The TVET-Industry Roadmap

A Methodology for TVET Colleges to Map Actual and Potential Connections to Industry and Work

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- **KEY QUESTION 1** and **STEP 1** are aimed at helping you to perform a stocktake of current course offerings, enrolment numbers, graduation rates in each of the programmes (successful completions) and employment rates (using graduate tracking data and tracer studies).

The **Roadmap Methodology** provides full details and resources to support you as you consider the **KEY QUESTIONS** across the FOUR STEPS.

STEP 2

CREATING NEW DATA

KEY QUESTION: Where are the local businesses, industries, and other workplaces in which our TVET students (a) do work, or (b) could work?

- **KEY QUESTION 2** and **STEP 2** are aimed at helping you to profile the industries (formal and informal) in the local region in which students do or could work.

STEP 3

RUN RELATIONSHIP BUILDING FORUMS

KEY QUESTION: Who are the key players/stakeholders in our locality who are, and should be, involved in skills development and innovation?

KEY QUESTION 3 helps you to understand the local TVET ecosystem. This could include policymakers, associations, colleges, lecturers, students, employees, employers, and possible funders.

KEY QUESTION 3 and STEP 3 involve:
- **Structured thinking** - identifying key stakeholders in the local TVET ecosystem.
- **Structured action** - run a forum to build understanding of availability and commitment among stakeholders to shape innovation in skills-development and TVET-Industry partnerships.

STEP 4

RE-IMAGINING NEW RELATIONSHIPS AND MECHANISMS TO BRIDGE TVET-INDUSTRY GAPS

KEY QUESTION: How do we prepare our TVET institutions to shift and to meet future industry and technical advancement needs?

KEY QUESTION 4 and STEP 4 are about collaborating with stakeholders to adapt existing, or create new, TVET programmes that meet industry needs regarding green transition, sustainable development and poverty alleviation commitments.
- The focus is on **innovative partnerships** aligned to the **Sustainable Development Goals** and **Environmental, Social and Governance** principles and targets.

Shaping future jobs and work for the green transition and ending poverty

The United Nations officially adopted the Sustainable Development Goals (SDGs) in September 2015 as a global framework to achieve integrated sustainable development by 2030 among its Member States. Achieving several SDG targets, such as SDG 1 (no poverty), SDG 8 (decent work and economic growth) and SDG 13 (climate action), hinges on quality education (SDG 4). Technical and Vocational Education and Training (TVET) plays a crucial role in addressing the knowledge and skills needed to meet the SDGs.

UNESCO-UNEVOC identifies several education related challenges to achieving the SDGs and climate action plans:

- Insufficient awareness of sustainability
- Limited capacity in decision-making, teaching, and practical implementation
- Skill shortages leading to unmet labour-market demands
- Unsustainable consumption and production patterns
- Outdated competencies and qualifications
- Lack of recognition and assessment for skills gained through non-formal and informal learning
- Inadequate engagement of key actors, such as youth, communities, and enterprises (UNESCO-UNEVOC, 2025).

UNESCO-UNEVOC emphasizes the vital role of TVET systems in the transition to a circular economy, identifying barriers and enablers for integrating the SDGs. Important factors include policy frameworks, industry partnerships, curriculum updates, and collaboration between TVET authorities and industry stakeholders. Consequently, there is a need for capacity building and investment to fully harness TVET's potential in supporting a circular economy (UNESCO-UNEVOC, 2025).

A problem that recent research highlights is the gap between what TVET colleges provide and what industry players (employers and workers alike) actually need to work in more sustainable and inclusive ways (see Ramsarup & Russon, 2023; Russon & Wedekind, 2023; Wedekind et al., 2021). This TVET-Industry Roadmap is aimed at helping to close that gap through a step-by-step process of data gathering and strategic engagements that supports the development of innovative partnerships that align with the SDGs and industry Environmental, Social and Governance (ESG) principles. UNESCO-UNEVOC (2025) envisions that TVET partnerships between provider institutions and employers as well as students and other interested parties can re-shape the mindset and attitudes needed in the future workforce. It is our belief that the TVET-Industry Roadmap can be a useful tool for TVET colleges to develop such partnerships.

