



Australian Government



Jobs and Skills Australia

National Skills Taxonomy (NST)

Les Kneebone,
Information Taxonomist

Presented to eResearch Australasia

Acknowledgement of Country

Jobs and Skills Australia acknowledges the Traditional Owners and Custodians of Country throughout Australia and acknowledges their continuing connection to land, waters and community. We pay our respects to the people, the cultures and the Elders past and present.



Outline

- Skills challenges in Australia
- Structure of learning and work domains
- Definition of skills
- Pre-pilot methodology
- Adoption of vocabulary standards
- Benchmarking

Australia's skills system is complex and creates lags when addressing shortages



“Skills shortages hold Australia back. They affect individual and community wellbeing, ambition and achievement, shackle future economic prosperity, and lead to low productivity growth. Failure to address skills shortages will lead to a failure to capitalise on the nation’s human potential and Australia will fall behind its international peers.

*In 2023, 42% of all occupations that generally require a bachelor degree or higher qualification were in **national shortage, an increase from 35% in 2022 and 19% in 2021.**” - Universities Accord, page 60.*

Care and support

- **growth** over the last five years in the paid care and support workforce has been three times faster than total employment across the economy

Clean energy

- occupations key to the clean energy workforce will need to **increase** by 30 per cent by 2023

Digital

- tech occupations will **grow** by 12 per cent over the next five years and 21 per cent over the next ten years.

Invisible skills



Hidden Skills

Entirely absent from formal job descriptions or qualifications.



Under-defined Skills

Mentioned but ambiguously worded—e.g. “good communicator.”



Overlooked Dimensions

Technical skills that hide cognitive/emotional layers



Context-dependent Skills

Skills that appear routine, but are complex due to pace, setting, or pressure.



Dispersed Skills

Skills contributing across roles (e.g. informal mentoring, workflow facilitation).

“Skills need to have been named and made visible before they can be recognised... the relationship between skill visibility and skill recognition is an interactive one.”
A Junor, UNSW

The shifting skills landscape

Employment White Paper

Assisting to identify, target and fill skills needs of our future workforce through a connected, mapped and linked dataset.

Universities Accord

Creating a joined up tertiary education system that supports occupational mobility and lifelong learning.

VET Qualifications Reform

Provides language and evidence base to drive improvements to design of VET courses and facilitates translation to university.

Fair Work's Work Value Cases

Gives opportunity to consider and recognise skills historically unable to be captured, measured or valued.

