

ACKNOWLEDGEMENTS

This report was reviewed widely by academic, government and industry experts. The author would like to thank all reviewers for their generous and constructive suggestions.

ISBN

ISBN 978-1-925761-31-3 (PDF)
ISBN 978-1-925761-32-0 (Print)

DATE OF PUBLICATION

April 2021

COPYRIGHT

© Swinburne University of Technology

CITATION

This document should be cited as:
Gallagher, S 2021, Peak Human Workplace: Innovation in the unprecedented era

ACKNOWLEDGEMENT OF COUNTRY

We respectfully acknowledge the Wurundjeri People, and their Elders past and present, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east. We are honoured to recognise our connection to Wurundjeri Country, history, culture and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands.