ICT for a Future-Proof TVET – Opportunities and Challenges

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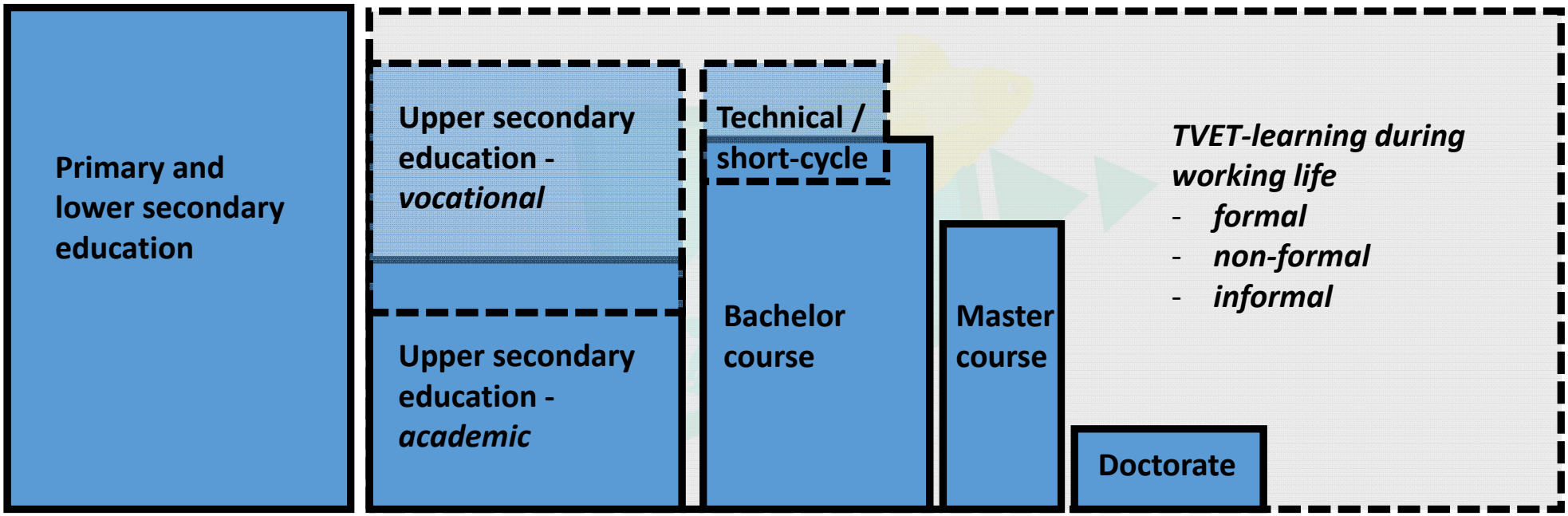
Source: http://banksy.co.uk/out.asp

What is TVET – Technical and Vocational Education and Training – and when does it occur?

- TVET has a broad scope, which makes it so important



Note: areas encompassed by dotted lines are normally considered as TVET. Source: author

UNESCO's view of current challenges

- To provide **job-ready graduates** with applied knowledge and skills for the job market. The Shanghai Consensus (UNESCO, 2012) calls for an "Enhancing relevance of TVET"
- To provide **new opportunities for learning and for upskilling** in work-based settings. The UNESCO Strategy for TVET (UNESCO, 2016) states that "UNESCO will also support Member States to leverage digital technologies to …[enable] the learning and recognition of [core] skills in workplace settings."
- To be inclusive by **bridging gaps** between informal, non-formal and formal learning and providing educational pathways for those, who have left the general educational system early (UNESCO, 2015)

Jobs as a bundle of tasks

- **Which skills** are required for executing these tasks?
  - *Routine (noncognitive or cognitive)*
  - *Non-routine (noncognitive or cognitive)*
- Different **impact on jobs**
- Globalisation and digitalisation promote further **unbundling** of tasks, where possible

Table 2.3 Interactions between technology and skills at work

Ease of automation (technology is labor-saving)		Ease of complementarity (technology is labor-augmenting): High (tasks intensive in cognitive analytical and socioemotional skills)	Ease of complementarity (technology is labor-augmenting): Low (tasks intensive in manual skills)
High (routine tasks)		1 Bookkeepers, Proofreaders, Clerks	Machine operators, Cashiers, Typists 2
Low (nonroutine tasks)		4 Researchers, Teachers, Managers	Cleaners, Hairdressers, Street vendors 3

Source: WDR2016 team, adapted from Acemoglu and Autor 2011.

