The Future of Work:
Mapping the Jobs and Skills of Tomorrow

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Executive Summary

We are experiencing a period of profound change. Jobs and skills that have existed for years are becoming obsolete.

The rise of automation, robotics and artificial intelligence (AI) are threatening the shelf life of skillsets. It's clear that emerging technologies pose significant implications for learners, organisations and training providers. To succeed in tomorrow's economy, our workforce must work in sync with 'thinking machines'.

Economic uncertainty and pandemic-induced lockdowns sped up the adoption of automation and AI. The freefall of our local and global labour markets are leaving many workers concerned about displacement.

As economies begin to open up, many Australians are now asking: What will the future of work look like and how do we prepare for it?

A Forecast of Australia's Labour Market: 2020 – 2025

Industry 4.0 is officially here.

We are currently living through a megatrend of technological change. Rapid advances in automation, AI and big data are affecting the quality and quantity of jobs available in our near future.

As human labour is substituted in favour of automation, the net displacement of workers is predicted to be in the millions. However, experts anticipate the number of jobs lost will be fewer than the number of new jobs created.

The World Economic Forum (WEF) predicts 97 million global roles will emerge in newly-formed industries.

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What Are the Jobs of Tomorrow?

The future of work will be varied, with diversity across emerging professions and industries.

Disruptive technologies will displace existing and create new occupations.

The importance of human interaction and collaboration will rise as we move towards a digital-first economy. Both existing and emerging occupations will require artificial and human counterparts.

According to the WEF, the highest growth jobs of tomorrow can be segmented into seven key occupational clusters:

- Data and artificial intelligence (AI)
- Engineering
- Cloud computing
- People and culture
- Product development
- Marketing
- Sales and content

From these clusters, the WEF has identified the top 10 roles in demand by 2025 (figure 22).

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Figure 22 Top 10 job roles increasing in demand across industries

1	Data analysts and scientists
2	AI and machine learning specialists
3	Big data specialists
4	Digital marketing and strategy specialists
5	Process automation specialists
6	Business development professionals
7	Digital transformation specialists
8	Information security analysts
9	Software and application developers
10	Internet of things specialists

Source: The Future of Jobs Report 2020, World Economic Forum

Occupations at Risk of Displacement

40% of Australia's jobs will disappear in the next 10 years.

At a minimum, 9% of jobs in the current labour market will be fully automated, with more than half of our workforce facing varying degrees of automation.

Globally, 85 million jobs are estimated to be displaced by a shift in the division of labour between humans and machines by 2025.

Signs of 'job polarisation' are beginning to emerge in labour markets around the world. Today's jobs are being segregated into low-skill/low-income and high-skill/high-income segments.

Low-skill / low-income

Jobs that do not require specialised training and involve completing simple tasks that can't be automated.

High-skill / high-income

Jobs that require complex tasks involving human judgement, problem-solving and various soft skills.

This separation makes a decline in middle-skill, middle-wage jobs inevitable. Those holding middle-wage jobs - those involving routine and tasks easily replaced by automation - are at the highest risk of displacement.

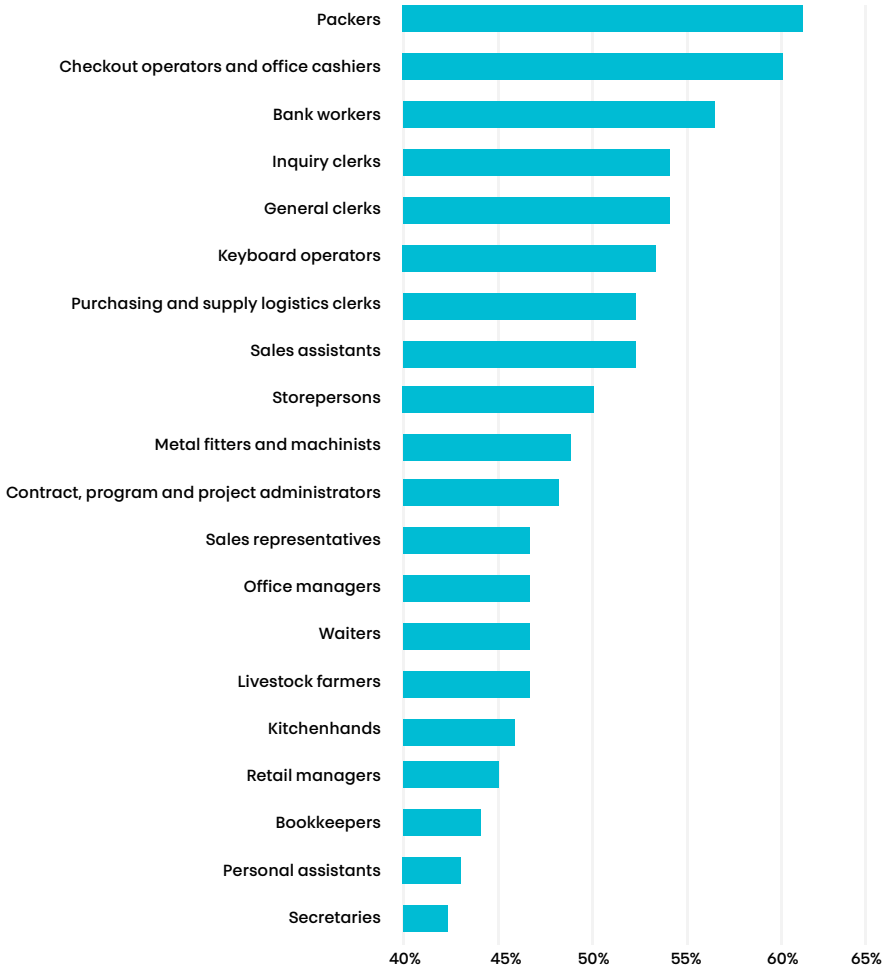
Occupations in this segment include:

- Warehouse packers
- Adminstrative office workers
- Program administrators
- Bank staff
- Accounting clerks

The McKell Institute discovered the majority of the Australian workforce is employed in these high-risk occupations (figure 2.6).

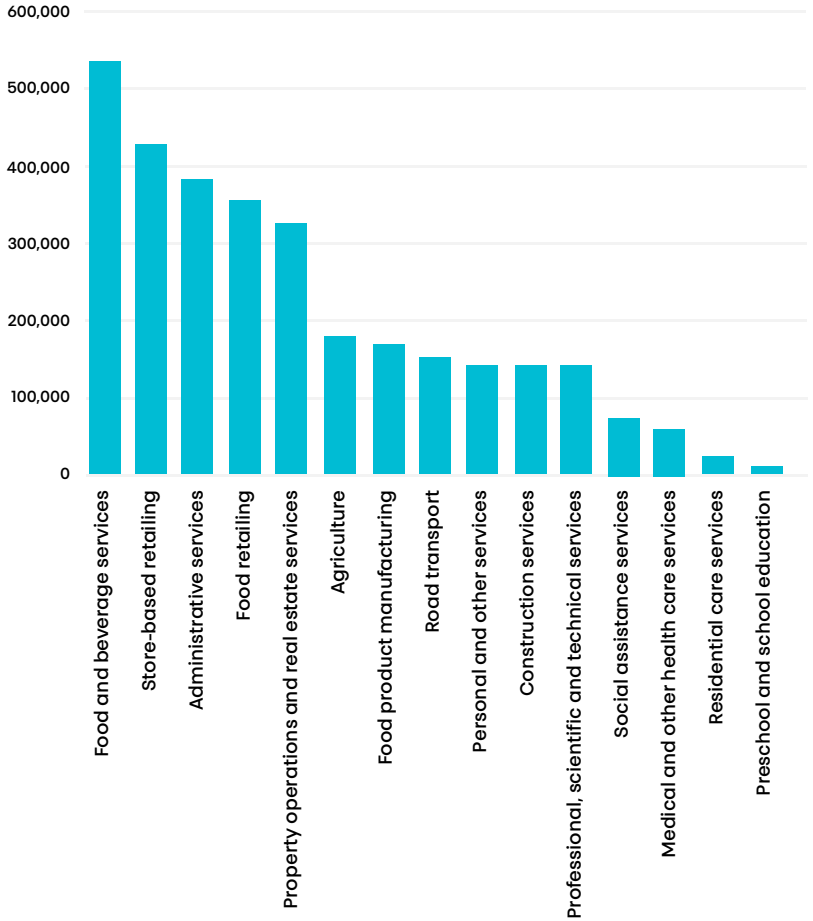
Because of this, over three million jobs in the hospitality, data entry and administrative industries are set to be lost in the coming years. It is predicted that hospitality, retail and agriculture industries will experience profound change as technology replaces human labour.

Figure 2.6 Jobs most likely to be automated in the Australian labour market



Source: Opportunities in Change: Responding to the Future of Work, The McKell Institue

Figure 2.7 An estimate of the number of jobs at risk in high automable industries



Source: Opportunities in Change: Responding to the Future of Work, The McKell Institue

What Are the Skills of Tomorrow?

Disruptive technologies are influencing the core skills of many occupations, with one-third of today's global skills to become obsolete by 2025.

