

Can the universities of today lead learning for tomorrow?

The University of the Future



The better the question. The better the answer.
The better the world works.



EY

Building a better
working world

Executive summary

Does higher education need a new paradigm to serve Australia's needs in the Transformative Age?

Imagine closing your eyes and waking up on 1 January 2030. The world has nine billion people. Humankind has landed on Mars. Intelligent robots work alongside people, cars are self-driving, energy is abundant and clean. Plus, the world's new largest technology company is in the education business.

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Welcome to the Transformative Age

We have entered the Transformative Age and, much like the Industrial Revolution before it, we can expect fundamental shifts in how we live, work and play. The Transformative Age will also change how we learn – and, along with it, the nature and role of the university.

Australia is a global success story when it comes to education. Austrade ranks international education as our third largest export, worth AU\$26 billion and adding 5.2% of real gross value to our economy per year. In the Transformative Age, our universities must continue to remain globally competitive¹.

But what will make a university successful in this new world? What will our nation's students and employers demand of our universities in the future? How will universities contribute to solving the challenges of the Transformative Age? And what should universities consider, today, to be ready to deliver truly transformative outcomes?

To answer these questions, we launched a formal scenario planning process as a follow up to our *University of the Future* white paper from 2012. The result is a set of four divergent scenarios to assist university leaders and government policy makers in planning now, to deliver the educational needs of students and employers, tomorrow. Our goal was not to predict the future but to offer multiple plausible “tomorrows” to stress-test new policies, strategies and plans.

To ground the process in reality, we conducted interviews and workshops with 50+ university leaders, government policy makers and industry observers. We also conducted surveys and focus groups with 3,000+ students and employers.

The value of these four scenarios lies in their ability to stimulate questions, rather than the accuracy of their predictions. They will help universities to see emerging patterns, detect opportunities and threats, and test how resilient current strategies might be to new worlds. Particularly, they will help education sector leaders to understand the trends unfolding outside of the education sector, and outside of Australia that will, inevitably, manifest in higher education here.

1. Australian Government: Australian Trade and Investment Commission, "Why Australia: Benchmark Report 2018".



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The four future scenarios



1 | Champion University

A hands-on government actively champions universities as strategic national assets. Most students enrol in traditional undergraduate and graduate degree programs. Universities streamline operations by transforming service delivery and administration.



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2 | Commercial University

A hands-off government requires universities to be financially independent to ease national budget pressures. Students favour degree programs that offer work-integrated learning. Universities reposition by drawing closer to industry to collaborate on teaching and research.



.....
3 | Disruptor University

A hands-off government deregulates the sector to drive competition and efficiency. Continuous learners and their preferences for on-demand micro-certificates dominate as technology disrupts the workplace. Universities expand into new markets and services and compete against a range of new local and global educational services providers.



.....
4 | Virtual University

An activist government restructures the tertiary sector to integrate universities and vocational institutes, prioritising training and employability outcomes as humans begin to be replaced by machines. Continuous learners are the majority, preferring unbundled courses delivered flexibly and online. Universities restructure into networks that share digital platforms.

Participating university leaders noted a tension between the dual strategy needed to continue to reposition and optimise the core business of their universities, while also investing in future disruption for tomorrow. This echoes our own view that the commercial and the disruptor university scenarios are the most likely to become reality. Both will require leaders to simultaneously reposition their institutions by converging with industry, while also exploring disruptive new business models that can fend off new market entrants.

With this in mind, we suggest universities should consider the potential to:

- ▶ Embark on double transformation to optimise and grow
- ▶ Make the shift from being faculty-focused to learner-centric
- ▶ Integrate with industry to co-create and collaborate
- ▶ Re-imagine the physical campus for the digital world
- ▶ Unbundle degree programs and the university value chain

And no matter the future, universities will continue to be a national asset for our country, and government will have a key role to play in making them globally competitive.

What is clear from this exercise is that profound change is imminent in the education sector. Policy makers and university leaders will need to work together to challenge the status quo and adjust the settings to ensure Australian universities are encouraged to innovate, invest and transform.

The university of today

Australia is a world leader in higher education

Education is a central pillar of Australia's economy. Not only does the education sector employ nearly 8% of Australian workers, it is also our largest services export.² In 2015/2016 international education earned \$20.3 billion in export dollars, with universities and other tertiary institutions generating two-thirds of that revenue.³

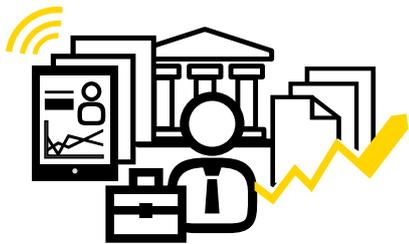
Statistics about higher education paint a positive picture. The sector has grown

at around 5% per year between 2000 and 2015 and now contributes \$30 billion to the country's GDP, thanks to rising enrolments and diversifying revenue streams. Thirty-five Australian universities feature in the Times Higher Education's World University Rankings of 2017, with six in the top 100.⁴ Australia also attracts 350,000 fee-paying international students who make up about a quarter of the student body, thanks to the quality of the educational system.⁵ Several universities are so large and complex they would appear on the ASX Top 200 if they were corporates.

Australia's government generally requires public universities to be all things to all people – they all are broad-based teaching and research institutions, with vertically integrated business models and economic models underpinned by student fees and government grants. And the traditional "where, when, how, who" formula remains largely unchanged. Most students are under 25 and are taking undergraduate degrees to qualify for the professional working world, with learning taking place on physical campuses, according to set schedules of classes, via lectures and tutorials.

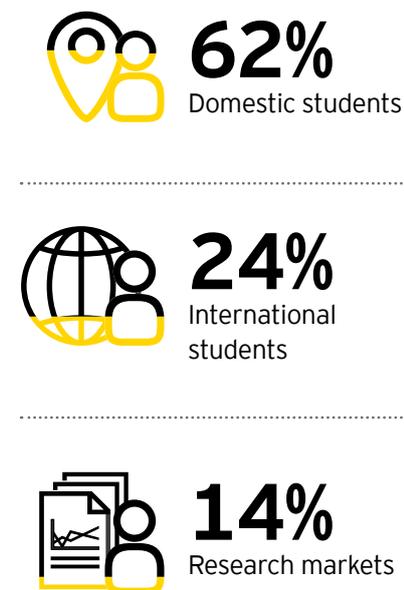
Snapshot of Australia's higher education sector (2016)

Industry snapshot

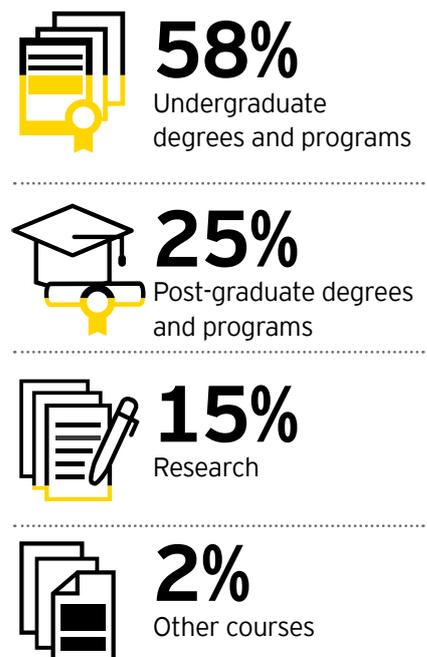


Revenue	\$30.1 billion
Surplus	\$1.6 billion
Students	1.4 million
Employees	100,000
Universities	43
Growth rate 2000-2015	5.4%

Market snapshot



Product snapshot



Source: EY Market Analysis

2. Australian Bureau of Statistics.

3. Australian Department of Education and Training, November 2016.

4. Times Higher Education, "World University Rankings" 2017.

5. Universities Australia, Data Snapshot 2017.

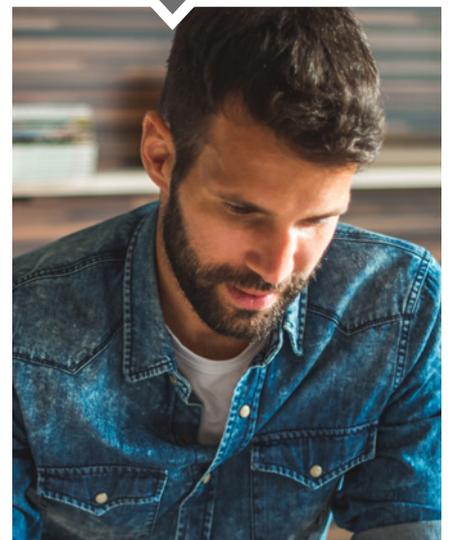
"I just think learning and knowledge is so important just to know things about life or what you wanna do. School doesn't really set you up for real life."

School leaver



"The level of competition is so high now. If you don't have the standard education, you are not even in the running."

Continuous learner



"The degrees that our parents have hold such different value to the ones we have now."

Current student

"... Australia's public universities are much the same, all committed to research, comprehensive course offerings and large enrolments. This is an expensive way to deliver higher education, yet offers few meaningful choices for students about the type of institution they attend ... As technological ferment threatens the established order, it also breaks the constraints that encourage conformity. It may be the time to allow new choices, more diversity. The Australian idea of a university has served us well. It may also have run its course."⁸

Professor Glyn Davis AC, Vice-Chancellor, University of Melbourne

7. "Australia reaches international student milestone", 7 March 2018, www.universitiesaustralia.edu.au

8. "The Australian idea of a university", Melbourne University Press, 2017.

Perceptions of value of university degrees

University graduates earn more over the course of their careers than non-graduates. However, being a university graduate isn't quite the elite status it once was.

Standing out is becoming more and more difficult. The number of people holding a degree today makes it increasingly difficult to stand out, leaving more and more people looking for additional qualifications or expertise.

