

Future of Work

Skills and Industry Summit

28 November 2018

Participant pre-reading



**Queensland
Government**

Message from the Premier of Queensland and Minister for Trade



The Queensland Government is committed to ensuring that Queenslanders have the skills to be ready for the jobs of the future and that the businesses and services that drive our economy have the skilled workforce they need to continue to grow and succeed.

Now is the time to build on the strengths of our investments in priority training and access to employment — and on the strengths of Queensland's skilled labour force and diverse regional economies — through collaborative action. That is why my government is hosting the Future of Work — Skills and Industry Summit.

The Summit is a chance for industry, businesses, universities, training providers, unions and government to come together to consider the opportunities ahead and how Queensland's workforce can be practically and imaginatively reshaped to meet the demands of a rapidly changing economy.

To that end, this information pack aims to stimulate our thinking in advance of the interactive panel session and workshops. It presents brief reflections on issues and opportunities coming our way. It also highlights some examples of companies, schools and individuals who are meeting challenges in innovative ways.

Thank you for taking the time to participate in this important day which will help shape the government's future skilling strategy and how we continue to respond to our priority of creating jobs in a strong economy.

I look forward to seeing you at the event.

The Honourable Anastacia Palaszcuk MP
Premier of Queensland and Minister for Trade



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Key facts

Jobs Queensland recently published economic modelling of three workforce scenarios it considered likely by 2022.¹ This work found that:

- Regardless of the scenario modelled, employment in Queensland is projected to grow, with the rate of growth ranging from 7.6 to 9.3 per cent to 2022 across the three scenarios.
- Over 50 per cent of all new workers are projected to be employed in just three industries – health care and social assistance; professional, scientific and technical services; and education and training.
- It is projected that regions with the highest proportion of service industries will generally see the greatest growth in employment, with the rate of employment growth projected to vary across regions and be higher in the southeast corner of the state.
- Professionals will remain the largest occupational grouping and are projected to grow strongly, as is the community and personal service workers group.
- Under every scenario the workforce becomes more educated, with the number of workers without post-school qualifications falling by between one and 2.6 per cent from 2017.
- Tertiary level qualifications are projected to grow most strongly, but under every scenario the largest group of qualified workers is projected to hold certificate level qualifications.



Case study

**School-based apprentice or trainee of the year
– Lachlan Darr**

Agriculture has been a lifelong interest for Lachlan Darr, Oakey State High School student and winner of the school-based apprentice of the year at the 2018 Queensland Training Awards. The experience he gained through his traineeship with Oakey Beef Exports has convinced him that he has found his dream job. Working with livestock has allowed Lachlan to gain greater insight into the day-to-day requirements of a career in agriculture, and further developed his desire to work in the cattle industry after school.

¹ Jobs Queensland, Anticipating Future Skills, 2018



Setting the scene



Jobs Queensland provides strategic advice to government on skills demand, future workforce planning and apprenticeships and traineeships.

Queensland's future workforce: a driver of global competitiveness

The Queensland economy is changing

The structure of the labour market in Queensland is changing. In recent decades, Queensland employment has increased in services industries such as health and education, while employment in traditional sectors, such as manufacturing and agriculture, has declined.

Technology is playing a part in restructuring the Queensland economy. While technological change may create some disruption, it also brings opportunities. For example, the mining sector is using technology to improve workplace safety, the retail sector is able to provide enhanced customer service and convenience, and the agricultural industry is exploring ways to overcome seasonal challenges.

Social and demographic factors such as an ageing population, increased female workforce participation, rising urbanisation and higher education levels have an impact on future demand for labour. The way work is organised and performed is also changing, affected by a range of legal, policy and institutional factors.

Global issues such as sustainability, accelerating uptake of digital technologies, low wage and productivity growth and perceptions of inequality will play out in their own way in Queensland due to our particular economic, geographic and demographic characteristics. For instance, Queensland is unique in terms of its dispersed population and network of large and globally connected regional centres.



Skills requirements are changing

Research suggests a small proportion of jobs may be superseded due to automation, while a large proportion of jobs will change. As one example, consider the impact that the introduction of modern machinery had on cabinetmaking. This occupation did not disappear but became a trade requiring higher level skills such as programming.

Consistent themes have emerged from regional and industry workforce planning recently undertaken by Jobs Queensland. These include a trend towards higher levels of skills, and the importance of multi and cross-skilling and of access to tailored and specialist training offerings. The importance of place-based approaches, responses and policies is also clear.

