



Curtin University

Transforming Universities for the 21st Century: The Digital Age

The Information Strategic Forum 2018
Fujitsu Limited

Professor Jill Downie
Deputy Vice Chancellor, Academic
1 August 2018

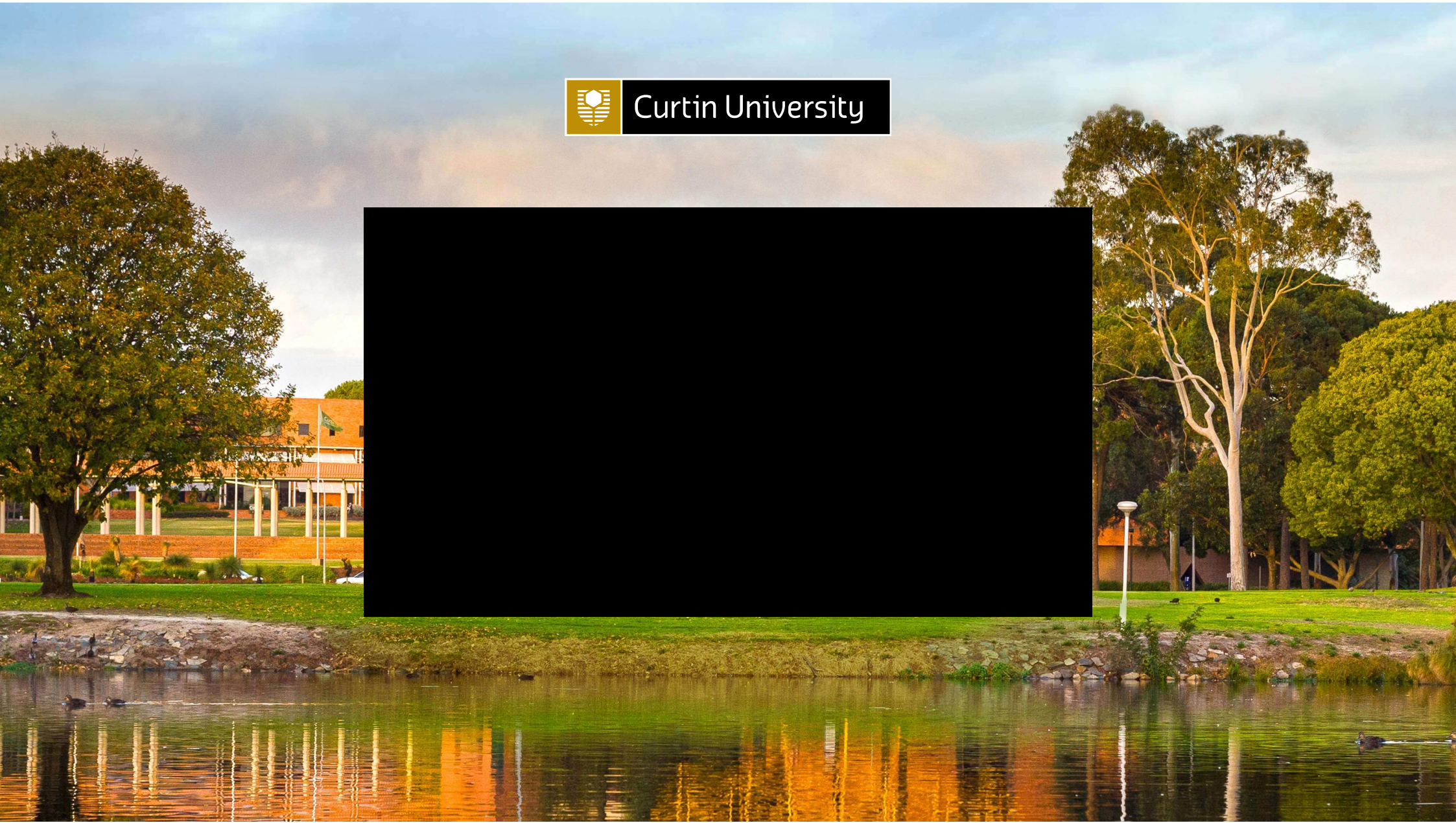
A global university

Western Australia | Dubai | Malaysia | Mauritius | Singapore



Objectives of the presentation:

1. Context
2. Curtin's Strategy
3. Transforming Learning and Student Experience
4. Towards a Global Digital Future



Context

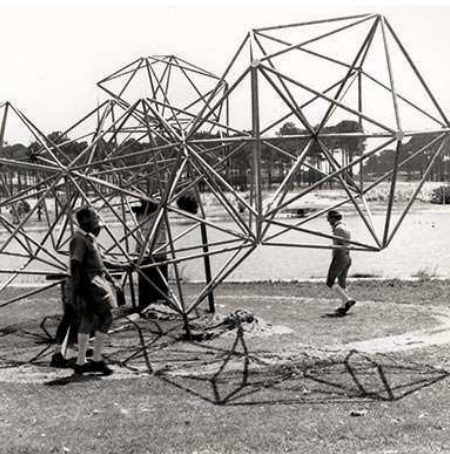
Perth, Western Australia



Curtin University



Our journey – a brief history of Curtin



The Western Australian
Institute of Technology
opened in 1967 with
2,811 students and
250 staff



University status was
achieved in 1987



Curtin Malaysia opened
in 2002, followed by
Curtin Singapore (2008)
Curtin Dubai (2017)
and Mauritius (2018)



We have more than
225,000 alumni
across the globe



Innovation,
engagement and
inclusion have always
been key to our vision
and ethos



Curtin University

The University's growth



2,811

Student headcount

\$1.8 million

Revenue (unaudited)



1991

16,818

Student headcount

\$145.6 million

Revenue (unaudited)



2017

56,662

Student headcount

\$911 million

Revenue (unaudited)





Curtin Today

- 🎓 Over 56,000 students (36,000 EFTSL); 26% are international
- 🌟 9th largest university in Australia (2016)
- 👥 Over 4,000 equivalent full-time staff; one of the largest single-site employers in WA
- 📍 Destination of choice for WA university applicants with 51% domestic market share
- ✈️ Major campuses in Perth, Kalgoorlie, Singapore, Malaysia, Mauritius and Dubai

Major Academic Areas



Business & Law:
*Accounting, Law,
Economics &
Finance, Marketing
& Management*



Health Sciences:
*Medicine, Nursing,
Physiotherapy,
Occupational &
Speech Therapy,
Biomed Sciences &
Pharmacy*



Humanities:
*Design & Built
Environment,
Education, Media,
Creative Arts &
Social Inquiry*



Science & Engineering:
*WA School of Mines,
Earth & Planetary
Sciences; Molecular &
Life Sciences; broad
spread of Engineering
& IT courses*



