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DIRECTORATE OF VOCATIONAL EDUCATION AND TRAINING

# Upskilling the Logistics Workforce in the Digitisation Era

*Industry-VET engagement, inclusion and Digitisation*

Craig Robertson, CEO

Hanoi, 24/10/2023



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Bringing Industry and VET Together



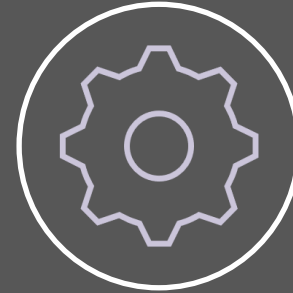
# ESG(D) - Environmental Social Governance (Digital)



Environmental



Social



Governance



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# Governance



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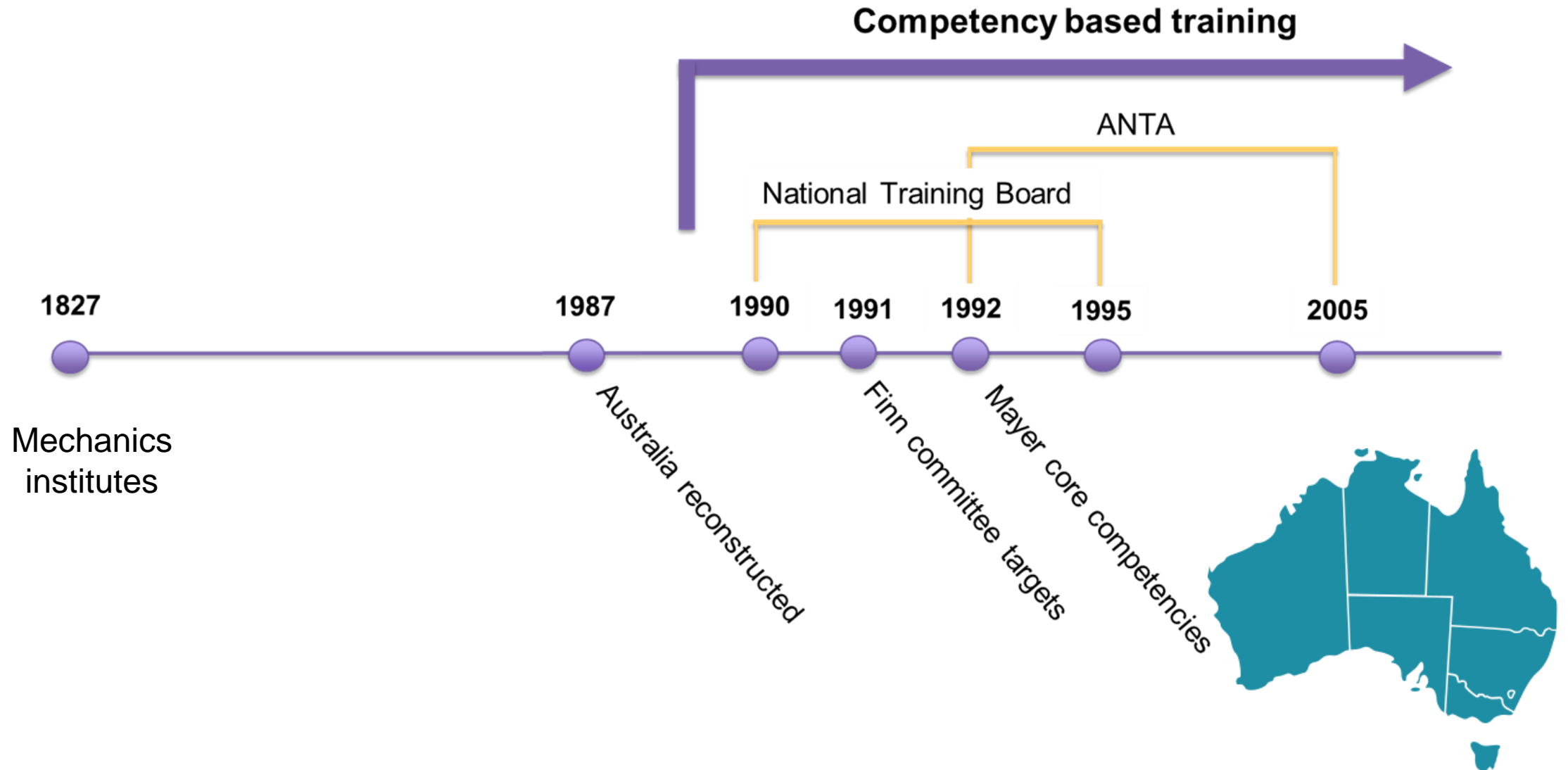


Bringing History and ICT Together



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# A short history of vocational education in Australia

