

# UKCGE Annual Conference 2024: Doctoral Outcomes: Evaluation, Evolution and Experiences



The future of the doctorate in Australia: Shifting sands with demands

Rebecca Ford, Dean Griffith Graduate Research School  
rebecca.ford@griffith.edu.au



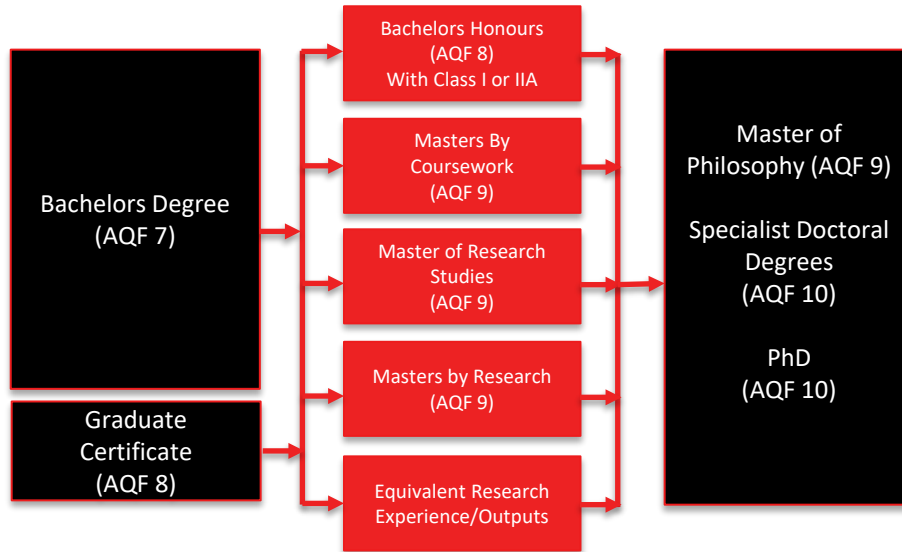
# Outline of the presentation

- Pathways, enrolment and employment trends
- Perceptions, affordability and satisfaction of Australian doctorate study
- The change demand messages
- Federal government drivers
- Doctoral transformation pathways and vision
  - Early adopters
  - The future



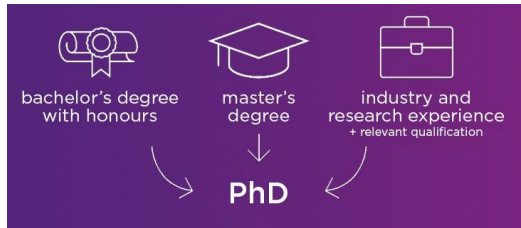
# Pathways to a PhD in Australia

## Traditional vs emerging/flexible



## AQF level 8/9 graduates will:

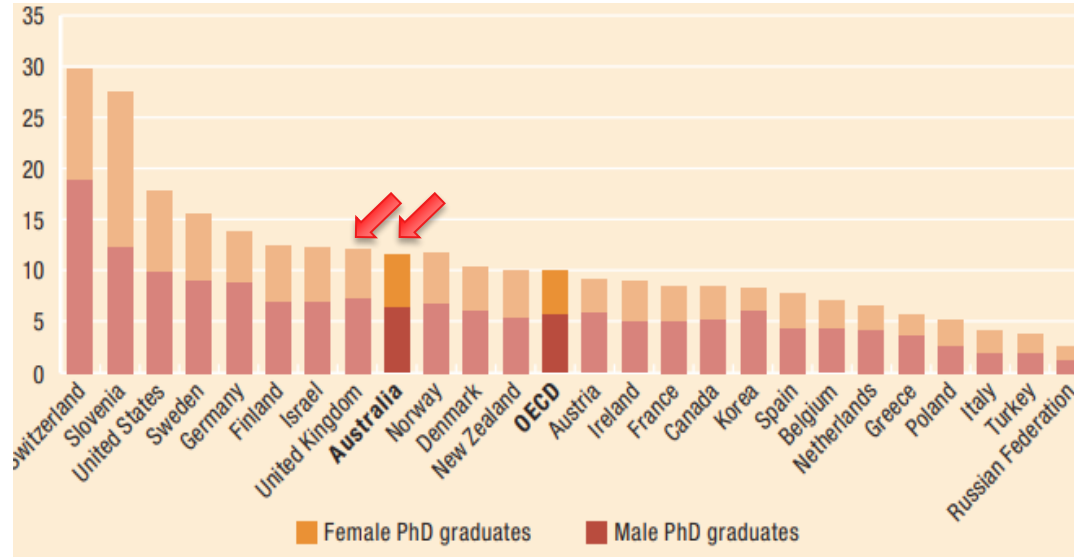
- Have advanced theoretical and technical knowledge in one or more disciplines or areas of practice
- Have advanced cognitive, technical and communication skills to select and apply methods and technologies to analyse critically, generate new knowledge and transmit solutions to complex problems
- Apply knowledge and skills to demonstrate autonomy, well-developed judgement, adaptability and responsibility as a practitioner or learner



