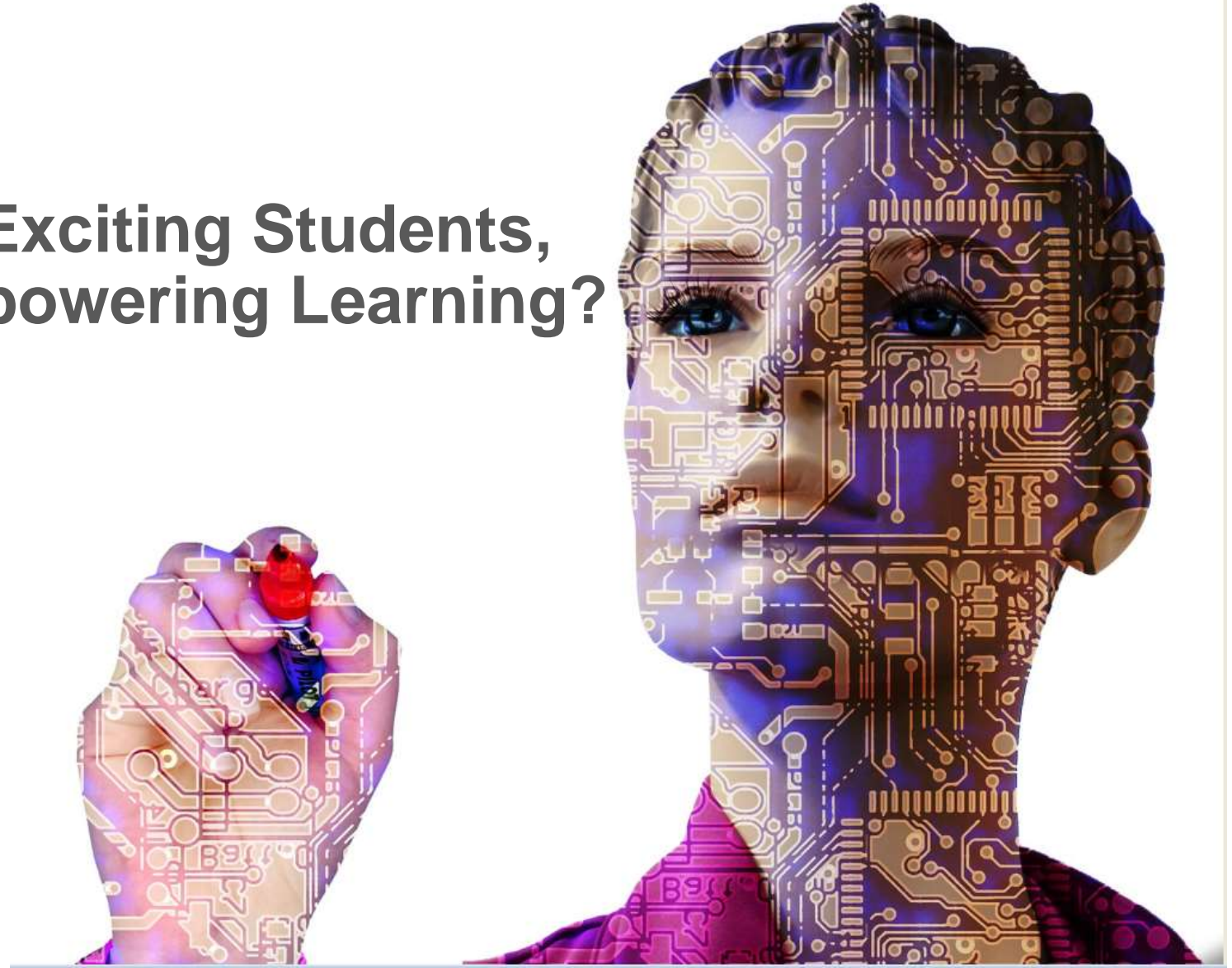# Emerging Technologies, Exciting Students, Engaging Educators, Empowering Learning?

Susan Brosnan
Snr Technologies Advisor (Demonstrator Projects)
The University of Southern Queensland

A little about this presentation

- Some context about USQ
- What we currently know about our students and teaching staff
- Technology Demonstrators
  - Criteria
  - Innovation Management Process
  - The uptake
  - Growth so far
  - What's coming up
  - Sneek Peek at what we've done so far
- Some Learnings, Challenges and Observations
  - USQ staff
  - USQ students
- My Challenge over the next 2 years
- A flagship Demonstrator
- A final word

