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STEM and the Future Workforce

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Department of Education & Training

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Presentation Outline

- Drivers for change
- Skills for the 4th industrial revolution
- Maximizing our talent pool
- Significant trends impacting careers

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Drivers for change

Australia is on the cusp of a new but very different industrial revolution. Technology is going to dramatically reshape our workforce in coming years and the nation's ability to rapidly adapt to technological change, and even more importantly, innovate, will be paramount for job creation and our future economic success.

- Professor the Hon. Stephen Martin Chief Executive, CEDA

Globalisation is not a risk but a fantastic opportunity. We need to see manufacturing differently to what it is today. Need to see our role in manufacturing as part of the global supply chain. The added complexity of Industry 4.0 requires immense collaboration.

Jeff Connolly, Siemens

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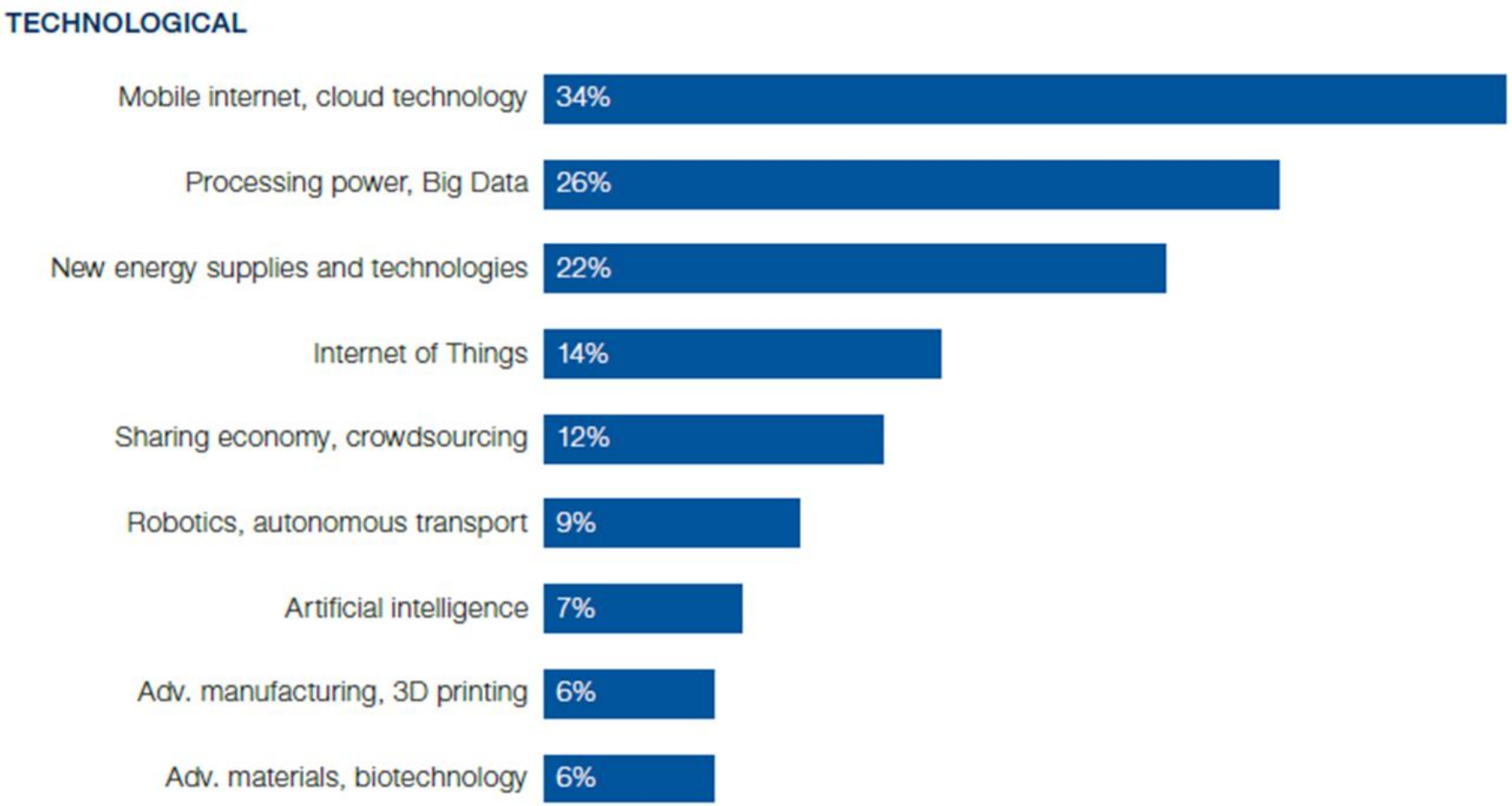
Drivers of change - Technological



Source: Future of Jobs Survey, World Economic Forum.
Note: Names of drivers have been abbreviated to ensure legibility.

