OECD/CERI STUDY OF SYSTEMIC INNOVATION IN VET

Systemic Innovation in the Australian VET System: Country Case Study Report

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1. Introduction

This is the third in a series of country reports prepared as part of the study on Systemic Innovation in Vocational Education and Training (VET) being conducted by CERI/OECD during 2007-08. It focuses on three case studies of systemic innovation in the Australian VET system and draws on: a) background information provided by Australian officials on the three case studies and b) meetings and interviews conducted during a visit to Australia that took place on 5-12 April 2008. As a result, the report is based on the situation up to that period.

The visiting team consisted of Hanne Shapiro, Head of the Business Unit Centre at the Danish Technological Institute; Lorna Unwin, Chair of Vocational Education and Training, Institute of Education, University of London; and Tracey Burns from the OECD Secretariat. During their visit the team met with 59 stakeholders involved in the case studies of Systemic Innovation in VET. A complete list of participants is given in the annex.

The overall aim of the study is to examine systemic innovation in VET. The definition of systemic innovation adopted here is: *any kind of dynamic, system-wide change that is intended to add value to the educational processes and outcomes*. The aim is to analyse innovation systems and strategies in VET by bringing together evidence of the drivers for systemic innovation in six different countries.[1] All countries participating in the study have selected two or three case studies of innovations in VET for in-depth analysis by the expert team. The following is a list of issues that the study focuses on in particular:

- How countries go about innovation;

- The processes involved, leadership and the relationships between the main actors;

- The knowledge base that is drawn on; and

- The procedures and criteria for assessing progress and outcomes.

This introductory section provides a brief overview of the Australian VET system followed by a short description of the three case studies selected for the study. As these form the main focus of this report they are described and discussed in more depth in later sections of the report. The three cases were selected by Australian officials, in collaboration with the OECD/CERI Secretariat. The three case studies are: a) research and

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[1] Australia, Denmark, Germany, Hungary, Mexico and Switzerland.

statistics in VET with a focus on the National Centre for Vocational Education Research (NCVER); b) raising the status of VET; and c) the Australian Flexible Learning Framework.

2. The Australian VET system

2.1. Context

A booming economy closely tied to the growth in Asia, growing skills shortages, and an ageing population have combined to put pressure on the Australian VET system – not only to deliver more skills, but also different skills sets tied to structural changes in the economy.

There is a considerable scope for further engaging young Australians in VET. The Dusseldorp Skills Forum reported that in May 2007 there were 526,000 (or 18%) 15 to 24 year olds who were neither in full time education nor in full time work (Australian Industry Group, 2007; Dusseldorp Skills Forum, 2007). While the attainment rates in tertiary education in Australia are high, close to one in five young adults have not completed high school or Certificate III vocational education (which is the equivalent of the high school leaving certificate).

Vocational education and training in Australia is the constitutional responsibility of the six states and two territories, with the Commonwealth Government acting as the ninth partner. The peak government body responsible for VET policy and planning is the Ministerial Council for Vocational and Technical Education (MCVTE), which complements the Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA). These peak ministerial councils also provide a mechanism for developing and implementing national policy in a constitutional environment in which the formal authority for education and training rests with the states. A practical effect of the peak ministerial councils is that national policy development and implementation planning proceed consultatively and there is generally in-principle agreement and commitment to new policy directions by the Australian and state governments by the time formal ministerial decisions are taken.

During the term of the previous government (1996-2007) there was a continuing trend in intergovernmental relations towards a centralist approach; current expectations are that the new government which took office in December in 2007 will have a less centralist approach. The current government is adopting a model of cooperative federalism whereby the Commonwealth, states and territories collaboratively agree to priorities for

reform and set targets through the Council of Australian Governments (COAG) process.

The current Australian VET system has been in operation for about 15 years, yet according to a recent survey 22% of the Australian working-aged community (people aged 15-65 years) does not know what it encompasses (DEEWR, 2008).

Key features of the publicly funded Australian vocational system are:

- strong industry leadership;

- national quality assurance (registration of training providers and qualifications);

- national training qualifications developed by industry;

- industry determined competencies for each qualification; and

- a federal system.

A national quality assurance framework, the Australian Quality Training Framework (AQTF) underpins the provision of competency-based, quality-assured training with nationally recognised units of competency and qualifications. It describes the national set of standards which aims to assure nationally consistent, high-quality training and assessment services for the clients of Australia's vocational education and training system. It was last updated in 2007 but two major elements involving quality indicators for registered training organisations (RTOs) and excellence criteria are still being implemented.

During the previous government period, national Industry Skills Councils were established consisting of employers' and union representatives with the purpose of developing training packages and providing advice in training matters. There are currently 11 such Industry Skills Councils. The government is expanding the role of the councils to include working with employers to stimulate them to develop workforce capabilities of existing workers.

The VET sector is a diverse space with many different activities across Australia. A national policy approach in the past decade has been to open up the training market through contestable funding for registered public and private training providers. Within states and territories numerous programmes and initiatives have been implemented to meet local and regional needs.

At the core of the accredited VET system are nationally recognised units of competency and qualifications specified in national training packages.

Competency standards are set out in national training packages, which also specify the combinations of units of competency that are required for each recognised qualification. A training package sets out competencies but prescribes neither how training should be delivered nor the time taken to deliver it. It is the responsibility of the registered training organisation to operationalise appropriate teaching and learning models and assessment methods to particular contexts of use. Currently there are approximately 70 such training packages. If a national training package exists in any occupational field it overrules any other qualifications. Currently a policy debate seems to be emerging on removal of the supremacy of training packages, the view being that training packages work well in stable areas of occupations which have not succumbed to high levels of technological change and/or sector convergence, but are less suitable in new emerging occupational areas where demand for innovative skills may cross traditional sector boundaries.

The new government, which took office in December 2007, has recently established Skills Australia – a statutory authority whose role is to analyse current and emerging skills needs across industry sectors and advise the government on current and future demand for skills and training. Industry peak bodies might give advice to Skills Australia, but it is not a social partner construct. When this review took place, diverse stakeholders revealed high expectations for this new body, however also recognising that it was too early to say to what degree it would emerge as a central policy influencer.

There is also an ongoing struggle to position VET and raise its status. Currently vocational training sits as a bridge between secondary and higher education. The challenge is how to increase the attractiveness of VET to students, parents and employers so that VET is seen as a valid educational pathway in its own right. Most of the VET delivered through the school system in the previous decade has been in lower certificate levels – Certificate I and II. Currently, the government is trying to raise perceptions of VET to meet growing skills demands in Australia across sectors, and also promote VET qualifications at higher levels. Greater integration of VET and higher education is encouraged to give students improved flexibility to move between sectors and gain the qualifications they are seeking. Building an integrated relationship between VET and higher education providers has also been picked up in the terms of reference of a major review into higher education, announced by the Australian Government in March 2008 and which will report by the end of 2008.

The Australian VET system is under pressure to undergo systemic change to better respond to structural changes in the labour market and the wider economy (*e.g.*, continued economic growth, an ageing population, and

an increase in the proportion of employers experiencing difficulty recruiting staff – from below 41% in 2005 to over 44% in 2007 (Background report to the OECD review, 2008), as well as greater demands to provide sustainable "green" and technical skills to support innovation and climate change). During our study visit it was clear that the VET system in some ways responds to economic needs, but possibly not sufficiently. The pressures for change are set in the context of a dual track economy, with at one end of the spectrum mining, driven by technological innovations, and at the other end the services industry, driven by innovation in the human capital base.

One of the advantages of federal systems is that they can create contestable policy spaces in the sense that state governments do not necessarily address the same problems in the same manner. For some policy makers, the Australia 2020 Summit taking place just after the review visit was seen as an opening up of this policy space and an opportunity to debate and to challenge existing assumptions with a view to long-term policy making.

2.2. The policy climate for systemic innovation in the Australian system

The arrival of the new government in December 2007 marked a shift in the policy approach to VET, with a balance between a market-based competitive model and an inclusive, equity-focussed model. In addition, as the new federal government made education and training a central focus of its pre-election platform, their win has given them the mandate to pursue a collaborative agenda with the states and territories with education and training as a central priority. As evidence of this, the current Deputy Prime Minister is also Minister for Education, Employment, and Workplace Relations (as well as Social Inclusion).

The country visit revealed evidence of on-going incremental change in the VET system at both federal and state level. This has been driven by, on the one hand, a strong skills agenda linked to the challenges of a booming economy (at the time of the review) and a drive to make VET provision much more demand-led, and, on the other hand, by a social justice agenda. Because of the diversity within and between regions and differences in policy priorities between jurisdictions, the relative weight of an inclusion agenda varies across the states. Overall, it is typified by concerns about how to involve disengaged youth, the demographic challenge of an ageing and declining workforce, the need for a new approach to the re-skilling of the long-term unemployed (particularly middle-age men), the low levels of adult basic skills in the workforce, and long-standing concerns about the life chances of the indigenous population.

One of the key transversal themes of this report is the particularity of the Australian geography and governance arrangements, and the way in which large distances between urban settings, the remoteness of the rural experiences, and the complexities of the governance system interact to shape policy and practice. The country's governance structure appears to be both a challenge and a catalyst for change. On the one hand, the federal system builds on a national skills framework and quality criteria central to mobility of skills across sectors and jurisdictions, and it allows for diversity in strategic priorities and implementation frameworks thus creating a potential space in which innovation could flourish. However, in spite of a national framework for VET,[2] state-led innovation has so far remained highly localised. This is the case both because of the dynamics of jurisdictions and decision-making in a federated system, and also possibly because of limited mechanisms in place to learn from promising practices across jurisdictions. The development of a more integrated productivity and participation agenda, led by COAG, is seen as a potential vehicle for the creation of nationally shared goals for VET, but given that Skills Australia will have a significant remit to provide advice to the government about skills and training for post-secondary education, there is still uncertainty about where responsibility for the national leadership of VET will rest.

Two systemic innovations were highlighted in our interviews as having fundamentally changed the nature and behaviour of the Australian VET system and as still having lasting effects: national training packages and User Choice funding, which allows employers and their apprentices and trainees to choose the Registered Training Organisation (RTO) that will deliver the formal part of the training contract. The establishment of the National Centre for Vocational Education Research (NCVER) was also regarded as a systemic innovation in that it had led to the creation of robust, national level research data and had stimulated a research culture for the VET system. Group training organisations were another instance of systemic innovation which aims to assist apprentices and trainees by brokering on and off the job training between employers and providers.

The introduction of national training packages, a quality assurance framework and User Choice funding have re-shaped the VET system over the past 10 or so years and have influenced the behaviour of providers in both the public and private sectors. However, many participants in the review, including policymakers at both state and federal levels, felt that the system now had become over-managed and risk-averse. The VET system represents a considerable industry in its own right, but tensions exist about the amount of regulation and complicated top-down accountabilities and

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[2] Skilling Australia's Workforce, and Shaping our Future – strategy for VET 2004-2010.

performance measures – the system is suffering from "initiative fatigue". There was general agreement that the country needs a much more coherent, flexible, responsive and innovative VET system to meet its economic and social challenges.

Beyond the aforementioned major systemic changes, many of the changes that have occurred in the VET system, however, are best characterised as incremental localised adaptability – the system taking small steps, most often at a different pace and in different modalities across states and territories – rather than as radical systemic wide changes. Due to Australia's governance arrangements of education and training, states and territories have the primary responsibility for training delivery and as a result approaches to innovation also vary across states and territories. Some examples include:

- linking and accrediting vocational subjects to senior secondary school certificates (Queensland, Victoria);

- Local Learning and Employment Networks (LLENs) –Victoria;

- skills ecosystem approach to workforce development – New South Wales;

- bringing computers to farmers – Tasmania;

- Youth Commitment and corresponding Managed Individual Partnership Planning (MIPP), and the On Track initiative (Victoria); and

- developing VET in schools through school-based apprenticeships (Queensland).