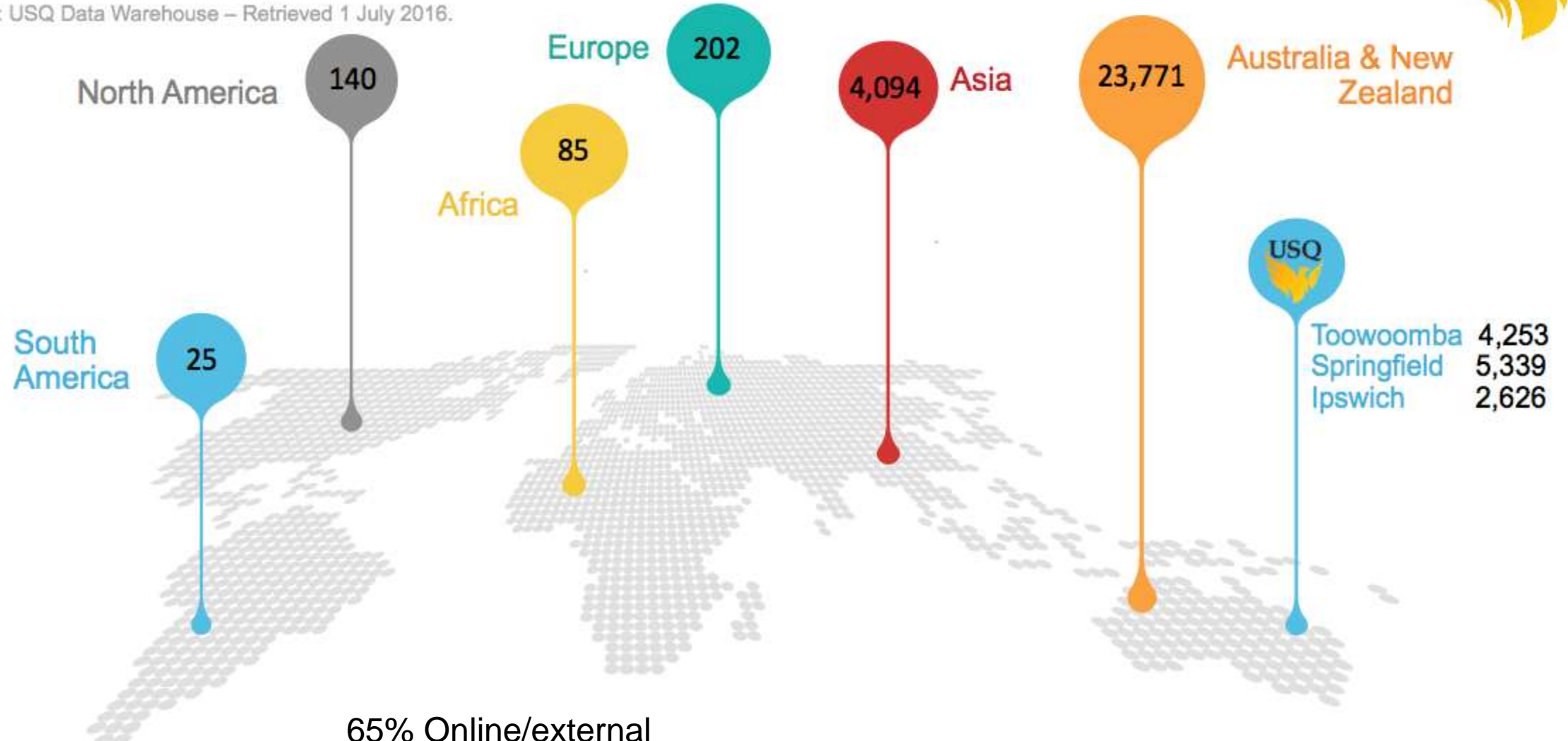# University of Southern Queensland – who are we?

Source: USQ Data Warehouse: Retrieved 27 June 2016.

- Established in 1967 as the Darling Downs campus of Queensland Institute of Technology, in 1971 it became the Darling Downs Institute of Advanced Education, the University College of Southern Queensland in 1990 and finally the University of Southern Queensland in 1992

- Regional University based in Toowoomba – three campuses Toowoomba, Springfield and Ipswich

- We have approximately 28,300 students

- 83.4% in Australia and 16.6% internationally

- We offer courses in Law, Health, Engineering, the Sciences, Business, Education and Arts

- Recognised for its research in the areas of:
  - Agriculture and climate science applications
  - Regional development
  - Education

USQ Profile

COMMENCING STATUS
Continuing 69
Commencing 31

GENDER
54 Female
46 Male

PROGRAM LEVEL
Bachelor 56
Higher Degree Coursework 15
Enabling/Non-award 10
Other Postgraduate 8
Other Undergraduate 7
Cross-International 2
Higher Degree Research 2

ENROLMENT
71 Part-time
29 Full-time

FUNDING
Commonwealth Funded 75
International 15
Domestic Fee-paying 8
Research Training Scheme 2

AGE
1 17 or less
36 18–25
16 26–29
41 30–49
6 50 or more

ADMISSION BASIS
Direct 60
QTAC 21
International 19

ETHNICITY
82 Other Australians
15 International
3 Aboriginal & Torres Strait Islanders

INTERNATIONAL
Onshore 51
Offshore 49

AREA OF STUDY
20 Business & Commerce
19 Education
15 Engineering & Built Environment
12 Health & Community
10 Pathway programs
8 Humanities & Communication
5 Sciences
4 Information Technology
3 Law & Justice
2 Other
1 Creative Arts & Media
1 English Language programs

ATTENDANCE
Online 70
On-campus, Toowoomba 17
On-campus, Springfield 9
*On-campus, Fraser Coast 3
On-campus, Ipswich 1

RESIDENCE
84 Domestic
16 International

USQ AS 100 UNIVERSITY STUDENTS

UNIVERSITY OF SOUTHERN QUEENSLAND AUSTRALIA

*teach out of students following transfer of campus to USC

Technology Demonstrators

What We Know about our USQ Teaching Academics

Source: USQ Data Warehouse: Retrieved 24 June 2016.

