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Graduate Readiness for Employability

Kevin Harris, Chair – WorldSkills Australia

July 2018

What do employers want!?!

- Graduates that have both broad based and vertical technical knowledge and skills that meet now and future business needs plus have the necessary set of *21C/Industry-4* soft skills that ensures graduates on entry,
- Are productive
- Able to operate effectively across a number of different projects outside of their vertical technical skills
- Have the knowledge base that allows them to realise opportunities presented by new technologies
- Have the skills and temperament to operate in a dynamic, hyper connected, and knowledge based, global digital economy
- Demonstrate flexibility, agility and resilience.

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ICT and Jobs of the Future

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Future Outlook ICT – still valid!?

- 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.

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Technical proficiency is not enough!

- Expectations that graduate's 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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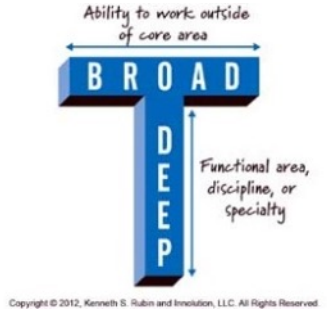
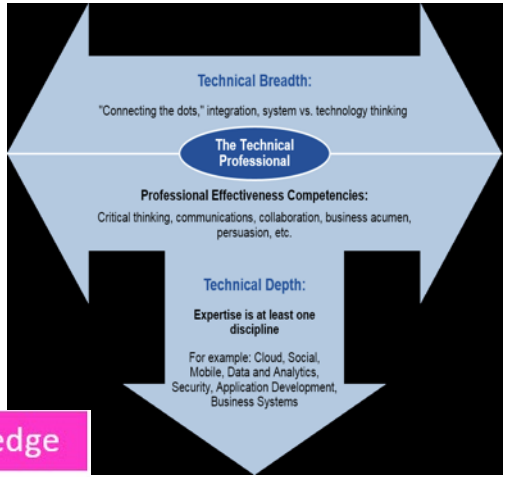
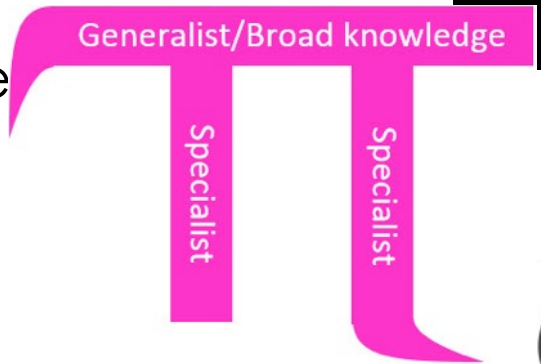
T or Pi shaped Professional

- The multidisciplinary nature of digital business demands a 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







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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!? Compete or collaborate!
- Higher apprenticeship schemes
- Life long learning models, structures and incentives

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Since ACDICT meeting Aug 2017 and ACDICT 2018 - What's changed?

- Has anything changed in employer's perceptions or expectation?
- What actions are employers taking to address their skills challenge?

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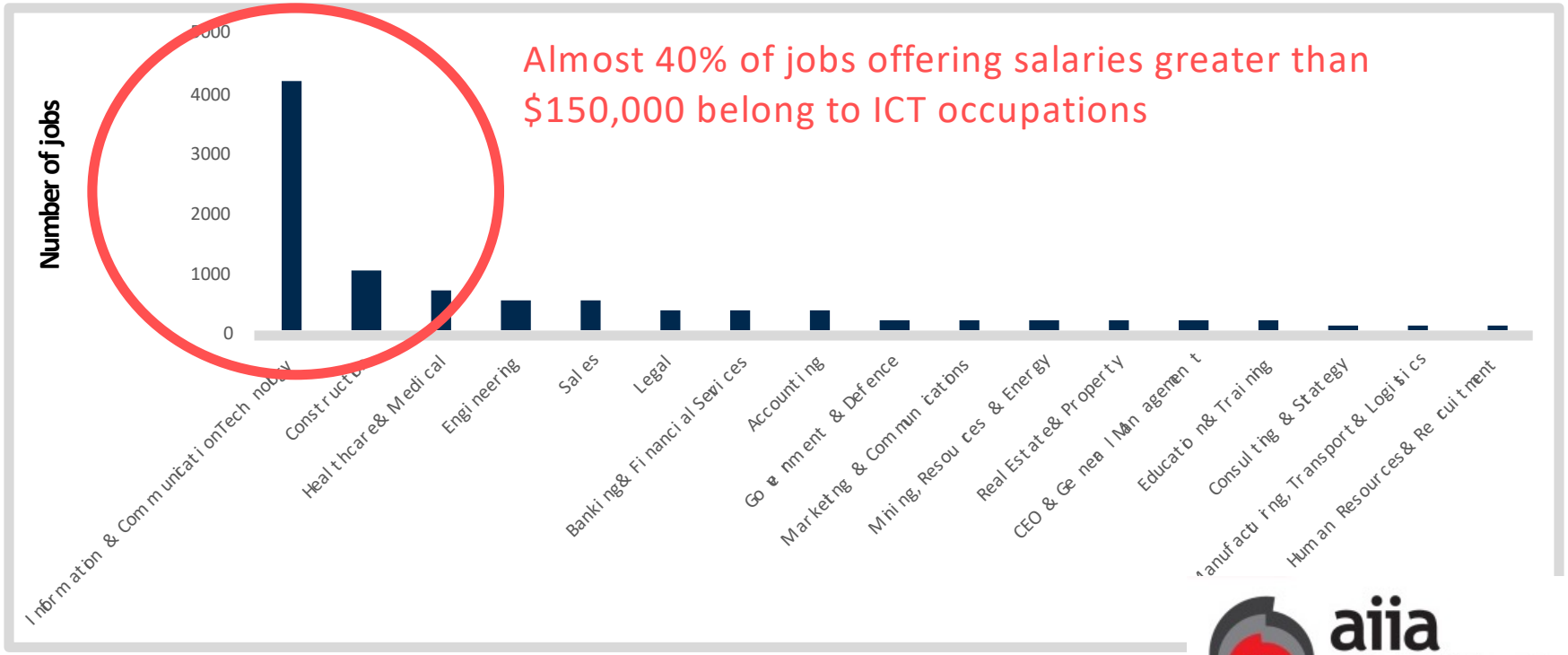
Premium Salaries 2016! – 2018?



