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Skills Formation Strategies in Queensland

A SKILLS SHORTAGE?

Noela Eddington, Phillip Toner

A skills shortage?



A lack of skilled workers?



Or rather a problem
of work organisation?

SKILLS FORMATION STRATEGIES IN QUEENSLAND

OECD LEED Programme: Local skills strategies

Queensland Skills Formation Strategies

Noela Eddington

with comment by Phillip Toner

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INTRODUCTION

Overview

The Australian state government of Queensland developed an innovative response to sustained and broad-based skill shortages in both high and low unemployment scenarios through a set of Skills Formation Strategies. Introduced in 2002, the Skills Formation Strategy approach was critical of traditional supply-side approaches to meeting the needs of industry for skilled labour, especially workers trained through the Vocational Education and Training system. Through framing skills problems in a different way, the government took the view that increasing skills supply without complementary industry attention to good workforce management practices, skill utilisation and employee engagement would not resolve skill mismatches or shortages. Over 60 Skills Formation Strategies have since been established, in a process characterised by strong industry-led involvement, multi-stakeholder coordination at the state, regional and local levels, and flexible provision. By dispelling the myth that increasing training supply alone can resolve skills shortages, training organisations and local government have become better positioned to respond to industry needs.

This paper¹ begins with an overview of skills and training in Queensland. It outlines the concept behind the Skills Formation Strategies (SFS) and the rationale for moving from a supply-side to a demand-side approach, discussing how the model was developed and implemented. Two specific strategies in action are then examined - a state-wide health sector strategy and the regionally focused Western Downs strategy. The paper provides an evaluation of the SFS model, examining its strengths and challenges, and discusses ways in which the model can be improved upon and disseminated. It concludes with critical success factors for policy makers. The review is followed by a commentary piece² on Queensland's SFS, approaching them within the broader Australian skills policy context. It provides contextual information on skills in Australia and sets out Skills Formation Strategies as an alternative approach to skills, discussing the factors leading to its establishment within a fast changing labour market. It examines the difficulties in evaluating SFS and concludes by asking whether the strategies can be considered a 'local experiment' with limited potential for mainstreaming.

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- 1 . This paper is authored by Noela Eddington, Former State Director of VET Strategy and Research Department of Education and Training, Queensland Government, Australia. Francesca Froy and Lucy Pyne from the OECD Secretariat oversaw and contributed to the paper this paper as part of the OECD LEED Local Skills Strategy project.
 - 2 . The commentary is provided by Dr Phillip Toner, Honorary Senior Research Fellow, Department of Political Economy, University of Sydney.

SKILLS FORMATION STRATEGIES

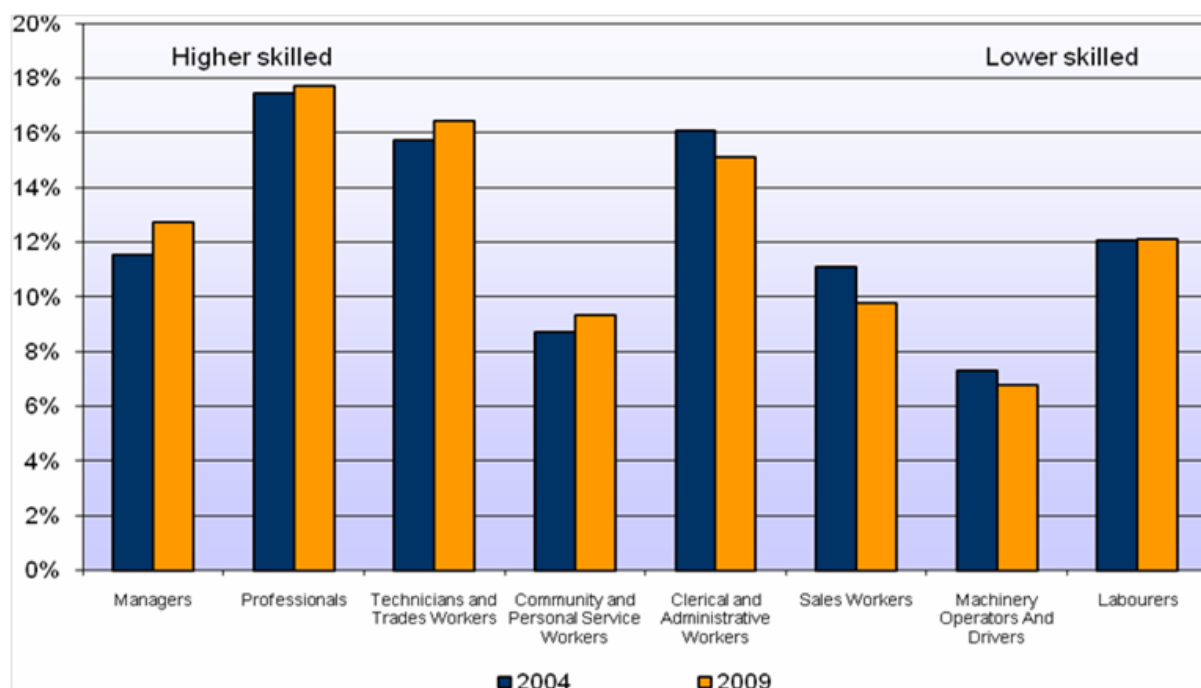
Employment and skills context in Queensland