**Centre for
Aboriginal Studies**



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Research Strengths

Computation



Health



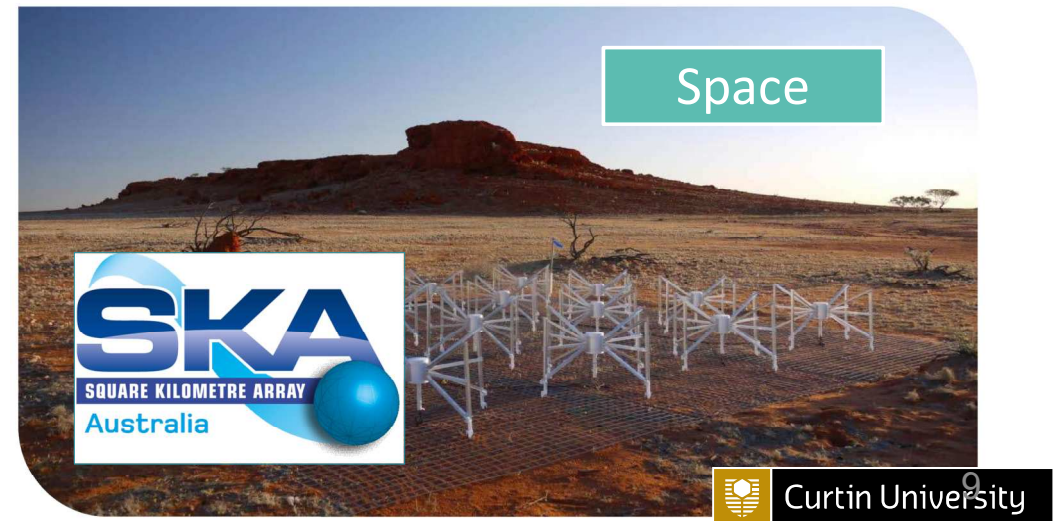
Agriculture



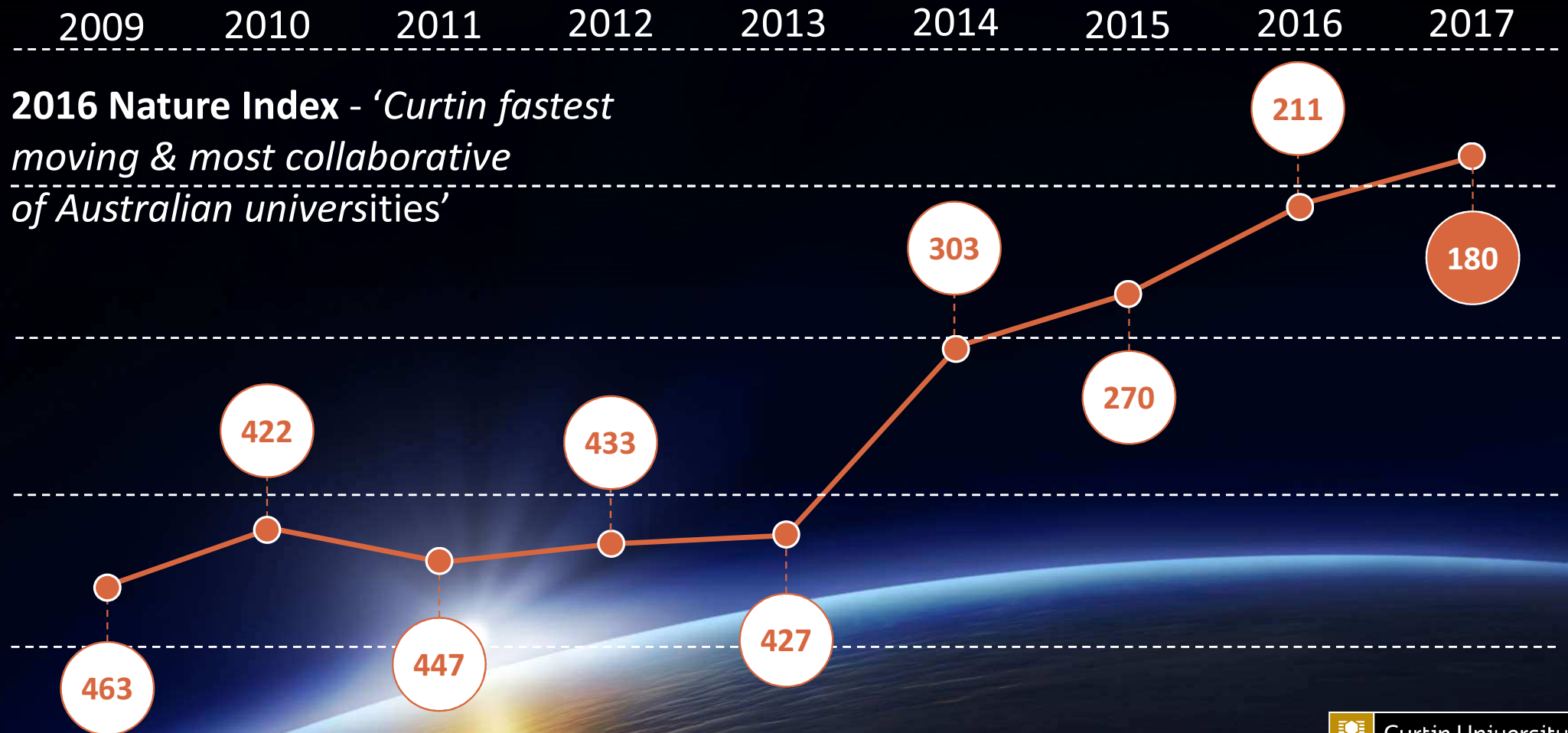
Energy, mining & minerals



Space



Global Rankings - ARWU



Global Rankings

Ranking System	2016 World	2016 Natl	2017 World	2017 Natl	2018 World	2018 Natl
Academic Ranking of World Universities	211	10	180	9		
CWTS Leiden Ranking	370	11	355	10	316	9
National Taiwan University Ranking	370	9	326	9		
University Ranking by Academic Performance	302	9	272	9		
Nature Index	358	9	350	9		
QS World University Ranking	306	16	262	15	250	13
Times Higher Ed Ranking	417	25	397	=22		



Australian context: Changing Face of Higher Education

Aida Tomescu, 1991, *Vis IV* (detail), Oil on canvas, Curtin University Art Collection, Gift of Dr Ian and Sue Bernadt through the Cultural Gifts Program 2000



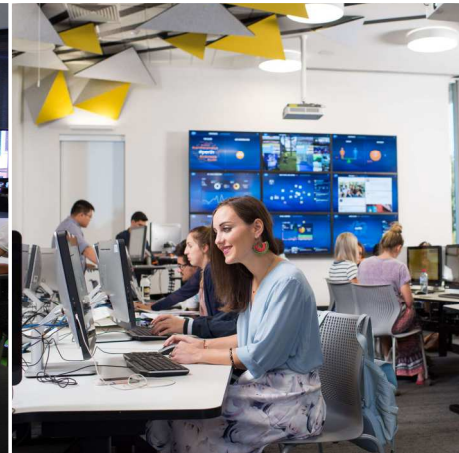
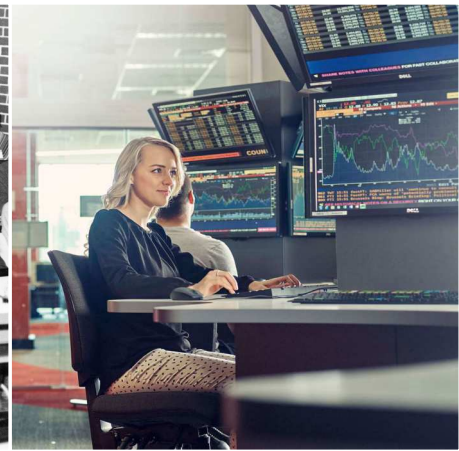
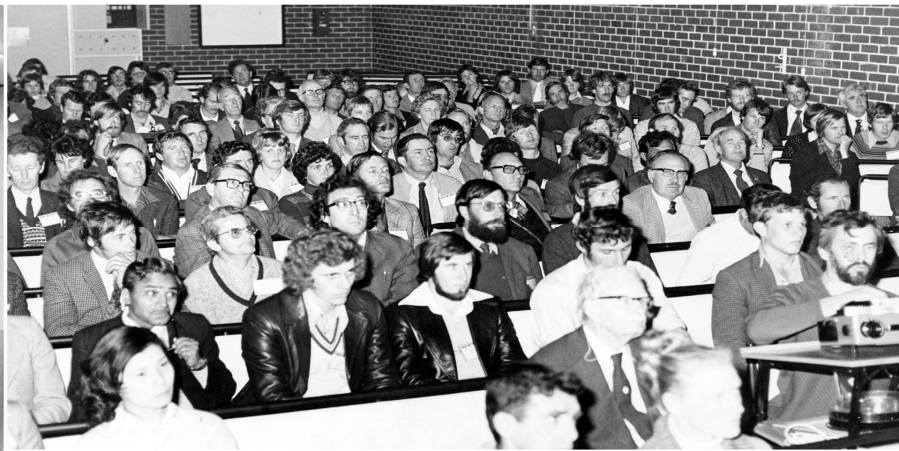
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Australian Higher Education

- 39 universities
- Global competition
- Reliance on International students
- Competition from Private Providers since 2012
- TEQSA – monitors Quality
- Budget cuts from the Federal Government for 10+ years
- Demand driven student enrolment 2012-2017
- Now capped funding in 2018/2019
- Performance funding?



Changing Student Expectations



Changing Employer Expectations

Workers will spend...



30%

more time
learning on the job

Workers will spend...



Almost **100%**
more time at work
solving problems



41% more time
on critical thinking
and judgment



77% more time
using science and
mathematics skills



17% more time per
week using verbal
communication and
interpersonal skills

Workers will use...

Workers will need to
develop an entrepreneurial
mindset due to



26% less
management



14% less
organisational
coordination



10% less
teaching

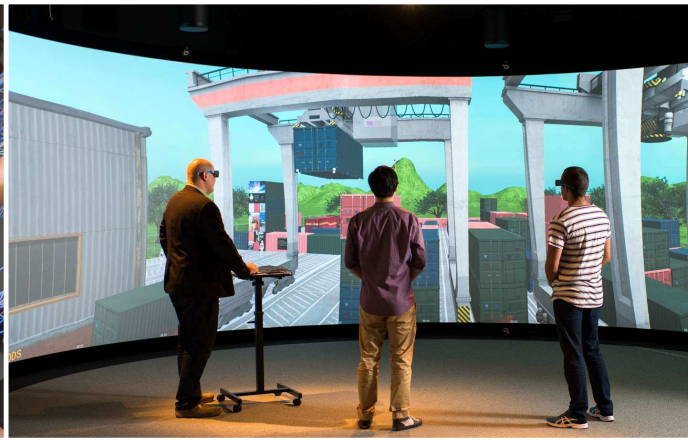
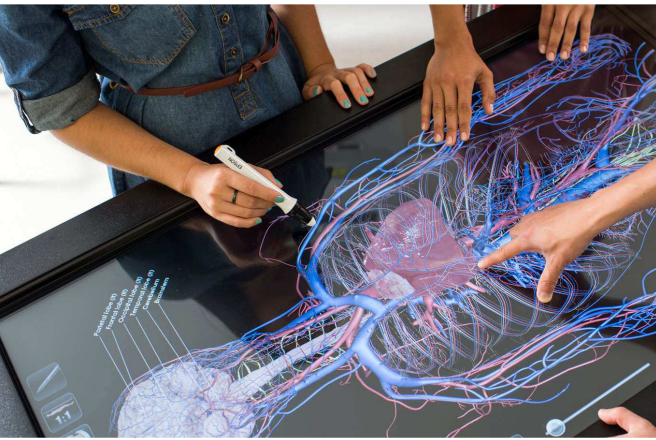
Source: Foundation for Young Australians, *The New Work Smarts*, <https://www.fya.org.au/report/the-new-work-smarts/>, 2017.

Deloitte Access Economics, <https://www2.deloitte.com/au/en/pages/economics/articles/soft-skills-business-success.html>, 2017.



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Technology and digital disruption changing education





Curtin's Strategy

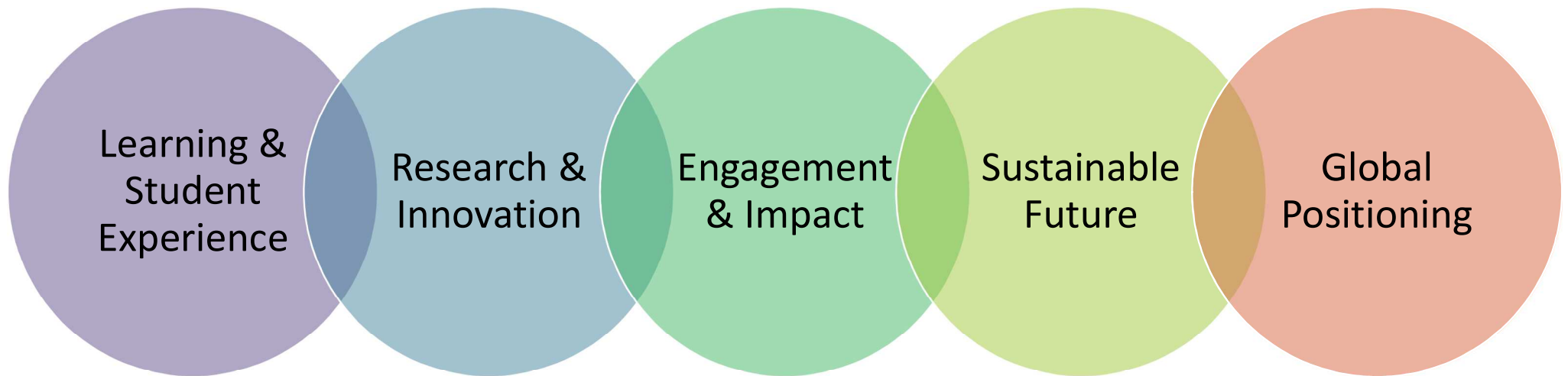
Guy Grey-Smith, 1968, *Above the sea* (detail), Oil on canvas on board, Curtin University Art Collection



Curtin University

Strategic Plan 2017-2020

Delivering Excellence



- Personalized learning
- Seamless, innovative, digital environment
- Distinctive Curtin student experience

- Innovation Centre
- Demand-driven research

- Industry embedded
- Cisco as Tier 1 partner

- Strategic digital plan for the long term

- Global campuses
- Alliance partners
- Globally connected
- Globally networked



Global Footprint:
*Strategically placed
& strategically focused*



Global Demand:
*Destination of choice for
international students*



Global Experiences:
*Mobility opportunities,
perspectives & skills*

FOCUSED PARTNERSHIPS



China Australia Writing
Centre, Fudan University
Ocean University

FACULTY / DISCIPLINE PARTNERSHIPS



Colorado School of Mines
University of Ghent

APEX PARTNERSHIPS



UNIVERSITY
OF ABERDEEN

Aberdeen

INDIVIDUAL INTERNATIONAL COLLABORATIONS



GLOBAL STRATEGY

Globally connected, Globally networked



Curtin University

Encircling the Indian Ocean Rim





Perth Campus: 1967



Curtin University



Curtin Malaysia: 2002



Curtin Singapore: 2008

A large, multi-story, light-colored building with many windows and decorative architectural elements, including a central courtyard and a prominent entrance. The building is set against a clear blue sky.

