Australian Government | Jobs and Skills Australia

Training Occupation Pathways

Mapping Pathways from VET to Work

What is TOP?

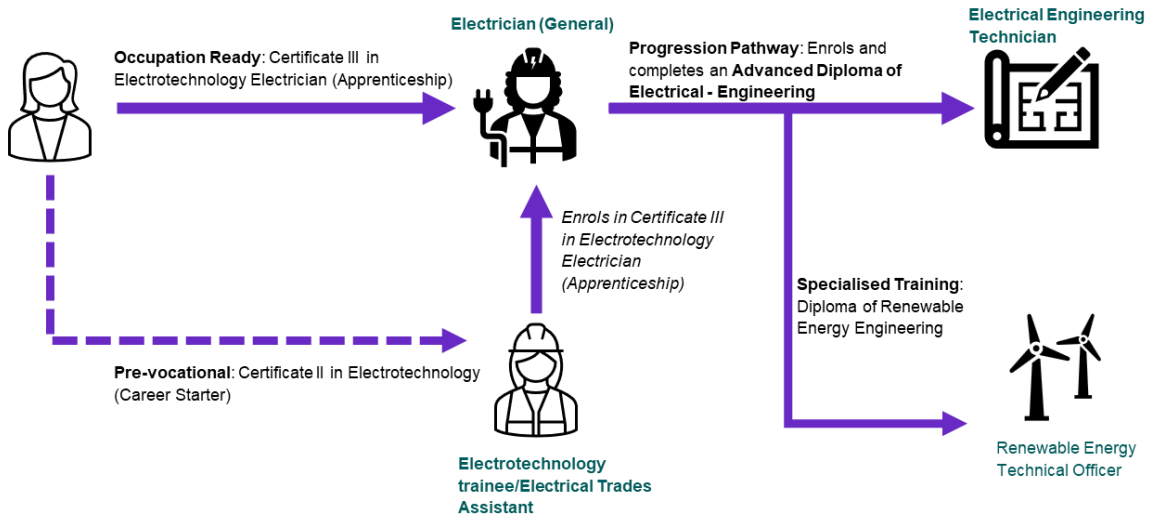
The Training Occupation Pathways (TOP) dataset maps Australian Vocational Education and Training (VET) qualifications to occupations. TOP provides a comprehensive view of the diverse career pathways available through the VET system, highlighting its role in upskilling, reskilling, and supporting lifelong learning. This dataset builds on JSA's previous work in qualification-to-occupation mapping, which has informed skills modelling, workforce planning, careers advice platforms, and policy initiatives such as the Australian Apprenticeship Priority List (the Priority List).

TOP introduces a new typology that categorises the different pathways between qualifications and occupations. The typology, developed with input from Jobs and Skills Councils (JSCs), defines five key qualification pathway types into work:

- **Occupation ready:** Completing the qualification will provide the skills and knowledge to undertake the mapped occupation (noting relevant caveats).
- **Specialised training:** The qualification is a specialised pathway for individuals already working in the mapped occupation to upskill or reskill for specific roles within this field. Prior learning or experience may be required for this occupational field or to enrol in this qualification.
- **Progression pathway**: Completing the qualification may be a pathway to other qualifications (including higher education) or relevant work experience that is required for this occupation.
- **Pre-vocational:** The qualification provides the foundational and workplace skills prior to enrolling in the appropriate qualification for this occupation. This includes career entry and pre-apprenticeship qualifications.
- **Related**: The qualification may have transferable skills and knowledge for this occupation, however further training through work experience or additional formal learning may be required.

The mapping of qualifications to occupations in combination with the pathways typology helps illustrate the different training pathways an individual can take to an occupation and the different roles and jobs within the occupation that can be facilitated by further formal or informal learning. This highlights the importance of VET as not only a mechanism for job-ready training but its potential to upskill and reskill workers to meet current and emerging skills needs as shown in Figure 1.

Figure 1: Training pathways for an individual pursuing a career in the Electrical Trade.



Why was it developed?

TOP was developed to address the need for clearer, more accessible information about how VET qualifications relate to occupations in Australia. While the VET system offers a wide range of pathways into work, information about how qualifications connect to specific occupations and workforce needs has often been fragmented across sources. While there are useful datasets available on qualification outcomes, these are largely focused on individual outcomes after course completion and provide limited indication of the skills and knowledge acquired through training, and the skills requirements of industry.

TOP brings together information on how qualifications and occupations are connected, to better illustrate the relationship between training, skills development and labour market demand.

