# Graduate Readiness for Employability

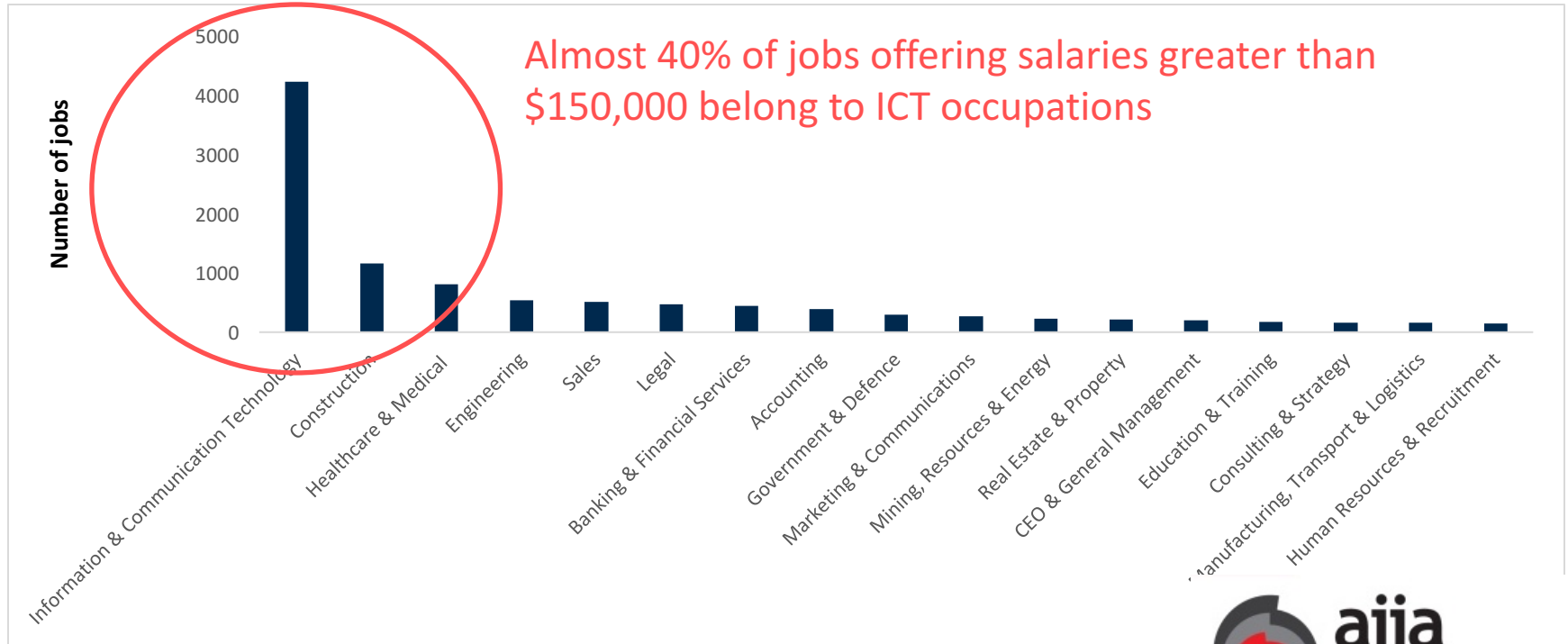*Suzanne Roche, GM Policy and Advocacy, AIIA*