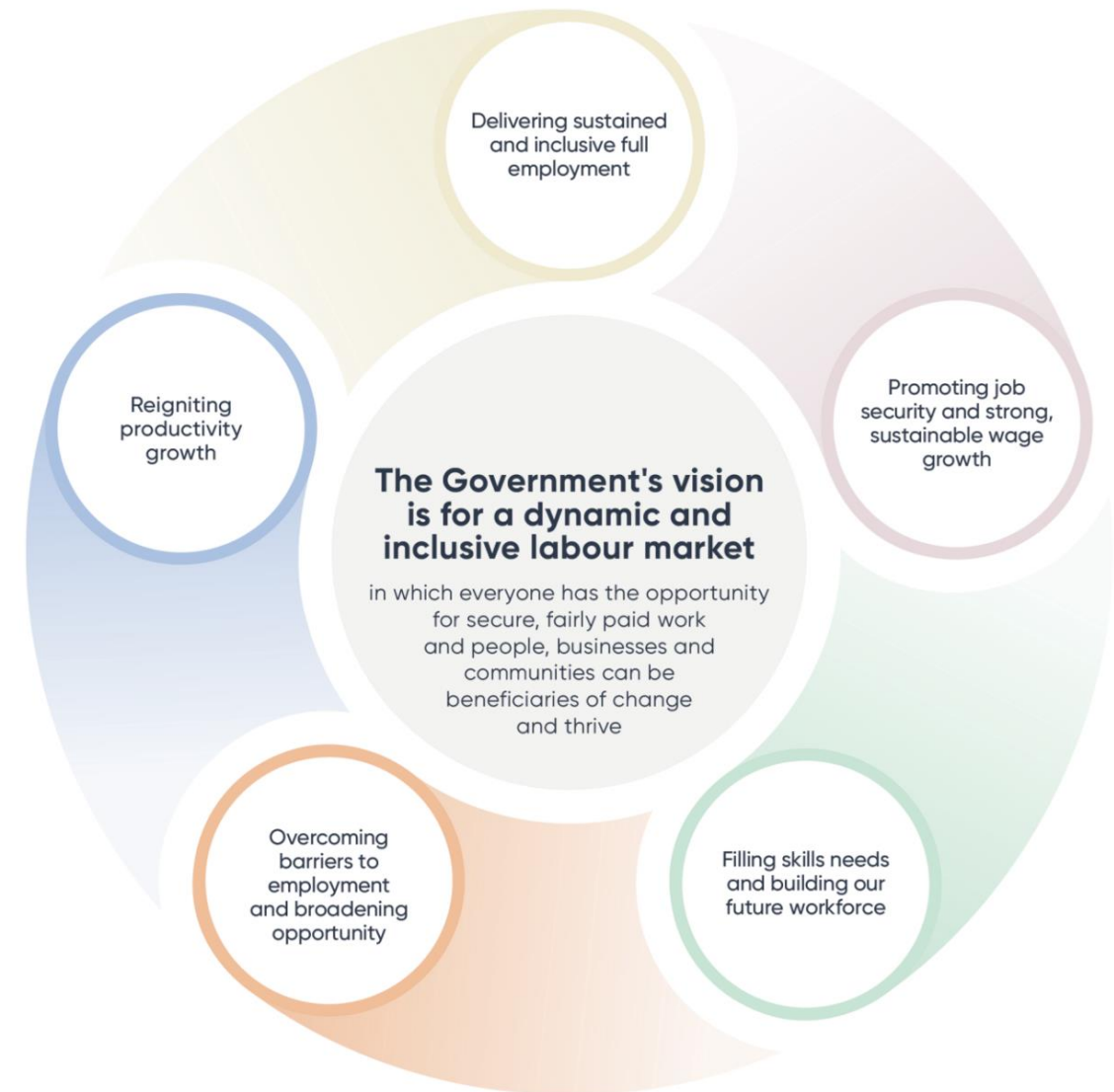


# Australia is aiming for an inclusive economy



## Employment White Paper

<https://treasury.gov.au/employment-whitepaper/final-report>



# Tertiary – a new model for prosperity and community



## **Jobs and Skills Australia**

### **Jobs and Skills Councils**

- Deliberative planning
- Future skills
- Vertical and horizontal mobility
- Transferable skills
- Foundation skills as a human right



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# An interlude

- Australia's industry base
- Transport and Logistics Industry



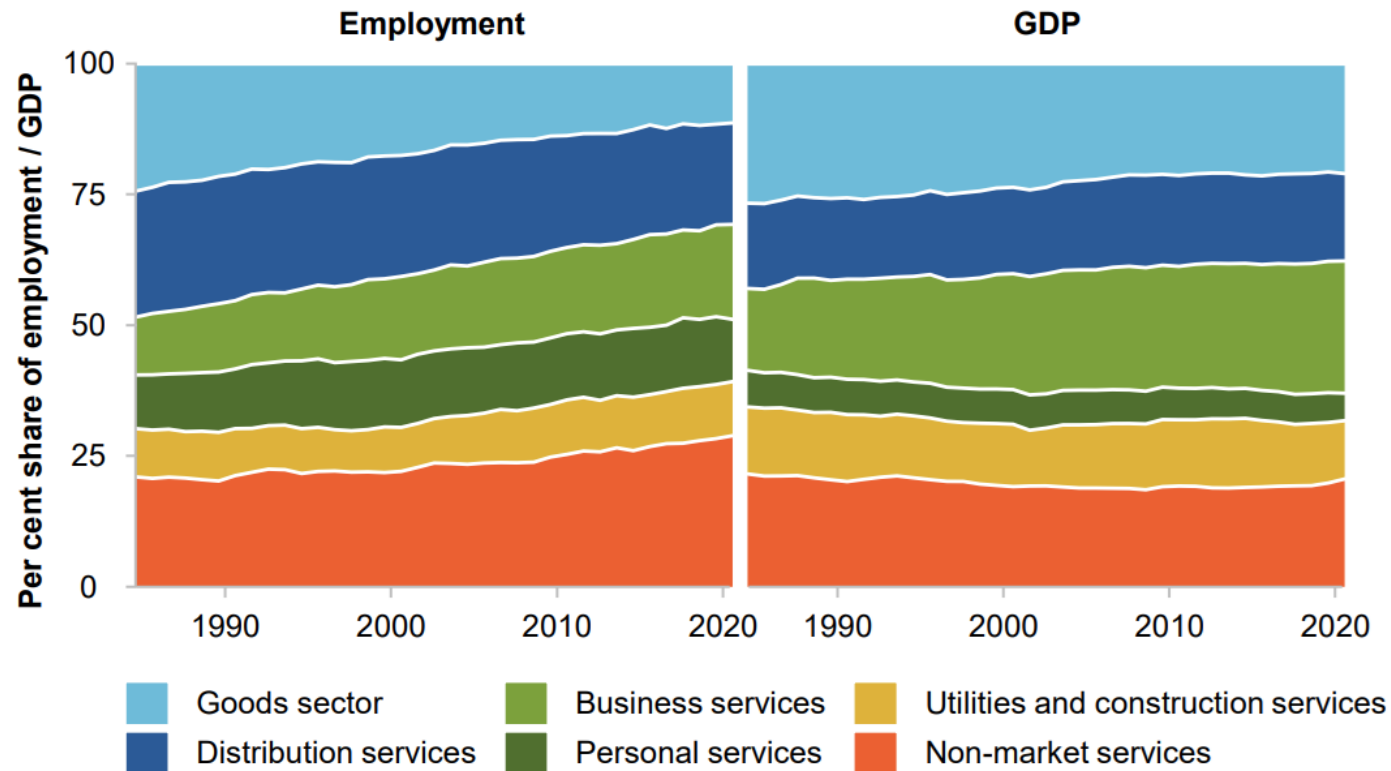
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# Australia's Employment Distribution