Queensland is a large decentralised state on Australia's eastern seaboard. Its 4.5 million population (March 2011) is largely located in the south-east corner, and represents 20.2% of the Australian population. The state's economy is based largely on mining, primary industries, services and tourism. Queensland has experienced relatively low unemployment in the 2000s, ranging from approximately 3.8% to 6%. The impact of the global financial crisis saw a brief period at the higher end of this range, but this quickly returned to a level that has fluctuated around 5% and remains lower than the national average. Employment growth rates have generally remained positive and labour force participation is in the order of 67% - higher than Australia's average participation rate. Older workers are choosing to stay in the labour market beyond the retirement age of 65 and labour force participation for 55-64 year olds has also increased, rising from 40% in the mid-1980s to over 60% today in both full-time and part-time work.³ Changes in the labour market have generally been attributed to growth in technology, globalisation and the increased prevalence of information and communications technology.

Employment is growing more strongly in higher skilled occupations, a trend which has also been noted internationally. Figure 1 shows the change in the share of total employment in higher and lower skill occupations in Queensland from 2004-09. In general, high-skilled categories of professionals, technicians and trades grew at rates above the state average while the lower skilled occupations grew at more modest rates. The highest growth rates occurred in Managerial positions while declines were experienced in the employment of Clerical and Administrative Workers, Sales Workers, and Machinery Operators and Drivers.

3. A recent survey of workers aged 45 and over in four industry sectors (aged care, finance, hospitality and construction) indicated that approximately 70% of respondents expected to work beyond retirement age on a full or part-time basis, and 28% considered that they would need training to do so (Lundberg and Marshally, 2007).

Figure 1. % Changes in share of total employment in higher and lower skill occupations, Queensland, 2004 - 2009



Source: Queensland Government (2010), p.7

Different industries over the period 2004 to 2009 have experienced varying rates of growth and decline. Mining, Electricity, Gas, Water and Waste Services, and Construction displayed the fastest growth (14.2%, 10.1% and 6.6% average annual growth respectively). Agriculture, Forestry and Fishing, Manufacturing and Information Media and Telecommunications experienced decline (-0.4%, -0.8% and -3.4% respectively). Total industry average growth was 3.3%. With the exception of construction, all of the sectors that displayed faster than average growth from 2004 to 2009 were also resilient during the economic downturn.

Explaining Skills Formation Strategies

Skills Formation Strategies (SFS) were conceptualised, designed and managed to address persistent skills shortages in Queensland in both high and low unemployment scenarios, and in the context of a rapidly expanding resource sector. SFS place skills as lower order issues after dealing with workforce management and organisational issues. Specifically, if an industry, a region or a community has a serious skills or labour issue, they are given the opportunity to work with government and other stakeholders to undertake in-depth analyses of the skills issues. The process requires industry to confront traditional assumptions and to more accurately identify what is contributing to skills problems, taking a step beyond advising government on training requirements. It has led to engagement with a number of relevant policy areas and has provided a mechanism for ensuring industry networks are more accountable for skills.

The Skill Formation Strategy concept is characterised by a number of distinctive features (Toner, 2012):

- It adopts a systems or 'ecological' approach to the analysis of, and solutions to, occupational labour shortages. More concretely, it is based on the idea that successful skill formation

within a single firm needs to be integrated with business strategy, product market definition, technology, business systems and processes, and good workforce management practices.

- It recognises that skills formation inside a single firm occurs within a complex external economic and institutional environment marked by complicated interactions and unintended consequences. A SFS therefore requires extensive and intensive collaboration with major stakeholders such as supply chains, unions, industrial relations specialists, local government, and education and training providers.
- It is envisioned as self-sustaining networks of relevant stakeholders who are responsible for skills and knowledge in an industry, including education and training providers, unions, professional organisations, different levels of government, the supply chain, and any other relevant agencies or organisations. It intends to build stakeholders' ability to analyse and understand the relationship between skills, broader economic conditions, the nature of industry, and other relevant business settings. The concept is used to convey the interdependency of factors that give rise to business success in generating innovation, growth and competitiveness. Integrating activities within government policy fields that are traditionally kept separate, such as economic development and infrastructure, is promoted.
- It posits that when addressing skill shortages the focus needs to be on the existing workforce and not only on training sufficient new entrants as in most occupations the flow of new entrants is only a small fraction of the stock of existing workers. Consequently, shortages can usually be more efficiently addressed by up-skilling and multi-skilling existing workers and preventing high labour turnover than training new workers.

