



# TECHNOLOGY AND THE UNIVERSITIES OF TOMORROW

HOW AUSTRALIAN UNIVERSITIES CAN LEVERAGE TECHNOLOGY TO DELIVER BETTER  
TEACHING, BETTER STUDENT OUTCOMES, AND A STRONGER ECONOMY



# EXECUTIVE SUMMARY

**The university learning environment is changing rapidly – and more change is coming.**

Technology has been a huge part of this change, and as we consider how to strengthen universities for the future, the position and potential of technology must be at the centre of our policy thinking.

To help inform the public policy debate, we researched the role of education technologies in universities today – to find out what's working well, what needs improving, what the barriers to progress are, and what the benefits of reform could be.

**Our survey of university students showed that they place a high value on technology to help them succeed in their studies, and that they overwhelmingly use technology in ethical and effective ways.**

We analysed existing policies and reform processes to determine metrics for a high-performing university sector. **Australian universities perform well against these objectives overall; however, there is still plenty of room for improvement – especially when it comes to access and equity for students from diverse backgrounds.**

We found that **there are five key barriers to greater integration of technology in university learning, and we identify several policy reform priorities to address these barriers.** The barriers to integration comprise the way that universities are funded, the lack of collaboration in the sector around technology, the lack of focus in regulation on educational performance, missing workforce incentives, and the limited role that business plays in university innovation.

Finally, we have modelled different reform scenarios to demonstrate the economic benefits of placing education technology at the centre of our university reform efforts. The potential annual economic benefits of reform range from \$0.4bn pa in a moderate 'Fast Follower' scenario, to \$3.1bn pa in a more ambitious 'Global Leader' scenario.

Responsible reform that better integrates technology into university learning will deliver widespread benefits for Australia – to better respond to student needs, improve outcomes for students who need it the most, improve teaching quality, and build a stronger economy.

Australia is ready to build the universities of tomorrow – and technology is ready to help take us there.



# SECTION 01

## TECHNOLOGY AND THE RAPID RESHAPING OF HIGHER EDUCATION

- 01.** Technology is rapidly changing university learning – and more change is coming

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- 02.** Technology in university learning is highly valued by students

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- 03.** Students overwhelmingly use technology ethically and effectively

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- 04.** Technology benefits students from diverse backgrounds the most

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- 05.** Policy uncertainty is a barrier to greater use of technology

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## SECTION 01.01

# TECHNOLOGY IS CHANGING UNIVERSITY LEARNING, AND MORE CHANGE IS COMING

20%

**ONLINE EDUCATION HAS BEEN  
GROWING SIGNIFICANTLY IN AUSTRALIA,  
AT AN AVERAGE 20% P.A.**

**Online education** grew significantly at an average 20% p.a. in Australia - accelerated due to COVID - and will continue to grow by around **10% p.a.**<sup>1</sup>

**New technologies have transformed higher education in the past 30 years – from the advent of the internet to the use of tablets and mobile learning technologies. At each stage, universities, students and regulators have reacted and adapted to these changes.**

However, current changes – as well as innovations over the horizon – are likely to occur more rapidly and be less responsive to traditional policy tools.

Today's changes are typified by the rise of artificial intelligence, the use of which is expected to grow by about 25 per cent a year. However, technological innovation will not be limited to AI. In the coming years, the sector will need to confront the escalation and expansion of technologies such as augmented and virtual reality, gamification and robotics.

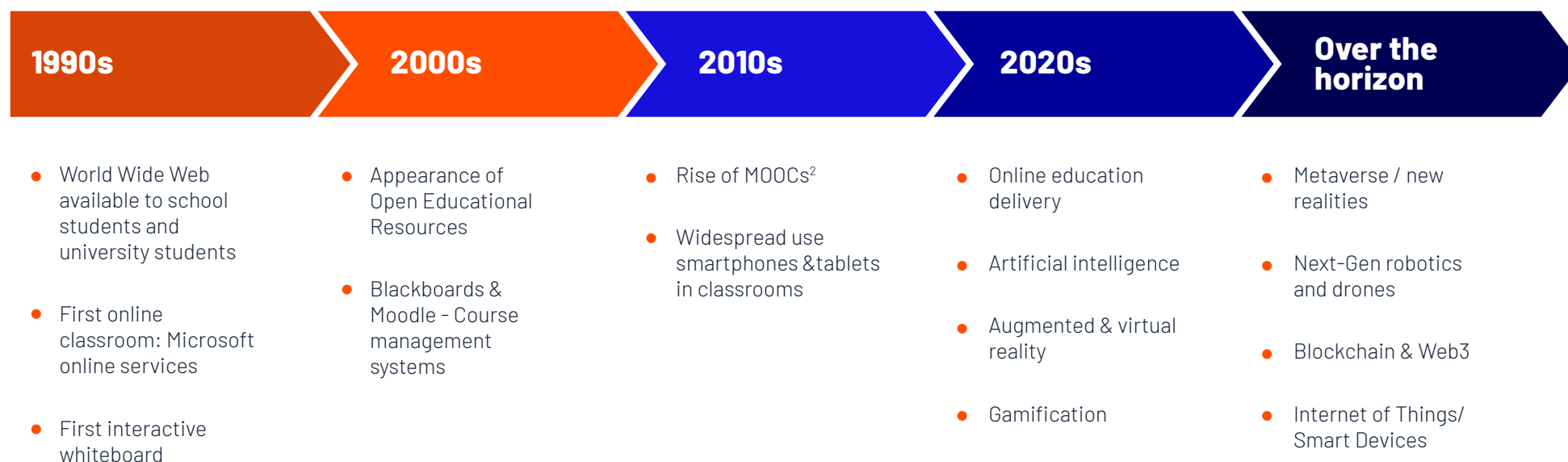
These developments offer opportunities and challenges inside and outside the classroom. Our policy and regulatory settings need to be ready and responsive.