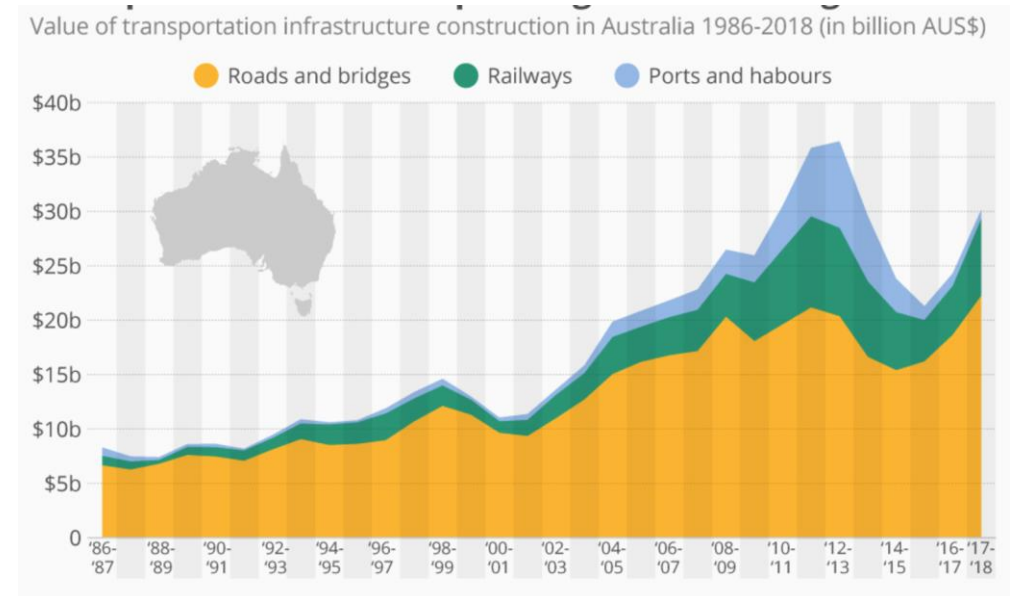
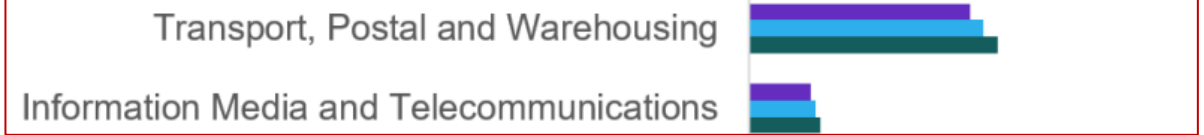
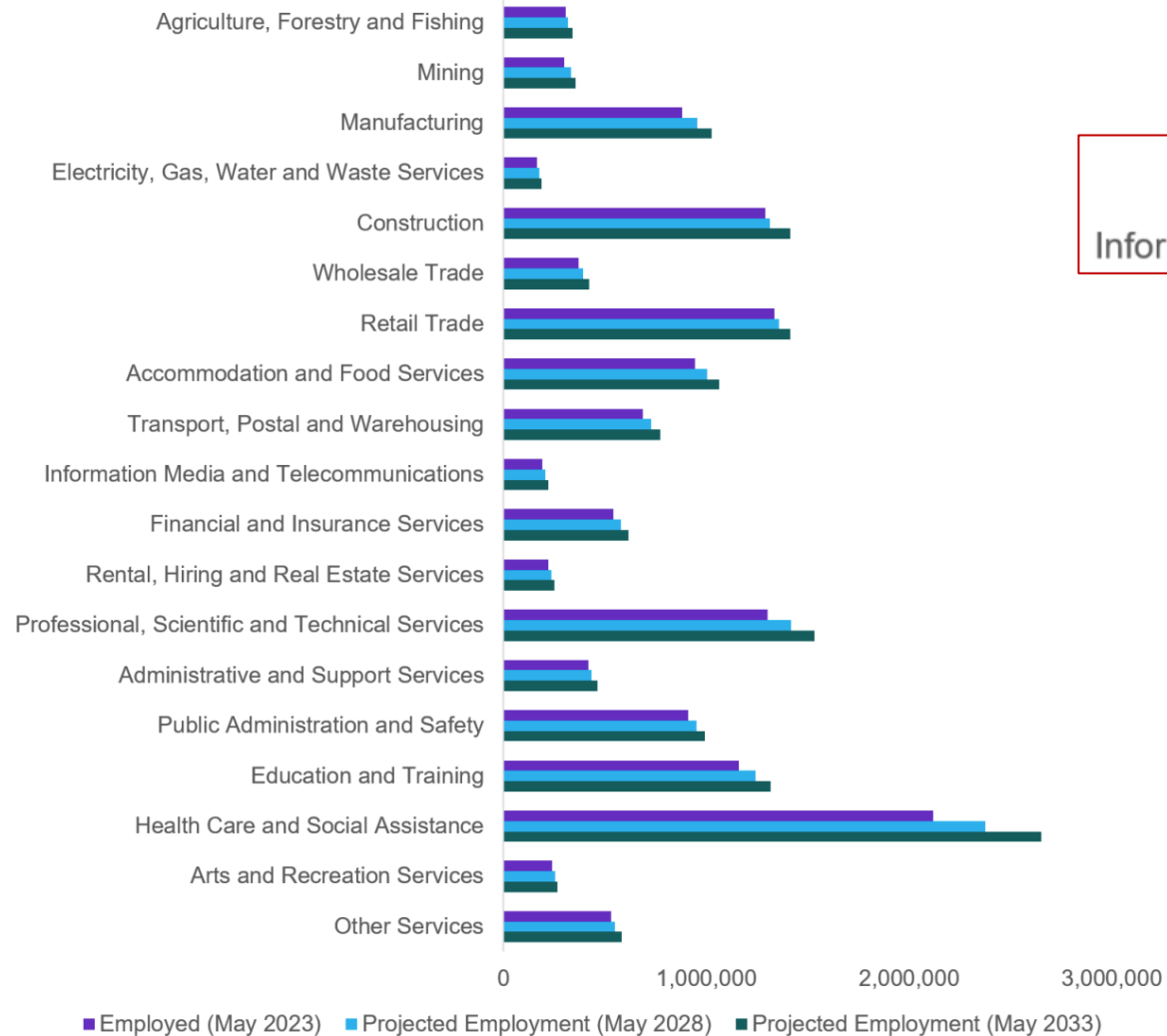
**a** Contribution to GDP is proxied by gross value added and as such does not include the effects of taxation or subsidies.