Problem: the TVET-Industry gap

TVET providers are aware of the challenges of connecting to industry in a way that meets the current and future needs of students and enterprises to create employment, products, and services in ways that serve more than economic interests. But they do not have a ready means to help them. **The TVET-Industry Roadmap provided here aims to help TVET colleges understand the nature of this challenge in their locality and build bridges with industry and other stakeholders to respond to these challenges.** For example, TVET providers need to develop skills to address a global "polycrisis" characterised by chaotic, unstable and interlinked emergencies that defy reduction to a single cause. As some observers have remarked: 'Great power conflict, declining multilateralism, rising energy and

food prices, forced displacement, and sovereign debt are accelerating – and being accelerated by – the current and longer-term risk trends of climate, biodiversity loss and rising inequality' (Norton & Greenfield, 2023, p. 2).

Vision

UNESCO has articulated a vision for addressing these challenges. It involves several key strategies. First, building capacity through targeted training programmes and resources to enhance decision-making, teaching, and implementation skills. Second, aligning education and training with current and future labour-market demands so that skill shortages are addressed. Third, promoting sustainable consumption and production practices through incentives and supporting green initiatives. Fourth, regularly updating curricula and qualifications to ensure they remain relevant in a rapidly changing world. Fifth, developing mechanisms to recognize and assess skills gained through non-formal and informal learning. Sixth, actively engaging young people, communities, and enterprises in developing and implementing solutions through partnerships and collaborative opportunities (UNESCO-UNEVOC, 2025).

To these we would add two more strategies to ensure that poverty is ended and that people work in decent, inclusive workplaces. So, a seventh strategy is to develop partnerships between TVET providers and employers as well as workers and students to mutually shape the nature and conditions of work, remuneration and protections so that no-one lives in poverty and precarious work arrangements. Eighth, and finally, support TVET providers and industry stakeholders to collaborate to shape skills development programmes that help people work in ways that are not only economically efficient but also culturally safe, environmentally sustainable/regenerative and socially inclusive of people from all backgrounds and sexual orientations. Our simple Roadmap is meant to help TVET colleges to identify possibilities for how they might play a role in addressing these challenges and opportunities.

To realise this vision, TVET colleges would ideally have the financial means and the institutional support structures to perform a number of practical tasks. UNESCO-UNEVOC (2025) sets out the key tasks that would support such a vision:

Create dynamic, responsive learning environments that equip students with the skills needed for a sustainable future. This will involve integrating cutting-edge technologies and green practices into curricula to prepare learners for emerging industries

Foster strong partnerships with industry and community stakeholders to ensure training aligns with market needs and supports economic growth but also adds social and cultural value to the communities in which they reside

Focus on inclusivity, ensuring access to education for all segments of society, and recognizing diverse learning pathways, including non-formal and informal education.

Working in these sorts of ways, TVET providers and industry partners will be better able to see skills development innovation as an opportunity to prepare TVET students for 'work' in a broader sense - something that is aligned as much with economic imperatives of earning a living as it is with wider sustainable development imperatives, principles and targets, including Net Zero Emissions and poverty reduction.

Intervention

As a network of UNEVOC Centres funded through the UNEVOC NCI, we produced a TVET-Industry Roadmap for TVET colleges to map current and future work opportunities. It is a simple tool that helps people take account of the reality of local TVET-Industry contexts, through a mutual knowledge exchange that draws on local expertise and capacity to help produce skills for the just and green transition envisioned in the SDGs.

The TVET-Industry Roadmap recognises the ecosystem context of TVET colleges and the need and possibilities for innovation in TVET. This TVET-Industry Roadmap is focused on understanding the TVET college-industry connection and prioritising relationship building with stakeholders who have a greater commitment to innovation in TVET (see the ecosystem mapping methodology (ESM) in UNESCO-UNEVOC, 2020, pp. 26-27). This ecosystem understanding is incorporated throughout the four-step process described below.

Method: A Four-step Process

This simple TVET-Industry Roadmap is based on four key questions (What, Where, Who and How) along with steps to follow for TVET leaders, students, and staff to map and navigate the skills agenda in their local TVET-Industry context. It is envisaged that the Roadmap would be followed as a cyclical process, possibly over three years, with a hub model involving two-three institutional partners to ensure that the process is not dependent on one or two key individuals. However, there is also scope for the TVET-Industry Roadmap to be a guide for individual TVET lecturers or college managers who wish to 'do something' no matter how small, to build stronger connections to industry for the benefit of their students and community. The hub model is discussed further after Step 4.