10%
Age 25 to <35 years

20%
Age 35 to <45 years

1%
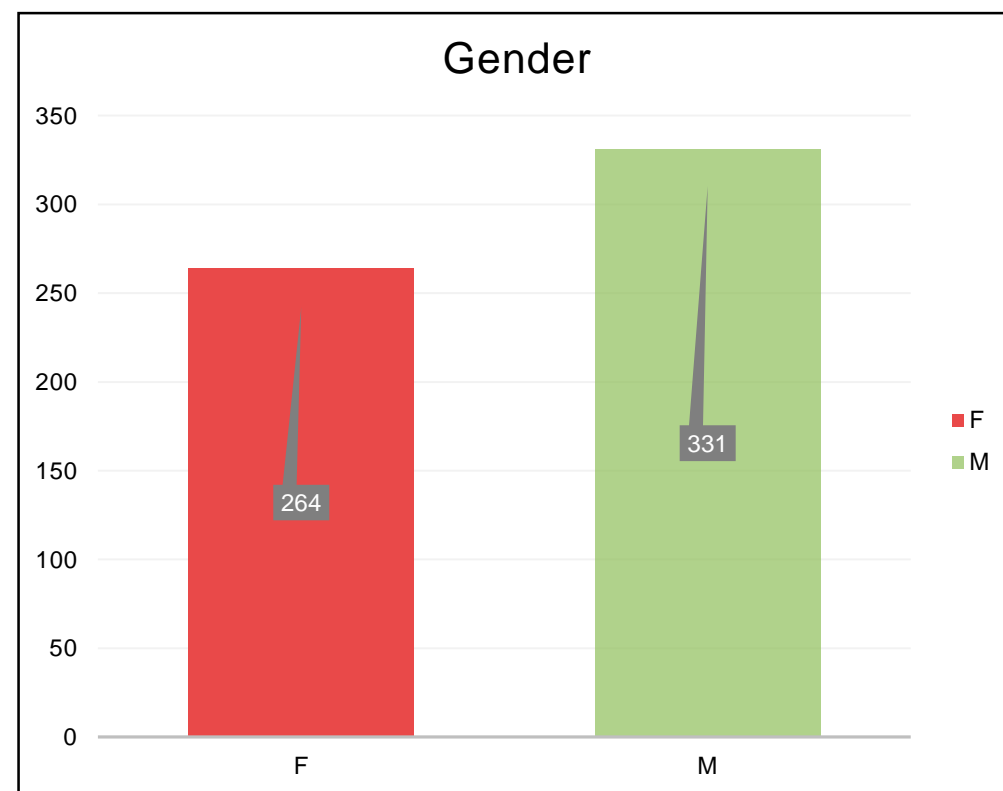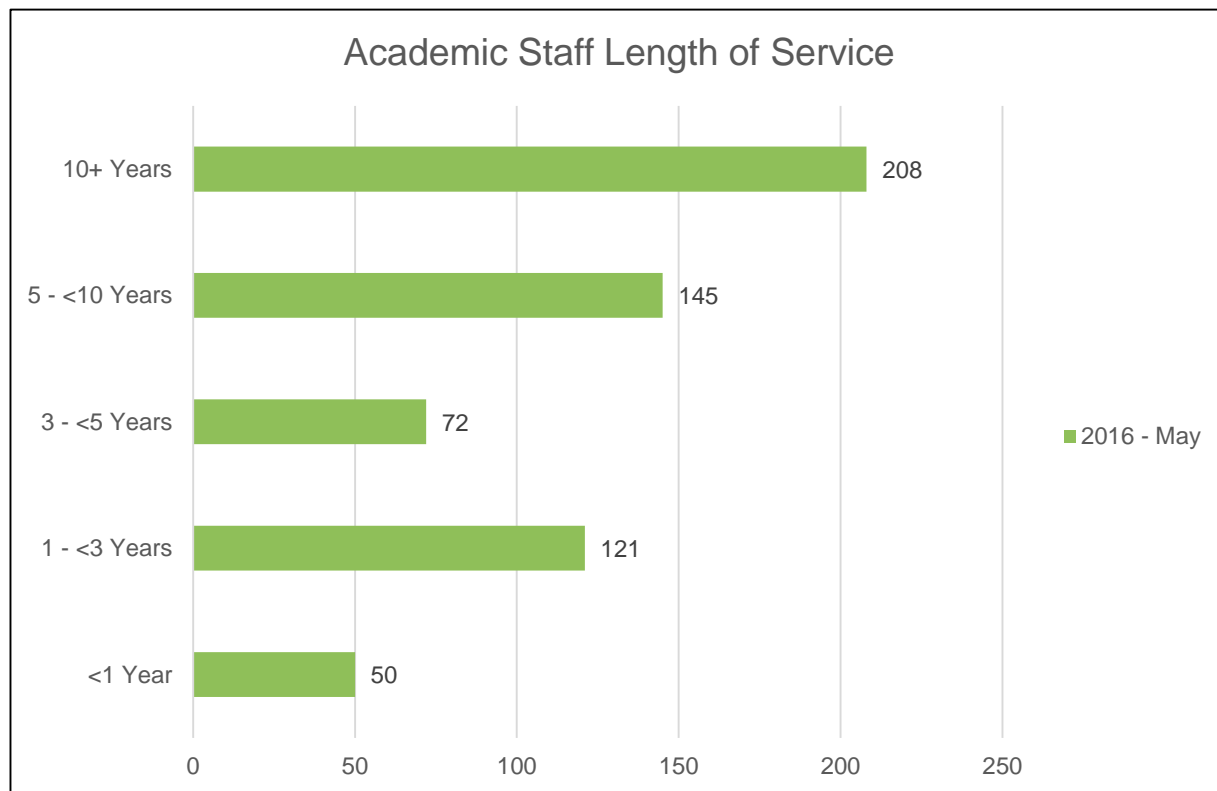Less Than 25 years

