

# Skill Ecosystems and Regional Innovation: An Overview of Local and International Features

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## Introduction

The national Skill Ecosystem Project is a DEST funded project established to encourage new and innovative approaches to skill development and training.

Skill ecosystems:

- build collaboration and cross industry momentum
- prepare individuals to build on divergent thinking to develop employee capacity, new products, services and businesses
- look beyond traditional approaches to partnerships and learning to facilitate innovation and sustainability of industry and regions
- foster innovative partnerships between the VET sector, industry and regions to effectively meet industry needs and demands
- aim at boosting longer-term economic growth and productivity

While it may first appear that **Skill Ecosystems** are the same as communities of practice or networks, they also differ in a number of ways. For example, networks and communities of practice bring together people with similar interests and backgrounds, such as a community of practice for professional development managers, or a network of e-learning specialists. In contrast, skill ecosystems deliberately make connections across organisational and sectoral boundaries, for example targeting representatives from different sectors (or across the supply chain) that may relate to an industry area – such as management, IR and training provider representatives.

Skill ecosystems also differ in that they are outward looking and seek to improve the competitive advantage of the skill ecosystem partners. They explore the drivers, opportunities and barriers that need to be addressed to hasten the growth of the partners in an industry cluster.

There is considerable policy interest, discussion, and a range of VET related projects exploring new capacity building models involving industry partnerships, skill ecosystems, regional development and innovation. This interest is reflected in Australia's National Strategy for Vocational Education, Training 2004-2010 that states:

Communities and regions will be strengthened economically and socially through learning and employment.

This objective aims to integrate learning and employment solutions to support regional economic, social, cultural and environmental development, and sustainability. However,

recent research on the future of work and the changing link between work and skills has implications for this goal of regional and community development.

The BVET research, *Beyond Flexibility: Skills and Work in the Future* (Buchanan et al, 2001) found that changes to the labour market, the structure of businesses and industries, and significant and ongoing economic reform, have radically altered both the nature and the content of work.

The changing nature of work means more people are broad banding, rather than using higher skills and greater workloads mean people have less time to be trained or to provide training. Job-hopping due to casualisation and contract work also means employers are not training people. When we look at the nature of the jobs available in the economy now and in the future, many people will continue to work in relatively low skilled jobs – such as hospitality workers, production workers, labourers, clerical and sales workers. At the same time, this research suggests people want interesting and challenging work and good relations with their co-workers. Changing patterns of work are placing demands on VET as skill shortages, skill gaps and vacancies become harder to define. Added to this is a push by some industry sectors to reduce wages through increasing the pool of skilled workers, as seen in the ICT sector.

At the same time the VET sector is facing declining student numbers, a growth in contact hours and an increase in VET expenditure relative to GDP. The number of apprentices and trainees has started to decline. This is not a sustainable situation for VET and is eroding the status of VET. Many argue that as the workforce becomes more highly qualified, skills wastage increases. At the same time employers are investing less in staff training and development, meaning that potentially the VET training market could continue to contract.

This creates challenges for VET practitioners, which the national VET strategy acknowledges with objectives aiming to “strengthen the capacity of TAFE and other providers and brokers to partner with local government and non-government agencies, businesses and industry clusters.”<sup>1</sup> Projects such as the national skill ecosystems and the BVET funded Innovation for the Regions Project endeavour to directly address this national priority whilst dealing with the implications of new models for skill development and innovation.

### **Why skill ecosystems?**

Economists understanding of the role of knowledge in economic models has changed. It is now understood that knowledge drives growth. Because ideas can be infinitely shared and reused, we can accumulate them without limit. They are not subject to what economists call “diminishing returns.” Instead, the increasing returns to knowledge propel economic growth.

At the same time international research is confirming that proximity facilitates the sharing of knowledge and the capacity for localised learning by firms, leading to innovation. The growing understanding of the role played by knowledge and proximity in building competition has led to interest in industry clusters and regional innovation. Research on regional clusters indicates that innovation and competitiveness increase when organisations work together in clusters. Skill ecosystems combine these factors. Skill ecosystems of local businesses and educational providers increase efficiency, stimulate innovation, and facilitate new business models and new skill development models.

