The Future Workforce
The Challenges of Building a World Class University System

Professor Caroline McMillen
Vice-Chancellor and President
University of Newcastle
By 2020 the Asian middle class will grow to 1.7 billion – comprising more than half of the world’s middle class of 3.2 billion.

By 2050 more than half of the world’s economic activity is projected to occur in Asia.

China has invested > US$20 billion into its university system since the 1990s and has 2,000 tertiary education institutions.

The projected demand for higher education will outstrip the supply of places across Asia until at least 2025, but there will be increasing global competition for the best students, and talented academic and professional staff.

European Union Institute for Strategic Economic Studies
Global Challenges in Higher Education
The Asian Century

- Hong Kong: The Songdo Global University Campus is under construction in a Free Economic Zone
- Malaysia: Kuala Lumpur Education City is under construction: 500 acres, 30,000 students, local and international universities alongside schools
- Singapore: The Global Schoolhouse model is home to INSEAD, University of Chicago, NYU
- South Korea: Songdo Global University Campus in development with US universities
“Global research and innovation were, until recently dominated by the European Union, the USA and Japan.

“As the emerging economies continue to strengthen their research and innovation systems, a multipolar system is developing in which countries such as Brazil, China, India and South Korea exert increasing influence.

“The share of the BRICS (Brazil, Russia, India and China) in global expenditure on R&D doubled between 2000 and 2009.”

*European Commission Communication on Enhancing International Cooperation in Research and Innovation September 2012*
Global Challenges in Higher Education

- New flexible educational delivery modes:
  - iTunesU, digital apps, MOOCs, Open University, online, offshore, blended learning …

- New learning approaches:
  - learning analytics,
  - game based learning

- 2 out of every 3 students agreed that technology elevates the level of teaching; open educational resources and game-based learning topped the list of what students would like from their instructors.

  ECAR Study of Undergraduate Students and IT (2012)
The emergence of Massively Open Online Courses (or MOOCs).

120,000 people signed up for the first such MOOC, *Introduction to Circuits and Electronics*, launched through MITx in March 2012.

10,000 students made it through the mid term exam.

Those who complete the course will accrue a digital certificate of mastery and a grade, but no official credit.

The challenge of MOOCs in the global landscape – what do universities value add?

*UNSW…Open Learning …..U Melb….Coursera…..UWA….*
In what is being billed a world-first Monash University is to closely align with UK-based Warwick University.

They will develop jointly badged degrees, new research collaborations, joint branding and cost sharing arrangements in what they call a “globally networked” alliance.

The universities liken the deal to the alliances and code-sharing that characterise the international airline industry.

The alliance is aimed at pushing both universities up the global pecking order.
Global Challenges of Higher Education
International Positioning Through Partnerships

- **about 30 institutions** with such prestigious research and teaching reputations that they will simply be invited to set up boutique operations in host countries at no cost – as Yale has already done in Singapore.

- **about 50 globally networked research-heavy university ‘systems’** which conduct research and produce graduates across many locations around the world.

- **small specialist institutions** which are well known globally for some specific prowess, from liberal arts colleges to tropical schools of medicine to performing arts institutions.

- **mass institutions doing mass teaching.** These institutions will often have considerable international projection, but a very limited research capacity.

*Professor Ed Byrne, Vice-Chancellor, Monash University,*  
*Professor Nigel Thrift, Vice-Chancellor, University of Warwick*
Global Leadership Requires World Class Performance and an International Reputation

Key Factors in Building Global Leadership

- Clear awareness of key issues on the global education and research agenda
- World class performance in significant areas of economic importance in emerging economies
- Leadership team visibility, agility, credibility, performance
- The company you keep and the champions who speak for you
Impact of Institutional Age on World University Ranking Systems

**AWRU Top 300**
- Median age = 141 yrs
- Mean age = 183 yrs

**AWRU Top 500**
- Median age = 124 yrs
- Mean age = 167 yrs

Median age of Australia’s universities is 26 years old
Age Matters
Age, Performance and Reputation

Age Range of Institution

Score

less than 50 (n=50) 50 to less than 100 (n=46) 100 to less than 150 (n=81) 150 to less than 200 (n=65) 200 or more (n=59)

37 53 56 58 60
World Standing of Australia’s University Sector

- **World Standing**: 19 Australian universities in the top 400 in the Times Higher Education World University Rankings in 2012

- **World Standing**: Ranked 1st out of 17 OECD countries in 2008. Criteria: inclusiveness, access, effectiveness, attractiveness, life long learning and responsiveness
  
  *Lisbon Council Policy Brief: University Systems Ranking Citizens and Society in the Age of the Knowledge Ederer et al*

- **Participation and Access**: >1.1 million students and >114,000 staff (FTE) in Australian universities 2011

- **Research Quality**: Australia’s share of Thomson Reuter’s science citation index and social science citation index increased from 2.4% (1991-1995) to 3.1% (2005-2009).