28%
Age 55 to <65 years

8%
Age 65+

33%
Age 45 to <55 years
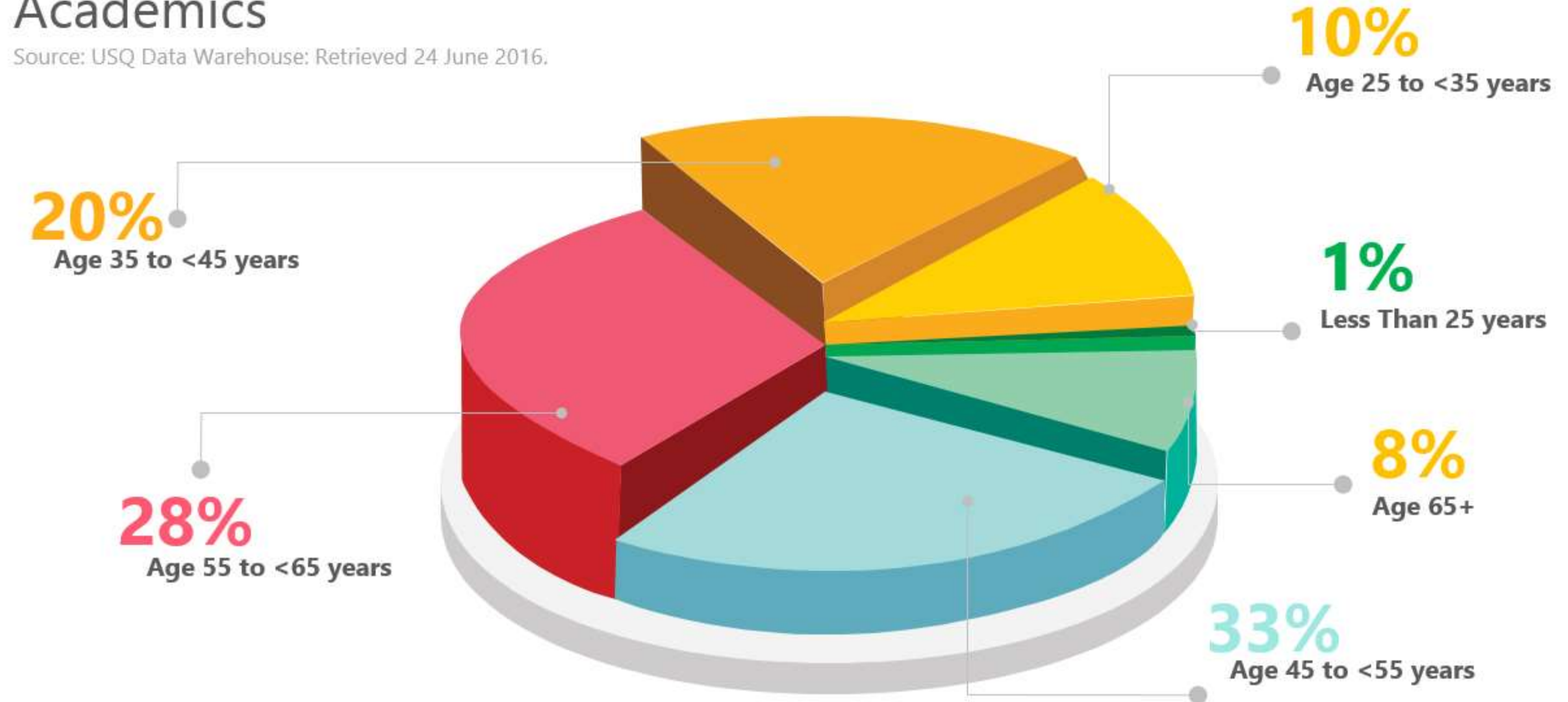
Of 595 Academic staff - approx 69% are between the ages of 45 to 65+

Our Teaching Academics

Source: USQ Data Warehouse: Retrieved 1 July 2016.

Of 595 Academic staff almost half have been at USQ for 10+ years
Slightly more Male then Female – but we are catching up!

Technology Demonstrators

What are they?

The project commenced in August 2015 and using Agile principles is focussed principally on Discovery and Exploration – the idea came from a general recognition that at USQ its important we continuously seek to explore technologies that improve an academics professional practice and motivate and enhance student learning

- The Technology Demonstrator process operationalises a platform to nurture excellence and explore new and innovative ways to introduce technology into the classroom
- Could be a new technology, or using an old technology in a new way
- 90 days to trial a technology – ideas can come from staff, students, or anywhere
- Low cost, low barrier – just a trial
- Improve a lecturers professional practice and motivate and enhancing student learning
- Outcomes are presented to the most senior members of the University
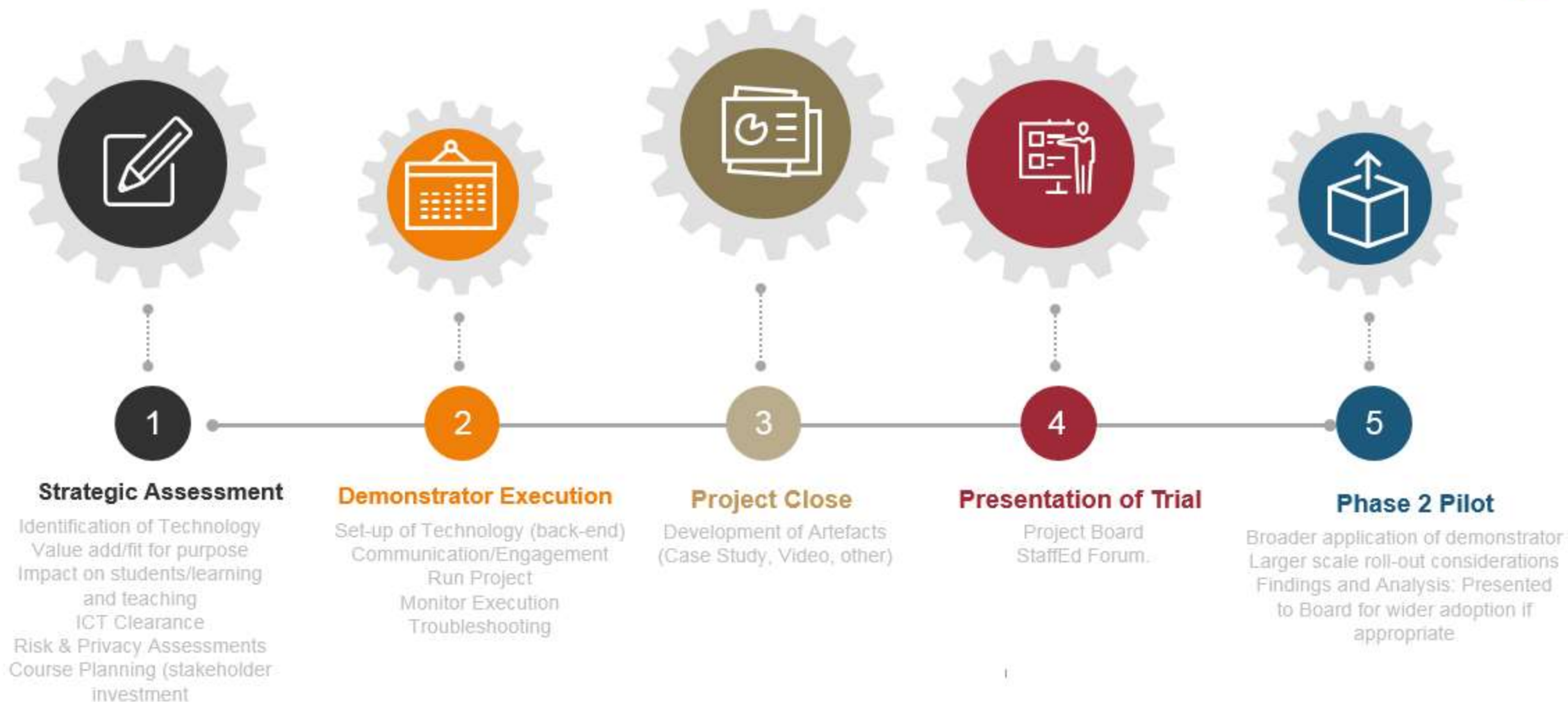
The uptake?