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<sup>1</sup> Australia's National Strategy for Vocational Education, Training 2004-2010, ANTA

Internationally industry leaders realise that not only is knowledge important but proximity facilitates the sharing of knowledge and the capacity for localised learning by firms, leading to innovation. The growing understanding of the role played by knowledge and proximity in building competition has led to interest in industry clusters which are in effect skill ecosystems (without the emphasis on skills). Research on regional clusters indicates that innovation and competitiveness increase when organisations work together in clusters. So industry clusters are promoted through various industry sectors by industry associations, industry networks and sector specific media providing the VET sector with an opportunity to build on this interest.

TAFE NSW has always played a significant role in meeting local and regional skill needs, regional and community development is a fundamental part of the TAFE NSW charter<sup>2</sup>. Institutes are now seeking new ways to align vocational education and training services with regional development needs and to do so in partnership with others.

Many of you are involved in projects or networks that could be called skill ecosystems or more likely are on the way to becoming skill ecosystems. Many of you are involved in industry, business or regional networks and innovative projects have resulted, and so you might be asking 'what's new?' Skill ecosystems look to effect change on the supply side (training, labour supply and recruitment practices available for people entering or in companies within the ecosystem) and the demand side (the work processes, technology and competitiveness of companies in the ecosystem). Workforce development is integral to the success of an industry cluster but on its own provides only half the solutions. Overseas experience suggests that demand side changes are needed to successfully sustain economic growth and this is an area that may be new to some in the VET sector.

An often quoted example is the garment industry in New York. "The Garment Industry Development Corporation (GIDC) was founded in 1984 by a tri-partite collaboration among the local union, industry associations, and local government. The purpose of the organisation was to support the garment industry which had been losing jobs, yet remained the largest source of manufacturing jobs in New York City and an important employer of low-income residents with limited language skills.

GIDC intervenes in the garment industry on multiple levels, providing not only training services for workers, but also technical and marketing assistance to businesses. GIDC has helped many firms make their operations more efficient and also has linked firms to new markets and sources of revenue. By helping to upgrade the quality of the workforce, while at the same time providing services that improve the overall operation of businesses, GIDC has become a valued actor in New York City's garment industry."<sup>3</sup>

As a member of a skill ecosystem the VET practitioners are not responsible for all actions and the ecosystem members will have a range of different skills that can be drawn on. It is not the role of a VET practitioner to do everything that a skill ecosystem needs to develop, recognise the skills of the other partners and let them take the lead where they have the expertise. Skill ecosystems do need intermediaries to help steer and keep momentum going during the life of the ecosystem. VET practitioners are well placed to be intermediaries as they are skilled at facilitation and working with groups. Intermediaries are more than facilitators. The more people within a skill ecosystem who can take on this role the more likely the ecosystem will succeed.

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<sup>2</sup> TAFE NSW Strategic Directions 2002-2004

<sup>3</sup> Conway, M., Loker, S., The Garment Industry Development Corporation A Case Study of a Sectoral Employment Development Approach

Along with international experience documented in the literature the skill ecosystem demonstration projects indicate intermediaries are successful when they:

- **motivate:** Gaining ownership, exploring ideas and being empowered to act create motivation. This is important as ecosystem success is often slow to be realised.
- **maintain communication between partners:** Communication develops shared understanding and a sense of connection between cluster members. Communicating ideas and information allows cluster members to value add creating greater opportunities.
- **provide for face-to-face communication:** Face to face communication is essential in developing trust and strong bonds between partners. Distinguishing fine differences is important to strengthening partnerships in ecosystems.
- **develop trust:** Trust provides the foundation for developing ecosystem competitiveness and new joint ventures amongst cluster partners. Without trust an ecosystem is a network of interested colleagues looking to see what they can get out of the network. Trust allows a cluster to fully explore ideas and information and to give up things for the ecosystem and make mistakes.
- **use lateral thinking:** People with diverse experience and backgrounds provide a variety of ideas for different information creating an opportunity for innovation. Lateral thinking can be encouraged through using creative thinking methodologies.
- **develop shared visions:** Shared vision is an important aspect of successful clusters as a clear and agreed vision provides the motivation to achieve the goals of the ecosystem. Shared visions provide confidence for the cluster members to act individually and within the group.
- **facilitate collaboration:** Collaboration is often a new way of working for organisations whose normal mode of operation is competition. Trust is needed to foster collaboration and independent intermediaries without personal agendas can be particularly useful developing this feature of skill ecosystems.
- **have solid industry knowledge:** All project participants stated the importance of the intermediaries knowing the industry in which the ecosystem operates. This creates credibility, trust and ensures issues/visions are realistic.
- **provide independent brokering support or facilitation:** What are the issues, as the enterprises perceive them? An independent broker helps all partners identify common goals without interpreting those interests or goals. This provides the foundations for shared visions and future thinking.
- **have good influencing skills:** Encouraging people to accept change and become involved are important elements to achieving goals and making cultural shifts. Influencing skills require lateral thinking and good communication skills.
- **build partnerships:** Industry leaders help provide credibility, extend networks and diversify ecosystem partners. Diverse partnerships create greater opportunity for innovation to occur. Industry leaders are well connected to various networks and activities, their involvement will create interest in the ecosystem. The project participants and the literature highlight partnerships as important for skill ecosystems and the success depends on a strong collaborative partnership.
- **are realistic:** As one of the project participants said, "use the network to do the work. Share it around." Some big issues may need attention, but starting with a smaller, more manageable task lets the skill ecosystem achieve an early success. As one interviewee said, being realistic builds trust and stops disappointment.

- able to **collect and use information**: Research can be utilised in several ways: to gain a meta understanding of the priorities, drivers and reason for being. Research can serve as compelling evidence during the decision making process when identifying directions and goals. Effective benchmarking requires solid data to determine where an organisation sits in relation to the industry. Action research can develop enduring skills within the ecosystem.

As you will notice these skills are not new to most of you. What is the challenge is applying them in a collaborative non-agenda driven way.

There does not appear to be one set model for successful skill ecosystems as there are large differences in the way the different industries operate and the issues with which each ecosystem works. Hence, the skill ecosystem demonstration projects are arranged under three broad headings:

- Innovation agent projects
- Labour market intermediary projects
- Supply chain or network projects

WIN project

Racing

South Australian Logistics and Export Assured Delivery (LEAD) food supply chain project

Skill ecosystem partnerships are successful when the partners each:

- are **culturally aware** of the industry – external influences, customs, drivers: Understanding external influences, customs and drivers provides greater opportunity for demand side innovation to occur leading to greater capacity building. Developing a mutual understanding of workplace practices in VET organisations and enterprises, helps identify shared goals and new applications for products and services.
- understand **organisational entry points**: Organisational change and job redesign cause people to move around and make it difficult for external organisations to make meaningful connections with people who can assist cluster initiatives. Understanding how to navigate large organisations increases the speed with which innovation can occur.
- are good at **information sharing**: Adding value to information by sharing it with different people produces trust, openness and cooperation. Sharing information generates new ideas and distils possibilities for innovation.
- are good at working in **multidisciplinary teams**: People from different disciplines provide an opportunity for cross fertilisation of ideas leading to greater opportunities for innovation. As one interviewee commented, “meeting all these different people was inspiring, motivating, all together we knew a lot.”
- are **flexible** – changing roles/requirements: Expectations and ways of working change as the cluster grows. To achieve early and ongoing success cluster intermediaries need to be flexible to deal with unexpected developments.
- are **future oriented**: Future oriented thinking provides knowledge to think about innovative solutions for the supply side and demand side of the cluster.

Alongside the national skill ecosystem project the NSW Board of Vocational Education and Training is supporting regional innovation through a series of Innovation for the Regions

projects. These projects are basically skill ecosystems projects as the same processes and dynamics are at play and these projects also have considerable innovative outcomes.