# Australia as an educated nation

Proportion of doctoral graduations per 1,000 working age

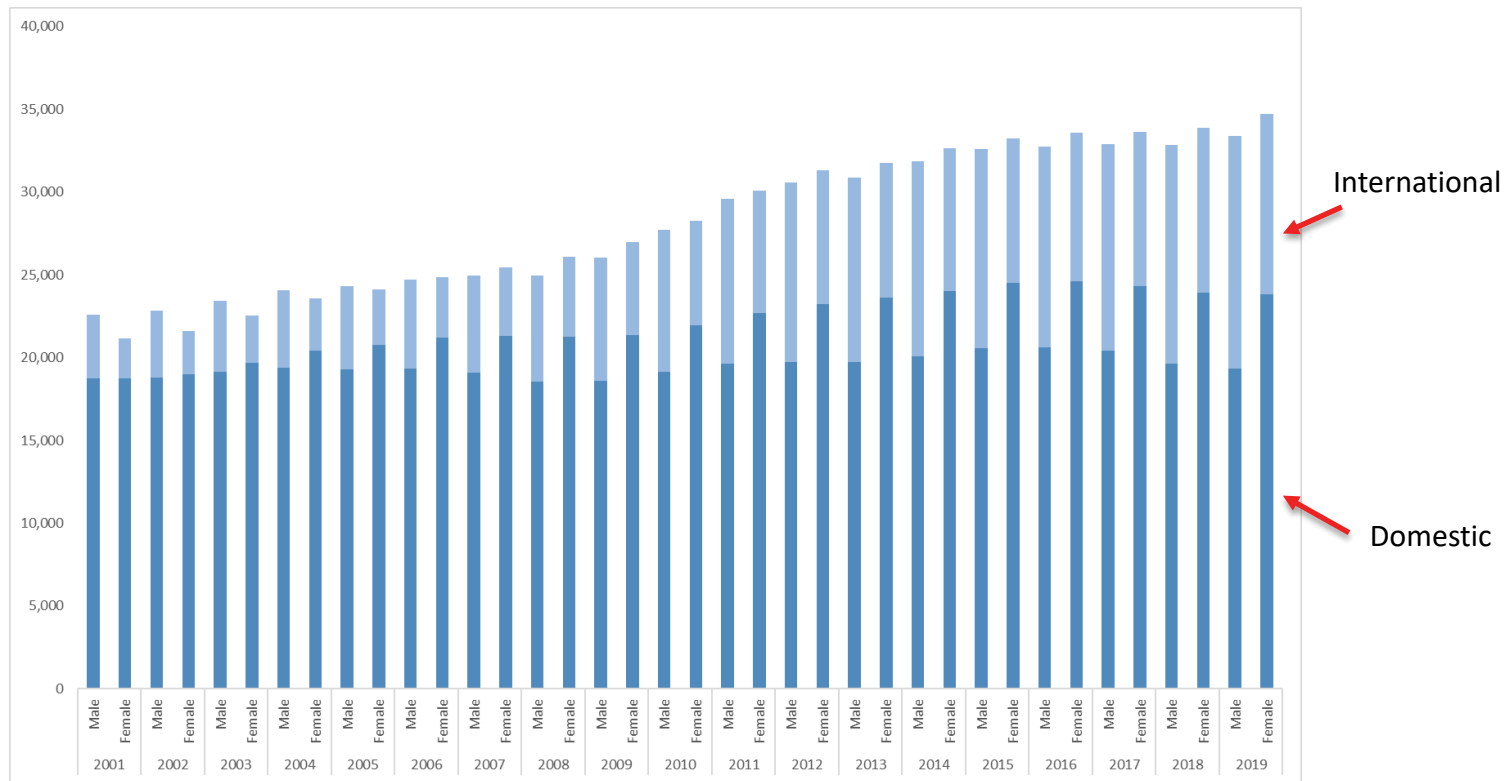
- Australian PhD graduation rate is 1.17% of the working population
- Slightly higher than the OECD average of 0.99%
- Slightly lower than the UK rate of 1.21%



# HDR enrolment trends in Australia (2003 – 2019)

> internationals

> females

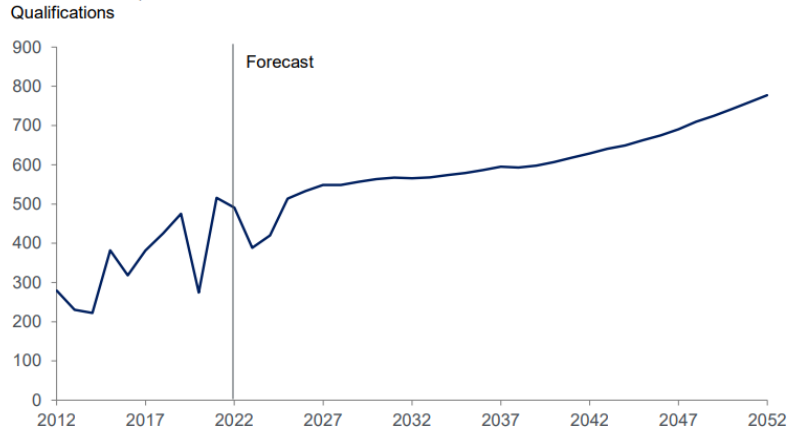


# Supply vs demand

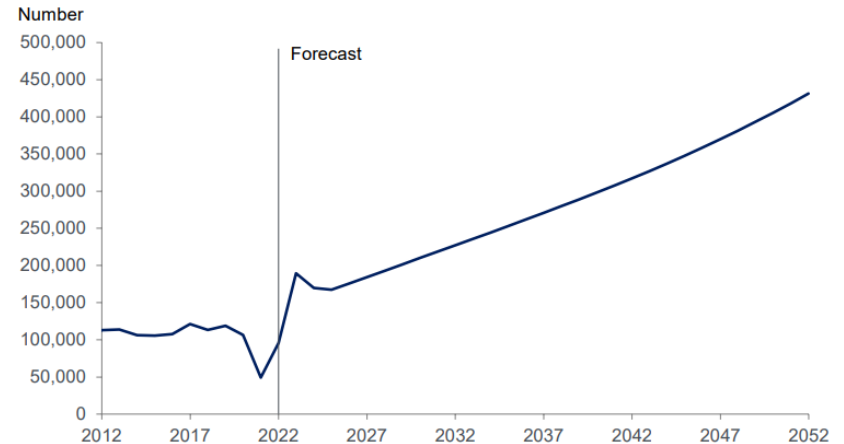
The three key drivers of demand for additional higher education qualifications are:

- 1) Employment growth in the higher education sector
- 2) Retirements, deaths, departures and job changers
- 3) Labour market roles requiring PG/HDR degrees, previously required UG degrees

**Figure 3.7 Gross number of additional higher education qualifications required to meet labour market demand, 2012 to 2052**



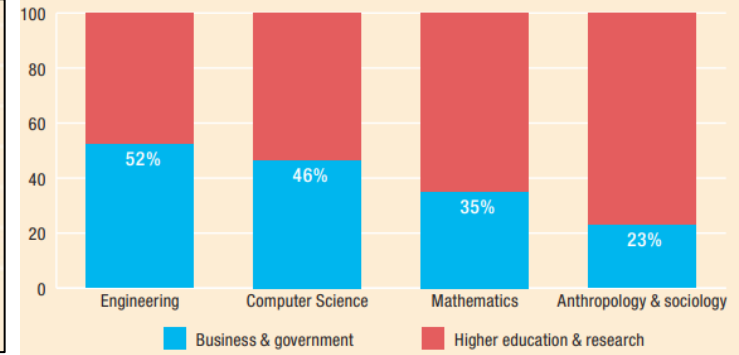
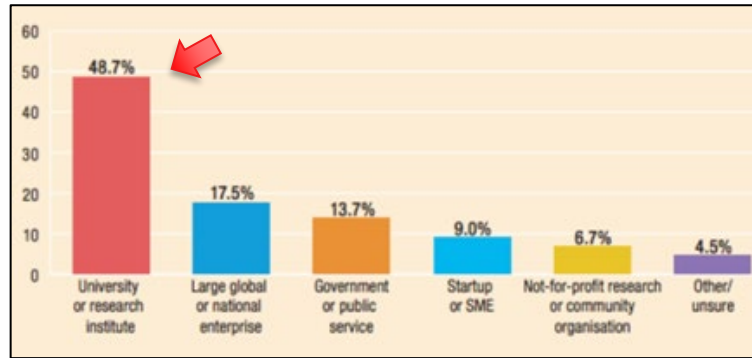
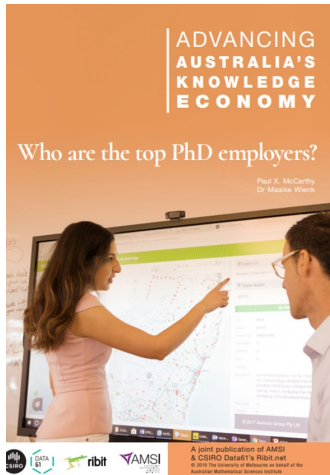
**Figure 3.8 Employment of higher educated arrivals, 2012 to 2052**