**Technology is changing university learning, and more change is coming.**

(continued)

#### EXHIBIT 1: SELECTED DEVELOPMENTS IN THE HIGHER EDUCATION SECTOR

This study



**25%**

**ARTIFICIAL INTELLIGENCE IN AUSTRALIA WILL GROW BY DOUBLE DIGITS EACH YEAR**

**Artificial intelligence** in Australia will grow double digits each year - with reports estimating **25% p.a.** growth<sup>3</sup>

- 1 Statista (2023).
- 2 Massive Open Online Courses.
- 3 International Data Corporation (IDC) (2022) Worldwide Artificial Intelligence Spending Guide (Australia spending on AI) .

**40%**

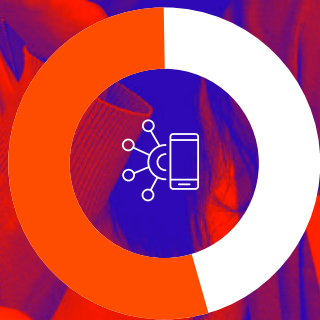
**VIRTUAL AND AUGMENTED REALITY WILL TAKE OFF GLOBALLY IN THE 2020s**

According to a PwC report, **virtual and augmented reality** will truly start to take off globally in the 2020s, projecting over 40% p.a. growth to 2030<sup>4</sup>

- 4 PwC (2020) Seeing is believing: How AR and VR will transform business and the economy (contribution of VR/AR to World GDP).

## SECTION 01.02

# TECHNOLOGY IN UNIVERSITY LEARNING IS HIGHLY VALUED BY STUDENTS



**58%**

**OF AUSTRALIAN STUDENTS  
AGREED THAT TECHNOLOGY  
WILL MAKE IT EASIER TO  
CONTINUE THEIR EDUCATION**

Source: Pureprofile (2023) University  
Student Survey; Mandala analysis.

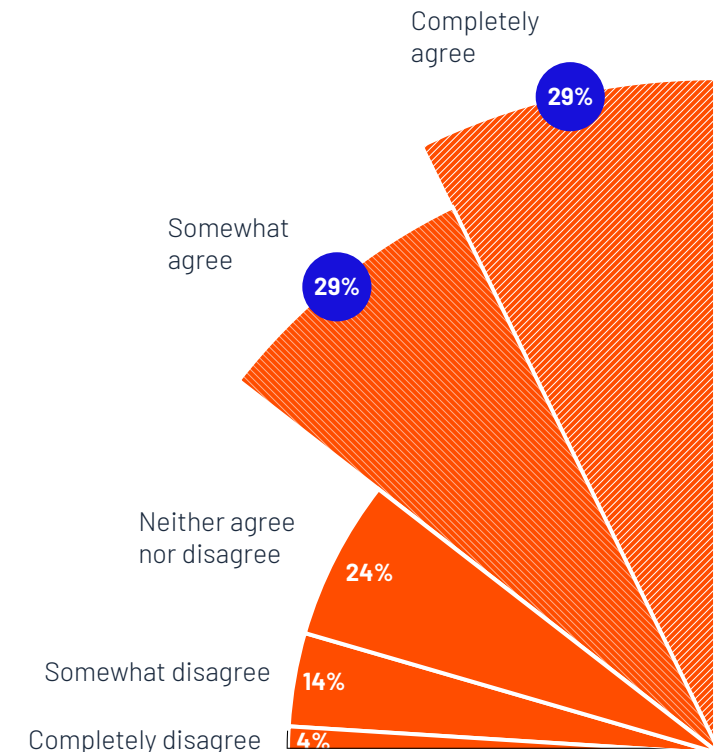
**In our survey of university students, 80 per cent said online learning has had a positive impact on their academic experience.**

58 per cent believed that greater integration of technology would lead to further benefits to their learning.

### EXHIBIT 2:

**"GREATER INTEGRATION OF TECHNOLOGY  
WILL MAKE IT EASIER TO CONTINUE  
EDUCATIONAL DEVELOPMENT [...]"**

% of student responses, based on 2023  
survey, n = 502





## Technology in university learning is highly valued by students.

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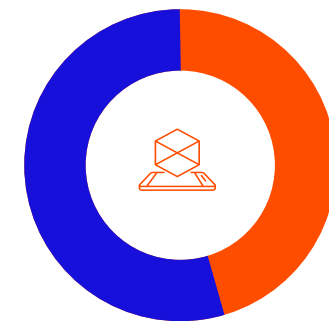
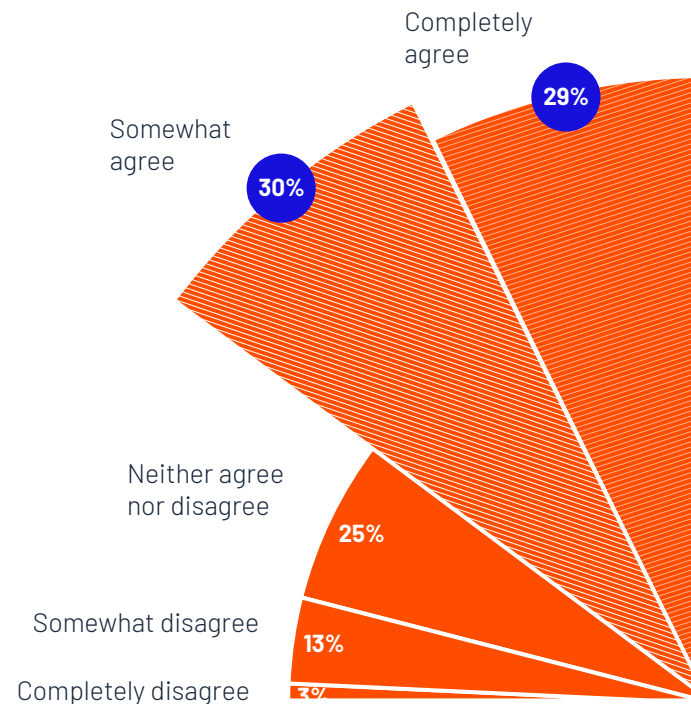
Nearly 60 per cent of students agreed that greater integration of technology would improve their learning, and make it more engaging and entertaining – less than one fifth of students disagreed.

