

MAY 2026

Learning Pathways into Technology Careers

A Skills-Led Evidence Base



Future Skills Organisation

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Acknowledgement of Country

We acknowledge the traditional custodians of the land on which we work and pay our respects to elders past and present.



BACKGROUND – WHY CLEARER PATHWAYS ARE NEEDED

A growing workforce challenge without a clear solution

Employment pathways into the technology sector are not clearly defined, consistently understood, or reliably used by employers, Registered Training Organisations (RTOs), or learners.

As Future Skills Organisation (FSO) [Workforce Plan 2025](#) states: "Local educational and training pathways have not kept pace with the rapid growth in demand for digital and technical skills. Consequently, companies often struggle to fill positions with locally trained professionals."¹

The scale of this challenge is significant. Technology occupations are projected to grow from 824,700 to 1.1 million by 2030, yet the sector already faces a projected shortage of 131,000 workers.

Completion rates in the Information and Communications Technology (ICT) Training Package sit at around 37–38%, and Australia relies on migrants for 41% of its technology workforce, a dependency the Workforce Plan identifies as a systemic risk.² More than 1.1 million workers in non-technology roles already hold relevant skills but face systemic barriers to transition.

Without clearer pathways from training into employment, the FSO Workforce Plan 2025 warns of "ongoing workforce shortages and an overreliance on migration to meet critical technology needs."³

131,000

Projected technology workforce shortage by 2030



37-38%

Completion rate in the ICT Training Package



41%

Technology workforce sourced through migration



¹ Future Skills Organisation, Workforce Plan 2025: Pathways to Impact (2025)

² Ibid

³ Ibid

PURPOSE

Translating workforce demand into clear pathways

In response to looming shortages and unclear on-ramps for workers, FSO has undertaken two projects to provide an evidence base that is occupation-grounded, demand-validated, and framework-aligned, to connect what employers are hiring for, what the national occupational framework describes, and what VET currently delivers.

This report identifies nine pathways into the technology sector and the 34 entry-level roles within them.

- **The nine pathways** organise technology work into distinct areas, each with its own skills foundation and training routes.
- **The 34 roles** sit within them, providing employers with a framework for skills-based hiring, RTOs with evidence for curriculum design, and learners with clear visibility of how training connects to specific technology roles.

Both the pathways and roles are grounded in a point-in-time analysis of more than 40,000 job advertisements, providing a skills-led evidence base to inform FSO's reset of the ICT Training Package and support industry workforce planning across the technology sector.

9

Pathways



34

Entry-level roles



40,000+

Job advertisements analysed



Skills-led evidence

Real-time employer demand signals added to the occupational analysis and validated through consultation with 52 stakeholders.

Hybrid, applied capability

Employers seek technical skills, coordination and engagement capability, and transferable skills applied with growing independence and responsibility.

Technology is reshaping work

AI and automation are changing the nature of entry-level work and the capability requirements that come with it.

A foundation for reform

The findings provide an evidence base for workforce planning, skills-based hiring and the reset of the ICT Training Package.

THE JOURNEY

Built on two connected projects

FSO commissioned two connected bodies of work to provide the evidence base for training reform and a more accessible pipeline into technology careers.

2025

PROJECT 1

ACS with Deloitte Access Economics

Established the foundational structure for entry-level technology pathways

- ✓ **Occupation-led demand analysis**
Ranked 41 in-demand occupations from a pool of 104 and grouped them into nine pathways.
- ✓ **Mapped to recognised frameworks**
Each occupation mapped to SFIA 9, DigComp 3.0 and ICT Training Package qualifications.
- ✓ **A solid but bounded base**
Skills were inferred from occupation definitions, not observed directly from the market.
- ✓ **The starting point**
Provided the structure this project refined and strengthened.

2026

PROJECT 2

ACS with C4 Digital

Refined and strengthened the foundation with real-time employer demand

- ✓ **Skills-led demand analysis**
Skills extracted directly from 40,000+ job advertisements using SFIA 9.
- ✓ **Three-framework mapping**
Added DigComp 3.0 and Singapore's Critical Core Skills (CCS) alongside SFIA 9.
- ✓ **AI impact profiles**
Added an AI impact profile to every one of the 34 roles.
- ✓ **Validated with industry**
Tested and confirmed with 52 stakeholders across industry, government, and education. Consultation reinforced four themes: transferable capability, applied readiness, technology change and common skills language.