Human capital as a competitive advantage for the Queensland economy

Already we are seeing the prevalence of high level skills in certain areas leading to industry attraction in Queensland. Levels of education and training in Queensland are also broadly positive. While the qualifications base in Queensland is lower than some other parts of Australia, the rate of growth in qualification attainment is above the national average.² Similarly, apprenticeships numbers in Queensland have started to increase again over the past couple of years and are holding up well after falls in the earlier part of the decade.

However, more can be done to build our human capital and capitalise on our areas of natural strength. As a modern economy with a high standard of living, Queensland cannot depend on price to remain competitive; global competitiveness relies on innovation, customisation and quality – all of which are underpinned by skills and capability.



² Source: ABS, Census of Population and Housing, 2016, Time Series Profile – T29 and T31c.6

Education, training and lifelong learning

Research suggests most of the new jobs of the future will require higher levels of skills and that continual investment in education will be required by individuals and workplaces in order to keep up with the rate of change brought about by developments in digital technology.

The World Economic Forum predicts that by 2022, at least 54 per cent of employees will need significant re-skilling and/or upskilling.³ Continuous skills development and lifelong learning are becoming increasingly important. The World Economic Forum suggests that:

...the half-life of a skill has dropped from 30 years to an average of 6 years. This holds true even for fresh university graduates. This means that the model of “learn at school” and “do at work” is no longer sustainable and constant reskilling and lifelong learning will be a way of life at work.⁴

The nature of vocational education and training must also change to ensure workers have the skills, knowledge and abilities to be flexible and adapt to the inevitable changing requirements of work. A focus on skills development needs to be paired with a focus on skills utilisation to drive productivity growth.

Jobs Queensland’s extensive work with industries, regions and communities has clearly shown that all parts of the education and training continuum — from schools through to vocational education and training (VET) and higher education, along with the range of non-accredited training pathways — have an important role to play in building this human capital.

A shared responsibility

As Queensland’s economy transitions, it is important to acknowledge that while change is inevitable, outcomes can be influenced. We can manage how we respond to harness opportunities while minimising the potential impact on businesses, the workforce and the community more broadly.

Consideration of and planning for future skills and workforce requirements — across industries and regions as well as within individual enterprises — will be of critical importance. An appropriate supply of the wide breadth of skills required to underpin Queensland’s future success and meet industry demand will not come about solely through chance. It is important that we plan for our skills requirements into the future, acknowledging that each of us has a role to play — government, education and training, industry, unions and individuals.

Our success will depend on a shared vision for the future, and collective and coordinated action to create and sustain a strong and globally competitive Queensland economy and vibrant and equitable society that shares in this prosperity.

³ Centre for the New Economy and Society, 2018 http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf.

⁴ Yuen, 2018 <https://www.weforum.org/agenda/2018/09/here-are-seven-ways-your-job-will-change-in-the-future/>.

Questions to prepare for participating in the Future of Work — Skills and Industry Summit

1. How has your industry changed over the past 5, 10, 20 years?

2. What are the main change factors that you think will influence your workforce in the future?

3. What changes in skill profile do you think the workforce will be subject to in order to meet your industry's future needs?

4. What ideas do you have to improve how ready Queensland employers and employees are to meet future skill needs?



Workshop 1: Preparing future workers for successful transitions

Our challenge is to prepare every young Queenslander to take advantage of the many opportunities a knowledge-based economy presents so they can become the leaders, innovators, thinkers, disruptors, entrepreneurs and creators of our future state.

Discussion: The ever-present impact of technology means our world is changing more rapidly than ever before.

Queensland's education system, from the early years through to Year 12 and beyond, has a significant role in developing the foundation skills and knowledge that underpin a skilled workforce.

Employment growth has been seen in jobs requiring science, technology, engineering and mathematics (STEM) skills. There is also increasing demand for more human-centric attributes associated with creativity, interpersonal and entrepreneurial skills that enable problem-solving.

Queensland's education system is already responding to these challenges with the release of the Advancing education plan, the #codingcounts plan for coding and robotics and the Schools of the future STEM strategy for STEM in Queensland state schools. These plans outline a broad range of strategies to build teacher capability, encourage more participation and improve outcomes in STEM learning.

But as our world continues to change so must we. Ultimately, we must prepare students for a future world within which more of the workforce will be employed in the gig economy, Queenslanders will have multiple careers during their lifetime, and technology will have far-reaching effects on the nature of jobs.