- Currently no limit on PhD numbers
- The more admissions universities have, the more funding they will earn when students graduate.
- Should quotas be set to help select the most suitable PhD candidates for Australian job market demand?

# Doctoral employment expectations in Australia

Career aspirations – where they want to be



- PhD completions have grown from < 4,000 to > 10,000 pa since ca. 2000
- There are not enough academic jobs for PhD graduates
- 19 of the 20 largest ASX listed companies have PhDs in their senior executive teams

# Doctoral employment in Australia: current state and trends

The reality – of where they end up and where the higher skills will be needed

Figure 3.12 Share of postgraduate employment by industry, 2007, 2022 and 2052

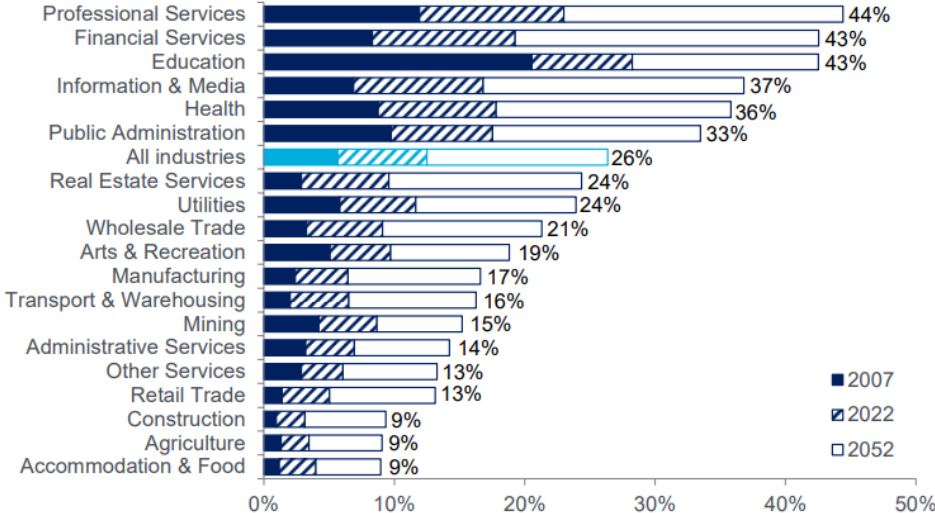
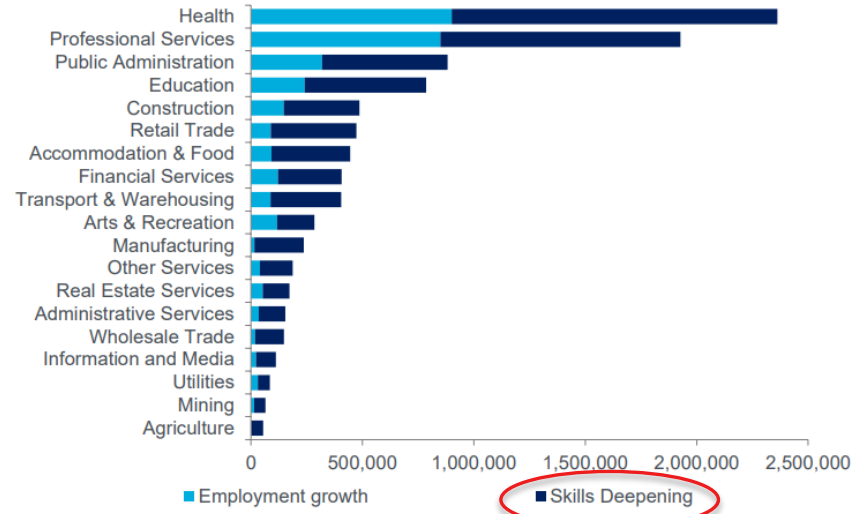
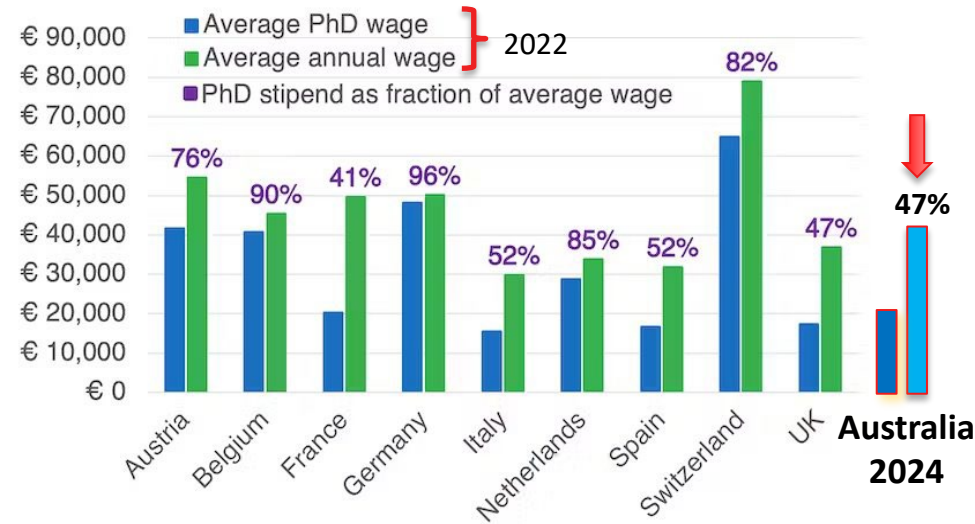


Figure 3.16 Labour market demand for additional qualifications by employment growth and skills deepening, 2022 to 2052



