

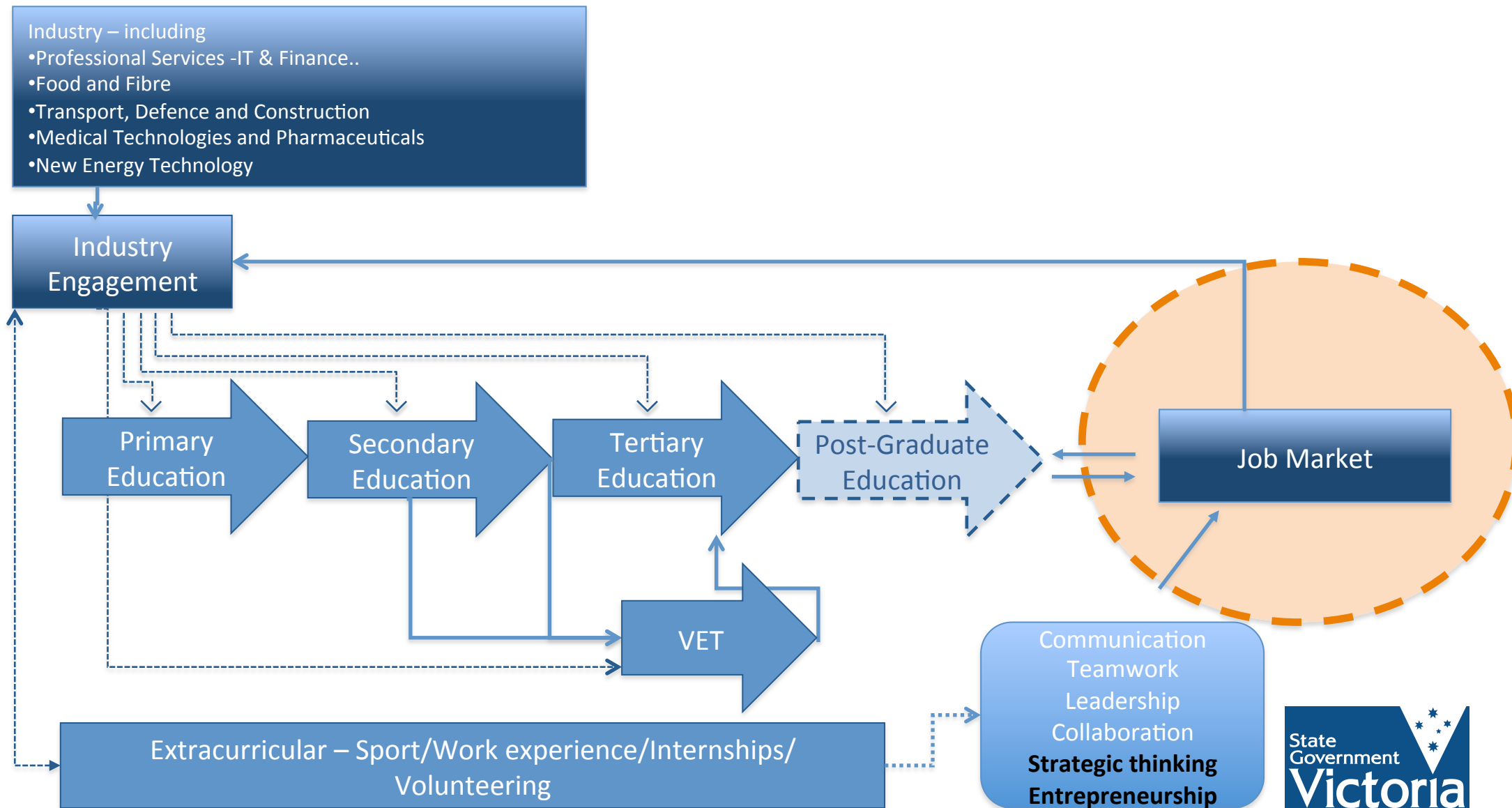


Drivers for change in STEM

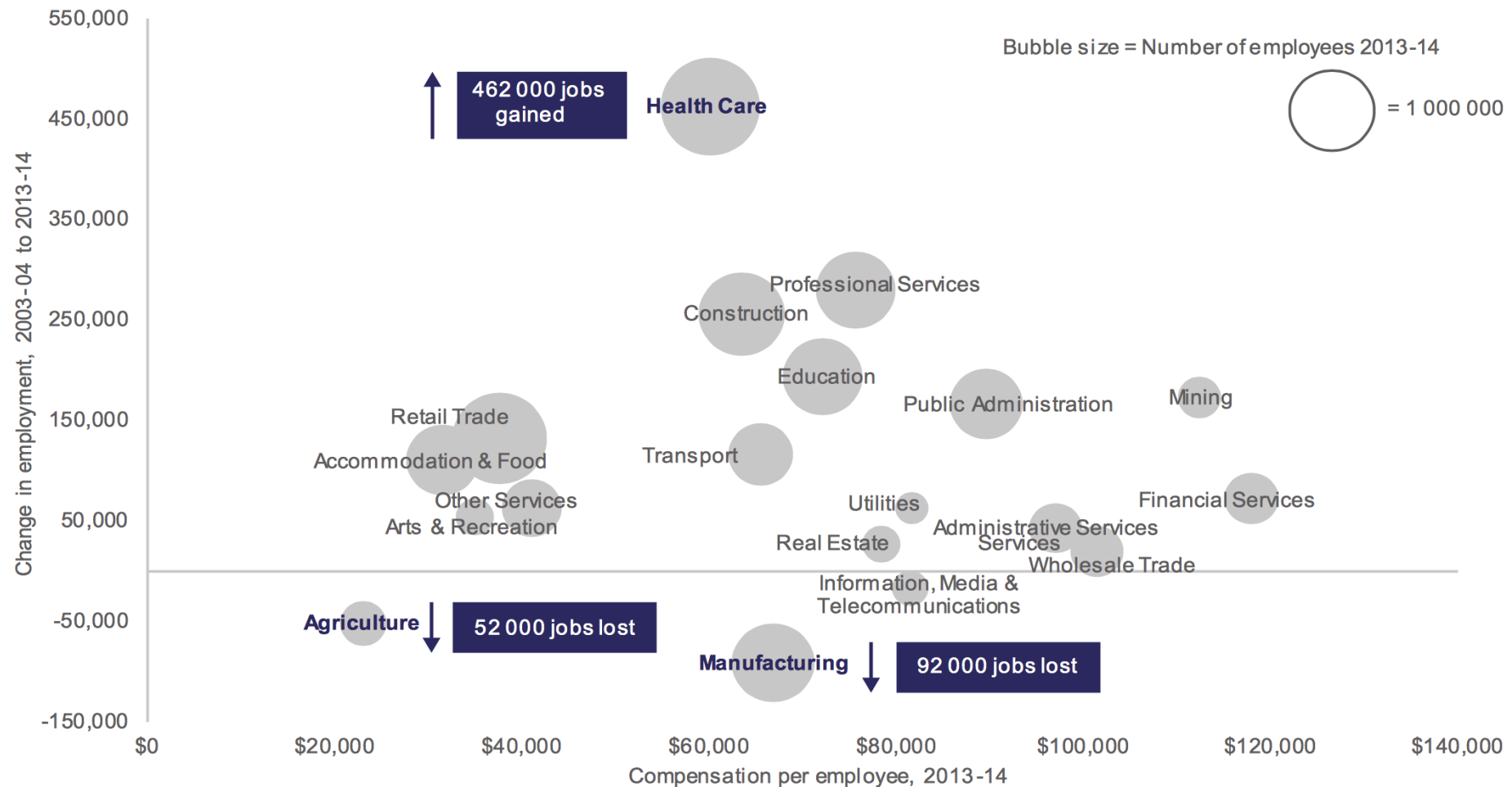
Leonie Walsh, Lead Scientist

13th November 2015

STEM Education Supply Chain integrates Industry Engagement



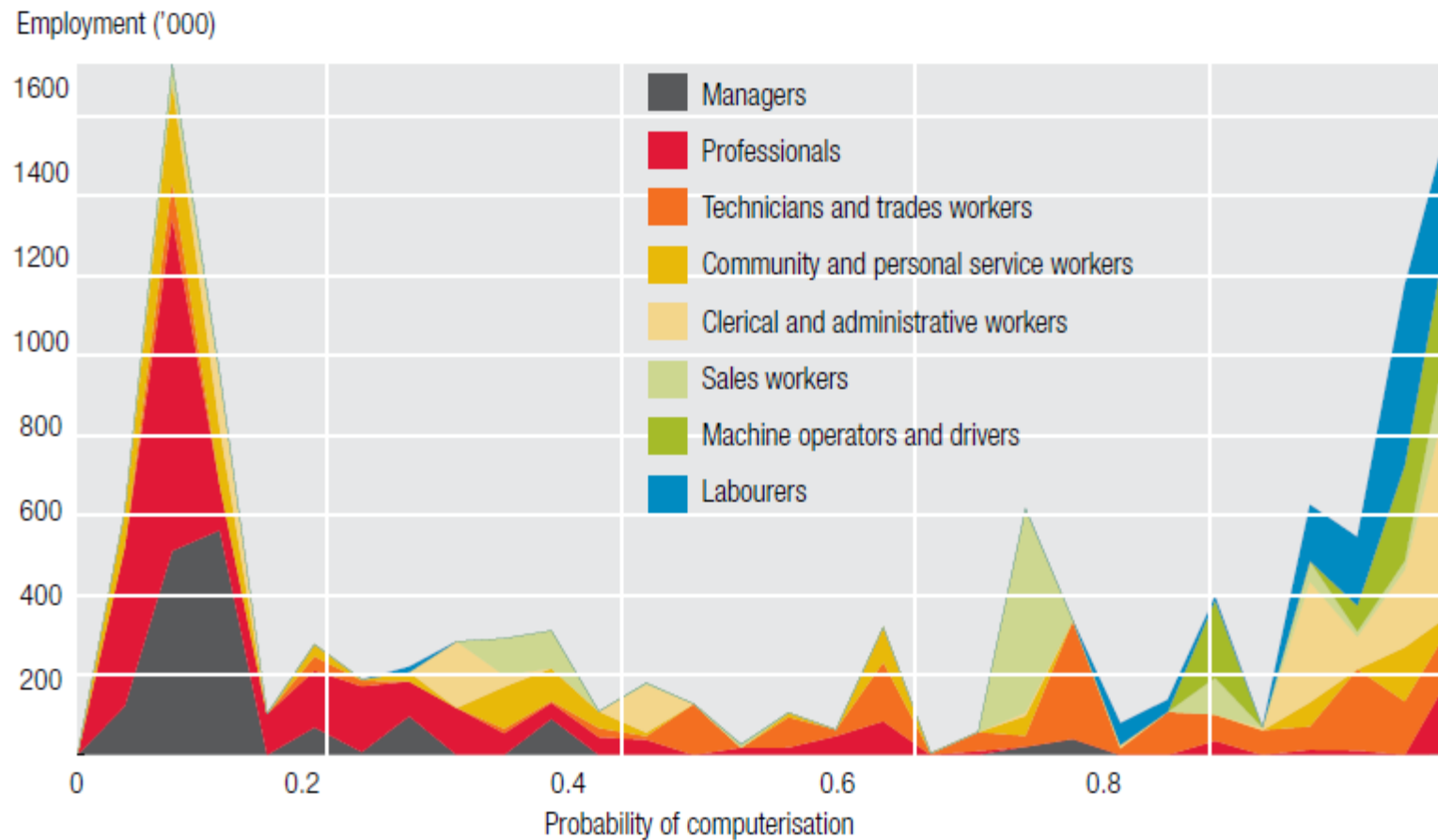
Changes in employment and compensation 2003/4 to 2013/14



Source: ABS cat. No. 6291.0.55.003 and 5204.0.

Transitioning workforce

Distribution of job categories against probability of computerization



CEDA - Australia's future workforce? June 2015

National and International Focus

State Government sectors	Federal Govt. Growth Centres	Societal Challenges
Medical Technologies and Pharmaceuticals	Medical Technologies and Pharmaceuticals	Health, demographic change and wellbeing
Food and Fibre	Food and Agribusiness	Food security, sustainable agriculture and forestry, marine and the bio economy
New Energy Technology	Oil, Gas and Energy Resources	Secure, clean and efficient energy
Professional Services	Mining equipment, Technology and Services	Smart, green and integrated transport
Transport, Defence and Construction Technology	Advanced Manufacturing	Climate action, environment, resource efficiency and raw materials
International Education		