Rationale behind the concept: moving from supply-side to demand-side

On-going reforms to the VET system

During both higher levels of unemployment experienced in Queensland in the 1990s and much lower levels in the 2000s, industry reported significant skills mismatches and shortages. As a result a variety of reforms were made to VET provision which aimed at increasing qualification levels in Queensland by providing more training, improving access for difficult-to-engage cohorts and developing programmes tailored to specific priorities. Structural reforms were made to the delivery arm of the VET system. 32 public TAFE (Technical and Further Education) colleges were converted into 16 TAFE institutes to provide the critical mass needed to exercise autonomy at the local level and to engage more meaningfully with local stakeholders.

A private training market was fostered through tendering an increasing proportion of public training funds to private registered training organisations based on the rationale that private training providers would be more efficient and responsive to industry needs. Amounts in the order of AUD \$10 million were added annually to the competitive training budget, which was open to tender by both private and public training providers.⁴ However, over time this created budget deficits in many of the public training providers and adjustments were made in the late 1990s to slow down the transition to a competitive training market to give public providers more time to adjust to this new, more competitive environment and to maintain the social infrastructure that public institutes provided in rural and remote Queensland. Overall, these reforms led to a 40% increase in the number of VET students and a 25% increase in the publicly funded VET budget from 1995 to 2005.

4. Queensland's annual publicly funded training budget is in the order of AUD \$1.4 billion.

Reforms made were influenced by the outcomes and findings of nine national skills ecosystem projects in Australia, introduced in 2003. They were established to explore different roles for Technical and Further Education institutes and strongly focused on research, linkages with supply chains and re-shaping work and labour markets by adopting the skills ecosystem concept. Running until 2006, they were funded by the Australian National Training Authority (ANTA) and had some positive impacts on specific industry sectors, particularly the dairy industry in Victoria (see Box 1). The subsequent SFS were essentially Queensland's version of the national skill ecosystem concept. They differed from the national projects in that they addressed a wider range of themes and were more closely integrated with economic and social policy.

Box 1. National skills ecosystem projects

The national skills ecosystem projects were introduced in 2003 and sought to adopt a 'skills ecosystem' concept, looking at skills use in industry, what strategies worked, stakeholder roles and sustainability post funding. The projects covered areas such as VET links with research agencies to promote innovation, promoting new technology, workplace drivers of skill formation, skills formation to support the development of an industry cluster, and job design and career paths. Projects were ambitious and aimed to achieve long-term structural change.

The skills ecosystem process has had some worthwhile impacts on specific industry sectors. The dairy industry in the state of Victoria, in particular, approached an increasing demand for high-end skills using the skill ecosystem methodology and has used the process successfully. The shift in product market strategy from supplying traditional commodity based markets to value-added markets with all that this entailed (e.g. tighter product specifications, the introduction of new technologies, the development of participative workplaces, higher regulatory scrutiny, and higher levels of customer expectations) were the key drivers of a well-structured, industry-driven skills ecosystem for accelerating high-end skills development. The skills ecosystem approach had a strong influence over the SFS concept.

While the national projects have since ceased, they have produced valuable findings. Firstly, the concept of 'skills ecosystem' was difficult for stakeholders to comprehend. It was also found that project funding timeframes need to cover a three to five year period, as opposed to two years which was how long the projects were funded. Monitoring milestones is useful to keep the projects on track and project managers need to keep the focus on implementation.

Source: Australian Government, 2010

However, the reforms were generally only modifications to the existing VET system and a policy model in which industry advice was translated into the funding of training. Reforms marked a tweaking at the edges of an inherently silo-based supply-side activity, rather than signifying whole scale reform, and did not always produce the right skills, in the right place, at the right time (see p.31 in Toner's review for more on the supply-side approach). It was also apparent that standard VET policy and programmes were not always relevant to industry sectors and skills shortages and mismatches persisted even in the context of relatively low unemployment. A compounding factor was the lack of industry accountability to effectively develop its own workforce skills and fully utilise these. Skills were seen as primarily a government responsibility, even when government could no longer afford to respond adequately to industry requests for training. As Keep pointed out, government was running a 'business welfare' system which was unsustainable (Keep, 2006). He suggested that the advisory mechanisms and industry-driven supply-side VET system had the potential to create 'dead weight' training - that is, publicly funded training that would normally be funded by industry. With no obligation for industry to link skills to internal business matters, skills were being wasted.