August 2017

# What I'm Covering

- Problem now
  - What the stats tell us
  - AIIA and other industry findings

- ICT in context of Jobs of the future
  - Where growth is expected
  - Changing nature of skill requirements  - across the board
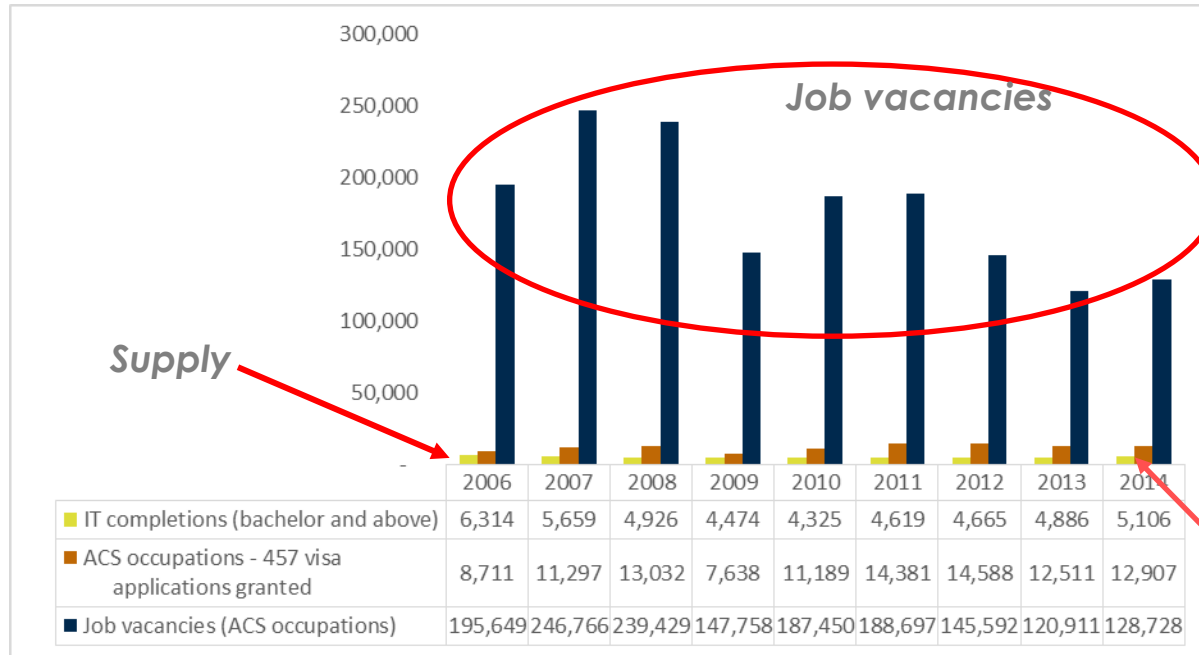  - Implications for educators and industry

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# ICT graduates struggle to find employment whilst employers struggle to fill ICT roles

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# Premium Salaries



Almost 40% of jobs offering salaries greater than $150,000 belong to ICT occupations

Chart — Number of jobs (y-axis, 0 to 5000). Categories: Information & Communication Technology, Construction, Healthcare & Medical, Engineering, Sales, Legal, Banking & Financial Services, Accounting, Government & Defence, Marketing & Communications, Mining, Resources & Energy, Real Estate & Property, CEO & General Management, Education & Training, Consulting & Strategy, Manufacturing, Transport & Logistics, Human Resources & Recruitment.

*Data from seek.com.au of jobs offering salaries greater than $150,000. Accessed on 13 July 2016.*

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# Supply vs job vacancies



*Job vacancies*

*Supply*

*457 visas*

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|
| ■ IT completions (bachelor and above) | 6,314 | 5,659 | 4,926 | 4,474 | 4,325 | 4,619 | 4,665 | 4,886 | 5,106 |
| ■ ACS occupations - 457 visa applications granted | 8,711 | 11,297 | 13,032 | 7,638 | 11,189 | 14,381 | 14,588 | 12,511 | 12,907 |
| ■ Job vacancies (ACS occupations) | 195,649 | 246,766 | 239,429 | 147,758 | 187,450 | 188,697 | 145,592 | 120,911 | 128,728 |

- Domestic supply stagnant around 5,000 pa (until relatively recently)

- Growth in 457 visas

- Still significant jobs vacancies

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# Employment of ICT Grads

Expectation that employment prospects for domestic IT graduates should be strong, not borne out in graduate employment outcomes.

Are ICT skills not being utilised – or is it they are not the right skills?
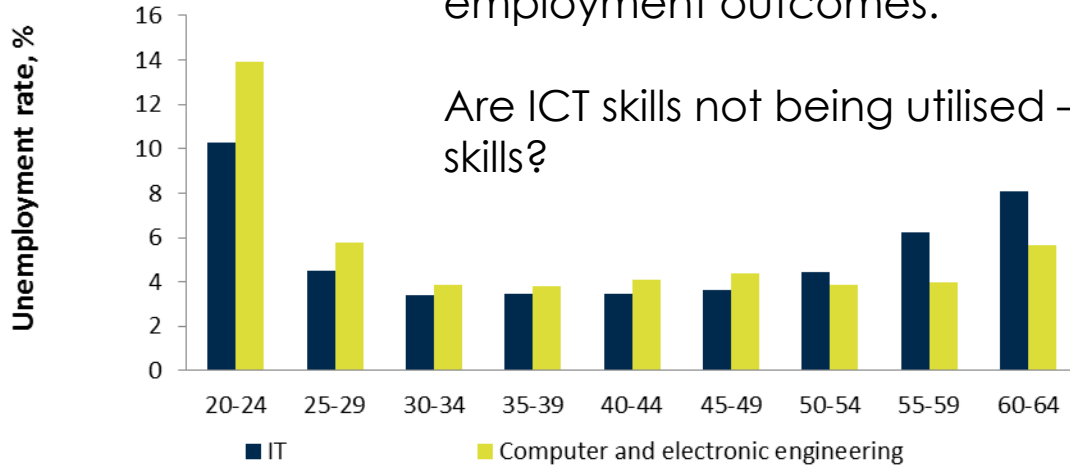
# **AIIA** member STEM/Skills Survey