What do the Academics think?

- Exciting!
- The concept has grown organically
- We now have a waitlist of innovative ideas
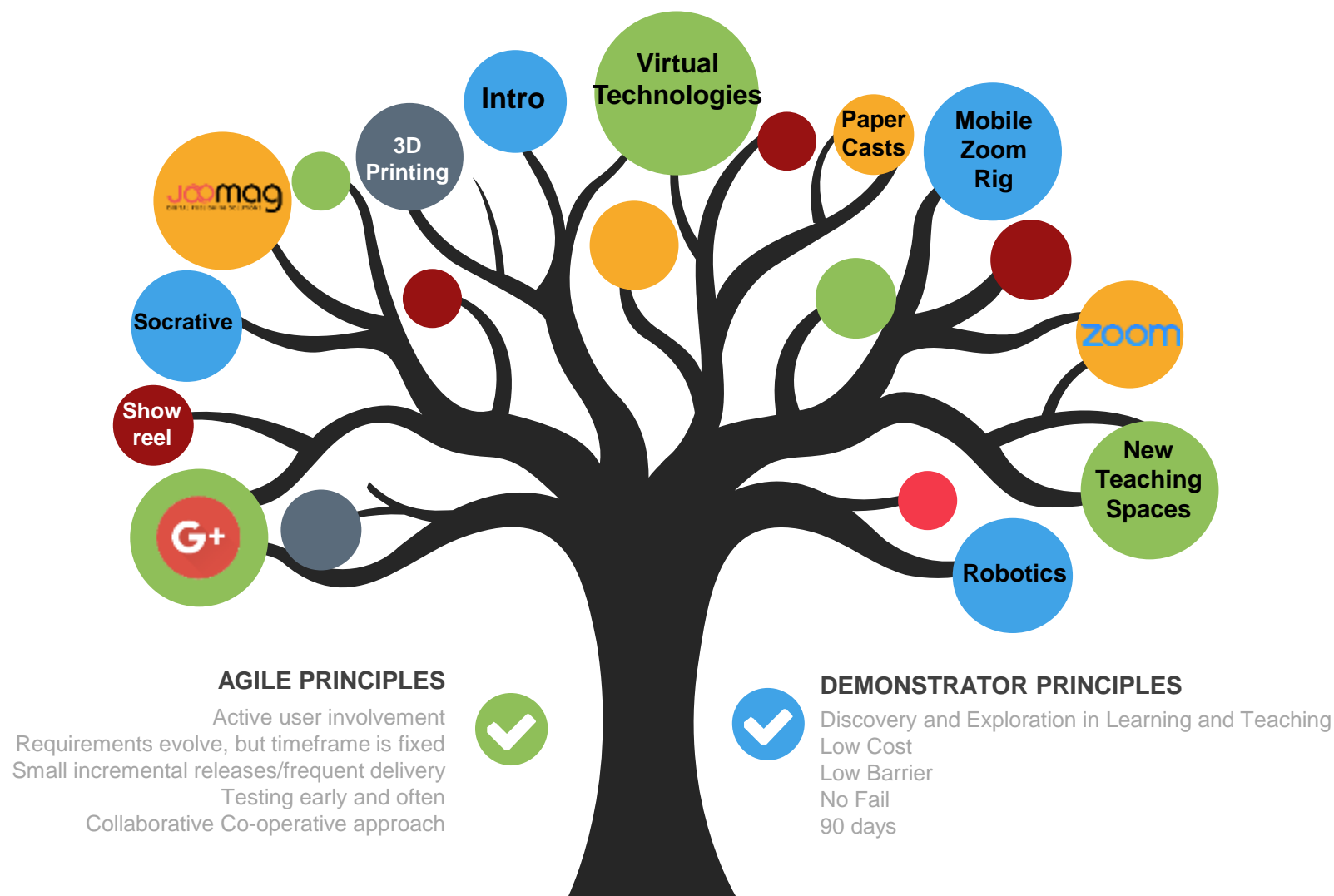- We are looking for partnerships/vendors who are willing to run trials with us – in our key learning and teaching areas
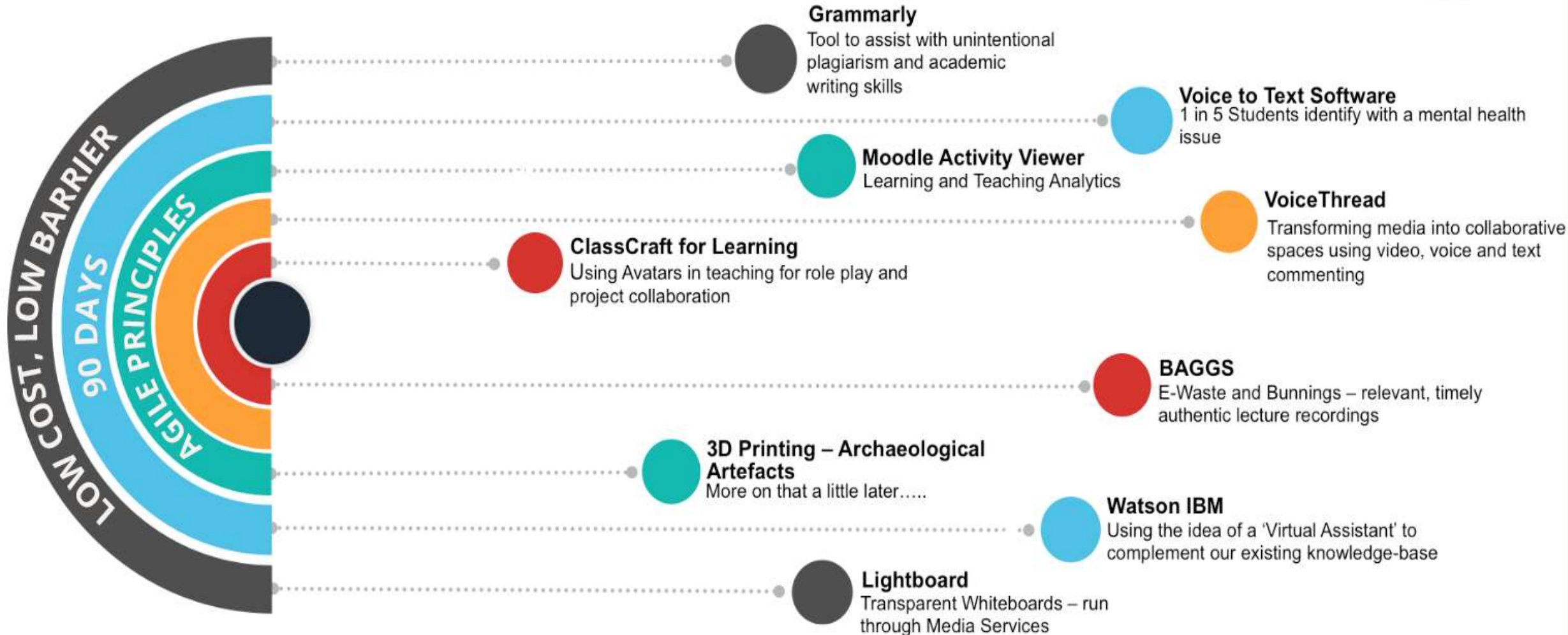
Technology Demonstrators growth so far……