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

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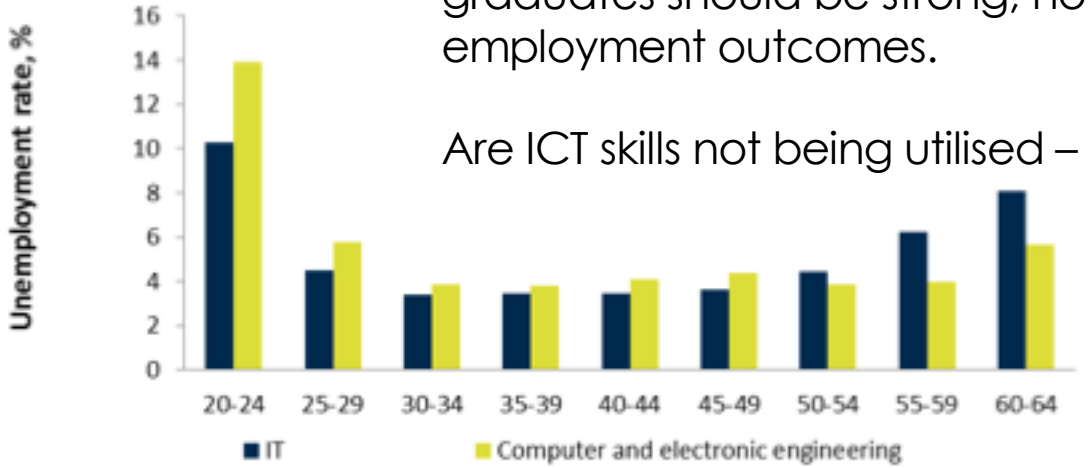
Employment of ICT Grads 2016! – 2018?

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 are not the right skills?



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AIIA member STEM/Skills Survey 2017

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

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2017 - “ICT graduates struggle to find employment whilst employers struggle to fill ICT roles!?”

2018!?

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AIIA Member STEM Survey – 2017

- **84%** believed there was 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

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Graduate Capability 2017

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

Academic Knowledge

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

Knowledge Higher Order Skills

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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

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

AIIA member X-ship Survey 2018

Majority of employers want the X-Ship program to focus on skill shortage areas such as cyber-security, cloud, data analytics

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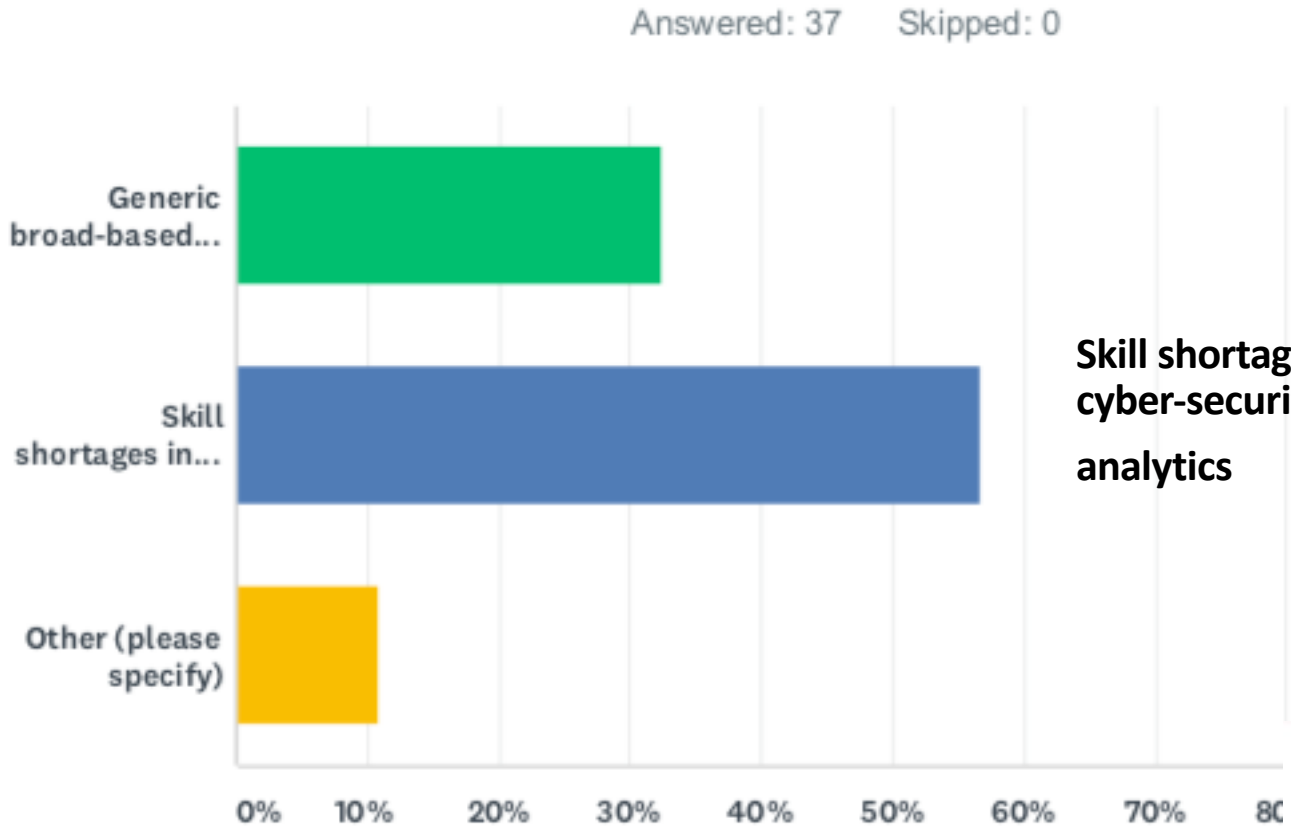
Q1 As an employer - should the xShip program focus on:



Skill shortages in areas such as cyber-security, cloud, data analytics

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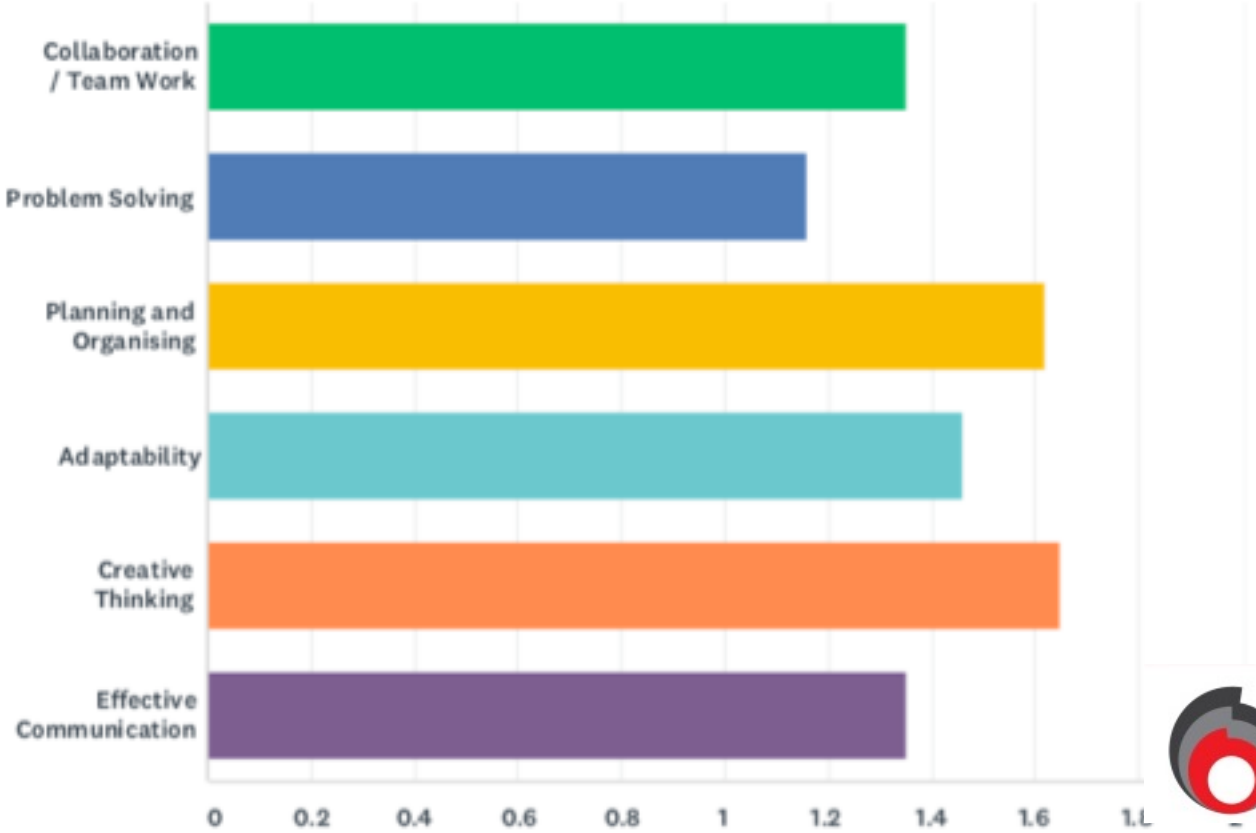
Q2 Employability or soft skills have been identified as critical for 21st-century workers. How important are these skills for your organisation?

Answered: 37 Skipped: 0



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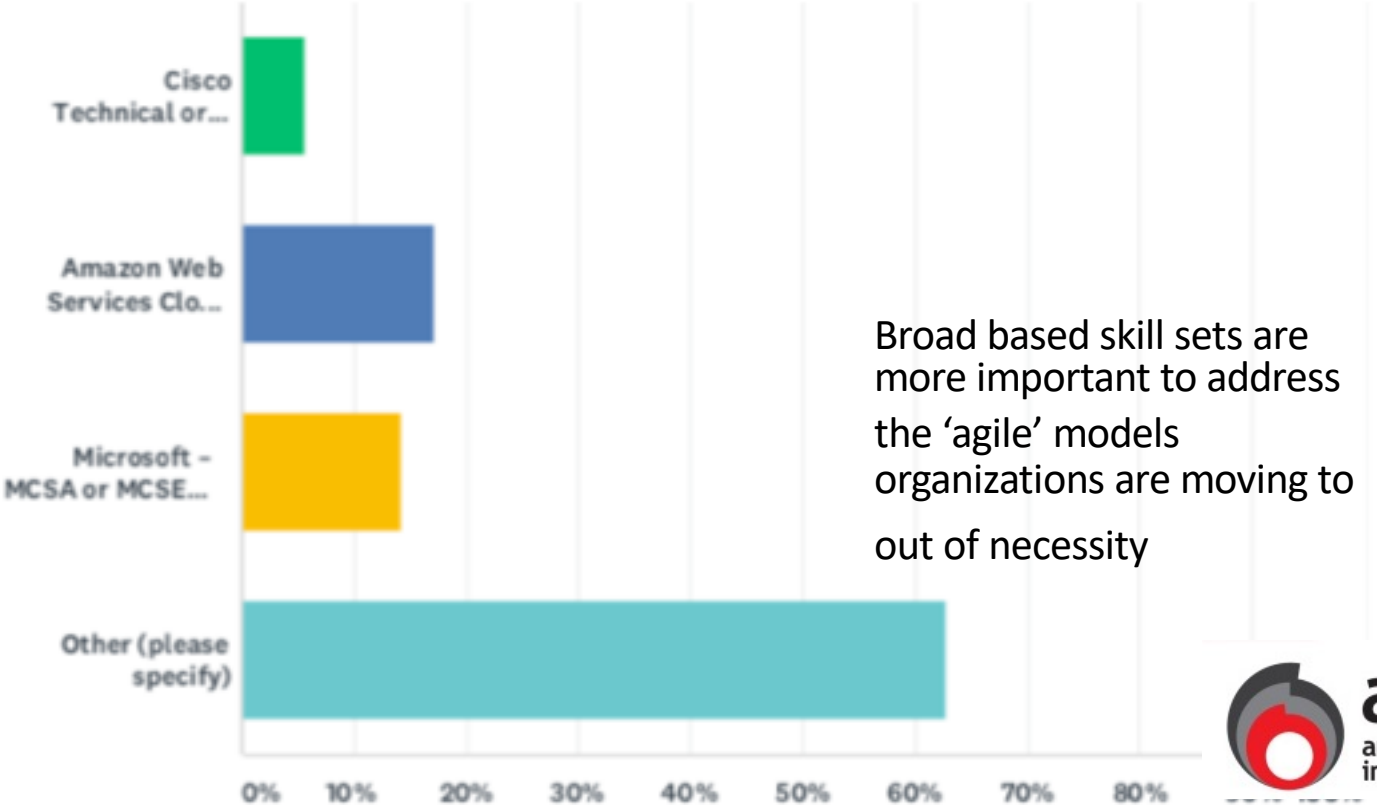
Q3 As an employer, how important is ensuring your employees have vendor-specific credentials?