There seem to be a number of reasons why the capacity for systemic innovation so far has not reached its full capacity. The key features that seem to hinder systemic innovation in the VET space are:

- short-term policy making;

- the continuous auditing of the system through planning instruments and accountability, and tensions around funding; and

- the potential vested interest of state and territory government officials as planners, purchasers, and also in some instances owners of training provider institutions.

Interviews during the study visit revealed that more collaborative ways of working were now required between stakeholders to maximise the potential and benefits of local improvements and transform them into

system-wide innovation. The interviews also revealed a general consensus among practitioners, researchers and policymakers that the key system changes of the past 10-15 years have served their purpose, and that it is now time to conduct a fundamental review in order to make the system more responsive in the longer term.

3. The case studies

3.1. Case Study 1: Research and Statistics in VET

Background

In common with many other developed countries, VET research in Australia is a multi-disciplinary endeavour involving academics and contract researchers from across the social sciences. Where Australia stands out is in its decision to establish and maintain a national strategy for VET research delivered through a government-funded national research centre. The National Centre for Vocational Education Research (NCVER) was established in 1981 and is a not-for-profit company owned by the national and state and territory ministers responsible for VET. Its key responsibilities are: a) the coordination of research in the VET sector, including the management of the national VET competitive grants programme and the analytical programme of the Longitudinal Surveys of Australian Youth (LSAY); b) the collection and analysis of national VET statistics and survey data; and c) the coordination of a national programme of student and employer satisfaction surveys. NCVER has become acknowledged both nationally and internationally as a leading centre for VET research. Its VOCED database and website provide a unique service to VET researchers throughout the world. NCVER currently secures its core funding under the *Commonwealth-State Agreement for Skilling Australia's Workforce* (DEST, 2006), receives other funding from state and territory governments for specific projects, and conducts consultancy work on a fee-for-service basis. The NCVER Board provides advice to federal and state training ministers on the national research priorities.

In 1993 a report by academics at the University of Technology Sydney (UTS) had described VET research as an underfunded, fragmented activity that had little or no relevance to policy and practice in Australia (McDonald et al, 1993; Smith, 2001). Although NCVER had already been in existence for some 12 years, the UTS report helped to raise awareness that VET research required greater funding and a more strategic approach. In 1996, the Australian Government decided to appoint NCVER as manager of a new

national research and evaluation programme. This is a programme of commissioned research, awarded on a competitive basis, and is not open to NCVER researchers. During the country visit, the key informants, including practitioners, employers, policymakers and members of the research community, cited the importance of NCVER both to informing their own understanding of the VET field, but also to the establishment of a robust statistical evidence base on which the whole country could draw. NCVER was seen to be vital to the development of a credible and substantive VET research community in Australia – "without them we would have a much weaker evidence base". Informants also cited the fact that NCVER actively supports the Australian Vocational Education and Training Research Association (AVETRA), founded in 1997. AVETRA's members include researchers based in universities and TAFE institutions, training managers and trainers, VET policymakers and anyone with an interest in or responsibility for VET.

The development and functioning of NCVER can, therefore, be regarded as an important innovation in the Australian VET system and could also offer lessons for other countries. There are, however, some concerns about the way in which NCVER is able to operate as both the manager of Australia's national VET research programme (with the power to allocate research funding) and as a research organisation in its own right. This case study will explore this tension and also examine the state of VET research in Australia more generally.

Importance in the context of national VET policy

NCVER's importance in terms of national VET policy cannot be underestimated due to its leading role in the collection of nationally robust statistics and the management of nationally funded research studies. Due to these responsibilities and the nature of its core government funding, NCVER regards itself as being "owned" by the ministers in the eight states and territories with responsibility for VET, but it also sees itself as being independent from government due to operating as a company. While NCVER is clearly providing government and the country in general with robust and rigorous descriptive evidence about the VET system, concerns were expressed by some individuals that not enough was being done to move beyond description to more critical engagement with the data. To that extent, it might be necessary for more VET researchers working outside NCVER to make fuller use of NCVER's data in order to provide the critical accounts and evaluations that NCVER does not usually undertake.

The most substantial area of its work involves the collection of fully-national VET statistics, managed through the Australian Vocational

Education and Training Management Information Statistical Standard (AVETMISS). AVETMISS is overseen by the National Training Statistics Committee, which comprises Commonwealth and state and territory VET officials, with operational support from NCVER. The statistical data include: a) a student and courses statistical collection; b) an apprentice and trainee collection; and c) a finance collection that comes from the separate administrative systems of the states and territories. These statistical collections are supplemented by an annual national student outcomes survey and a bi-annual survey of employers' use and views of the VET sector. This evidence base enables the national and sub-national governments to audit and monitor the performance of the publicly-funded VET sector and to inform their policymaking. An annual VET system report is provided to the Federal Parliament. The emphasis that NCVER has placed on data quality uniformity means that considerable trust has been established in the statistical evidence base. In effect, therefore, NCVER acts as the custodian of VET data on behalf of the Australian Government and makes both data and other related information available to external users for a minimal charge.

In terms of the importance of its research activity, NCVER, over a period of 25 or so years, has trained a cadre of highly skilled VET researchers, some of whom have moved into and between academia, nationally and internationally. This has provided Australia with a considerable dedicated capability which many other countries would find hard to match.

From 2008-2010, NCVER's research activity will fall under five priority areas which have emerged through consultation with national stakeholder organisations and have been endorsed by the Ministerial Council for Vocational and Technical Education (NCVER, 2008):

- *Growing the labour supply*: by examining how vocational education and training can support greater participation in the workforce, especially for equity groups whose participation is relatively low.

- *Motivating individuals to participate in VET*: by understanding why people choose to, or not to, participate in the VET system, what drives demand for VET and what outcomes it offers participants in the medium to long term.

- *Sustaining a skills base through apprenticeships and traineeships*: by identifying ways of maximising the number of people who complete their apprenticeships or traineeship.

- *Enhancing the productive capacity of enterprises*: by ensuring that employers are well-placed to maintain the skills of their workers and to adapt to new work practices and technologies.

- *Enabling VET providers to compete effectively*: by identifying the barriers VET providers face in operating effectively in a competitive environment.

NCVER will carry out some of the research that falls under these areas itself, while also managing the competitive grants scheme open to researchers across Australia.

The process of initiating/designing the innovation

The role and approach of NCVER has evolved over the past 25 years. It is clear from the country visit and from studying the organisation's documentation that it is a dynamic organisation which invests considerable time and energy in consulting stakeholders and "users" as to how it might further develop. Methods of engagement include targeted stakeholder forums, development of value-added research products and services, and special briefings. Over time, the organisation has learned that the way to ensure its research adds value is to ensure it is thematic, clustered around priorities and key questions of importance to the VET sector, using a range of methodological approaches and involving the key stakeholders. In terms of innovation, it is worth noting that successive national and sub-national administrations have continued to support the continuation and expansion of NCVER and, hence, have placed the creation of a nationally robust VET evidence base above party politics. This has provided NCVER with the continuity necessary to develop both research systems and a cadre of skilled researchers capable of working at a national level.

The continuity afforded NCVER has also enabled it to build relationships with a wide range of stakeholders and to build its own identity as a research and consultancy organisation. During the site visit, the organisation explained that it was committed to engaging with stakeholders across as wide a canvas as possible, but that there are capacity issues to be considered. A key question for the future of NCVER will be the extent to which it can grow further yet at the same time maintain its ability to function as a community. The expansion of collaborative research partnerships with other high impact research institutions that study skills and training issues and use NCVER data as part of their research could be a way to increase NCVER's reach through the country. This would have implications, however, for current staffing levels and general resources.

Use of the knowledge base

The question of how to ensure an adequate and sufficient flow of information during the process of policy reform and innovation is extremely challenging. There are questions concerning who is considered qualified and reliable enough to provide the information, and the types of information which are considered useful and relevant to decision makers. The role of different knowledge sources (*e.g.*, formal/academic, semi-formal, popular/media knowledge, general tacit knowledge) in identifying and developing innovation policy is an essential component to the understanding of the processes underlying systemic innovation.

As has been noted earlier, NCVER has and continues to make a major contribution to Australia's formal knowledge base regarding the performance and practice of the VET system. This has been achieved within a country that, for the lifetime of NCVER, has been establishing a competitive context within which public and private VET providers are expected to operate. Discussions during the country visit drew attention to a number of issues that pose challenges for VET researchers and to areas where more substantial research is required. First, there is concern that the country still has the vestiges of a culture where policy decisions are taken without reference to research evidence and/or before evaluations are completed. Second, there isn't sufficient evaluation of VET programmes to enable robust decisions to be made about how to improve VET practice and where to invest public funds, and there is a concern that too many initiatives are launched without an evaluation strategy. Some informants suggested that Australia needed an "arm's length" evaluative body to work separately from NCVER. Third, the very success of NCVER meant that policymakers and practitioners had become overly dependent on the evidence and opinions emanating from one organisation, which, it had to be remembered, had limited capacity. This concern was coupled with the view that VET research was still a relatively young field in Australia, compared with research on general and school-based education, and, hence, the field needed a greater diversity of perspectives.

In terms of the knowledge base developed by NCVER, one major gap was cited during the country visit. Currently, the statistical evidence that NCVER can collect from private training providers is very limited as they are not required to report any activity they deliver on a fee-for-service basis. However, it appears likely that there are more students undertaking training with private providers than in publicly-funded institutions meaning, that a substantial part of the Australian VET system lies off the official statistical radar. It was clear in the visit to NCVER that the organisation is attempting (under delegation from senior training officials) to address this problem

through consultations with the private sector, but it is not clear how far this approach will lead.

NCVER's relationship with the academic research community not connected to AVETRA appears to be underdeveloped, though it should be noted that the researchers' forum was generally very supportive of NCVER's work. There was a suggestion that there was a weak relationship between researchers such as labour economists, sociologists and political scientists working within subject-specific departments or research centres (who tend to look to the Australian Research Council for their main source of funding) and their colleagues in education departments or VET-focused centres. The researchers' forum suggested that closer links should be developed between the ARC and NCVER. Currently, it is difficult to ascertain how much VET-related research is being undertaken in Australia as some projects funded by the ARC may appear under different titles; for example, the heading "young people" may include the study of VET issues and themes. The nurturing of a stronger relationship between the ARC and NCVER might help to increase the use of NCVER data by researchers more generally and contribute to the creation of critical (as opposed to descriptive) and mixed-method investigations.

NCVER contributes to the training and development of researchers throughout the country and continues to put significant resources into growing research capacity in the VET sector. At regional and local levels, the data that NCVER holds is available for use by policymakers, VET institutions and researchers, who, in turn, can contact NCVER staff for assistance. To help build the capacity of "users", NCVER runs workshops in statistical training round the country and funds scholarships to help practitioners engage in small-scale research projects. Given that the VET research and practitioner communities are, however, ageing, there is a concern that Australia needs to find ways to encourage younger people to enter the sector.

The Australian Government's (DEST, 2006) review of NCVER's research and statistical services identified the need to build research capacity in the VET sector by:

- attracting experienced researchers from outside the sector;

- encouraging early career researchers;

- supporting people in the sector to undertake research.