The flexible delivery of learning and self-paced learning were found to be the most important educational priorities for university students – suggesting they see technology as an increasingly critical tool in helping them succeed in their studies.

### EXHIBIT 3:

#### "GREATER INTEGRATION OF TECHNOLOGY WILL MAKE LEARNING MORE ENGAGING AND ENTERTAINING"

% of student responses, based on 2023  
survey. n = 502



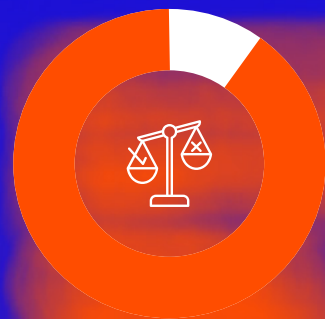
# 59%

OF AUSTRALIAN STUDENTS  
AGREED THAT TECHNOLOGY  
WILL MAKE THEIR STUDIES MORE  
ENGAGING AND ENTERTAINING

Source: Pureprofile (2023) University Student  
Survey; Mandala analysis.

## SECTION 01.03

# STUDENTS OVERWHELMINGLY USE TECHNOLOGY ETHICALLY AND EFFECTIVELY



**90%**

**90% ARE USING FOR  
PURELY ETHICAL  
REASONS**

Source: Pureprofile (2023) University  
Student Survey; Mandala analysis.

**Our survey shows that the majority of university students are using technology as supplementary tools to help them succeed in their studies – not for academically dishonest reasons.**

90 per cent of students use online education tools to help them learn at their own pace, enhance their learning experience, or to make their learning more personalised and engaging. Just 10 per cent of students reported using technology to help them access answers to homework or exam material that they did not understand. Moreover, while this small cohort may include some with unethical motivations, it also includes students driven by a genuine lack of understanding of course material.

Any new policy settings need to recognise that technology is overwhelmingly being utilised at universities for proper and productive purposes, to ensure that regulation does not diminish or destroy these ethical uses.

### EXHIBIT 4:

#### “WHAT IS THE PURPOSE BEHIND USING THESE ONLINE TOOLS?”<sup>5</sup>

Count of student responses, based on 2023 survey, n = 1,099





# SECTION 01.04

## TECHNOLOGY BENEFITS STUDENTS FROM DIVERSE BACKGROUNDS THE MOST

45.7%

**DIVERSE STUDENTS PREFER  
SELF-PACED LEARNING  
COMPARED WITH 36.9% OF  
NON-DIVERSE STUDENTS**

Source: Pureprofile (2023) University  
Student Survey; Mandala analysis.

Our survey shows students from diverse backgrounds – including those from lower socio-economic areas, those who don't speak English as a first language, those caring for others, or those balancing study with work responsibilities – place greater importance on the flexibility and support that education technology tools offer to help them succeed in their studies.

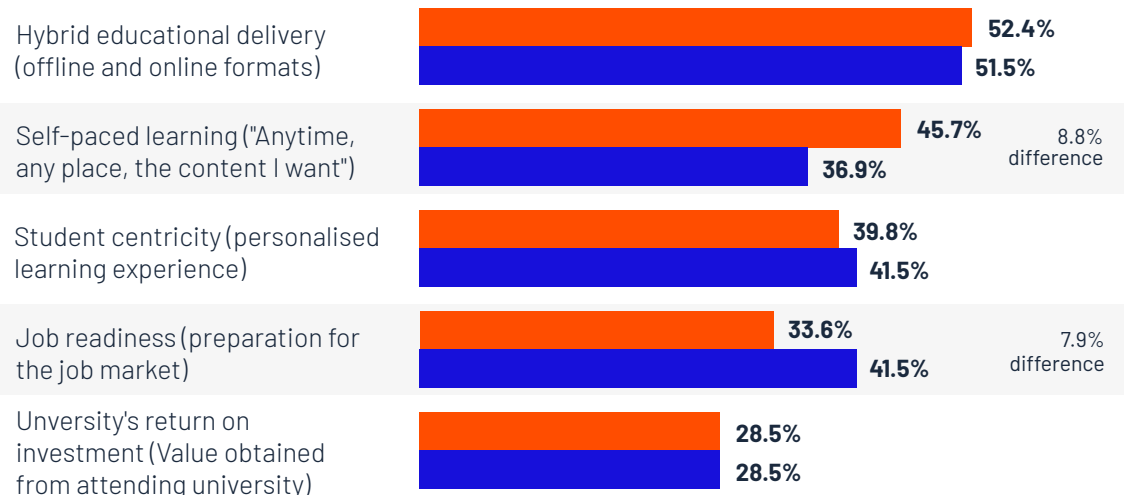
More than half of students from diverse backgrounds said the availability of online learning was one of the most important priorities for them compared to other learning preferences. More than 45 per cent listed the ability to learn at their own pace as one of the most important issues.

This indicates that technology-enabled educational support tools can play an important role in driving greater equality in university participation and outcomes.