Answered: 35 Skipped: 2



Broad based skill sets are more important to address the 'agile' models organizations are moving to

out of necessity

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Q4 How important is integrating vendor certification into the training program?

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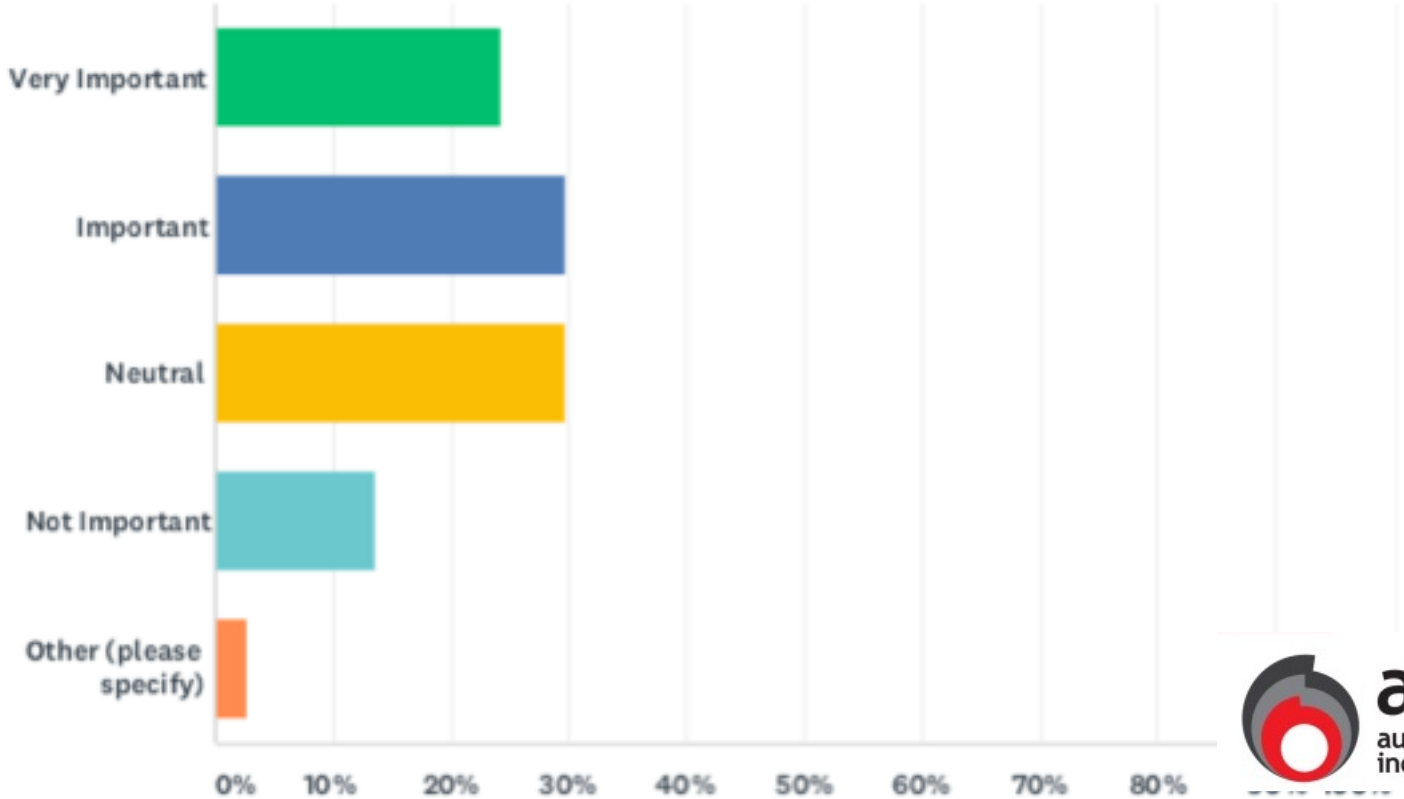

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Q5 How important is SME and regional xShip program availability/options?