NCVER has begun to respond to these issues, with a new approach to commissioning programmes of work rather than projects. This has seen the engagement of four prestigious university centres from outside the VET

research area. It has also instigated a modest scholarship scheme to encourage VET practitioners to engage in research.

Implementation/monitoring/evaluation

Since its inception, some two decades ago, NCVER has grown considerably in terms of the scale of its operations and influence. In relation to the 2006 review of NCVER's activities (cited above), three issues are particularly pertinent for this country report. First, the review recommended that NCVER should include more information in its publications to explain the institutional context of its data collection, the comparability with other available statistical sources, and the impact of changing data definitions and reporting practice with regard to comparability over time and across institutions and jurisdictions. Given the complexity of the Australian VET system and the challenge of trying to capture activity that lies outside the publicly-funded realm, NCVER has the expertise to further develop innovative approaches to statistical research which could be shared more widely, both within Australia and internationally.

Second, the review recommended that NCVER should monitor its research grants programme to ensure "broad participation by researchers in diverse institutional circumstances". This relates to points made earlier regarding concerns expressed in the researchers' forum and at other points in the country visit about NCVER's funding allocations. In terms of research priorities, the review wanted more attention to be paid to research into pedagogy. This is a significant point as the nurturing of pedagogical quality and innovation is central to the development of a strong and vibrant VET system.

Third, the review recommended that NCVER should improve its consultation processes so that it might increase the involvement of "grass roots" industry organizations and related groups. While the review stressed that both industry and NCVER should share responsibility for improving their relationship, it urged NCVER to monitor the ways in which it currently engages with employers. In particular, the review noted that industry was more critical of NCVER's usefulness than other stakeholders and had a limited involvement in both the setting and ownership of the process of setting research priorities. The relatively weak engagement with industry, as compared to education and training providers, means that NCVER is missing out on an important opportunity to monitor innovative VET practices occurring inside organizations and workplaces.

In discussions with NCVER during the country visit, the following themes were raised as areas where research was needed in order for

Australia to develop a much more robust and richer understanding of the VET landscape:

- the changing profile of the VET workforce;

- the impact of and differentiated nature of apprenticeship wages;

- the collection of longitudinal data on the progression of learners in the VET system;

- the role of credentials and their relationship to productivity;

- the nature of skill acquisition in and outside work;

- the scale and nature of the private training market;

- the need to build models of optimal training to challenge assumptions that simply increasing the volume of training would lead to greater productivity.

It was clear from the discussions that NCVER has long-term ambitions to further enhance and embed its role both within Australia and the Asia-Pacific region, but also as a key contributor to VET communities worldwide. Part of this ambition is to develop greater electronic means of communication with stakeholders. As an organisation, it has the expertise and experience to develop innovative approaches to VET research. By strengthening its collaboration with a wider range of researchers and industry, it should be able to broaden the pool of potential recruits (and sources of secondees and interns) and, hence, further improve its own in-house capacity and blend of skills. This wider engagement would also give NCVER access to a broader range of perspectives about the challenges facing VET and help to formulate corresponding research questions.

Lessons learned

Positives

- NCVER has created a robust and internationally respected, fully national statistical evidence base to support the monitoring and evaluation of and research into the VET system.

- It has developed a cadre of highly skilled VET researchers and developed a model organisation for the dedicated study of VET and the standardised collection of statistical data.

- It disseminates its research widely and provides open access to stakeholders and "users", thus building capacity within the system.

- It acts as a strong "voice" for the VET system in policy circles and makes a significant contribution to raising the status of VET in Australia.

- Through its support of AVETRA, it has helped to create a community of practice for people working in VET.

Problematics

- The close tie between NCVER's research and government priorities means that it has to contend with changes in policy focus, thus important and emerging questions may be ignored or receive too little attention.

- The strong focus on the collection of statistics leaves very little space or capacity to investigate innovative practice or research in the VET system.

- NCVER's dual role of funder and competitive research organisation raises concerns about possible conflict of interest and also whether the funding for VET research has tended, over time, to be concentrated on a small pool of researchers. The possibility of NCVER acting as a "broker" for research should be considered so that it could support new VET researchers without being in competition with them.

- The dual role may also be restricting the allocation of funds to research projects focused on government priorities and may limit the possibility of "blue sky" research which might challenge those priorities and/or explore uncharted territory. Questions need to be asked about whether and to what extent other research funding bodies should be involved in VET research in order to ensure researchers can pursue studies which fall outside NCVER's remit and/or financial resources.

3.2. Case Study 2: Raising the status of VET

Background

As this is a particularly complex case study it has been broken up into two parts. Part A focuses on the major national communications project

aimed at marketing and repositioning VET, while Part B focuses on specific initiatives developed to raise the status of VET.

Importance in the context of the national VET policy

The challenges concerning the question of raising the status of VET are situated in a diverse and contestable policy space which has led to an array of both public and private providers and brokering agents between the world of school education and training and the world of work. The challenges linked to raising the status of VET intersect with raising the number of students who complete Year 12 or equivalent attainment to the COAG's target of 90% by 2020 – similar to policies in other OECD countries such as Denmark, with its government target of 95% by 2015 – and with the questions of when to best start to engage different groups in VET.

During the past decade there have been few sustained national strategies to raise the status of VET. It is still perceived as a second choice by many, so policy makers were keen when putting this case study forward to try and "benchmark" what was innovative practice for raising the status of VET, particularly in the later years of high school through to post-secondary training pathways.

The current government has put a strong priority on expanding initiatives to allow more individuals access to trade training, and to this end has developed a number of vocational programmes and initiatives aimed at improving access, quality and relevance of trade training in schools. Commonwealth commitments include:

- a capital injection of AUD 2.5 billion funding over the next 10 years for the Trade Training Centres in Schools Program to allow schools to apply for funding of between AUD 500,000 and AUD 1.5 million to establish a trade training centre.

The government is also undertaking further VET in schools initiatives including the:

- Mentors for our Students Pilot Program that aims to engage young people with recently retired trades people and professionals to encourage them to seek out careers in areas experiencing skill shortages and to enhance their industry knowledge;

- On-The–Job Training Program that aims to increase the number of secondary students engaged in VET accessing on-the-job training and to improve the quality of work placements; and

- Schools and Business Linkages initiative to strengthen the partnerships between schools and business to better prepare students to move successfully from school to further education, training or work.

These initiatives to expand quality VET delivery for secondary school students contrast with the Australian Technical Colleges (ATC) innovation of the previous government. Funding of AUD 439.2 million was allocated to establish and operate 24 ATCs. The colleges were established in selected regions across Australia until the end of December 2009, and specialise in trade training. These colleges added to existing trade training which was available through public and private registered training organisations and schools. The ATC initiative is the focus of part B of Case Study 2.

Case Study Part A – A national communications project

The status of VET remains a challenge in Australia as in other OECD countries. In response, a strategic national communications project is currently underway. Its aim is to improve public perceptions of vocational education and training, particularly the traditional trades. Preliminary project consultations with stakeholders led to the conclusion that the overall business driver for the project is based on the skills needs that exist in Australia and ways of increasing the flow of people into VET.

The process of initiating/designing the innovation

In 1999 a national marketing strategy for VET – meeting market needs – was launched. Its primary focus was on attitudes, values, and behaviours of individuals and employers with regard to the broader notion of learning rather than specifically on VET. The aim was to try to create a framework for marketing VET in the wider context of lifelong learning. At the time, perceptions were that VET was relatively unknown and poorly understood and therefore had a low status. In 2003 the council of ministers endorsed a strategy for branding and promoting nationally recognised skills for work – now with a stronger focus on the labour market and economic role of VET. Ministers, however, were concerned about the potential cost implications and wanted a lower cost option. This led to a study carried out by the former Australian National Training Authority (ANTA). It had a narrow and explicit focus on repositioning the value of nationally endorsed qualifications with a number of common key messages to the key target groups across states and territories. In 2005 the work was handed over to the Commonwealth ministry (the former Department of Education, Science and Training). At that time, states, territories, and the federal government had

their own ongoing campaigns, and there was also a common growing feeling that branding strategies for VET would not in themselves solve the problems of a poor image of VET.

The use of the knowledge base

With the 2005-08 Commonwealth-State Agreement for Skilling Australia's Workforce[3] a new communication approach was developed which aimed to improve public perceptions of vocational education and training, particularly the traditional trades. This was based on the finding that some of the reasons for VET holding a low status were common negative perceptions about VET across stakeholder groups, lack of information about VET, and the lack of transparency concerning VET pathways, all of which constituted major barriers to attraction and retention in VET (Quay Connections, 2003). With the background of all previous survey work, it was decided to create a national project with participation of the Commonwealth and all state and territory governments. It quickly became clear that there was a rich research base on students and providers in the VET system but that there was a fundamental gap in the knowledge base about people who were not in the sector. In particular, little was known about their perceptions of VET and their knowledge base on VET, and if there was a link between the two and from the two to career intentions.

Implementation

The key elements in the national communication project, still not finalised, were identified as:

- Analysis of people's knowledge, attitude and career aspirations, and their interconnectedness to VET, carried out through a baseline telephone survey of a population of 9000 members of the Australian working-aged community (people aged 15-65 years). Findings from this survey were tested and discussed further with other groupings. The survey has been designed so it can be repeated over time to track developments in attitudes, perceptions, and knowledge as a result of future more targeted initiatives.

- Environmental scan of what information materials are available and the channels being used.

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[3]   *www.comlaw.gov.au/.../0/4A63FD15E3C98C60CA2570E000054E1B/$file/SkillingAust Workforce2005.pdf*

- Analysis of how VET was reported in the media over a period of 12 months from January-December 2007, also examining how higher education was covered in the media in comparison to VET in the same period.

- Identification of key audiences and development of appropriate targeted communication strategies (for example persons undertaking training for re-skilling purposes). This exercise has yet to be developed.

There is generally poor knowledge about VET and a low recognition of VET as a term and as a system – some 65% of the surveyed population knew about VET. One of the problems brought forward by one of the researchers involved in the communications project was that VET traditionally has been compared to the university sector. Again and again different stakeholders reported that VET throughout the knowledge value chain is perceived as the poor cousin, underlining the need to raise the status of VET.

While overall, the survey has shown that career advisors perceive VET quite positively it also found that the influence of parents is key but that they are more likely to steer to university or directly into the workforce without further training than towards VET. Segments of the community holding less positive attitudes to vocational education and training were those with limited exposure to trades, those who speak a language other than English at home, and those in the workforce who have no post-school qualifications.

Consultations with stakeholders prior to formal research activities, and consistent with international findings, have identified differences in terms of attitudes and willingness to engage in VET linked to company or enterprise size. Opinions and advice from stakeholders seem to suggest that Industry Skills Councils are key players in informing and engaging the employer base and targeting the different sectors. Initiatives have for example been taken in the mining sector which is currently heavily affected by skill shortages, also at higher levels, due to the technology intensity in the sector.

Monitoring and evaluation

Since the national communications project is currently being implemented, it is too early to assess what type of effects it will have in terms of repositioning VET as an attractive educational pathway into employment, although it does serve as a baseline. However, most likely the project will not in itself have a lasting impact unless accompanied by measures to raise the attractiveness of VET to target groups with quite diversified educational orientations and levels of motivation.

Lessons learned

The research shows that there is a good platform for strengthening the status of VET, in that younger people (15-19 year olds) have much more positive attitudes towards VET than 20-65 year olds. It has also provided a number of valuable lessons:

- There is a need for a more consolidated, consistent national information strategy with a set of key messages targeted to different groups of stakeholders.