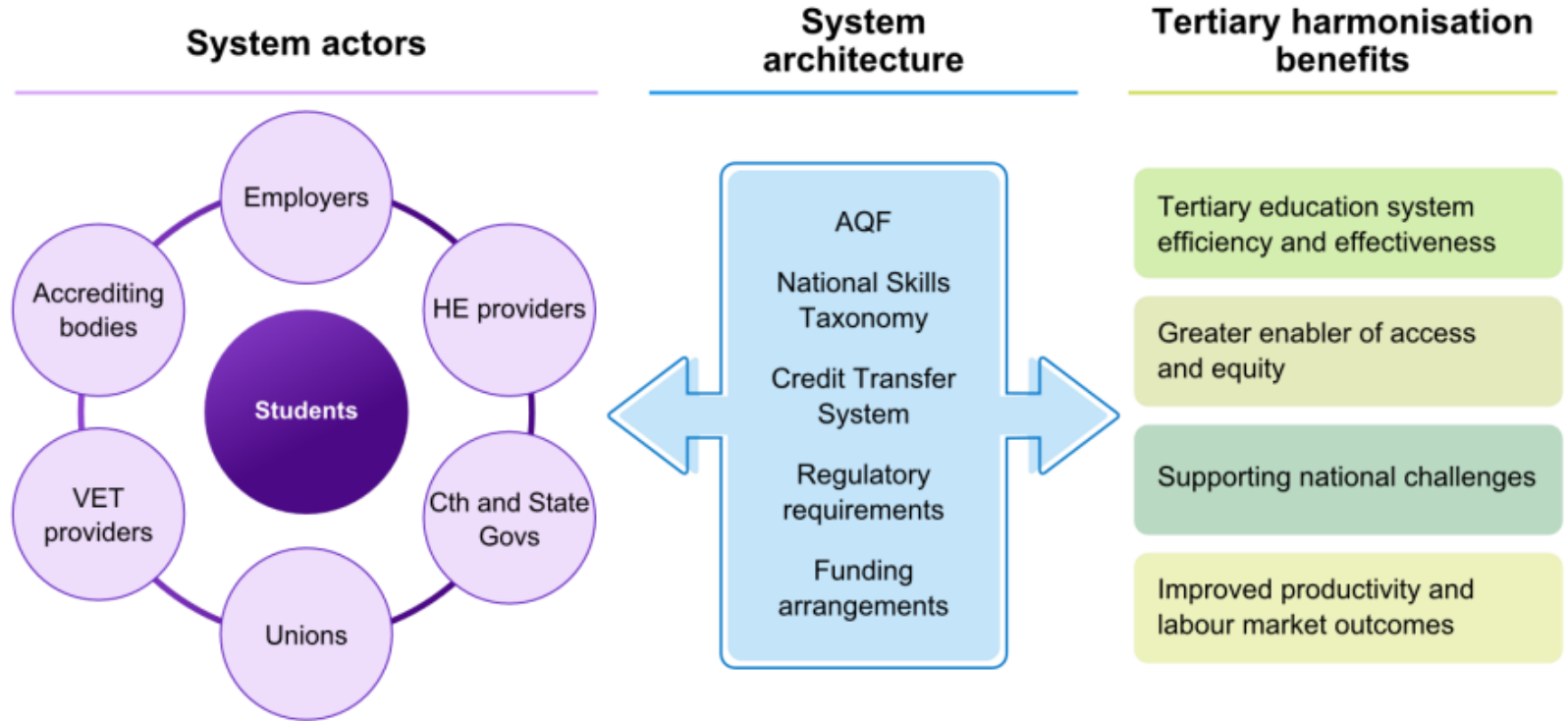
Digital Foundation Skills

Providing contextualisation, definition and value to foundational digital literacy in modern Australia.

Productivity Commission

Building a skilled and adaptable workforce through a flexible post-secondary education and training sector.

Tertiary harmonisation – who, what and why



The system speaks varying languages



Employers

Skills as a means for workers to meet business requirements productively and safely for growth and profit.

Described as **work standards, licenses** and **position descriptions**.



Individuals

Skills as a means of doing a job well and safely for income and purpose.

Described as **tasks, roles, responsibilities** and **qualifications**.



VET Training providers

giving individuals the knowledge and capability to meet the requirements of employers.

Described as **units of competency, qualifications** and **training packages**.



Higher Education

Skills as a means of giving individuals the theoretical and technical knowledge and capabilities to meet the requirements of their career paths.

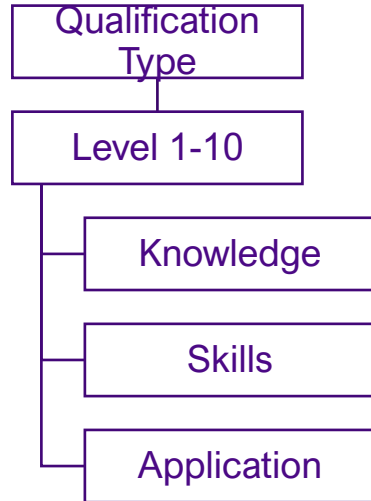
Described as **learning outcomes, knowledge application** and **qualifications**.