### EXHIBIT 5:

#### "RANK THE IMPORTANCE YOU GIVE TO EACH OF THE FOLLOWING PREFERENCES FROM A STUDENT PERSPECTIVE"

% of students rating each preference with 1 or 2 where 1 means "most important", based on 2023 survey



Students from diverse backgrounds



students from non-diverse backgrounds

## SECTION 01.05

# POLICY UNCERTAINTY IS A BARRIER TO GREATER USE OF TECHNOLOGY

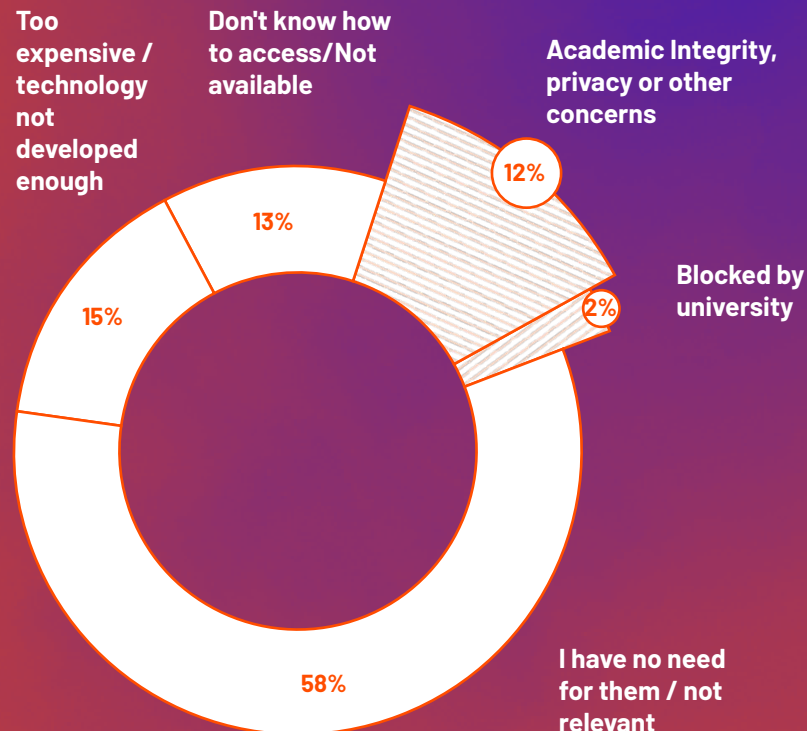


EXHIBIT 6:

"WHAT ARE THE REASONS  
YOU DO NOT USE ANY OF THE  
ONLINE TOOLS TO ASSIST IN  
YOUR STUDYING?"

% of students based on  
2023 survey

There are a range of reasons why some students don't utilise technology as part of their university learning. Younger students were more likely to report that they did not know how to access technology tools, or that accessing them was too expensive, whereas older students were more likely to state that they did not have a need for online learning tools.

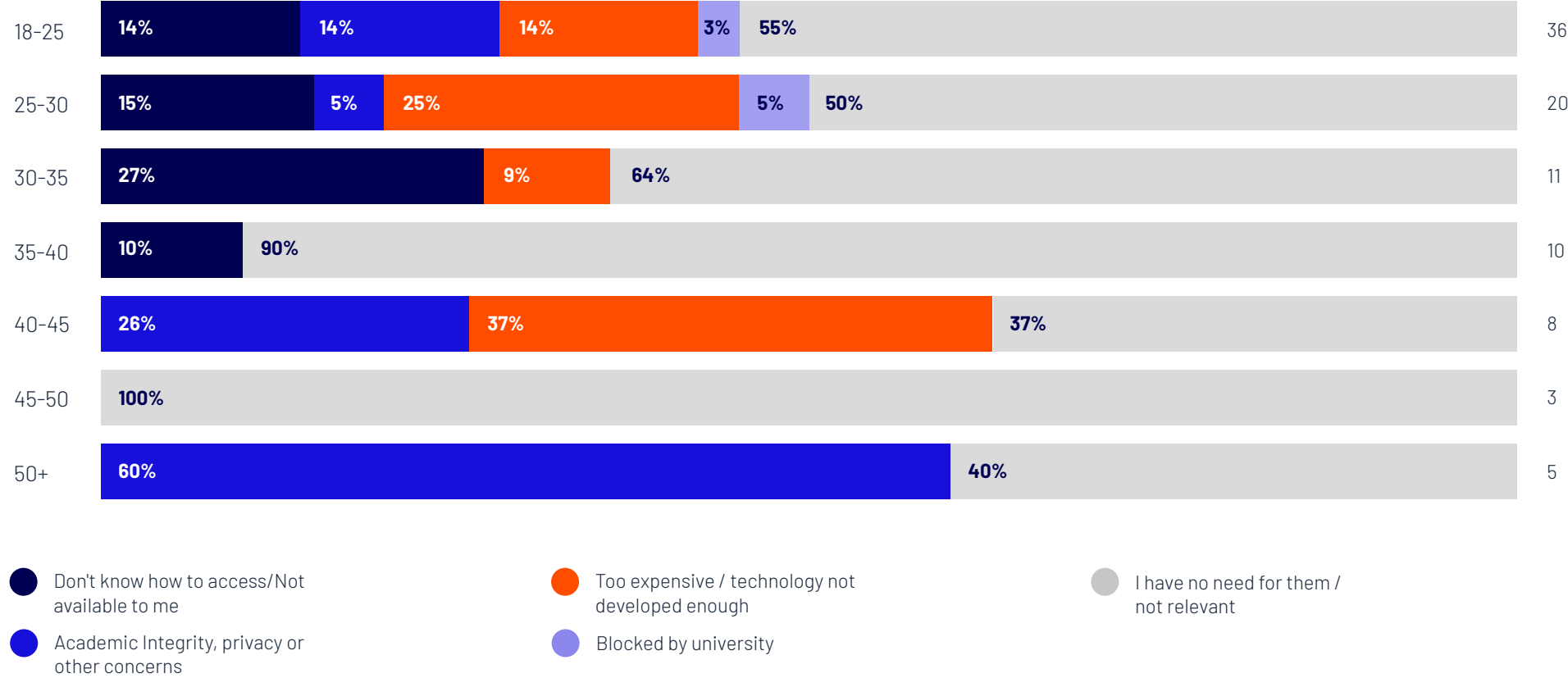
Importantly, a significant proportion of students – 14 per cent – listed barriers that can be addressed by university and regulatory policy as a reason for not adopting technology. This included online tools being blocked by their university, or concerns about issues like academic integrity and privacy. This suggests that there is a role for universities and regulators to provide greater clarity and certainty over the use of online learning tools to benefit students.