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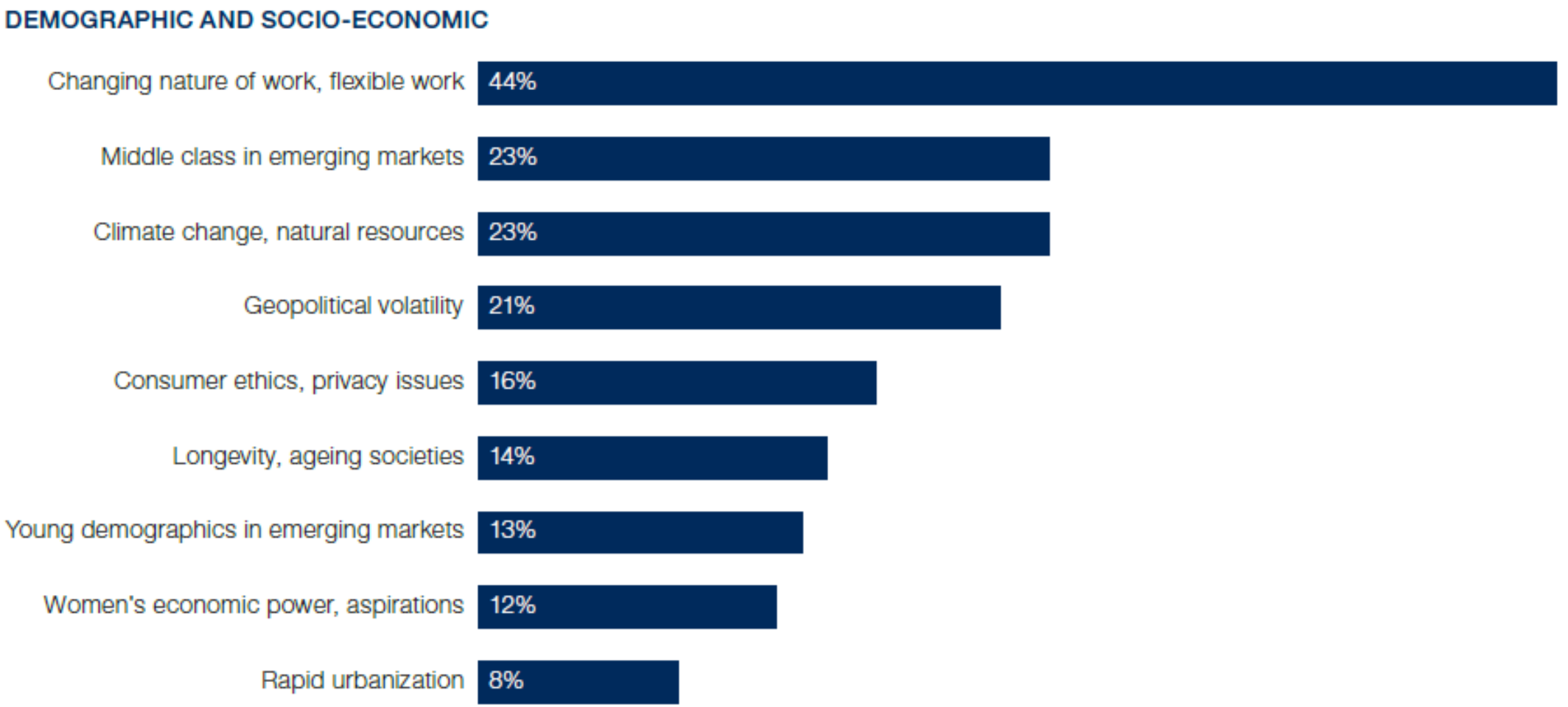
Drivers of change - Societal



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Skills for the 4th Industrial Revolution