- VET must be communicated from the user's perspective, rather than that of the provider. In the future, communication strategies should be developed in a community-focused manner to help consumers navigate through their options and prospects, thus increasing knowledge and understanding of the system.

- The previous national marketing strategy was very comprehensive and aspirational, and as a result it was difficult to obtain governmental engagement, as state and territory governments were concerned that raised demands would be financially unsustainable. The push was therefore that the outreach strategy should be restricted to skills and training and not to the wider notions of lifelong learning. Paradoxically, it is just this type of restriction that contributes to the low status of VET. In order to combat this, the new market research is more targeted and gives easier policy leverage with an overall line of argument based in a skills- and work-ready agenda.

In April 2008 the study was presented to and discussed with stakeholder groups as a basis for developing future communication strategies.

Case Study Part B – Training providers

Raising the status of VET is a complex process shaped by multiple factors that go far beyond how VET is communicated – not least given the complex governance structure that characterises the VET system in Australia. As the National Communications Project so far has shown, the status of VET intersects with perceived future quality of work, payment and career structures, and quality in delivery including the quality of teachers and trainers and the school leaders. Finally, but more implicitly, the status of VET, as discussed in Case Study 1, is also shaped by the quality of VET research and the broader knowledge base available concerning the role of VET in the economy and as a component of the innovation system. A rich and publicly appreciated knowledge base not only shapes public

perceptions, but also may influence perceptions about where money is best spent in terms of driving wider socio economic goals.

Attempts to address the status issue also take place within the system at the level of provision. The Australian approach has been to engage on a number of different levels and through different providers, including group training organisations and public colleges. This section looks at each of these initiatives, but focuses primarily on Australian Technical Colleges (ATCs), a controversial, Australian Government-led, structural innovation designed to raise the status of VET among young people, parents and employers. While the Technical and Further Education (TAFE) colleges are the most internationally known institutions for VET in Australia, the OECD team visited two ATCs.

The process of initiating/designing the innovation

Both federal and state government policy makers agree that it is timely to take stock and rethink policy to meet growing structural changes in the labour market. The overall government strategy over the past decade has aimed to introduce an open training market and to replace provider-driven training with a more industry-driven approach. This has led to a variation in supply and partnerships, both public and private, and also to different brokering arrangements facilitating the meeting between trainee/and or apprentice and the potential training company. One of the models mentioned by researchers as being quite innovative is the group training organisation, a type of broker service that the review team unfortunately did not have the opportunity to visit during the review. In essence the national network of over 150 group training organisations in Australia runs on a business model which links employers with apprentices and trainees with training providers. The group training organisations place apprentices with a specific company according to its particular circumstances. They take care of the paperwork for wages, allowances, workers compensation, superannuation etc., and are present throughout the period of the apprenticeship or traineeship. Group training organisations around Australia now employ over 40 000 apprentices and trainees, and over 35 000 businesses use group training for their apprentices and trainees.

This model is also innovative in that the it is responsive to small and medium enterprises (SMEs), which often do not have internal capacity to handle administrative matters around an apprentice or trainee contract – particularly in periods with skills shortages such as now. Due to their small size and/or degree of specialisation, these would not have been able to support an apprentice for the duration of their training or provide the necessary exposure to the full complement of skills needed for a

qualification. They also have a special place in thin markets such as regional and rural Australia. In other OECD countries with dual systems, different models have been implemented or are under consideration to both ensure that the work-based training component provides full exposure to a given occupation, and provide flexibility for the companies involved. This is done either by allowing specialised firms to enter a shared contract with an apprentice or through flexibility in time whereby the student is guaranteed a completion of a qualification but the individual firm is only contractually committed to engage for part of the work-based training, with options to prolong and finish the apprentice contract. In both instances it is the vocational colleges that handle all contractual brokering between companies and the student with persons in-house specially trained to function as brokers.

The use of the knowledge base

As states and territories have the primary responsibility for education and training delivery, the use of the knowledge base in the development of innovations also differs across jurisdictions. As the team only had the opportunity to meet with a few state representatives during the visit, there is limited evidence from the review on how and to which extent the different states and territories make use of a knowledge base as part of policy reform and innovation. An interesting example of knowledge management however, was provided by the State of Victoria through the On Track Project. The project includes a longitudinal survey to develop a detailed picture of their transitions over four years after leaving school, so as to give parents and the Victorian public information about the diversity of pathways young people may pursue after leaving upper secondary school. It must be noted that as mechanisms for sharing such knowledge across states and territories seem limited, it is likely that this information stays within the Victorian system.

Implementation

One of the more recent initiatives planned for review in 2009, implemented by the previous government, is the Australian Technical College (ATC) programme, which established 24 independently operated colleges in regions with identified skills shortages, a high youth population and a strong industry base. Each college was established as a registered school that could also be registered as an RTO (registered training organisation). The colleges each have quite different operational models, but each college is required to have an industry-led governing board, and there is common federal government legislation and a common funding structure.

Colleges are operated in the majority of cases as independent companies. The model for each college was developed to meet the needs of the specific regional context. Seven colleges are stand-alone operations, whereas the rest operate through various partnership arrangements. While the request for proposals occurred in 2005, the majority of colleges did not start their operations until 2007: five colleges opened in 2006, 16 opened in 2007, and three opened in 2008.

The ATC legislation[4] was proposed in a context in which the number of persons entering and completing a VET apprenticeship had been falling, in spite of multiple initiatives for over a decade to encourage more people to enter a VET pathway. The ATC programme aimed to raise the status of VET so as to meet growing skills needs in the labour market particularly affecting SMEs in the traditional trades, by implementing a specialised upper secondary infrastructure to make VET available through Australian school-based apprenticeships at the Certificate III level in conjunction with the Senior Secondary School Certificate. During the review, the team had opportunities to meet with four technical college principals and chief executive officers, members of the board, students, parents, and employers. One of the colleges operates in a sparsely populated area and has a business model through which it mainly functions as a broker for registered training provision, except for the mining industry which had in-house capacity, whereas other colleges were registered companies with training conducted in-house.

When the technical college programme was formulated by the then federal government, the tendering and operational specifications set detailed conditions for their operations. The programme was aimed at the five traditional trade sectors: automotive, building and construction, electro-technology, metal and engineering, and commercial cookery. The legislative framework[5] for the ATC initiative specifically targeted a youth cohort at the upper secondary level. The legislative basis did not in any way stipulate that the ATC college infrastructure could also be used for other vocationally oriented purposes such as workforce development. In that sense the technical colleges have from the outset focussed on their core-business, senior secondary education integrated with apprentice training, which is perhaps why they so quickly were able to become operational. On the other hand the ATCs have been very limited in entrepreneurial options, although

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[4] Australian Technical Colleges Act (Flexibility in Achieving Australia's Skills Needs) 2005.

[5] *www.comlaw.gov.au/.../0/3987E315F0E6DAC1CA25736F00103E9A/$file/AusTech ColFlexSkillsNeedsAct2005.pdf*

the institutional capacity was available and local socio-economic circumstances would have benefited from a wider approach.

The review team visited colleges in south Adelaide (South Australia) and northern Brisbane (Queensland) and had an opportunity to talk to local employers, students and trainers as well as college directors and staff. The two colleges operated as independent co-educational colleges and registered training organisations (RTO). The colleges had, like many other ATCs, refurbished existing infrastructure within a very short time in order to quickly achieve a mode of operation. The ATC in North Brisbane had 300 students enrolled in years 11 and 12, 10% of which were girls – a gender imbalance that seemed to be the same across institutions visited. The board of the college clearly showed the industry orientation of the college, with nine board members from industries representative of the five trades' focus at the college, and four others from a community and/or an entrepreneurial background.

At the outset specific enrolment targets were set by the government in consultation with local stakeholders. Although at one of the colleges visited the number of enrolment applications exceeded the places available, this has not been the case for the majority of colleges. One of several factors influencing enrolment rates is population density, with colleges in more sparsely populated regions experiencing both more difficulty in finding students and the necessity of students to travel long distances to reach the nearest ATC. The colleges the team talked to had no specific formal targets for disadvantaged groupings, but each had ways of trying to include girls, the indigenous student population, and dropouts. Students not accepted would be counselled in alternative education, training and career pathways by representatives of the ATC, and there were instances in which students not accepted in the first application round were accepted in the second.

The ATC-North Brisbane outreach strategy was very explicit about addressing parental attitudes, presenting data and research to support its operational strategy – in particular, the completion of the Queensland Certificate of Education (QCE) and impacts on retention, employment, and salary. The whole culture, not only in this college but also in the other colleges the team met with, seemed to build on a common philosophy of continuous improvement and engagement, thereby also nourishing the students' employability skills. As part of the communication strategy, the ATC-North Brisbane had also written columns to local media to inform and influence stakeholders, and the principal has been part of the executive of the National Australia Technical Colleges Association.

The ATC model enables students to obtain the Year 12 Senior Secondary School Certificate of Education in their state, providing a basis

for a pathway into tertiary education, as well as being able to commence a Certificate III apprentice pathway that includes broader employability skills by completing up to 45% of their trades' training. A central element of the quality framework was also that only persons qualified within the particular trades would be employed as trade trainers. The use of qualified trade trainers is an important signal showing that an ATC is not just a continuation of school but something different, and through the qualified trade trainers at the college the young apprentices are gradually exposed to a community of practice within the particular trade they have chosen.

One of the challenges for the colleges has been to retain the students in the two year programme until the completion of Year 12 due to the employment opportunities currently in the labour market, particularly in the mining industry. One way of tackling this has been to actively respond to industry needs by organising student timetables to enable two part-time apprenticeship students to alternate between the one employer and the school during the programme period, with the effect of providing the employer with one full-time apprentice. Although all colleges have lost students to full-time apprenticeships, this approach did seem to be effective. In North Brisbane, for example, 95% of the Year 11 cohort who commenced an apprenticeship contract in 2007 (the ATC's first year of operation) remained in training and education. This figure includes those student-apprentices who resigned from their original employer and recommenced with another employer (10%), those students who entered a full time apprenticeship (7.5%), and those who resigned and did not recommence training in any form. While nationwide apprenticeship attrition rates were around 40%, the attrition rates of some of the technical colleges were considerably lower – the ATC-North Brisbane, for example, had an attrition rate of 5.2%.

Monitoring and evaluation

The programme development and implementation has been achieved within a very short time. There was no evaluation framework for piloting and reflecting which otherwise could have guided implementation. During this period however, the former Department of Education, Science and Training, engaged three separate consultancies (conducted by RSM Bird Cameron, ACUMEN and KPMG), to undertake a general review of operations, and the programme was independently audited by the Australian National Audit Office in 2007. These reviews have guided the implementation of the programme. The overall planned outcome evaluation of the ATC programme has been postponed until 2009, as the majority of colleges (16) opened in 2007 and a further three colleges opened in 2008.

The evaluation will thus wait for a reasonable cohort of students to complete their two year period of study and part-time apprenticeship.

Without the information from a formal evaluation, we are limited in the kinds of analyses and conclusions we draw as to the effectiveness of the initiative. What we present below is thus evidence from our interviewees (opinions represented here were expressed and validated by a number of different actors in the system).