EXHIBIT 7:

"WHAT ARE THE REASONS YOU DO NOT USE ANY OF THE [AVAILABLE] ONLINE TOOLS TO ASSIST IN YOUR STUDYING?"

Count of students and % of student responses, based on 2023 survey





## SECTION 02

UNIVERSITIES NEED TO IMPROVE EQUITY  
AND ECONOMIC OUTCOMES – AND  
TECHNOLOGY CAN HELP

- 01.** Technology is disrupting university learning in different ways

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- 02.** There are six clear objectives for a high-performing university sector

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- 03.** Australian universities lag on equity, student centricity and economic outcomes

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- 04.** There are five key barriers preventing technology from improving university performance

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# SECTION 02.01 TECHNOLOGY IS DISRUPTING UNIVERSITY LEARNING IN DIFFERENT WAYS



## DISRUPTIONS IN TEACHING AND LEARNING MODELS

Changed relationships between teachers and students, with **greater peer-to-peer, personalised and self-paced learning** that challenges traditional notions of teaching methods and quality

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Changed relationships between students and content, with **greater use of supplementary content** that challenges traditional notions of content quality

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Changed relationships between students, teachers and place with **greater time and location shifting** which challenges traditional notions of student engagement, student experience, teaching methods and holistic support



## DISRUPTIONS TO ASSESSMENT AND INTEGRITY

New technologies are making information and resources more easily accessible which can enable academically dishonest activities (for example plagiarism or cheating during exams)

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However, technology is **also used by universities in upholding academic integrity**, for example through remote proctoring software or plagiarism detection software

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New technologies are also **changing the way assessments are designed and administered**, for example online assessments, adaptive learning to continuously assess student progress, etc.



## OPPORTUNITIES TO DRIVE EQUITY IN EDUCATION

Technology can enable **time and location independence**, which can enable increased access, participation and engagement

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Technology can enable **self-paced and personalised learning**, which can improve learning and outcomes, including through accommodating different learning and teaching models

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Technology can scale both volume and quality simultaneously, enabling **radically different delivery and cost structures**, with significant potential benefits to access and equity

## SECTION 02.02

# THERE ARE SIX CLEAR OBJECTIVES FOR A HIGH-PERFORMING UNIVERSITY SECTOR

Source: Pureprofile (2023) University Student Survey; Mandala analysis.

We have identified six important objectives for the higher education sector through analysis of current government initiatives and reform proposals – including the current Universities Accord process. We have used these metrics to develop a university performance framework.

Improving student equity – by increasing the number of people from under-represented groups entering and benefiting from higher education – is a consistent Government policy objective, as is enhancing the quality of students' learning experiences at university.

### EXHIBIT 8: UNIVERSITY PERFORMANCE FRAMEWORK

Objectives	Metrics
<b>EQUITY</b>	Equity of access and participation Equity of outcomes Equity of completion and attainment
<b>STUDENT CENTRICITY</b>	Personalisation of learning Flexibility in learning modes and engagement approaches Student support services and policies Holistic wellbeing support
<b>TEACHING QUALITY</b>	Flexibility and personalisation in delivery Professional development and support for new teaching methods Outcome monitoring and best practice identification Confidence in assessment and integrity
<b>LEARNING OUTCOMES</b>	Completion Value for money Engagement with university Confidence in standards and quality
<b>WORK OUTCOMES</b>	Employment outcomes Confidence in content and job readiness Alignment of course content with job market skill requirements
<b>ECONOMIC OUTCOMES</b>	Public and private economic outcomes Cost efficiency of education delivery





## SECTION 02.03

# AUSTRALIAN UNIVERSITIES LAG ON EQUITY, STUDENT CENTRICITY AND ECONOMIC OUTCOMES

**We currently lag on the core objective of improving university participation and completion rates for people from under-represented groups. Students from low socio-economic backgrounds make up just 16 per cent of domestic enrolments – missing the target of 20 per cent set by the Bradley Review – while less than 65 per cent of students from low socio-economic backgrounds are completing their degrees.**

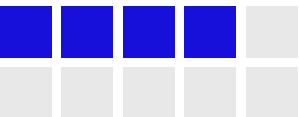





There is a growing emphasis on putting students at the centre of decisions about curricula, teaching methods and learning environments. However, we aren't progressing as well as some other countries. Students in the UK and Canada demonstrate a higher rate of satisfaction with the range of learning resources available to them.

Australia also isn't getting the full economic benefits that a high-performing university sector can deliver, such as stronger growth, higher wages, increased taxation revenue and reduced welfare spending. The cost to educate a university student in Australia is higher than the OECD average, but Australian graduates have the 3rd lowest earnings growth in the OECD.

**Australian universities lag on equity, student centricity and economic outcomes**

(continued)