Two of the projects are:

- South Western Sydney Institute – Innovation Management – Manufacturing and Engineering
- New England Institute – Linkages and Sustainability in the Creative Industries

South Western Sydney Institute – Innovation Management in Manufacturing and Engineering Project explored new pedagogical approaches to learning and new methods of engaging industry. The project ran a Graduate Certificate in Innovation Management for local business and TAFE teachers involved in manufacturing and engineering. Course work for the Graduate Certificate involved work based projects that had successful outcomes identified below:

- a new cost effective set of standard operating procedures for a new form of bus assembly
- a new on site training facility in a high technology manufacturing company for first year apprentices and trainees, and
- development of a new training program designed to meet new regulatory requirements for aircraft wheel manufacture

The partnerships developed during this project are continuing and other initiatives are being explored. Additional work based project outcomes are to be found in the case study.

New England Institute – Linkages and Sustainability in the Creative Industries Project was designed to enhance regional development opportunities for local creative industries and to foster community development. Three micro projects were developed to explore the extent to which the Institute could engage in regional development. The micro projects are Bendemeer Grey Fergie Muster and Community Development Project, the Gamilarart Artists Cooperative Project and the Skills for Hire Data Base project.

Successful outcomes to date include:

- A doubling of membership for the Gamilarart Artists Cooperative
- Business skills training for Gamilarart Artists Cooperative members
- Artist Cooperative members negotiating to purchase a permanent gallery and workshop space
- Bendemeer townscape beautification involving local artists and sculptures
- Greater community involvement in the community development project
- Greater community commitment to sustainability, and
- The development of a creative skills for hire database

These New England projects are continuing and the creative skills for hire database have been extended to a national database. These projects have led to a partnership between New England Institute of TAFE and Armidale Local Council pursuing the development of a creative industries incubator project proposal.

Both the skill ecosystem and the innovation for the regions projects success rely on collaborative partnerships. Collaborative partnership lifecycles are not temporary short-term

phenomena, but are ongoing with long-term perspectives. The Skill Ecosystems and the BVET Innovation for the Regions projects enabled TAFE NSW staff to explore innovative capacity building initiatives outside the normal system restraints of annual funding cycles. The nature of these projects is that they are long term and involve a long lead-time before results are seen. For VET practitioners financing long-term projects presents some problems, funding programs should consider where the project is in its lifecycle when identifying contractual achievements of the proposed project. This also raises questions about how the TAFE system can accommodate this sort of long-term project that may not have traditional outcomes such as Training Package qualifications, and training existing workers for example.

The skills required for collaborative partnerships are not necessarily new for VET practitioners. Industry consultation and networking have been key planks in VET for many years. One difference is need for long term thinking and planning on industry and community partnerships that go beyond traditional funding periods. Another difference between the skill ecosystem and regional innovation approach and traditional TAFE delivery strategies is the benefit of close cross faculty collaboration to facilitate dynamic collaborative partnerships requires open internal systems.

Some of the training in the projects has been for existing workers. Training for existing workers tends to be informal, just in time and technology or product specific and can be immediately put into practice. This creates expectations within industry for similar delivery approaches and fortunately, collaborative partnerships allow VET practitioners to develop training much earlier in a product or process development cycle. The challenges of delivering short just in time training are an ongoing issue for the public VET sector.

When preparing to develop a skill ecosystem there are several factors worth considering for inclusion. Identifying strategies to incorporate these factors will help ensure the successful growth of your project. The factors are:

- Geographical concentration
- Specialisation
- Multidisciplinary teams
- Leadership teams/intermediaries/social entrepreneurs
- Culture
- Collaboration
- Shared vision/clarity/sense of community
- Communication/information/trust
- Celebrating success/allowing failure
- Communities of practice, action learning

**Geographical concentration:** Internationally, research is confirming that proximity facilitates the sharing of knowledge and the capacity for localised learning by firms, leading to innovation. Companies locate in geographic proximity due to hard factors, like external economies of scale (such as a good transportation network or support industries, the pooling of an industry sector), as well as soft factors such as social capital and learning processes.