Opportunity – Create connection through skills

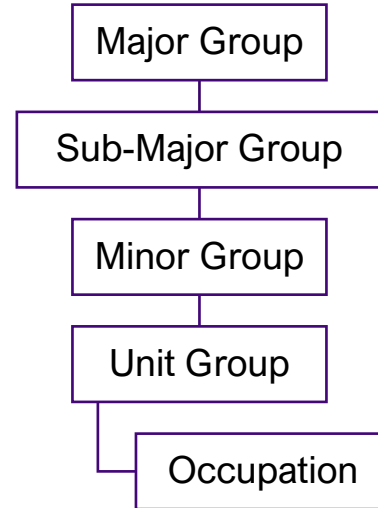


Existing system architecture

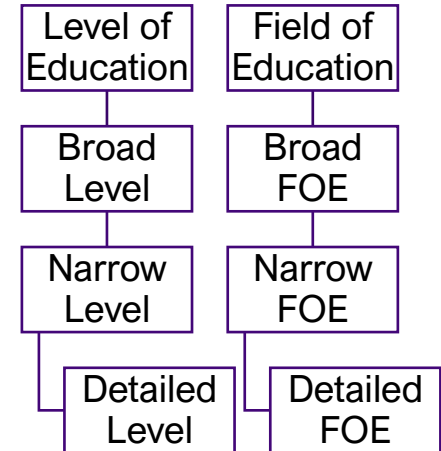
Australian Qualifications Framework - AQF



Occupation Standard Classification for Australia - OSCA



Australian Standard Classification of Education (ASCED)



A shift to skills-first

Skills-First Framework

Skills are dynamic

Evolves through learning, practice, and experience

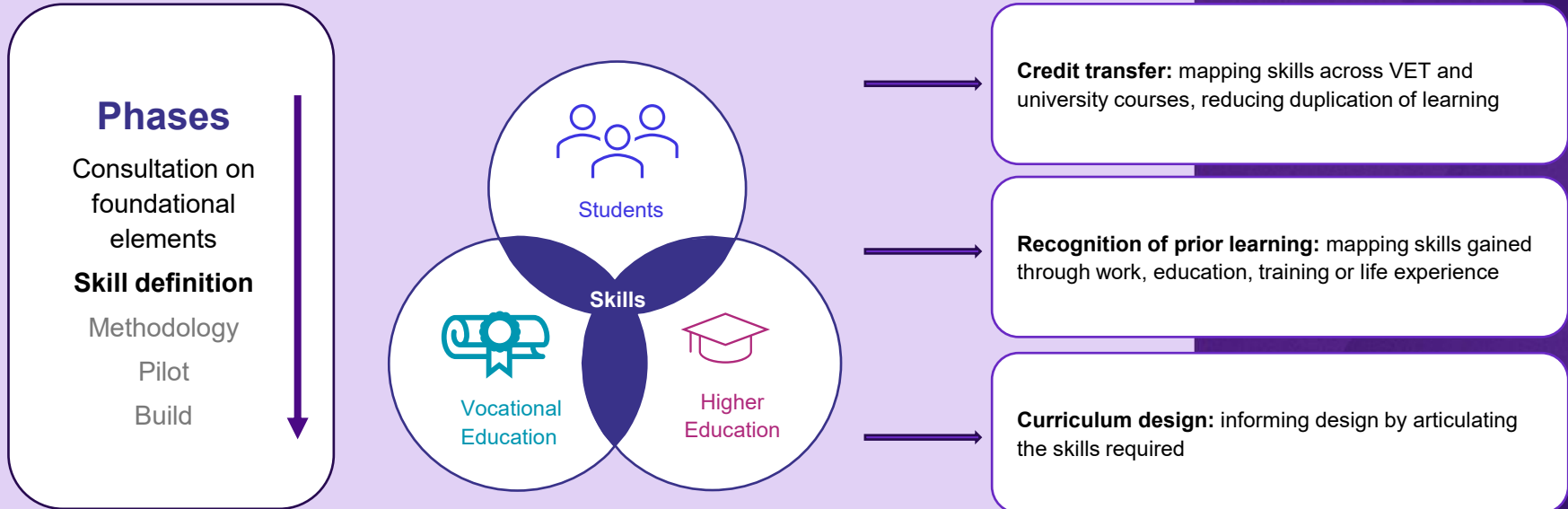
Skills are contextual

Value depends on how they are applied in real-world settings

Skills are inclusive

Developed in formal education, on the job, through volunteering, or lived experience

National Skills Taxonomy (NST): A common language of skills



Building a skills first

Skills Definition

Purpose: Establish a shared, evidence-based definition of "skill"

Characteristics: Philosophical and historical roots Distinctions from related terms (knowledge, competence, capability)

Output: A clear, inclusive, and comprehensive definition



Skills Framework

Purpose: Organize and classify skills for use in education, training, and employment

Characteristics: Structured and codified

Output: A usable, adaptable taxonomy aligned with the definition

An Australian definition of skill

Skill is a valued and purpose-driven human ability that is acquired or refined through learning and practice.