- **Quality of Individuals**: 11 Nobel prizes
### Australia’s Higher Education Sector
**The Growth of a Knowledge Based Economy**

<table>
<thead>
<tr>
<th>Region</th>
<th>Total R&amp;D expenditure per capita 2008 (USD current PPP)</th>
<th>Total R&amp;D expenditure per GDP, 2008 (%)</th>
<th>Growth 1992-2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>$90</td>
<td>1.54</td>
<td>890%</td>
</tr>
<tr>
<td>Australia</td>
<td>$870</td>
<td>2.21</td>
<td>170%</td>
</tr>
<tr>
<td>Asia</td>
<td>$210</td>
<td>2.35</td>
<td>160%</td>
</tr>
<tr>
<td>OECD</td>
<td>$800</td>
<td>2.34</td>
<td>70%</td>
</tr>
<tr>
<td>USA</td>
<td>$1300</td>
<td>2.79</td>
<td>70%</td>
</tr>
<tr>
<td>EU15</td>
<td>$710</td>
<td>1.98</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Australian Research: Strategies for Turbulent Times, Barlow, T 2011*
Building a World Class University System
The Institutional Journey from Research ‘Active’ to Research ‘Intensive’

- **Building Research Activity:**
  Publish and earn some income
  Measures: Number of research outputs and total research income

- **Building Research Excellence:**
  More quality publications and more competitive funding
  Measures: Quality of research outputs and competitive research income

- **Building Research Intensity:**
  Number of disciplinary areas performing at world class levels
  Measures: Ratings in national research quality assessment exercises e.g. ERA and World University Ranking Systems
Benchmarking the Journey to Research Intensivity
Measures of Research Activity
Total Weighted Publications/FTE

Weighted publications per FTE

Age of institution as at 2010

R² = 0.4607
Benchmarking the Journey to Research Intensivity
Measure of Research Quality
Journal Publications/FTE

$R^2 = 0.6908$
Benchmarking the Journey to Research Intensivity

Measure of Research Quality

Competitive Research Income/FTE

Age of institution as at 2010

Category 1 income per FTE

$R^2 = 0.7332$
Building a World Class System
Number of Disciplinary Research Concentrations Ranked ‘World Standard’ or above (ERA 3+)

![Chart showing the relationship between the age of a university and the number of 4-digit FoR ranks above class or above (3,4,5).]
Building Research Quality
International Collaboration Enhances Citation Rates of Australian Research

Science Citation Index Publications, 1991-2005

Building A World Class University System
Some Current Challenges
Academic job satisfaction from an international comparative perspective: Factors associated with satisfaction across 12 countries (forthcoming). Bentley, Coates, Dobson, Goedegebuure & Meek.
Salaries in local currency were converted to US PPP (Purchasing Power Parity).

Australia ranks 2nd in monthly salaries paid to third-ranked academics.

Salaries in local currency were converted to US PPP (Purchasing Power Parity) dollars.

## Funding University Salaries: Punching Above CPI

<table>
<thead>
<tr>
<th>Institution</th>
<th>Notional End Date (NED) to NED timeframe</th>
<th>AAWI % Notional End Date (NED) to NED</th>
<th>Average annual CPI over same timeframe</th>
<th>Average Annual Difference Salary v CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>University A</td>
<td>30/6/2009-30/6/2012</td>
<td>5.33%</td>
<td>2.67%</td>
<td>+2.66%</td>
</tr>
<tr>
<td>University B</td>
<td>31/3/2008-30/6/2012</td>
<td>3.77%</td>
<td>2.80%</td>
<td>+0.97%</td>
</tr>
<tr>
<td>University C</td>
<td>31/3/2008-30/6/2012</td>
<td>4.80%</td>
<td>2.80%</td>
<td>+2.00%</td>
</tr>
<tr>
<td>University D</td>
<td>31/10/2008-30/6/2012</td>
<td>4.64%</td>
<td>2.08%</td>
<td>+2.39%</td>
</tr>
<tr>
<td>University E</td>
<td>30/6/2008-30/6/2012</td>
<td>4.00%</td>
<td>2.40%</td>
<td>+2.60%</td>
</tr>
<tr>
<td>University F</td>
<td>31/3/2008-30/6/2012</td>
<td>4.24%</td>
<td>2.80%</td>
<td>+1.44%</td>
</tr>
</tbody>
</table>