Curtin Dubai: 2017



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Curtin Mauritius: 2018

An abstract oil painting on canvas, featuring a complex composition of dark, textured brushstrokes in shades of black, grey, and blue. Interspersed are vibrant areas of yellow, orange, and red. The overall effect is one of dynamic energy and depth, with visible layering and impasto techniques.

Industry aligned in teaching and research

Aida Tomescu, 1991, *Vis IV* (detail), Oil on canvas, Curtin University Art Collection, Gift of Dr Ian and Sue Bernadt through the Cultural Gifts Program 2000



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IoT Innovation Central Perth

New Models of Industry Engagement

Australian Government



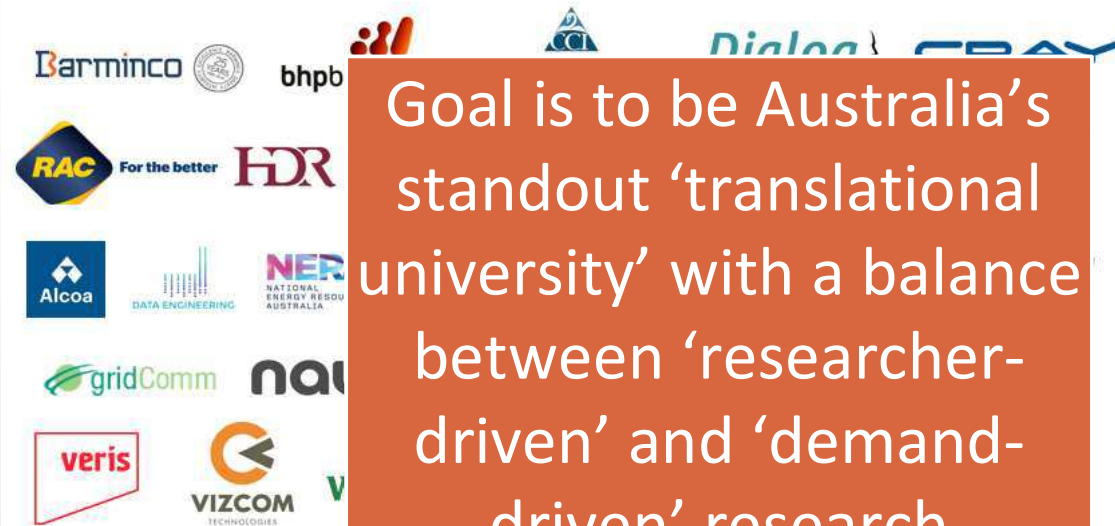
WA Government



Local Government



Engagement with Big Challenges



Goal is to be Australia's standout 'translational university' with a balance between 'researcher-driven' and 'demand-driven' research

Engagement with the Innovation Ecosystem



Engagement with local, national & International Innovators



Presentations to External Forums



Top 10 Emerging Jobs of the Future

1. Interpreters and translators
2. Operations research analysts
3. Personal financial advisors
4. Computer systems analysts
5. Software developers, applications
6. Market research analysts and marketing specialists
7. Substance abuse and behavioral disorder counselors
8. Information security analysts
9. Meeting, convention, and event planners
10. Management analysts



Transforming Learning and the Student Experience

Guy Grey-Smith, 1968, *Above the sea* (detail), Oil on canvas on board, Curtin University Art Collection



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What Must We Become?

Sought After By Students, Sought After by Employers



Learners choose
Curtin because...

Employers choose
Curtin learners

Then, Curtin can **choose**
its learners

Transforming Learning @Curtin

Why?



- Students have **unprecedented choice** to source knowledge and credentials, globally
- Technology has enabled **global competition** to arrive on Curtin's doorstep and we must position ourselves to respond
- **Employers** expect something different from graduates and Curtin must engage address this in a whole of organisation way
- Our **future is global** with an immediate opportunity of 1.53b people in Curtin's time zone

Learning for Tomorrow Strategy

What are we trying to achieve?



- Enable teaching and learning in modes that best support learning outcomes, in ways that **scale profitably**
- **Personalised learning** at scale
- Engage in **industry embedded** and industry enabled courses, globally
- Equip Curtin Learners for the **future workforce**
- Identify and engage **new markets**

Curtin Converged: Teaching and Learning Framework



Learning Transformation

Achievements



- 200 UG Course transformation – Flagship programs
- Flipped Classroom 87% of courses
- Professional Learning Essentials – Build staff capacity
- Work-integrated learning and Leadership programs
- 90 new collaborative learning spaces
- edX consortium membership since 2015
- Digital Learning @ Curtin Strategy
- Over 100 fully on-line Programs
- UNESCO Chair in Data Science in Higher Education Learning and Teaching



Learning for the Future

- Bachelor of Advanced Science (Honours)
- Data Science/Predictive Analytics
 - Bachelor of Engineering and Mechatronics
 - Postgraduate suite of courses in Digital Marketing
- Internet of Things MicroMasters

- ❖ New offerings planned in financial technology; design; aerospace engineering
- ❖ Broad range of new double degrees being rolled out
- ❖ New offerings in Malaysia & Mauritius (Cybersecurity & Construction Management)



Digital Learning at Curtin Strategy



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:: Mode

:: Learning platform

:: Credentials

:: Key markets

:: Key offerings

:: Scale

:: Entry requirements

:: Study options

:: Student/Teacher ratio

CurtinX

Online

edX

Micro credential

Honor Certificate (free)

Verified Certificate (paid)

Global

MOOCs

XSeries MOOCs

Professional Learning

Pathways

Unlimited

None

Self-paced

1000:1

Self-paced

Minimally moderated

Curtin OUA

Online

Blackboard

Nationally accredited courses

Fee based

Australia (especially Eastern States)

