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## Reconceptualising Vocational Education and Training Systems in Broader Policy Domains: monitoring and evaluation

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**ABSTRACT** The article focuses on how the present vocational education and training (VET) system in Australia might be modified to better accommodate possible VET futures change. It begins with the premise that VET's role is to contribute to skills acquisition through *formal* education and training. The authors propose a simple VET futures role and purpose statement and outline a possible futures public policy environment in which its actualisation might need to be achieved. They continue, first by developing a policy intervention framework and a monitoring and evaluation framework germane to that futures purpose and policy mix, and second, by employing those frameworks to explain how a futures VET system might function. They discuss the present VET system in the context of the constructed futures VET system and draw conclusions from comparisons made. They find (a) that skills policy should be redefined to accommodate broader economic and social policy contexts in general, and sustainable industry policy in particular; and (b) that a more sophisticated policy mix, consisting of unified and complementary supply-side and demand-side interventions, should replace the VET sector's reliance on simplistic supply-side policy responses alone. They outline an incremental approach for transforming the present VET system into the envisioned futures VET system and check and balance their findings through international comparisons.

### Introduction

The Australian VET system is complex. It incorporates (i) shared responsibility between the national and state governments; (ii) regulated public VET systems; (iii) a national qualifications framework; (iv) competency-based training with some 1400 national qualifications; (v) registered training organisations operating in a 'training market'; and (vi) regulated occupations in the trades. Skills stocks in vocational education and training (VET) are considered satisfactory when the number of qualifications awarded is increasing. Reliance on such simplistic statistics often informs the ongoing legacy of public policy interventions under which the VET sector is obliged to operate. Complementary measures, such as skills utilisation, efficacy, and durability, are less frequently evident. For example, such measurements as skills obsolescence, transfer of training and skills mobility between industry sectors, relative synergy of formal qualification acquisition by age, experience, and product life cycle are not consistently used to inform skills policy review.

Over the past 15 years, VET strategists in Australia have attempted to leverage skills productivity benefits by granting considerable control to industry within demand-led VET systems. Cully (2008) suggests that the Australian VET system tends to be industry led - that is, demand-led, but supply-driven. The term 'demand-led' here means that industry provides advice to a central agency on its training requirements. It should not be confused with the 'demand-side' concept also

used in this article.[2] We accept Cully's claim and further contend that the efficacy of demand-led systems is exhausted because most of the worthwhile supply-side responses have been made (Keep, 2008). A true demand-led, demand-side driven approach is needed, one consistent with broader VET goals. The demand-side concept is a major theme in our futures VET frameworks developed in this article.

Recently some researchers (Buchanan et al, 2001; Keep 2002; Ridout 2010; Scottish Government, 2010b) have visualised skills formation as a dependent component of other policy domains and a derived component of higher-order demand-side business activity such as organisational ambition, leadership, employee engagement, job design, workplace transfer of learning and the like. In such holistic skills-integration thinking, *demand-side* activities of the kind mentioned facilitate optimal value from attraction, development, utilisation and retention of skills.

In 2002, Australia introduced skill ecosystem pilots which were the forerunner of the current demand-side experimentation in Queensland where skill ecosystem thinking continues to inform investigations which focus on holistic conceptualisation of possible VET futures. At the national level, VET strategists appear to be struggling with the integration of demand-side and supply-side activity. For example, Skills Australia claims to address demand-side strategies through the concepts of 'workforce development' and 'skill utilisation', but yet again, the conceptualisation appears to be taking place within the traditional Australian supply-side VET paradigm. Supply-side strategy is strategy which delivers skills to the labour market through formal education and training. The realisation of 'workforce development' appears to be little more than simplistic identification of training requirements and skilling the workforce accordingly. Yet, irrespective of this claim, calls for holistic VET reform continue (Beddie & Curtin 2010), prompting questions about systemic issues in VET and about possible VET futures.

In general, VET reform in Australia has been incremental, within the narrow supply-side VET context mentioned earlier. Even though some interventions requiring considerable change are presented as major reforms, none can be, in policy innovation terms, what it is not. Each is an expression of supply-side philosophy – a different supply-side way of providing the same set of VET skills to the labour market. Each is more 'change' than systemic innovation.

Such reforms - for example, the Productivity Partnerships Program, and other interventions aimed at increasing participation in training and employment, enhancing foundation skills acquisition, and improving access and equity - also tend to be addressed in their own one-off target-driven isolation. It remains to be seen whether current reforms centred on the demand-side issues of workforce development and skill utilisation will place some responsibility on employers to enact good workforce management practices that optimise the value of skills. It also remains to be seen whether a more harmonised and complementary industry development, work and skills policy mix arises to support sustainable industry development. The recently completed Queensland Post-Secondary Education and Training Review (QPET) (Department of Education and Training, 2011) may well maintain a supply-side skills issues focus within an education services setting. A new Skills Commission in Queensland which aims to be industry-led appears to continue to operate on the supply side, with no apparent shift to leverage demand-side strategies to enhance utilisation of skills. Rather, the focus is more towards encouraging more industry investment in skills, which, we would argue, is only part of the answer.

Possibly, the hard work of VET policy makers is compromised by the absence of well-articulated holistic goals and strategies. We suggest that a revision of VET role and purpose is needed, together with a more comprehensive approach to policy formulation across mutually exclusive departmental policy agencies or silos and a more sophisticated measurement and evaluation methodology to match. We are informed by Keep's suggestion that in best management of VET systems, stakeholders should have a reasonably clear idea of what needs to be achieved. Stakeholder voices should be heard in debates about the desired profile of the economy (the mix of high- and low-value goods and services), the desired pattern of employment, the dispersion of income, patterns of work organisation, job design and people management, and the kind of society aspired to (Keep, 2010). We agree that 'clear policy objectives are a necessary precursor for progress' (Keep, 2010, p. 3).

Unfortunately, in Australia, experiential policy learning is seldom found fully outlined in VET reform documents announcing new strategy interventions, and it is often difficult to discern whether policy makers have reflected deeply on the complexity of skills and VET activity in

broader social and economic policy contexts. We suggest that VET strategists tend to make too large a leap between skills development and these broader policy contexts, often relying on research into minute components of the VET system and drawing assumptions therefrom. While there is some evidence that, in practice, skills policy is integrated with, and complementary to, wider public strategy initiatives formulated in intersecting policy domains (Eddington, 2010), at other times it is difficult to find the rhetoric matched in praxis. For example, inter-agency and cross-government programs are quite common, but they tend to be loose linkages serving an articulated holistic policy solution.