Across S2 and S3 2015 (12 completed) (Click each branch to view Demonstrator)

Virtual Technologies

Intro

3D Printing

Paper Casts

Mobile Zoom Rig

Joomag

Socrative

zoom

Show reel

G+

New Teaching Spaces

Robotics

AGILE PRINCIPLES

Active user involvement
Requirements evolve, but timeframe is fixed
Small incremental releases/frequent delivery
Testing early and often
Collaborative Co-operative approach

DEMONSTRATOR PRINCIPLES

Discovery and Exploration in Learning and Teaching
Low Cost
Low Barrier
No Fail
90 days

UNIVERSITY OF SOUTHERN QUEENSLAND

What's coming up in S2

Grammarly
Tool to assist with unintentional plagiarism and academic writing skills

Voice to Text Software
1 in 5 Students identify with a mental health issue

Moodle Activity Viewer
Learning and Teaching Analytics

VoiceThread
Transforming media into collaborative spaces using video, voice and text commenting

ClassCraft for Learning
Using Avatars in teaching for role play and project collaboration

BAGGS
E-Waste and Bunnings – relevant, timely authentic lecture recordings

3D Printing – Archaeological Artefacts
More on that a little later…..

Watson IBM
Using the idea of a 'Virtual Assistant' to complement our existing knowledge-base

Lightboard
Transparent Whiteboards – run through Media Services

LOW COST, LOW BARRIER
90 DAYS
AGILE PRINCIPLES

A sneek peek….

Some Learnings, Some Challenges, Some Observations….

'Teachers often teach as they were taught' – Jones, D (2015)

Our Teaching Staff

- Some of our teaching staff contest the use of technology – passionately

  'Stop the Innovation Susan and fix our existing crap' – actual quote

- Some can't wait to get their hands on the latest technology and play – my guess – large divide

- Many of our teaching staff are Digital 'users', rather than Digital 'natives'

- Many don't embrace Technology as part of their professional practice – confidence, workload, many simply don't think that way and somehow through their careers they have managed to remain more or less insulated from using it

- Sheer Terror – too much to learn they don't like uncertainty in the classroom

- Students coming through USQ in the next 10 years will be fundamentally different to those educators have seen before – technology will have resided at the social and cultural centre of their daily life

- As teaching academics embracing technology will become a means of survival

Source: Prensky, 2001a; Prensky, 200b, Strauss and Hoew, (2006), p.20

Some Learnings, Some Challenges, Some Observations….