Data sources: ABS (*Labour Account, 2018-19*, Cat. no. 6150.0.55.003, tables 2-20; *Australian System of National Accounts, 2018-19*, Cat. no. 5204.0, table 5).

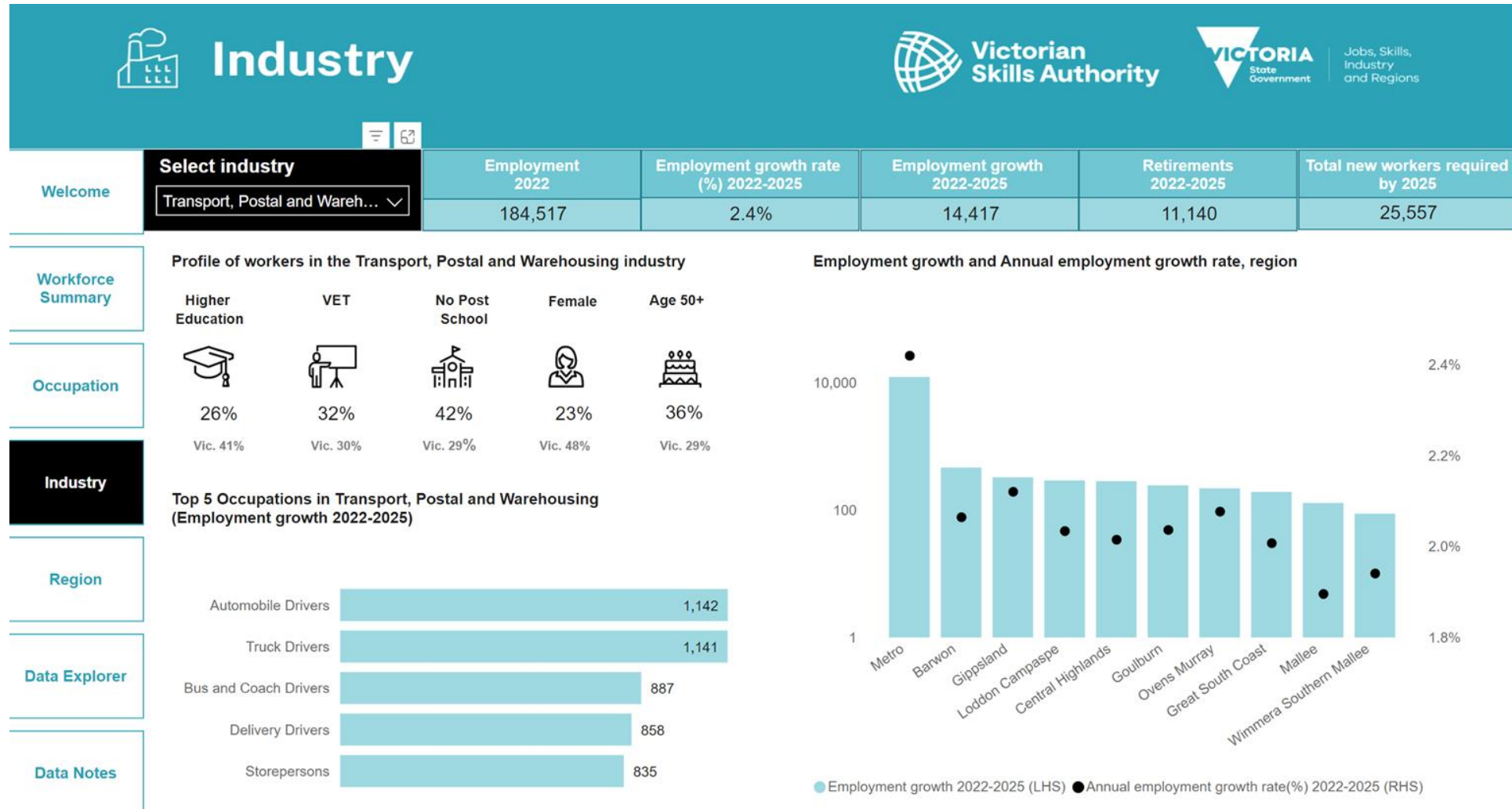
<https://www.pc.gov.au/ongoing/productivity-insights/services/productivity-insights-2021-services.pdf>