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

Source: Future of Jobs Report, World Economic Forum

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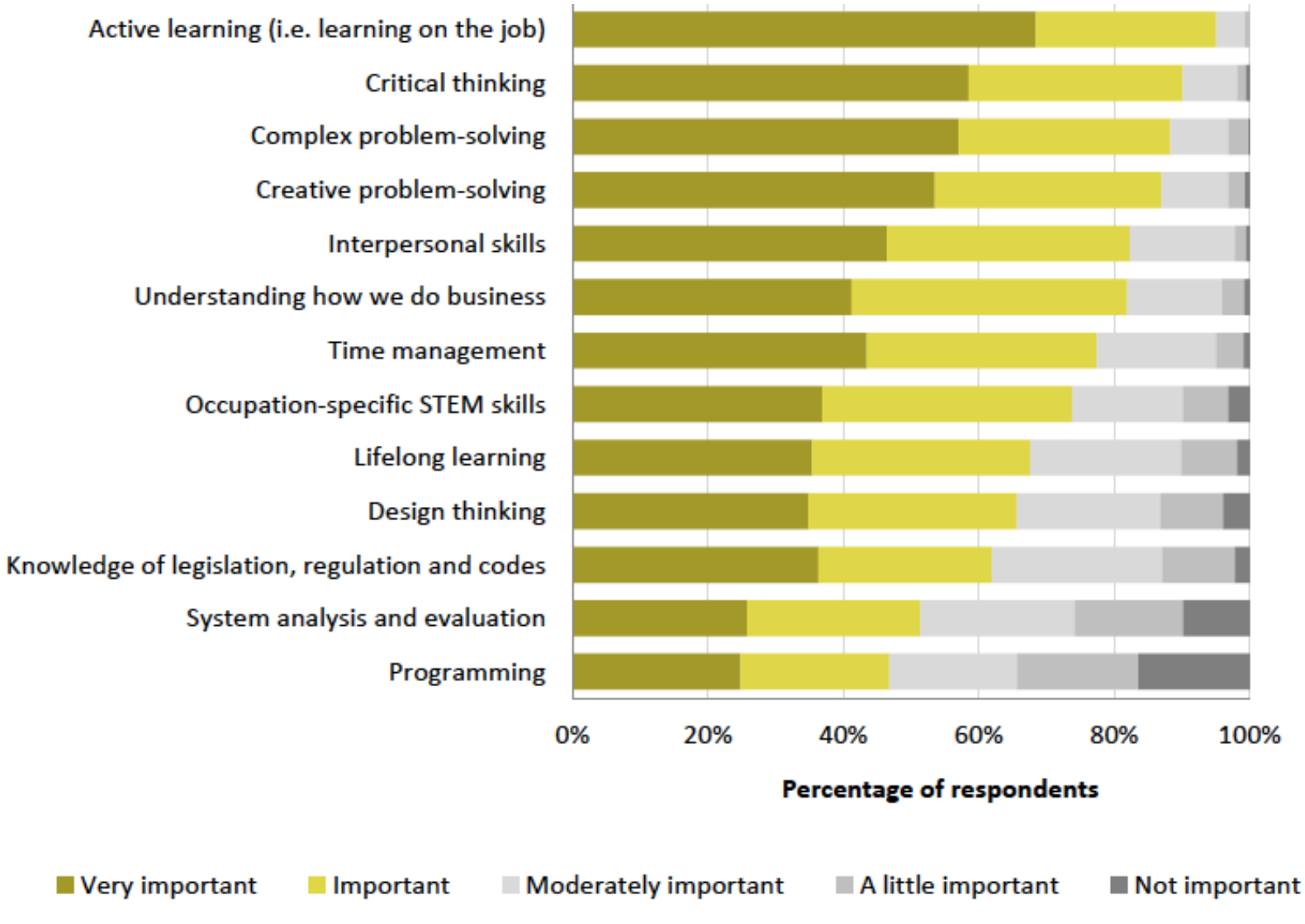
What our future industries are looking for



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Global Innovation index – Australia ranking

	Global innovation index	Innovation input sub-index	Innovation output sub-index	Innovation efficiency ratio
2011	21	12	31	97
2012	23	13	31	107
2013	19	11	32	116
2014	▲ 17	▲ 10	▲ 22	▲ 81

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Expanding our talent pool

"For reasons beyond education and professional qualifications or willingness to contribute or a desire to be a part of our society ... too many of our fellow Australians are denied the opportunity to reach their potential.