In the light of research in Australia and overseas (Buchanan et al, 2001; Keep, 2002; Scottish Government, 2010b; Skills Australia, 2010) which focuses on skills formation in multiple policy domain contexts, we contend that, in Australia, a more comprehensive and sophisticated policy mix is required if skills are to be truly linked to economic and social objectives. Our contention has led us to formulate a working VET futures role and purpose statement and to articulate policy intervention frameworks and measurement and evaluation processes that might help give impetus to that role and purpose.

The general thinking that informs our frameworks is predicated on (i) eliminating wastage in a supply-driven VET system - that is, wastage resulting from under-utilisation and under-employment of skills; (ii) optimising the value of skills to individuals, industry and the economy; and (iii) reconceptualising VET to better cater for the complexity of skills policy. In this article our main focus is on the third of these points, but not exclusively so. We believe that, within current VET systems, (i) centralised processes based on workforce planning, forecasting and identification of future skills needs can, when isolated from other strategy options, be unreliable, wasteful and insufficient; (ii) qualifications targets should not be the sole driver of VET activity; and (iii) supply-side focused systems in isolation can abrogate industry responsibility for maintaining skills attraction, development, effective utilisation and retention processes (Department of Education, Training and the Arts, 2008).

Noonan (in Beddie & Curtin, 2010, p. 19) may well have had in mind some of the Australian VET complexities articulated in our introduction when he argued that 'the scope and diversity of the Australian VET system, the strengths and weaknesses of the current VET system and uncertainties about its resourcing and governance defy a simple or prescriptive narrative about its future'. Complexity notwithstanding, there is also a political dimension to effecting significant change quickly within the VET system. For example the state governments are responsible for delivery of training in VET. However the Commonwealth government imposes deliverables or outcomes on the states in return for part funding of training initiatives. Sometimes, but not always, it appears that such deliverables are motivated as much by political ideology and expediency as they are by skills efficacy considerations.

While we do express affinity with Noonan's complexity sentiment, we nevertheless predicate our discussion of present and future VET systems on simple statements about VET role and purpose. Our discussions of the policy framework and the monitoring and evaluation framework which complement the futures VET role and purpose statement are discussed in their own sections below, after the brief discussion on methodology, to which we now turn.

## **Methodology**

Separate but similar methodologies were used to construct the policy framework and the monitoring and evaluation framework.

### *The Methodology Used to Construct the VET Futures Policy Framework*

Our general research interest was initially teased out by the tacit assumption that supply-side policy alone and a highly qualified workforce are insufficient to increase profitability, productivity and sustainable economic growth. We very quickly concluded, both in the light of our observations and from insights found in the literature (Black & Lynch, 2004; Ashton & Sung, 2006; Keep et al, 2006; Keep, 2009b; MacLeod & Clarke, 2009; Department of Innovation, Industry, Science and Research, 2009), that the *full* contribution of a skilled workforce to individual firms, industry

sectors, regions and the economy may not be realised unless, *inter alia*, employers cogently address demand-side factors. Such demand-side activity on the part of employers must include responsibility for integrating attraction, development, effective utilisation and retention of skills into their employee-engagement and people-management practices within the context of a sustainable business strategy. Our basis for such conclusions is reported elsewhere (Eddington, 2010).

We were thus able to adapt our general research focus to envisioning a holistic VET futures policy framework that might result in improved skills policy efficacy in complex policy domains. Our envisioning was enabled through engagement with a skills ecosystems policy experiment begun in 2002 in Queensland. The skills ecosystem (Buchanan et al, 2001; Finegold, 1999) process, as it is implemented in Queensland, requires firms or clusters of firms to utilise demand-side strategies, where relevant, to resolve skill shortages or skill gaps. Queensland embedded its ecosystem pilots in policy in the Queensland Skills Plan 2006, and held a ministerial forum on the future role and purpose of VET in 2008 (Department of Education, Training and the Arts, 2008) to which industry experts, as well as and international and local experts from a range of policy areas, were invited. We also drew on observations and experiences in business development, industry practice, higher education, VET and labour market work, as well as a background in policy innovation to construct a VET futures policy framework.

The methodology which informs our policy framework is thus part thought experiment, and part action learning. The futures VET skills policy framework resulting from our engagement is articulated in Table I. This framework thinking has been informed through engagement with in excess of 60 skill ecosystems, 16 industry centres of excellence, and other industry/government alliances and arrangements, many of which aim to link skills to workplace management and sustainable strategic business directions.

More recently, cognitive construction of the futures skills policy framework has continued through insights gained from association with a Workplace Partnership and Productivity Program (WP&PP) project hosted by the Queensland government's Department of Employment, Economic Development and Innovation (DEEDI). In this project, industry development, work, and skills policies are being integrated within the manufacturing sector. The WP&PP project was set up to consider how industry, work and skills policy might be designed to support a 'high skill equilibrium' [3] capable of providing decent and sustainable work within a just transition under conditions of carbon constraint. The central organising mechanism of the project is the development of different employer/employee engagement mechanisms. Funding is available through the project for strategic business diagnostics, strategic planning, the development of leaders and managers, the establishment of good employee engagement mechanisms, and to promote job design that supports worker autonomy, workplace practices that encourage learning transfer, and a capability to work with training providers to determine training requirements. Early general findings relating to the integrated governance of the WP&PP experiment are reported separately (Eddington, 2010).

#### *The Methodology Used to Construct the VET Futures Monitoring and Evaluation Framework*

The methodology adopted is again part thought experiment and part action learning. Construction of the monitoring and evaluation framework and its attendant capability scales also began as a result of experiential learning gained from association with the skills ecosystem projects. It is continuing by association with the WP&PP project which, *inter alia*, was designed to refine (1) a monitoring and performance framework for a holistic industry development process, and (2) industry and government capability scales. We drew on the same industry and liaison engagement mechanisms used in the case of the VET futures policy framework. However, our conceptualisation was also influenced by the use of the Most Significant Change process explored in the skills ecosystem projects, where we attempted to include subjective data which are traditionally not used in VET. We hope to report further on modifications made to the framework in the light of further association with the WP&PP.

## VET Futures: a policy framework

### *General Discussion of the Policy Framework*

The current Australian VET system largely operates under a legacy of silo mode public policy making. Its role, simply expressed, is to expedite industry-relevant, flexible and responsive training which supports the attainment of economic and social goals. Its success, as earlier noted, is typically measured against key drivers such as training targets, cost efficiency, access, participation and equity simplistically measured, and by revenues earned. These drivers and their attendant targets are often imposed as a *fait accompli* from various official policy silos. Some of these drivers stem from thinking within the confines of the neo-classical economics paradigm and its primary focus on maximisation of the utility of the measure under consideration. The access and equity provisions might also, for that matter, have their origins in the market failure provisions of that paradigm, but the manner in which they are pursued sometimes appears to vary according to the political persuasion of the government in power.