# Australia's Industry Profile

**Figure 2: Employment projections by industry, May 2023 to May 2033, persons**



# Transport and Logistics Growth in Victoria





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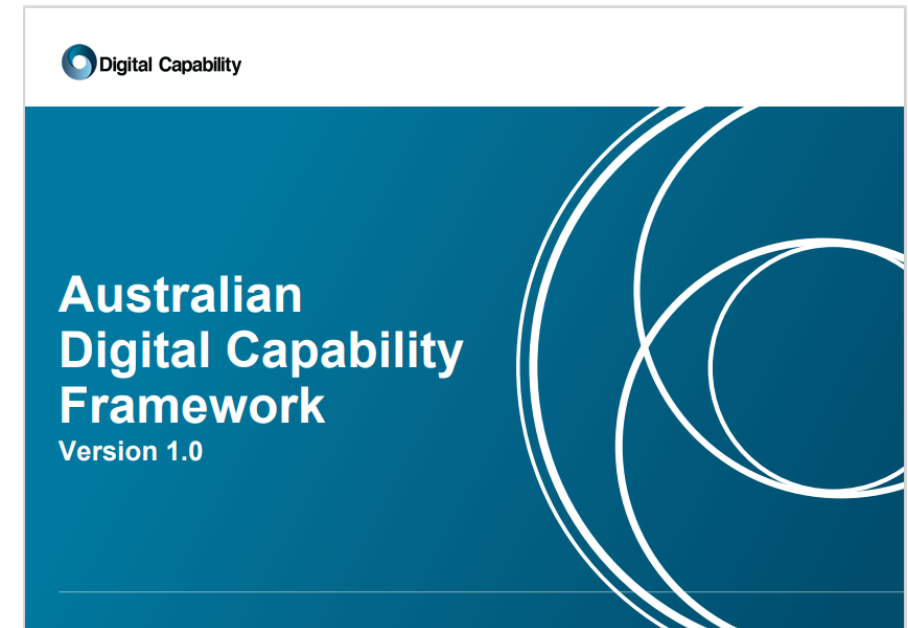
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# Digital disrupts industries, work, learning and engagement

- 1. Industries** – new production and service processes, new cross-cutting industries, new skills
- 2. Work** - occupations disrupted with digital tools and processes
- 3. Learning** – an expectation to access learning, if desired, remotely
- 4. Engagement** – new forms of social communication

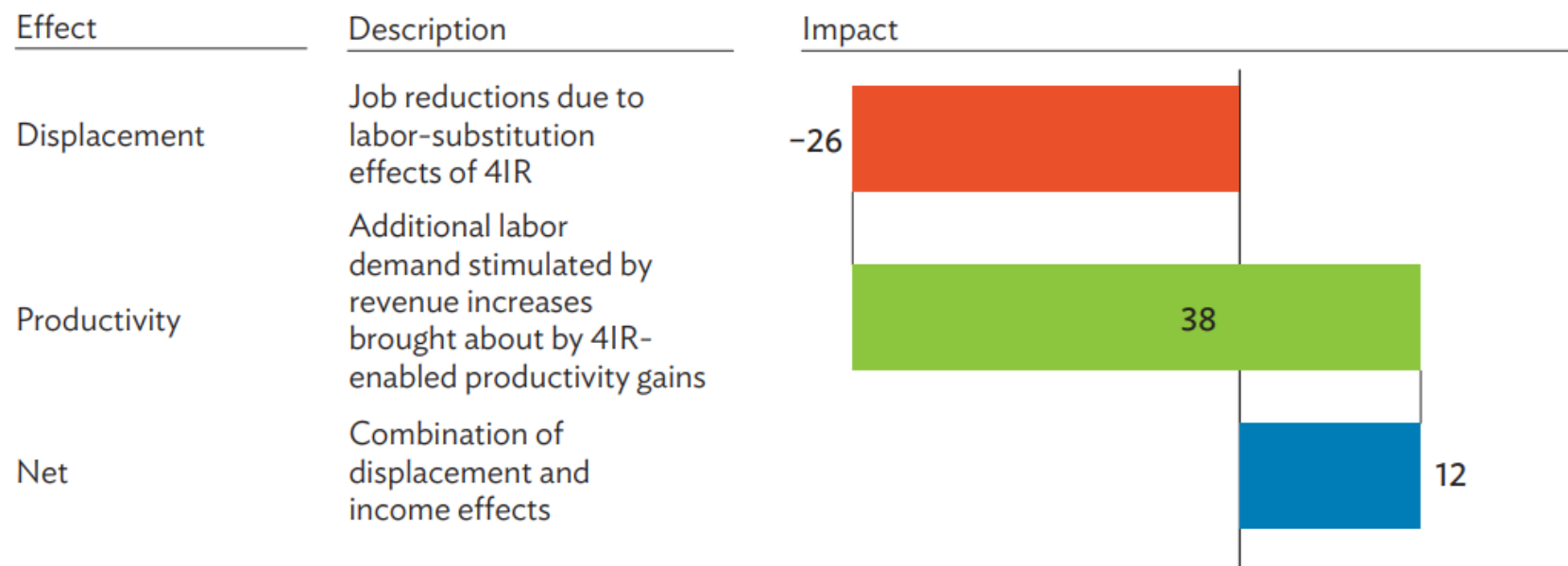


# Automation isn't bad news, however

Reaping the Benefits of Industry 4.0 through skills development in Vietnam 2021, ADB