Note: Workers in occupations in quadrant 4 can benefit greatly because the majority of their tasks are difficult to automate, and the core of their work is in tasks in which digital technologies make them more productive. Occupations in quadrants 1 and 2 are composed of many tasks that can be easily automated. Productivity in occupations in quadrant 3 is by and large not directly affected by digital technologies.

Source: Hess et al. 2016

Skills and knowledge sets

- Skills challenges for TVET

1. How can learners obtain the right skills ***for the future***?
2. How can learners obtain the right skills ***for now***?

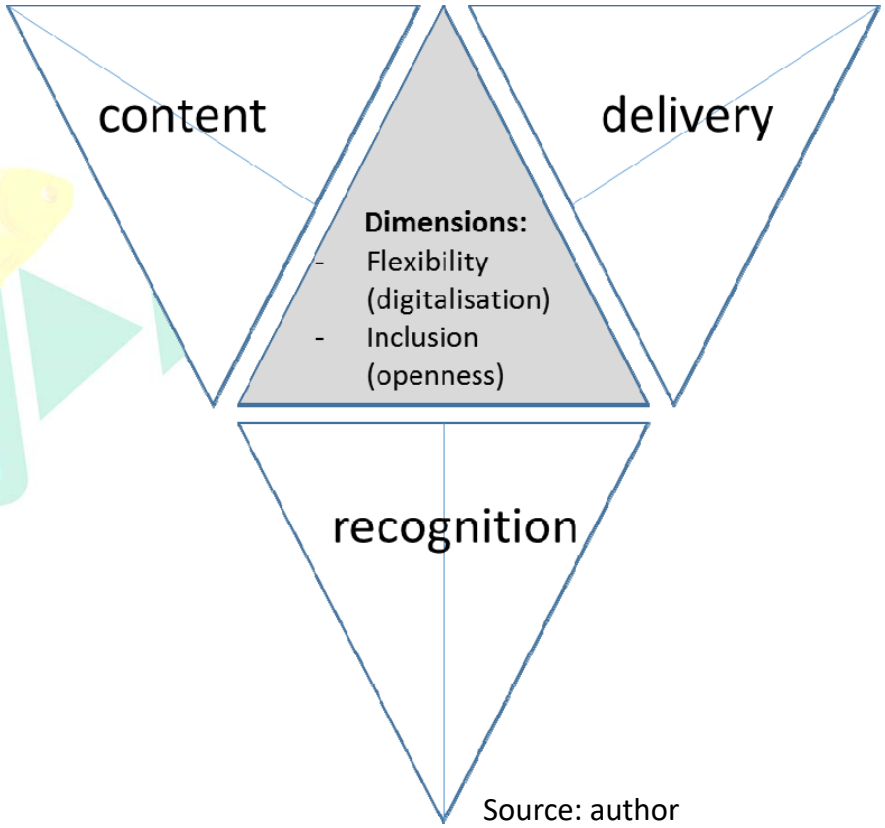
- Education & training tends to provide 3 types of skills and knowledge sets

1. Foundational skills – ***to build on into the future*** (21st Century Skills)
2. Just-in-case technical skills and knowledge – ***to make graduates work-ready***
3. Just-in-time technical skills and knowledge – ***for adaptation and flexibility***

Digital transformations in core educational processes

3 central processes, which can be improved and adapted through digitalisation:

- **Content** – subject knowledge, support and guidance and learning analytics
- **Delivery** – place, pace and timing of delivery of the content
- **Recognition** – consists of both assessment and credentialization, which are formal processes leading to recognition of learning achievements