Source: AHEIA
Increase in Student Load 2001-2010

EFTSL Onshore Students 2001-2010

Source: 2001 - 2004: Universities Australia (DEST/DEEWR Unit Record Files); 2005 - 2010: DEEWR/DIISRTE Selected Higher Education Statistics Equity Performance Data
Student Staff Ratios
Tensions Between Affording a Tenured Workforce or a Casualised Workforce

Source: 2001 - 2004: Universities Australia (DEST/DEEWR Unit Record Files);
Compliance and the Accountability “Culture Gap” in Academia

- The academic community finds bottom line approaches threatening and inappropriate.

- They question how educational quality and equity can be quantified and assessed in a neat and tidy way and worry that quantitative measures create perverse incentives.

- They fear one-size-fits-all measures that ignore different missions, demographics, student bodies, resources, and factors outside their control.

- Most importantly, they resist legislative involvement in the measurement, or assessment, of student learning, which they believe to be a faculty responsibility.

Nancy Shulock, California State University, Sacramento
Building a World Class University System
Building the Future Workforce
Building a ‘World Class’ University in Challenging Times

- Strong leadership
- Bold vision of the institution’s missions and goals
- Objective assessment of strengths and new areas for improvement
- Set new stretch goals
- Clearly articulated strategic plan to translate the vision into concrete targets and programs
- Design and implement a renewal plan than can lead to improved performance

The alternative

“Many institutions are complacent in their outlook, lack an ambitious vision of a better future and continue to operate as they have in the past with a growing performance gap compared with that of their national or international competitors”

The Challenge of Establishing World Class Universities
Jamil Salmi The World Bank Washington 2009
Characteristics of world-class universities
Talent, productivity focus…

“World-class universities are sustained by world class minds.”

Professor Andy Hamilton
Vice-Chancellor, University of Oxford

- Qualification levels (high proportion of PhDs)
- High quality leadership at all levels
- High quality research-intensive staff: publications, citations, grants & esteem
- Critical mass in a liberal range of disciplines
- Interdisciplinary research collaboration that addresses the ‘grand challenges’
Figure 1.2. Characteristics of a World-Class University (WCU): Alignment of Key Factors

- **Concentration of talent**
  - Students
  - Teaching staff
  - Researchers
  - Internationalization

- **Abundant resources**
  - Public budget resources
  - Endowment revenues
  - Tuition fees
  - Research grants

- **Technology transfer**

- **WCU**

- **Research output**
  - Supportive regulatory framework
  - Autonomy
  - Academic freedom
  - Leadership team
  - Strategic vision
  - Culture of excellence

**Source:** Created by Jamil Salmi.
Building a World Class University System
Leadership: The New Black
The journey from the leading researcher to the research leader...

Being a *leading researcher* is important if you are to have the credibility to exercise research leadership beyond a small research group.

*But*

A *leading researcher* in a discipline may not be an excellent *research leader*.
The journey from the leading academic or professional to the academic or professional leader...

- Vision, strategy and repeated good judgement
- Calibrates globally, reads the winds of change
- Evidence based decision making
- Comfortable leading interdisciplinary groups
- Builds teams - not cliques
- A history of unit or department members achieving potential
- Accepts the responsibility for good performance management
- Culture of supporting persistence and celebration
- Generous in public acknowledgment of the efforts of all
.....universities that principally hire their own graduates to join the teaching staff are not likely to be at the leading edge of intellectual development.

A 2007 survey of European universities found an inverse correlation between endogamy in faculty hiring and research performance: the universities with the highest degree of endogamy had the lowest research results.

*European University Institute University Autonomy and the Globalisation of Academic Careers (Aghion et al 2008)*
UON Case Study: Recruitment Source
Applicants Sourced Internally

UON results versus Australian Universities 2010 Quartiles and Range
Building a World Class University System
The Importance of the Doctoral Qualification for Academic Staff
UON Case Study: Benchmarking the proportion of academic staff with doctoral qualifications

Source: Universities HR Benchmarking Program (2012)
UON Case Study: Benchmarking the proportion of academic staff with doctoral qualifications

Source: Universities HR Benchmarking Program (2012)
The University of Newcastle aspires to be a global leader in each of its spheres of achievement.