Overwhelming view - there is a job ready skills gap in ICT graduates, both in quantity and quality

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# AIIA Member STEM Survey

- **84%** believe there is job-ready skills gap in Australian Graduates for the ICT industry

- Key areas of deficiency:
    - Academic Knowledge: Design thinking; Business informatics
    - High Order Skills: communication; initiative; complex & creative problem solving; project management; understanding business & industry
    - Hard ICT Skills: Security, cloud, certification, big data & analytics

  - Qualitative comments
    - Lack of modern coding language knowledge
    - Low digital business skills
    - Poor business understanding and application of technology to solve business problems

# Graduate Capability

Agree or strongly agree that students/graduates are capable in:

## Academic Knowledge

| | AIIA |
|---|---|
| Software Engineering | 73% |
| Design Thinking | **31%** |
| Information Systems | 74% |
| Business Informatics | **34%** |

## Knowledge Higher Order Skills

| | AIIA |
|---|---|
| Communication | **43%** |
| Initiative | **41%** |
| Aptitude for Learning | 76% |
| Complex Problem Solving | 53% |
| Creative Problem Solving | **42%** |
| Project Management | **31%** |
| Quantitative Skills | 60% |
| Understanding Business and Industry | **15%** |

## Hard ICT Skills

| | AIIA |
|---|---|
| Software | 77% |
| Systems | 53% |
| Security | **39%** |
| Cloud | **42%** |
| Industry Certifications | **31%** |
| Data Analytics | **39%** |
| Networks | 62% |
| Big Data | **19%** |
| Programming | 71% |

Top Skills Gaps identified by IT Professional
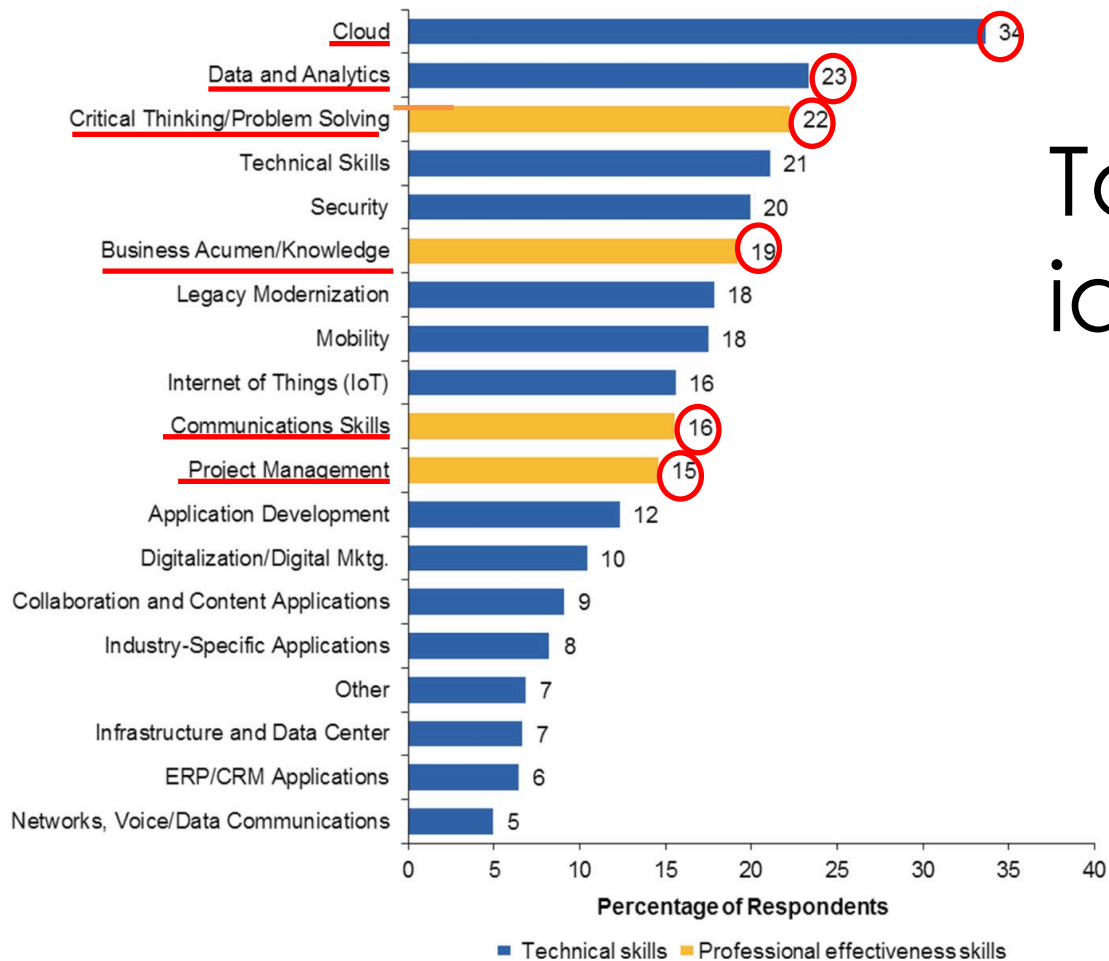
Source: Gartner (June 2016)