Value and investment of a degree



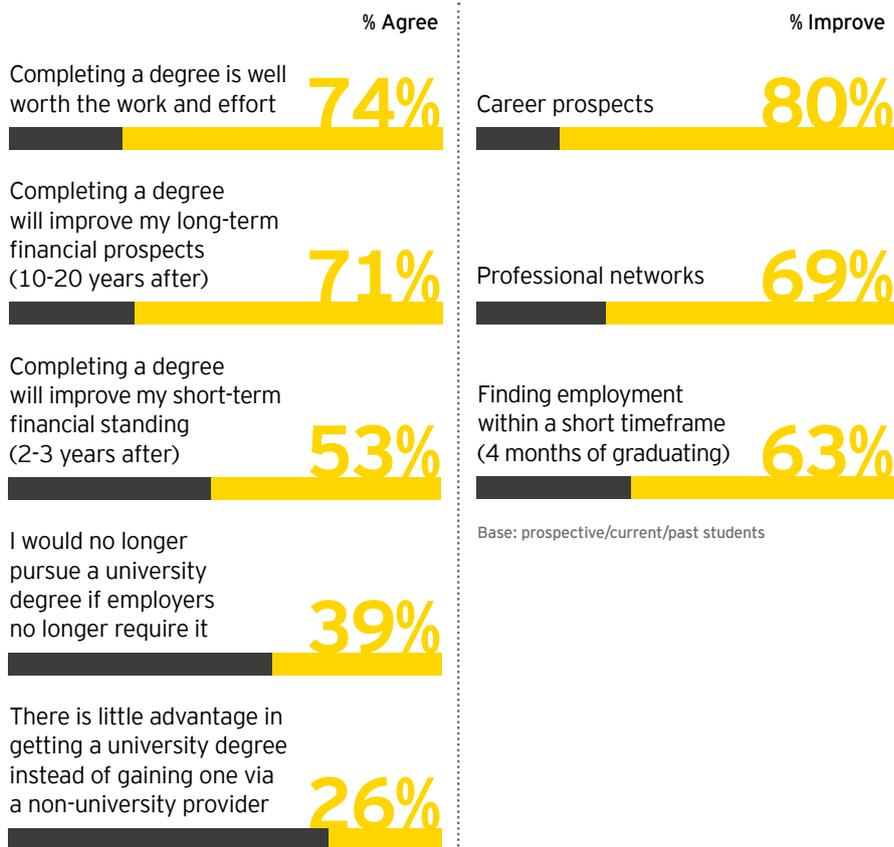
90%
of prospective/
current/past
students think it's
important to have
an undergraduate
degree

versus



58%
for a postgraduate
degree

Impact of a degree on employment



Source: EY Sweeney market research 2017

Yet, as EY argued in our 2012 *University of the Future* white paper, the status quo is unsustainable. In 2012, we posited that the higher education industry globally was on the cusp of disruption and that Australia's dominant university model – a broad-based teaching and research institution with a large asset base and cumbersome back office – would prove unviable in the future.

We still believe this to be true. Demand for learning is shifting to a fundamentally new paradigm. The rise of Udacity and Singularity University in the US point to two potential disruptors: one offering

nano-degrees powered by leaders in industry; the other focused on scientific progress and exponential technologies.

Disruptive models have yet to fully emerge in Australia, but there is growing potential for this to happen, and happen quickly. Once the first new entrant cracks the market, we believe a deluge could follow, not least because of the lack of diversity in the sector.

The case for change is clear. A growing cohort of graduates are leaving the university environment with more debts and few job prospects. Some university leaders estimate that around 40% of

existing degrees will soon be obsolete, which may mean institutions will lose their "cash cows" and be forced into specialisation paths they may have not chosen. And some institutions have yet to digitise their operating models.

The university leaders we interviewed know they need to act with urgency to prepare their institutions to compete in a very different world to today. They are also operating within a funding and policy context that makes such changes difficult, meaning that any solutions will require government and university collaboration to address.

Higher education business model canvas

Australia's universities are monolithic institutions that control all aspects of their teaching and research activities, anchored by physical spaces and time-bound schedules. Digital transformation is challenging this dominant model. As universities evolve from faculty-centred to learner-centric institutions, they may well find it necessary to unbundle their many functions as well as their degree programs to differentiate and maintain competitive advantage.

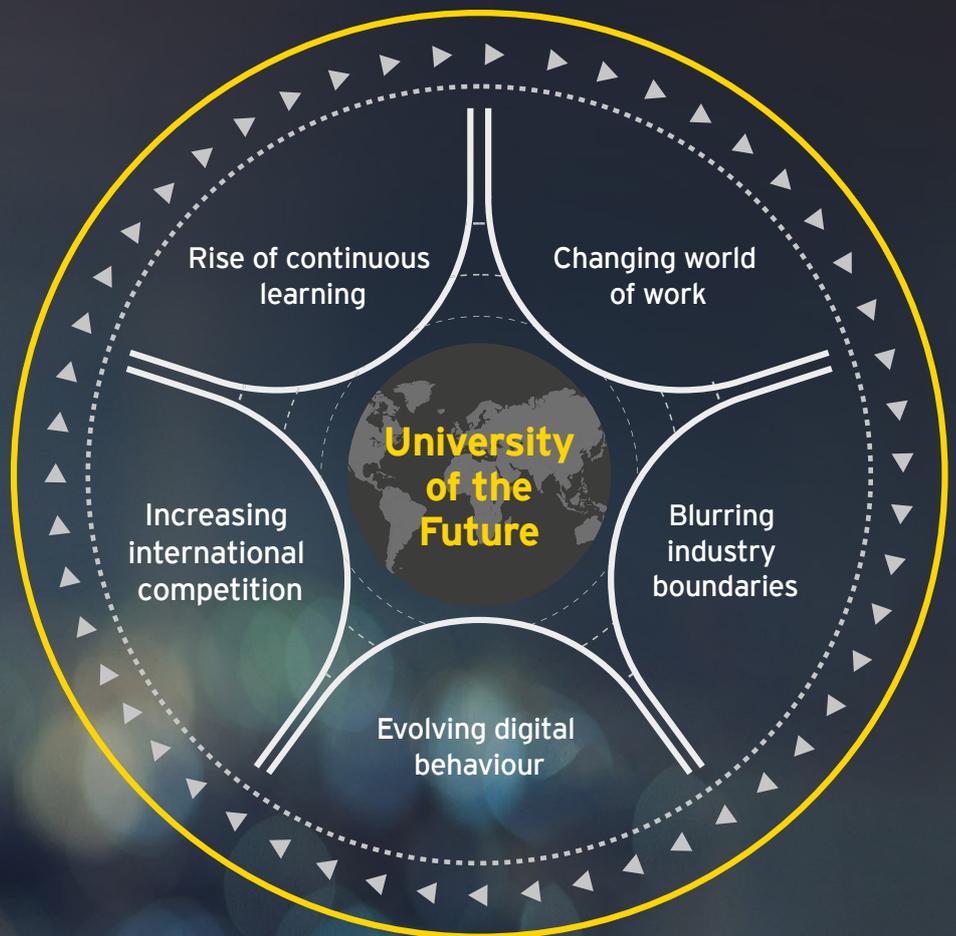
■ Potential areas of disruption

 <p>How do universities create value?</p>	Who are our customers?	Domestic students	International students	Continuous learners	Government	Industry						
	What are the jobs to be done for customers?	Acquiring knowledge	Developing hard and soft skills	Accessing employment opportunities	Coming of age	Learning flexibly	Discovering new ideas	Transferring new knowledge				
	What products/services are we providing?	Undergraduate degrees	Postgraduate degrees	Courses	Other services	Research						
	How do customers get our services?	Teaching and learning	Campus and residential facilities	Online	Virtual reality	Artificial intelligence	Publications	Research projects	Partners	Other		
 <p>How do universities deliver value?</p>	How do we produce it?	Teaching activities	Develop content	Deliver content	Assess learning	Credentialise learning	Research activities	Develop proposal	Fund proposal	Conduct research	Publish research	Commercialise research
	How do we distribute it?	Academic schools and faculties	Physical campus	Digital campus	Printed materials							
	How do we support it?	Student administration	Student services	Research administration	Marketing	Back office services	Technology	Other				
	Who are our key partners and suppliers?	Government	Other universities	Industry	Outsourcers							
 <p>How do universities capture value?</p>	What are our major investments?	Campus infrastructure	Digital infrastructure	Back office transformation	Industry engagement	Research	Talent					
	What is our revenue model?	Student fees	Government grants	Commercialised research	Philanthropy							

Disruptive forces driving change

There are many ways to identify the challenges of change in higher education. We workshopped five external drivers over which university stakeholders have limited control, which together will shape the future of higher education in Australia.

Global forces impacting the university sector



“We have been here before. The dizzying pace of change in every aspect of life presents us with both the risks and potential rewards of a new renaissance taking place in our modern world. Except, this time, it is the entire world and a population of seven billion who are becoming connected and able both to access and input information that is globally accessible. The pace of advancement is therefore many times faster, and the degree of instability that ensues many times greater.”

Professor Ian Goldin, Oxford University

1 | Changing world of work

Technology disruption is affecting the nature of employment and employability.

As workplaces change, so does what it takes for a graduate to be ‘work ready’. The future of work will be radically different, driven largely by the machine economy, where robotics and machine learning take over repetitive and programmable human tasks and artificial intelligence augments human roles.

When machines become workers, what do humans do?

How will universities adapt to remain relevant for the future of work?

How will workers and citizens be motivated in the machine economy?

How will we address income inequality when machines replace humans?

Perceptions on degrees and changing world of work

Some students would happily opt out of their degrees if they could see a feasible pathway to employment without attending university. Others would welcome new approaches to gaining qualifications and progressing their careers. This highlights a risk to universities, particularly if they are untethered from industry.

Past student perceptions of degree course relevance

Study area directly relevant to current job	
Nursing	87%
Health services and support	86%
Education	80%
Law and paralegal studies	79%
Business and management	67%
Psychology	67%
Study area less commonly relevant to current job	
Humanities, culture and social sciences	36%
Science and mathematics	41%
Architecture built environment	48%
Creative arts	48%
Engineering	52%
Communications	59%

Importance of the integration of digital technologies in degree course by current/past students

42% of current/past graduates feel their degree requires transformation as digital technologies take off in the workplace



40%
Domestic students



51%
International students



57%
IT



56%
Business and management



54%
Law

Source: EY Sweeney market research 2017

“In the future, the university campus will become a precinct that interfaces university and society, with start-ups, community organisations and social enterprise intermingling with the students: there will be full integration with society and industry.”

Dawn Freshwater, Vice Chancellor, University of Western Australia

2 | Blurring industry boundaries

Non-traditional rivals offering new educational services are increasingly challenging the dominance of universities in teaching and learning.