It is a dynamic function of an individual's knowledge, experience and personal attributes that is continuously influenced by context, interaction with others, and the demands of the environment in which it is exercised.

Technical development



Identify Skills

- Identify data sources (VET, University, Occupational, International data)
- Transform text to ingestible data
- Using LLM's translate data to draft skills



Validate

- Validate if a skill based on definition.
- Merge records where required.
- Split skills into two if required.
- Document owner validation



Develop profiles

- Map to other datasets when required.
- Develop supporting information for human and machine readability.
- Map to high levels of framework



Catalogue

- Finalise profile.
- Place into structure.
- Cluster into groupings.
- Add additional information as identified.
- Publish



dcterms:source

esco:Skill /
skos:Concept

skos:prefLabel
skos:altLabel

skos:broader
skos:exactMatch

Unit of competency | no Show history

AHCPMG308 Implement pest management strategies [Download](#)

Usage recommendation Current 27/Jun/2016

Release 2 Current 19/Dec/2018

Unit details | **Questions**

Unit of competency

Modification history

Release	Code	Version
Release 2	Co	Th
Release 1	Th	Th

Application

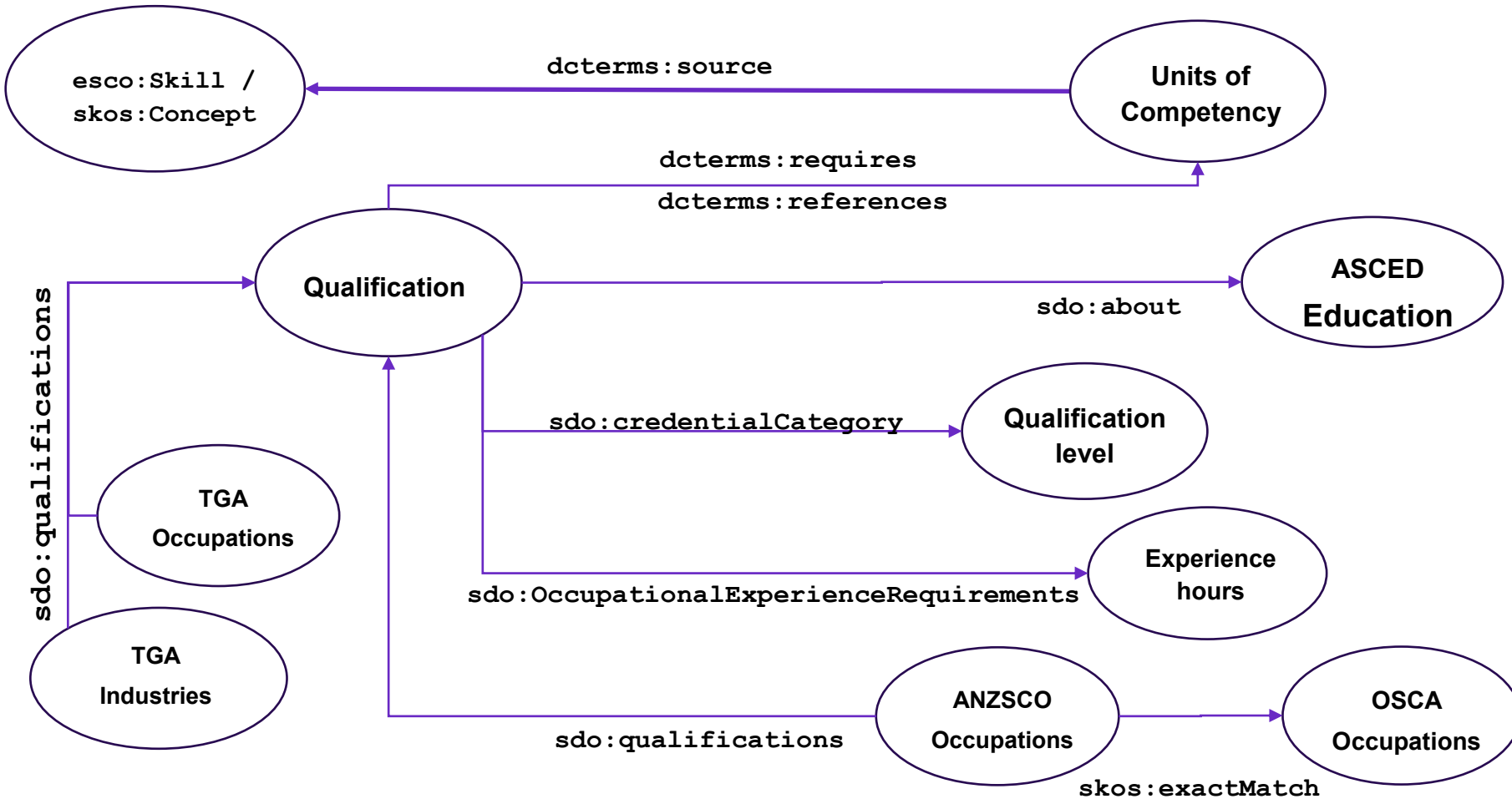
This unit of competency describes the skills and knowledge required to implement pest management strategies. The unit applies to individuals who are responsible for implementing pest management strategies. No occupational licensing, regulation or certification is required for this unit.