Skills wastage

Skills wastage occurs when skills are not effectively utilised in the workplace and as a result skills essentially have no value. Without strong linkages between business strategy, product market definition,

technology, business systems and processes and good workforce management practices, continuing a mainly supply-side only skills system was like pouring dollars into a leaky bucket (see Figure 2).

Figure 2. A supply-side skills system: a bucket leaking skills



Source: Noela Eddington, 2012

A contributing factor to skills wastage is over-education, with high competition for jobs also playing a role. Over-education tends to occur where VET systems are geared to supplying ever increasing qualifications. Although increasing the education profile has social benefits in an economy, increasing the supply of skills beyond demand can lead to a sub-optimal investment in skills. Research suggests that in Australia close to 30% of the workforce has an educational qualification which exceeds what is needed in their jobs, and is under-utilising their skills (Linsley, 2005). According to Linsley, over-education is a form of skills related under-employment and a type of labour under-utilisation that imposes costs on individuals and economies. It represents an inefficient allocation of human capital resources and as such may negatively impact productivity and economic growth (Linsley, 2005). Watson (2008) found that 14% of employers report difficulty in recruiting staff and they attribute this to a shortage of skills and labour in their sector, while 5% of national employers reported having staff with skill levels below job requirements. In addition, over 40% of the Australian labour market is employed on a casual or part-time basis, thus a high proportion of employees are under-utilising their skills due to limited work hours.

The limited impact of continual supply-side reform on skills shortages, the growing problem of skills wastage and the emergence of the skills ecosystem concept played a role in making the time right for Queensland to begin experimenting with demand-side strategies.

Implementing and expanding the skills formation model

Skills Formation Strategy pilots were first authorised in 2002-03 and were seen as potentially providing the blueprint to overcome Queensland's pressing labour issue and deliver major systemic change. Four SFS projects were selected and negotiated by the central VET office with specific industry sectors where co-operative working relationships already existed and which were receptive to piloting a different way of working: Mount Isa Mining Network; Gold Coast Boat Building; Nursing and Aged Care; and, Marine Tourism in the Whitsundays. The Mount Isa Mining Skills Formation Strategy, for example, engaged 12 large mining companies in the North West region (companies which were already linking skills to workforce planning and development), and it enabled them to explore ways to improve skills and tackle labour shortages in a thin labour market. It was necessary to carefully select the first SFS projects as both government and industry were on a steep learning curve; receptive stakeholders were essential to aid that learning. All stakeholders (industry, unions, VET providers, regional office staff, local business associations, local government officers) were encouraged to be open and bring the underlying issues impacting on skills to the forefront of discussions.

The success of these first SFS projects in resolving a range of seemingly intransigent issues with the VET system led other industry sectors to seek similar interventions. In 2004, 12 SFS were funded for two years and it was at this stage that the projects were able to focus greater attention on demand-side issues. These SFS were selected by government in areas where skills issues were impacting on economic and social policies. Implementation progressed incrementally, cautiously and experimentally, and many of the early solutions to skills problems were achieved through negotiating changes to traditional systems, processes and policies. However, no state-level change management process was undertaken and Cabinet approval for the pilots was not sought as it was thought that this would hold up the process. There was also some government resistance at the time. A number of bureaucrats believed that the process was overly complicated and would result in a loss of control by government by moving away from supply towards demand orientated solutions which rested more with industry.

Considerable efforts were made to communicate the successful resolution of a variety of skilling and labour problems. By 2006 the strategies were very favourably viewed by industry because of their potential to address the grassroots causes of mismatches and skills shortages, information which was informally filtered back into the political system by industry leaders themselves. By 2006, 17 SFS were in existence and most of them were successfully resolving skills issues for industry at the local level. The SFS process was formally approved by government in the same year and was included in the *Queensland Skills Plan*, which set out a commitment to support 40 SFS over three years in selected sectors and regions targeted for development and where skills and labour shortages were problematic.

Post 2008, the Queensland Government committed to funding six new SFS projects a year. Over 60 SFS have now been introduced with varying degrees of success (see Appendix 1 for a list). As the goals of SFS are ambitious, a minimum time frame for implementation has been set at at least two years and preferably three to five years for modest projects, especially in projects where performance indicators include improvements in labour productivity and other downstream benefits.

Selection criteria

Because of the demand from potential SFS participants for funding, criteria were developed to select projects which aligned with broader government economic and social priorities (see Box 2). During the application process, central agency staff worked with short listed industries and regions to develop their understanding of the SFS concept and ensure their readiness to participate. The selection process is considered to have worked well and has allowed the government to strategically select Skills Formation Strategies.