Technology is driving convergence in almost every industry, as disruption reconfigures value chains and

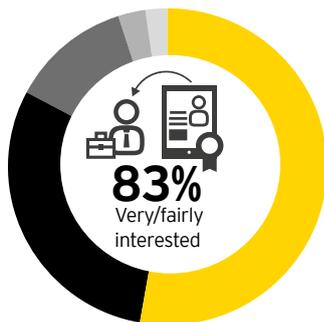
democratises information. For universities, convergence heralds competitive threats from new entrants with disruptive business models. But it also offers the opportunity to collaborate on research and innovation, curriculum design and work placements. Will the ivory tower become the ivory network, as universities go beyond pure research

and work more closely with industry to develop curricula that mirror the requirements of the professional world? Will corporates look to outsource key pieces of research and professional development to universities newly open to collaboration and hunting for new revenue streams? Will universities themselves expand into new markets and services?

Perceptions about university and industry collaboration

An overwhelming 83% of undergraduate students expressed interest in an integrated employment and education offering had one been available. Yet, current student perceptions around their course industry linkages are better than past student perceptions. This may signal that universities are making improvements, but there is greater potential in this respect.

Perceptions about integrated study/employment program



- 53% Very interested
- 30% Fairly interested
- 12% A little interested
- 3% Don't know
- 2% Not at all interested

Base: Prospective/current/past undergraduate students

Source: EY Sweeney market research 2017

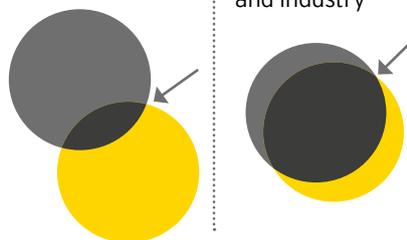
Perceptions about industry integration

Current scenario

Foundational knowledge and some graduate-ready skills

Ideal scenario

More graduate-ready skills through greater integration between universities and industry



- Skills university provides
- Skills employers want

Perceptions about connecting with industry

% Agree

The assignments and learning have high relevance for the workplace

58%

There are plenty of workplace opportunities linked directly to my degree¹

56%

There are strong links to potential employers

51%

Base: current/past students

1. Base: current/past students who are working

“The higher education sector will focus on driving research and fostering incubators and breakthroughs that make a fundamental difference.”

**Michelle King, Senior Director, Alumni and External Engagement
Monash University**

3 | Evolving digital behaviour

Digitisation is empowering learners by converting them into consumers of educational services.

As nearly every consumer activity shifts to the digital realms of web, mobile, social, mixed reality and virtual reality, digital natives are developing new radically different learning behaviours and expectations. By 2030, how different will the learning and social behaviour be of digital natives from previous generations? Will educational services move steadily and massively online? Will the student experience be more important than the course content?

“Universities will be able to identify and track their social and economic contributions back to society, driving the innovation agenda through research.”

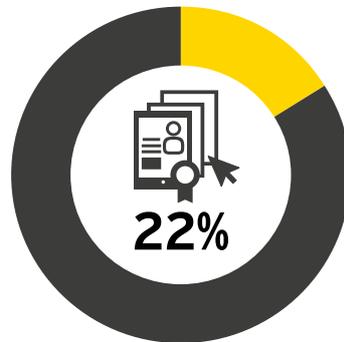
Peter Marshall, Chief Operating Officer, Monash University

Perceptions of digital learning

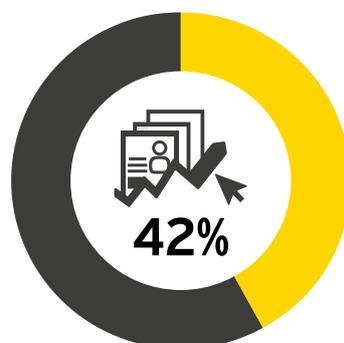
Some universities are beginning to provide digital forms of learning or open online courses, but student demand is outpacing supply. Prospective students see online learning as flexible and convenient, thereby increasing access. This is the preference of 42% of future students, versus the 22% of current students actually receiving the majority of their degree online.

Students also want universities to improve the use of technologies as part of the student experience, including the ability to translate learnings, engage with others and interact with their teachers. However, many universities have yet to deliver basic digital elements, including: integrating technologies, digitising content and automating administrative processes.

Preference for majority of degree to be delivered online

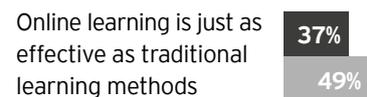
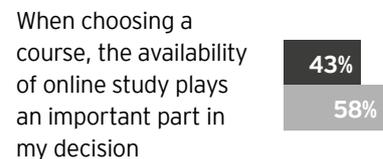
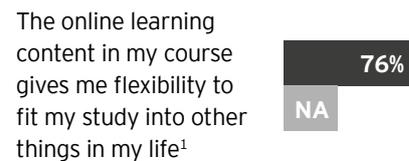


Current students



Prospective students' preference

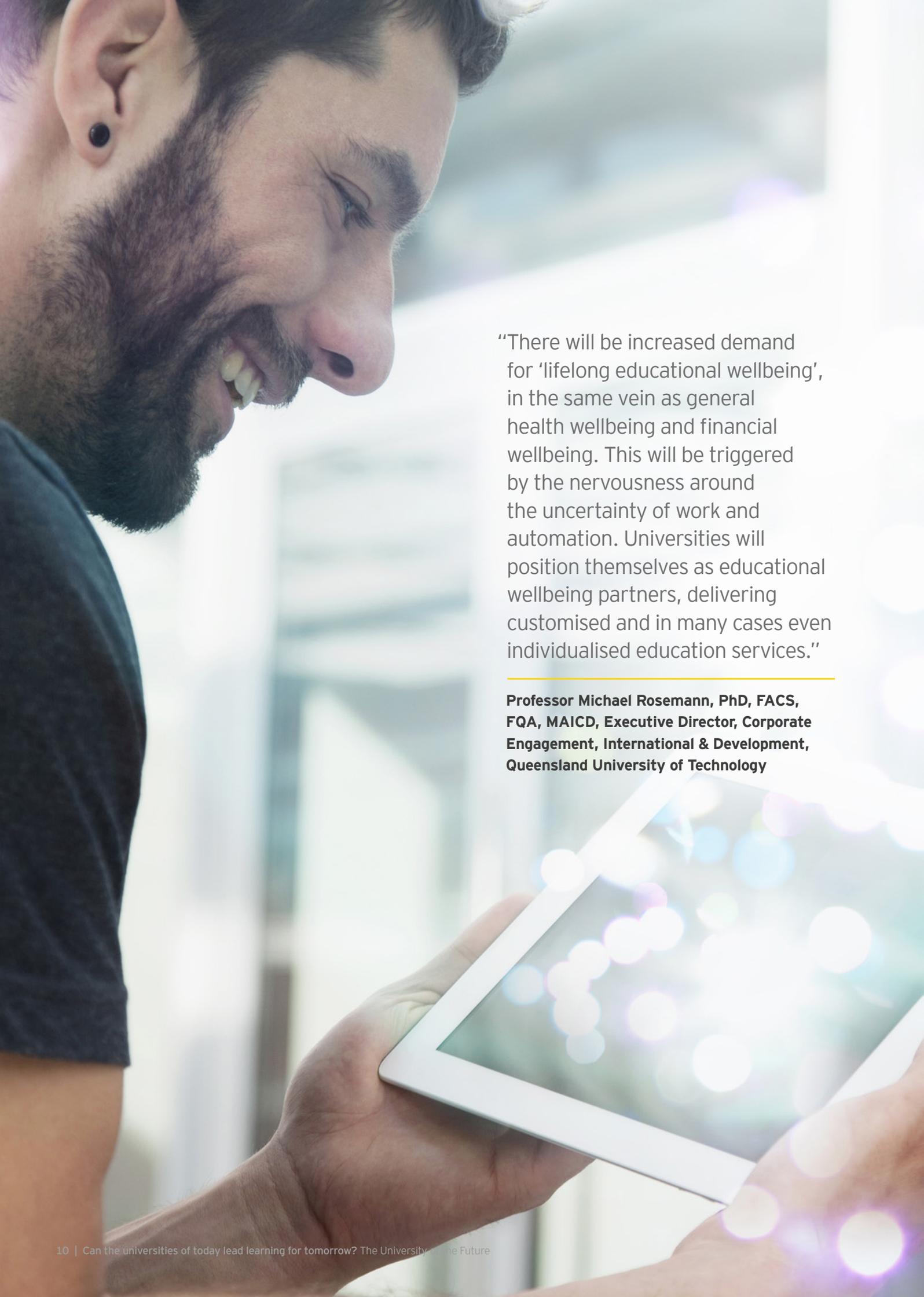
Attitudes towards online versus face-to-face learning



■ Current/past students
■ Prospective students

Base: prospective/current/past students
1. Base: current/past students

Source: EY Sweeney market research 2017

A close-up, profile view of a man with a dark beard and a black earplug in his left ear. He is smiling and looking down at a white tablet computer held in his hands. The background is bright and out of focus, featuring a bokeh effect of colorful light spots in shades of blue, purple, and white. The overall mood is positive and focused on technology.

“There will be increased demand for ‘lifelong educational wellbeing’, in the same vein as general health wellbeing and financial wellbeing. This will be triggered by the nervousness around the uncertainty of work and automation. Universities will position themselves as educational wellbeing partners, delivering customised and in many cases even individualised education services.”

Professor Michael Rosemann, PhD, FACS, FQA, MAICD, Executive Director, Corporate Engagement, International & Development, Queensland University of Technology

4 | Increasing international competition

International competition for rankings, students and academics is changing the higher education landscape.

Global rankings, international mobility and global knowledge hubs will change the competitive landscape and open up new opportunities for learning. Student mobility is increasing as technological, political and demographic changes make internationalisation a strategic goal for many governments, including Australia, China and India. Already, the balance of host countries is beginning to change. To remain competitive, how will credit transfer protocols need to change? Could Australian university brands flourish in non-traditional countries? What new international research collaborations are possible?

5 | Rise of continuous learning

The shift to education as a continuous process is changing demand for higher education offerings.

Portfolio careers and the need for workforce agility in the gig economy are increasing the demand for continuous development, requiring learning that is self-directed, affordable, accessible and time critical. How will universities be part of the supply chain? Will new segments of learners and new learning propositions challenge the dominance of undergraduate degree programs? Will continuous learning skills become part of the mainstream university curriculum?