The dominant VET policy mantra, simply expressed and caveat free, is that more skills are better [4]. However, there is now a growing body of research that provides a more sophisticated understanding of the complexity of skills development and use (Schofield 2003; Keep et al 2006; Buchanan et al, 2009; Keep 2010; OECD 2010; Scottish Government 2010a), and of the limitations of simplistic measurement in such contexts. This research also reveals new thinking and alternative approaches to the question about how VET systems strategy and skills development policy might be better managed to deliver added value through being released from their respective policy silos and linked to broader and higher-level goals achievement within a more comprehensive policy mix.

Drawing on this research, and our own professional and operational experience in government, industry, the labour market, VET and higher education, we have attempted to conceptualise a VET system that (a) has a clear role and purpose embedded in broader social and economic goals; (b) is linked to sustainable development; (c) accommodates tailor-made skills policy for industry and individuals; (e) is flexible and responsive; and (f) has a monitoring and evaluation framework that encompasses the complexity of skills.

How might policy makers, working on design and implementation of a VET futures system, practically transform the criteria specified in the above paragraph into a working system?

Insights provided by Pralahad (2004) help answer this question. He outlines first steps that may assist VET strategists in the transition to a reformed VET futures model. Pralahad argues that conceptualising 'next practice' models which are futures oriented, as opposed to 'best practice', which suggests good practice in the current way of doing things, is an appropriate way to begin. His reasons are that *next practice* is future orientated; no single institution or company can be a complete thought exemplar for predicting every VET relevant event that may occur; and *next practice* is about amplifying weak signals and holistically connecting *system* components of new mental models or paradigms. We have adopted a next practice perspective in our ongoing conceptualisation of a VET futures *system* and in our construction of its attendant policy and monitoring and evaluation frameworks.

Our futures or next practice VET system would take into account the different needs of industry and individuals (Eddington, 2008). We believe it is necessary to separate the policy strands for industry and individuals, as these two sets of clients have different needs and hence different policy requirements. Skills policy for individuals would be largely implemented within an education services strand, and for industry it would be largely implemented within an industry development strand. The education services strand would catch much of current practice for individuals, but it would be open to policy coordination where relevant - for example, where skills and employment programs require integration. Some bureaucrats would argue that such coordination happens now, but we claim that the coordination achieved within policy silos is robbed of its efficacy by its lack of integration between those silos. Our view is that full integration of policy silos can facilitate better outcomes in conditions of problem complexity (Maani & Cavana, 2007). Similarly, the new industry development strand would support the integration of relevant policy areas such as industry, work and working life, skills, innovation and possibly immigration.

The so-called education services strand would, for example, be responsible for participation, foundation skills development, equity, low socio-economic pathways and qualification targets, and these responsibilities would be largely implemented through formalised education of various kinds. It would incorporate those findings of the Bradley review (Bradley et al, 2008) which recommended stronger linkages between VET and higher education. How could it be otherwise? We note, however, that, given the skills and knowledge likely to be needed by individuals in the future, particularly under the impact of external factors such as climate change, Australian policy makers may need to rethink the relevance of competency-based training (CBT), especially in respect of the implementation of higher-order thinking and knowledge. Development of critical skills for multi-disciplinary work, problem solving and task-specific reasoning is required. Although the CBT training packages can include provisions for higher-order thinking, we argue that at present implementation of higher-order thinking is less effectively executed because of insufficient funds resulting from nominal hours funding models and lack of teacher support for it. Any renewal of curricula would invite complementary innovation and change in VET teacher professionalism and teacher education (Buchanan et al, 2009), as well as funding and accountability mechanisms to support the learning outcomes required, as opposed to the achievement of traditional targets alone. Such significant change would engender its own experiential learning and presupposes official competency in change management itself..

So much for the education services strand; we now turn to the industry development strand. The so-called Industry Development strand of our proposed VET futures framework would empower industry with shared responsibility for skilling strategy aligned to the higher-order business activity noted earlier. Under this strand, the objective would be for industry to be responsible for establishing high-performing workplace practices that optimise the availability of skilled workers for, and their utilisation in, decent and meaningful work and sustainable employment.[5] The role of this strand is first and foremost to foster sustainable and viable firms. Ideally, such firms would have deeper insights into demand-pull skills conditions and the employment needs they generate. A principal benefit of this better understanding of their demand-side needs would in turn lead to less reliance on supply-side policy habit. Firms or industry clusters would also participate in devising appropriate evaluation and measurement methodologies that actually measured business improvement and outcomes that resulted from the multi-dimensional business diagnosis and business improvement strategies adopted. Some of these strategies would be funded by the firm, while others might be funded by relevant government programs. The idea of policy integration here is that the policies combine to solve the specific problem - that is, of sustainable industry growth and development. Skills policy is integral to sustainable growth and development, and does not sit outside of it in a separate supply-side silo offering skills education to the labour market.

At this point, it may be helpful to note Scottish research (Scottish Government, 2010b) that identifies some aspects of workplace cultures that enable people to perform at their best – namely: (a) business or organisation ambition; (b) leadership and management capability; (c) employee engagement; (d) job design that encourages employee autonomy; (e) workplace practices that encourage learning transfer; and (f) effective quality and diversity, and healthy business practices. These are wholly demand-side factors and they have been identified by Scottish research and practice as critical to effective skills use (Scottish Government, 2010b). These are at the heart of our demand-side strategy.

We claim that network governance arrangements (Keast & Brown, 2002) are needed to bring about integrated policy. In network governance arrangements, the relevant stakeholders agree on the problem and work closely together to solve that problem. They build good working relationships within the network, and it is the needs of the network and its attendant problems that prevail, not the needs of the policy silos to which the stakeholders belong. Network governance is not the coordination of silos around a problem; it is the integration of silos to address a problem. Some stakeholders, including government, may well find it difficult to place agreed network needs above their own and, of course, networks require clear and open channels of communication.

In the VET futures system that we envisage, the industry development strand and, in some instances, the education services strand would require network governance arrangements. Network governance serves an integrated policy approach that is tailored to a specific problem and employs performance measures related to that problem. It does not use surrogate measures which

are a poor fit to its needs. The implications and capability requirements of implementing a network governance mode are described in some detail elsewhere (Keast & Brown, 2002; Eddington & Eddington, 2010). The network governance approach is critical, we believe, where policy integration is required to solve complex policy problems holistically. Of course, moving from closed policy silos to a network governance model is unlikely to be an easy affair, and the next practice VET futures frameworks contained in this article are early developments for discussion purposes. They are ideas frameworks and first steps in VET futures strategy speculation. It goes without saying that proven elements of VET strategy would remain in next practice systems for both industry and individuals.