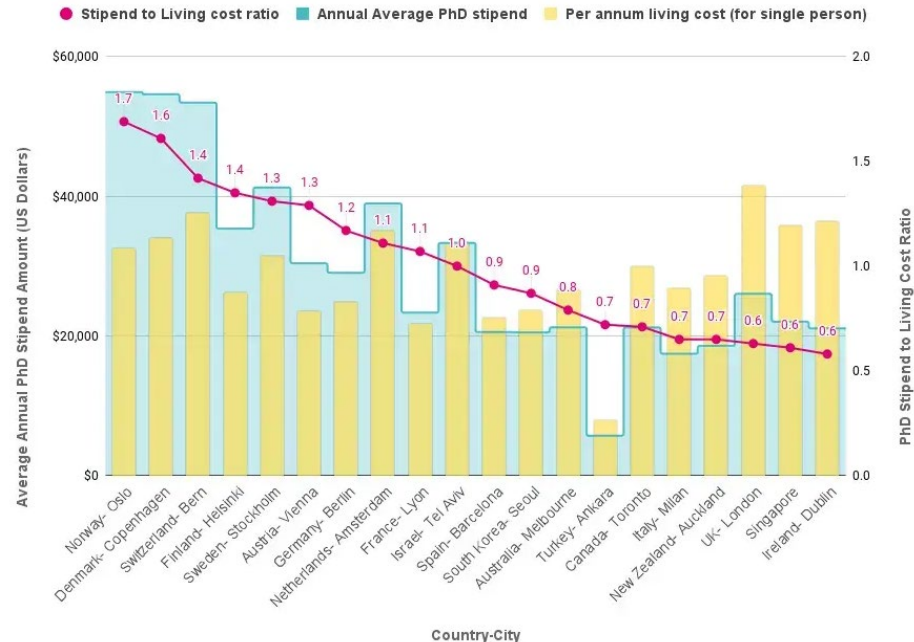
# PhD stipends vs cost of living globally



**Australia is on par with UK but we are not so competitive in the 'international marketplace'**

## Online stipend shopping!

IsPhDForMe.com **Which country pays PhD students the best?**  
 Published Nov 27, 2022 ([Mohsin Ijaz](#))



# Affordability of studying an Australian doctorate

## Australia's cost of living is rocketing!

Parliament of Australia Accessed Feb 18, 2023 (Peter McDonald)



Figure 4 Index value by quarter, March 2002 to March 2022, selected expenditure classes

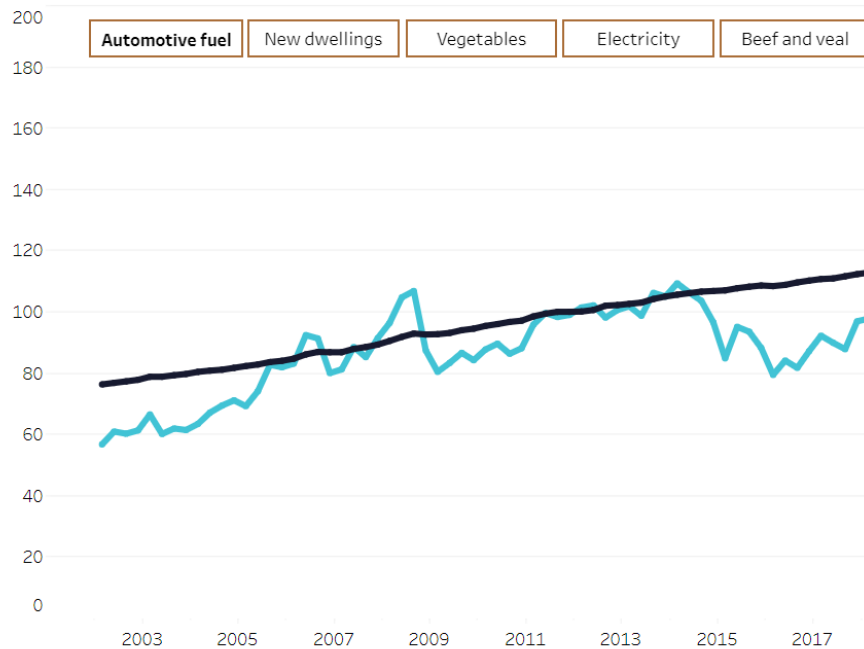
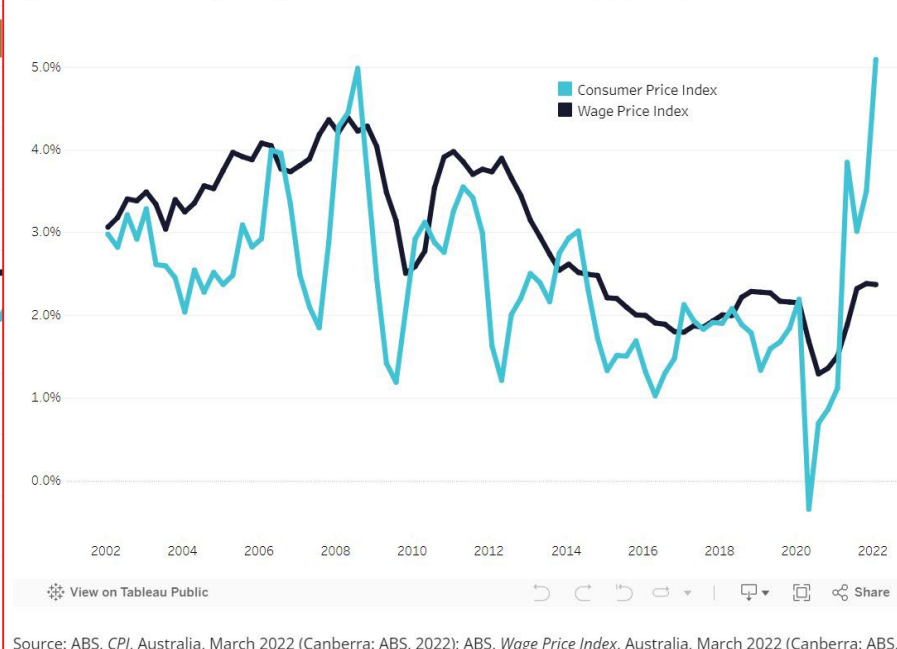