“There is a need to retool yourself, and you should not expect to stop ... People who do not spend five to 10 hours a week in online learning will obsolete themselves with the technology.”⁹

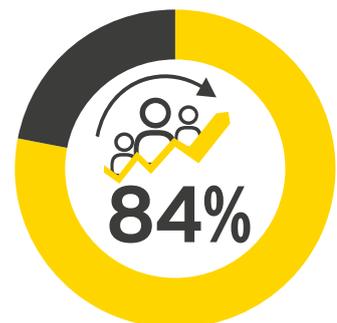
Harvard Business Review

Perceptions on lifetime or continuous learning

The concept of lifelong learning is becoming a career necessity rather than a discretionary luxury. No longer is learning new skills something people do only when pursuing a significant career change, but simply being relevant, competitive, and in-demand requires an ongoing commitment to lifelong learning.

Barriers to universities taking a larger share of the professional development market include:

- ▶ While credible, universities are perceived as cumbersome and inflexible
- ▶ Higher fees make it difficult to rationalise the investment versus returns



of prospective/current/past students believe it is necessary for people to continuously upskill or retrain themselves to remain competitive in the workplace

Rises to 87% among past students

Source: EY Sweeney market research 2017

9. Harvard Business Review, “To stay relevant, your company and employees must keep learning” by Pat Wedors, 7 March 2016.

The university of the future

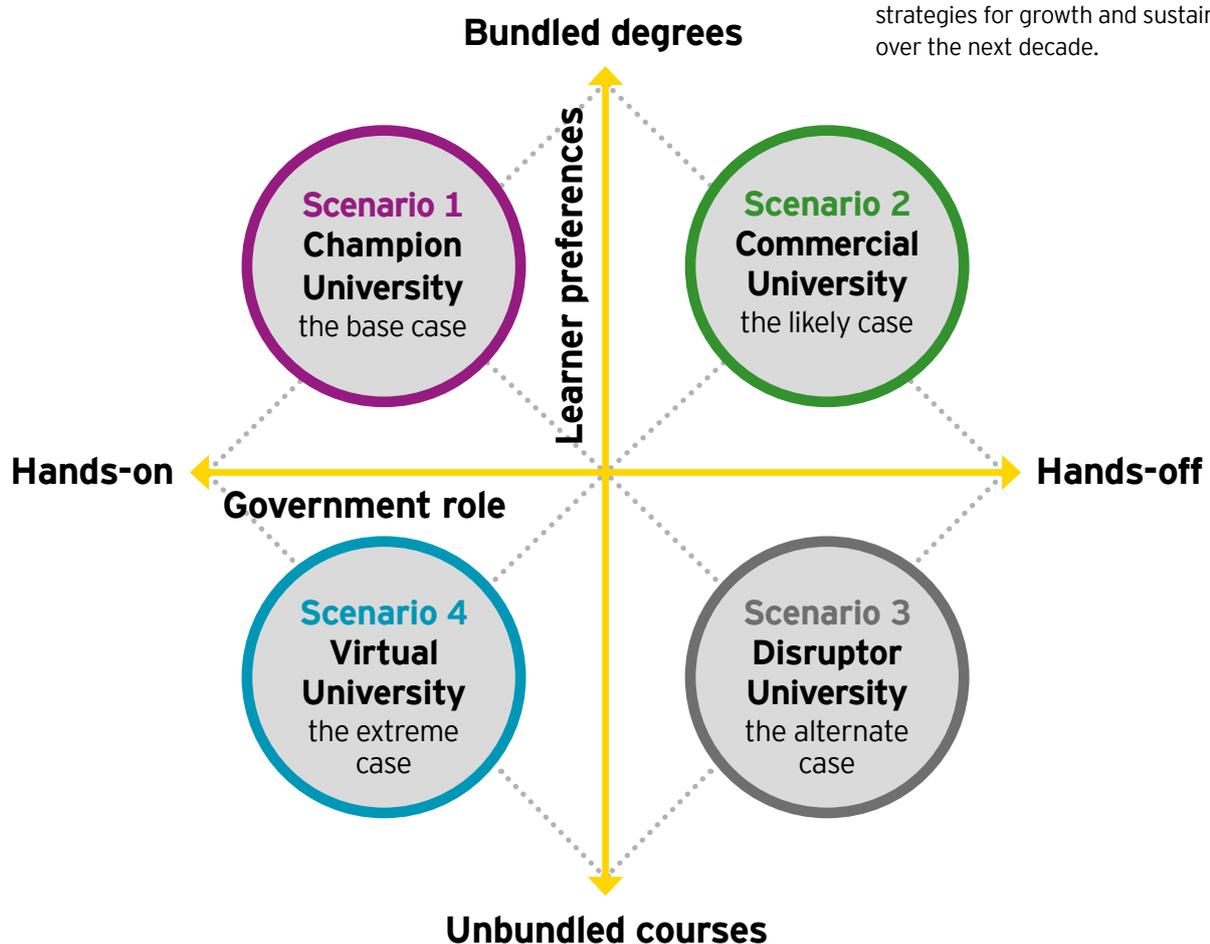
We explored four divergent yet plausible views of Australia's higher education landscape in 2030

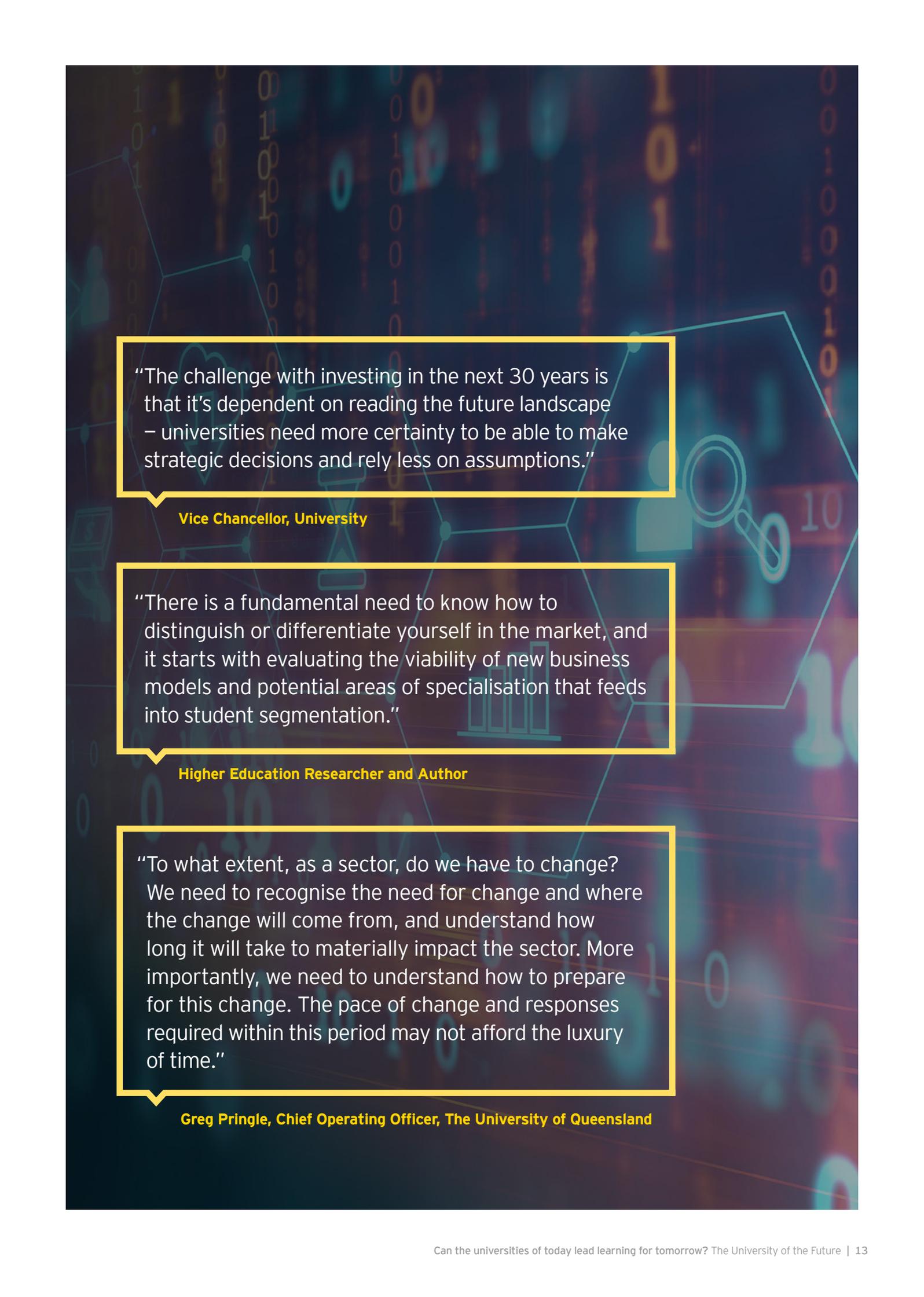
Of the several external forces shaping the future of higher education, the future of Australia's universities will be shaped by two critical uncertainties:

- ▶ **Shifting role of government:** to what extent will government play a hands-on or hands-off role in higher education?
- ▶ **Evolving learner preferences:** to what extent will learners and employers demand traditional or non-traditional solutions from higher education?

The interplay of these two uncertainties leads to four extraordinarily different futures. The following scenario narratives were developed through a series of workshops and interviews. Each scenario introduces different opportunities and threats that challenge our thinking, question our assumptions and help us think more broadly about the future.

The application comes from you, the readers: by placing your own institution within the four scenarios, you have the opportunity to assess different opportunities and threats, and test which elements might be relevant to your strategies for growth and sustainability over the next decade.





“The challenge with investing in the next 30 years is that it’s dependent on reading the future landscape – universities need more certainty to be able to make strategic decisions and rely less on assumptions.”

Vice Chancellor, University

“There is a fundamental need to know how to distinguish or differentiate yourself in the market, and it starts with evaluating the viability of new business models and potential areas of specialisation that feeds into student segmentation.”

Higher Education Researcher and Author

“To what extent, as a sector, do we have to change? We need to recognise the need for change and where the change will come from, and understand how long it will take to materially impact the sector. More importantly, we need to understand how to prepare for this change. The pace of change and responses required within this period may not afford the luxury of time.”