Elements and performance criteria

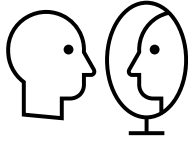
Elements	Performance criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare for pest management strategy implementation	1.1 Access and interpret the pest management plan and discuss requirements with supervisor 1.2 Determine declared species in legislation 1.3 Identify concepts of the pest management plan and impact on implementation 1.4 Identify key stakeholders and take into consideration their opinions about the pest management plan 1.5 Identify, select and prepare resources required for implementation 1.6 Identify health and safety hazards, risks and controls required according to health and safety in the workplace procedures 1.7 Identify select, fit, use and maintain personal protective equipment according to workplace procedures 1.8 Identify budgetary constraints for pest management plan and ensure planned activity is within budget
2. Assess targeted pest	2.1 Identify the targeted pest and determine pest characteristics 2.2 Identify pest management control method according to workplace procedures 2.3 Identify pest status according to location, land use, legislative requirements, benefits and damage caused 2.4 Assess target area for hazards, environmental risks and conflicting outcomes with pest management plan.
3. Implement the pest management plan	3.1 Use safeguards to ensure that the target pest is controlled, and other species remain unharmed according to plan outcomes 3.2 Assess and control environmental impacts and use biosecurity and sustainability principles as outlined in the plan 3.3 Use appropriate application processes and techniques to achieve desired period of control 3.4 Ensure animal welfare, property, stock and duty of care comply with federal and state legislation 3.5 Assess the effectiveness of the plan using relevant monitoring techniques and survey data 3.6 Apply follow-up controls to manage reinfestation according to procedures
4. Complete activities pertaining to the pest management plan	4.1 Dispose of pest waste according to workplace procedures and legislative requirements 4.2 Review and assess outcomes of the plan with supervisor to inform future pest management plans 4.3 Complete required documentation and make recommendations to supervisor according to workplace procedures 4.4 Clean, store and maintain equipment, tools and machinery

knowledge of:

ably recognise



Benchmarking



Pull down and analyse external skills frameworks



Distinct skill concept occurrences?



At what hierarchy level?



Analyse definitions

Digicomp - Digital competency framework for citizens

ESCO - European Skills, Competences, Qualifications and Occupations

ILO – International Labour Organization Core Skills Taxonomy

Lightcast – Lightcast Skills Taxonomy

OaSIS - Occupational and Skills Information System

O*NET – O*NET Online

SFIA – Skills Framework for the Information Age

WEF – World Economic Forum Global Skills Taxonomy

Harmonization



Assign example IRIs



Apply SKOS ontology



Swap custom classes and properties generic (e.g. SKOS and schema.org)



Common RDF serialization in local storage

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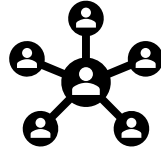
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Interoperation



Indicate derived skill concepts



Match with equivalent skill concepts



Adopt external ontology approaches (e.g. esco:Skill)



Serve taxonomy data openly

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Thank you

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