One criticism was that the initiative was elitist in the sense that, access to them is considerably restricted, with only 24 ATCs across the vast geographical space of Australia. The use of the term "elitist" can, of course, also be applied in relation to the selection policies applied by the ATCs. The two ATCs visited for the report stressed that they were over-subscribed and so selected students on the basis of their enthusiasm to pursue a VET pathway. Ironically, this selection process had the unintended result of signalling to young people, their parents and employers that the ATCs were focused on high standards and, hence, helped to raise the profile of VET more generally. Further points of critique (from both those within and outside of the system) were that the legislative restriction to the five traditional trade occupations, some of which are furthermore under structural decline, was too narrow in the conceptualisation of the ATCs and would not allow the colleges to meet changing demands from the labour market or act in an entrepreneurial manner. Some stakeholders argued that the technical colleges have been a step too far in breaking with the comprehensive system.

However there were overall some very impressive aspects observed. It was noted in our interviews that employers stated very strongly that the colleges represented a systemic change in their employer orientation that was more suited to their needs than the standard model. From an employer perspective, one example that was central to this success was the dual mode of preparation, academic and trade training, in which the students' employability skills were a central priority. Another factor was the flexible model of delivery – for example the innovative timetabling whereby students spend four weeks with their employer and then four weeks with the college. This "four by four" apprenticeship-college rotation model allows employers to have the students in company training for a longer period than the traditional one day a week model, enabling employers to more effectively integrate students into relevant work tasks. The employers interviewed all stated that the ATC programme reflected their company's skills needs and that the students were excellent, well prepared, and superior to apprentices from other programmes. Ironically, the very success of the colleges hinged on their ability to select the best applicants (and thus select *out* others). As one employer stated: "I can teach skills but I can't teach

attitude. If the school does the job of weeding out the ones without the attitude, our job is half done".

In sum, employers stated that one of the key qualities of the ATCs was the foundation skills that the students would get through the dual certification scheme. Secondly, employers appreciated the flexibility in timetabling academic studies to suit longer apprenticeship placements, so that enterprises in reality would have a full time apprentice through a job-sharing model. Finally, there was positive evaluation of the constant focus on students' work ethos and employability skills, which meant as apprentice the students would value-add from day one. We will return to these points in our "lessons learned" discussion.

During the review some stakeholders were concerned that the ATC initiative may have become politicised and caught in both issues of governance and new government priorities as the ATC programme was a federal initiative within a tradition of state governance of education and training. The current government began a consultation process on a one-to-one basis with each of the ATCs so as to explore options and models of integration of the ATCs into the overall education and training system and governance and funding models. As the consultation process had only started at the time of the study visit, the actual outcomes of the process and the policy lessons are not included in this report[6].

Lessons learned

In piloting the focus on combined school and training the ATCs have commenced operations and have come to play an interesting role as innovation facilitators. The aim of raising the status of VET through quality delivery that is tuned to industry and led by industry through a responsive and integrated monitoring and support system was taken as a challenge by the leaders of the initiative.

Positives

Some of the innovative components from the ATC initiative which merit scaling up are:

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[6] Since the time of the study visit an agreement has been reached through the Council of Australian Governments (COAG) by the Commonwealth, State and Territory governments to integrate the existing 24 ATCs into the broader education and training effort, with an emphasis on nationally recognised Certificate III trade training.

- the increased education and career opportunities for senior secondary students through the integrated model of dual qualification;

- the four week apprenticeship-college apprentice rotation model which has opened up interest among very small employer companies;

- the broad foundation senior secondary students get in the preparatory phase with a focus on employability skills and the close collaboration with parents;

- the recruitment process organised as a symbol of entry into a community of practice and the industry language that is used in the communication with stakeholders flags these programmes as special. This has raised the perceptions of VET among key constituencies (employers, parents, students), though also in a rather limited manner;

- the ATCs could constitute a base of committed change agents and could function as an interesting laboratory for systemic change, provided that ways are found to collect evidence;

- the dedication and leadership present in the colleges (at least the two we visited) combined with the strong industry involvement and industry commitment is a valuable form of human capital – the knowledge base and capacity present in the systems and individuals should be harnessed in future versions of the initiative.

Problematics

- the constricted contractual and funding frameworks for ATC operations, such as limiting them to activities within the five traditional trades, have acted as disincentives to entrepreneurial activity;

- the limited exploitation of institutional training infrastructures for other purposes such a re-training of the existing workforce;

- the focus on the five traditional trades seems to have had a negative effect with regards to creating a gender-balanced student population. As the traditional trades tend to be associated with men, the majority of the student population is male; however, broadening the trades offered with the intent of enrolling more females is only one part of redressing the gender imbalance, as it risks further entrenching the gender divide in the trades. The challenge remains of how to attract

more women into vocational trades with good employment prospects.

- It is recommended that measures be taken so as to ensure that valuable lessons learned from the implementation and first phases of operation of the ATCs can inform the current government's policy priorities to widen the scope of VET training and also improve its quality. If this should not occur there would be an imminent risk that tacit knowledge of the value to the wider VET system may be lost as the ATC initiative is merged into the wider VET infrastructure.

3.3. Case Study 3: Australian Flexible Learning Framework

Background

The Australian Flexible Learning Framework aims to develop a national e-learning infrastructure and delivery for VET. In doing so it aims to maximise national connectivity between all participants in the VET sector, develop greater choice and flexibility in both the range of training and models of delivery available, and increase cost effectiveness by developing a united strategy (and thus avoiding duplication between states and territories). The Flexible Learning Advisory Group (FLAG) oversees the implementation of the Framework on behalf of the national training system.

The framework, which began officially in 2000, is a collective agreement on priorities supported with contributions from each state and territory. The first phase of the framework ran from 2000-2004 and focussed on investing in capacity building (content, skills, and technology infrastructure) and raising awareness of e-learning in VET. The second phase of the framework ran from 2005-2007 and, in addition to continuing to build capacity also focused on client engagement, including initiatives to further engage industry, the indigenous community, and to pilot the use of new technologies or new practices. The third phase of the framework is planned to run from 2008-2011 and will focus on mainstreaming and integrating e-learning across the VET system in different learning configurations (distance learning, blended learning, class-room individual assignment) by embedding current practice and provision.

Importance in the context of the national VET policy

The Australian VET market is a competitive space geared to industry and employer needs, one which caters to the existing re-skilling or further skilling of the current work force. As 90% of VET learners are part time, at

the inception of the framework there was a need to better target training to the needs of working learners. This included high quality training that delivered in an open manner, with flexible hours, content, and location of the training all priorities for the learners. The rise of information communications technologies (ICTs) created unprecedented opportunity for flexible delivery (location and timing of lessons) as well as learning content that can be adapted and reused so as to target particular learner communities.

As such, e-learning was perceived as beneficial for both students and training providers. This was particularly the case in the Australian context of large distances between urban areas, the difficulty of training/studying in remote areas, and the economic and social imperative of reducing the urban/rural divide. The greater flexibility of training provision also allowed for targeted content that could be used to increase access and relevance for underrepresented groups (*e.g.* rural, indigenous, disadvantaged).

The decentralised governance of VET in Australia also marks this, a national initiative, as somewhat unusual in that collaboration of all states and territories on centralised projects is at times difficult to broker. The increased cost effectiveness and facility in knowledge transfer that come out of national initiatives is often off-set by the need for autonomy and local state/provider control over the system. In an emerging area such as e-learning in VET, the temptation would often be to resist joining forces until each state had a sense of what their priorities and plans were, yet at the same time cooperation among the states is particularly important to the smaller states (*e.g.* South Australia), as it gives them access to funding and capacity they would not normally have.

And lastly, Australia is a major exporter of education and training in international markets, as well as a major host country for international VET students. In this context the importance of building the commercial capacity of the VET system to access international markets as well as promoting the development of Australian content and delivery are essential components to the branding and marketing of Australian VET. Its global location beside key e-learning pioneers such as South Korea and other Asian nations also increase the need for development and growth in this area.

The process of initiating/designing the innovation

The groundwork for the Australian Flexible Learning Framework was established in a collaborative framework workshop in February 1998, where representatives of the various jurisdictions met to discuss the common goal of creating a national e-learning infrastructure. In the context of the complicated governance structure of VET in Australia, the framework's

underpinning principle was to maximise national cooperation while continuing to recognise state/territory and provider autonomy. The goals of the partnership were to increase accountability and cost effectiveness of the initiative, maximise synergies between and amongst the different jurisdictions, and increase the sustainability of the initiative by rolling it out nation-wide.

At the workshop in February 1998 jurisdictions agreed to contribute a percentage of their annual capital allocation (for a combined total of 15 million AUD per annum) towards supporting the uptake of e-learning across the VET sector. As this was system-wide change, there was an important consultation in the design and development stages with a wide variety of stakeholders, including representatives of government, public and private providers, industry, businesses, community groups, teachers/trainers and students.

At the early stages of development, capacity building and designing was nationally focused and did not, for example, look abroad for other examples of good practice. Instead, the emphasis was on investing in common standards, the development of resources, and the development of teachers. In the early stages of designing the framework there was some resistance from the partners, an issue which will be explored in more detail in the section on Implementation (below).

The use of the knowledge base

The development of the framework came out of a series of attempts in the 1990's to tackle technology and learning in VET. The first step was a taskforce established to provide advice to the Australian National Training Authority Board on how to proceed at the national level to make training more flexible and client centred. The report (ANTA, 1996) considered "flexible delivery" more broadly than simply technology, but issued many of the same recommendations and provided the basis for the establishment of the Flexible Learning Advisory Group (FLAG) in late 1996.

Subsequently the framework itself was developed as a co-ordinated national response from the VET sector (ANTA, 2001) to a 1998 report (NOIE – National Office for the Information Economy, 1998). The development of the framework recognised that collaboration of the Australian Government and state and territory governments for a national approach was required to a) support accelerated uptake of flexible learning modes; and b) position Australian vocational education and training as a world leader in applying new technologies to vocational education products and services.

In both the design and implementation of the framework there has been extensive use of tacit and informal knowledge of stakeholders of all levels. Current developments include the use of reviewers from industry, education, students, trainers and teachers, as well as multimedia program and platform developers. In addition, there has been the use of formal knowledge in the creation of the reports referenced above, the current evaluation and development of the framework, and through intentional capacity building through funding research and innovation initiatives in this area. A particular strength of the framework is the attention paid to identifying and supporting individual leaders and champions who can be used as effective sources for knowledge transfer, raising awareness, and aiding implementation at the field level (see also "Implementation" section, below).

One exception to this general thorough use of the knowledge base is that in the early design and development stages they did not look to international research for examples of good practice or academic research that might support their planning. This has now been rectified.

Implementation

As the framework is both a process and a support for a number of different concrete initiatives, the implementation issues involved are quite broad. This section will look first at facilitators and barriers to the implementation of the overall framework, and then look more concretely at two particular initiatives developed within the framework: the Flexible Learning Toolboxes and the Learning Object Repository Network.

Facilitators

One commonly cited facilitator to the work of the framework was the role of the early adopters – those individuals who, for personal and/or professional reasons, acted as leaders in the use of e-learning in VET training. This includes practitioners as well as policy makers and representatives from industry and other sectors. On a practitioner level, these adopters could initially be found in pockets within TAFE institutes, and were generally individual teachers who liked new technologies, and who were interested in the potentials of renewing their teaching practices through ICTs. From these early adopters it took roughly five years before they tackled mainstreaming. Interestingly, the characteristics of the VET sector (*e.g.* high percentage of part-time learners) and its connection to work and industry helped in mainstreaming the innovation, as there was more pressure to take learning to where it was needed through flexible delivery and content. As part of mainstreaming, the first foci were business, community

services and health, local governments, and the IT area. In addition, traineeships also allowed workplaces to embrace technology along with their new students.