Greg Pringle, Chief Operating Officer, The University of Queensland



Future Scenario 1: Champion University

In 2030, a hands-on government actively champions universities as strategic national assets. The majority of students enrol in traditional undergraduate and graduate degree programs. Universities streamline operations by transforming service delivery and administration. The division between Vocational Education and Training (VET) and higher education remains largely unchanged, with the differentiation in the Australian Qualifications Framework (AQF) still marked by different education provider models.

Scenario drivers

- Government role**
- ▶ Activist government prioritises university-friendly regulation and promotes higher education as a strategic national sector
 - ▶ Funding from government exceeds funding from other sources

-
- Demand conditions**
- ▶ Majority of learners are 18-25 years old and are pursuing undergraduate degrees and programs
 - ▶ They value independent and well-rounded learning experiences

-
- Technology conditions**
- ▶ Technology integrates into traditional university models
 - ▶ Artificial intelligence in industry is nice

-
- Sector structure and rivalry**
- ▶ Protected landscape with elite universities dominating
 - ▶ Universities compete via international and national rankings
-

The landscape for higher education remains traditional

- ▶ The broad-based teaching and research institution remains the dominant model. Learner preferences for traditional degree programs remain strong, and school leavers between the age of 18 and 25 remain the dominant student segment.
- ▶ Government is the primary funder of teaching and research, and universities maintain an arm's-length relationship with industry. However, the national mission of higher education is increasingly highlighted in the policy discourse, with the government tasking universities with building the workforce of the future and positioning Australia globally through research in strategic disciplines like AI and climate science. This protects the independence of universities, which remain the primary homes of cutting-edge research. More work skills are entrenched in degree programs to address the emerging future of work, as measured by the growth of the future economy and tax returns from new jobs created.
- ▶ Labour markets trust university degrees as independent signals of experience and expertise, with degrees remaining a prerequisite for many professional jobs. The link between learning and earning remains positive: the unemployment rate drops and earnings rise as one goes up the educational ladder. More people are employed in professional jobs than are self-employed or freelance. Learners have an increased need for updated and relevant skills as the nature of work changes and automation and digital are more prominent.

- ▶ The pace of technological change is moderate. AI remains niche and people work alongside machines. Digital business models complement traditional approaches.
- ▶ Training and career-focused education (continuous learning) largely happens outside the sector. Emerging threats include providers from outside the sector addressing the training and career-focused education needs of continuous learners.
- ▶ Competition for international students from rising Asian universities has intensified. Brand-name international universities are beginning to attract domestic students with digital learning offerings.

Universities are streamlined versions of today

- ▶ Universities continue as trusted arbiters of knowledge, catering to a relatively small share of the youth population for the purposes of preparing them for employment in the emerging age of AI and mass automation.
- ▶ Universities pursue both teaching and research, as now, without excessive dependence or involvement from the private sector, thanks to strong government financial support. There is minimal scope for significant profit-generating initiatives within the public accountability framework.
- ▶ Universities have made a major push to increase the quality of teaching and to entrench more work skills in degrees to address the future of work. In this model, universities shift from being passive teaching institutions to active

“skills and experience” institutions. They play a strong role in developing and disseminating new technology to industry.

- ▶ Universities have embraced technology, infusing it into both their front-office and back-office operations. Universities act as learning facilitators, with students using AI-enabled digital channels for learning and classroom-based study for tutorials and discussions.
- ▶ The competitive landscape is dominated by elite universities that are true global players and compete globally, with higher education acknowledged as a key export service that contributes significantly to GDP. Other universities are generally financially sustainable but have a strong reliance on revenue from international students and postgraduate students.

Future Scenario 2: Commercial University

In 2030, a hands-off government requires universities to be financially independent to ease national budget pressures. At the same time, legislated obligations for research have eased and the university landscape becomes more diverse, with fewer comprehensive universities, and greater specialisation of providers who “play to their strengths”, whether that be in particular research, teaching, subject area focus or teaching/ learning models. Students favour degree programs that offer work-integrated learning. Universities reposition by drawing closer to industry to collaborate on teaching and research.

Scenario drivers

Government role

- ▶ Hands-off government prioritises market-friendly competition that promotes deregulation
- ▶ Funding from industry exceeds that from government
- ▶ Prices are uncapped

Demand conditions

- ▶ Majority of learners are 18-25 years old and are pursuing undergraduate degrees and programs
- ▶ They value work-integrated learning and technical expertise

Technology conditions

- ▶ Technology integrates into traditional university models
- ▶ Artificial intelligence in industry is niche

Sector structure and rivalry

- ▶ Diverse landscape with existing and new universities competing
- ▶ Universities are autonomous
- ▶ Universities compete via industry linkages

The landscape for higher education has been liberalised

- ▶ Government policy is driven by free-market principles. Prices are uncapped, but a significant part of the cost of higher education shifts to industry and learners. Cooperation increases between government and employers over certification. The scene is set for new private and public universities to emerge.
- ▶ Industry maintains trust in the higher education system, with employers continuing to require university degrees as a primary requirement for entry into the professional world. Industry pursues partnerships with universities on curriculum development, research and work placements.
- ▶ Continuous learners are an emerging segment, but traditional school leavers far exceed their numbers. Learners pay a significantly greater share of the cost of studies than in 2018, with more funding coming via loans.
- ▶ AI remains niche and people work alongside machines. Digital business models coexist with traditional business models to enable mixed delivery.
- ▶ The threat of substitutes is moderate. Learners access training and development through corporates, industry associations and other providers. Training and career-focused education (continuous learning) largely happens outside the sector. Emerging threats include providers from outside the sector addressing the training and career-focused education needs of continuous learners.
- ▶ The market place is increasingly international. New entrants are generally global brands that combine physical and virtual presences and compete directly against the public

universities. External competition increases as universities compete for international students against rapidly rising universities in China and India, plus Canada, UK and USA. International rankings allow students to compare different educational offerings against very specific and detailed criteria in real time.

Universities are autonomous and commercially oriented

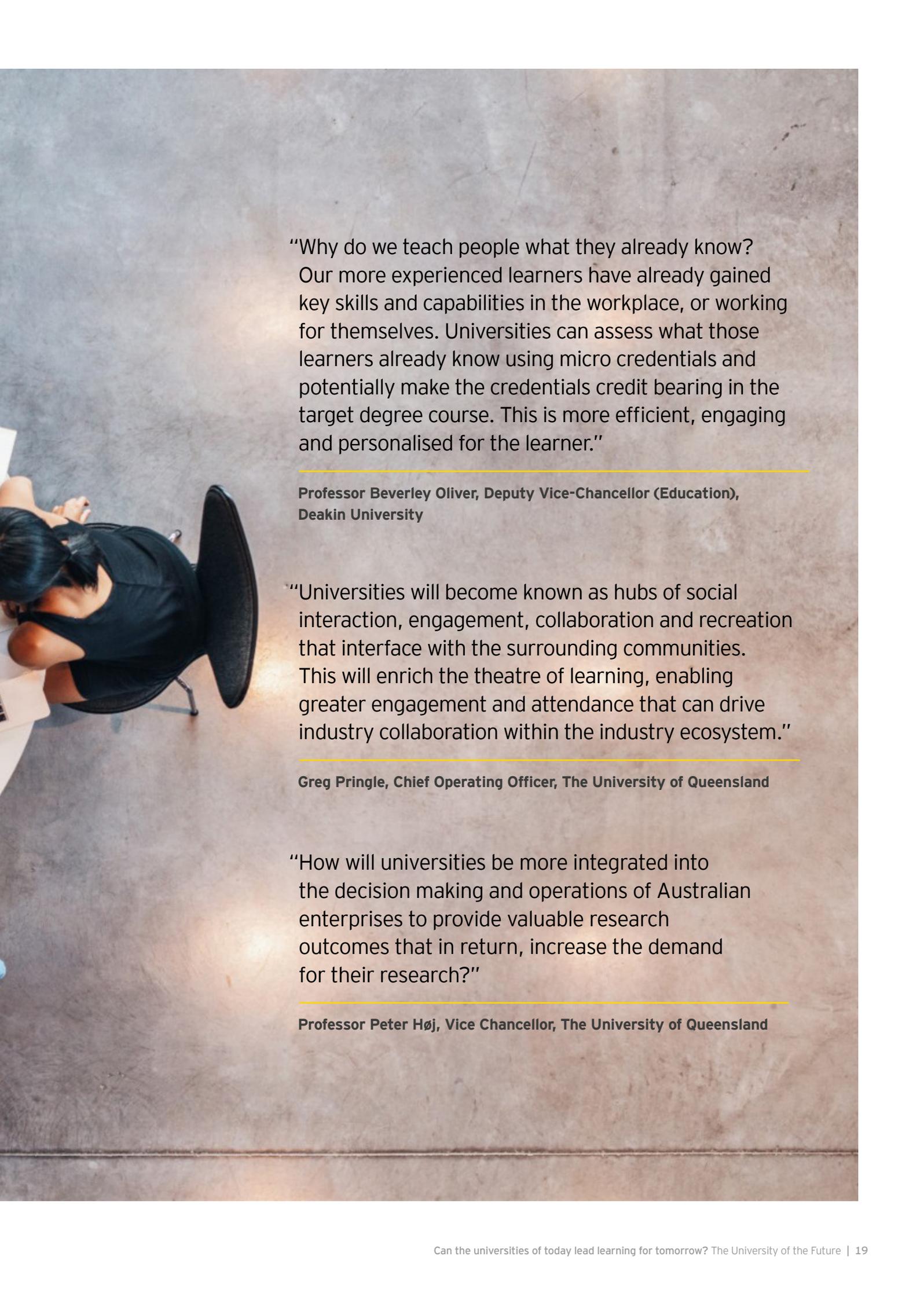
- ▶ Universities operate autonomously, accordingly to market principles, and rely on a mix of public and private funding for operations. Learner preferences for traditional degree programs remain strong.
- ▶ The line between universities and industry is increasingly blurred as all parties collaborate closely to develop curricula and conduct research.
- ▶ The broad-based teaching and research institution remains the dominant model. Incumbent universities have embraced technology to simplify operations, reduce costs and attract industry partners. The sector has been destabilised by the entry of a limited number of new international competitors and a selection of universities offering a digital-only degree at a lower price point.
- ▶ Universities take a market-oriented approach to operations without losing basic academic values. They continue to be selective institutions that focus on preparing school leavers for the working world and on world-class research. University resources come from a wide variety of sources, with mixed public-private funding models, thanks to strong integration with industry and the local economy. Along with the returns on intellectual property rights, research is seen as a very important and very lucrative activity.