**EXHIBIT 9: CURRENT PERFORMANCE OF THE AUSTRALIAN UNIVERSITY SECTOR AGAINST UNIVERSITY PERFORMANCE FRAMEWORK**

Objectives	Scoring performance	Metrics
<b>01 EQUITY</b>		<p>Low participation ratios of equity groups compared to vocational education as well as lower completion rates for equity groups compared to non-equity cohorts (though performing better than vocational counterparts); neither sector has met the Bradley targets suggested for 2020</p> <p>Good employment rates of equity groups vs. students overall and in line with vocational students</p>
<b>02 STUDENT CENTRICITY</b>		<p>Universities have taken first steps in flexible learning approaches (especially as an after-effect of COVID). However, these developments are not yet broad or deep enough and significant untapped potential remains</p> <p>Scores for satisfaction with student support somewhat lower than vocational students and other countries. Mental wellbeing is especially important for students, and lack of support here is a main reason for considering dropping out</p>
<b>03 TEACHING QUALITY</b>		<p>Lower student perception of teaching quality and higher student to teaching staff ratio for universities compared to other countries</p> <p>High confidence of academic staff in the integrity of their academic institutions and in traditional assessments but still lower for new assessment approaches (e.g. online)</p>
<b>04 LEARNING OUTCOMES</b>		<p>Lower degree completion rates and lower engagement/belonging scores (even pre-COVID) compared to other countries like the UK and Canada</p> <p>Many Australians say the value of their degree was not worth its cost (39-49% depending on source), however, this is in the mid-range compared to other countries</p>
<b>05 WORK OUTCOMES</b>		<p>Employment rates after attainment of undergraduate degrees are on par compared to the OECD average but are lower than the UK and New Zealand</p> <p>Recent graduates and their employers are (highly) satisfied with how well their qualifications have prepared them for their current job, more so than the vocational sector</p>
<b>06 ECONOMIC OUTCOMES</b>		<p>Lower uplift in earnings after tertiary degree attainment for graduates compared to other OECD countries</p> <p>High expenditure per student compared to other countries, with Australia ranking 10th highest of OECD countries</p>



## SECTION 02.04

# THERE ARE FIVE KEY BARRIERS PREVENTING TECHNOLOGY FROM IMPROVING UNIVERSITY PERFORMANCE

If we make the right changes to support and grow the use of technology in higher education, students will benefit and so will the economy.

However, our research – including interviews with university sector stakeholders – has identified five key barriers to the optimal use of technology in higher education.

### EXHIBIT 10:

#### BARRIERS IDENTIFIED THROUGH RESEARCH AND STAKEHOLDER INTERVIEWS



#### FUNDING MODEL OF UNIVERSITIES DOES NOT ENCOURAGE AN INCREASE IN THE QUALITY OF TEACHING

The **cross-subsidisation of research and other activities from teaching** creates constant downward pressure on the investment in teaching and learning, including investment in technology to enable improved outcomes

Incentives to improve revenue encourage investments in **proxies for quality to attract more full fee-paying students** (such as improved research outcomes and industry accreditation), rather than investments in teaching quality and innovation

#### Impact



## There are five key barriers limiting technology from improving university performance

(continued)

### EXHIBIT 10 (CONTINUED):

#### BARRIERS IDENTIFIED THROUGH RESEARCH AND STAKEHOLDER INTERVIEWS



##### REGULATORY INCENTIVES ENCOURAGE COMPLIANCE, RATHER THAN EDUCATIONAL PERFORMANCE

Industry course **accreditations can be prescriptive and conservative** and create barriers to teaching innovation, including through the use of technology

The TEQSA **definition of a university** forces comprehensive services which take money and focus away from teaching, learning and equity

Compliance requirements (such as in privacy and data management) **raise quality and confidence, but require significant investment**

Impact



##### LIMITED ROLE FOR BUSINESS IN DRIVING MORE INNOVATION

There is **limited evidence that the needs of employers** create widespread impact on the design of university teaching and learning methods

Large professional employers often **judge graduates' employment suitability by proxies** (such as institution attended) rather than individual attributes, which dulls the incentives for universities to invest and differentiate on the basis of innovative teaching methods, including those enabled by technology

Impact



##### WORKFORCE DOES NOT HAVE INCENTIVES OR CAPACITY TO DRIVE TECHNOLOGY ADOPTION

Academic staff with seniority and tenure often did not achieve that status through teaching, and are **unlikely to champion education technology**

Younger (and more likely casualised) academic staff who may **have an interest in teaching and learning practices have limited time and capacity to be involved in professional development** and assessing innovative educational approaches

University academic and professional **wage structures struggle to compete with other industries** for skills and talent in technology-enabled learning

Impact



##### LACK OF COLLABORATION AND INFORMATION SHARING INCREASES THE TIME AND SEARCH COSTS FOR INVESTING IN EDUCATIONAL TECHNOLOGY

Universities largely conduct their own investigations into teaching and learning technology, with **only limited information sharing on effectiveness and educational impact**, costs and licensing and practical issues (e.g. privacy), which makes implementation more difficult and less timely

Existing organisations for information sharing on technology and teaching methods (ACODE, ASCILITE, THETA, etc.) are **not sufficiently visible or influential in university decision-making processes** to adopt teaching and learning approaches or technologies

Impact





## SECTION 03

### RESPONSIBLE TECHNOLOGY REFORM WILL IMPROVE UNIVERSITY PERFORMANCE AND BOOST THE ECONOMY

- 01.** There are several priority areas for reform that require the attention of policy makers

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- 02.** Reform scenarios range from gentle to aggressive technology adoption in universities

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- 03.** Reform could deliver substantial improvements to university performance

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- 04.** Improving university performance through technology could grow the economy by more than \$3 billion

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## SECTION **03.01**












# **THERE ARE SEVERAL PRIORITY AREAS FOR REFORM THAT REQUIRE THE ATTENTION OF POLICY MAKERS**

The most critical actions to improve performance in the higher education sector are to reform university funding to help incentivise an increased focus on teaching and the use of effective and ethical technology and to increase collaboration between universities to identify and expand the best uses of tools for technological learning.