Box 2. Selection criteria for SFS projects

SFS proposals are rated against the following criteria:

1. The proposal must represent a priority region, industry sector or sub-sector as identified through relevant government policies.
2. Characteristics which may be considered include:
 - Size and impact on the region
 - Connection to the VET sector
 - Value-add potential
 - The nature of the existing research and data collections
 - Focus on new and emerging industries
 - Influential organisations/champions involved in the host organisation
 - Nature of the industry environment and networks
 - Reputation of the host organisation

Initial SFS network processes encompassed local data collection and detailed analysis of the factors affecting skills attraction, development (on-the-job and in institutions), effective utilisation and retention of skills to identify the specific causes of, and solutions to, skills shortages. A customised approach is required as the causes of shortages and responses to them differ greatly across regions, occupations and industries. Initially, a SFS facilitator was appointed within government but this changed over time as government learned to trust the process to be managed within the industry network itself. Because the SFS were experimental, project processes were organic and local level decision making became the norm.

Other ongoing workforce development initiatives and funding

Skills Formation Strategies sit within the Queensland Workforce Development Program, a programme which provides stakeholders with a model of how to work collaboratively in identifying common workforce development issues and developing actions to resolve them. Funding is available for innovative, one-off projects that address skills and workforce development needs and are consistent with identified priorities. Indeed, the Skills Formation Strategies have not been operating in isolation and they are one of several new industry engagement mechanisms introduced. However, they are generally the only one which involves demand-side issues. Queensland Skills Commission now funds a number of ongoing workforce development initiatives which are being taken forward in conjunction with the Skills Formation Strategies:

- A Strategic Investment Fund is available to priority industries facing demand-side workforce issues. Its main focus is training for industries that are facing structural adjustment and/or have inefficient skilling pathways.
- The Gateway to Industry Schools Program gives young people a chance to consider career opportunities and provides industry with the opportunity to attract more young people.

Specialised secondary schools are established in specific industries (such as aviation) to attract young people.

The first four SFS pilots were funded by budget savings incurred through leveraging training which provided Queensland with spare budget capacity to pilot the SFS approach, a situation that did not exist in other states.⁵ SFS are generally funded for two years at AUD \$120 000 per year. In some cases, funding is for longer periods and occasionally may be provided for more than one facilitator salary. Essentially, funding is specific to the SFS bearing in mind the scope and complexity of the work to be undertaken and the capability of industry to participate in the process. When negotiating individual funding arrangements the government takes into account the structure and nature of the industry, the available business settings data, as well as the need to develop ownership, accountability and sustainability. There is flexibility in the funding model to allow for shared funding between government and a host agency or network, and an expectation that industry funds are leveraged to support project activity.

Geographical and sector spread

Skills Formation Strategies operate across a wide array of sectors and a wide geographical spread. Some take primarily a place-based approach while others focus on particular industry sectors and clusters of varying sizes, ranging from small agribusinesses to the large state-wide health sector. Examples include:

- Regional SFS are designed to build regional and community capacity to develop skills and make local businesses more sustainable in the face of major regional economic growth, such as the Western Downs Regional SFS (see section below). These have generally worked well given that they are linked into other regional development strategies. They are usually managed by regional office staff but regions undergoing major development projects also involve other levels of government.
- Strategies addressing seasonal and transient labour markets, for example Lockyer Valley, Bundaberg Agribusiness, and Gayndah Agribusiness. These have generally resolved skills and labour shortages through innovative approaches to training courses and their delivery. The Wine SFS brought together a cluster of small vineyard owners in a rural area who require skilled labour on a seasonal basis. It also developed a local Wine Skills Centre to provide not only skills for local vineyards but hospitality skills for local tourism employers. In Lockyer Valley a skills passport was introduced which recorded a variety of technical and safety competencies for itinerant workers. Tourism SFS focus generally on up-skilling and skills attraction in thin labour markets and tend to work well.
- Information Technology, Digital Content, Film and Television and other Creative Industry sectors. These can be difficult to mobilise because of the size of firms, intermittent work, mobility of the labour market and comparatively limited capability to operate collectively. An exception to this is a recent Print Industry SFS that helped transform the sector from paper to digital print.
- A health Skills Formation Strategy was established to investigate whole-of-industry workforce issues and develop a strategic plan to reform Queensland's second largest industry to improve

5. For example, in the late 1990s a brokerage arrangement was established in the mining sector whereby funds were provided to the then Mining Industry Training Advisory Board which worked with individual firms on workforce planning and management practices. Funds for training were only provided to those firms that were willing to undertake demand-side analytical and planning processes and which were willing to fund a proportion of the skills requirements themselves.

healthcare through a sustainable and innovative workforce. It acts as an ‘umbrella’ SFS in that it provides the overall structure under which a number of sub-strategies operate, providing a more focused type of intervention (see health SFS section below).