- ▶ The balance of teaching, research and community service is thrown out. Some institutions specialise in research and professional education, shedding general education programs for young high-school graduates. Others focus more clearly on the teaching mission.

In this scenario universities must

- ▶ Take advantage of new revenue streams – foreign markets, deregulation of fees, patenting of research, growing financial links with industry
- ▶ Build new commercial capabilities and become more attuned to and responsive to industry, including pursuing outsourced R&D and learning functions from industry
- ▶ Outsource non-core services, particularly in the back-office, to increase efficiency and reduce costs
- ▶ Increase differentiation to compete and to attract funding, either through multi-disciplinary research or by focusing on specialist domains
- ▶ Increase focus on quality of teaching and employability as factors that are increasingly taken into account by learners
- ▶ Run dual degree propositions:
 - ▶ On-campus degree (with blended delivery methods) as a premium proposition for full-time students
 - ▶ Digital degree as a lower-cost mass proposition for full-time or part-time students
- ▶ Operate innovation precincts and hubs to build strong links to local economies, to commercialise research and to start up new businesses
- ▶ Entrench work skills in degrees to drive uptake





“Why do we teach people what they already know? Our more experienced learners have already gained key skills and capabilities in the workplace, or working for themselves. Universities can assess what those learners already know using micro credentials and potentially make the credentials credit bearing in the target degree course. This is more efficient, engaging and personalised for the learner.”

Professor Beverley Oliver, Deputy Vice-Chancellor (Education), Deakin University

“Universities will become known as hubs of social interaction, engagement, collaboration and recreation that interface with the surrounding communities. This will enrich the theatre of learning, enabling greater engagement and attendance that can drive industry collaboration within the industry ecosystem.”

Greg Pringle, Chief Operating Officer, The University of Queensland

“How will universities be more integrated into the decision making and operations of Australian enterprises to provide valuable research outcomes that in return, increase the demand for their research?”

Professor Peter Høj, Vice Chancellor, The University of Queensland

Future Scenario 3: Disruptor University

In 2030 a hands-off government completely deregulates the sector to drive competition and efficiency. Continuous learners and their preferences for on-demand micro-certificates dominate as technology disrupts the workplace. Universities expand into new markets and services and compete against a range of new local and global educational services providers.

Scenario drivers

Government role

- ▶ Hands-off government prioritises market-friendly competition that promotes deregulation
- ▶ Majority of funding comes from market mechanisms rather than government
- ▶ Enrolment is open
- ▶ Prices are uncapped

Demand conditions

- ▶ Majority are continuous learners and are pursuing micro-certifications
- ▶ They value control and personalisation of their education

Technology conditions

- ▶ Technology disrupts traditional university models: education-as-a-service scales up
- ▶ New digital business models realise their full value
- ▶ AI is mainstream and machines are displacing jobs

Sector structure and rivalry

- ▶ Fragmented landscape with universities in hyper-competition against service providers from outside the sector
 - ▶ Universities compete via new business models and moving into agencies
 - ▶ Research and learning are disconnected: universities tend to specialise in one or the other
-

The landscape for higher education has been disrupted

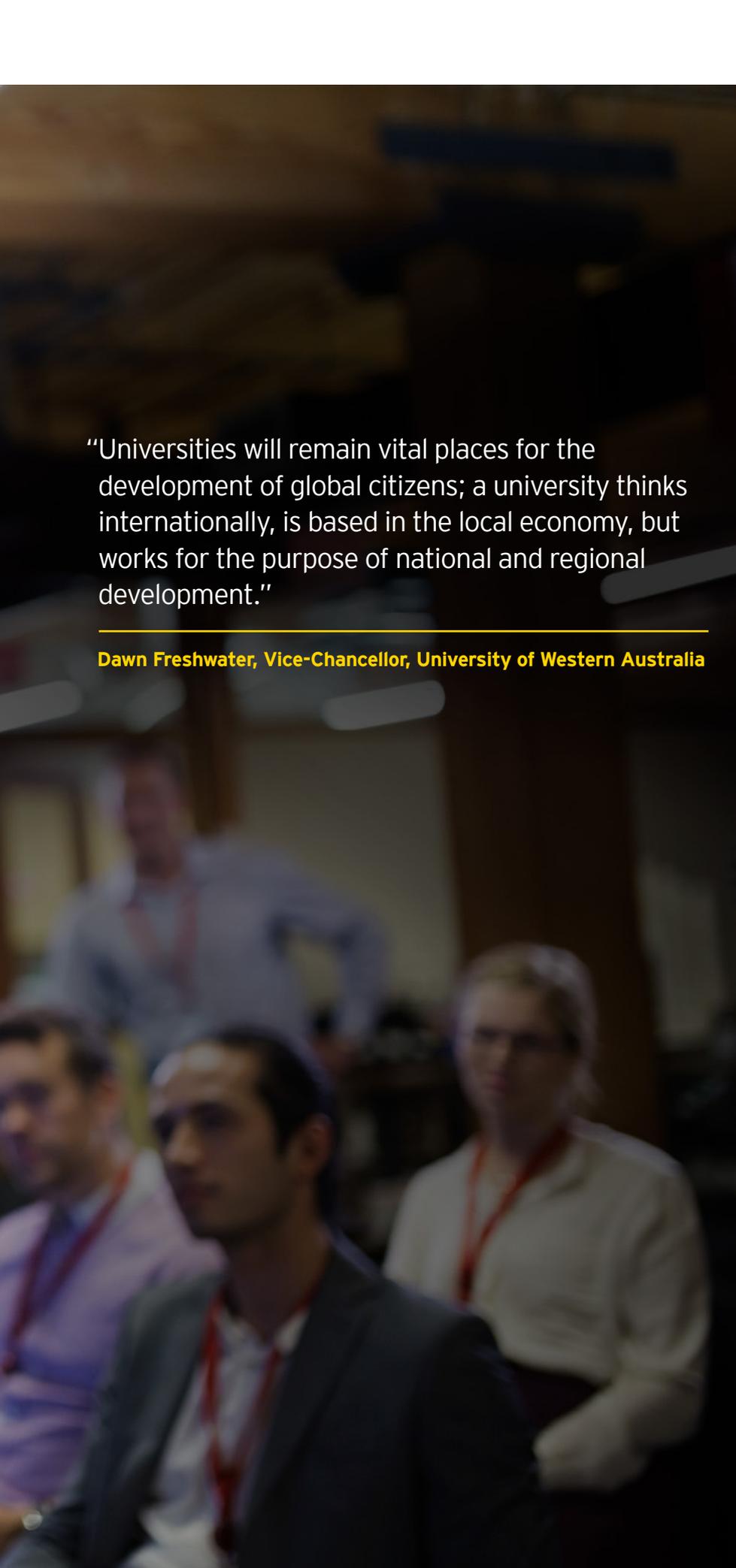
- ▶ Technology disrupts employment. AI and automation displace professional jobs; portfolios of skills are more important than university degrees as prerequisite for jobs; the labour market structure has shifted to more freelancers than full-time employees.
- ▶ Technology disrupts education. The sector has seen a steady and massive movement to learning online. New ed-tech models include: on-demand streaming learning, digital courses digitally distributed through apps, AI platforms that support individualised learning, and digital learning passports that accredit higher education courses and work experiences.
- ▶ Learner preferences change the game. People know they need to acquire and upgrade skills through their lifetimes. Learners want learning that is flexible and on-demand, via micro-certifications that provide immediate employment payoffs.
- ▶ Government plays a hands-off role. It provides basic funding for learners and universities but expects universities to be largely self-funding. Private providers are allowed to enter the accreditation market for higher education. Government switches to playing quality control of the international market players while retaining the value of Australian providers.

- ▶ The landscape is highly fragmented, with competing providers including: employers, corporates, professional associations, vocational education providers and universities, which have a shrinking share of the market.

Universities transform by entering new markets and services

- ▶ The core proposition of education-as-a-service has transformed the way universities acquire and retain learners and provoked substantial changes in how revenue is generated. Continuous learning has come of age and is now the dominant segment. Modular courses tailored to industry needs and delivered digitally account for a large proportion of sector revenues.
 - ▶ This new landscape has taken a heavy toll on incumbent universities. A number were unable to adapt quickly enough and were outcompeted by new entrants, who used innovative business models to rapidly acquire significant market share. The remaining universities are significantly slimmer and more agile, with well-developed business-to-consumer and business-to-business models.
 - ▶ Market forces give rise to institutions specialised by function (teaching vs. research), field (business, science, humanities) and audience (school leavers, continuous learners, virtual learning, campus learning). Technology is widely used in teaching, with digital business models dominating.
- ▶ University degrees are almost obsolete in some industries. Businesses recognise a diversity of learning experiences, ranging from higher education micro-certifications to corporate training to industry qualifications to work experience. Private players credential all types of qualifications with digital learning passports underpinned by blockchain.
 - ▶ Switching costs for learners to change providers are low. Various organisations offer accreditation services that recognise work experience along with course work to create personalised learning passports in place of degree programs. Government, training providers and employers cooperate over certification.
 - ▶ The widening of the learner base creates greater competition for students. Tuition revenue comes to represent a more important share of overall income. Research (and the best researchers) moves out to public research institutes and corporate R&D divisions.
 - ▶ The university hierarchy remains strong: elite universities maintain their research profile, via research that is more demand-driven, specialised and securing significant financial returns through licensing intellectual property rights. Innovative challengers extend teaching to the mass market, using digital models that drive greater standardisation and patented curricula and teaching methods.





“Universities will remain vital places for the development of global citizens; a university thinks internationally, is based in the local economy, but works for the purpose of national and regional development.”

Dawn Freshwater, Vice-Chancellor, University of Western Australia

In this scenarios universities must

- ▶ Compete to deliver the best content in the best way, by expanding into providing education services, research services and commercial services, pursuing new revenue streams via international expansion, subscription models and franchising.
- ▶ Run two distinct, digitally enabled business models:
 1. Business-to-consumer – offering an array of micro-certifications strongly aligned to employability outcomes.
 2. Business-to-business – extending into corporate training, as well as into new propositions for content development, aggregation and distribution.
- ▶ With digital platforms requiring less physical university infrastructure, universities repurpose grounds and buildings for other uses, creating: education precincts that incorporate primary and secondary schools; innovation precincts that bring in businesses; and community precincts with community-oriented services.
- ▶ Staffing structures change. Academics become freelance resources operating across multiple institutions – and moving from universities into industry to commercialise research.
- ▶ The structure of a degree morphs to include experience plus multiple education and training courses. Private providers certify these experiences into a learning passport for learners.