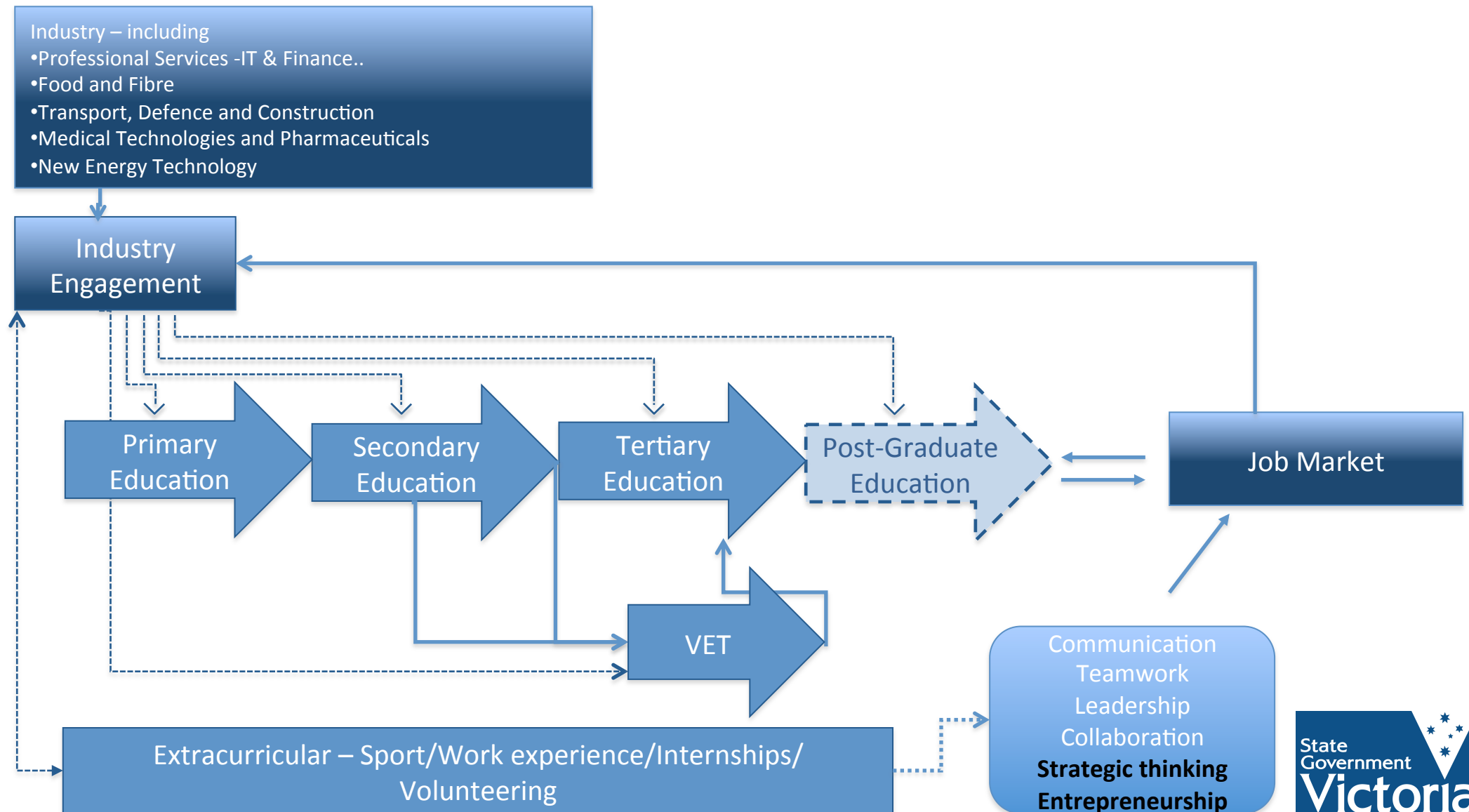
Significant trends impacting graduates

- Digital Future – new careers emerging
- Entrepreneurship rising
- Global collaborative marketplace
- Health reimaged – 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

STEM trends of concern

- Year 12 higher-level mathematics participation has almost halved over the past 20 years
- Only 10.0% of students participated in advanced mathematics in 2014 (compared with 14.2% in 1995) and 19.3% in intermediate mathematics (compared with 27.3% in 1995).
- Participation rates for girls are particularly poor with only 6.8% enrolled in advanced maths and 18.2% in intermediate, compared with 13.4% and 20.6% for boys.
- 86 per cent of science degrees do not have intermediate mathematics as an entry prerequisite while Year 12 enrolments slide
- At least 30 per cent of Year 7-10 maths classes are taught without a qualified maths teacher

STEM Education Supply Chain integrates Industry Engagement



Summary

- Many different drivers impacting the future economy that will impact education, jobs and policy direction.
- Multiple, interconnected challenges along the education supply chain requiring integrated solutions
- Change is occurring rapidly impacting quality of data and advice to students/teachers and parents
- A 21st century graduates education and experience will need to be broader than STEM disciplines