Step 1: Industry-Skills Gap Mapping

In Step 1 TVET providers answer KEY QUESTION 1: **What** industries/skills areas does our TVET college specialise in?

This is a strategically important question to help **providers** consider the current and future state of their **offerings and identify any gaps that should be addressed**.

KEY QUESTION 1 and STEP 1 are aimed at helping you to perform a stocktake of current course offerings, enrolment numbers, graduation rates in each of the programmes (successful completions) and employment rates (using graduate tracking data and tracer studies).

The OUTPUT will be a Stocktake Report on the current state of your TVET provider programmes and student outcomes in terms of their work destinations (short-term and long-term).

The strategic significance of this step is for TVET colleges to consider the current and the future state of their skill training offerings and the extent to which they prepare students for the full range of work (skills and values) that they could do in your region and beyond.

Using **existing tools and data** such as **Google Maps** and existing government, industry, college data sets on labour markets, employment trends and critical skills lists. The aim is for you to produce a **stocktake report** that highlights critical data around jobs in your region and which shows the location of **businesses and enterprises** in which your TVET college's students currently work (current state). Step 2 will expand on this by generating data on the business and enterprises in which your students

could work in the future (future state). Other data may include demographic data, and data on graduate destinations. A possible methodology for mapping this data is the **Kumu Map** (see Glossary).

Possible guiding questions:

Lecturer/teacher level:
- What industries/sectors are you connected to?
- What industries/sectors employ your students?
- What formal sectors are your students employed in?
- What informal sectors are your students employed in?
- What information/data does the college collect about graduate enrolment and employment?
- How are you facilitating the social, cultural, environmental and economic work-related values in your students?
- What are the names of employers where your students go for integrated learning, internships and/or employment?

Institutional level (for example, programme managers):
- What industries/sectors are you connected to?
- What industries/sectors employ your students?
- What other industries/sectors in your regional context are you not connected to?
- What formal sectors are your students employed in?
- What informal sectors are your students employed in?
- What information/data does the college collect about graduate enrolment and employment?
- What are the policies that are shaping the values-based nature of work/jobs in your area (for example, gender equity policies, fair work policies, environmental regulations and so on)?
- How are you facilitating social, cultural, environmental and economic work-related values in your students?

Step 2: Creating new data

In Step 2 TVET colleges answer KEY QUESTION 2: **Where** are the local businesses, industries, and other workplaces in which our TVET students (a) do work, or (b) could work?

KEY QUESTION 2 and STEP 2 are aimed at helping you to profile the industries (formal and informal) in the local region in which students do or could work. The meaning of 'work' is understood broadly to include self-employment and work in the informal sector.

The OUTPUT will be a report on existing and emerging industries in the local setting, to identify where students do or could work after completing skills training programmes. This complements the mapping process conducted in Step 1.

As with Step 1, existing tools and data such as Google Maps and existing government, industry, college data sets on labour markets, employment trends and critical skills lists can help you identify and collate critical data around future jobs and industries in your region and the location of businesses and enterprises in which your TVET college's students could work in the future.

In Step 2, it is also important to identify and draw on data sources regarding the changing role of AI and technological change in the TVET-Industry relationships that are most relevant to your college.

In Step 2 TVET providers might also conduct **in-depth interviews and questionnaires** with local and distant labour-market players, career guidance counsellors and alumni and current students. A menu of possible interview questions and techniques (e.g., **Delphi Method** and/or a **PESTLE analysis** of the context and a map for collaborative partnerships) is discussed further below, with additional links in the Glossary. The expected output from these in-depth interviews and engagements will be stories, accounts and descriptions about current and future key issues and needs in the world of 'work' as broadly understood (see Glossary). Such insights complement the data collated in Steps 1 and 2, building an in-depth understanding of the current and future state of work and TVET-Industry connections for the TVET college and your students.