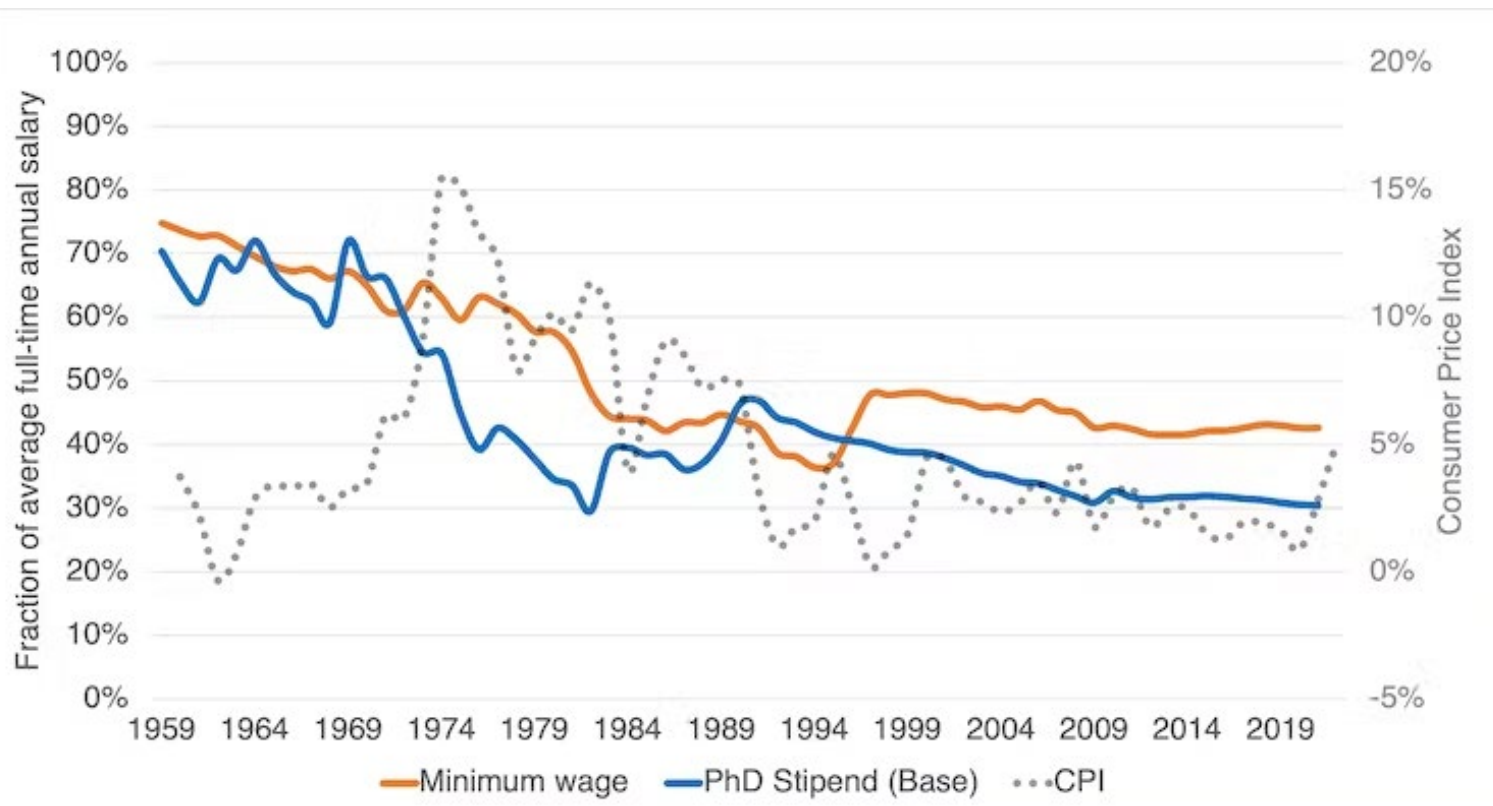
Figure 6 Annual change in Wage Price Index and Consumer Price Index, by quarter, March 2002 to March 2022



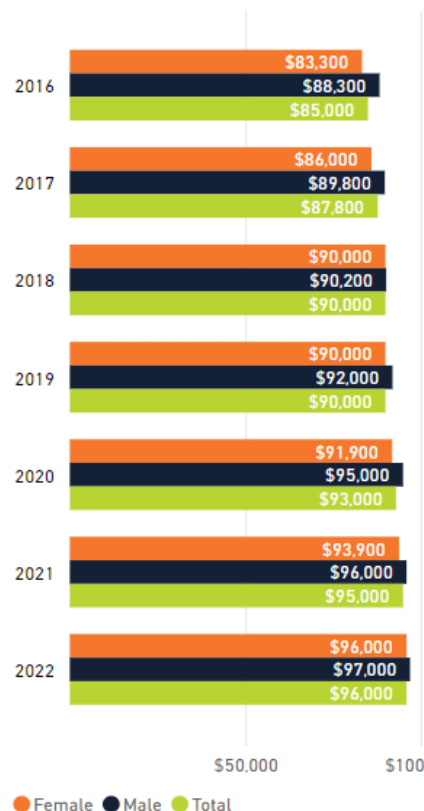
# Affordability of studying an Australian doctorate

How are PhD candidates meant to survive on 2/3rds of the minimum wage? (47% of the mean after-tax salary)

The Conversation: published: June 20, 2022 (Nathan Garland, Griffith University)