WHAT EACH PATHWAY PROVIDES

Underpinned by robust evidence

All findings were validated through consultation with stakeholders across industry, government, education, and workforce advisory groups. This confirmed the pathways, their skills foundations, and the entry-level roles within them reflect real hiring structures, current workforce demand, and emerging workforce needs.



Pathways are not theoretical; they are designed for real-world use. They are built to be applied in hiring, training, workforce planning, and career development, ensuring consistency between what is taught and what industry requires.

A shared view of capability and training

A clear view of entry-level capability

Defines what entry-level ready looks like in a practical, observable way, grounded in what employers are actively hiring for.

Training alignment

Maps each role to ICT Training Package qualifications and Units of Competency, identifying where coverage exists and where gaps remain.

A structured progression model

Shows how individuals can develop from entry-level into more advanced roles, connecting qualifications to workforce outcomes.

Recognition of transferable capability

Maps Critical Core Skills and DigComp competencies to make transferable capability more visible for candidates from non-technology backgrounds.

A common skills language

Aligns employers, RTOs, learners and workforce planners around shared expectations using SFIA 9, DigComp 3.0 and the Critical Core Skills Framework.

AI impact profiles

Every role carries an AI Impact Profile, making visible which capabilities are AI-resistant, AI-supported, AI-oriented or AI-automated.

The nine pathways into the technology sector

The nine pathways group entry-level technology work into distinct areas, each with shared capability requirements and training routes.

Before this project, the links between employer demand, occupational classifications, and VET training existed in fragments, with no common reference point across industry, government, and education. The nine pathways and 34 entry-level role profiles provide that connection.

Full details for each pathway and associated roles are [available here](#).

98%

of roles have existing
VET training coverage.



Software Engineering

7 roles | Entry: Diploma

Multimedia Designer, DevOps Engineer, Digital Game Developer, Software Engineer, UI/UX Designer, Web Designer, Web Developer

Telecommunications

7 roles | Entry: Cert III to Diploma

Communications Operator, Electronic Instrument Technician, ICT and Telecoms Technicians, Radiocommunications Technician, Telecommunications Engineer, Field Engineer, Technical Officer

Cloud, Network and Infrastructure

6 roles | Entry: Cert IV to Diploma

Electronic Equipment Trades Worker, ICT Hardware Technician, Office Equipment Technician, Cloud Engineer, ICT Network and Systems Engineer, Network Administrator

Data

3 roles | Entry: Diploma

Data Analyst, Data Engineer, Database Administrator

Architecture and Systems Administration

3 roles | Entry: Cert IV to Diploma

Other Draftsperson, Web Administrator, Systems Administrator

Cyber Security

2 roles | Entry: Diploma

Cyber Security Engineer, Penetration Tester

Operations and Service Management

2 roles | Entry: Cert IV to Diploma

ICT Customer Support Officer, Systems Analyst

Project and Delivery Management

2 roles | Entry: Diploma

ICT Business Analyst, ICT Test Analyst

Sales and Account Management

2 roles | Entry: Cert IV

ICT Sales Assistant, ICT Sales Representative

AI AND ENTRY-LEVEL WORK

How AI is reshaping entry-level technology work, and what it means for training

Each of the 34 entry-level role profiles includes an AI Impact Profile. These profiles classify how AI affects skills at the role level, using the following four categories. The purpose is to make visible which parts of entry-level technology work are being

supported, reshaped or automated by AI, and what that means for training design, workforce planning and learner preparation. **The same skill can shift in AI exposure as autonomy, complexity and accountability increase over time.**

1. AI-Resistant

What are they?

A skill that remains human-performed, typically requiring judgement, relational nuance or contextual complexity that current AI cannot reliably replicate. Examples include stakeholder engagement, ethical reasoning and contextual decision-making.

Analysis showed:

0 roles fully AI-Resistant at role level, though human-judgement skills within every role remain resistant at the skill level.

2. AI-Supported

What are they?

AI tools augment the human performing the skill. The human remains the primary performer; AI acts as a capable assistant rather than a replacement.

Analysis showed:

20 of 34 roles. Most common profile. Includes Software Engineer, Systems Analyst, Data Analyst, Cybersecurity Engineer, ICT Business Analyst.

3. AI-Oriented

What are they?

The way work is performed is changing. The skill remains relevant and required, but workflows are being restructured around AI tooling.

Analysis showed:

12 of 34 roles. Includes ICT Customer Support Officer, Network Administrator, Multimedia Designer, Radiocommunications Technician.