The key motivations for developing TOP include:

- **Supporting workforce planning**: By mapping qualifications to occupations, TOP helps policymakers and industry stakeholders analyse where training is contributing to workforce capability, and where additional skilling or alternative pathways may be required to meet current and emerging demand.
- **Enhancing careers advice**: The dataset can support careers discussions by showing how different qualifications may support entry, progression, or transition between occupations.
- **Informing policy and reform:** TOP supports evidence-based decision-making for VET reform and related policy initiatives such as targeted incentives for training based on demand.
- **Improving data quality:** The project responds to stakeholder feedback about the need for more accurate, relevant, and user-friendly data on training pathways to address the challenges of a rapidly evolving workforce.

How was it developed?

The development of TOP combined data-driven techniques, qualitative analysis, and extensive consultation with industry experts:

1. **Natural Language Processing (NLP):** A large language model was used to assess text similarity between VET qualifications (sourced from the National Training Register) and occupational descriptions (from the Occupational Standard Classification for Australia, OSCA). This generated initial skill similarity matches between qualifications and 1,156 occupations.
2. **Internal Data Validation:** The model's outputs were then constrained to the top 10 matches in each direction and manually reviewed by JSA analysts. Real-world data, such as the proportion of workers holding specific qualifications (from PLIDA and Census data), and qualitative research were used to validate matches.
3. **Applying the pathways typology:** Each match was categorised based on the newly developed pathways typology using a quantitative method based on qualification intent (based on the National Training Register), pathways information in careers advice platforms such as *YourCareer*, administrative data on employer subsidies for training, and skill level differences codified both in the Australian Qualification Framework and OSCA. These datasets supplemented an automated coding process which was then manually reviewed by human checkers to ensure accuracy.
4. **Consideration of licensing and regulatory requirements**: Licensing and regulatory information was included in the dataset as a special conditions field. This was to better guide users on specific occupational requirements and restrictions to entry. These were auto-populated using existing licensing and registration labels indicated within the OSCA classification (where licensing is required or may be required). However, TOP does not, nor was it designed to, identify the specific license or registration requirements for each occupation.
5. **External Validation with Jobs and Skills Councils (JSCs):** JSCs reviewed and validated the dataset, providing feedback based on their industry expertise and workforce planning experience. This iterative process ensured the dataset's relevance and accuracy while mitigating risks of misinterpretation by other users. The JSCs were also consulted on the terms and definitions of the pathways typology and indicators of where licensing, registration or enrolment conditions may be a consideration.

As a result of using data-driven techniques combined with feedback and validation from the JSCs, a dataset of qualification to occupation matches was produced as a many-to-many concordance with additional pathways flags (based on the typology) and special conditions to entry or enrolment where applicable. Table 1 is an example of the different pathways into work after completing an Electrotechnology Electrician qualification.

Table 1: Occupational pathways for UEE30820 Certificate III in Electrotechnology Electrician in the TOP dataset.

OSCA Code	OSCA Title	Pathway	Special conditions
381231	Electrician (General)	Occupation ready	Licensing and registration is required.
899933	Electrical or Telecommunications Trades Assistant	Occupation ready	-
313232	Electrical Engineering Technician	Progression pathway	Licensing and registration may be required.
243331	Electrical Engineer	Progression pathway	Licensing and registration may be required.
381233	Industrial Electrician	Related	Licensing and registration is required.
381232	Electrical Fitter	Related	Licensing and registration is required.

Who will use it?

TOP is designed for a broad range of users:

- **Policy makers and government agencies**: To inform skills modelling, workforce planning, and better targeting of training incentives to skills shortages and skills in demand.
- **Industry and Jobs and Skills Councils**: For workforce planning, training package development, and industry intelligence.
- **Education and training providers**: To align course offerings with labour market needs and provide information on possible career pathways.
- **Career advisors and individuals:** To provide an additional resource that can support job seekers and career changers to identify relationships between occupations and qualifications.
- **Researchers and analysts**: For labour market analysis, qualification-to-occupation mapping, and skills-based research.

While all care has been taken to ensure the accuracy of the datasets, there are several limitations of the dataset including challenges in capturing nuanced occupational outcomes, variable licensing requirements, rapidly changing industry needs, and the complexity of making the dataset user-friendly for all stakeholders. Most importantly, this analysis was done at a national level and may not capture specific industry requirements that vary across States and Territories. Therefore, regular updates and ongoing engagement and feedback from stakeholders are critical in its application to current and future use cases. Ongoing consultation and feedback from users will be critical for continuous improvement, ensuring the dataset remains relevant and robust for all stakeholders.