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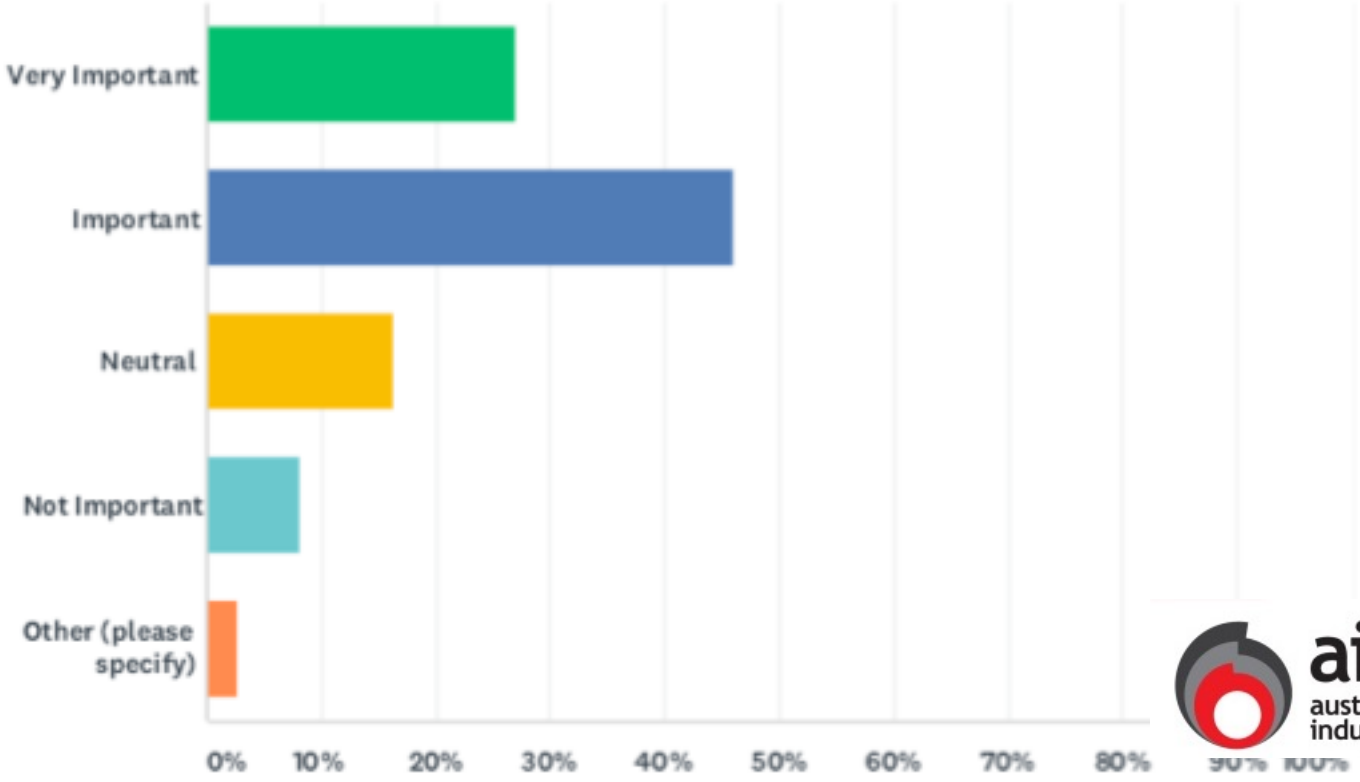

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Q6 How important is including a clear pathway to higher education ICT qualifications from the xShip program?

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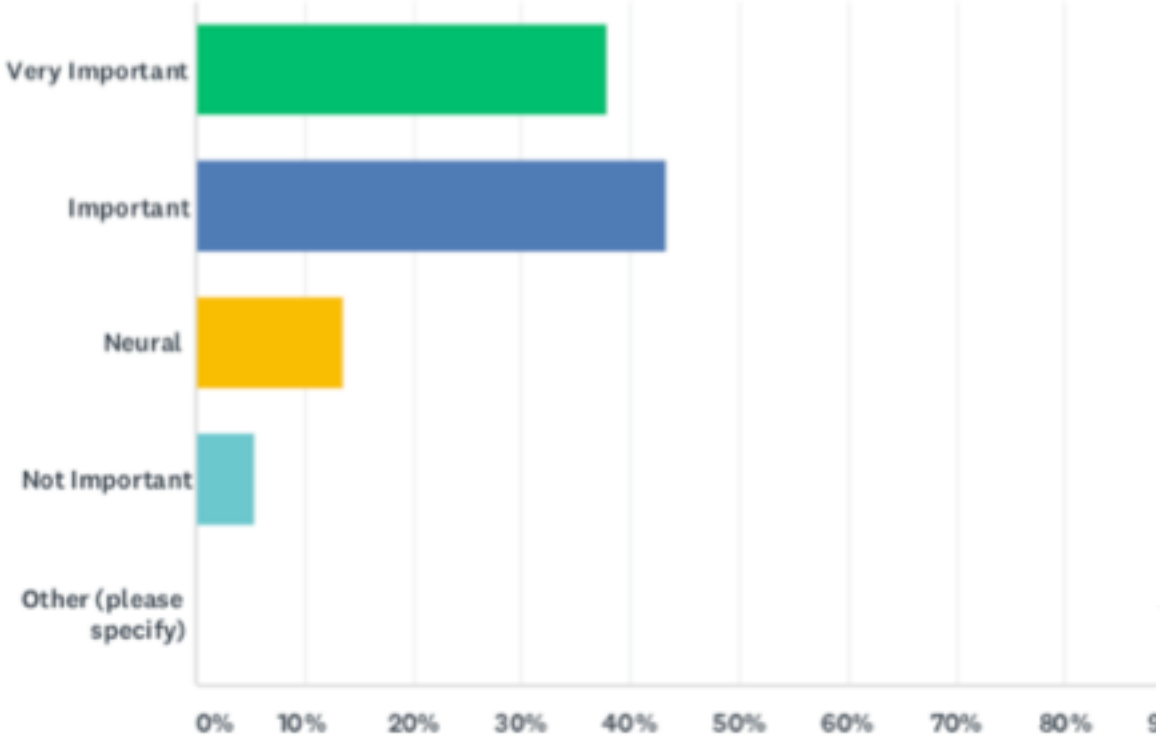

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Q7 What should the higher education qualification be focussed on:

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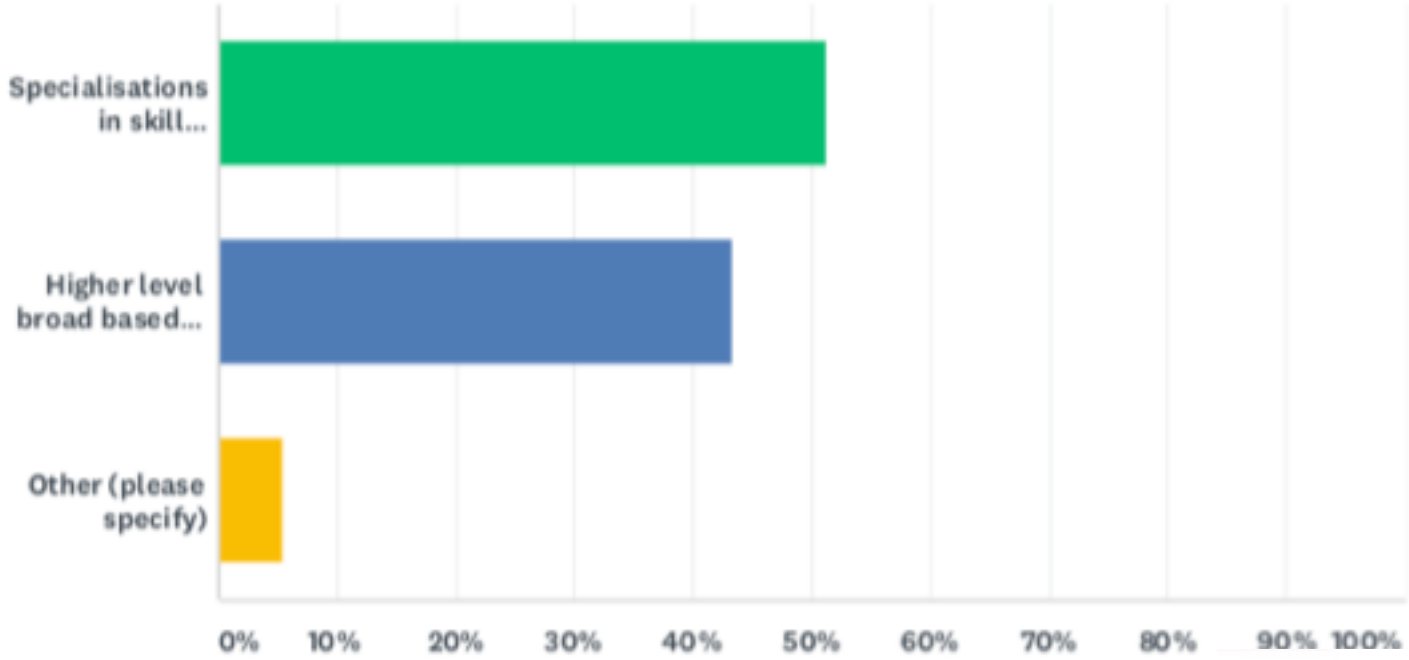

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Q8 Is the target group for the xShip program:

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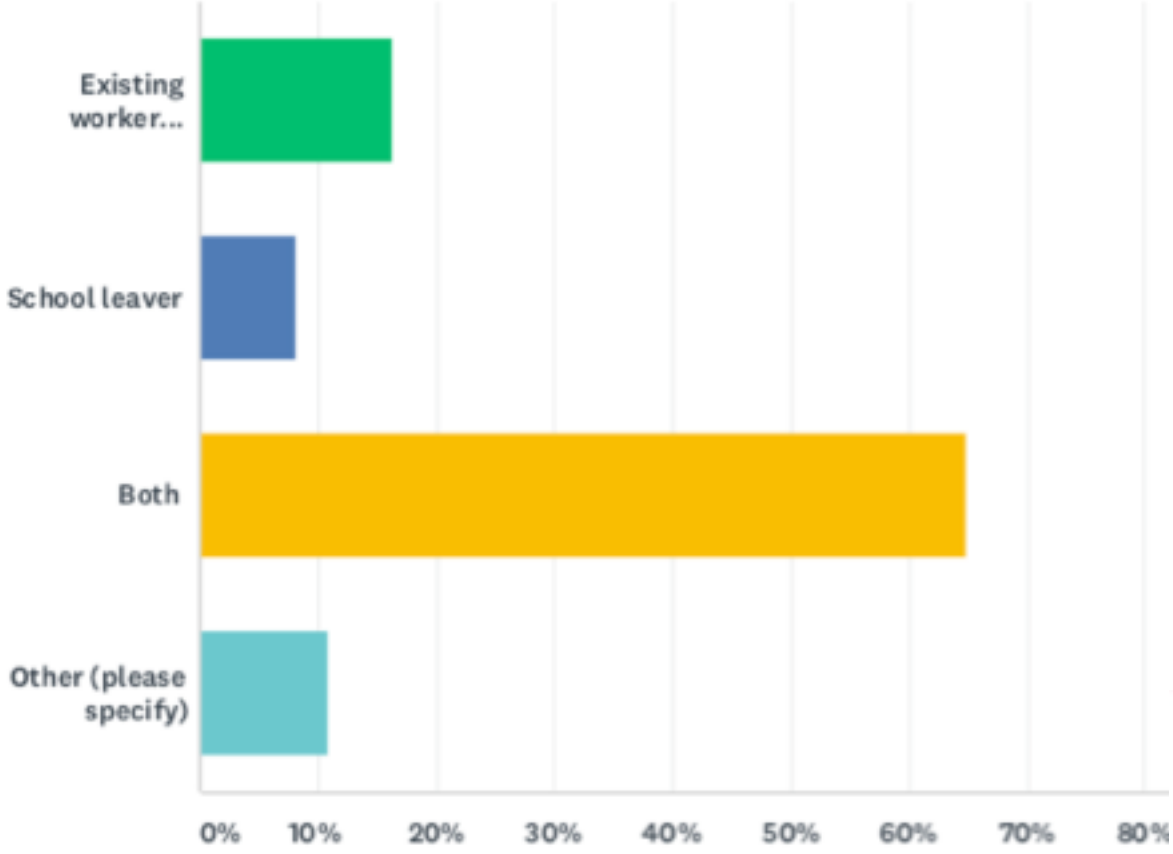

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Q9 Note: The level of qualification being considered for the program is Diploma or Advanced Diploma.For school leavers or inexperienced existing workers prior to the program commencement, should there be an inclusion of a pre-apprenticeship training option of:

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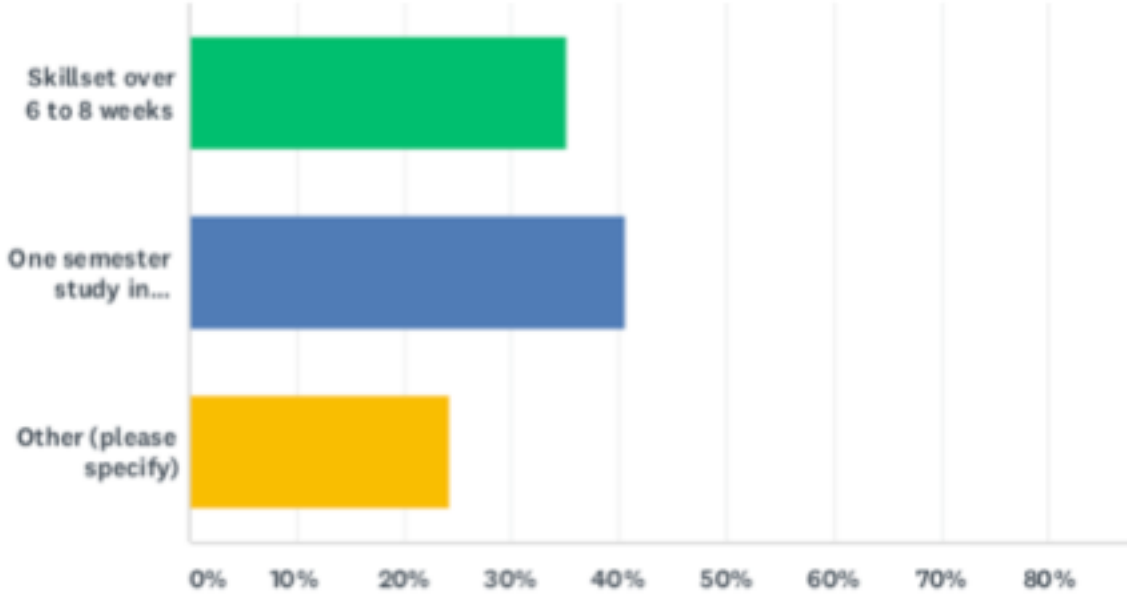

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Q10 The model for the program can include the use of a third party organisation to manage the HR components (eg Group Training Organisation). Is this an important program option?

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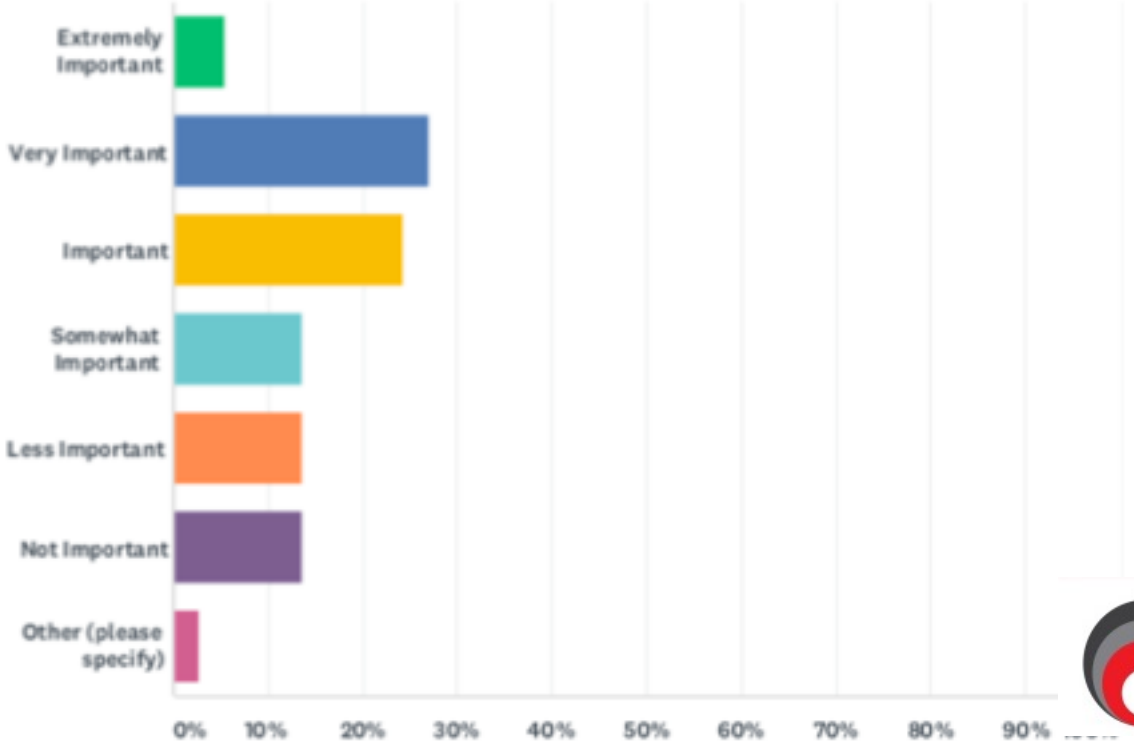

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Q11 Rate the importance of Government funding options for employers participating in the xShip program?

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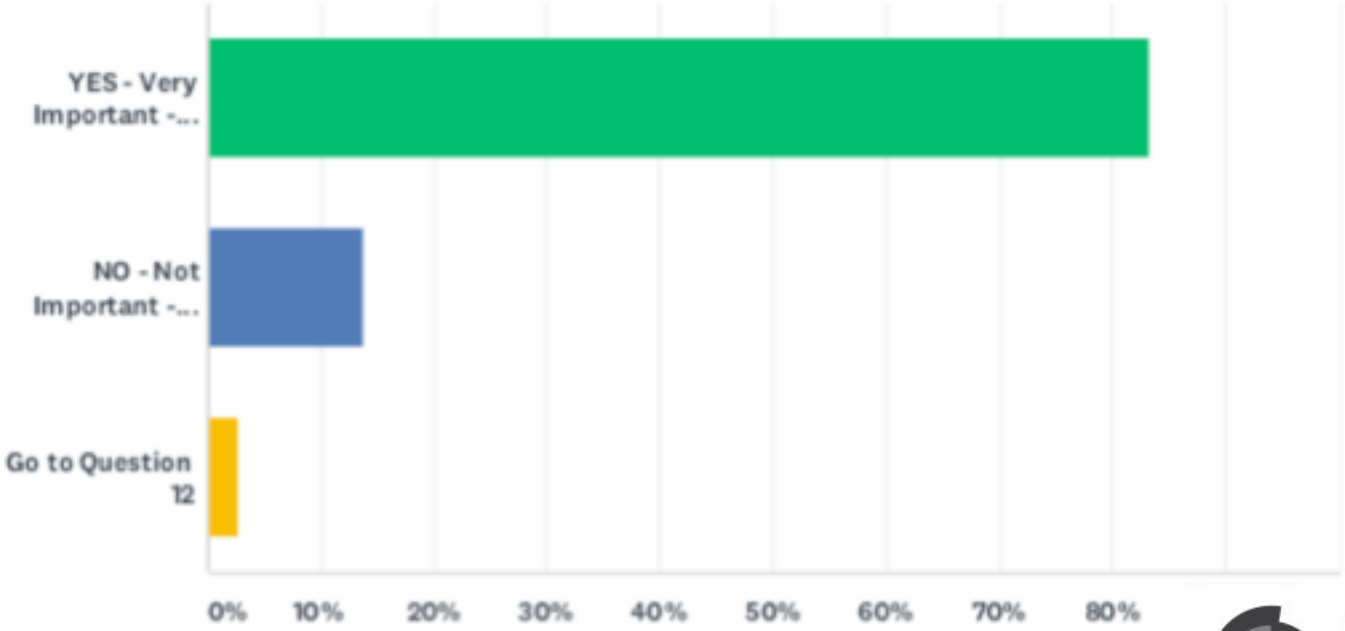