4. AI-Automated

What are they?

AI can perform the skill with little or no human involvement. The task is effectively automated for practical entry-level application.

Analysis showed:

1 of 34 roles: ICT Sales Assistant, dominated by routine order processing, standard product queries and template-based customer interactions.

HOW THE PATHWAYS CAN BE USED

Who the pathways are for

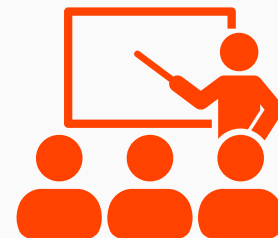
Employers and Hiring Managers

A shared, skills-based framework for defining entry-level role requirements and assessing candidates across all nine pathways, supporting skills-based hiring from both traditional and non-traditional backgrounds.



RTOs and Educators

Evidence to support alignment of qualifications and curriculum with the specific skills demanded across the nine pathways, including clearer identification of where current training aligns with employer demand and where gaps remain.



Government and Workforce Planners

A validated, replicable methodology for connecting labour market demand, training design, and occupational classification, with a defined approach for ongoing updates.



Learners and Career Changers

Clear visibility of how VET qualifications connect to specific roles across the nine pathways, including recognition of transferable skills developed outside the technology sector that are directly relevant.



Key findings

The findings show that entry-level technology demand spans technical, coordination and transferable capability, not technical skill alone.

Stakeholder Relationship Management is the most in-demand skill and the largest gap in training

It is the top-ranked skill across more than 40,000 job advertisements analysed and the weakest area of coverage in the current ICT Training Package. This finding is consistent across all nine pathways and represents the clearest priority for the Training Package.

Employers are not primarily hiring supervised beginners

Employers are seeking people who can apply skills with a degree of independence, adapt to changing contexts, and take responsibility for outcomes. Training that focuses primarily on closely supervised application does not align with current workforce demand.

There is a significant gap between employer demand and occupation-based skill profiles

The project identified a 70% gap between the top 10 SFIA skills employers are actively seeking and those reflected in OSCA-derived skill profiles. Only three aligned skills are shared: Infrastructure Operations, Programming and Software Development, and Systems Integration and Build.

Entry-level technology capability is hybrid

Employers consistently require a combination of technical skills, coordination and engagement capability, and transferable skills. Training that develops only technical proficiency does not reflect real employer demand.

Pathways from VET into technology roles exist but are not clearly understood or communicated

The nine pathways provide a clear and structured framework for entry into the technology sector, with 34 entry-level roles making clear the connection between training and the skills required for each role.

The pathways will not remain accurate without active stewardship

The pace of change in employer demand means the skills landscape shifts quickly. A refresh cycle using the same skills-led methodology is required to keep the pathways current and aligned with workforce needs.

RECOMMENDATIONS AND NEXT STEPS

Recommendations

R1. Inform ICT Training Package Reform

The nine pathways, supported by the workforce demand analysis, can inform ICT Training Package reform, particularly in raising the applied skills profile and addressing gaps in technical and transferable skills.

R2. Communicate entry-level skills demand

The nine pathways can inform how employers, RTOs, and workforce planners understand and communicate entry-level skills demand across the technology sector.

R3. Recognise transferable skills

Create formal recognition pathways for candidates entering from non-technology backgrounds. Many already hold the general capabilities required for entry but lack the technical skills component.

R4. Establish a refresh cycle

Establish a refresh cycle for the pathway data using the most recent approved skills-led methodology applied in this project.

R5. Transition to dynamic tools

Transition the pathways into dynamic, publicly accessible tools that are interactive, searchable, and updated as the underlying data is refreshed.

**ALREADY INFORMING REFORM**

ELP outputs are already feeding into the ICT Training Package redesign, including the 34 role profiles, role-level evidence and skills-led methodology. The alignment findings are directing where scoping effort is focused.

A shared evidence base for entry into the technology sector.

The nine pathways and 34 entry-level role profiles connect what employers are hiring for, what the national occupational framework describes, and what VET currently delivers. They provide a shared evidence base for workforce planning, skills-based hiring, curriculum alignment and clearer entry into the technology sector.

REPORT

Entry-Level Pathways: A Skills-Led Evidence Base for Entry into the Technology Workforce

[Read the full report](#)

PATHWAYS

Nine pathway profiles and 34 role profiles providing the complete evidence base

[Explore the pathways](#)

PROJECT

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