Case study

Thuringowa State High School – Advancing education for a global tropics future

The global tropics future partnership led by Thuringowa State High School aims to maximise the potential of North Queensland's gifted STEM students and boost outcomes for learners from disadvantaged backgrounds. In collaboration with James Cook University, the partnership connects 180 young scholars from 25 North Queensland state schools to boost engagement in STEM learning for year 5 to 9 students. It was the 2018 Showcase Award winner for Excellence in Industry Partnerships.

Solution-oriented questions:

- Our current prep students will be year 12 graduates in 2030. What skills and abilities do they need to be successful participants in the future economy?
- How can industry engage with young people to help prepare them for the world of work?



Workshop 2: Planning and investing for our future workforce

Our challenge is to ensure effective workforce planning and investment in skills development by government, industry and business as our economy transforms and grows. However not all businesses, industries and regions have the tools, information and capacity to achieve this.

Discussion: Planning and investing for the future workforce is a shared responsibility.

A collaborative approach to workforce planning and investment can assist businesses and industry to have in place a workforce with the right skills at the right time. Government, regions, businesses, industry, and education and training providers each have information, experience, relationships and data to contribute to this endeavor.

Planning for the future workforce is also increasingly a core business requirement. To meet demands for skills, including high level technical skills and enterprise skills, business, industry and regions will need to integrate workforce planning and investment into their suite of business development strategies. To boost our productivity and achieve economic growth, we will need to include planning to use the skills of Queenslanders who are currently underrepresented in the workforce generally, or in specific industries.

Workforce planning and investment activities will look different at the industry, business and regional levels. What government is seeking is expert insight on how we can best partner with each segment to help make sure they have the skilled workforce they need for the future.

Working together to improve workforce planning is one part of the equation. Responding to the information that we have gathered and shared is another. To respond effectively to change we need to collectively invest in skills development and foster strong links between industry, businesses, individual training providers and the skills system more broadly. We also need to promote a culture of ongoing skills development; our future prosperity is based on the willingness of individuals to gain the skills needed to participate in evolving roles across Queensland.

Case study

Small business plans for the workforce of the future

Spencer Constructions is a growing construction business based on the northside of Brisbane, and winner of Small Employer of the Year at the 2018 Australian Training Awards. Founded in 2012, it has grown from a one-person, home-based business to an office/warehouse-based enterprise that currently employs 14 full-time equivalent staff. It credits its incredibly low staff turnover rate to a strategic staff development and succession plan, with 80 per cent of its tradespeople currently undertaking nationally accredited training.

Solution-oriented questions:

- How do we know that we are responding to the right economic shifts and opportunities?
- How do government and industry better connect to identify and address future skills and workforce needs?
- How do government, industry and training providers deal with identified needs?
- How do we make skills development attractive to all Queenslanders?



Workshop 3: Innovation for Industry 4.0

Our challenge is that customer requirements and new technologies are demanding new skills in traditional and emerging industries.

Discussion: Capable, strategically positioned businesses with highly skilled manufacturing workforces will be a critical driver of competitiveness for the industry into the future. Increasing demand for higher level skills is changing business models and the profile of the workforce as many of the supply chain functions and traditional low-skilled and repetitive tasks are replaced with automation and new technologies.

Industry 4.0 aims to leverage differences between the physical, digital and biological spheres. It integrates cyber-physical systems and the Internet of Things (IoT), big data and cloud computing, robotics, AI-based systems and additive manufacturing. Compared to previous industrial revolutions, the fourth one is evolving at an exponential rather than at a linear pace.

Industry needs to respond to Industry 4.0 and transition to new ways of doing business. VET and university programs will need to operate in a more flexible manner and blend the skills needed in the physical and virtual worlds.

Company leaders and managers in conjunction with the existing workforce will need to continually adapt to respond to this new environment. Continual skills development is becoming the new norm, leading to a need for modularised training offerings. There is a need to support the attainment of skills and capabilities that will best position the industry for competitiveness into the future and create opportunities for Queenslanders.

Active partnerships are needed between industry, schools, training providers and universities to prepare the workforce of the future for the opportunities available in industry. These partnerships will better prepare new entrants with Industry 4.0 skills and the human-centric skills needed for workplace readiness; and build the currency of teacher/trainer skills.

Case study

LAND 400 skills demand provides catalytic opportunity for Queensland

LAND 400 is the largest acquisition project in the history of the Australian Army and Rheinmetall expects that over 450 jobs and \$1 billion will be contributed to the Queensland economy in the first 10 years.