# Additional anecdotal feedback

- Reluctant to hire people with deep discipline knowledge

- Happy to take graduates with relevant broad skills companies can 'train' themselves to meet their own needs

- Looking overseas or basing parts of their organisation overseas to attract talent

- Some companies investing in courses they can recruit from

- Increasingly reliant on industry certifications

# Future Outlook ICT

- Number of ICT workers will ⬆ from approx 640,800 in 2016 to 721,900 in 2022

  - Average annual growth rate **2.0%, compared to 1.4%** for overall workforce

- Employment growth is forecast to be strongest in:

  - ICT management & operations occupations: ⬆ **28,500** workers, 2016 - 22

  - ICT technical & professional occupations: ⬆ **26,700** workers

- These two occupation groupings will comprise almost 70% of total jobs growth forecast for the ICT workforce between 2016 and 2022.

# T or Pi shaped Professional

- The multidisciplinary nature of digital business will demand new breed of IT professional

- **More Breadth**, Not Just Depth

- Technical professionals will require broad knowledge of the overall architecture and deep knowledge in one or more specific areas
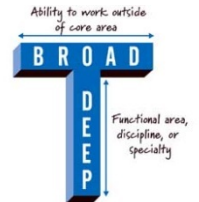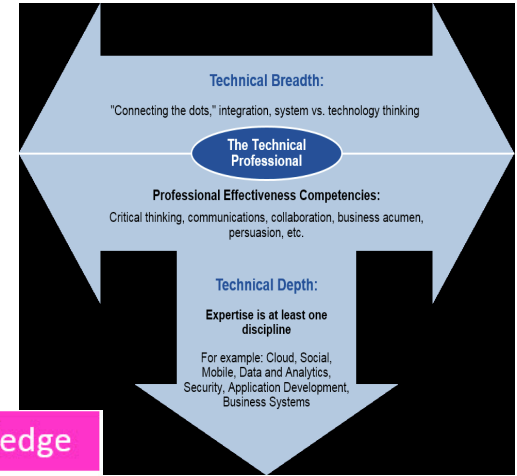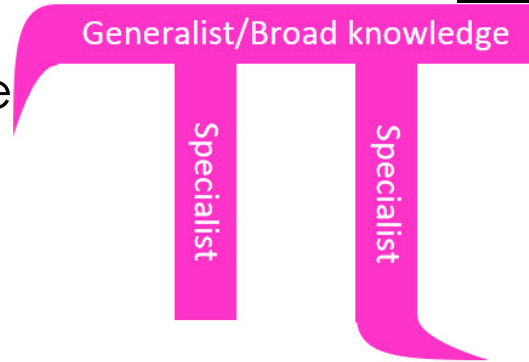
# Technical proficiency not sufficient

- Jobs of the Future, like other industries, expectations that core skill set includes:

  - Technical and cognitive skills: creativity, reasoning, complex problem solving

  - Social skills: influencing, persuasion, emotional intelligence, ability to teach others

  - Processing skills: active listening and critical thinking

- Focus on enhancing business effectiveness skills that make the IT professional a better communicator, a better listener and a more persuasive advocate and facilitator for change.

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# Implications for ICT Education

- Too keep pace with technology and workforce demands - more agile approach to skills development

- Work experience and integration models

- Role of university vs role of VET sector

  - Higher apprenticeship schemes

- Life long learning models, structures and incentives

# Where to from here

# Opportunities

**Priority 1:** Develop a reciprocal exchange program between university academics and industry

**Priority 2:** Embed industry practices in IT and engineering courses wherever possible.

**Priority 3:** Raise the profile and recognition of teaching (relative to that of research)

**Priority 4:** University and industry work together to define graduate attributes that are important

**Priority 5:** Academia and industry work together to implement for credit work integrated learning at the national scale in ICT. This will align with the National Strategy on Work Integrated Learning.

**Priority 6:** Examine new education models which deliver the right graduate skills e.g. higher level apprenticeships.

**And . . .**



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