# Postgraduation doctoral salary and migration changes in Australia





**\$96,000**

median salary of full-time research postgraduates



**91.9%**

of research postgraduates employed within 4-6 months



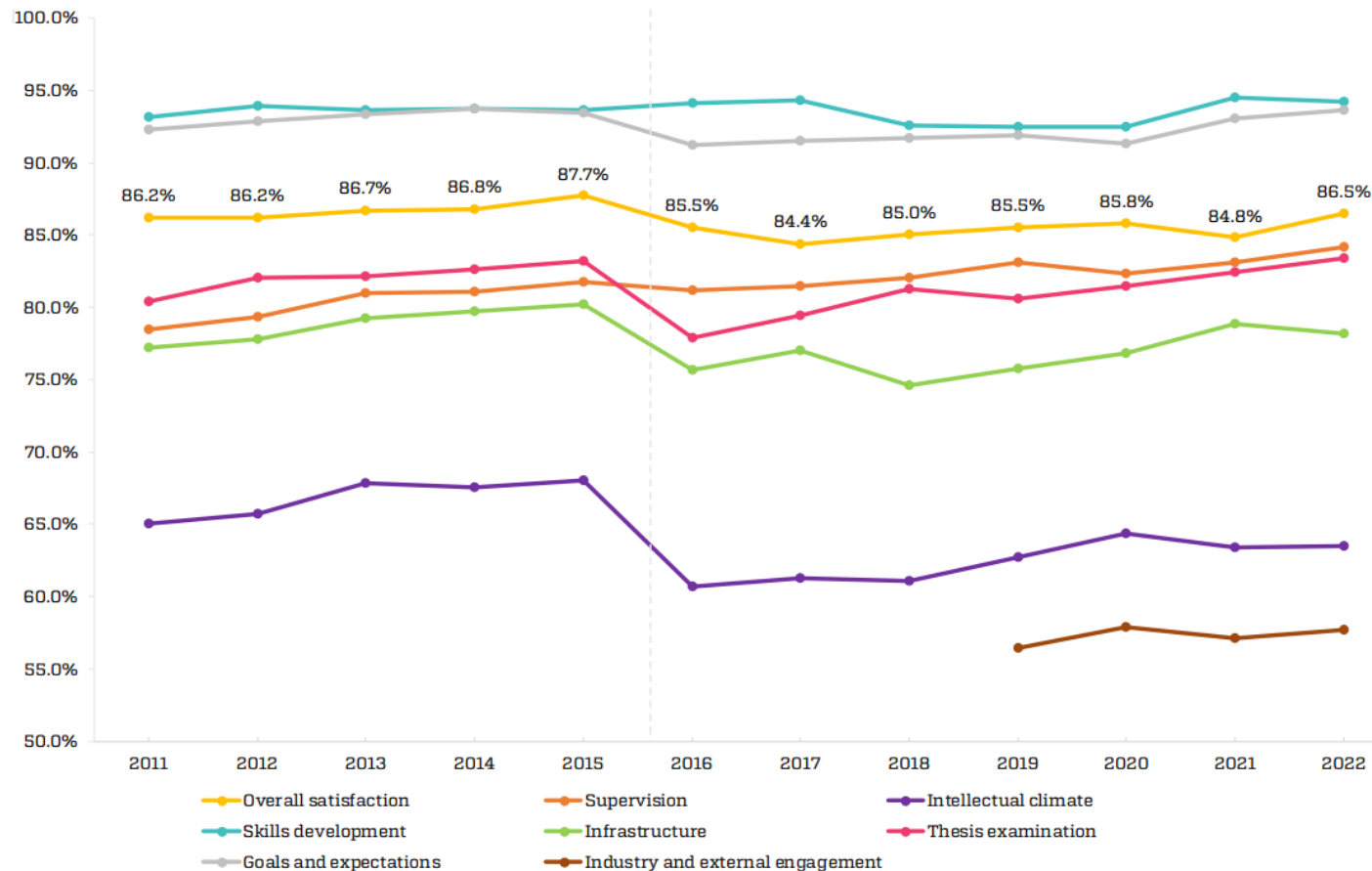
Australia is currently slowing migration by:

- Increased English Language Proficiency scores
- Decreased age cap of new graduate visa applicants from 50 to 35
- Reduced post PhD temporary residency visas to just 3 years
- Visa processing times are LONGER

PENDING  
VISA  
APPLICATION

# Overall satisfaction of HDR candidates about their study in Australia

Quality indicators for learning and teaching (QILT) graduate outcomes survey (GoS), 2022



# Expectations and change demand messages

## Overall experience

Including highest and lowest scoring questions for each area.

"Overall, how satisfied are you with the quality of your higher degree by research experience?"



Total responses  
**588** 31.4% of cohort



### Resources, Facilities and Support



I have access to suitable writing work space (i.e. desk).



I am satisfied with the opportunities provided to me to develop professional connection.

### Supervision



My supervisor demonstrates respect for me as a person.



My supervisor(s) help me identify my training and development needs as a researcher

### Skills development



I am aware of the skills that I am developing through my research that can be applied outside of academia.



There is enough information available about employment opportunities outside of academia

# Expectations and change demand messages

A future employer expects a PhD graduate to have the following skills:

- Written communication
- Research
- Public speaking
- Project management
- Leadership
- Critical thinking
- Collaboration

**A PhD graduate expects to be career-ready**

## Role of the Supervisor?

- Enabler
- Developer
- Networker
- Quality assurer
- Exemplar



[Starting HDR Supervision at Griffith >](#)  
[HDR supervisor registration >](#)

[Appointment to a supervisory team >](#)  
[Candidature management resources >](#)

# Federal government drivers of greater Industry engagement - existing

## Short-term internships

APR | INTERN



A national scheme that places PhD candidates into short-term (three- to five-month), tightly-focused research projects

- Host organisations approach APR.Intern for assistance in engaging PhD candidates to work on pre-determined research projects
- Interns receive an additional stipend of \$3,000 per month usually on top of an existing stipend