Courses

Units

Limited

UG – None

PG – Curtin authenticated qualifications

Fixed study periods and sessions

50:1

Moderated

Curtin Prime*

Online and Converged

Blackboard

Nationally and Internationally accredited courses

Fee based

WA, Australia, International

Courses

Units

Limited

UG – ATAR or equivalent, Portfolio, Bridging Programs, Mature-age entry, CurtinX

PG – Curtin authenticated qualifications including UG, CurtinX

Fixed study periods – trimesters, semesters and study periods

25:1

Moderated



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edX Partnership

❖ >314,828 edX learners – 21 Courses and 30,930 Astronomy – Open2Study

❖ Curtin viewed as a leader and valuable collaborator

❖ 3 MicroMasters Programs

❖ Tech Mahindra offering IoT MM to 117,000 employees and interview to others

❖ Global Partnerships

Berkeley
UNIVERSITY OF CALIFORNIA















**Massachusetts
Institute of
Technology**



UC San Diego



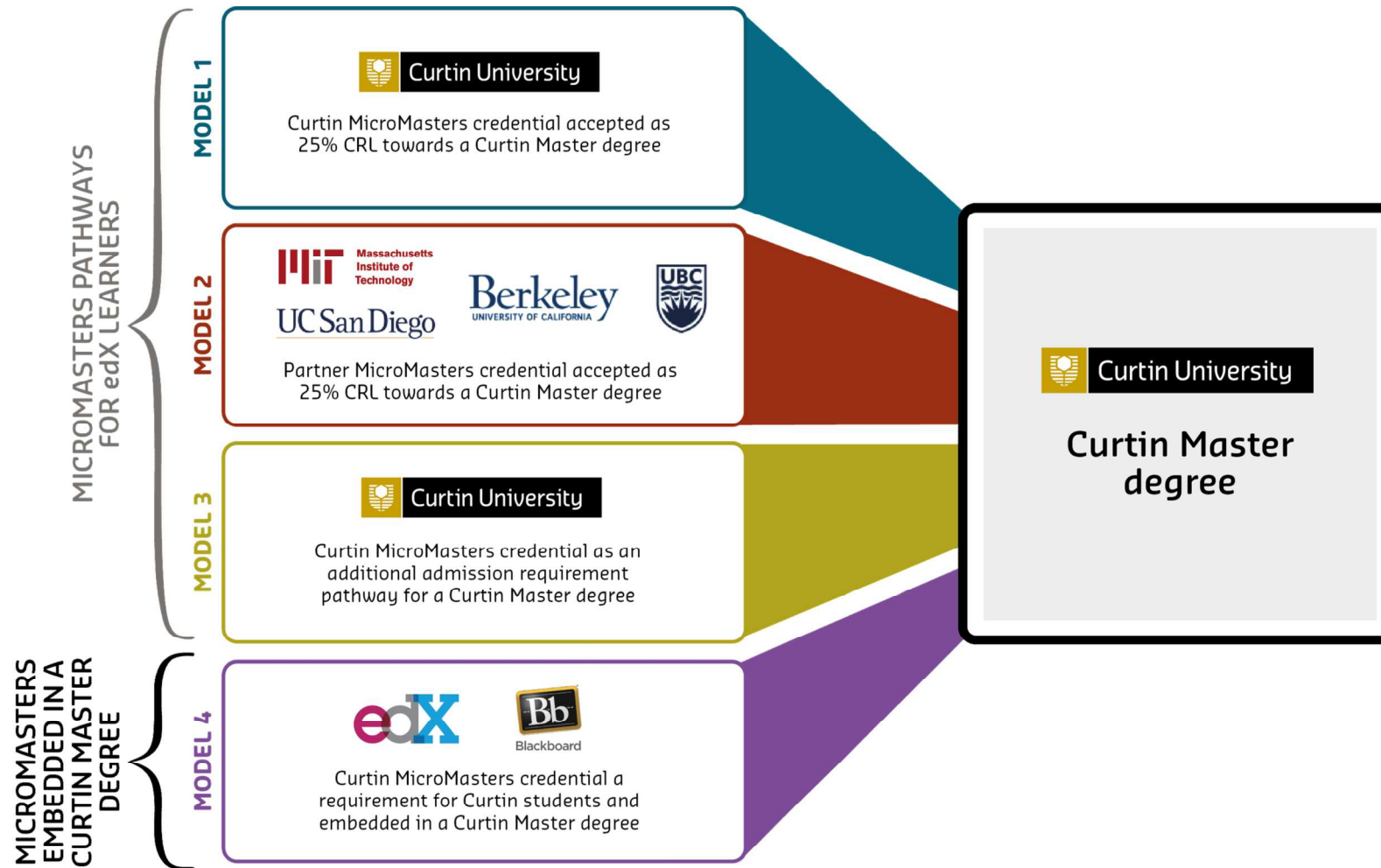
THE UNIVERSITY
OF BRITISH COLUMBIA

 <p>MICROMASTERS PROGRAM</p> <p>CurtinX Marketing in a Digital World Advance your career and help your organisation succeed by developin...</p> <p>Current</p> 	 <p>MICROMASTERS PROGRAM</p> <p>CurtinX Internet of Things (IoT) The IoT is leading a digital revolution for industries. Learn to...</p> <p>Current</p> 	 <p>MICROMASTERS PROGRAM</p> <p>CurtinX Human Rights Learn about human rights as a multidisciplinary field from history...</p> <p>Current</p> 
 <p>VERIFIED</p> <p>CurtinX The Business of Mining</p> <p>Current Self-Paced</p>	 <p>VERIFIED</p> <p>CurtinX Analytics for the Classroom Teacher</p> <p>Archived Starts: October 24, 2016</p>	 <p>VERIFIED</p> <p>CurtinX How Media Got Social</p> <p>Current Starts: January 29, 2018</p>
 <p>VERIFIED</p> <p>CurtinX Environmental Studies: A Global Perspective</p> <p>Archived Starts: September 12, 2016</p>	 <p>VERIFIED</p> <p>CurtinX Life with Diabetes</p> <p>Archived Starts: September 4, 2017 - Self-Paced</p>	 <p>VERIFIED</p> <p>CurtinX Reputation Management in a Digital World</p> <p>Starts: October 24, 2016</p>



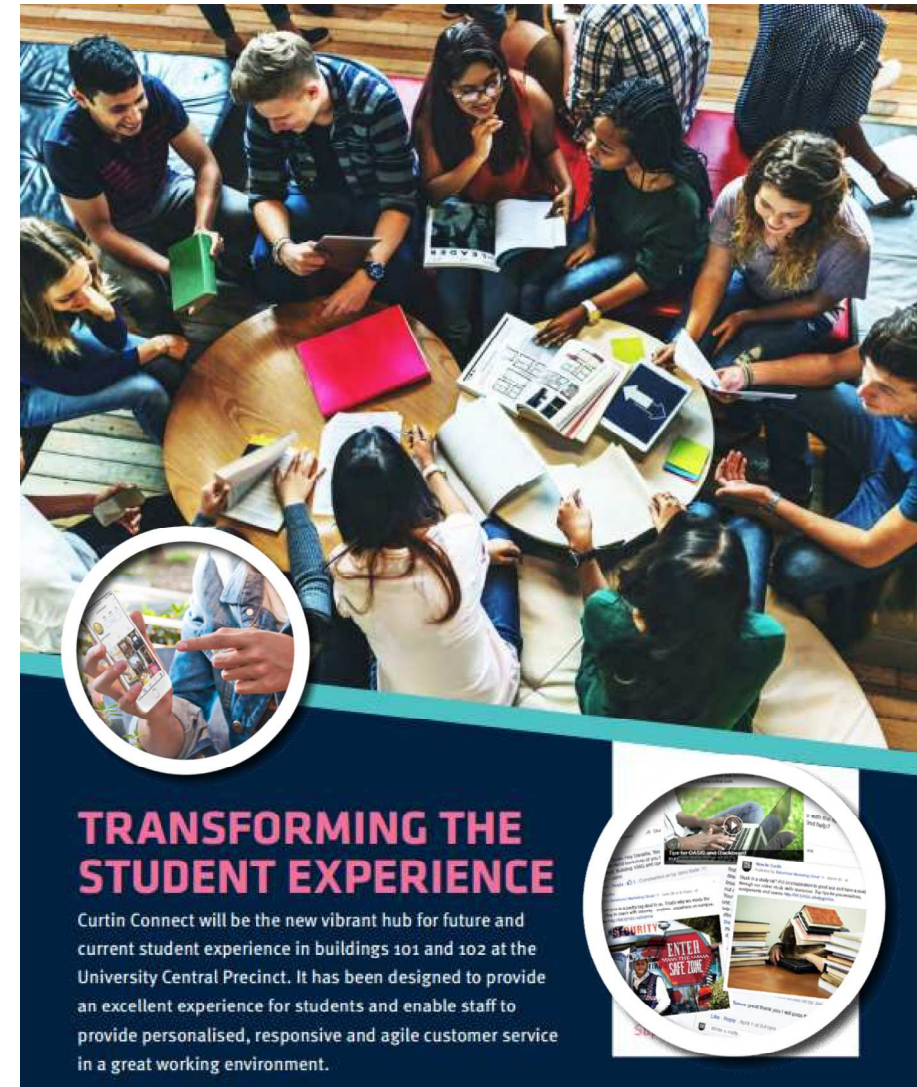
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MicroMasters™ Models



Distributed Learning Spaces

- Supporting synchronous and classroom learning
- > 90 distributed learning spaces
 - Bentley, CBD, Kalgoorlie, Pilbara, Miri, Singapore, Mauritius, Dubai (2018)
- 95 units distributing in 2017
- Technical Assistants and Support (first 4 weeks)
- Staff Professional Learning Modules (online) - Higher Education Academy





WebEx



Finalise the group activity worksheet – and return to your tutor (if not yet done)

Discussion Question 1

Discuss whether your new retailer should adopt a single or multi-channel approach to retailing. Highlight the advantages of each perspective.

Discussion Question 2

From your consumer's perspective how would you overcome the disadvantages of using the web in your retailing strategy?

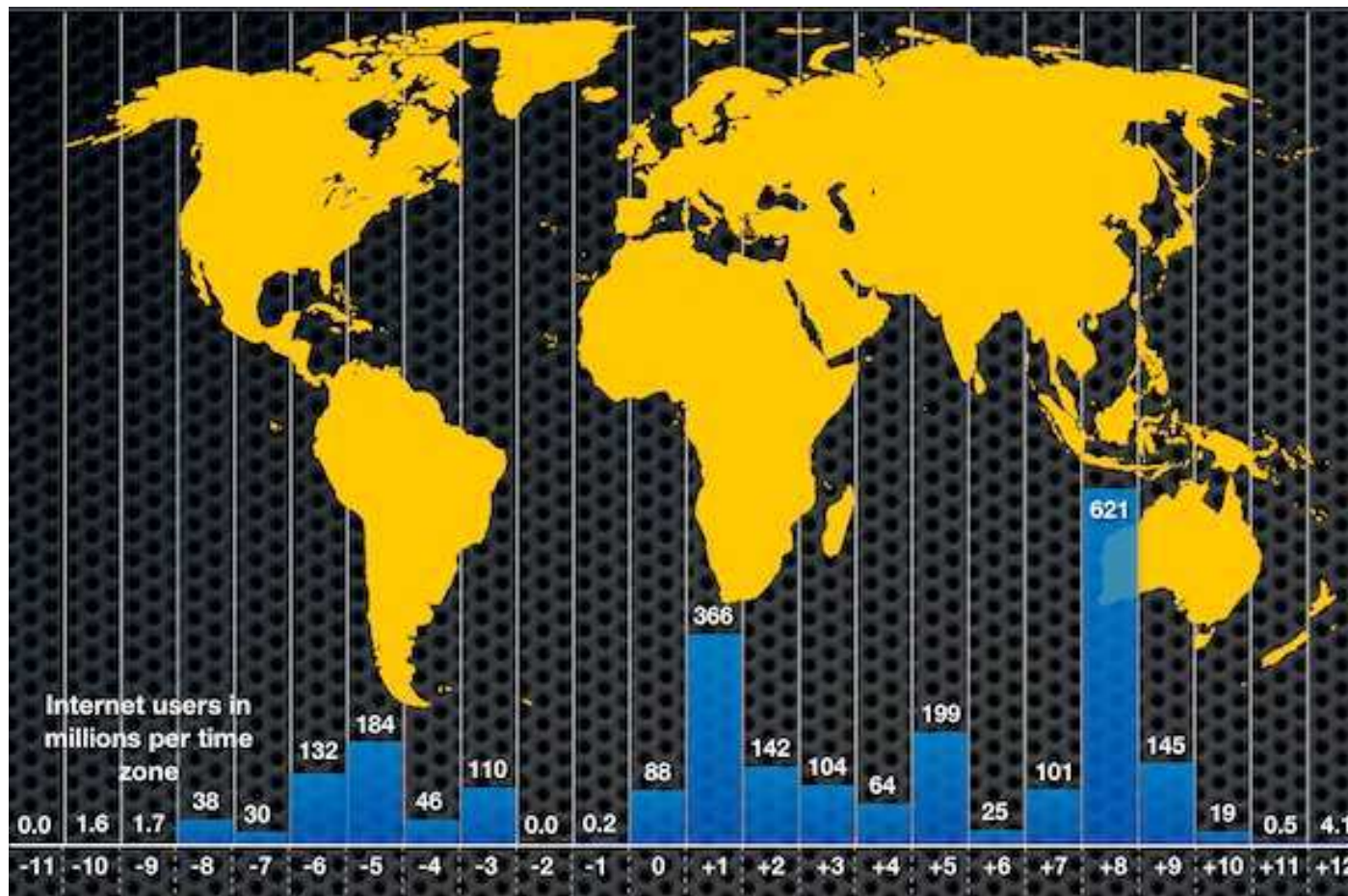
"...I have to travel from Karratha to the classroom which is about 250km. Any other way I would be external and wouldn't be able to interact as you do with the tutors. So for me it's just the best ever form of learning that I have had in 20 years."