Future Scenario 4: Virtual University

In 2030, an activist government restructures the tertiary sector to integrate universities and the Vocational Education and Training VET sector, prioritising training and employability outcomes as humans begin to be replaced by technology. Continuous learners are the majority. They prefer unbundled courses delivered flexibly online. Universities restructure into networks that share digital platforms.

Scenario drivers

- Government role**
- ▶ Activist government prioritises learner-friendly regulation that integrates higher and vocational education institutions into integrated tertiary sector
 - ▶ Funding from government exceeds other sources
 - ▶ Enrolment is open
 - ▶ Prices are capped
-

- Demand conditions**
- ▶ Majority are continuous learners and are pursuing individual courses
 - ▶ They value control and flexibility of their education
-

- Technology conditions**
- ▶ Technology disrupts traditional university models: learning has moved steadily and massively online
 - ▶ New digital platforms link teams of higher and vocational education institutions into networks or consortia
 - ▶ AI is mainstream and machines are displacing jobs
-

- Sector structure and rivalry**
- ▶ Consolidated landscape with universities linked into networks with other institutions
 - ▶ Universities compete through acquiring continuous learners
 - ▶ Research and learning are disconnected: universities tend to prioritise learning
-

The landscape for higher education has been restructured

- ▶ When AI began to disrupt employment, the government merged universities and TAFEs into an integrated tertiary sector, with universities shifting to digital business models and unbundling traditional degree programs into individual courses, which now account for the majority of sector revenues.
- ▶ Universities have linked into networks with regional peers and TAFEs, collaborating to develop common digital learning and experience platforms. Teaching is prioritised over research, and many universities have refocused on a narrower set of academic disciplines in which they excel. Some elite universities have retained their broad-based teaching and research model, but they are the exception rather than the rule. More research is done outside the university sector than within.
- ▶ **Technology disrupts employment**
AI and automation have replaced more than 20% of Australia's working hours. Freelancers outnumber full-time employees.
- ▶ **Technology disrupts education**
The sector has seen a steady and massive movement to learning online.
- ▶ **Learners have been consumerised**
They want more control of the learning path, preferring unbundled courses to traditional degree programs with poor return on investment.
- ▶ **Government reboots educational policy**
The sector is restructured to offer training and career-focused education throughout citizens' working lives. Government remains the majority funder of tertiary education,

with allocations to universities based on the success of their learners and citizens receiving help to learn while they earn. Tertiary Education Quality and Standards Agency (TEQSA) is repositioned to assure quality of individual courses across institutions.

- ▶ Universities and TAFEs merge into an integrated tertiary sector, with regional networks, tasked with advancing employment and employability as people acquire and upgrade skills throughout their careers. Distributed virtual environments are now common, and the learning experience has been commoditised, provided to anyone, anywhere, anytime – for a price.
- ▶ A university degree is no longer a pre-requisite for the professional world – portfolios of courses and skills are more important. People prefer individual courses that immediately increase employability options by making them more productive at the earliest possible time. Universities and TAFEs are viewed on an equal footing, with course quality and fit mattering more than the institution.
- ▶ New sources of competition arise from overseas brand-name universities like Oxford and Stanford. These iconic institutions have “set up shop” in Australia, and more learners are also accessing virtual learning through them as they scale up their digital models.

In this scenario universities must

- ▶ Standardise and modularise courses for conversion into digital products delivered by recognised content experts.
- ▶ Improve speed to market. Universities learn to develop, approve and deliver an industry-required course in six months rather than a year.

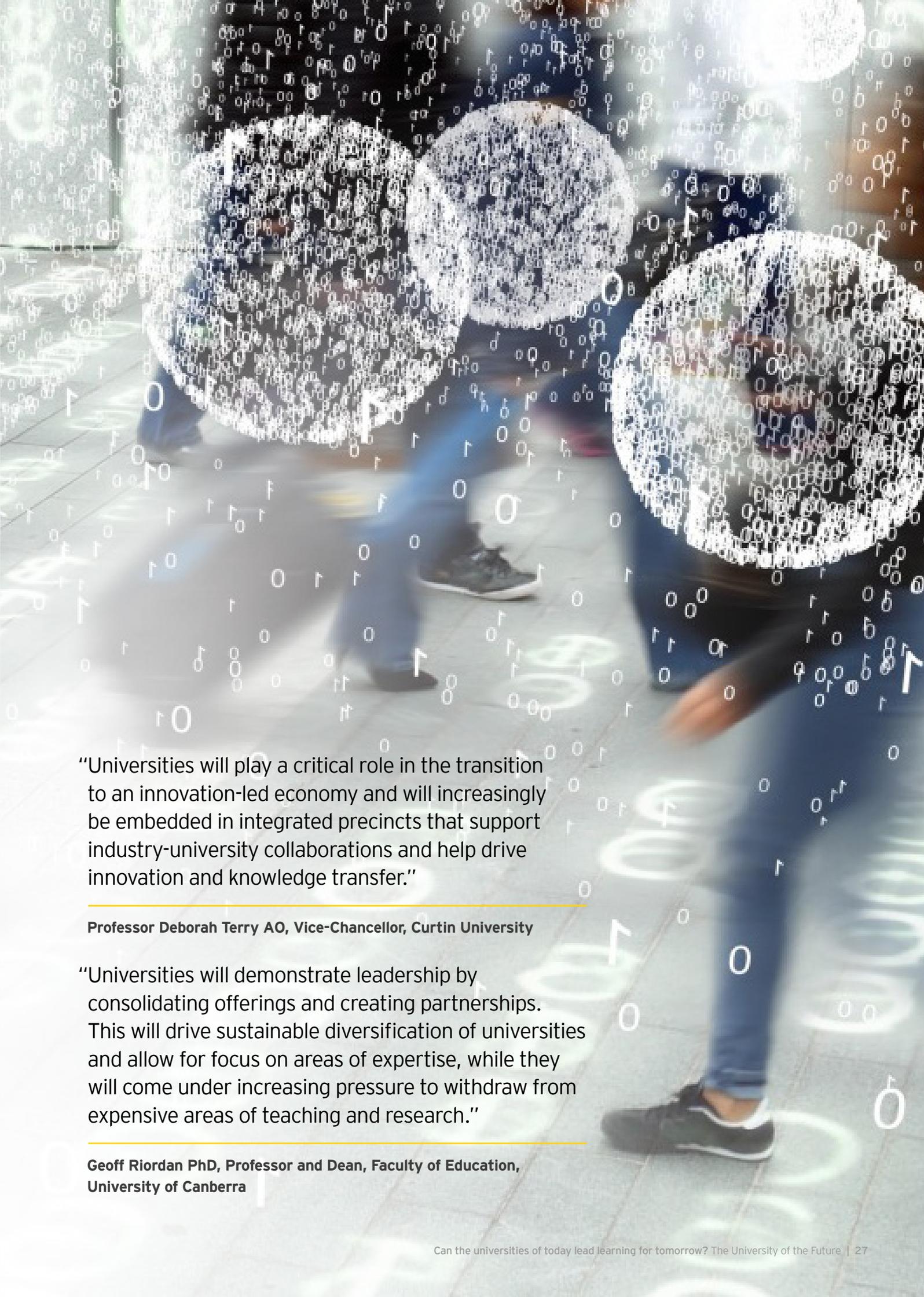
- ▶ Adapt to new learner segments, including individuals looking for recurrent professional development and skill upgrading, as well as elderly people enrolling for non-professional reasons.
- ▶ Invest heavily in building shared digital “experience platforms”, with harmonised systems, to deliver courses and serve learners in a seamless and integrated way across the network.
- ▶ Consolidate physical footprints and repurpose facilities as hubs for business collaboration, innovation and community education.
- ▶ Put more focus on customer acquisition and retention, and learn to bundle and price products and services like telcos and banks.
- ▶ Change metrics to include: learner acquisition, retention, satisfaction, lifetime value.

What are the most significant innovations?

The learner profile – a digital profile that catalogues an individual's learning experience from early childhood and follows them through their life. This has become the learning currency for all stakeholders enabled by blockchain. Students benefit from understanding their capabilities, skillsets and interests; industry can clearly determine their specific requirements and align them with the right students; and universities prepare their curricula to cater to these needs.

Scenario business model comparisons

		 Scenario 1 Champion University the base case	 Scenario 2 Commercial University the likely case	 Scenario 3 Disruptor University the alternate case	 Scenario 4 Virtual University the extreme case
 How do universities create value?	What are the jobs to be done for customers?	Just-for-knowledge learning	Just-for-work learning	Just-for-you learning	Just-in-time learning
	What products/services are we providing?	Liberal arts degrees, specialised degrees	Work-integrated degrees	Micro-certifications	Individual courses
	How do customers get our services?	Blended face-to-face and digital screen	Blended face-to-face, digital screen and workplace	Digital screen	Digital screen
	What support does the customer receive?	Lecturer, tutor, digital assistant	Lecturer, tutor, work sponsor, digital assistant	Personalisation via artificial intelligence, customer service	Digital classroom and support group, personal coach
 How do universities deliver value?	How do we produce it?	University owns the entire value chain	University partners with business	University unbundles the value chain	University unbundles the value chain but orchestrate the network
	How do we distribute it?	Campus, digital platforms	Campus, digital platforms	Digital platforms	Digital platforms
 How do universities capture value?	How do we make money?	Annual fees	Annual fees	Memberships, subscriptions	Memberships, course fees
	What are key variable costs?	People	People	People Cloud services	People Cloud services
	What are the fixed costs?	Facilities	Facilities	Technology infrastructure	Technology infrastructure
	What are key investments?	Research, facilities, student engagement	Facilities, industry engagement, student engagement, research	Digital distribution platforms, digital content creators, marketing, customer acquisition and retention	Digital distribution platforms, digital content creators, marketing, customer acquisition and retention



“Universities will play a critical role in the transition to an innovation-led economy and will increasingly be embedded in integrated precincts that support industry-university collaborations and help drive innovation and knowledge transfer.”