Possible guiding questions for TVET college leaders include:

- With which industries, companies, individual entrepreneurs, key institutions, municipalities, regions and networks/forums (such as chambers) could your TVET institute establish or strengthen a mutually beneficial partnership that is aligned with your geographic coverage, equipment and staff expertise. (See also the ESM tool, Step 1, in Innovating in vocational education and training, UNEVOC 2020, p.26).
- Who are the stakeholders (companies, entrepreneurs, and municipalities) that are helping to transform their environment through innovation or who are actively engaged in offering new products or services to society? And how are they helping to develop the skills people will need to work in their companies/enterprises. (See also ESM tool, Step 2 in Innovating in vocational education and training, UNEVOC 2020, p.26).
- How do we facilitate partnerships that include and reflect indigenous/unheard perspectives on being included and respected in work settings?
- How do we include AI/new technologies when preparing people for future jobs and work?
- What types of work in the informal sector are likely to be most relevant to our students? How might the Roadmap help create pathways for informal businesses to transition into formal partnerships?
- How do we think about 'work' to include social, environmental, cultural and economic dimensions?

Step 3: Run relationship-building forums

In Step 3 TVET providers answer KEY QUESTION 3: **Who** are the key players / stakeholders (micro-meso-macro) in our locality who are, or should be, involved in skills development and innovation?

KEY QUESTION 3 is about understanding the local TVET ecosystem and the different actors and their positionality and agency. This includes policymakers, associations, colleges, lecturers, students, employees, employers, and possible funders who exist at different levels within the TVET ecosystem.

KEY QUESTION 3 and STEP 3 involve some *structured thinking* and some *structured action*:

Structured Thinking = identifying who the key stakeholders are at different levels:

- **Micro** = students, workers, employers
- **Meso** = TVET provider institutions, informal training providers, work platforms
- **Macro** = government departments, funding bodies, professional associations

Structured Action = running a forum to ask:

- how much agency do stakeholders have at each level to inform and shape skills development innovation?
- how much commitment do people have at each level to the SDG and ESG frameworks, principles and targets?

The aim of these forums will be to reframe the relationships that currently exist between TVET providers and industry partners in their region - including informal enterprises. They should facilitate collective understandings of the TVET-Industry gap and of shared values and responsibilities in delivering training for work that encompasses economic, social, cultural and environmental considerations.

When planning to run these forums, consider what resources and rewards staff might need to:

- use the TVET-Industry Roadmap to run the four-step process on a cyclical process to support sustainable programme/curriculum review and innovation in collaboration with key stakeholders; and
- think about the social, cultural and environmental dimensions of work (for which new skills development programmes are needed).

Possible tools (see Glossary) to help these forums do this work include:

- World Café or online conversation platforms like Zoom, Teams.
- The Capitals Approach - a framework that helps organizations understand and manage their impacts and dependencies on various forms of capital, including natural, social, and human capital, to enhance their planning, decision-making and sustainability.

The expected outputs from Step 3 will be:

1. Fresh understandings and perspectives about shared roles and responsibilities
2. Strengthening and maintaining relationships between TVET providers and industry partners
3. The identification of priorities for reviewing/resetting TVET programmes through the lens of economic, social, cultural and environmental values.

Step 4: Re-imagining new relationships and mechanisms to bridge TVET-Industry gaps

In Step 4 TVET providers answer KEY QUESTION 4: **How** do we prepare our TVET colleges to shift and to meet future industry and technical advancement needs?

This question sharpens TVET providers' responsiveness to local and global trends. It also focuses providers in a balanced way on meeting identified:

- *technical skills* fit for current and future work platforms
- *transversal skills* that facilitate agility in labour markets, community relationships and environmental and cultural management.

KEY QUESTION 4 and STEP 4 are about collaborating with stakeholders through a mechanism like an **MOU/Framework/Charter for Innovation** by either adapting existing, or creating new, programmes of skills development (technical and transversal) so they:

- are focused on meeting both TVET college and industry needs in relation to green transition, sustainable development and poverty alleviation commitments
- have the short-term impact of generating new learning and understandings of SDG aspects of work, and
- have a medium-term impact on changing the behaviours and operations of workers and employers in line with SDG and ESG values and obligations.

This process of implementing the **MOU/Framework/Charter for Innovation** can be promoted to stakeholders as a way of improving local skill development programmes and infusing them innovatively so they satisfy the global SDG goals. It's a practical method for "thinking global, acting local".