To fulfil the contract, Rheinmetall will need to employ a range of highly skilled workers in a wide range of specialist disciplines. To address a national shortage in ISO 9606 precision welding standard the Queensland Government has worked with Weld Australia to purchase and deploy ten augmented reality welding simulators through Queensland's TAFE network. These simulators will make training welders to the required standard significantly faster and cheaper than traditional methods. This will provide a skilled workforce for Rheinmetall and other knowledge-based industries.

Solution-oriented questions:

- What is the Industry 4.0 context for your business/industry sector?
- What are the consequences of Industry 4.0 for skilling?
- What are the challenges of Industry 4.0 related to skilling?
- What are the drivers for collaboration in the skills market, in particular how can government partner with industry?



Workshop 4: Industries meeting new and changing needs

Our challenge is that Queensland service industries, including health, education and tourism are growing and evolving in response to changes in society and policy and Queensland and its workforce must be ready and equipped to harness these opportunities.

Discussion: Services industries represent over 70 per cent of Australia's gross domestic product and employ around four out of every five Australians. It is projected that regions with the highest proportion of service industries will see the greatest growth in employment.

Our industries and workplaces are re-shaping to capitalise on opportunities driven by changes in global markets, technology, digitisation, demography and empowered and connected consumers. This creates both opportunities and challenges for our industries and workforce to have the operational models and skills necessary to create new products and services that meet new and changing global needs.

There is growing global demand for services as economic and social conditions change overseas, particularly in South and East Asia. Areas such as tourism and educational services are already cornerstones of the Queensland economy. New opportunities are emerging in healthcare services.

Moving forward a mix of traditional and new skills will be needed as well as flexibility in how skills are developed. The millennial generation⁵ is projected to be 50 per cent of the global workforce by 2020, while the population and workforce in Australia is ageing. Understanding the views of the emerging and evolving workforce on work, careers and work/life balance is important for industry. Industry and employers will need to better engage and communicate with their workforce and other parts of the skills ecosystem to build a shared vision about the skills needed for the future.



⁵ The Millennial Generation includes people born between mid-1980 and mid-2000



Case study

What does the NDIS mean for training providers?

The National Disability Insurance Scheme (NDIS) is transforming the way disability services are funded and delivered across Australia. It provides participants with choice and control over what, how, when and where their supports are provided.

The progressive increase in available options for people with disability and the increased investment under the NDIS will require significant growth in the number of workers to support people with disability. There will also be a new range of skills and abilities required of workers to meet new demand, needs and expectations.

NDIS findings to date suggest that sector jobs and training pathways are diverse. Occupations range from support workers, allied health professionals and support coordinators, to managers and administrators, local area coordinators, planners and assessors.

WorkAbility Qld aims to work collaboratively with the sector, government and the National Disability Insurance Agency to build workforce supply and capability to meet NDIS demand.

Solution-oriented questions:

- How can we expand labour force participation and promote an inclusive workforce?
- How do we support the workforce and organisations to embrace new technology and automation?
- What are the new skills required in delivering services in a customer-centric, changing economy?
- How do we identify international opportunities and tap into global markets for services?



Additional reading

Background: Linking industry and the workforce to information resources and support programs will support Queensland businesses and the workforce to participate in the future economy.

Content: Jobs Queensland, an independent statutory entity established in 2016, provides expert advice to the Government on current and future skills needs, workforce development and planning in the context of a changing economy and society, and the apprenticeship and traineeship system in Queensland. Jobs Queensland makes available a number of resources including:

- [Anticipating Future Skills Report and Data Tools](#)
Research that looks at the economic modelling of future employment trends across all industries and regions of Queensland.
- [Regional Tourism Workforce Plans](#)
A series of 13 place-based Regional Tourism Workforce Plans tailored to individual regions in consultation with tourism industry stakeholders around the state.
- [Positive Futures - Apprenticeships and traineeships in Queensland](#)
A report showing the result of extensive state-wide consultation and research by Jobs Queensland about Queensland's apprenticeship and traineeship system.