## Logistics: Jobs

The overall impact of 4IR on jobs is likely to be limited as negative displacement effects are potentially offset by large positive income effects



# But the skills transition is critical

## Reaping the Benefits of Industry 4.0 through skills development in Vietnam 2021, ADB

### Logistics: Skills

4IR adoption will require large increases in intermediate critical thinking and communication, as well as advance social and evaluation skills

Skills	Basic	Intermediate	Advanced	
Critical thinking and adaptive learning	-72.7	77.3	10.5	>50
Written and verbal communication	-79.2	75.9	3.4	>10
Numeracy	-15.8	3.2	12.6	≤10; ≥-10
Complex problem solving	4.5	78.4	7.4	<-10
Management	-0.1	0.1	0.0	<-50
Social	-14.3	-71.7	86.0	
Evaluation, judgment, and decision-making	-0.1	-99.8	99.9	
Technical	-53.8	77.4	2.3	
Computer literacy	84.3	1.9	4.4	
Digital/ICT skills	84.5	7.9	1.0	



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# Environmental



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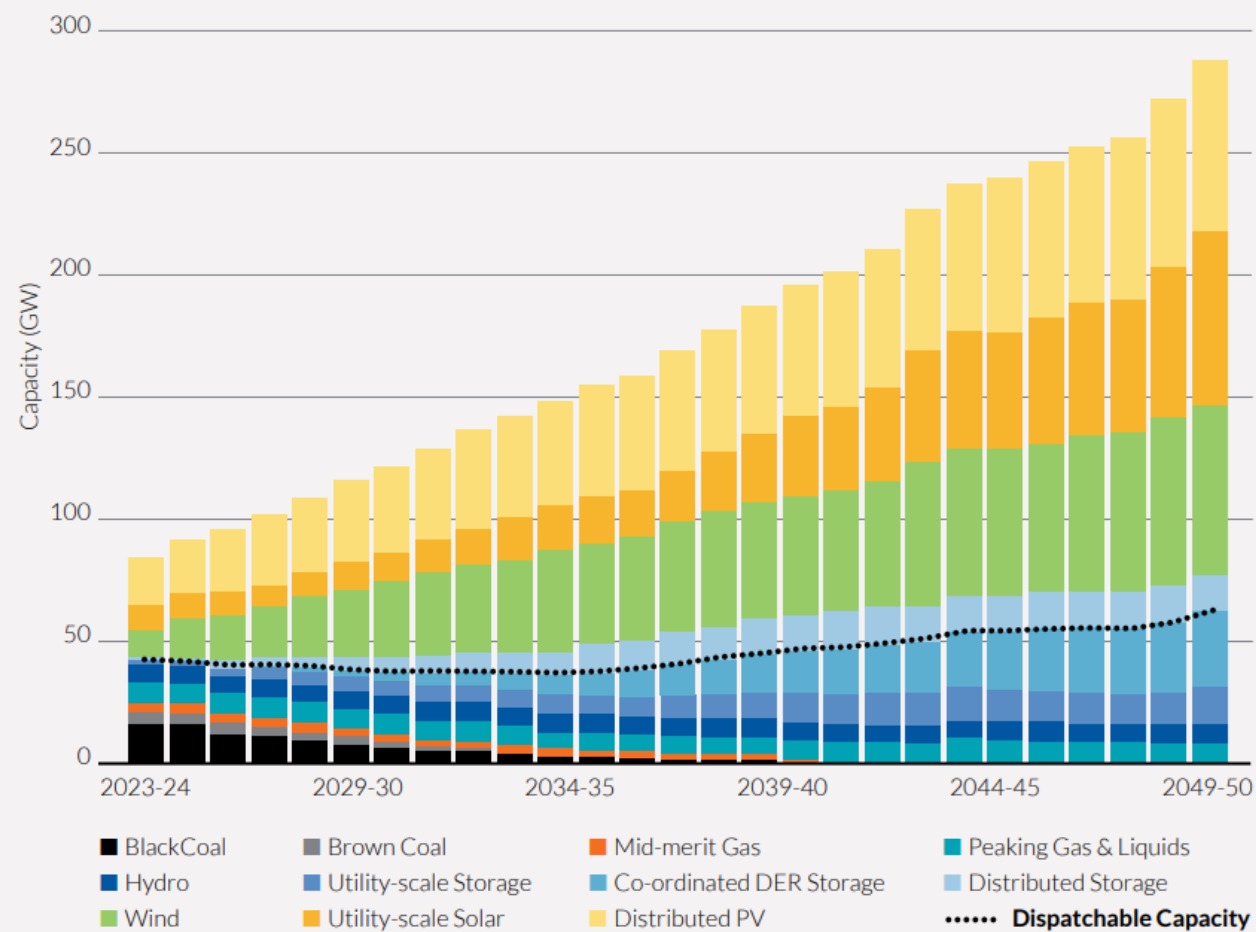
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**Clean energy production will grow**

**Figure 4.6 Forecast NEM capacity to 2050, ISP Step Change scenario**

The chart illustrates the projected growth of NEM capacity over time. The total capacity increases significantly, driven primarily by the addition of solar (both utility-scale and distributed) and wind. Storage capacity also grows, with utility-scale storage being a major component. The dispatchable capacity, which includes coal, gas, hydro, and storage, remains a smaller but growing portion of the total capacity.