#### *Specific Discussion of the VET Futures Policy Framework*

We have constructed Table I to enable further discussion of a policy framework suitable for the envisaged future VET system and the policy complex in which it might operate. The logic of Table I is simple: the VET futures role and purpose statement outlined in Part C is served by the specific demand-side and supply-side policy objectives outlined in Part B. The Part B objectives themselves are actualised by interventions within the four tiers of influence and their attendant policy domains outlined in Part A. Specific policy goal statements are expressed in transparent unambiguous language so that, for monitoring and evaluation purposes, measurable and reportable assessment data can be developed across integrated policy silos and validly employed to catch the extent of goal achievement.

Part C of Table I contains an example of the kind of role and purpose statement that might guide future policy makers in an open-silo [6] integrated public policy context. Such a purpose statement would support a holistic approach to industry development, in which industry, work, skills and innovation policy, for example, might be executed. It would also support skill formation for individuals in the traditional supply-side context. Those responsible for bringing such policy forward would need to look for alternative ways to establish systems of learning and innovation, and not shy away from structural reform and its necessary attendant truly integrated management of multiple policy domains.

Role and purpose statements of the kind contained in Table I are variously called Mission Statements, General Objectives Statements, or Strategic Policy Statements. The example under discussion, which emerged from industry-strand thinking, clearly extends VET influence across four tiers. Tiers 1-3 set the scene for skills policy to be integrated with industry, work and innovation policy at the very least, across the enterprise, state and national tiers. Our arbitrary allocation of specific policy objectives S1 through S4 suggests that, while industry and individuals strands may be separate, they must, in their implementation, be policy compatible and synergistic. Tier 4 relates primarily to the skilling of individuals.

The tier-of-influence approach helps the matching of policy tools to policy goals between the different policy strands. It also serves such a purpose within each of the policy strands when matching of tools to goals is required across the various tiers and domains of influence. As well, it helps policy makers avoid policy compromise and diseconomy that results from incompatible or countervailing combinations of policy intervention.

We suggest that the current VET system was originally established to serve the needs of individuals and that, over time, as industry requirements and the productivity issue became more dominant, VET strategy was not sufficiently adapted to match those changes. That is, the VET *system* per se was not reformed strategically. For example, it continued to use accountability measures, such as qualification targets aligned to the needs of individuals. Efficiency measures were subsequently added upon the introduction of the training market. The result is that we now have a *system* that is trying to serve industry needs as well as individuals under accountability mechanisms designed for the needs of the latter. This role and accountability incompatibility may help explain the turmoil and ongoing calls for VET reform discussed earlier. Policy makers appear reluctant to look more broadly across the policy mix, as well as within industry itself, with a view to bringing a more modern understanding of the complexity of skills to bear on the problem.

Part A		
Tier of influence	Domain of influence	Specific skills policy objectives from Part B
Tier 1: National	National Economic, Social and Environmental Sustainability	S1: To embed the VET system in a sustainable carbon constrained economy.
		S2: To support the development and effective deployment of quality skills in production and service sectors.
		S3: To foster and leverage the effective utilisation of skills in decent jobs as a means to providing productive livelihoods and social cohesion.
		S4: To support individuals to obtain skills, participate in work and community, and develop their capacity to continue learning
Tier 2: State/Sectoral/ Regional/ Community	Sustainable Industries, Regions and Communities	S2: To support the development and effective deployment of quality skills in production and service sectors.
		S3: To foster and leverage the effective utilisation of skills in decent jobs as a means to providing productive livelihoods and social cohesion.
		S4: To support individuals to obtain skills, participate in work and community, and develop their capacity to continue learning
		S2: To support the development and effective deployment of quality skills in production and service sectors.
Tier 3: Enterprise	Productivity /Competitiveness/ Business Improvement/ Workforce Management. Changed production norms.	S3: To foster and leverage the effective utilisation of skills in decent jobs as a means of providing productive livelihoods and social cohesion.
		S2: To support individuals to obtain skills, participate in work and community, and develop their capacity to continue learning
Tier 4: Individual	Human Centred Sustainability: sustainable participation in the labour market, in both paid and voluntary roles. Changed consumption norms.	S2: To support individuals to obtain skills, participate in work and community, and develop their capacity to continue learning
Part B		
Specific Skills Policy Objectives		
S1: To embed the VET system in a sustainable carbon constrained economy.		
S2: To support the development and effective deployment of quality skills in production and service sectors.		
S3: To foster and leverage the effective utilisation of skills in decent jobs as a means of providing productive livelihoods and social cohesion.		
S4: To support individuals to obtain skills, participate in work and community, and develop their capacity to continue learning		
Part C		
VET Role and Purpose		
To foster and support the development and effective deployment of quality skills that facilitate sustainable economic prosperity, social well being of communities and individuals, and environmental protection at four tiers of influence – namely, national, state/regional/sectoral, enterprise and individuals.		

Table I. VET Futures Policy Framework - a tiers and domains approach

We suggest that a bifurcated skills policy approach is needed. Separate strands would deal with individual and industry skills needs. Each strand would have its own policy arrangements and accountability mechanisms. The strands would be coordinated; they would not be stand-alone silos. Such an approach would give policy makers legitimate authority to contextualise industry skilling requirements in a broader policy mix. Certainly, as suggested elsewhere in this article, the industry development strand should be under the relevant industry development agency. Our tiers-of-influence approach attempts to broaden the VET policy perspective to engage industry differently. It also attempts to raise the status of VET as a stakeholder in industry, regions and the national economy.

Framing the public policy dimension of a VET futures system in this manner, by allocating specific policy objectives across tiers of policy influence, under the chapeau of an extended VET role and purpose, clearly identifies the challenge faced by policy makers responsible for empowering VET efficacy in integrated open-silo public policy domains.

The Table I framework itself is hardly remarkable, but its implications, at least in an Australian context, are considerable and may challenge stakeholders and systems beyond their present capacities and willingness to innovate, or for that matter to think holistically outside of their own particular stakeholder needs. In this respect we mention, without further discussion, change capacity issues associated with matters such as government systems inertia, political hegemony and ideological differences amongst the state governments responsible for delivery of VET education, and between each of those state governments and the federal government, as well as legal and regulatory mismatches, and free-riding compromise under poorly drafted strategy.

We believe that in-depth analysis of the tiers-of-influence approach to VET futures policy, including its monitoring and evaluation needs, would pose an interesting research area for agencies such as the Australian Productivity Commission, which may be interested in building more sophisticated [7] accountability frameworks at the various levels of influence.

We acknowledge that colleagues who are case hardened through years of valuable public policy service might quickly dismiss open-silo integrated policy making as an impossibility, but we contend that it is feasible if true network governance capability is developed. Queensland has actually demonstrated the efficacy of such a governance model in the service sector (Keast & Brown, 2002). Certainly, as mentioned, the monitoring and evaluation framework discussed in the next section is to be further developed and trialled in the Workplace Partnership and Productivity Program (WP&PP).