The Innovation Imperative report, released by CSIRO's Data61, identifies the technology, emerging global markets, demographics, digitisation, cultural change and other megatrends that will reshape Queensland in the next 20 years.

www.data61.csiro.au/en/Our-Work/Future-Cities/Planning-sustainable-infrastructure/q-foresight

The Department of State Development, Manufacturing, Infrastructure and Planning is developing a series of industry roadmaps as part of the Queensland Government's Advance Queensland program.

www.dsdmip.qld.gov.au/industry-development/industry-roadmaps.html

The 2018–19 Annual VET Investment Plan details the Queensland Government's \$777.9 million investment in vocational education and training in the 2018–19 financial year.

www.training.qld.gov.au/vetinvestmentplan

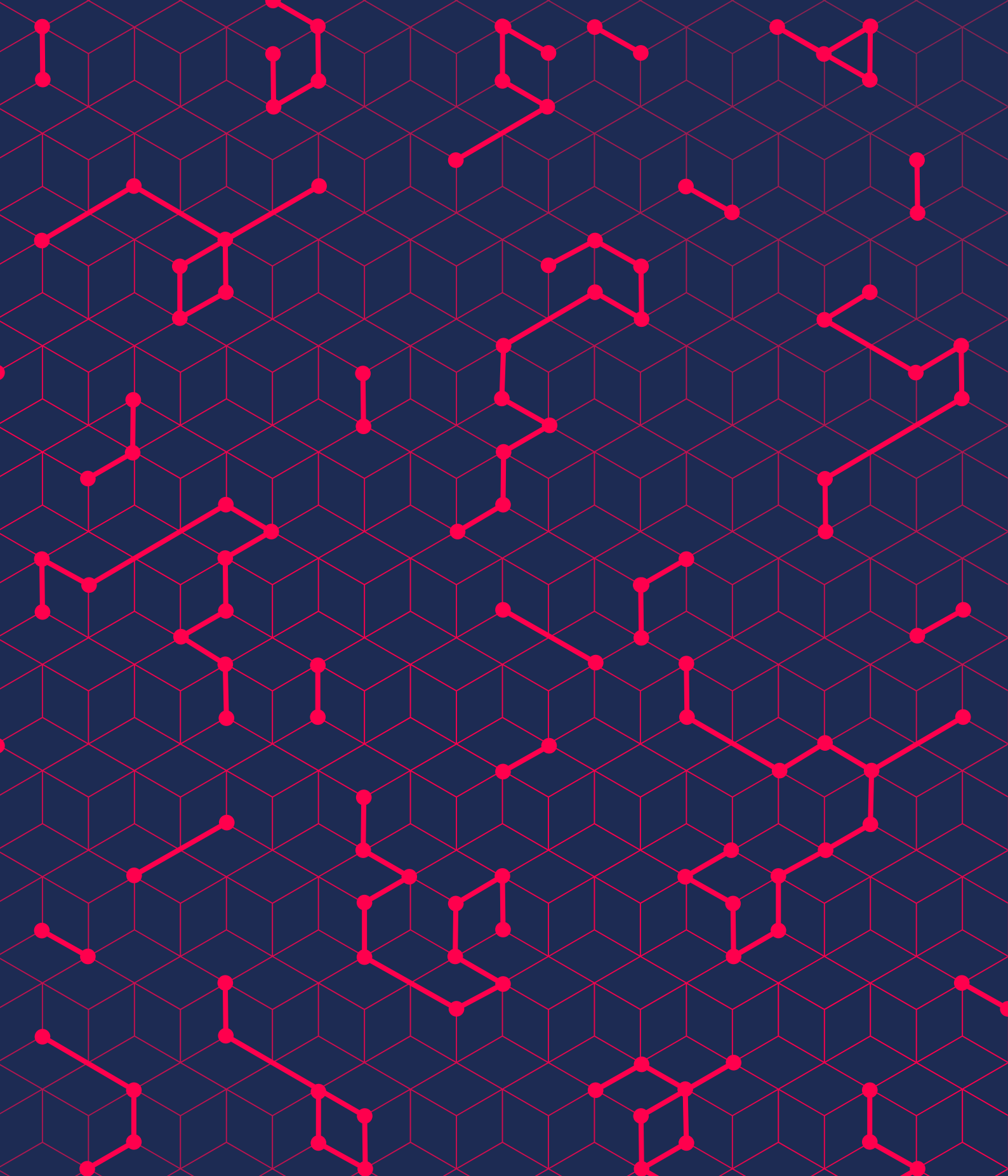
The Skills for Queensland Discussion Paper invited feedback from stakeholders to inform a new Queensland vocational education and training strategy.

www.training.qld.gov.au/vetstrategy

The Deloitte Access Economics report, Seizing the opportunity: Making the most of the skills and experience of migrants and refugees, explores the economic and social opportunity from the better utilisation of skills and experience of migrants and refugees in Queensland.

www.dlgrma.qld.gov.au/resources/multicultural/programs-initiatives/deloitte/seizing-the-opportunity.pdf

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