Year	Black Coal	Brown Coal	Hydro	Wind	Utility-scale Storage	Co-ordinated DER Storage	Distributed Storage	Mid-merit Gas	Peaking Gas & Liquids	Utility-scale Solar	Distributed PV	Dispatchable Capacity
2023-24	15	10	10	15	10	10	10	10	10	10	10	40
2029-30	10	5	10	25	15	15	15	10	10	20	20	40
2034-35	5	0	10	40	20	20	20	5	5	30	30	40
2039-40	0	0	10	50	25	25	25	0	0	40	40	50
2044-45	0	0	10	60	30	30	30	0	0	50	50	55
2049-50	0	0	10	70	35	35	35	0	0	60	60	60



## The transition will create jobs opportunities and increase the demand for certain skills and occupations...

Example of deep skills	Examples of relevant occupations
Building design incorporating clean/green materials / concepts Retrofitting of buildings (insulation, glazing etc) Systems / energy upgrades (e.g., heat pump installation)	Architects, energy efficiency assessors, designers Electricians, engineers, plumbers
Design and production of efficient materials Modular construction Use of new materials and technology	Urban planners, vegetation management workers Engineers, electricians, plumbers, logisticians Construction Managers All construction workers (using new materials etc)
Integration of new technology and equipment Pest and disease management Waste impact reduction	Fisheries staff, farmers, agricultural technicians Labourers, transport workers, logistics personnel
Electrification Assessment, testing and repair	Electricians, engineers, plumbers, gas fitters Machine operators, plant operators, manual labourers



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# Social



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# Following the OECD lead

## Box 1.1. A wide range of skills are needed for success in work and life

The *OECD Skills Strategy 2019* identifies a broad range of skills that matter for economic and social outcomes, including:

- **Foundational skills:** Including literacy, numeracy, and digital literacy.
- **Transversal cognitive and meta-cognitive skills:** Including critical thinking, complex problem solving, creative thinking, learning to learn and self-regulation.
- **Social and emotional skills:** Including conscientiousness, responsibility, empathy, self-efficacy and collaboration.
- **Professional, technical, and specialised knowledge and skills:** Needed to meet the demands of specific occupations.

Source: OECD (2019<sup>[7]</sup>), *OECD Skills Strategy 2019: Skills to Shape a Better Future*, <https://dx.doi.org/10.1787/9789264313835-en>.

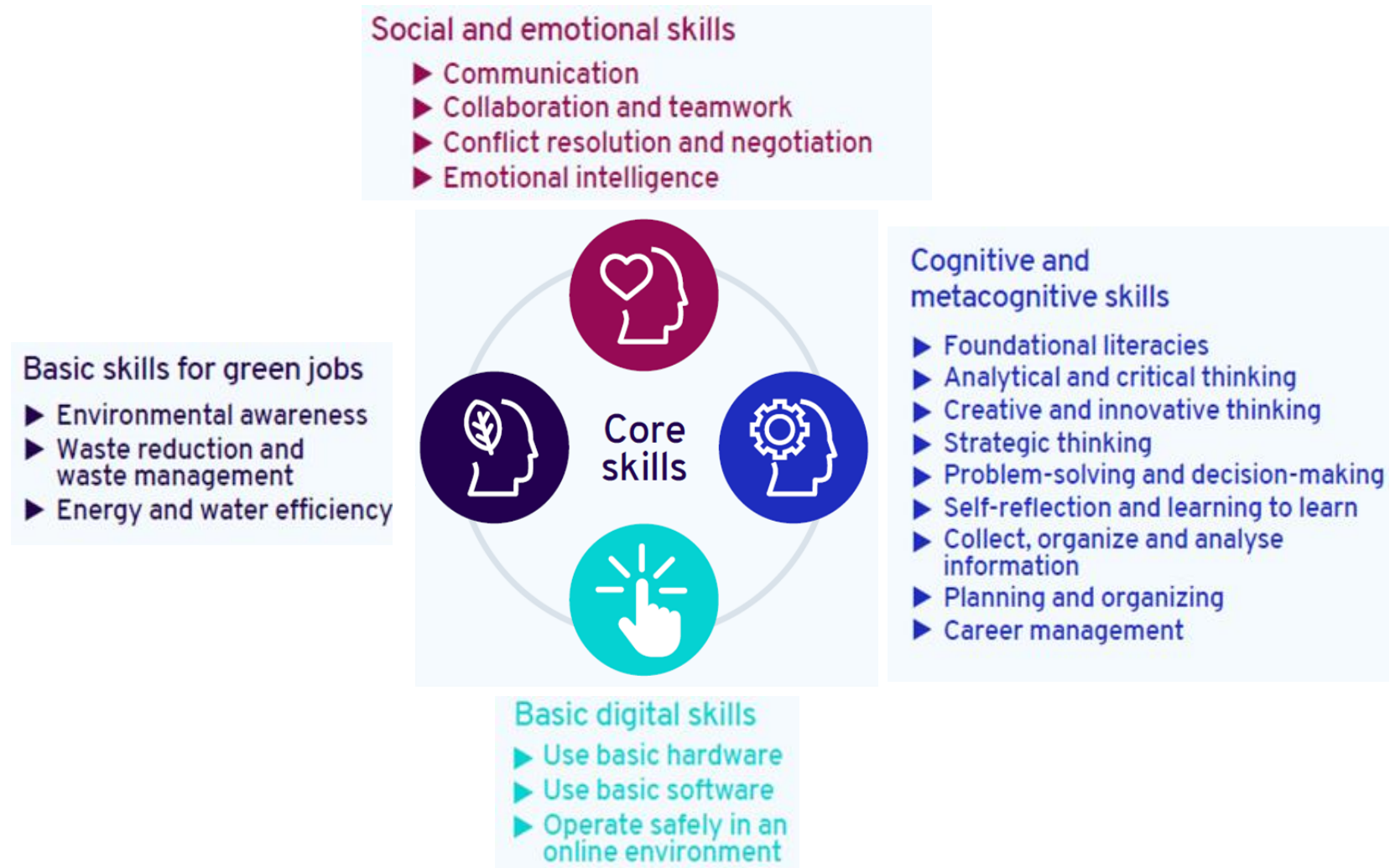
# Dealing with student aspiration



*'It is the knowledge and skills of the individual empowered to exercise them that generates dynamic businesses and grows industries and communities.'*

Foreword from the Victorian Training Awards

# ILO global framework for core skills



## Some starting points are needed



### Social and emotional skills

- The ability to regulate one's thoughts, emotions and behaviours
- Fundamental to effective interaction at work
- Facilitate development and application of cognitive and metacognitive skills



### Cognitive and metacognitive skills

- The ability to process new information, understand, remember and use it.
- With cognitive skills individuals can better manage analysing new information and apply it to other contexts.