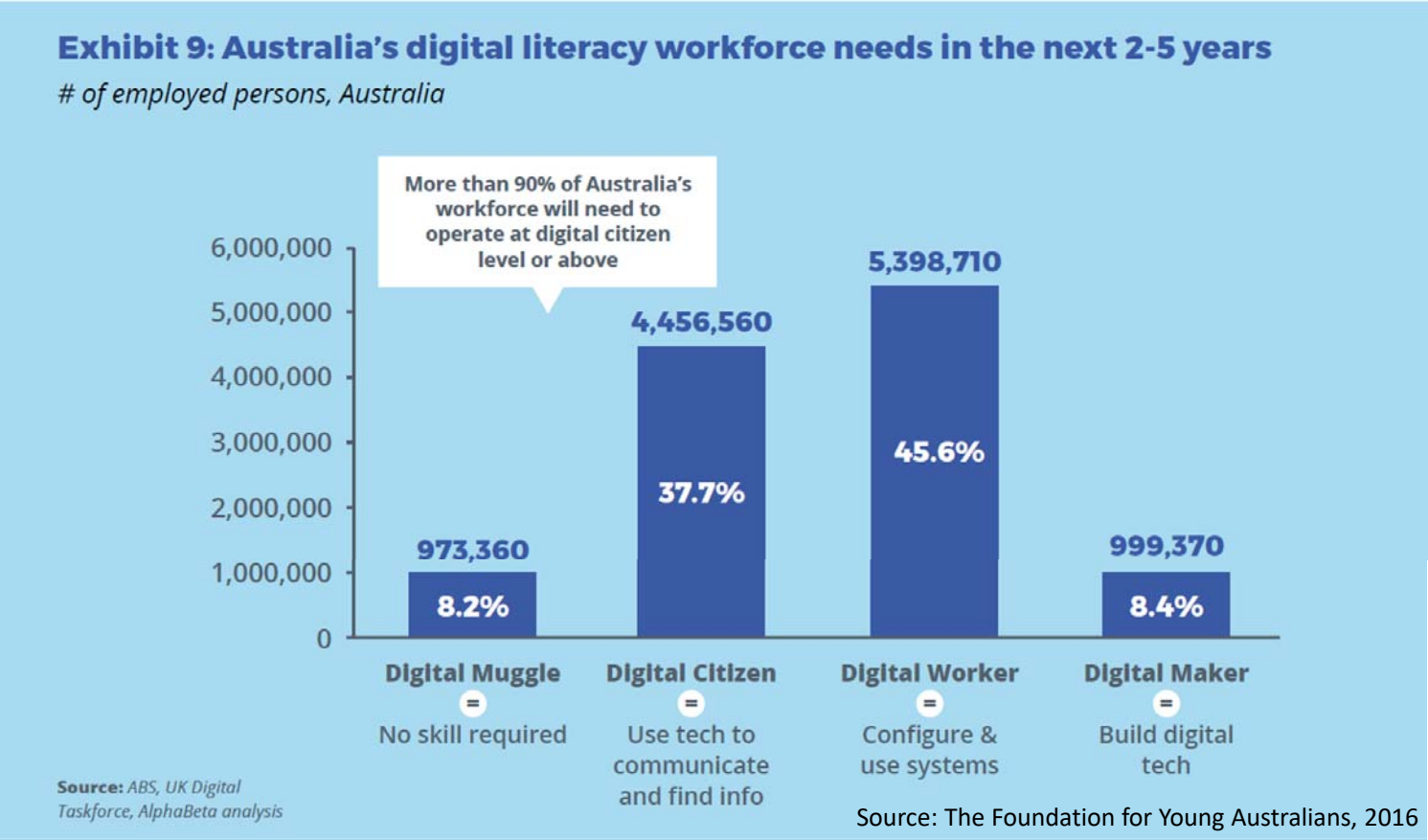
Source: author

Opportunities for reform of TVET through digitalisation

Type of skills	Timing of provision	Challenges for TVET	Opportunities provided through digitalisation
• **Foundational** skills *(to build on into the future)* – 21st Century Skills	• Generally provided during *initial training*	• Assure that skills are also provided to those who leave school early • Assure that skills are provided to people already in the workforce	• Flexible provision of learning (e.g. MOOCs, Flipped Classroom…)
• **Just-in-case** technical skills and knowledge *(to make graduates work-ready)*	• Generally provided during *initial training*	• Cooperate closely and frequently with employers and stakeholders to assure the relevance of practical, applied knowledge	• Flexible and collaborative development of content (e.g. educational platforms and OER)
• **Just-in-time** technical skills and knowledge *(for adaptation and flexibility)*	• Generally provided during *further education* in the form of modules and work-based learning	• Develop mechanisms to allow work-based learning to be formally recognised as a learning path	• Flexible and collaborative formal recognition of learning (e.g. Badges)

ICT Policies and skills - required

- One occupational data analysis for Australia sees that **less than 10%** will require no digital skills in the next 2-5 years.
- Instead labour force participants will need the skills of a digital citizen or **digital worker**, able to configure and use digital systems