993

Interns Placed



485

Industry Partners



35

University Partners



99%

Program Satisfaction

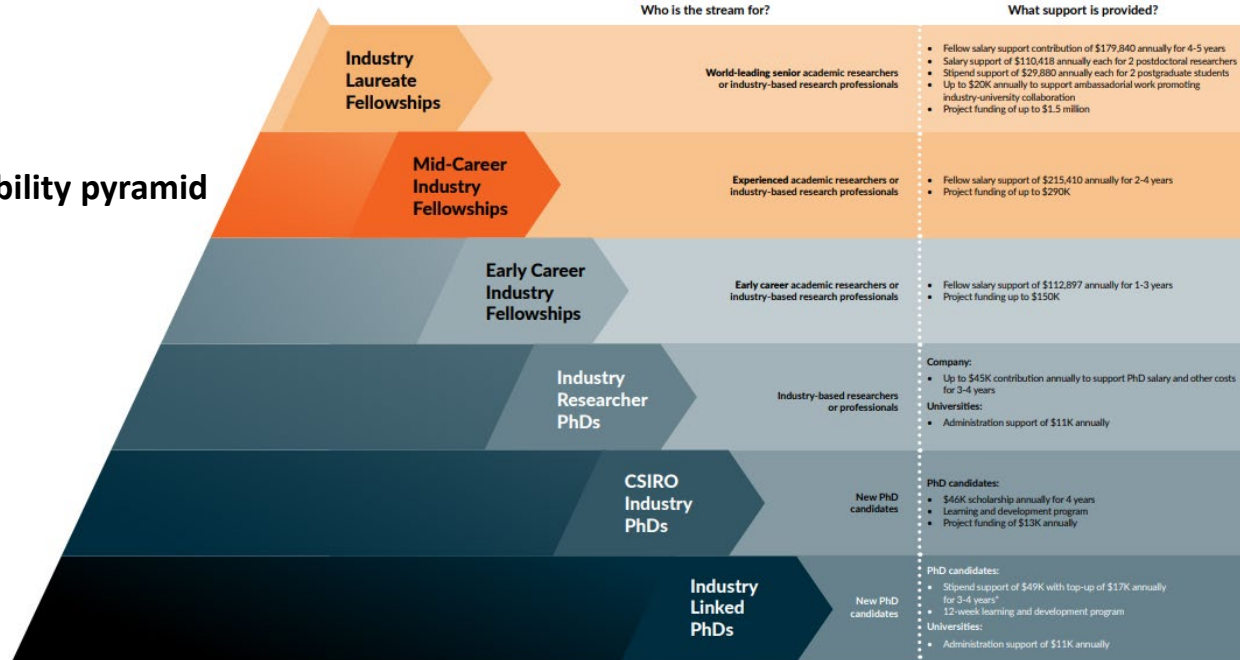


# Federal government drivers - existing

## Incentives for academic-Industry engagement

- In 2022, \$2.2 billion announced for 11-year University Research Commercialisation Action Plan (Dept of Edu Skills and Employment)
- Focus on areas of economic need
  - \$1.6 billion for an “Australia’s Economic Accelerator” program
  - \$243m for a startup Trailblazer program, and
  - **\$296m for 1,800 PhDs and fellowships in industry-focused disciplines**

## National Industry PhD workforce mobility pyramid



# Federal government drivers - existing



From initial 2 rounds (12 months):

- 214 applications
- 62 funded (6 @ Griffith Uni)
- 34 industry linked projects (out)
- 38 industry researcher projects (in)

Elevates the PhD stipend up to 70% of the average Australian net annual salary

**Almost on par with Austria!**



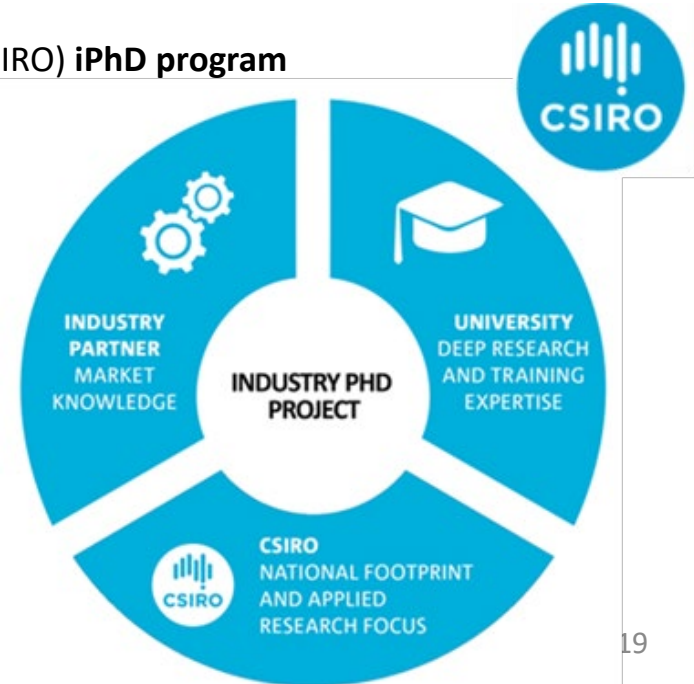
# Federal government drivers - existing

## [Australia's draft National Science and Research Priorities \(Sept 2023\)](#)

- Priority 1: Ensuring a net zero future and protecting Australia's biodiversity.....
- Priority 2: Supporting healthy and thriving communities.....
- Priority 3: Enabling a productive and innovative economy .....
- Priority 4: Building a stronger, more resilient nation .....

## The Commonwealth Science Innovation and Research Organisation (CSIRO) iPhD program

- Three-way partnership: Industry, university and CSIRO
- 4-year industry-focused PhD project
- \$47, 020 stipend = 67% of average net annual salary
- Kudos!
- Only available to Australians



# Federal government drivers - Australian Universities Accord recommendations

Released 25<sup>th</sup> February 2024



## Australian Universities Accord

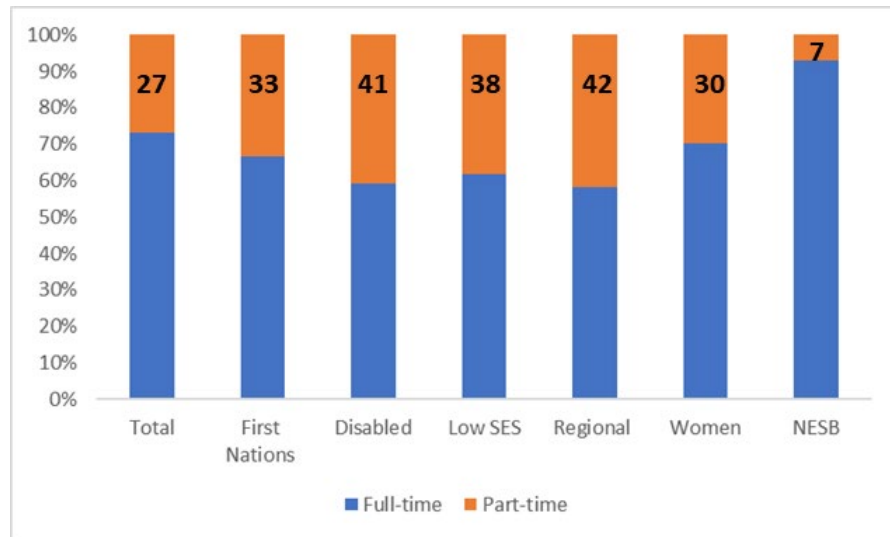
Final Report



A review to “drive lasting reform in Australia’s higher education system”

- Increase PhD stipend rates
- Enable part-time stipends to be tax-free
  - Increases participation from under-represented groups
  - Ensures Australian research is as high impact as possible

2022 HDR part-time (5) enrolment by equity group



# Australian Universities Accord – recommendations cont...

## Meeting our current and future national skills needs

“Strong encouragement for research students and postdoctoral researchers to undertake additional qualifications in cognate areas, such as entrepreneurship, business, leadership and teaching, in parallel with research training, in preparation for careers beyond universities.”

## Reforming the structure and model of PhD and professional doctorate programs

“Use portfolio, project and multi-part dissertation formats and revitalise HDR coursework offerings such as those offered in the United States.”

## Upskilling Industry staff to PhD level

“Firms, peak bodies and government to establish a target for the number of PhD candidates employed in industry undertaking a PhD relevant to their firm.”