### Basic digital skills



### Basic skills for green jobs

Global framework on core skills for life and work  
in the 21st century, ILO

# New Expectations of Learning for the 21st Century

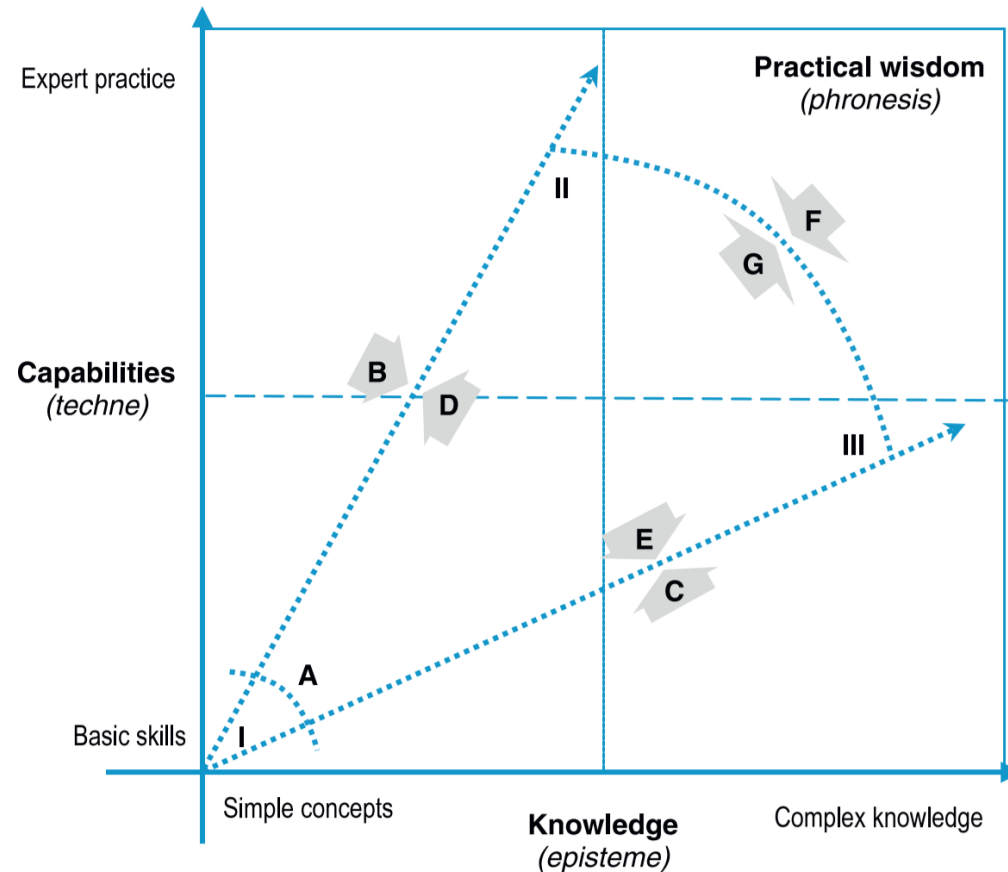


Figure 2. The Curriculum Space.

# The New Vocational Education Deal

## The new skills stack

Capability

Technical

Core

## The learning imperative

Learning to learn

Learning progression

# The Lessons we can learn together

1. Australia has well developed and tested competencies for Transport and Logistics occupations developed with industry

2. Australia is embedding digital skills in vocational education and can share its approach.

3. Engagement with industry is key to effective outcomes, and Australia has a well-developed approach.

4. Victorian TAFE's offer teacher professional development to help colleges grow in effectiveness.

**Table 10 | VET pipeline for the transport industry in Victoria<sup>m</sup>**

Prior to employment	
Qualifications (13,869 TVA enrolments 2020)	
<b>Certificate I</b>	<b>10</b>
Certificate I in Maritime Operations (Coxswain Grade 2 Near Coastal) (Q,OL)	10
<b>Certificate II</b>	<b>2,695</b>
Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal) (Q,AT,OL)	135
Certificate II in Maritime Operations (Marine Engine Driver Grade 3 Near Coastal) (Q,OL)	17
Certificate II in Rail Infrastructure	1,459
Certificate II in Supply Chain Operations (Q,SS,AT)	1,084
<b>Certificate III</b>	<b>10,353</b>
Certificate III in Aviation (Cabin Crew) (SS)	65
Certificate III in Driving Operations (Q,SS,AT,OL)	6,319
Certificate III in International Freight Forwarding (Operator) (Q,AT)	31
Certificate III in Maritime Operations (Marine Engine Driver Grade 2 Near Coastal) (Q,AT,OL)	36
Certificate III in Maritime Operations (Master Inland Waters) (Q,OL)	<5
Certificate III in Maritime Operations (Master up to 24 metres Near Coastal) (Q,AT,OL)	62
Certificate III in Rail Customer Service (AT)	198
Certificate III in Supply Chain Operations (Q,SS,AT)	3,639



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# Thank you

For more information, visit:  
[skillsauthority.vic.gov.au](http://skillsauthority.vic.gov.au)  
[Craig.Robertson@ecodev.vic.gov.au](mailto:Craig.Robertson@ecodev.vic.gov.au)



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Leading Industry and TAFE Together