Another component worthy of note in this case study was the understanding that system-wide change needs to be supported by leaders and champions of innovation who are in a position to make change. This was capitalised on by the deliberate identification and encouragement of leaders and champions of the process in all phases of the framework. In 2000-2004, for example, the Flexible Learning Leaders programme was designed to identify potential leaders in technology, pedagogy, and innovation in a position to influence change within their own institution and at a state level. These leaders were awarded fellowships to do research and planning, including, for example, overseas work or presentations to build their knowledge base if they so chose. The programme funded a person in every state and territory to visit individual institutions and speak with the stakeholders there, and had an enormous impact. The third phase of the project (2008-2011) also has a Leadership Programme built in, as well as a research proposal to evaluate the impact of the champions' initiative.

These initiatives bear emphasizing as in contemporary theory on knowledge management as a means of carrying innovation, there are generally two models proposed: one is the creation of networks in order to build knowledge, while the other is pushing elite users as champions. The framework uses both models concurrently, and to seeming good advantage, and furthermore with an interesting coupling of practitioners and policymakers. Part of the success of this must be credited to the deliberate involvement of a broad set of stakeholders in setting standards and designing the framework, such that it represents the cutting edge in technology, the economic requirements of the industry and employers, and the pedagogical needs of teachers. In addition, however, the deliberate creation of a medium-term financial framework (which allowed longer term planning and gradual development and capacity building of both infrastructure and stakeholder development) was crucial in allowing for the appropriate development and design of the project.

Other facilitators to the general process of the framework include the 2006 agreement on common standards for e-standards, guidelines for the application of standards, and also guidelines for implementation in general. The goal of these standards was to avoid reinventing the wheel for each jurisdiction (and, given the autonomy of the system as a whole, possibly each provider). The implementation guidelines are particularly interesting to this analysis as they are designed to help practitioners navigate the barriers to using the tools on local networks or within institutions, one of the most neglected areas of project planning and implementation. An example of this

kind of guidance are suggestions for how to use the tools in institutions with firewalls preventing easy access to the internet, and concrete suggestions on how to a) safely adapt the firewalls and/or b) use sites that can be accessed which will not conflict with the firewalls. It is a refreshing example of project design capitalising on good faith rather than setting up developers/users as opponents.

Barriers

One of the key challenges in the implementation of the framework was to assess the connectivity and capacity of within the delivery system available when the project was launched. As such, one of the first activities of Phase One was a mapping of accessibility and infrastructure regulation. This was done, although one stumbling block was that changes to the basic capacity of the system were not under the remit of the various education ministries involved, but rather was and is the responsibility of the Department of Broadband, Communications and the Digital Economy. As such, the governments had already locked in to provider arrangements and there was little that could be done to influence them.

This is still an ongoing concern, while metropolitan and some remote areas have excellent access (including indigenous communities who might have access to satellite), rural individuals are not as well served (or possibly not served at all). This is in fact a major current priority for the government, with AUD 4.7 billion now being invested for broadband nodes.

An additional challenge in the initial stages was that of pedagogical quality. When the first tenders for content were launched, the responses came primarily from multimedia producers each with their own versions of content management systems and authoring systems, which posed a number of problems in the actual use and redesign of materials. Given this experience, the steering committee later decided that a training organisation had to be the lead of a development project, but that multimedia providers could be a partner.

Another key aspect of the successful implementation of the first phase of the framework was the removal of various policy and legislative barriers. This includes both state restrictions and regulations as well as broader legislative barriers. An example of the latter was a new legislation on copyright, which was introduced as part of the free trade agreement. They had to introduce an amendment to this legislation for digital resources, as in the original formulation training funding was based on student contact hours and thus would have essentially made e-learning (and teaching) illegal in Australia.

Other barriers to successful implementation are the types of resistance expressed by the stakeholders. As might be expected, one restrictor in this sense was the process of day to day governance in general, in that while it is all very well to have common agreements for national frameworks, the systems operate quite differently and there is a real spectrum of difference in policy and practice within this general framework. One variable that differed across the states was the level of resistance from the teacher unions themselves, which seemed to be a function of the relationship between state and union in general. This was noted as still a live issue, and one not restricted to the Australian context: how does one translate a diverse and flexible paradigm of learning into a relatively rigid and old fashioned education system?

Concrete developments of the framework

Due to space limitations we will focus on only two concrete initiatives from the framework: Flexible Learning Toolboxes and the Learning Object Repository Network (LORN). Originally developed in 2000-2001 and continuously refined to the present day, Flexible Learning Toolboxes (toolboxes) are e-learning products that support training for accredited qualifications. At the time of the review team visit there were 115 toolboxes which could be used to support 950 units of competency and 180 qualifications. As these numbers imply, the toolboxes provide flexibility of application in that the tool is not necessarily only used in area for which it's developed (*e.g.* the retail toolbox is also used for business planning).

A key strength of the toolboxes is that they provide national learning content through which all states and territories have access to the same quality materials. They also model effective learning designs and provide a test bed for research on learning and technical issues. The development of the toolboxes is overseen by a national team which ensures that educational standards are met and that testing and design are appropriate. Importantly, this is done with the input of Industry Skills Councils, which recommend priority areas for development, comment on proposals, and review products. The design and development of toolboxes themselves is done by registered training organisations (RTOs) who must tender their proposals and generally require an assembled consortia of stakeholders with relevant expertise (*e.g.* in content, learning design and multimedia development). The quality assurance for toolboxes is thus done through feedback and assessment from all stakeholders involved in the design, development, and implementation process.

In addition, there are two elements of toolboxes that deliberately build capacity in the system: toolbox champions, who are individuals in every

state and territory funded full-time to run workshops for providers and teachers on how to learn how to customise content; and e-learning mentors, who provide a link to higher education research and feed this into the development, design, and review stages of the toolboxes. These initiatives are good examples of effective knowledge management techniques, both in the sense of ensuring that research knowledge is used to guide the development of the system and in the sense that local knowledge of the mentors is used to raise awareness and provide education and technical support to new users.

The toolboxes have been quite successful, with reported use in almost 100% of TAFEs and an ever-growing number of toolboxes available through either CD-ROM or as part of a more recent spin-off from the framework, the Learning Object Repository Networks (LORN). Learning object repositories are housed in TAFEs or centres within states, and serve as a way to formally share and transfer knowledge across state systems. The repositories are populated with training resource materials or "learning objects", which are developed or published by the repository owner. For example the toolbox repository has 90 toolboxes, and comprises some 1 000 learning objects. The various repositories are linked through a federated search facility called the Learning Object Repository Network. The system is client-oriented in that teachers can search Australia-wide from their own computer and can use criteria relevant to the training system (*e.g.* industry, Australian Qualifications Framework level, competency) in order to find the appropriate learning objects. They also allow users to modify or adapt the learning object and can establish a share and return copyright such that this also drives the system standard for content development.

Monitoring

As previously mentioned, the deliberate creation of a medium-term financial framework that allowed longer term planning, gradual development, and capacity building of both infrastructure and stakeholder development was crucial in the appropriate development and design of the project. This included time for piloting of initiatives, time for developing a monitoring and evaluation framework, and time to reflect on on-going monitoring results and feed them back into the system. Overall, the constant iterative process of review, concurrent piloting and testing, and the use of small scale leading edge projects before the scaling up of initiatives seemed a successful and positive monitoring framework.

The incremental development as a result of this timeframe was crucial, as the country simply could not have made wholesale exponential change given the infrastructure and system capacity. As one interviewee remarked:

"It's 15 million dollars a year over 7 years, but even if they had gotten the whole amount up front they wouldn't have been able to spend it – we needed to build infrastructure and the capacity of the system in order to keep the investment moving and developing".

An example of iterative assessment and incremental improvement is provided through the use of action-based learning to train trainers. This initiative uses co-facilitators to increase the capacity of teachers and trainings, and also to develop networks locally and across states. It is an intentionally iterative exercise that is improved each time and uses the reflections of those who take part in the process to refine the next version. This is another example of capacity building within the stakeholders which seems to have been very effective both in its intended function and as a way to increase ownership (and likely reduce resistance to adoption) among field level stakeholders.

Evaluation

The framework and its various components have a complicated and relatively intense monitoring and evaluation design, overseen by an advisory board (on which sit both representatives of NCVER and academic researchers) and the Flexible Learning Advisory Group. FLAG also has a research budget and commissions research on new and emerging practices in e-learning through its New Practices for Flexible Learning programme. In addition, it conducts internal and external reviews of operations and impact. The framework is also required to develop a yearly business plan and provide twice-yearly progress reports on both the business plan and the activities of the framework. The main evaluation initiatives include:

- An annual benchmarking survey (in 2005, 2006, 2007) on the uptake and use of e-learning by VET providers, teachers and trainers, students, and employers (this survey occurs every two years). The surveys capture information on the use of e-learning in all TAFE institutes, private and enterprise training providers, adult and community education providers, and VET in schools providers. The 2007 survey showed that the use of technology in VET has quadrupled in the three years since the first (2005) survey, and now comprises 29% of VET activity (broadly defined, and includes computer-based learning, online course activities, use of internet, mobile or voice technologies, and online enrolment and assessment). The survey also provides information on how technology is used by teachers and trainers, how it is perceived by students and employers, and allows for comparisons by state and territory.

- An impact statement that uses the results of the benchmarking surveys along with qualitative data on impact and snapshots of practice, as well as an analysis of financial benefits.

Future commissioned research will look at the impact of champions, the spread of e-learning, e-learning and employability skills, the role of e-learning in basic skill formation, and provide advice on copyright issues.

Overall, the review team was struck by the care and attention paid to monitoring and evaluation, and we were particularly impressed with the use of evaluative results to continually refine and guide the development of the projects. However, the research that we have seen does not actually tell us how effective it's been, for whom, and why (or why not). The 2007 Benchmarking Survey does have self-reported ratings on whether e-learning has improved actual or expected employment outcomes, but this is not correlated with independent measures (of pre and post employment options, for example, or comparisons with non-user groups). The planning for 2008-2011 benchmarking surveys seems to include measurement of learning outcomes and perceptions of learning outcomes as a function of e-learning, but we did not have enough information to evaluate whether these would be assessed using independent criteria (other than self-report, and/or in comparison to non-users' learning outcomes).

In addition, the impact statements provide descriptive data on users and adoption, but no data on non-users and non-adopters, and no information on whether the use or non-use of these tools is correlated to learning outcomes or job preparation. We also did not see clear targets to reaching particular populations in equity issues, nor did we see an assessment of whether these goals have been achieved. We did note the attention paid to indigenous issues and the efforts made to include them, but less was said about remote and rural needs. Also, with the exception of the hairdressing toolbox and related learning objects, there was little evidence of the inclusion of women/girls in visuals and design, and would be very interested to see more work on these areas.

Lessons learned

There were a number of lessons learned in the development and implementation of the framework. Some of the general lessons and ongoing obstacles to the project as reported to the review team are given here for reflection. Lessons learned include:

- The need to communicate to decision makers in understandable terms what is essentially very technical information, and the need to focus on benefits and the variations in learning environments and

learning requirements and what it will bring rather than the technology itself.

- The importance of keeping the focus on learning in addition to meeting industry needs. The move from open development to the requirement that only RTOs can apply for tender for toolboxes (*i.e.* they can be partnered with industry but the focus must be on learning) has been essential for ensuring quality control.

- The crucial role of a champion of the process and the need for cultural sensitivity in order to successfully reach out to diverse groups. This includes providing assistance with applications, for example, or being able to react to unexpected outcomes (*e.g.* the emergence of new community leaders that reshape the aboriginal social hierarchy, or the pressure that comes with success).