## Facilitate pathways for graduates to careers

“A National Research Workforce Development Strategy should be developed to facilitate pathways for HDRs into and out of higher education institutions via:

- innovations to current PhD programs
- greater knowledge flows between sectors
- reduced persistent cultural barriers between academia and industry
- Embracing interwoven trajectory of flow back and forth between university and industry.”



# Transformation pathways: Entrepreneurship training programs for HDR candidates



Australian Graduate School of [Entrepreneurship](#)

- Doesn't offer PhD (Masters and Grad Dip only)



[Entrepreneurial Scholar PhD](#)

- Australian institute for bioengineering and nanotechnology

Attributes of an Entrepreneurial Scholar

- Passionate about research and are interested in engaging collaboratively with industry
- Keen interest in entrepreneurship and/or translational research
- Interested in developing their leadership potential
- Big picture thinkers who push boundaries and seek opportunities to create change.
- Committed to completing professional development activities

## Packaged with internships and placement scholarships



[Industry PhD Placement Scholarships](#)

- 3-month extension to Thesis Submission Date (up to 3.75 years FTE)
- 3-month extension to tuition fee offset scholarship
- 3-month extension to living stipend

# Transformation pathways – early adopters and adapters

## Industry PhD programs, stipends and incentives

- Proliferation of bespoke university-level “Industry Doctoral” or “Industry PhD” programs
- Range of collaborative arrangements
- Range of stipend rates
- Common goals to:
  - Provide students with industry engagement opportunity
  - Align research with industry requirements
  - Co-designed to achieve research ‘impact’

## Underpinned with industry researcher development

- Higher Degree Researcher capability frameworks
- Professional upskilling programs



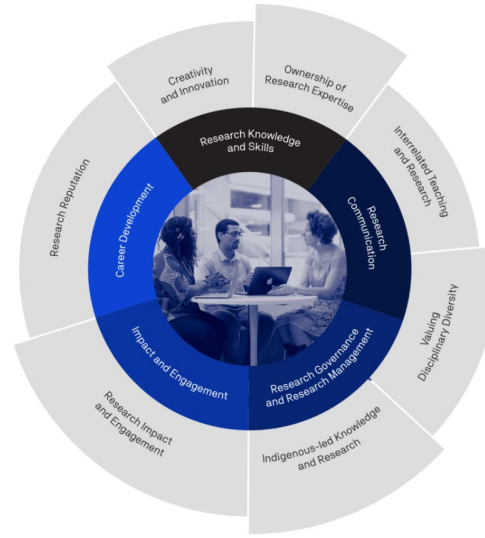
University of  
South Australia



WESTERN SYDNEY  
UNIVERSITY



UNSW  
SYDNEY



## Five interlocking components

- Research Knowledge and Skills
- Research Communication
- Research Governance and Research Management
- Impact and Engagement
- Career Development

# Transformation pathways – early adopters and adapters

- “Enterprising research degrees”
- Underpinned with the EDGE Capability Framework
  - 4 domains, 21 capabilities
  - 3 stages of candidature (commencing, continuing & completing)



DOMAINS	COMMENCING	CONTINUING	COMPLETING
<b>RESEARCH EXPERTISE: research and contextual capabilities</b>	<ol style="list-style-type: none"> <li>1. Candidates orientate themselves as researchers and take responsibility for their research.</li> <li>2. Candidates become familiar with how to conduct research and cultivate disciplinary knowledge.</li> <li>3. Candidates become familiar with and start to apply relevant research methods and techniques.</li> <li>4. Candidates become familiar with and start to apply communication and engagement skills.</li> </ol>	<ol style="list-style-type: none"> <li>1. Candidates deepen their disciplinary knowledge.</li> <li>2. Candidates apply and refine relevant research methods.</li> <li>3. Candidates use advanced investigative and technical skills.</li> <li>4. Candidates communicate and engage around their own research with academic and non-academic audiences.</li> </ol>	<ol style="list-style-type: none"> <li>1. Candidates have established themselves as effective, confident, capable researchers.</li> </ol>
<b>ENTERPRISING FUTURES: research enabling capabilities</b>	<ol style="list-style-type: none"> <li>1. Candidates become familiar with and start to apply strategic, critical and creative thinking skills.</li> <li>2. Candidates become familiar with and start to apply skills in project and risk management.</li> </ol>	<ol style="list-style-type: none"> <li>1. Candidates become familiar with innovation and apply entrepreneurial skills.</li> </ol>	<ol style="list-style-type: none"> <li>1. Candidates refine their leadership and people expertise to enhance employability and career success.</li> </ol>

# Australian Universities Accord – recommendations cont...

## HDR level teaching qualifications

“A significant proportion of tutoring, lecturing and demonstrating in Australian universities is undertaken by doctoral students employed on a casual basis, yet these students are not always provided with professional development opportunities to develop teaching-specific expertise.”

"Universities should offer HDR students teaching qualifications, such as a graduate certificate or diploma."

## Embedding skills development in PhD coursework



### Doctor of Philosophy (Integrated)

- Foundational coursework year, then 3 years of thesis = 4 years
- Hurdle 70%

#### Year 1 - Semester 1

Unit Code	Unit Title	Credit Points
For candidates commencing from 2018 the examination process will consist of both a written and oral component.		
<a href="#">RES5115</a> ①	Research Preparation: Principles and Approaches	20
<a href="#">WRS6000</a> ③	Writing and Reading Skills for Researchers	20
<a href="#">PRO6000</a> ③	Research Project 1	20

#### Year 1 - Semester 2

Unit Code	Unit Title	Credit Points
<a href="#">CPR6100</a> ①	Communicating and Promoting Research	20
<a href="#">PRO6110</a> ③	Research Project 2	40

## Professional Doctorates



# The future Australian Doctorate ?

A program that outputs specialist and externally engaged researchers

**With skills and experience of today**




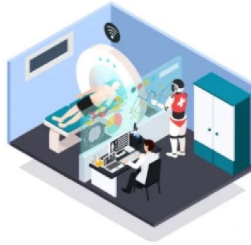


## 10 Transferable Ph.D. Skills You Can Use in Most Jobs

- |   |                        |   |                                |
|---|------------------------|---|--------------------------------|
|  | Project Management     |  | Accelerated Learning           |
|  | Time Management        |  | Attention to Detail            |
|  | Ability to Collaborate |  | Writing Proficiency            |
|  | Leadership Skills      |  | Critical Thinking and Analysis |
|  | Communication Skills   |  | Adaptability                   |

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Adel, A. Future of industry 5.0 in society: human-centric solutions, challenges and prospective research areas. *J Cloud Comp* **11**, 40 (2022). <https://doi.org/10.1186/s13677-022-00314-5>