Our Students

- Some students are Digital 'users' rather than Digital 'natives'

- Many are born **wired** for Wi-Fi with huge expectations when it comes to the delivery of information

- Low tolerance for anything less than **instant** results

- The student body of most universities is diverse, reflecting factors such as socio-economic conditions access to services and infrastructure around technologies is something we need to keenly pursue

- Total university experience needs to be Authentic, timely, relevant, compelling, personal, useful and everywhere – it's so much more than what happens in the classroom

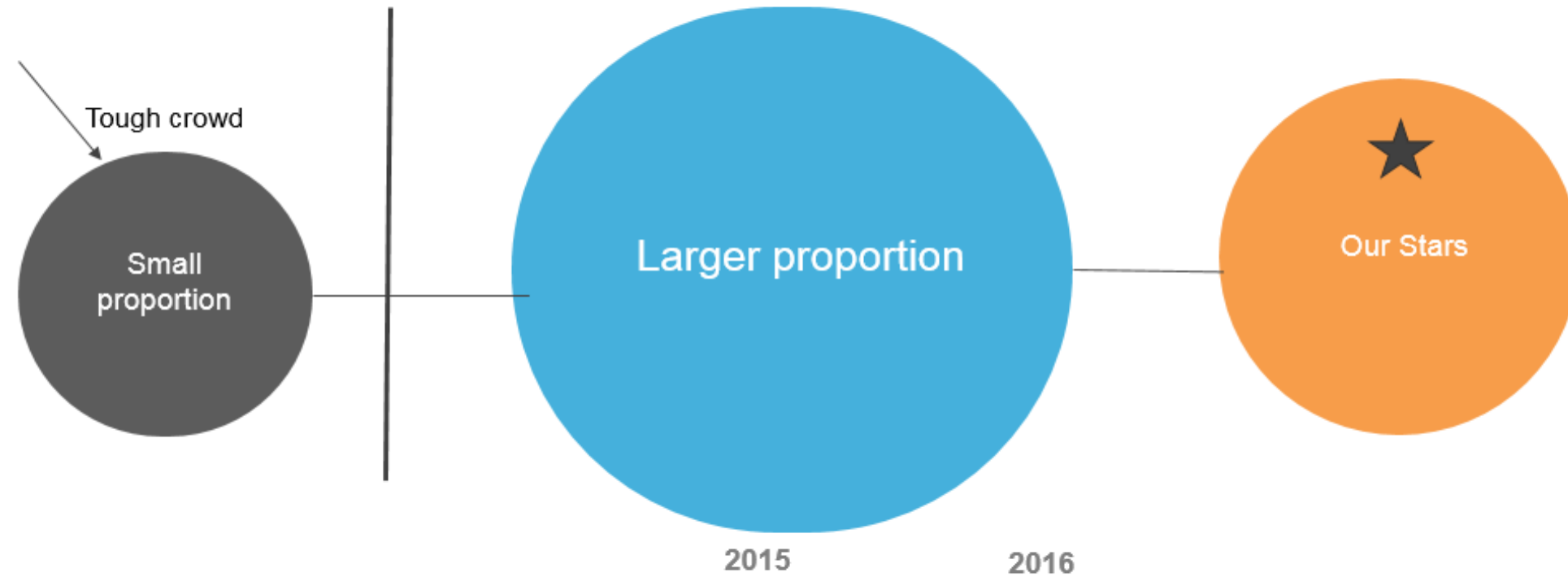# My Challenge over next 2 years….

To harness the deep expertise of our Academic staff who are experts in their field to embrace technology as part of their professional practice.

First round of Technology Demonstrators saw us target those academics that this concept would resonate with, however the CHALLENGE now is targeting those that this would CHALLENGE

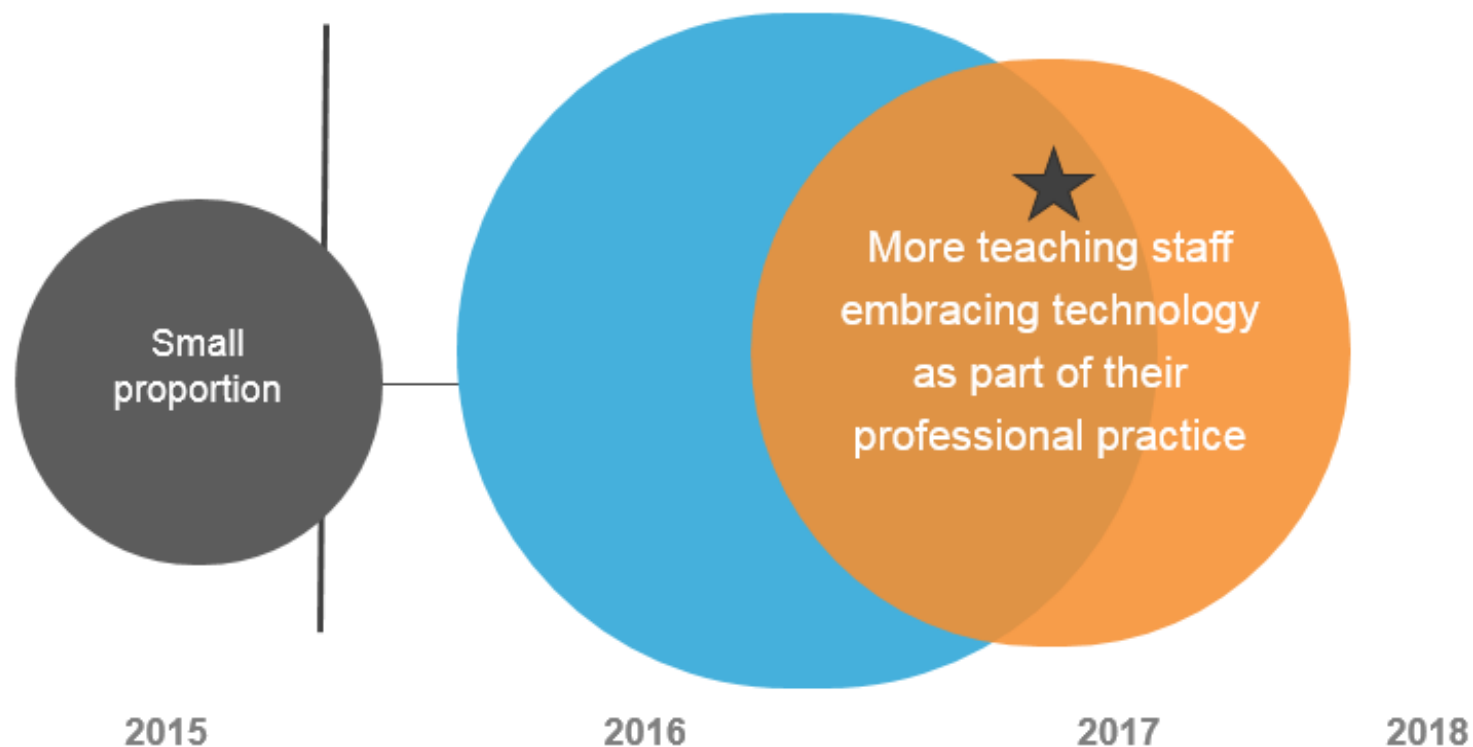Technology Demonstrators

MY CHALLENGE OVER THE NEXT 2 YEARS!