In keeping with the intention of the article, we turn to articulation of monitoring and evaluation frameworks germane to the envisaged VET futures praxis.

### **VET Futures: measurement and evaluation framework**

#### *Specific Discussion of the Monitoring and Evaluation Framework*

The draft monitoring and evaluation framework presented in Table II is intended to provide a working template for negotiations on specific frameworks at the industry, region or community level. Its logic is also simple. In general, it classifies specific monitoring and evaluation items (the right-hand column) under three generic monitoring and evaluation categories (the left-hand column). The *status* classification accommodates statistics which serve as context for *facilitative* and *effect* classifications. The *facilitative* classification accommodates items intended to measure a range of process and learning dimensions, such as (i) how well the stakeholders are collaborating; and (ii) their developing capability levels. The *effect* classification accommodates measurement of outcomes, impacts and business performance resulting from the integrated policy intervention process itself. The function and indicator example columns help stakeholders select fine-tuned and relevant measures for the indicator type (Eddington & Eddington, 2010).

Table II contains only broad classifications of the type of indicators and measures that might be agreed upon by stakeholders in the specific manufacturing WP&PP hosted by DEEDI. It is thus a framework that is germane to the industry development strand.

	Indicator Type	Function	Indicator Example	Measures	
STATUS	Baseline Data	Starting point variable: <u>Economic</u>			
		(i) Gross product	(i) Gross product: the amount of revenue produced by the Queensland manufacturing and engineering sector	(i) \$ contributed to GSP by the manufacturing sector.	
		<u>People</u>			
		(ii) Labour productivity	(ii) Revenue per full time equivalent (FTE) in the sector	(ii) \$ revenue per FTE in the sector.	
		(iii) Utilisation	(iii) People Indicators: • Employee turnover • Extent of use of skills (employer and employee perspective) • Job quality • Inclusiveness / partnerships	(iii) People measures: • Turnover rate per calendar year. • Story: Describing how the sector creates 'decent' work, inclusive processes, utilises knowledge and skills to enhance competitive advantage, and skill usage perspective of employers and employees.	
(iv) Qualifications	(iv) Qualifications • Managers, professionals • Skilled trades • Intermediate skilled workers • Elementary skilled workers	(iv) Qualification profile for • Managers, professionals • Skilled trades • Intermediate skilled workers • Elementary skilled workers			
<u>Planet</u>					
(v) Emissions	(v) Carbon footprint	(v) Primary carbon footprint trends, adaptation / mitigation strategies			
FACILITATIVE	Context	• To identify the existence of industry <u>support systems</u>	• Existence of industry support programs for: (i) Productivity, new technologies, systems and processes (ii) Business management (iii) Sustainability and eco-efficiency (iv) Capabilities and options for diversification, trade etc	• Existence of government publication identifying all industry support programs for the production sector	
		• To monitor change in policy context	• Demonstration of agency policy coordination.	• Story: Describing the experience with collaborative governance	
		• To monitor clarity of role and responsibility	• Roles, responsibilities, expectations, partnerships defined for all partners including unions, industry, government, intermediaries, TAFE colleges and the like.	• Negotiated agreement on these issues.	
	Process	To identify if:			
		(i) adequate analysis of skills issues and workforce issues has been undertaken	(i) People and Leadership workplace development plan (with milestones) to support operational and business plans, covering issues such as partnership approach, work/life balance, health and safety, formal and informal skill formation, job design; clear identification of leveraging activity and links to existing services.	(i) People and Leadership Plan (with milestones) integrated with operational and business plan.	
		(ii) sustainable workplace management practices have been implemented using partnership principles to deal with attraction, development, effective utilisation and retention.	(ii) The 'will' of the enterprise/sector to <u>develop and effectively manage</u> a sustainable workplace and skill ecosystem in order to achieve its long term business plans.	(ii) Evidence of implementation of workplace development plan e.g Record of Training Product and Delivery, stories of partnership processes, culture and just transitions to green jobs.	
			(iii) The 'will' of the sector to foster a collaborative culture and <u>effectively utilise</u> the skills of its employees to achieve its long term business plans.	(iii) Story: outlining partnership processes for industrial agreements covering attraction, development, effective utilisation and retention workplace strategies – to include health and safety, work/life balance.	
		(iv) Story: outlining how skills are utilised to achieve competitive advantage.			
Learning	To promote learning and reflection	Lessons learned in managing a process involving capability development around partnerships, individual enterprises and networks of SMEs, suppliers etc.	(i) Story re lessons learned (ii) Action Plan re process improvement i. Implementation of process improvement		

	Indicator Type	Function	Indicator Example	Measures
EFFECT	Output	To assess outputs such as workforce management tools, number of qualifications, number of awareness sessions, and number of firms committed.	(i) Work policies that support attraction and retention (participation) e.g. work/life balance, career paths, health and safety, negotiated pay scales, job redesign, high performing work practices such as commitment to learning, open-mindedness and shared vision.	(i) Specific 'demand-side' workplace management practices in place e.g. partnerships process that delivers improvement in attraction, development, effective utilisation and retention of workers e.g work/life balance, career paths, health and safety, negotiated pay scales, job redesign, high performing work practices such as commitment to learning, open-mindedness and shared vision.
			(ii) Skill utilisation status	(ii) (a) Story: outlining how the sector creates and uses knowledge to enhance competitive advantage. (b) Employee/Employer surveys: Opinion of % skill utilisation (c) QMI utilisation measures
			(iii) Employees with a Certificate III	(iii) % of staff with a Cert III or above in the following categories: • Professional / managers • Skilled Trades • Intermediate skilled workers • Elementary skilled workers
	Outcome	<ul style="list-style-type: none"> <li>To assess outcomes related to trends in changes or improvements that result from interventions</li> <li>To define a key outcome: Enterprise bargaining agreement developed through partnership process</li> </ul>	(i) Industry adopts sustainable business practices – people, profit, planet (ii) Industry utilising the social partnership process.	(i) Evidence of industry capability improving (see thermometer chart) (ii) QMI measures re productivity (iii) Negotiated agreement around improved workplace management practices aligned to strategic and operational needs of the firm or network.
	Impact	To assess 'sustainable' impacts that result from interventions	Trends in industry profits, labour productivity, people management and carbon footprints	(i) Trends in: <ul style="list-style-type: none"> <li>Business viability or profits, labour productivity</li> <li>Employee satisfaction</li> <li>Labour utilisation</li> <li>Improved WH&amp;S performance</li> <li>Retention/ staff turnover</li> <li>Primary carbon footprint/ reduced waste/ emissions</li> </ul> (ii) Story: Outline how the sector supports participation of disadvantaged groups and how VET Investment has supported this participation (iii) Stories: Case studies of how VET Investment is supporting good workplace practices that impact on individual firm or industry performance across profit, people and planet issues.
	Performance	To assess the capability of the manufacturing sector to remain sustainable in variable economic cycles.	Capability of the manufacturing firms/ sector to align strategy, operations and workplace strategies, including operating effectively in an Industry-led Industry-driven ecosystem through variable economic cycles.	Story: summarising the original context, what happened, what worked /did not work, industry performance in managing industry-led, industry-driven government interventions (industry development, work, skills) geared to support sustainable profit, workforces and skills. Comment should be made on a range of economic, social and environmental indicators e.g. technology diffusion, improved business processes, labour productivity, total factor productivity, workplace practices, and waste / carbon management, adaptation / mitigation strategies, trends in competitive advantage, how employer responses to changing business environments are shaping labour demand, contribution to formal and informal training etc

Notes: Firms /clusters must commit to providing the agreed business data. This needs to be a funding requirement. The Most Significant Change storytelling process, or an adaptation of it, provides rich data on changes that occur. Stories are sometimes considered more useful in reporting some indicators than other measures.