- The opportunities offered for innovations in the existing training packages framework for delivery of training due to the deconstruction of learning resources into object, which can subsequently be recombined (for example to meet needs that cut across occupations).

Ongoing challenges for the future development and success of the project include:

- Building the capacity to interconnect learning infrastructure with the global IT structure. This means more than skills forecasting and is difficult to do when the system is driven primarily by industry needs, as it obscures the need to take risks and go outside of box (including introducing funding levers for these activities).

- The need to understand what technological and social learning means for formal learning (*i.e.* the recognition of skills rather than simply formalised skill creation).

- The ongoing obstacles to the use of open resources, as currently intellectual property right and content are being sold at inflated prices. In an open source globalised world, there is a need for a new understanding of how to fund product development in order to maximise innovation and creativity without a trade-off for accessibility. In that context the OECD/CERI study on open source digital material, and the underlying business models could be of potential value to the FLAG initiative.

Overall, the review team was quite impressed with the Australian Flexible Learning Framework. It was perceived as innovative in its open architecture (designed to be modified over time with new technological

developments as well as new developments and the co-creation of learning objects). It also seemed innovative in that LORN's learning objects were developed with educational objectives in mind but have transcended the original intent and now are used for a variety of activities including community building in aboriginal centres, health information, civil society issues, etc. Also, it seems clear that this is a functional way to share and transfer knowledge across state systems in a federalised system and that the framework has created a repository of knowledge that can be used for both social and economic purposes. And last, but certainly not least, the framework is evidence that it is possible to have successful nation-wide collaborations with all jurisdictions involved.

However, we also had a few critiques. Although overall quite impressive, the model, tools, and technology are stuck in the present in that the focus on skills needs, industry demand, and the current technology framework do not permit them to really chase up innovative projects (*e.g.* emerging technologies and job areas/skill sets). There appeared to be little room for medium or long-term projections, and little room for user side orientation (*i.e.* a proactive approach rather than a supply-side reactive approach).

In addition to this, it struck us that there was too heavy a reliance on government funds for the operation of the individual projects. This is not a negative per se, but rather a concern in that it makes the framework and its projects vulnerable to time and changing policy priorities. As this particular case study has room to generate income by being more entrepreneurial in its approach (*e.g.* the LORN system could be sold to other countries, there are royalty and licensing possibilities that are currently exploited for training packages but not elsewhere, etc.), we would recommend that this option be explored in the next phase of the project.

4. Overall conclusions

The Australian VET system is actively engaged in developing and shaping its innovative capacity. We were pleased to see clear examples of systemic innovation, including an emphasis on evaluation and knowledge management. The four main themes that come out of the analysis of the case studies are: a) the drivers of change in the system, b) facilitators of innovation, c) possible barriers to innovation, and d) the weak evaluation culture. This section will discuss each of these in turn.

4.1. Drivers of change

During the past decade, policies have encouraged a more responsive and market-driven VET system through competition and contestable funding arrangements for particular purposes and programmes. These strategies have taken the Australian VET system markedly forward in creating a more diversified and responsive VET training market.

However, stakeholders reported that these strategies have also had their limitations. Most important of these is that providers focus much of their attention on: 1) meeting imminent and 'just-in-time' needs of employers; and/or 2) those sectors and enterprises that have the internal capacity to formulate their needs with regard to training and human resource development. This can result in training provision that is reactive rather than proactive in meeting emerging skills and workforce needs, and enterprises with less internal capacity (both SMEs and larger businesses/sectors that do not have strong lobbies) not having their needs met.

One clear reason for this is that outreach investments to companies where training is not a strategic priority would simply be too costly for individual institutions, and the time scale for return on investment – whether for workforce development or apprentice training – far too long and uncertain. Policies and incentives have not been in place to enable the system to respond early enough and with sufficient scale to emerging skills demands. An example can be found in the mining industry, which is now suffering from major skills shortages that were neither foreseen nor predicted. As a result, there was no possibility of a sufficient and timely proactive response by the education and training institutions.

In addition, this approach has required providers to learn how to adapt to short-term funding arrangements potentially reducing their focus on medium-term demands and what this could imply in terms of institutional innovation in outreach and delivery mechanisms. The accountability measures in place and the lack of an evidence-based and knowledge management culture could furthermore aggravate the institutional innovation capability to begin to uncover and target the demands on the VET system for tomorrow.

In Australia there is a complex and varied landscape of VET provision that, while offering choice, appears to be difficult to navigate. This complexity might be one of the reasons that VET is perceived as the poor cousin among some potential user groups and why university education, which appears as a much more transparent pathway or "brand", is favoured. Though the qualification framework formally speaking allows for transition to tertiary professional education, there is limited data on the transitions

from VET and thus the extent to which VET in reality functions as a pathway into tertiary education.

A concurrent theme in the debate with policymakers has been a growing demand for innovation in VET to make the system more responsive to uncertain and long-term structural changes in the economy. Another side to the coin of a systemic call responsiveness could be that the Australian VET system is overburdened with expectations in relation to a broader socio-economic agenda of innovation, which is likely to require a number of complementary policy measures in order to succeed. Issues of gendering in ATC provision, lack of public maternity policies, and thus potential underutilisation of female talent is just one example of a potential disconnect in policy realms.

One of the key questions arising from the review which should be fundamentally examined is: Does current policy thinking of the success criteria for VET disrupt the systems' ability to foster innovation? If VET is to lead to stronger capacities for innovation, the system itself needs to become more innovative, risk- and development-oriented.

Questions which may be posed are:

- whether predominant success criteria for VET systems are sufficiently geared to systemic innovation;

- whether predominant thinking and system success criteria are sufficiently supportive of a culture of creativity, and allow for systemic learning from failure (Shapiro, 2007).

Systemic transformation of professional and institutional norms in VET is not likely to occur spontaneously, but will instead require supportive policy framework conditions and impetus while at the same time engaging practitioners and researchers so as to build a rich evidence base on which policies can be shaped. In this respect the VET knowledge ecology in Australia still has a road to travel.

4.2. Facilitators of innovation

In research conducted by NCVER and in the international literature on systemic innovation in VET, there are numerous examples of structures that potentially may **facilitate** systemic innovation, including: partnerships (particularly partnerships that build on complementarity); networks (loosely coupled as well as more formalised); knowledge brokering organisations; and institutional champions and thought leaders. During the review visit, there were plenty of examples of such enabling structures having grown out

of local social capital and a commonly perceived sense of urgency, or as a result of a particular funding arrangement for a defined period of time.

Three examples were highlighted. First, the Local Learning Employer Networks of the State of Victoria (LLENs) were regarded as a bottom-up innovation, linking the world of work and the world of education and training by exposing young people to occupations they would most likely otherwise never have thought of – and getting the local employer base to commit to a learning agenda through a common shared responsibility for local young people. Second, group training organisations were felt to have encouraged the growth and sustainability of apprenticeships in the key trades, particularly in the small- and medium-sized employer base. Third, the Australian Technical Colleges (ATCs), though small in scale, can be seen as an example of innovation in the outreach and delivery of VET. As discussed in Case Study 2, however, these colleges were seen by some stakeholders as a costly and controversial intervention by the previous government to by-pass the states' role in organising VET provision. Although formal evaluations have been delayed until 2009, it was clear from our meetings with employers, parents, students, and college personnel and board members that the colleges (at least the two visited by the team) are providing a valuable service in their areas.

However despite these examples, when asked to cite specifics of innovative initiatives and practices, participants would cite highly localised examples, often in an anecdotal manner. They stressed that there was no published evaluation evidence or even descriptive information about these initiatives. Much of this activity was ad-hoc in the sense that it was funded on a short-term basis, with few or no instruments built in to the funding mechanisms to evaluate, generate learning, and support knowledge transfer across jurisdictions. One inherent risk in this short term focus is that stakeholders and innovative thinkers have to spend their resources in orienting themselves to shifting policy agendas and do not have the time or support to appreciate and exploit results from previous initiatives, thus cutting the feedback loop essential for knowledge management and innovative processes. For further discussion, see also "Weak evaluation culture" below.

4.3. Barriers to innovation

At this stage there seem to be multiple **barriers** to systemic innovation, some tied to the ideology of competition, as discussed previously, some embedded within the system design itself, and some linked to the particular traditions for implementing reform agendas. Overall, we observed a strong focus on filling short-term skills gaps (in mining, for example) rather than

supporting longer term planning. The newly conceived Skills Australia is carrying a heavy load of expectations for innovation, emerging skills and occupations and links to labour market forecasting, but as they had just named their board during the time of our visit and had not yet set out their priorities or work plan, it was unclear whether these expectations were reasonable.

There were several factors that were cited as hindering longer term commitment to innovation, including:

- the difficulty of risk taking in a compliance and audit culture framework;

- the timing of policy making cycles and the complicated governance balance of commonwealth/states and territories;

- the symbolic role of rapid decision-making for political purposes and resulting danger of innovation fatigue (that is, a perception of ever-changing initiatives with little follow through). This fatigue can be experienced by all stakeholders, both within and outside the political process, and it particularly harmful to innovative initiatives.

The competitiveness agenda (competition between states included) that has characterised reforms in the VET sector for the last decade or so has been accompanied by a strong culture of accountability. However this focus on accountability leaves little room for risk taking or failure. In the literature on systemic innovation, risk-taking is identified as a crucial factor in driving breakthrough innovations. Although we saw some examples of support for riskier ventures (*e.g.* the open category of funding for blue skies research at NCVER), these were very much an exception to a carefully audited and accountable system.

In addition, the short policy cycle from idea to implementation required by accountability and competitiveness is likely to impede the use of pilots from which to learn and the use of evaluation as a measure for policy learning and evidence-based policy making. The recent federal ATC programme is a prime example of this. In our interviews, stakeholders argued that the ATC programme has been locally successful as well as important in raising the status of VET. However decisions about the ATC programme are likely to be taken before any system evaluation has occurred. Successful innovation cycles involve the constant use of feedback from monitoring and evaluation in order to shape the development of new projects – in short, there is a need to learn from what has been done. To cut the feedback loop or omit the evaluation step is to potentially miss useful lessons on how best to further develop the system.

Cutting the feedback loop is not only an example of poor use of monitoring in policy decisions, but is also linked to the risk of innovation fatigue. In a context where innovation development and implementation decisions are perceived as potentially political, and where doing a good job or successful reaching of targets is not necessarily translated into renewed funding or support, there is a grave risk of stakeholders of all levels losing their incentives or eagerness to be leaders of innovation.

Another type of barrier to innovation is embedded in the current curriculum framework. The training packages have played a central role in promoting transparency in qualifications, thereby also furthering mobility and portability of skills and as a means to promote quality on a system-wide basis. However while the training packages are still very useful in the mature occupation sectors that do not undergo rapid change, they may in fact be inappropriate for emerging new sectors or sectors undergoing conversion. The experiences from the FLAG framework of breaking up training packages into learning objects, for example, could provide a solid knowledge base for defining new curricula models better suited to emerging occupations and sectors.

The dominance of the training packages continues to guide much of the activity and behaviour of the VET system. In order to respond to the current pressure for more skills in the labour market, there are ongoing debates about how and in which ways programmes may be accelerated or shortened. One obvious way is to include the recognition of informal and non-formal learning as a system feature across different forms of VET provision as a means of program acceleration. The risk of shortening program structures is that resulting qualifications may suffice for immediate labour market needs, but may not ensure sufficient transferable skills for medium-term employability and mobility. Across dual systems in the OECD countries there are numerous examples of how systems are trying to bring in greater flexibility, measures on which Australia could draw in this instance.