SKILLS FORMATION STRATEGIES IN ACTION

Health Skills Formation Strategy

The Health Skills Formation Strategy was established in 2007 to structure an investigation into whole-of-industry workforce issues and develop a strategic plan for reform for the industry. It was a three year state-wide sectoral project to improve healthcare through a sustainable and innovative workforce. The Health SFS can be seen as an ‘umbrella’ SFS in that it provides the overall structure under which a number of sub-strategies operate. Drawing up an overarching strategy was necessary to co-ordinate activities as smaller interventions were having limited impact and policy interventions were producing fragmented outcomes. The SFS for nursing and aged care, for example, was somewhat compromised because nursing in hospitals and other health sectors was not included and consequently when the government increased wages in public hospitals for nurses this caused a drain of nurses from the aged care sector. The Health SFS initiative is focused on re-designing job roles to ease skills shortages and providing common competencies across occupations, which in turn provides better pathways for students between school, VET and university. Among other things, it has also achieved significant realignment of publicly funded training to better meet the needs of industry.

The Health Skills Formation Strategy was particularly complex due to the fact that it had to deal with multiple occupations in health and community services such as disability, child protection and mental health, and was operating within a huge sector (in the mid-2000s the Health and Community Services sector employed 23% of all employed people in Queensland) which was experiencing on-going reform. Queensland’s health sector has been plagued with capacity and skills issues, especially in rural areas, experiencing on-going skills shortages, competition for existing employees and general recruitment difficulties. Retention rates are generally poor. This is principally due to unsatisfactory working hours (many workers are part-time or casual) and there is also relatively low remuneration and poor working conditions. Employees commonly receive insufficient training because of their job status and the training system is constrained by budget restrictions. The workforce is mainly female - women make up 78% of the workforce - the highest proportion of all industries.

A lack of people with the right skills has been aggravated by the poor working conditions noted above, low population density in rural areas, and less attractive human resource management practices in some instances. Frequently it comes down to not having enough people to train so attracting foreign workers has been used for some time as one way to ease shortages. An ageing population is also placing additional stress on the workforce by increasing demand for health services, while the workforce itself is ageing - 38% of workers in the sector are over 45. These factors have made the environment in which the strategy operates more complex but they have also served as an additional incentive to intervene.

The Health SFS was established by the Health and Community Services Workforce Council, an organisation which plays a leadership role in health workforce development and innovation.⁶ The process is managed by a Health Industry Leaders Group, comprising 19 members representing a wide variety of

6. The Health and Community Services Workforce Council’s charter is to address demand-side factors in workplaces as well as provide supply-side intelligence on skills shortages to government through the Skills Alliance. It is managed by a board on behalf of the industry.

public and private industry organisations, unions, government and NGOs. A high order governance structure was erected to ensure strong co-ordination in what is a very large sector. Three facilitators administer and manage the strategy, including the facilitation of key relationships and networks. The strategy engaged stakeholders at operational and strategic levels of the health system to identify workforce issues and implement shared solutions. A unique element was the dual focus on strategy and systems change, and operational and local workforce activities to deliver outcomes.

Before the SFS was set up, a six month scoping phase was undertaken and involved detailed industry and labour market analyses. It produced a detailed plan of action across all areas of the health sector setting out broad action areas and their deliverables to be addressed in the short-term, while also ensuring that the network of stakeholders would remain in place in the longer term. The action plan set six priority action areas:

1. Industry-wide recruitment and retention
2. Industry-wide job design and re-design
3. Education and training pathways
4. Indigenous health
5. Reliable and realistic funding structures
6. Rural and remote focus

Industry forums, workshops and focus sessions were hosted and successful workforce strategies and initiatives were showcased to encourage broader application and learning e.g. through bi-monthly bulletins, workforce innovation seminars, and website communication strategies. Existing initiatives and programmes were enhanced and implemented with key partners.

Industry-wide job re-design

The Health Skills Formation Strategy is committed to moving the focus away from narrowly defined roles and job descriptions towards shared skill sets for health professionals. It is about legitimising professionals to do things differently through broadening their job roles. Skills in the health sector are frequently transferable across different work areas, meaning that it is possible to train staff in both specific competencies (e.g. podiatry) and more general skills. Not only does this help to build career pathways but it can also make work more rewarding and raise job quality if managed effectively. However, it requires reforms to training delivery to amalgamate and reduce the number of available qualifications.

A sub-strategy operating under the Health SFS banner established an experimental approach to solving skills shortages through job re-design and up-skilling of existing workers – the Supply Chain in Allied Health. It sought to change work organisation in the sector by better allocating tasks between allied health professionals and their assistants to ensure that both roles more fully utilised the full gamut of their skills. Prior to this assistants were mainly undertaking administrative tasks rather than taking on low level clinical work, thereby adding to professionals' workload and leading to longer waiting lists.