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Q12 Ideally what level of funding are you looking at?

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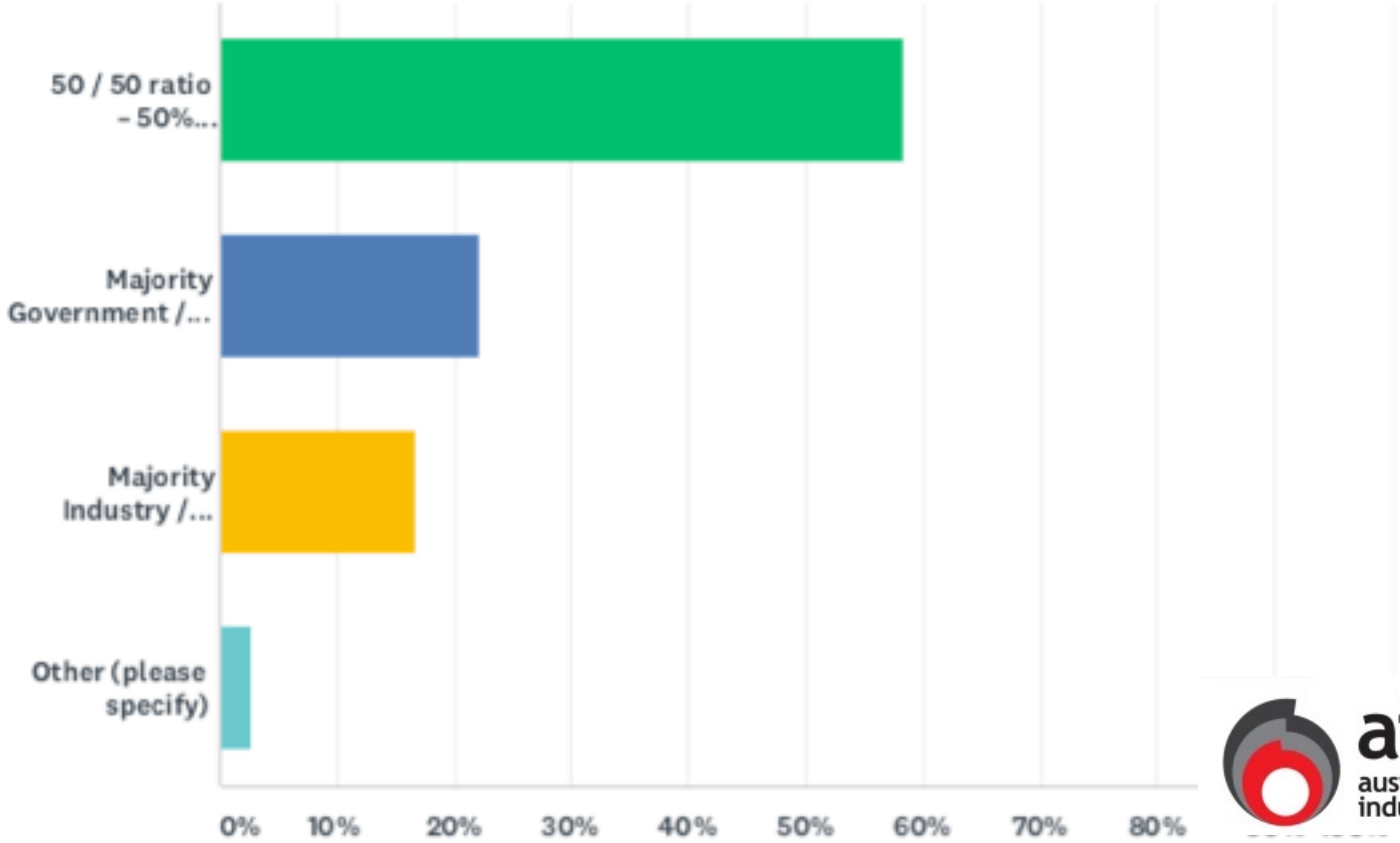

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Employer response to their perceptions of graduate capability!

- Reluctant to hire people with deep discipline knowledge due to perceived inflexibility
- Happy to take graduates with relevant broad skills and knowledge so that they can 'train' themselves to meet the company's 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 (Vendor Specific Credentials).
- Seriously looking at the Higher Apprenticeship model

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What are ICT employers looking for in the graduate?

- Skills and temperament to operate in a dynamic, hyper connected, and knowledge based, global digital economy
- Flexibility, agility, resilience.
- Much more then STEM skills and knowledge!

(But we need these too please and particularly in data analytics, security, etc,…)

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Where to from here!?!

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Opportunities – AIIA's recommendations…

- Develop a reciprocal exchange program between university academics and industry
- Embed industry practices in IT and engineering courses wherever possible.
- Raise the profile and recognition of teaching (relative to that of research)
- University and industry work together to define graduate attributes that are important
- 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.
- Examine new education models which deliver the right graduate skills e.g. higher level apprenticeships.

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