(Pilbara Student, 2014)



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New Markets: Internet Users By Time Zone



Source: <https://royal.pingdom.com/2013/02/12/internet-users-time-zone-2/>

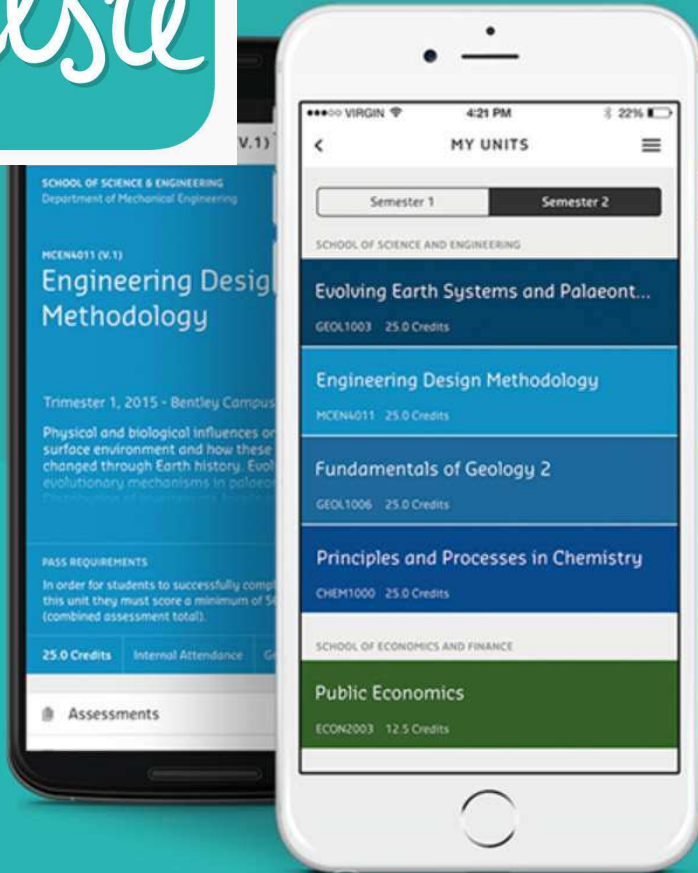
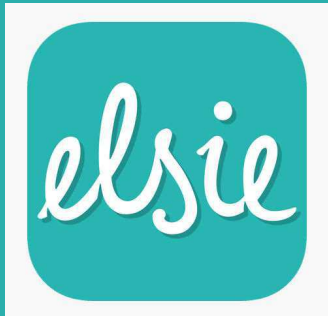


Transforming our Learning and Teaching Spaces



DIGITAL STUDENT ENGAGEMENT





In 2017:

- Curtin students accessed 3.77m online iLectures; around 6m Blackboard logins, > 25% on mobile devices
- 21,749,818 visits to our digital platforms; 70% students

In 2016:

- Curtin students accessed 2.4m online iLectures; around 6m Blackboard logins, > 25% on mobile devices
- 37,202,089 visits to our digital platforms; 70% students



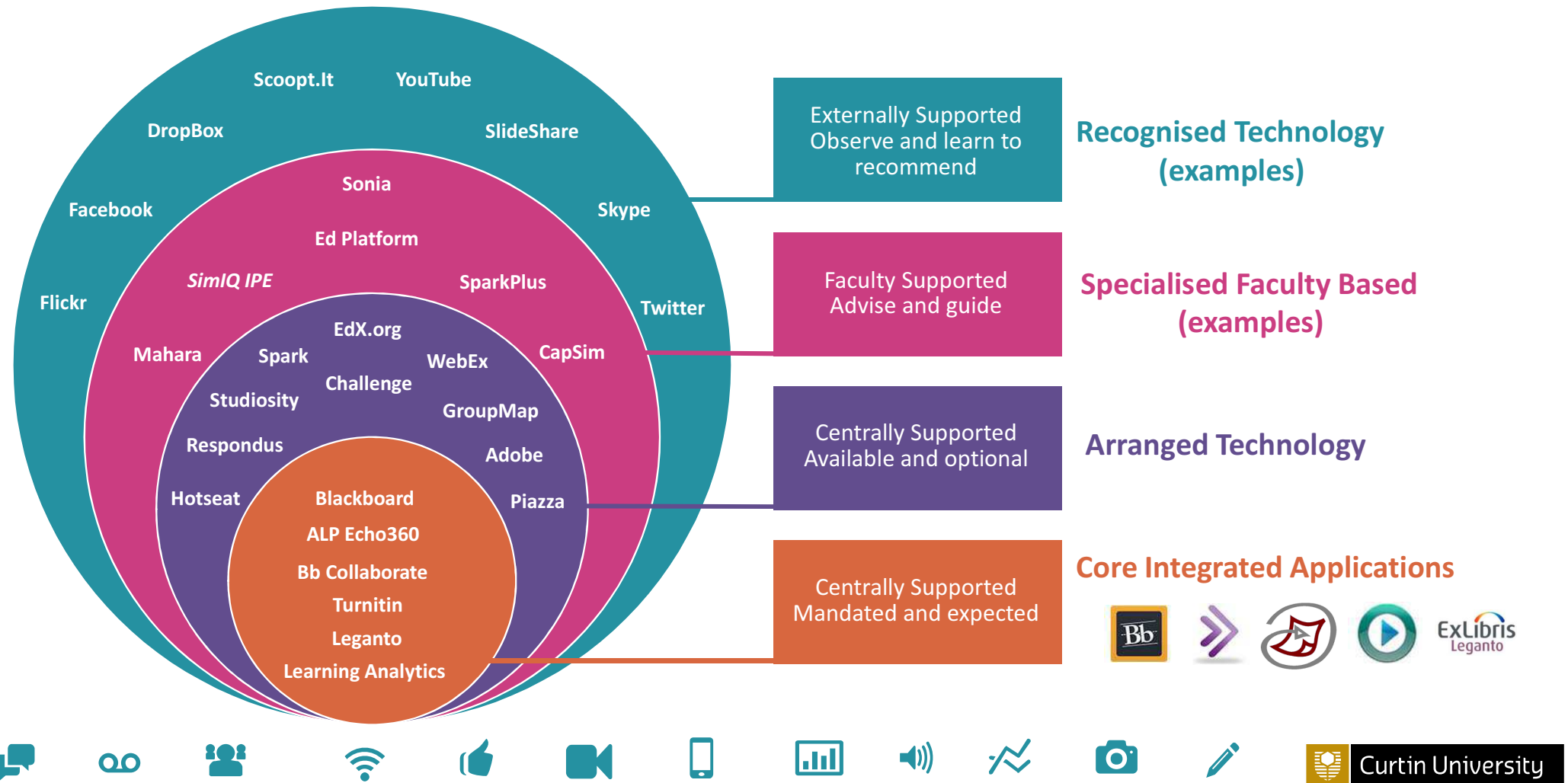
Challenge game-based tool for Unlimited Learning

*Increasing access and on-ramps to university:
Integrating learning on campus and on-line*

- **Challenge Platform** integrated with **Blackboard (LMS)** and exploring **Cisco SPARK (now Webex Teams)** integration with **Open edX**
- Established the **Innovative Schools Consortium** and **Future Schools Network** including creation of blended and distributed learning communities