Following consultations with the relevant union and receiving their backing, as well as overcoming some initial resistance amongst workers, both roles were re-designed to enable low level clinical work to be managed within an enhanced assistant role. More training was provided to assistants in technical skills and to professionals in delegation and supervision. The re-designed assistant role enhanced their capacity to move across the continuum of allied health services (e.g. in community aged care, residential aged care,

community health and acute health care) which has enabled better skills utilisation, reduced waiting times and has supported recruitment and retention in the sector through providing better quality jobs. The SFS process has also created better relationships between the health, VET and higher education sectors, which has resulted in a better understanding of needs and the provision of more responsive training models. The role of the coordinator in managing the process proved critical to its success and project findings have been disseminated to the rest of the industry across Queensland.

The Chronic Disease Self-Management subsidiary SFS set out to improve skills utilisation among health professionals as a way to overcome pressing skills shortages by opening up a common skill set for all VET trained health workers in the area of patient self-management of chronic conditions. This was achieved through breaking down the health specific occupational categories which allied health professionals (such as podiatrists and dental technicians) are trained in, and embedding a common approach to care and self-management of disease. The strategy aimed to bring about a shift in perspective from focusing on treating diseases to promoting general health and wellness maintenance among patients as preventative practices. In addition to supporting career mobility, the wide adoption of this approach helped in providing a more holistic service to patients.

Feedback from the projects focusing on job re-design and expanding skills found that the new training systems changed practice delivery and demonstrated that allied health assistants can contribute to clinical services when given the opportunity. Wider evaluation also identified more job satisfaction among professionals in adapting to the new roles. A number of lessons have emerged from the strategies operating within the Health SFS and are listed in Box 3 below.

Box 3. Lessons from the ground: re-designing jobs and roles

A number of key lessons have emerged from projects focused on re-designing jobs and responsibilities,:

- Where skill and labour shortages are persistent, taking action to better utilise and upgrade the skills available to the sector through job re-design can be a useful process. However, it is important to realise that careful change management processes need to be in place to ensure that the changes are accepted in a non-threatening manner.
- Industry problems must be correctly diagnosed at the beginning and assumptions about skills shortages need to be tested.
- Commitment is critical as re-designing and piloting new roles takes time and needs to progress in line with organisational and industry capability to ensure long-term sustainability. It inherently involves more than one occupation within an industry sector.
- Where complex or multiple funding arrangements drive the content of specific occupations, these arrangements need to be considered and addressed to enable change to occur.
- It is important to manage stakeholder relationships in a productive and collaborative manner. Unions in particular are a valuable asset and while it can be difficult to involve them, it is preferable to have them on board.

Education and training pathways

A core element of the Health SFS has been on developing and strengthening education and training pathways by building the capacity of the health industry to host trainees, and of the education and VET sectors to provide appropriate training. In general, pathways between school, VET and higher education have been problematic in Australia in certain sectors where universities traditionally give variable credit

(usually minimal) for VET qualifications.⁷ However, it is now quite common for industry sectors to successfully negotiate credit transfer for VET qualifications with individual universities to provide more attractive career pathways for individuals. Under the Recognition of Prior Learning initiative, programmes for health related VET qualifications were developed for use nationally and an action group was formed to continue work in this field. One initiative spinning out from the Recognition of Prior Learning initiative was a working group between the Department of Education and Training and the University of Southern Queensland to create clear education pathways between VET institutes and university, piloted for occupations in pathology and pharmacy. This group is successfully continuing recognition and articulation work in other health occupations beyond the life of the SFS.

A state-wide school-based traineeship in health was set up as a form of school-based pathway into health careers. It sought to build the capacity of the health industry to host trainees and the capacity of the education and VET sectors to provide appropriate training in a partnership between industry, schools and VET. Health industry forums established industry-school alliances to support work-based delivery and uptake of traineeships and by 2009 commencement rates had doubled (see Box 4 for an example).

Box 4. Streamlined vocational pathways for students

The Health SFS partnered with the Healthy Futures Program in Townsville, one of the larger provincial Queensland cities. This alliance brought together key stakeholders to develop a holistic understanding of the future health workforce needs of Townsville and to jointly develop streamlined vocational pathways for students through senior secondary school to post school employment and further VET or university education. The pathways are specifically designed to meet the needs of industry and to attract young people into the health industry, and have been attractive to students. The alliance has provided an opportunity for stakeholders to network and discuss key issues such as clinical placements, articulation and reverse articulation (pathways from VET to university and vice versa), targeted indigenous careers forums, cadetships and traineeships. Resulting from this, in 2010 14 Year 12 students attained the certificate III Health Services Assistant qualification and were offered direct entry into diploma and bachelor courses in nursing. The students were also qualified to enter the industry as health services assistants.