**There are several priority reform areas that require the attention of policy makers**

(continued)

**DOMAINS OF BARRIERS AND ENABLERS TO TECHNOLOGY ADOPTION IN HIGHER EDUCATION, AS INDICATED BY STAKEHOLDERS**

Domain	Summary	importance	Actors	Detail follows
<b>FUNDING</b>	The way that universities are funded and incentivised under govt policy, as well as how universities allocate funding to support the use of educational tech		University, Government	✓
<b>COLLABORATION</b>	Sector-wide collaboration to identify, validate and share best practices across all universities, as well as collaboration between universities and industry		Policy, University, Industry	✓
<b>REGULATION (TEQSA AND SCHOOL ACCREDITATION)</b>	Recognition and accreditation of courses and qualifications as well as sector-wide standards and regulations		Regulatory	✓
<b>STAFF LEADERSHIP</b>	Drive of academic staff/faculties to adopt educational technology in their practices		University	✓
<b>DEMAND FROM BUSINESS AND INDUSTRY</b>	Views of professional employers on suitability of graduates for employment, which influence whether universities adopt educational tech		Regulatory	✓
<b>COMMONWEALTH POLICY AND ACCORD REFORM</b>	A range of education-specific and wider (e.g. data use) policies, and future policy development involving the role of technology (e.g. the Accord)		Policy	
<b>ORGANISATIONAL STRUCTURE</b>	Decision-making processes and resource allocation within universities, including the relative power and capacity of central or faculty-level teaching/learning/technology		University	
<b>ACADEMIC INTEGRITY</b>	Considerations about academic integrity that impact the adoption of technology		University	
<b>UNIVERSITY POLICY</b>	University or faculty policies that push towards or away from technology adoption		University	
<b>TECHNICAL CAPACITY</b>	The technical capacity of universities, including in IT infrastructure, technical skill and data management; universities often face large system integration challenges when implementing new technologies		University	
<b>PEDAGOGICAL FOCUS</b>	The degree to which universities wish to and can implement leading pedagogical approaches		University	





## SECTION 03.02

# REFORM SCENARIOS RANGE FROM GENTLE TO AGGRESSIVE TECHNOLOGY ADOPTION IN UNIVERSITIES

Australia can pursue a 'Fast Follower' reform approach by adopting global best practice for education technology use in universities. In this scenario, light-touch policy levers would be used by government to encourage more technology use in the sector once they are proven domestically and internationally. Reforms could include:

- Creating a 'white list' of effective and compliant education technology tools
- Enhancing the focus on teacher quality and learning experiences with meaningful indicators and benchmarks
- Providing grant funding to improve teaching and learning practices through technology
- Undertaking more research into the needs of business in work and hiring.

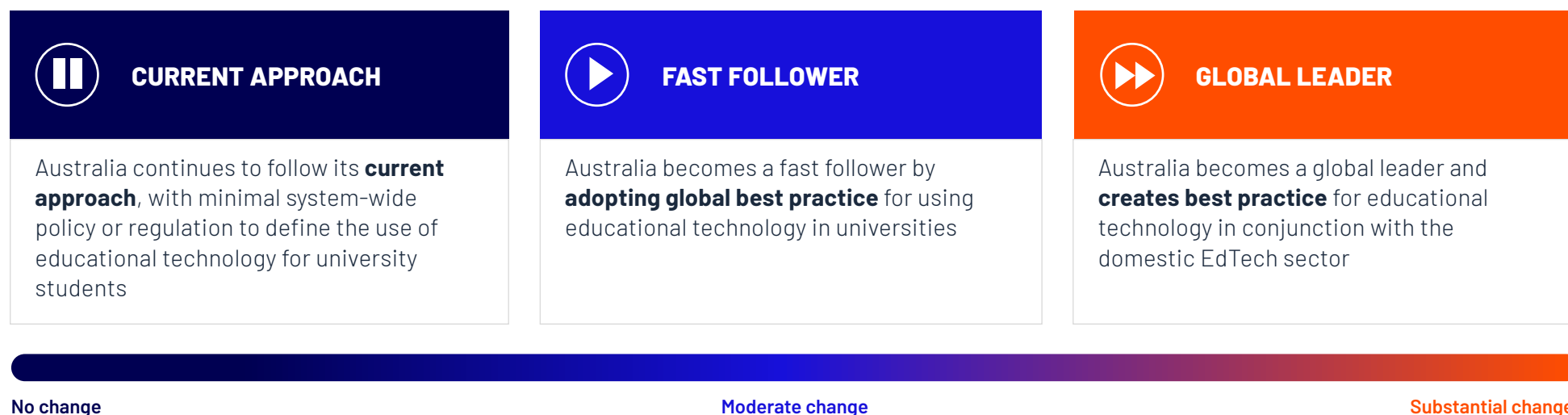


Alternatively, Australia can choose a 'Global Leader' reform path. In this scenario, government and universities would help to create best practice for education technology use in partnership with the education technology sector. Reform proposals could include:

- Helping universities to partner with Australian education technology providers so that the quality and reach of learning tools are improved
- Creating 'regulatory sandboxes' to develop innovation in the sector, so that new technology can be piloted and perfected quickly
- Making structural changes to the sector to allow for teaching-only universities, and putting a greater emphasis on teaching quality.

## There are different reform scenarios to improve technology adoption in universities

(continued)



# SECTION 03.03 REFORM CAN DELIVER SUBSTANTIAL IMPROVEMENTS TO UNIVERSITY PERFORMANCE

## EXHIBIT 11: 'FAST FOLLOWER'

### SCENARIO IMPACT ON UNIVERSITY SYSTEM PERFORMANCE

Under the 'Fast Follower' reform approach, we can expect to see moderate improvements in university performance across student equity, student centricity, learning outcomes and teaching quality.