Through engagement with partners, the University will deliver world class innovation to support the development of strong regional communities.
Developing the UON Leadership Position
‘The Future Workforce’

- Ensuring our recruitment methods deliver the outcomes consistent with world class performance and a vision to aspire to global leadership
- Role clarity, performance clarity and career clarity – in the context of the UON mission
- What is the UON ‘Career Advantage’?
- Building leading academics into academic leaders
- How to harness growth to build excellence in teaching and research?
Building the Future Workforce at UON

- Harness the international perspective to ‘future proof’ interdisciplinary academic programs and benchmark research quality and impact against global standards

- Supporting a comprehensive suite of undergraduate programs through U-ON LINE PLUS – blending ‘what’s in the cloud and what’s face to face’ in programs

- Build more hybrid professional/academic roles requiring doctoral expertise across both content and modes of delivery

- Building the competitive ‘Higher Education Professional’ – UON Career Advantage

- Getting leadership right: the UON Leadership Framework

- Getting performance management right- role clarity, performance clarity and career clarity
Recognising the Impact of Casualisation through Practical Strategies

<table>
<thead>
<tr>
<th>What kind of work do you do?</th>
<th>Sample %</th>
<th>Upper limit</th>
<th>Lower limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutoring / small group teaching</td>
<td>41.8%</td>
<td>34.8</td>
<td>49.2</td>
</tr>
<tr>
<td>Demonstrating / practical teaching</td>
<td>18.6%</td>
<td>13.6</td>
<td>25.0</td>
</tr>
<tr>
<td>Clinical teaching</td>
<td>6.2%</td>
<td>3.5</td>
<td>10.8</td>
</tr>
<tr>
<td>Student support</td>
<td>20.3%</td>
<td>15.1</td>
<td>26.9</td>
</tr>
<tr>
<td>Lecturing</td>
<td>47.5%</td>
<td>40.2</td>
<td>54.8</td>
</tr>
<tr>
<td>Research</td>
<td>80.2%</td>
<td>73.7</td>
<td>85.4</td>
</tr>
<tr>
<td>Coordination of teaching</td>
<td>22.6%</td>
<td>17.1</td>
<td>29.3</td>
</tr>
</tbody>
</table>

Source: The Australian academic profession in transition
Bexley et al, Centre for the Study of Higher Education, Sept 2011
The UON Academy: A virtual hub – a ‘home’ for conjoint and casual sessional academic staff which ensures:

- Improved communication between casual academics, academic and professional peers, administrators and students
- More effective management practices including access to a central advisory service on policies and procedures, as well as career and general employment advice
- Greater opportunities to ‘up skill’ through a suite of professional and career development opportunities
- Greater recognition for excellence e.g. through teaching awards.

The UoN Academy will build a culture of professional recognition and practical support for casual academics
‘Getting Out More’
International cooperation in research and innovation

- Tackling global challenges through collaboration and access to world class facilities to develop innovative solutions and enabling technologies.

- Recruitment of talented academics from across the globe and exposure of researchers and research trainees to global perspectives and a diversity of models of collaboration and competition in research and innovation.

- Strengthening excellence in research and its relevance through the generation of high quality, high impact research.

- Introductions and building collaborations between industry partners of universities through the engagement of universities in international research cooperation.

European Commission to the European Parliament, the Council, the EESC and the Committee of the Regions September 2012
Next Generation Skill Sets: Building ‘Research and Innovation Clusters’ or ‘Hubs’

- Collaboration between academics across existing research and academic concentrations
- Provides an introduction to business, industry and government partners outside the institution
- Can place Universities at the hub of ‘Science Cities’, science parks and close to business incubators
- Can provide incentive to move into new interdisciplinary areas from a strong disciplinary base
- Innovation Hubs ... The Hunter Project, Creative Industries, Defence ...
UoN has the leadership capacity and capability to deliver the 2025 vision, performance targets and lead strategies.

Staff are supported to perform at world-class levels and to be innovative in their practice.

Staff are clear about their roles and the performance required to support career aspirations in the context of the 2025 UoN Vision.

Staff actively engage with international, national, and regional communities, and our alumni, friends and benefactors.

UoN is a vibrant and dynamic community, and a healthy and rewarding place to work.
The ‘war for talent’

- Ageing demographics creates urgent competition
- Competition is global: particularly for high performers (within sector & beyond)
- Recruitment strategy: optimisation in context of the global economy
- External figures re-shaping the sector: John Thornton, former President of Goldman Sachs, now Professor and Director of Global Leadership at Tsinghua University
- Meeting the education and research agendas
- Greater focus on work / life balance and equity / diversity