OUTPUT: Using an MOU/Framework/Charter for Innovation mechanism, TVET colleges will either revise existing programmes to infuse emerging technologies and to ensure compliance with SDG values, or co-create new skills development programmes that serve these purposes. An MOU/Framework/Charter for Innovation can be signed as a concrete social contract between the partners to clarify shared roles and responsibilities.

Implementing the TVET-Industry Roadmap

A possible way to carry this work forward could be to utilise a **hub model** over a three-year period. This could look like:

- A larger TVET college in the region could link with smaller institutions and serve as a hub in that local industry ecosystem
- A recommended method could be for a larger college to partner with a local UNEVOC Centre / University partner in the locality
- A hub might also include a TVET college partnering with a key industry stakeholder and other key stakeholders

The 'hub' might adapt or use a Collective Impact model (see Glossary) to run the process. In essence this means:

- The larger college/UNEVOC Centre hub serves as a backbone organisation
- Hub coordinates a common agenda among participating institutions
- Hub uses continuous communication with stakeholders and partners
- Hub runs mutually reinforcing activities
- Hub uses common progress measures for monitoring and evaluation

Tools and Links

Glossary

Collective Impact: This is a network of community members, organizations, and institutions who advance equity, the SDGs, by learning together, aligning, and integrating their actions to achieve cultural and systemic level change (Collective Impact Forum, 2025). **Source link:** https://collectiveimpactforum.org/what-is-collective-impact/#:~:text=Collective%20impact%20is%20a%20network,population%20and%20systems%20level%20change

Capitals Approach: This approach helps organisations recognise how their success is directly or indirectly supported by natural, social, and human capital, empowering them to make decisions that maximise value across all these areas. **Source link:** Capitals Approach – Capitals Coalition, 2025.

Delphi Method: Delphi is a questionnaire technique involving multiple iterations aimed at reaching a consensus on a specific topic, such as curriculum (Chuenjitwongsa, 2017). **Source link:** https://www.cardiff.ac.uk/__data/assets/pdf_file/0010/1164961/how_to_conduct_a_delphistudy.pdf

Hub Model: The hub and spoke model is a distribution network that resembles a bicycle wheel. The hub is at the centre and allows each spoke to move toward a central location for delivery (Phillips, 2025). **Source link:** https://www.transvirtual.com/blog/what-is-the-hub-and-spoke-model/#:~:text=The%20hub%20and%20spoke%20model%20is%20a%20distribution%20network%20that,meet%20at%20a%20central%20location

Industry: In our Roadmap, we use the term 'Industry' to refer to large commercial enterprises or branches of manufacturing or trade (for instance, mining industry, finance industry or health industry), whereas we use 'work' broadly understood to include formal employment, self-employment and work in the informal sector.

Kumu Map: This map comprises elements, connections, and loops, with each map storing a complete list of these components. Additionally, a map can retain the specific positions of all its elements and the positions of any labels that represent loops (Kumu, 2025). **Source link:** https://docs.kumu.io/overview/kumus-architecture

PESTLE Analysis: The PESTLE acronym represents Political, Economic, Social, Technological, Legal, and Environmental factors. The PESTLE framework is a tool used to analyse and monitor the macro-environmental factors affecting a company and its industry environment. **Source link:** https://subjectguides.library.unsw.edu.au/business/pestle

TVET College: In our Roadmap, we use the term 'TVET college' to refer to public and private institutions that provide Technical and Vocational Education and Training (TVET), often linked to national qualification frameworks and accredited vocational programmes. These might also include community colleges and polytechnics. A critical feature is that, unlike other parts of the education system, a TVET college has a mandate to be connected to industry.

TVET-Industry gap: In this Roadmap, we refer to the TVET-Industry gap as the extent to which there is a mismatch between the skills industry needs and the skills that existing and potential workers have.

World Café: This is a method for gathering people to engage in simultaneous rounds of conversation about important questions. Participants begin by discussing with those at their initial table and then move to different tables to continue the conversation with new people (Department of Premier and Cabinet, 2025). **Source Link:** https://www.dpc.sa.gov.au/responsibilities/community-engagement/engagement-tools/world-cafe#:~:text=World%20Cafe%20is%20a%20way,the%20conversation%20with%20different%20people

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