Table II. Monitoring and evaluation template for an industry sector.

Given that the monitoring and evaluation framework expressed in template form in Table II potentially covers a very broad range of measures in a variety of industry settings, there may be a need in some instances to add supplementary frameworks and/or measures that deal with complex demand-side change or priority issues. Skill utilisation and workforce development are examples of

such issues that policy makers appear to be struggling with in skills policy, and it would be worthwhile to develop specific subsidiary frameworks for such issues.

In the ongoing 2010-2011 WP&PP industry, government and unions will employ the framework to negotiate, for each participating firm, a set of indicators drawn from the business diagnostics for that firm. Quantitative data and qualitative data in the form of stories will be mixed and matched to provide both industry and government with rich information on status, facilitative and impact indicators. Specific indicators will be developed through the 'partnership' or people engagement process being used in this pilot but could equally be developed using alliancing principles or some other form of collaborative arrangement. It is highly likely that this engagement will itself further inform framework structure in general.

The areas of operation in the function column of Table II *generally* reflect the areas for improvement identified in business and people management diagnostic processes. Such processes - for example, lean manufacturing processes - would be managed through an industry development agency such as DEEDI. Many potential indicators are available. The e2 program, which is a joint initiative of Investors in People Australia and the Australian Institute of Employment Rights, is an organisational improvement program which utilises both the Investors in People Australia standards and the Australian Charter of Employment Rights as the basis for improvements to business performance, employee engagement, behaviour and culture. There are many other demand-side improvement programs from which indicators could be drawn, many of which reside within industry development agencies. On the social side, there is now a plethora of items to measure social and responsible business performance, safe and civil society performance, ethics in business, government and society, carbon footprinting and the like.

The monitoring and evaluation framework is attended by the industry and government capability scale tools outlined in template form in Figure 1. Capability scales are simply ladders of competence necessary for ongoing combined stakeholder success. The behaviours identified in the capability scales derive from the Queensland experience with skills ecosystem projects. They could equally be complemented by, or replaced with, a variety of management practice behaviours and capabilities, such as those addressed by the Department of Innovation, Industry, Science and Research (2009, p. 12). Behaviours mentioned there, for example, include attracting and retaining high performers and maintaining process documentation.

These capability scales contain the types of behaviours and capabilities that need to be developed incrementally by government and industry in order to optimise value from integrated policy within a network governance arrangement. Our experience is that, unless the capability issue is addressed, stakeholders tend to follow 'business as usual' protocols. Next practice truly integrated networks require 'business as unusual' protocols, for both government and industry. For example, under next practice the multiple perspectives of this integrated process need to be addressed holistically by the stakeholders. Capability scales could also be used to guide training funds directly to industry as its ability to manage demand for, and utilisation of, skills increases. Funding could be conditional upon, and leverage the development of, appropriate next practice demand-side behaviour. In this way public funds would act as an incentive for demand-side change.

Although this article does not specify funding arrangements for the industry development strand, the idea is that funding might be based on how well industry has developed appropriate demand-side activity to accommodate cyclical issues such as skills shortages and gaps, skills obsolescence and the like. Ideally the leveraged business behaviour would complement supply-side training in an integrated policy mix. We believe that funding conditional on industry demand-side capability would drive enhanced demand-side practices, and according to the DIISR report (2009), such practices are critical to improving Australian productivity and competitiveness. There is no such demand-side incentive under traditional funding mechanisms that simply require industry advice of skill needs followed by rationing of public training funds according to a set of criteria. We believe that industry should share joint responsibility for its 'skills ecosystem' and that public training funds should not be forthcoming to employers who fail to demonstrate the capability to manage demand-side issues, especially attraction, development, effective utilisation and retention of requisite skills for their business. Why should public funds be available to employers who fail to deal with the complexity of skills as they relate to productivity and competitiveness, and continue to rely on inefficient and wasteful 'business as usual' supply-side practices that just deliver skills to the labour market?

Of course, the conditional funding suggested above may need to be introduced incrementally over time as industry adjusts to the expectations of the industry development strand. We contend that it is not helpful to the future of industry and the economy to perpetuate supply-side skills policy in isolation from cogent demand-side requirements. This view is supported by a recognition that government can no longer afford the cost of skill formation needed to sustain Australia's economic and social goals and that the VET system needs to be re-designed (Skills Australia, 2010).

As was the case for the monitoring and evaluation framework, the many business improvement programs available to support industry development and workplace management practices are a rich source of 'capability' criteria and measures that could well be used to tailor the industry capability scale to specific enterprises or sectors. There are also many ways to measure governance of safe and civil society, carbon usage and sustainable development, and these might alternatively inform the government capability scale.