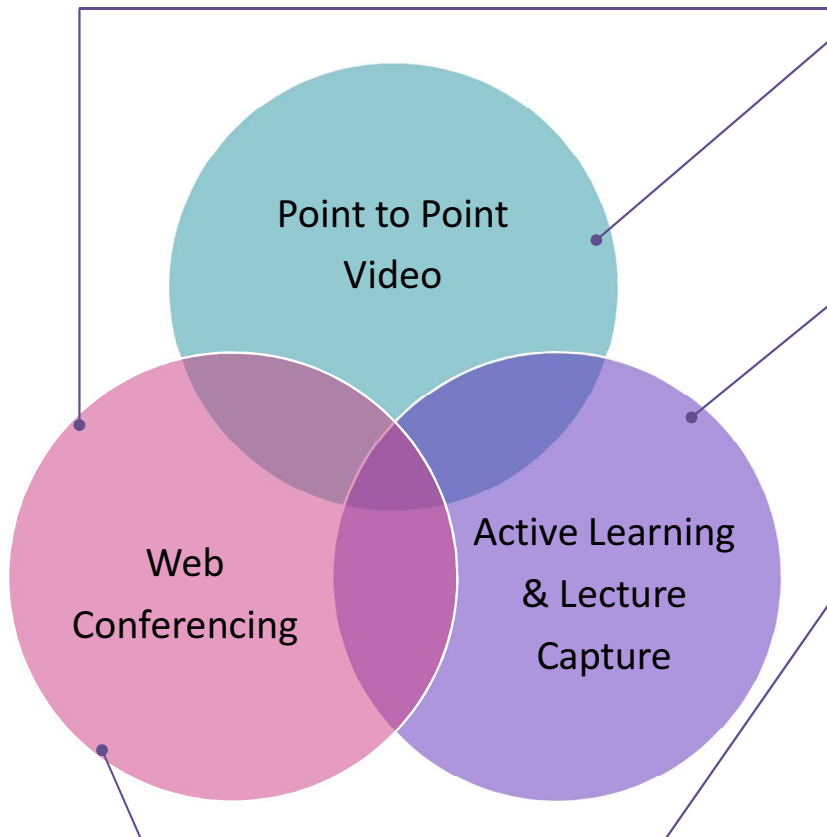


Curtin's Learning Technology Ecosystem



Global Learning

Synergy



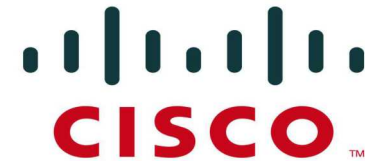
Capability

*HD Video-Conferencing
WACOM Enabled
App-Sharing*

*Live Web Casting
Classroom Response
Analytics
Personal & Venue Capture*

*LMS Integration
Chat
Tiled Video
Break-out rooms*

Technology Partners



Features of Global Learning Spaces



Curtin Law School



CBS Stock Trading Floor



Contemporary Design



Configurable groupings



Remote Tracking Cameras



Pressure Pads



Multi-Screen Projection



Wireless



BYOD



Boundary Microphones



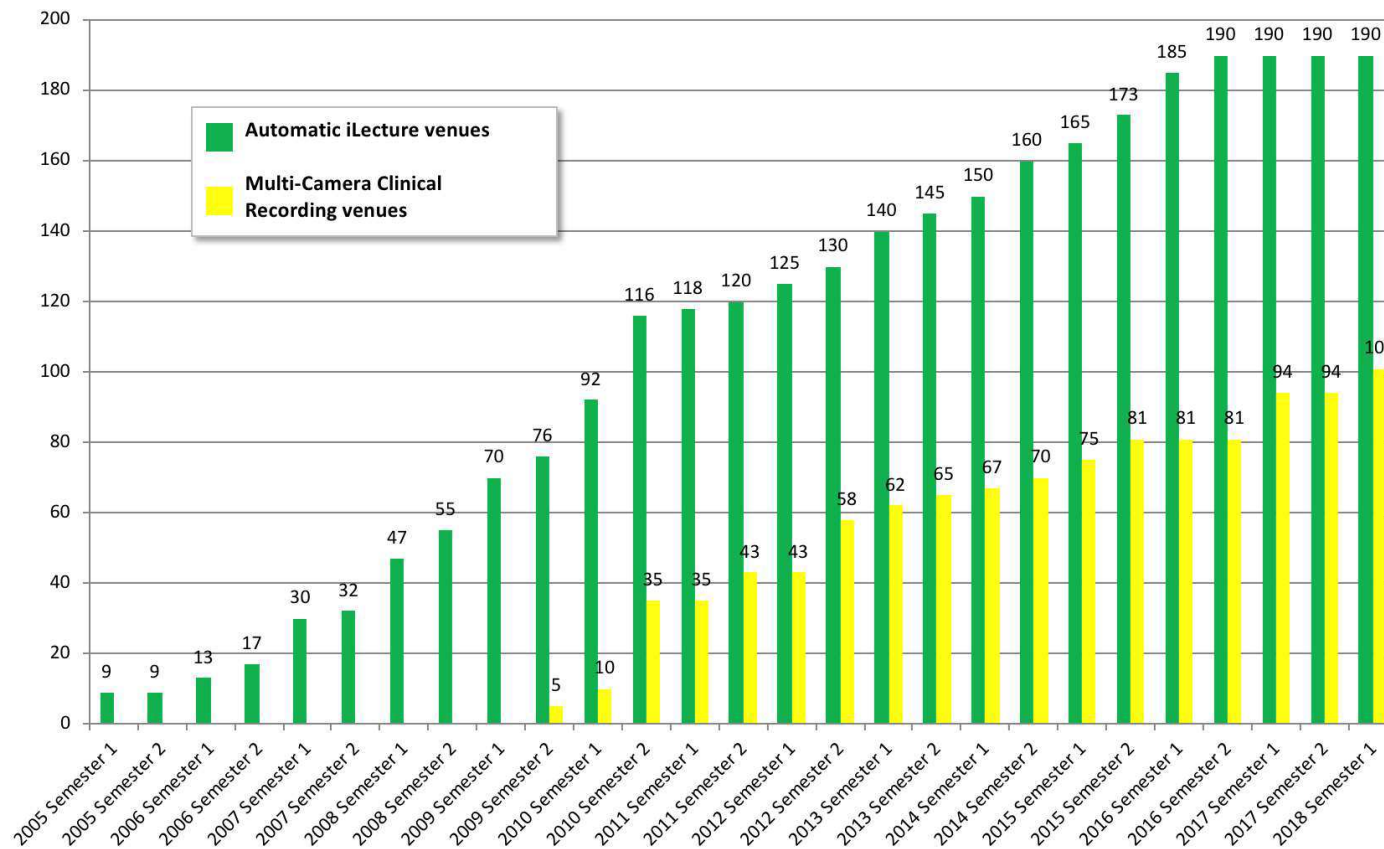
Document Camera



Curtin University

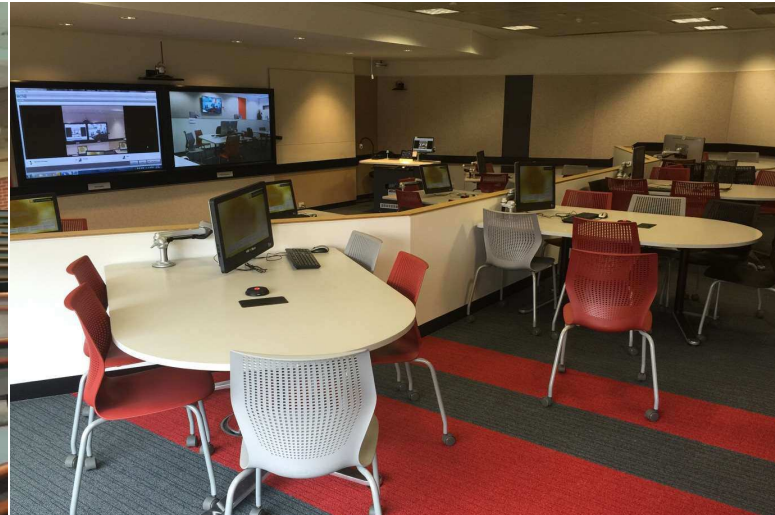
iLecture-equipped Venues

iLecture Venues 2005 - 2018





190 Automatic iLecture Venues





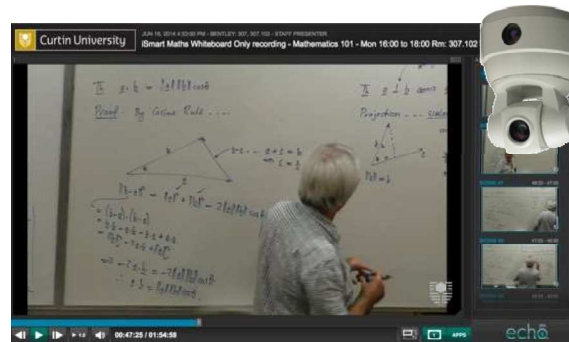
100 Clinical Multi-Camera iLecture Venues



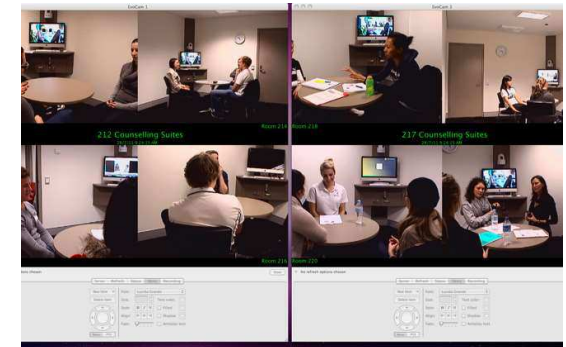
Curtin iLectures – Ubiquitous capture



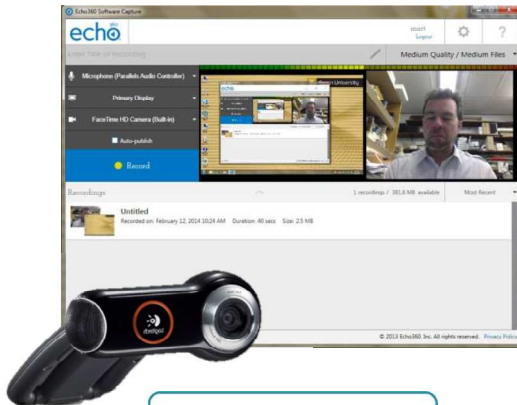
Lecture Capture



Auto-Tracking Cameras



Multi-Camera Clinical Capture



Echo360 PCAP

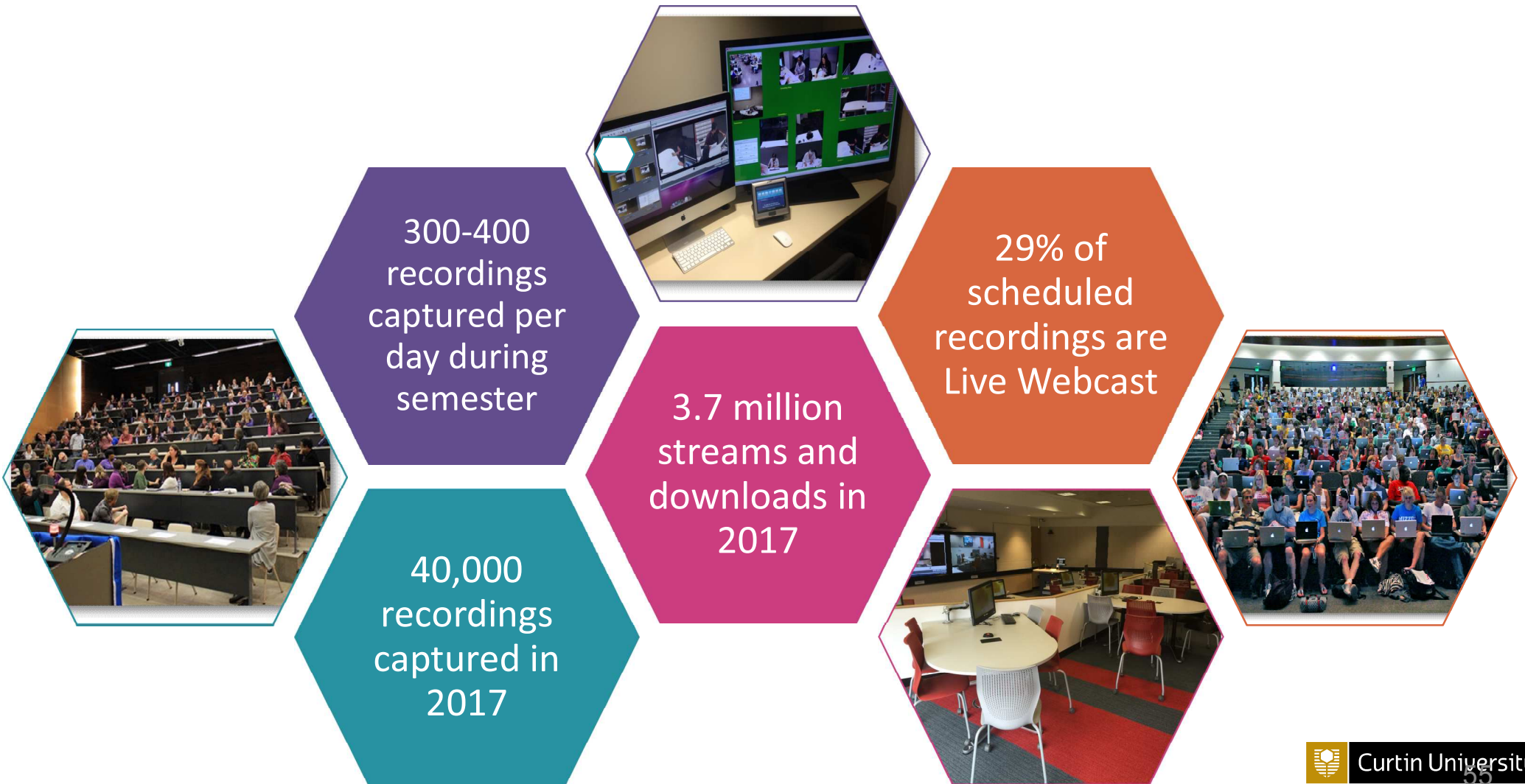


Student Assignment Capture



Live Webcasting

Curtin iLecture Lecture Capture Statistics



Learning Analytics

Student Background

Foundations for Professional Health Practice (Semester 1 2018 Bentley Campus - INT[1])