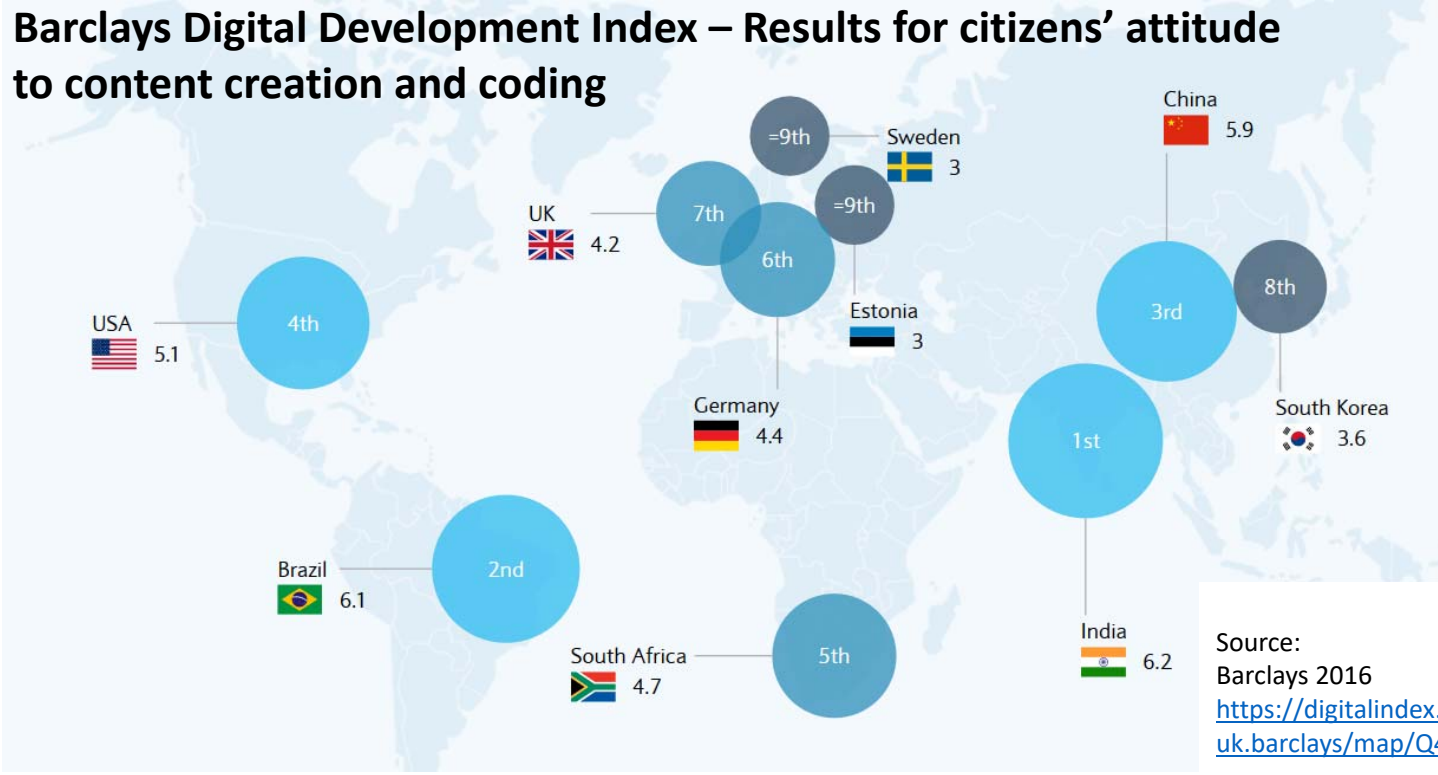


Source: The Foundation for Young Australians, 2016

ICT Policies and skills – a mix of policy framework and empowering citizens

- A study comparing 10 countries looked at **policy framework** and **digital empowerment of citizens (34 indicators)**
- Whilst the **combined index** showed **Estonia** and **South Korea** on top…
- **Citizens were more digitally minded in other countries** – they call this "the confidence trick"

Barclays Digital Development Index – Results for citizens' attitude to content creation and coding



Source:
Barclays 2016
https://digitalindex.uk.barclays/map/Q4

Thank you

Learn more: http://www.fibs.eu/

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