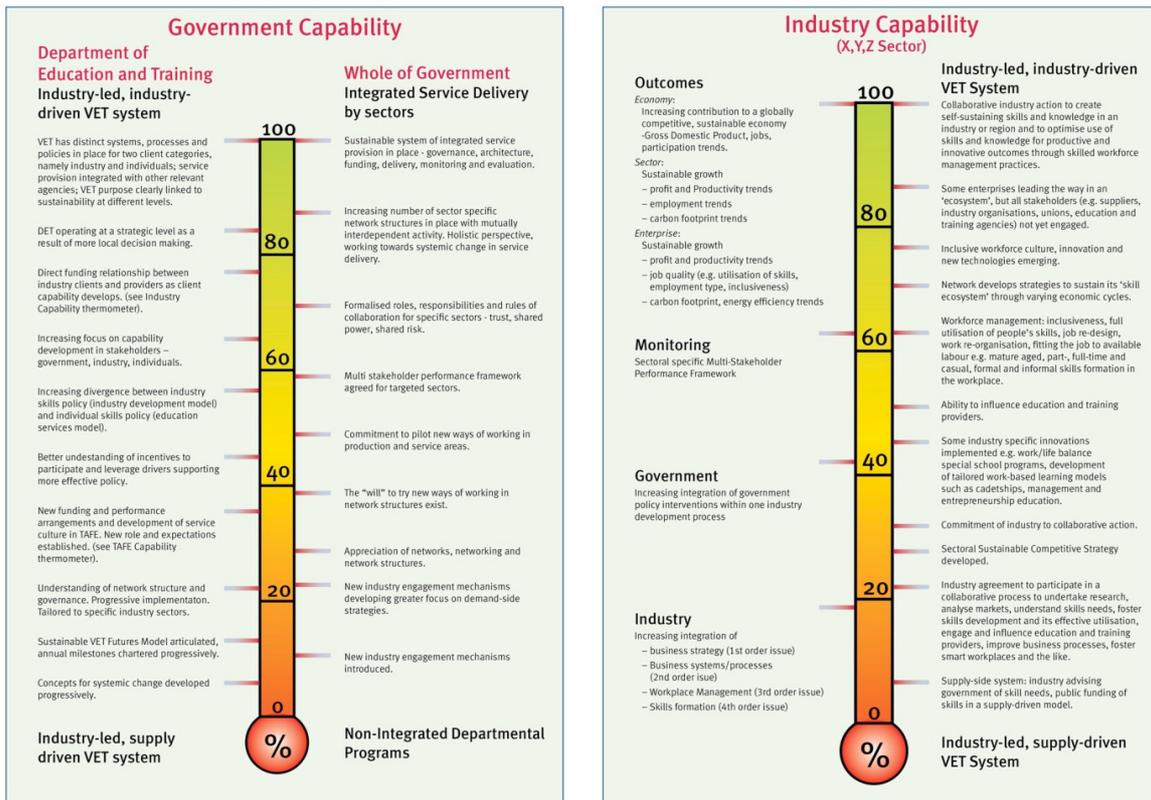


Figure 1. Capability scales.

*General Discussion of the Measurement and Evaluation Framework*

The possible VET futures monitoring and evaluation construct discussed in the preceding section calls for identification and development of a range of performance indicators. It is important to avoid the adoption of surrogate indicators that have relatively little, or a vague, relationship to policy intent. For example, as suggested in the introduction, qualifications achieved as a measure of supply-side policy success, if taken alone as the measure, can, through the limited insights they provide, lead to poorly informed and rather loose claims about the impact of skills holdings. They can also drive the quantum of training above all else. Supply-side intervention alone is insufficient for monitoring and evaluation measurement across tiers of influence 1 through 3 identified in Table I.

We contend that monitoring and evaluation of VET system performance currently remains the captive of an outdated paradigm largely predicated on supply-side policy thinking. Because the indicators of success have not been challenged, these traditional drivers continue to influence VET

reform and policy interventions primarily in the context of supply-side action. To some extent there occurs a self-reinforcing cycle of reform down the supply-side path and a perpetuation of, among other targets, skills quantification and delivery efficiency as indicators of success. There is currently a great danger in Australia that the emerging workforce development and skills utilisation initiatives will be devalued somewhat by being informed through a supply-side policy perspective. Industry-skills development and usage issues naturally lie in the demand-side context of the industry development strand.

Other reasons might also be given to explain asymmetrical use of supply-side policy and its measurement indicators. For example, long-term data sets of measures of skills qualifications holdings exist, and represent a not insignificant driver for their continuation. Such statistics are also easy to monitor and are favoured politically because of the often good news stories that can be leveraged from improvements in the numbers of qualifications over time. For example, increases in qualification holdings or improved student retention and progression within the qualifications hierarchy are often, without modification or caveat, linked to improved productivity and/or competitiveness. Supply-side strategy and responsibility for its monitoring and evaluation may also be less costly to administer than the monitoring and evaluation required in an integrated policy approach.

Changing the measurement framework to assess impacts of integrated policy domains is difficult for governments in democratic societies. For this reason, and also because traditional supply-side skills measurements are not without some utility, we progressed from the known supply-side measurement domain to the relatively unknown integrated demand-side and supply-side domain in our Table II measurement and evaluation framework template. The Table II template reflects our focus on conceptualising an industry development strand that fully integrates industry, work and skills policy as providing a very minimum set of integrated policy areas, by leveraging industry ownership and responsibility for developing and maintaining sustainable and appropriate skills. It goes without saying that the monitoring and evaluation template in Table II would need to be modified to accommodate the specific needs of education services strand objectives.

Monitoring and evaluation within such an integrated policy context is complex and difficult for VET agencies because it requires a different set of indicators being aligned to the combined effect of multiple integrated policy interventions that collectively impact on specific tiers of influence in Table I. Unless the tier of influence and its attendant objectives are identified, the policy discussion becomes confused, and ad hoc usually easy-to-measure indicators tend to be selected. Consequently, items to measure such demand-side activity as skills attraction, skills development, and effective utilisation and retention need to be developed and applied. In this regard, Scottish government analysts are in the process of developing a one-page 'balanced scorecard' as a national measurement framework for effective skills use (Scottish Government, 2010b), and this may prove useful as a measurement tool at the national level.

The Australian Skills Policy debate is slowly developing to include two key demand-side issues – namely, workforce development and skill utilisation. Skills Australia (2010) is leading national debate and consultation about the future direction of skills policy in this country. Industry, especially large industry, is demonstrating increasing interest in demand-side issues. For example, Ridout (2010), chief executive of the Australian Industry Group, recently noted Australia's lagging productivity and innovation levels. She cited such factors as utilisation of skills; demand-side systems and processes, including job design and employee engagement processes; leadership capability; high-performing workplaces; employee turnover; and innovation within the workplace. She also mentioned less tangible factors, such as job satisfaction; mental and physical health; work-life balance; and stress levels. All of these issues were discussed in the context of enhanced productivity and profitability. She argued that high-performing workplace practices, better industry development diagnostics and support, and a national leadership and management study be given a high priority. Here we see an industry leader advocating for the kind of activity that our industry development strand delivers. The activities mentioned might also form the basis of potential performance indicators.

The WP&PP is already doing much of what Skills Australia is attempting to raise for discussion and what Ridout (2010) is advocating. It is also interesting to note that the WP&PP project is driven by forward thinkers within DEEDI, and not by the training agency, which remains

legitimately fixed on supply-side perspectives in its official mandate of VET reform. Challenge to this kind of policy performance is evident, as the preceding discussion has revealed, and the time is opportune for demand-side policy experimentation. The time is right for separation of skills policy into the two coordinated strands discussed in this article.