Greater opportunities for innovation occur if the proposed project includes representatives from along the supply chain including, customers, support industries and training providers.

**Specialisation:** Regional clusters centred around a core activity to which all organisations are related. Supply chain expertise is readily available identify can be developed more quickly. There is a greater chance for success of a regional innovation cluster if the project proposal targets factors unique to the region. For example a region may identify itself as being a creative industries sector and all actors from individual creative professionals, to local councils, TAFE, private galleries and Rotary may all bring something value to a cluster.

**Multidisciplinary teams:** People from different disciplines and stages of the supply chain provide an opportunity for cross fertilisation of ideas leading to greater opportunities for innovation. Positive team members tend to see outcomes rather than the difficulties. Flexibility in roles, changes in expectations and roles occur as the cluster changes.

**Leadership teams/intermediaries/social entrepreneurs:** help steer and keep momentum going during the life of the cluster, they may be champions for the vision. They motivate partners and keep communication open. Leadership teams are facilitative and independent rather than filtering ideas. This lays the foundations for shared goals. A leadership team should be more than a steering committee. The more people within an industry skill cluster who can take on this role the more likely the cluster will succeed.

**Culture:** Understanding external influences, customs and drivers provides greater opportunity for demand side innovation to occur leading to greater capacity building. Innovative clusters develop a culture that actively encourages creativity and innovation through building trust and future thinking. A culture that is outward looking and open to new members and ideas stops a cluster from becoming limited.

**Collaboration:** Builds buy in and ownership motivating people to act. Collaboration is often a new way of working for competitive companies. Trust is needed to foster collaboration. Collaboration maintains democratic structures. Collaboration through action keeps all involved and owning the initiatives.

**Shared vision/clarity/sense of community:** Shared vision is an important aspect of successful clusters/communities as a clear and agreed vision provides the motivation to achieve the goals of the cluster or community. Shared vision provides confidence for the cluster or community members to act individually and within the group. Clarity of purpose helps to provide parameters ensuring efficiencies in effort.

**Communication/information/trust:** Open communication develops shared understanding and a sense of connection between cluster or community members. Communicating ideas and information allows cluster or community members to value add creating greater opportunities. Adding value to information by sharing it with different people produces trust, openness and cooperation. Face to face communication develops strong relationships and partners feel valued by the time invested in them.

**Celebrating success/allowing failure:** Celebrating incremental or small successes maintains motivation and creates energy, making others more inclined to get involved. Allowing for failure gives permission to people to feel comfortable taking risks and bold initiatives. Some big issues may need attention, but starting with a smaller, more manageable task lets the cluster achieve an early success. Being realistic builds trust and stops disappointment.

**Communities of practice, action learning:** Cluster networks need to be more than simply opportunities to meet. Networks will ideally form 'communities of practice', with many networks present in each cluster, associated with different interests. The development of

communities of practice can help companies to share ideas, trade or innovate with new ideas.

The Skill Ecosystems and the BVET Innovation for the Regions projects have successfully established that VET can play an active role in skill ecosystems, regional innovation and build VET capacity at the same time. TAFE staff have many of the skills required to foster skill ecosystems and regional innovation and can refine these skills further through active and ongoing involvement in ecosystems and innovation.

Given where these projects are in their lifecycles they have achieved substantial outcomes and this is reason enough to continue exploring skill ecosystems a new model for VET partnerships and innovation.

Finally:

- VET practitioners are engaging in activities very similar to skill ecosystems now;
- VET practitioners have many of the necessary skills to successfully establish and maintain skill ecosystems
- Skill ecosystems do build VET capacity
- Success must be measured by regional assets built, connectivity created and the level of innovation and entrepreneurship being fostered
- The challenges presented by skill ecosystems are no different to the challenges faced by VET generally in an increasingly complex labour market and further projects should be encouraged.