Objectives	Scenario impact on university system performance		Rationale
EQUITY	Current Performance		<ul style="list-style-type: none"> <li><b>Alternative approaches to access education</b> lower barriers to access and enable <b>improvements in participation</b> (e.g. remote students only requiring stable internet-connected device for online learning)</li> <li><b>Personalised learning</b> (including self-paced learning and approaches tailored to preferred learning styles) facilitates individualised support and should lead to <b>more equitable outcomes</b> (e.g. success rates)</li> </ul>
	Future Potential		
STUDENT CENTRICITY	Current Performance		<ul style="list-style-type: none"> <li><b>Self-paced learning can increase productivity</b> though targeted focus on the challenge areas of the individual student</li> <li>Student support services reinforced through technology could lower access barriers (e.g. online therapy), better tailoring to specific student needs and greater cost efficiency</li> </ul>
	Future Potential		
TEACHING QUALITY	Current Performance		<ul style="list-style-type: none"> <li><b>Enhanced focus on the performance of teaching and learning</b> at Australian universities will push university improvements from both students and employer side</li> <li>Universities take greater account of using technology to enhance teaching quality, for example in enabling <b>different methods of teaching and formats of assessment</b></li> </ul>
	Future Potential		
LEARNING OUTCOMES	Current Performance		<ul style="list-style-type: none"> <li><b>Improved consideration of educational outcomes in the Fast Follower scenario</b> will drive more competition between universities and so enhance outcomes themselves</li> <li>Technology-enabled personalised learning approaches can <b>increase student engagement and retention throughout learning journey</b> (and thus degree completion)</li> </ul>
	Future Potential		
WORK OUTCOMES	Current Performance		<ul style="list-style-type: none"> <li>More limited potential upsides in terms of work outcomes (e.g. alignment of course content with workforce needs) as the Fast Follower scenario does not change the content being taught, but only the approach to teaching and learning</li> </ul>
	Future Potential		
ECONOMIC OUTCOMES	Current Performance		<ul style="list-style-type: none"> <li>\$0.4B increase to economic activity in <b>gains to graduates and the university sector as well as flow-on economic activity</b>, with increases to tax revenue from enhanced attainment and participation</li> <li>Technology-enabled delivery of education can lead to a <b>more cost efficient system</b></li> </ul>
	Future Potential		

**EXHIBIT 12: GLOBAL LEADER**

**SCENARIO IMPACT ON UNIVERSITY SYSTEM PERFORMANCE**

Under the 'Global Leader' reform approach, university performance would significantly increase across equity, teaching quality, and economic outcomes.

Objectives	Scenario impact on university system performance		Rationale
<b>EQUITY</b>	Current Performance		<ul style="list-style-type: none"> <li>Similar to Fast Follower scenario, where technology can enable access and different approaches</li> <li>Additional benefits from <b>reforms to teaching focus to deliver greater equity and inclusivity</b> (e.g. for regional, remote, culturally diverse and offshore students)</li> </ul>
	Future Potential		
<b>STUDENT CENTRICITY</b>	Current Performance		<ul style="list-style-type: none"> <li>Similar to Fast Follower scenario, where technology can enable personalised approaches and support, but impact might be accelerated in a Global Leader scenario</li> </ul>
	Future Potential		
<b>TEACHING QUALITY</b>	Current Performance		<ul style="list-style-type: none"> <li><b>Greater resources for investment</b> in teaching approaches and supporting technology, accompanied by a <b>greater regulatory focus on teaching quality and outcomes</b></li> </ul>
	Future Potential		
<b>LEARNING OUTCOMES</b>	Current Performance		<ul style="list-style-type: none"> <li>Similar to Fast Follower scenario, but impact might be accelerated in a Global Leader scenario</li> <li>Additionally, further <b>benefits to work-related metrics from a change in content taught</b> (whereas Fast Follower Scenario only changes approach to teaching)</li> </ul>
	Future Potential		
<b>WORK OUTCOMES</b>	Current Performance		<ul style="list-style-type: none"> <li>Similar to Fast Follower scenario in changing approach to learning</li> <li>Additional benefits of change to course content, enabling <b>greater alignment to skill outcomes required by employers</b></li> </ul>
	Future Potential		
<b>ECONOMIC OUTCOMES</b>	Current Performance		<ul style="list-style-type: none"> <li>The Global Leader scenario's <b>scale-up of the Australian EdTech sector as well as differentiation of the Australian university sector</b> on the use of technology in learning in a competitive global marketplace can provide <b>\$3.1B economic upside</b> (largely driven by the development of a domestic EdTech sector)</li> </ul>
	Future Potential		



## SECTION 03.04

# IMPROVING UNIVERSITY PERFORMANCE THROUGH TECHNOLOGY COULD GROW THE ECONOMY BY MORE THAN \$3 BILLION

**Our modelling indicates that growing Australia's education technology sector in partnership with universities, as well as improving the application of technology in university learning, could have widespread economic benefits.**

Under the 'Fast Follower' reforms:

- Government investment of ~\$10 million would allow creation of a whitelist of effective education technology, improvements to teaching and learning (including performance tracking over time), and research into demand drivers for quality teaching
- The investment would enable moderate but important improvements to university sector performance across all domains, but especially student centricity, learning outcomes and teaching quality
- These changes would deliver up to \$0.4bn pa in additional economic activity, including higher graduate incomes, gains to the higher education sector, and flow-on economic activity
- As a result, government investment would be more than offset by reduced unemployment benefits and increased taxation revenue, generating an annual net saving to government of \$50 million



Under the 'Global Leader' reforms:

- Government investment of up to ~\$90 million would fund and support the growth of the domestic education technology sector, create regulatory sandboxes, and implement reforms to teaching and learning
- The investment would enable significant improvements to university sector performance across all domains, but especially in teaching quality and learning outcomes
- These changes would deliver up to \$3.1bn pa in additional economic activity, including higher graduate incomes, gains to the higher education sector, and flow-on economic activity
- As a result, government investment would be more than offset by reduced unemployment benefits and increased taxation revenue, generating an annual net saving to government of \$32 million

**Improving university performance through technology can grow the economy by more than \$3 billion**

(continued)

EXHIBIT 13: REFORMS COULD GENERATE BETWEEN \$0.4 AND \$3.1B PA TO THE AUSTRALIAN ECONOMY

	Scenario	Uplift in graduate income	Total boost to economic activity (GDP)	Net saving to government
	<b>FAST FOLLOWER</b>  Government uses mostly light-touch levers to encourage the adoption of EdTech, by injection of information into the system	<b>\$0.1B</b>	<b>\$0.4B</b>	<b>\$50M</b>
	<b>GLOBAL LEADER</b>  Simultaneous development of the EdTech and university sectors, supported by structural changes to the definition of universities	<b>\$0.3B</b>	<b>\$3.1B</b>	<b>\$32M</b>