### **International Comparisons**

The findings by the Department of Innovation, Industry, Science and Research (DIISR, 2009) cited earlier, which are germane to our framework constructs, are consistent with the argument by the UK Commission for Employment and Skills (2009) that leadership and management capability, especially in small-to-medium enterprises, is critical both to developing demand-side strategies to unlock the potential of the workforce, and to harnessing the skills, ideas and knowledge required to drive business productivity. The DIISR research reflects a concern about decreasing Australian labour productivity, and provides reliable data and information about Australian management practices and their relationship to productivity and firm performance.

However, the framework constructs discussed in this article, while they might be technically useful in a number of countries, might not be particularly useful, values-wise, in countries having little truck with the kind of role and purpose statements on which those frameworks are predicated. These role and purpose statements fully embrace the social dimensions of sustainable development, including safe and civil society and social and responsible business. In their present form they have more affinity with democratic processes in regimes open to industry ownership and responsibility for their own skills, and where industry and government have the freedom and capability to work under a network governance model. Our framework may be unsuitable in countries where harsh penalties accompany target failure. They have no place in such conditions. But neither, in democratic countries, should the frameworks be eroded by the dominance of shallow political behaviour over enlightened considered professional judgement. In our VET futures policy framework, industry's role in skills policy has been redefined from an advisory one to a proactive approach in pursuit of high-performing workplace practices, including skills attraction, skills development, and effective utilisation and retention of skills, through good leadership and people management practices and the like. We believe that our frameworks are suitable for modification and use in most western democracies, and in countries like Australia in particular.

Internationally, there is a growing debate about the utility of supply-side-only skills strategy for labour productivity. For example, Scotland, the countries of the Organisation for Economic Co-operation and Development (OECD) through their Local Employment and Economic Development program, New Zealand and Australia generally recognise that skills alone are not enough; rather, they need to be effectively utilised in order to transform their value into economic benefit. The integrated industry development strand has the potential to create a demand-pull for jobs and skills which in turn supports employment policies and social goals, whereas traditional skills policy suggests a supply-push jobs effect. That is, qualifications create jobs because industry can access skills. There may be some element of truth in the supply-side position, but an economy needs viable industries to create jobs, and we feel that, in a scenario of diminishing public budgets, more value for the public dollar can be obtained through our industry development strand.

The global financial crisis has also prompted some countries to consider the value to their economies of traditional supply-driven skills policy. There is growing recognition of the complexities that circumscribe and potentially restrict the value of skills in workplaces. The use of 'workforce development' strategies in conjunction with traditional skill-supply policies has also been noted (Skills Australia, 2010). However, the limitations of the latter when used in isolation, generally in the context of labour market models, are increasingly being recognised (Skills Australia, 2010). The more contemporary context for skills policy is that of workplaces, regions and communities where the influences on skills can be more effectively managed.

We are also informed by the experience in the Nordic countries where demand-side policy to induce demand-side improvements has been in place in various forms for several decades. In general, policy makers in these countries have found that demand-side policy interventions aimed at workplace innovation and change, when supported through the competitive funding of a large number of projects carried out at the level of the enterprise, or through industry clusters, are

preferable to policy positions that propose the implementation of universal best practice solutions which may or may not suit the local technological or organisational context (OECD, 2010). Policy makers in these countries have found that competitive funding for workplace-change policy interventions that encourage strong employee engagement is best adapted to local conditions in enterprises and clusters, and creates skilled leaders and managers better able to innovatively and effectively utilise the skills of workers (OECD, 2010).

The Nordic country findings are instructive. Perhaps, then, from a policy perspective, pilots and demonstration projects such as the WP&PP tend to be less effective in the longer term because they rely on the dissemination and diffusion of findings to other enterprises, as opposed to the more direct development of leadership and management capability. However, both of these strategies can be adapted to accommodate the other. The Department of Innovation, Industry, Science and Research argues that leadership and management capability is necessary to build longer-term competitive advantage in Australia (DIISR, 2009). Given that in Australia the funding of traditional supply-side skill programs alone, as a quick fix for skills issues, is likely to prove unsustainable in the future, a funding strategy which leverages desirable demand-side activity from industry is worth exploring. The cited evidence from abroad is encouraging. In acknowledging the Nordic findings, it may, however, be necessary in the Australian political context to go through the process of establishing demonstration projects to 'prove' to politicians and senior bureaucrats that the inclusion of a demand-side strategy may have more impact on each of the four tiers of influence in Table I, and hence incur less wastage that would otherwise result from over-qualification, under-employment and under-utilisation.

The ideal next step, then, in our conceptualisation of an industry development strand is to find a way to embed it within agencies responsible for industry development, innovation, work and employment at the very least. VET agencies would then have more time to focus on the education services strand with its inherent responsibilities for better aligning VET with schooling and higher education for skills development purposes.

## Conclusion

Research and discussion within Australia suggests that the time is right for governments to differentiate skills policy for industry from skills policy for individuals. This would at least provide a clear rationale for a refined role and purpose of VET, and establish the context for monitoring and evaluation. Reports about demand-side praxis in foreign countries complement the Australian discussions. Our own construction of VET futures frameworks for public policy and monitoring and evaluation is an action learning response to investigate the feasibility of applying demand-side VET strategy in Australia. Our very early intuition is that although there is considerable political and bureaucratic disinterest, much of the work of developing measurement items has already been done independently in various domains germane to VET role and purpose and national sustainability responsibility. The frameworks we have presented are for discussion purposes. They are first steps in a journey towards a suitable VET futures policy mix. More work needs to be done on getting the structure and measurement content right and on developing master flow diagrams to help ensure an open-silo integrated approach to inter-agency policy formulation and intervention.

## Notes

- [1] This article represents the views of the authors: affiliations are provided for identification purposes only.
- [2] The article uses the terms 'demand-led' and 'supply-driven'. 'Demand-led' refers to a system in which industry advises government on skills needs and then government funds providers accordingly. Cully implies that, in Australia, 'demand-led' activity is compromised because training providers are driven by their delivery capability and central agency resourcing arrangements. Hence the VET system can become 'supply-driven'. The article also uses the terms 'supply-side' and 'demand-side'. 'Supply-side' activity occurs when skills are delivered to the labour market using publicly funded training. 'Demand-side' activity is what goes on in workplaces when industry itself actualises the value of skills

- through its own high-performing workplace management practices, including attraction, development, effective utilisation and retention of a skilled workforce.
- [3] A high skill equilibrium means that the sector goes to market with high-end products, and is able to sustain a balance between the demand and supply for high-level skills.
- [4] More skills in terms of qualifications can assist individuals to participate in the workforce, but increasing qualifications per se does not necessarily support improved productivity and competitiveness, which derive from demand-side issues, including the effective utilisation of skills.
- [5] The responsibility of business to provide decent and meaningful work is most relevant in this context.
- [6] 'Open silo' in this article is a term used to describe integration of otherwise mutually exclusive (closed silo) policy regimes.
- [7] More sophisticated than those presented in this article.

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