- David Morrison, Chair of Diversity Council Australia, Australian of the Year 2016

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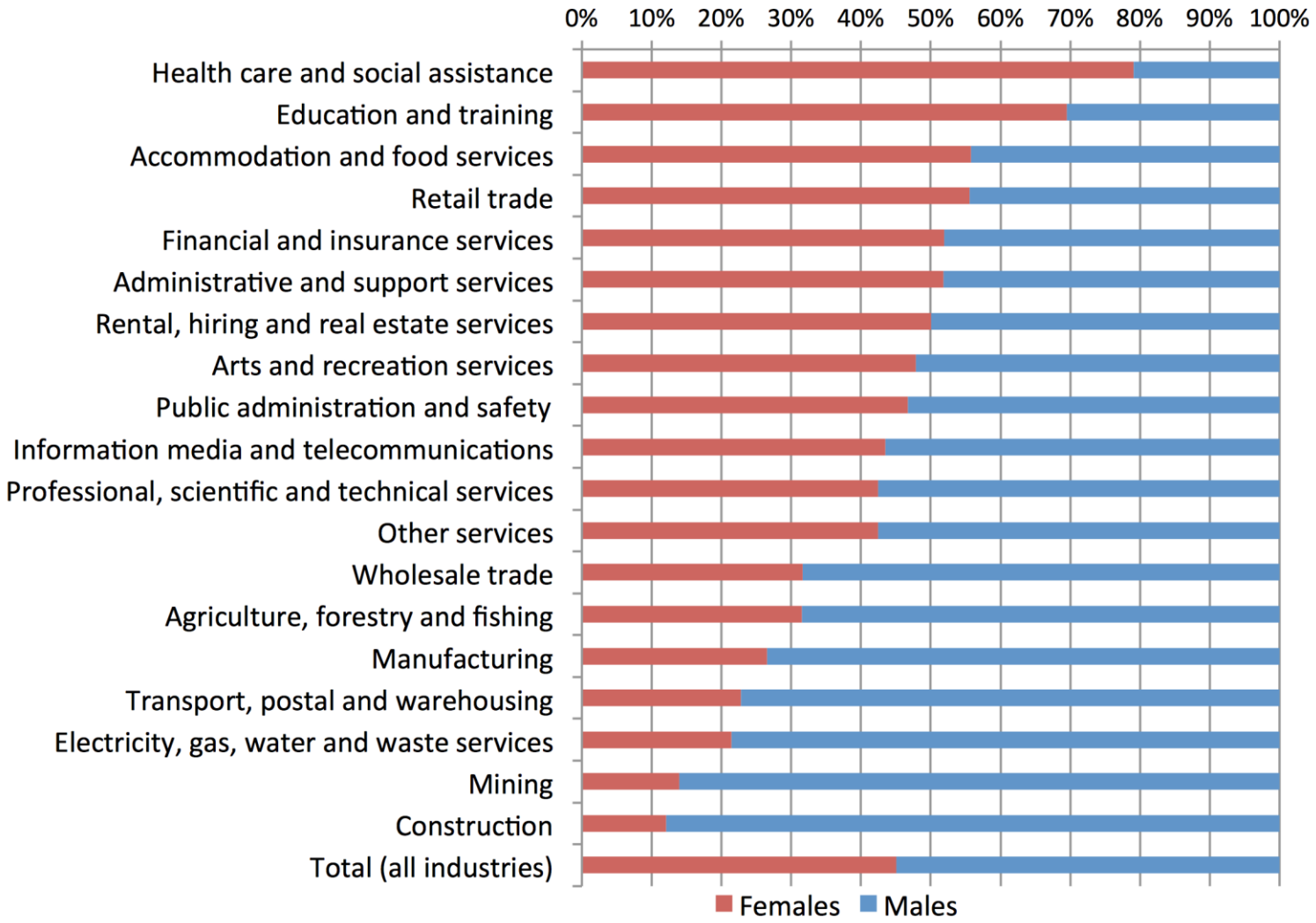
Significant gender imbalances in our workforce



Source: ABS Cat. No. 4125.0 Gender Indicators, Australia, July 2011. Table 3 Employment by industry, 20–74 years, 2009–10.

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Gender gaps that need improvement

- Women made up 55% of university students in Australia (9th of 27 countries measured)
  - Trades still dominated by males
- Big increase is in teaching and nursing
  - 29,419 women beginning a teaching degree c.f. 7872 men
  - 15,150 women beginning nursing degree c.f. 2316 men
- Only 28 per cent of ICT workers are women (ACS and Deloitte's digital pulse). This number compares to 43 per cent of people in other professional industries.
- Women in engineering numbers stagnant at 14% acceptance and high drop-out
- Men are still earning more than women in majority of industries
  - Information technology lower

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Significant Trends Impacting Careers

- Imbalance of 'employer demand' against 'employee supply’
- Digital Future – new careers emerging
- Entrepreneurship rising
- Global collaborative marketplace
- Health reimagined – Personalised medicine
- Climate change impacts – New energy, agriculture, health
- Increased focus on returns from research investment
- 5 - 10 careers in a life time
- Soft skills becoming higher in importance to employers

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Thank you