Academic Year Level

Non Award	1st Academic Year	24
	1st Academic Year	2143
Undergraduate	2nd Academic Year	18
	3rd Academic Year	2

56

Avg CWA

124

Conditional Students

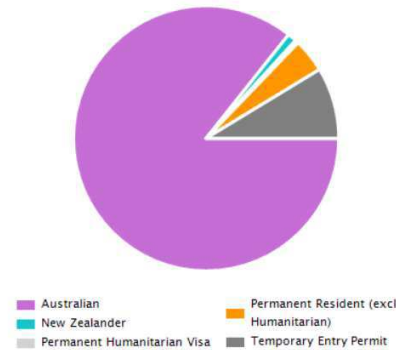
51

Previously Failed
Students

Top Courses/Majors

Course	Major	Distinct Sudents
Bachelor of Pharmacy (Honours)		122
Bachelor of Psychology		249
Bachelor of Science (Exercise, Sports and Rehabilitation Science)		117
Bachelor of Science (Health Sciences)		347
Bachelor of Science (Human Biology Preclinical)		126
Bachelor of Science (Laboratory Medicine)		79
Bachelor of Science (Nursing)		231

Citizenship



46

Students with a
Disability

Disability Types

Disability Type	Distinct Students
Learning	10
Medical	13
Medical, Learning	1
Mobility	2
Mobility, Medical	1
Other	12
Other, Learning	1



STUDENT EXPERIENCE



Delivering on the Value-Add of the Campus Experience



The Distinctive Curtin Student Experience

- 📖 Choice, options and flexibility for individuals
- 👥 Build networks and create opportunities
- 🧠 Learning to think creatively & strategically
- 🌐 A sense of belonging to a diverse & innovative global community
- ↔️ An inclusive, connected environment
- 🔧 Industry-exposure to enable students to build a portfolio of employability-related skills

The background of the slide is a vibrant, out-of-focus photograph of a festival or concert. Several people are visible, their faces and clothing covered in bright, multi-colored powders or paints. One person in the foreground wears red-rimmed sunglasses, while another in the center wears dark sunglasses and has their mouth open in a joyful expression. The overall atmosphere is one of celebration and social interaction.

The 'Campus Experience' Will Survive

“Traditional universities have a few trump cards. As well as teaching, examining and certification, college education creates social capital. Students learn how to debate, present themselves, make contacts and roll joints. How can a digital college experience deliver all of that?”

Source: The future of universities: the digital degree., The Economist, 28 June 2014

“I don’t think you can get a Stanford education online, just as I don’t think Facebook gives you a social life.”

Susan Holmes
cited in den Hollander, CEDA, 2015

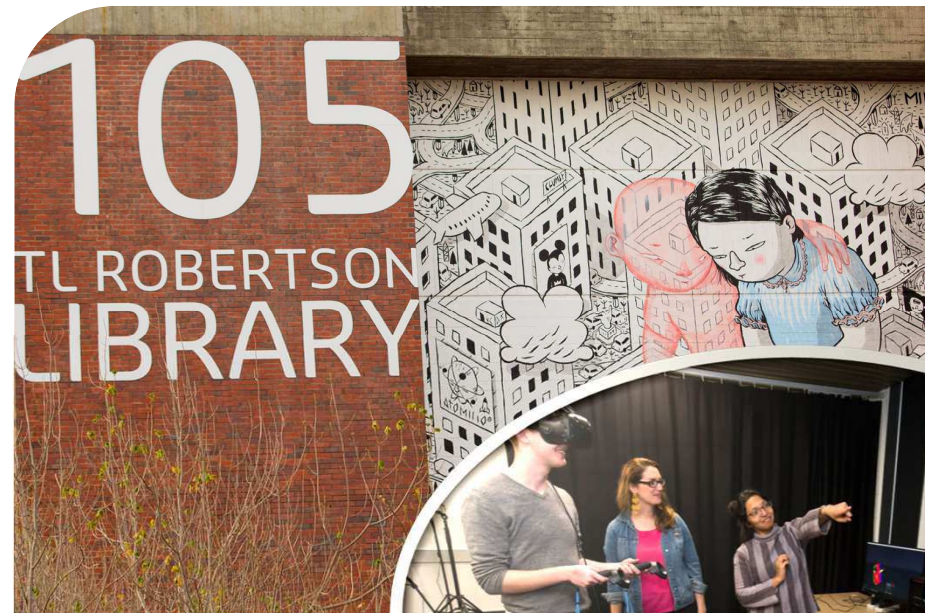


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Curtin Connect - Excellent Student Experience

- ❖ Flagship best practice Student Precinct
- ❖ Leading edge, innovative, vibrant, dynamic, stimulating, 'One Stop Shop'
- ❖ Single point of contact for student enquires - walk ins, email, phone, digital
- ❖ Services across Student Services, Student Experience, Curtin International, Future Students
- ❖ Integrated technology - personalized interactions, concierge



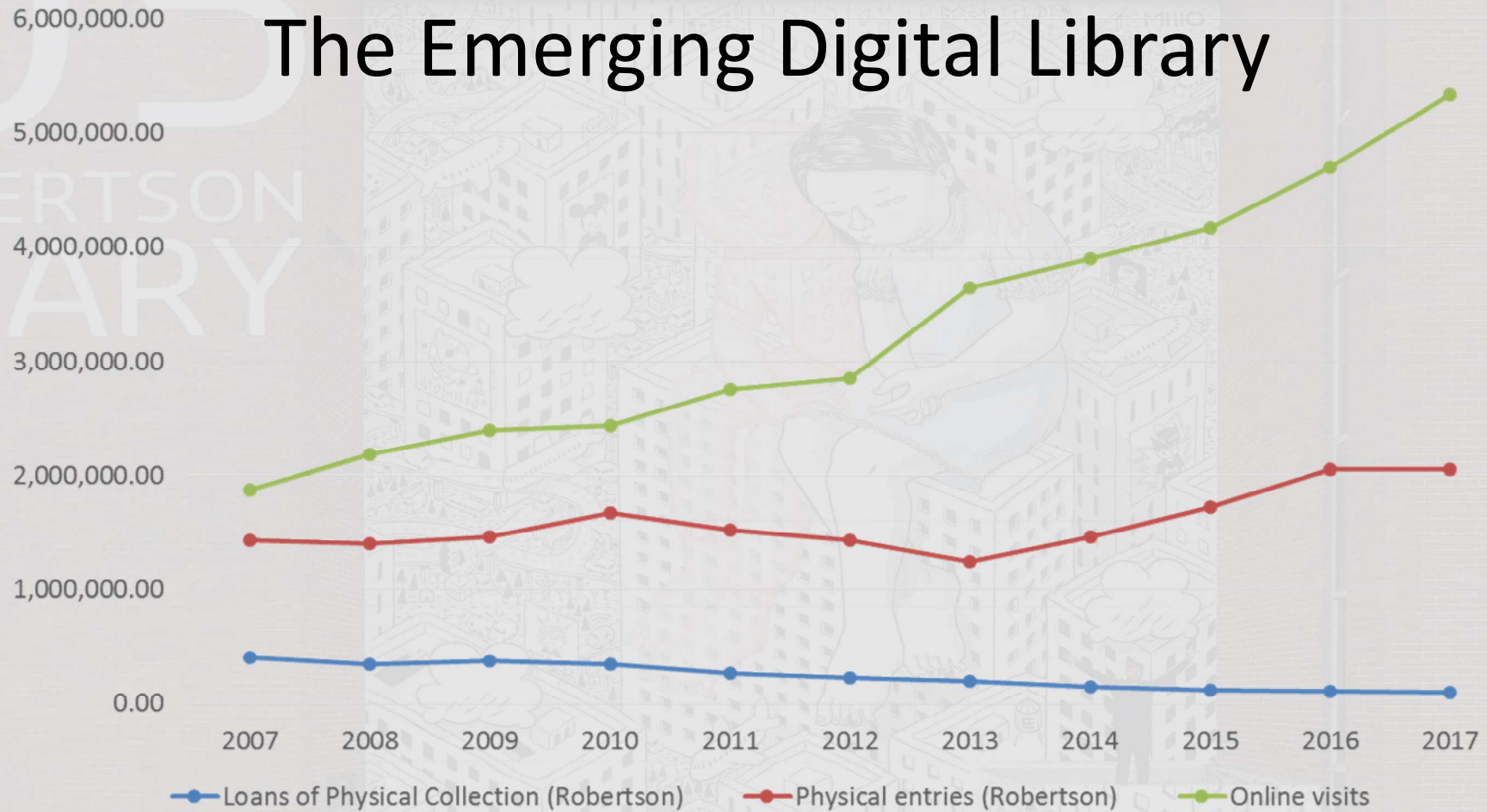


Library

- ❖ Student Success now consolidated in the Library – UniPass, Learning Centre, Librarians
- ❖ New Makerspace – emphasis on ‘learning by doing’ with VR, AR, robotics, coding, 3D printing etc.
- ❖ Student focused service design project - explains how the Library is creating value for students
- ❖ High uptake and satisfaction rating by academic staff for the new Reading Lists (e-reserve) Leganto software

105
ROBERTSON
BRARY

The Emerging Digital Library



An abstract oil painting on canvas, featuring a dominant blue color palette. The composition includes dark, textured brushstrokes in the upper left and bottom right, contrasting with smoother, lighter blue areas. A white rectangular box is superimposed over the center of the image, containing the title text.

Toward a global digital future

Guy Grey-Smith, 1968, *Above the sea* (detail), Oil on canvas on board, Curtin University Art Collection



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Vision for the Digital Age of Learning

10
Years

- New modes of learning – some fail
- From 2020 some universities unviable
- Industry/University global degrees
- Post Graduate starts to disappear as we know it
- Stackable credentials the norm
- Policy changes could be the big disrupters?
- Input model could fail?