Professor Deborah Terry AO, Vice-Chancellor, Curtin University

“Universities will demonstrate leadership by consolidating offerings and creating partnerships. This will drive sustainable diversification of universities and allow for focus on areas of expertise, while they will come under increasing pressure to withdraw from expensive areas of teaching and research.”

Geoff Riordan PhD, Professor and Dean, Faculty of Education, University of Canberra

The transformed university

Universities need the capacity to transform themselves to serve a changing society and a profoundly changed world

The value of the four scenarios lies in their ability to stimulate questions, rather than with the accuracy of their predictions. They will help universities to see emerging patterns, detect opportunities and threats, and test how resilient current university strategies might be to new worlds. Particularly, they will help the sector to understand the trends outside of Australia unfolding today that will, inevitably, manifest here.

Whether you are a university decision maker or a government policy maker, three central themes emerge:

1. Australia's higher education sector is under threat from changing learner preferences and new employment models, and universities must evolve to adapt to these and drive greater student engagement
2. New strategies are required to ensure the Australian education sector remains relevant, competitive and sustainable.
3. Policy must adapt to encourage change and innovation in the sector in anticipation of 2030 and beyond.

These themes will trigger discussions that will test the resilience of Australia's dominant university model and identify possible incremental and radical changes for the sector.

University business models for 2030

When the key elements for each scenario are mapped across the business model canvass, with a focus on how the dynamics between universities and learners change across them we can see some similarities emerge.

University leaders can usefully consider:

- ▶ What assumptions inform our view of the world in 2030? Are we underestimating the change? How will our business model need to evolve to stay relevant?
- ▶ What happens to our strategy in the scenarios we haven't considered? What are the opportunities and threats?
- ▶ What will be the purpose and character of our university in the future?
- ▶ Who are the learners served in each scenario? Have we considered or catered to each of them?
- ▶ What early signposts should we be tracking, so we know when to renew or redirect our strategy?
- ▶ Do we have enough investment and effort focused on the evolution of the learner and learner engagement?

The policies that created equity and access though, are now constraining evolution. Policy makers have a responsibility to ensure the right settings are in place to enable Australia to have both a competitive workforce and trade position for education.

Policy makers need to consider:

- ▶ What assumptions are national and state policy makers making about the

world and the higher education sector in 2030? Which scenarios come closest to the assumptions?

- ▶ What does success look like and what policies are required to drive success?
- ▶ What are the opportunities and threats? How might policy need to change to accelerate positive and mitigate negative impacts?
- ▶ What early signposts should be tracked so we know when to re-examine policy?

Scenario industry comparisons

Different scenarios produce dramatically different outcomes for the boundaries, size and health of the sector.

	 Current state	 Scenario 1 Champion University the base case	 Scenario 2 Commercial University the likely case	 Scenario 3 Disruptor University the alternate case	 Scenario 4 Virtual University the extreme case
Industry sector	Higher education	Higher education	Higher education	Educational services	Integrated tertiary education (university + TAFE)
Industry revenue	\$30 billion	\$48 billion	\$57 billion	\$40 billion	\$35 billion
Learners	1.4 million	1.8 million	2.1 million	7 million	4 million
Type of learner	Majority school leavers	Majority school leavers	Majority school leavers	Majority continuous learners	Majority continuous learners
Number of universities	43	50	60	30 (plus other service providers)	20

Source: EY Market Analysis

EY recommendations

Scenario planning is more art than science, but universities and policy makers should start to evolve and plan for the more likely scenarios. We believe these will be scenario 2 and scenario 3, given that knowledge is becoming increasingly commoditised and learning is moving online in a massive way. Economic rationalism and current trends suggest that government will be increasingly forced to pull back from current funding models. As a result, the future for the sector very likely includes the rise of a combination of commercial (scenario 2) and disrupter (scenario 3) universities.

Universities could consider the potential to:

Embark on a double transformation to survive and thrive

Double transformation requires an ambidextrous approach: constantly seeking to optimise and reposition the university of today, while simultaneously looking forward to prepare the models and innovations that will invent the university of tomorrow. Linear evolution will not suffice, although the goal of a more efficient sector that collaborates to share the cost of administration is a worthy one. Universities also need to ensure their capital portfolios are weighted towards funding for new models and innovation.

Make the shift from being faculty-focused to learner-centric

Australia is encouraging other social institutions in the public and private sectors to focus on those they serve. Healthcare is a classic example: the

government has required the healthcare sector to restructure to align to patients' wants, needs and preferences. The implications of a similar shift for universities is significant. Learners are becoming more demanding consumers of educational services. Universities must evolve their paradigm, from student to learner, from teaching to designing and managing learning experiences, from degree based to continuous learning.

Integrate with industry to co-create and collaborate

Australian universities rank last in the OECD for their collaboration with businesses on innovation. More than half of Australian employers say that degrees in management and commerce are not worthwhile. Australian universities have the opportunity to change the game by aggressively engaging with industry to co-create course content, collaborate on research, and offer work-integrated learning. Universities that execute this well will win in the market – both with students and funding from industry.

Reimagine the physical campus for a virtual world

In the US, shopping malls and department stores are failing at a rate of 1 in 5 as consumers shift to online retailing – and the trend is starting to be felt in Australia too. Technology is impacting education in a similar way, as learning moves online. Universities need to reconsider the role of the campus in a future where digital learning models dominate and space, place and time are less important. Technology also has the potential to liberate content, creating the option to simply digitise existing options or, more interestingly, to transform them. The role of education institutions is shifting from being repositories of

knowledge to teaching learners to curate, challenge and extend knowledge, redefining research and teaching methodologies via technology. In this future, universities will need to reimagine their physical footprints and facilities, with opportunities to use them in new ways to help address broader social and societal needs.

Experiment with unbundling degree programs and deconstructing the value chain

As universities evolve from being faculty-focused to learner centric, to partner with industry, and to reimagine their physical footprints, they will begin unbundling functions such as admissions, counselling, instruction and certification to increase specialisation. For example: some universities excel at producing new knowledge through research; others are far better at packaging and delivering content; and others will choose to outsource professional services like finance and facilities to specialists. Similarly, with degrees, as continuous learning rises and just-for-me and just-in-time models take off, some universities will offer unbundled courses that learners can build into qualifications. Universities should consider which capabilities are critical to their future success and actively build those while experimenting with unbundling others.

“In 2030 universities will leverage advanced analytics and AI to support continual testing and optimisation of course content and curriculum delivery, and to deliver personalised approaches that maximise student learning.”

Mike Willett, Partner, Asia-Pacific Advisory, Data & Analytics, EY

Policy makers must:

Consider the vital importance of the education sector as it develops the foundations for trade for Australia and future proofs citizens to succeed in the Transformative Age. Currently, Australian universities rank last in the OECD for their collaboration with businesses on innovation. Steps need to be taken immediately to ensure that Australia ranks in the highest levels in these areas. Policy makers cannot allow a period of slow evolution to leave our sector

and learners behind. Policy makers should consider incentives for greater collaboration between universities and industry. The system requires a double transformation to ensure the existing model comes closer to learner and industry needs, providing an injection into our economy, while developing evolved offerings for the future market.

Conclusion

Leading universities through transformative change is challenging –

and risky. Inertia is strong, resistance is deep, the politics are intense, and there are few precedent models to draw from. But the forces driving changes in the sector – the external trends outlined here plus internal drivers – are powerful and the coming paradigm shift will be profound. The only way to preserve the proud traditions of our universities is to transform them. Our shared hope is to see an even more efficient and effective sector, where the whole is greater than the sum of its parts.

Disruption readiness self-diagnostic

The exponential advancements we see in technology today are only going to accelerate. To seize the upside of disruption, universities must take risks and invest in a disruption agenda, even as they continue to focus initiatives that will keep them competitive in the near to medium term. Standing still, waiting and seeing, relying on past success to carry you forward into the future, is no longer an option.

Use this tool to diagnose the readiness of your university to contend with disruption by 2030.

- 1 Are you willing to challenge or change your core business model? Yes Maybe No
- 2 Have you cultivated a culture of “yes, we can” that enables agile decision-making? Yes Maybe No
- 3 How well does the leadership team and council understand the dynamics of disruption both inside and adjacent to higher education? Yes Maybe No
- 4 Is your university’s strategy fit for a digital world? Yes Maybe No
- 5 Have you assessed your disruption readiness gaps? How do you compare to your competitors, locally and globally? How do you compare to leading corporates, locally and globally? Yes Maybe No
- 6 As incumbent business models shatter, can you build the capabilities you need to succeed or will you need to buy them? Yes Maybe No
- 7 Does your strategy address the need to both achieve near-term objectives and lay the groundwork for future disruption? Does it drive transformation? Yes Maybe No
- 8 How does university purpose inform your disruption readiness agenda? Yes Maybe No
- 9 How secure are your funding commitments against disruption initiatives over the medium to long term? Yes Maybe No
- 10 Have you assessed your funders’ views on disruption in higher education? Is your funder base aligned to your ambitions? Yes Maybe No

If the answers to a number of these questions cause concern, it could be time to revisit your strategy to ensure you are ready for the Transformative Age.

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For any questions on the paper, please reach out to our teams – we'd welcome your feedback and comments.

For further information, visit our dedicated website
www.ey.com/au/futureuniversity

Methodology

We used a formal scenario planning methodology that drew on:



Surveys and focus groups covering 3,300+ current, prospective and past university students

- ▶ 15 minute online survey
- ▶ 384 surveys with prospective university students
- ▶ 1,750 surveys with current university students
- ▶ 1,185 surveys with past university students
- ▶ National Australian coverage
- ▶ Data weighted by state in line with university data cube (uCube)

To qualify for participation, all respondents were:

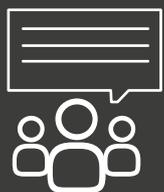
- ▶ Current students completing university studies at an Australian university
- ▶ Graduates who completed university studies within the last 3 years
- ▶ Prospective students contemplating university studies in the next 3 years.

The research sample was sourced from a national online panel of research only participants, graduate databases, and with assistance from universities around Australia.

Fieldwork was conducted between September and October 2017.



Scenario planning workshops to confirm the dominant external forces, outside the control of universities, driving change in the sector



50+ interviews with industry stakeholders, including vice chancellors and other university leaders, policy makers, and industry employers



200+ hours of secondary research



Developing a set of independent scenarios based on the most significant future uncertainties

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