Technology-related skills, especially in digital marketing and information technology, will become increasingly necessary.

The future of work will require workers to have the specialised skill sets to perform their roles and the social capabilities to adapt, innovate and succeed in adverse conditions.

The Race to a Reskilling Revolution

The world is facing a reskilling emergency. Skills shortages are at an all-time high.

The critical skills our workers need to perform the jobs of tomorrow will change over the next decade. Today's average worker will need to gain an additional seven digital skills by 2025 to maintain employability.

Workers must undergo education and training on an accelerated timeline – essentially, individuals will need to urgently reskill in the next years.

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Figure 27 Top soft skills for 2025

1	Analytical thinking and innovation
2	Active learning and learning strategies
3	Complex problem-solving
4	Critical thinking and analysis
5	Creativity, originality and initiative
6	Leadership and social influence
7	Technology use, monitoring and control
8	Technology design and programming
9	Resilience, stress tolerance and flexibility
10	Reasoning, problem-solving and ideation
11	Emotional intelligence
12	Troubleshooting and user experience
13	Service orientation
14	Systems analysis and evaluation
15	Persuasion and negotiation

Source: The Future of Jobs Report 2020, World Economic Forum

Figure 27 Top specialised skills for 2025

1	Product marketing
2	Digital marketing
3	Software development life cycle
4	Business management
5	Advertising
6	Human computer interaction
7	Development tools
8	Data storage technologies
9	Computer networking
10	Web development
11	Management consulting
12	Entrepreneurship
13	Artificial intelligence
14	Data science
15	Retail sales

Source: The Future of Jobs Report 2020, World Economic Forum

Emerging Soft Skills

Soft skills are the non-technical, transferable skills that relate to how one works. They are the interpersonal attributes that underpin workplace collaboration and communication, self-management and career development.

Human-centric skills are becoming more critical with the rise of AI and automation in the workforce. New technologies will place higher demands on members of the workforce to manage abstract thinking and problem-solving.

"Industry 4.0 will call for employers who possess strong interpersonal skills and a strong understanding of the complex relationship between people and advanced technologies," says Janet Foutty, Executive Chair of the Board at Deloitte (US).

The pandemic has also heightened self-management skills such as active learning, resilience, stress tolerance and flexibility. Employees will need to act more independently and possess better communication skills, particularly in remote workplaces.

Emerging Specialised Skills

Specialised or technical skills are aligned to a specific vocation or task – they form the core skill competencies a worker needs to perform their duties.

Specialised skills will change as we continue to adopt more technology into our workplaces. The WEF has identified the technical skills expected to emerge over the next five years (figure 28).

Among this list are three cross-cutting specialised skills (product marketing, digital marketing and human-computer interaction) that will grow in demand across a number of emerging professions.

Opportunities for Education Providers

VET educators play a crucial role in skilling our workforce. Education providers will soon need to offer training for emerging skills and occupations.

Industries are looking to large-scale, systematic reskilling efforts to address future skill requirements. However, there is a growing consensus that our vocational education and training system isn't adapting fast enough to meet the skills needs of Industry 4.0.

Experts state new training solutions must be developed in line with the changing nature of our industries. These solutions will need to analyse and optimise the range of knowledge and skills of current job holders and future workers.

The dynamic nature of our education sector means we'll continue to see advancements in course creation and delivery over the next decade.

We've created a list of education strategies expected to bring opportunities for providers during Industry 4.0.

Pivot to micro-credentials

Online learning is here to stay. The technological transformation of Australia's education landscape presents new opportunities for providers to succeed in a competitive marketplace. Providers can create micro-credential content by unpacking existing qualifications into bite-sized programs.

Build digital skill competentcies

Industry 4.0 requires a higher level of digital literacy from all occupations and industries. Our VET sector is in a unique position to improve the digital proficiency of today's students and tomorrow's workers. Providers can develop digital competency units and embed these as foundational components across every program they offer.

Deliver tailored training for emerging tech

Experts have predicted the jobs of tomorrow will be those at the forefront of technology – there will be a pressing demand for greater blue tech skills over the next decade. Training providers should develop niche training programs to prepare workers for emerging blue tech industries.

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A Summary

The need to future-proof the skills and professions of our workforce in the face of mass job displacement is even more urgent today.

The COVID-19 pandemic accelerated our transition into a technology-driven labour market by years.

Emerging roles in big data, robotics and AI will both displace jobs and create new opportunities for career transitions for workers willing to invest in lifelong learning.

In response, providers will need to pivot to strategic training solutions to urgently reskill Australians for the Jobs of Tomorrow.