20
Years

- Campus will be transformed
- New platforms will have emerged
- Aggregators will have arrived / T&L Production teams
- Universities social, sporting, cultural networking space
- Jobs disappear – life long learning up to 100
- Industry embedded on campus

30
Years

- Teaching and Research separate
- Learning - Virtual and digital
- Micro credentials, holograms – immersive experiences
- AI and Machine Learning dominates
- Bachelor degrees no longer relevant
- Music analogy prevails- university streamed

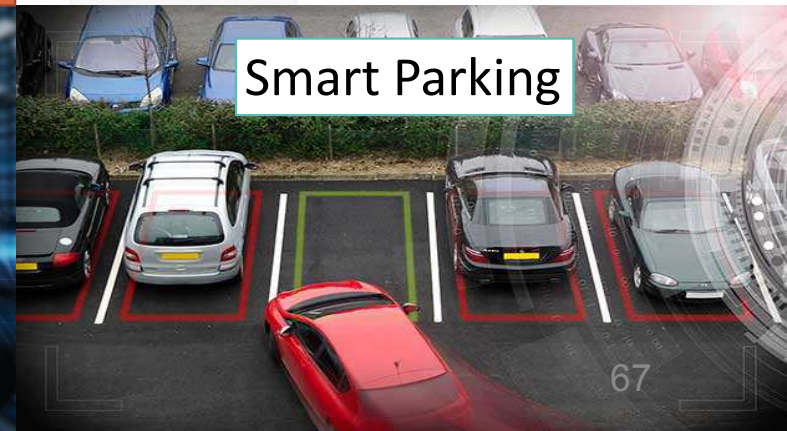
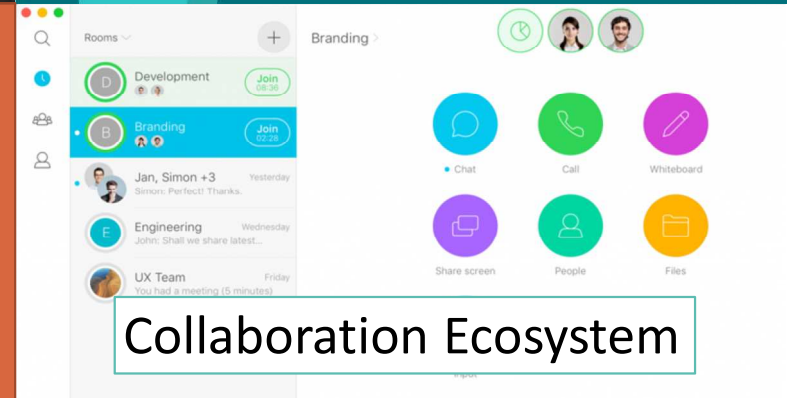
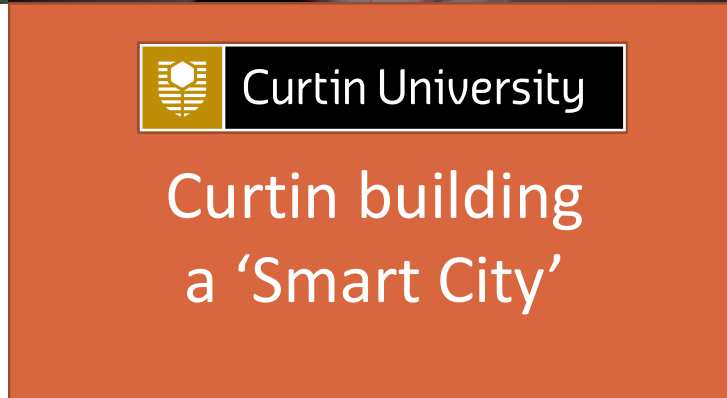
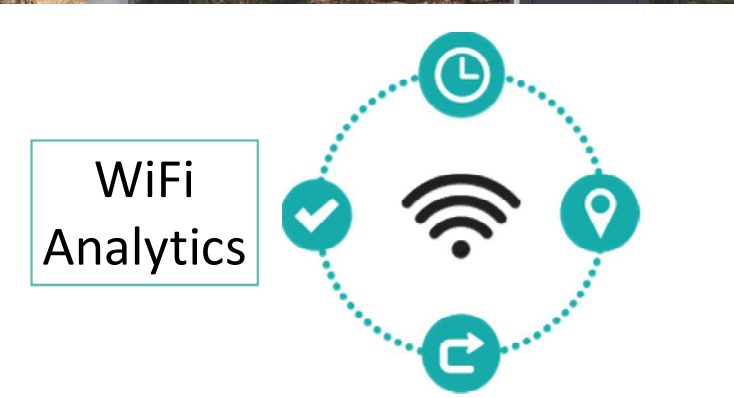
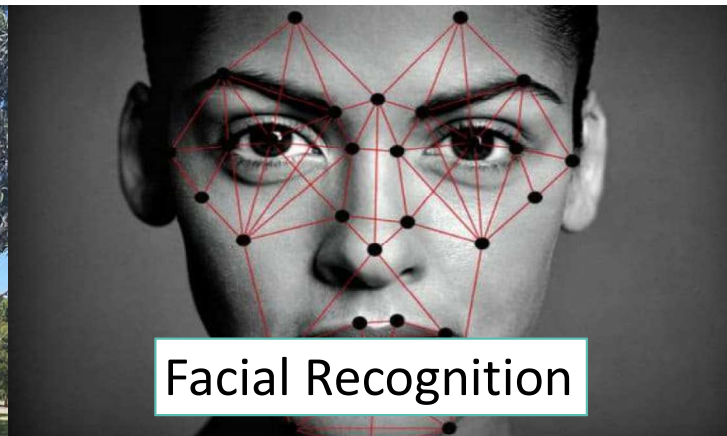




Delivering on the Vision for a Smart Campus

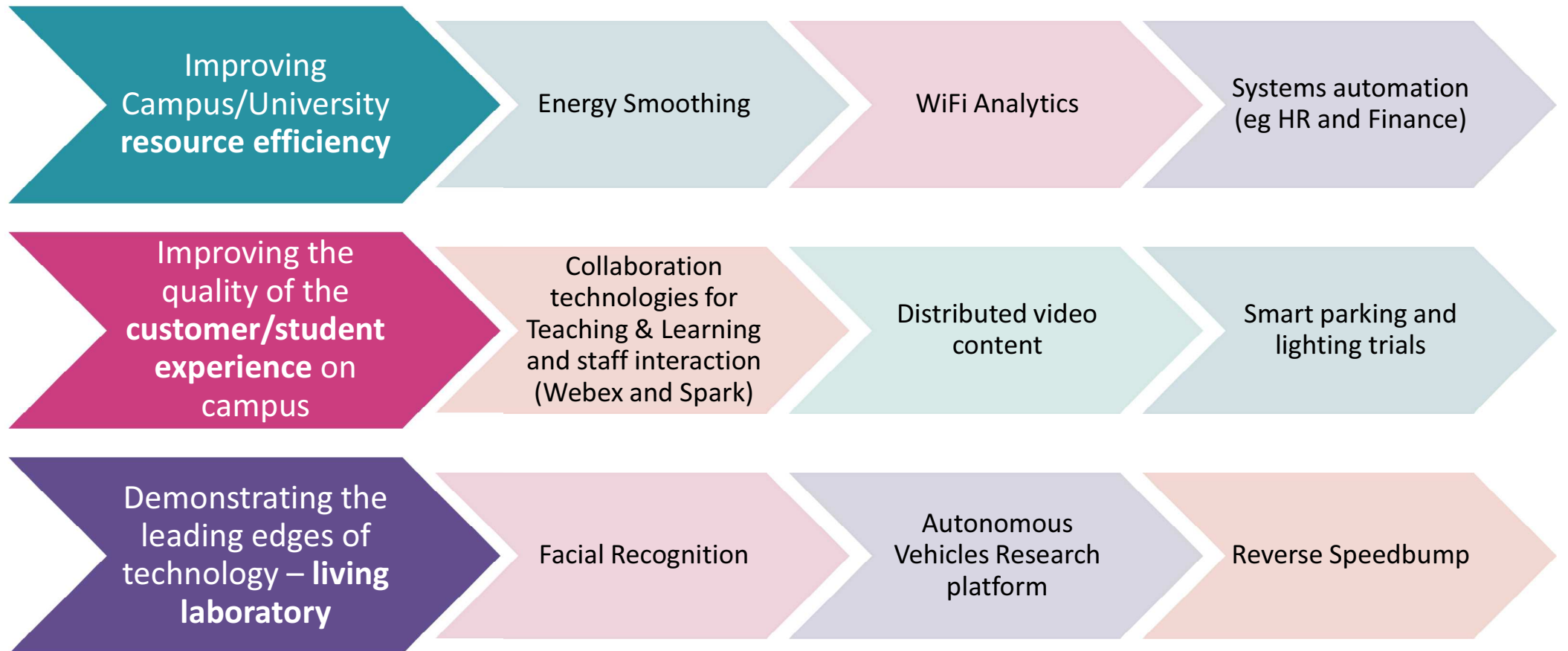


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SMART CAMPUS - Improving Curtin Experience and Efficiency



Smart Campus

Distributed Learning Classrooms

Smart Wifi

- 2000 access points

Smart Power Management

Smart Security

- 1200 cameras
- iCetana video analytics identifying unusual behaviour

Smart Classroom Occupancy

- 300 cameras
- Analytics linking to timetabling and property systems

Smart External Lighting

GPS Enabled Buses and Mobile Tracking App

Smart Parking

- Smart phone payment app
- Number plate recognition enforcement
- Vacant bay identification pilot

Autonomous Bus

Smart Kiosks

- Touch and camera

Smart Radar Operated Speed Bumps

Smart Solar Powered Benches

Smart Solar Powered Bins

Spark Board Pilots



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Future innovation space



Universities in the Digital Age

- ✓ Embrace disruption and broaden your reach
- ✓ University must be a vibrant, effective innovation ecosystem – work out what do we need to do differently?
- ✓ Strengthen links with industry; improve working models; encourage co-location
- ✓ New ways of working together ‘fail fast’
- ✓ Build entrepreneurial skills
- ✓ Digital and innovation – imperatives not choices
- ✓ Universities must be proactive and future oriented in the face of technological disruption

EMBRACE THE DIGITAL AGE



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Thank you

Make tomorrow better.