Another barrier to innovation in VET is the rapidly ageing workforce of trainers and the current fragmentation of requirements and working conditions for trainers. A lack of skilled trainers and new training recruits is a serious problem both for quality provision and the overall status of VET. Given the fundamental importance of VET teachers and trainers for the Australian economy, there needs to be an emphasis on attracting skilled and competent individuals to the field. This includes an emphasis on trainers with backgrounds from industry as well as traditional education, and requires constant commitment to raising pedagogical standards and ensuring relevant and up-to-date occupational knowledge and skills.

An additional restrictor of innovation in the system is the conceptual separation of VET from the world of work. This conceptual distinction has concrete practical implications in that VET providers, policy makers, and practitioners are not linking to broader technology and economic policies. We did not, for example, see any links to emerging occupations or skills. Overall, the system can be characterised as *reactively* innovative, rather than *proactively* innovative.

4.4. Weak evaluation culture

Overall, it seemed that commitment to innovation was negatively affected by a weak evaluation culture in VET in Australia. Despite the impressive work of NCVER there appeared to be no framework to learn from national or state initiatives, few feedback loops into system to guide and inform innovation projects and strategies (and in particular, no systematic analyses); and no strategy for creating an evidence base of innovative practice to raise visibility within the system. As such there is no robust body of evidence of what works, in which context and circumstances, and for which target groups, simply because there is no systematic tracking. There is also therefore no knowledge about potential downstream effects.

Although this is of course related to the complicated governance structure and geography of Australia, it was surprising that in system that explicitly focuses on the importance of research and evaluation there appeared to be few explicit strategies for optimising the transfer of knowledge. In fact, one main method appeared to be "people moving from one desk to another" (*i.e.*, changing positions between state governments and to and from the Commonwealth). However, it must be noted that initiatives such as the Australian Flexible Learning Framework (and in particular, LORN) do not suffer from these problems in that knowledge transfer and building synergies is one of the main goals of their design.

Returning to the concept of the training packages as an example, stakeholders cited localised examples of researchers, providers and employers working together to design new programmes to meet the changing skill needs of certain industries (*e.g.* horse racing and dairy farming). However there was little evidence that the new methodologies being applied in these initiatives were used in a more systemic way, and little evidence that they were published or otherwise disseminated beyond the local context.

In addition, and as already discussed, various political imperatives contributed to both a compressed time frame for the development of projects, and, in the case of the ATCs, decisions being made before the evaluation was conducted. Although political reality often requires some

bending of ideal research methods and strategies, it is important not to compromise the quality assurance built into the system. At the very least, a sustainable innovation policy should be based on the evaluation of the outcomes and impact of earlier projects or programmes. Without the integration of a sustainability dimension the risk of innovation fatigue increases with the number of new projects. Of course, the recent change in government is exceptional in some ways and thus has placed exceptional demands on the system – but it cannot be forgotten that while change can play a positive role in ensuring dyamism in the system, it must be carefully balanced to avoid falling into the trap of innovation for the sake of innovation.

It must also be mentioned that there was also concern about the low status of VET research and researchers. The statistics work of NCVER was cited as important in improving the standing and quality of the data available, and essential for a rigorous analysis of the system. Despite this, however, there was a perception that the research community writ large was not producing the kind of work that would support innovation with a longer-term vision. In their own words they have "good small-scale short term research, often qualitative in nature, and long-term heavy stats hitters, but (we're) missing the middle ground". This was attributed in part to the expertise present within the research community (and which NCVER is attempting to broaden) but also to the kind of grants that are available to researchers.

Another aspect of this low status was the self-defined link within the VET research community to education rather than jobs, which could also have an impact on status and perception of the research and researchers. This maps on to the discussion of the conceptual separation of VET from the world of work and the resulting ghettoisation of the domain. Again, NCVER is deliberately attempting to address this with their work and recruitment of labour economics researchers, but it is worth noting as a transversal theme in the discussion, particularly given the drive to raise the status of VET in Australia.

Another approach to addressing this comes from the University of Melbourne, with interesting examples of more qualitative futures-oriented research on the changing nature of work and occupation structures. In Europe, the European Commission has for some time played a role in spurring the awareness of and the need for innovations in occupational forecasting methods in order to earlier be able to identify drivers of change affecting the qualification base across traditional sectors. FrequenzNet in Germany – a loosely coupled network of researchers and industry peak bodies – has for a while undertaken this type of research. In Denmark the government has as a result of the Danish Globalisation Council initiated a

two year initiative in order to build capacity among the industry trade bodies to undertake forward-looking cross sector analysis to inform policy planning in VET, while at the same time as a number of pilots are being launched to build capacity among researchers and the trade organisations.

5. Recommendations

There is a growing common perception that there is a shared window of opportunity for the Commonwealth, states and territories to address in a coherent and robust manner the fundamental challenges that confront the Australian VET system. However there is an imminent risk that this discussion might take place in isolation, disconnected from other policy realms, rather than being integrated within a broader view of the knowledge system and knowledge infrastructures and the role the VET system could play within a broader innovation agenda. *It is recommended that the experiences and voices of other sectors invested in innovation (e.g. health, science and technology, industry, etc.) be integrated into the reshaping of VET and its commitment to innovation.*

Following from the barriers to innovation presented earlier in the Conclusion, there is a need for political leadership in terms of creating an appropriate and supportive climate for innovation in the VET system. Given the window of opportunity presented by the similar complexion of all governing parties, we argue that the time is right to demonstrate this leadership and consensus building in the collaborative model. *In particular, it is recommended that there be an emphasis on creating the climate to foster:*

- *an understanding of the process required for the development, implementation, and evaluation of innovations, and the political leadership to support the necessary processes and time required for innovations to yield results; and*

- *adjustment of the public management paradigm to allow room for risk-taking without being penalised for possible failure. This includes innovation of programmes and services, processes, and outputs.*

In addition to these broad recommendations for the system as a whole, there are specific recommendations to be made based on the analyses presented in this report. One relates to the quality and development of the training workforce, as there seem to have been few systemic attempts to tackle the specific challenges of the education and training of vocational teachers and trainers. In view of their importance through their direct and

indirect influence in the development of skills in the economy, and in view of changing and rapidly increasing demands that they have to address, a systemic approach to recruiting, training, and retaining the VET workforce is an essential component in raising the status of VET. This is especially pressing given the rapidly ageing workforce of trainers. Two scenarios for accomplishing this could be envisaged:

1. Taking major steps towards the further professional development of teachers to improve the quality of VET.

2. Allowing much more flexibility in teacher and trainer recruitment policies and practices. This reflects the difficult compromise between acknowledging the need for quality in VET while at the same time having to struggle with the scaling of VET and an ageing VET workforce.

One of the ways to mediate the two approaches could be by introducing mandatory requirements for continuous professional development. Such a model could also include short period funded work placements which could also stimulate industry collaboration in the development of curriculum and apprentice pathways. Another but more costly option would be to develop post-training initiatives for both teachers and school leaders in areas central to their practice, and finding ways to stimulate their uptake of training through salary incentives.

Other ways of generating learning and raising motivation and quality in the system could be to engage more practitioners in practice-based research, a model of research and practice development which seems underdeveloped in the Australian context. Support to communities of practice and the use of practice-oriented R&D were both central elements in the Danish Systemic VET reform of 2000. Despite the complexity of the reform process, both components were perceived by practitioners and policy makers as being central to developing and sustaining a change capacity supportive of pedagogical and organisational innovations (CEDEFOP, 2003). Finally, another way forward could also be to analyse contractual conditions more in depth, including variations in contractual frameworks and qualification requirements between the private and the public VET training sector. What are the working and salary conditions, and training and career options for teachers and school leaders in the VET sector compared to other parts of the education system – also looking to international benchmark countries- and what do the teachers and school leader community themselves see as critical factors in work satisfaction and job retention?

Clearly, any policy needs to be flexible in order to attract individuals with different backgrounds, while at the same time raising pedagogical standards and ensuring relevant and up-to-date occupational knowledge and

skills. *Given the fundamental importance of VET teachers and trainers for the Australian economy, it is recommended that overcoming the current fragmentation of requirements and working conditions for VET professionals should be high on the policy agenda.*

In addition, the current training packages are too rigid for the rapid economic and technological change. There seemed to be limited system knowledge as to whether the use of future-oriented strategies, as opposed to traditional planning and forecasting instruments, could result in a more strategic orientation of Australian VET. *It is recommended that more attention be given to long-term vision and identification of emerging skill needs (possibly in the context of Skills Australia) in order to allow the system to move from reactive measures to more proactive ones.*

In terms of the specific case studies, we recommend the following:

Status of VET: Despite their small scale nature, the ATCs could be regarded as "laboratories" for implementing the types of measures needed to raise the status of VET among key stakeholders. The ATC initiative has managed to gain some support and credibility among employers, and it has suggested ways to increase Year 12 completion rates. For those reasons it is essential to capture and analyse the key success factors in the initiative across the different models of operation among the 24 colleges, in order to distil promising practices and lessons learned that may be relevant and possible to transfer to the wider VET system. It is recommended, therefore, that the planned evaluation of the ATC system be carried out as soon as possible with appropriate modifications for the shortened evaluation span. If this should not occur there is an imminent risk that tacit knowledge of the value to the wider VET system may be lost as the ATC initiative is merged into the wider VET infrastructure.

Australian Flexible Learning Framework: As already mentioned in the discussion of the case study itself, the framework and its projects have room to generate income by being more entrepreneurial. In particular, we recommend that the LORN system could be self funding (*e.g.* by raising revenue through sales to other countries), and that there are royalty and licensing possibilities that are currently exploited for training packages but should also be extended elsewhere.

6. Implications for the study of systemic innovation in VET

There is a growing body of knowledge which has demonstrated that innovation happens at different levels and that employee (skilled worker) and user-driven innovation have an essential role to play in innovation processes. These reflections – especially pertinent for SMEs, could guide

policies to redirect and vitalize systemic innovation in VET. The Australian reform agenda is also likely to benefit from exposure to the ways that other OECD countries are tackling similar challenges, not least looking to countries with strong youth education and training and workforce development systems.

From international literature on firm innovation, there is ample evidence that responsiveness to market needs from the education and training sector may in fact exclude those companies where the needs for strengthening their base is the biggest. In companies where competition strategies are built on cost-cutting and automation and where work functions are rather routinised, human resource strategies are most often ad-hoc and looked on as a cost-factor. In those companies, attitudes to training are unlikely to change unless accompanied by long-term and integrated outreach strategies addressing the business as such and not only the training climate. From the USA there are many examples of how the community college has played a long-term proactive extension role by developing the workforce for potential new growth sectors. Because this type of investment does not yield immediate return, public funding has been applied in the context of wider economic development (Shapiro *et al.*, 2007).

Some of the key challenges that system reforms have to address are:

- Transformation of the relatively unconnected communities of VET practice, institutions of education and training, research, and local agents of innovation, into a coherent and dynamic learning ecology.

- Greater emphasis on evaluation to formally capture and map innovative activity (including that of the private sector), leading to the generation of systemic reports (at a national level), and the active dissemination of good practice. This last point, dissemination, relies crucially on good knowledge management and knowledge transfer systems both within and across communities of stakeholders.

- Moving from a system planning culture well suited to an economy with stable occupations to a policy framework which is capable, of much faster detection of changing skill and knowledge requirements, particularly in rapidly advancing and converging areas of technology, but also in mature sectors such as mining which remain crucial to the economy.

- Maintaining a sustainable level of broad personal and general skills across the whole population so as to avoid knowledge-based social exclusion.

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