Excite, Engage, Embrace, Educate, Empower USQ Academic staff to create a student learning experience that is......

Tough crowd

Small proportion

Larger proportion

Our Stars

2015

2016

COMPELLING, PERSONAL, USEFUL AND EVERYWHERE

FLAGSHIP DEMONSTRATOR for S2

3D Laser Scanned & 3D Printed Archaeological Study Material

AIM & CHALLENGE OF DEMONSTRATOR

New course: *Archaeological Laboratory Methods: Analysis and Interpretation*

Challenge: Using Technology to provide a similar learning experience for students studying at a distance as those studying face to face so that students can interpret behavior from the material record

EXPECTED STUDENT SKILL ACQUISITION?

To replicate three areas of learning – Visual, Auditory and Kinaesthetic

THE TECHNOLOGY?

- 3D Print Technology – Latest, high-speed, Binder-Jet full colour resolution able to produce highly detailed and accurate archaeological and anthropological replicas

- With three different 3D Laser Scanning options, we can digitise specimens from 5cm in size up to the size of a passenger car, with no risk to the specimen, preserving the original artefact

- Able to capture 3D resolution up to 0.5mm with 3D Print accuracy up to 0.1mm – 0.03% over 100cm. Full colour print resolution of 600 x 540 dpi with a minimum feature size of 0.1mm

- Re-usable, low cost, easily replaceable, relevant and authentic

- Provides 3D Printed replicas AND 3D computer modelled files for further study by academics and students alike

Visual Learning
The Graphic

Auditory Learning
The Listener

Kinaesthetic Learning
The Do-er
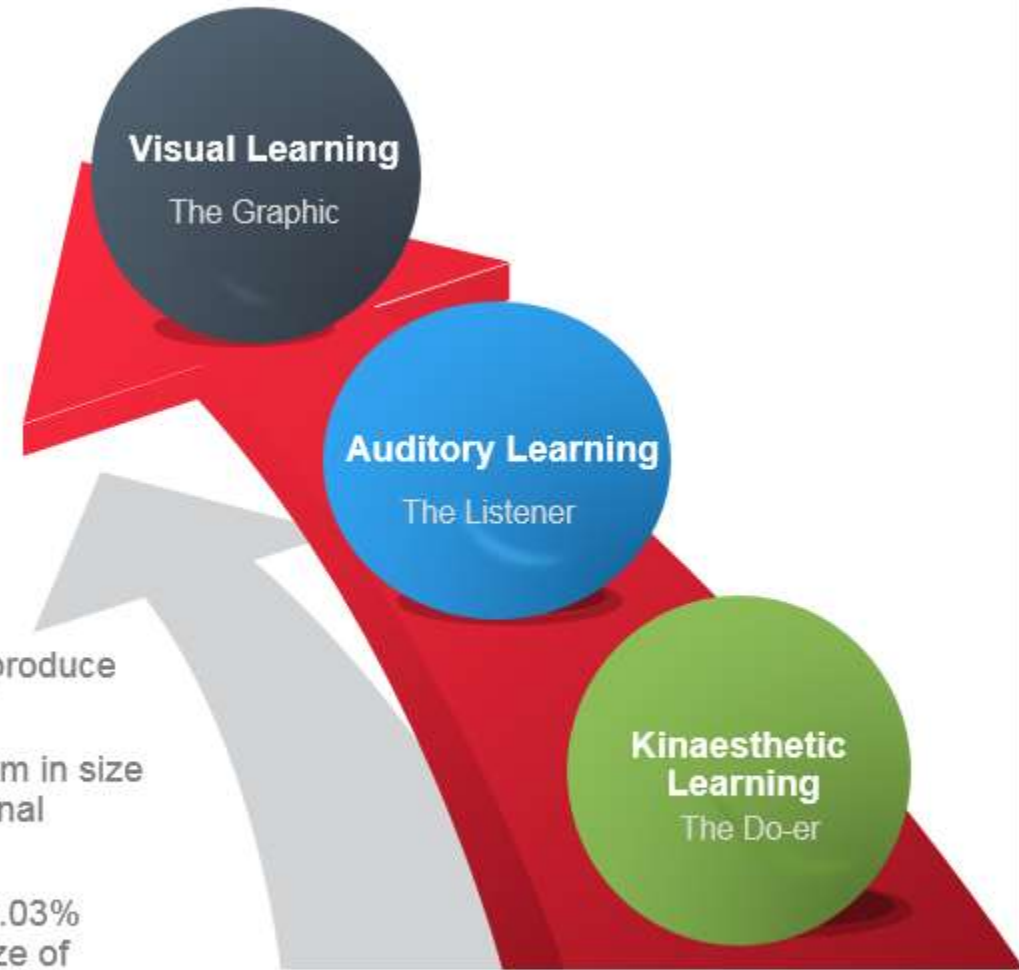
RECAP

- You now know a little about USQ our teaching and student populations

- A little about our students – how many, where they are located

- The concept of Technology Demonstrators and how and why we do what we do!

- Sneek Peek at what we've done and what's coming up

- My Learnings, Challenges and Observations to date

- My challenge over the next 2+ years

- Had a look at our Flagship Demonstrator

A FINAL WORD

If we know teachers often teach as they were taught – then we
need new tricks for old challenges!

QUESTIONS