Impact of the process

The SFS process of collaborative networking, sharing industry intelligence and working from a united vision in the health sector was seen as transformational. The sector as a whole has committed to think differently and act together to ensure the sustainability of the workforce and it has set in motion activities which are continuing to engage and align skills formation with the strategic needs of the health industry. Opportunities to maximise the benefit of the education and training system were identified as important reasons for sustaining the strategy. A qualitative review of health workforce reform found a high level of satisfaction with the overall process of engagement and facilitation. The diversity and commitment of stakeholders across government, non-government sectors, education and training, rural and remote areas, and other related bodies such as unions were particularly valued.

Another noted strength was the parallel engagement of stakeholders addressing both strategic and operational aspects of workforce issues through the formalised governance structures. Greater awareness of the industry and education system as a whole was reported and traditional health sector occupational areas were bridged to enable shared decision making. Collaborative activity across the sector better positioned the industry to engage with federal, state and regional funding as well as capacity building activities. This in turn provided opportunities for stakeholders to work together to implement a Health Action Plan and set

7. The divide between the two sectors derives from the notion of ‘education’ and its attendant knowledge and analytical base in universities, and competency based training in VET.

up formal partnerships with organisations such as the Queensland Self-Management Alliance, Australian Health Workforce Institute, and Clinical Education Queensland.

Western Downs Regional Skills Formation Strategy

The Western Downs Regional SFS has received national attention and is seen as a good practice example of a local community strengthening its own capacity to deal with a rapidly changing economic context within a sparsely populated territory. Since the strategy was implemented, it has morphed into a higher order regional development process – supported by the State and Federal governments - which focuses on workforce planning and broader economic development.

The region is located in the state's south east and comprised of five local government areas (Dalby Town, Wambo Shire, Chinchilla Shire, Tara Shire, Murilla Shire) which are mainly rural and have low population densities. It supports an agriculture-based economy with a small manufacturing industry and has a population of 32 071 (in 2010) - 0.7% of the Queensland population (Office of Economic and Statistical Research, 2011). The region is among the highest local government growth areas in Queensland and Australia, and the economy continues to grow, despite the negative global environment, mainly due to mining (see p.31 for more on the impact of mining on skills needs). The region's rapid economic growth has placed increasing pressure on the labour market, reflected in low unemployment figures which undercut state and national averages (3.3% in June 2010, compared to Queensland's 5.4% unemployment rate).

Significant industrial change began in the Western Downs Region in 2003. The Kogan Creek power station and mine, an ethanol bio-refinery at Dalby, a large industrial piggery, several coal seam methane gas plants and the Chinchilla-Tarong railway line were all developed in relatively rapid succession, attracted by large natural resources, with other large, multi-national companies following.

Local businesses throughout the local government areas were fearful for two main reasons. They envisaged high paying jobs in the larger, new industries draining talent from small population areas and thus posing a serious problem for their own sustainability as they would struggle to hire people with the right skills. This was especially pressing given that the region had already been experiencing high levels of out-migration by young and working age people to coastal Queensland in search of a better quality of life. Secondly, local people feared that the new industries would import labour and services from elsewhere to tackle shortages rather than invest in the region, thus cementing a trend of local small communities emptying out as people left and becoming ghost towns.

The Western Downs Regional SFS was established in 2005 to build regional capacity so that the community could develop the skills needed within the pre-existing population. The strategy forged a community and industry culture of taking ownership of skills issues and coming up with endogenous solutions. The Western Downs Regional Group of Councils (WDROC) created and oversaw the SFS. Initially the most active player was the economic development sector but over time representatives from multiple government departments came together and became involved in implementation.

The strategy helped local businesses to become sustainable in the face of major regional economic growth by building them into new supply chains as the major industries embedded themselves. This was achieved by linking skills policy into broader regional planning and economic development. Local SMEs have received assistance in becoming part of their supply chains (see Box 5), particularly when coal seam gas and liquid natural gas industries entered the region – industries worth in the order of AUD \$40 billion. They have been assisted in this process by two centres of excellence - Construction Skills Queensland (CSQ) and Energy Skills Queensland (ESQ).

Box 5. Upskilling workers to better enable local firms to connect to multi-national supply chains

The ready supply of local labour emerging as a result of additional training has enabled a local building company to apply for a major contract to construct high quality demountable accommodation units for gas field sites throughout the Surat Basin. The building company, Hutchinson, designed a purpose built production facility in the region which utilises an innovative railed production line. With stringent quality control measures integrated, the facility outputs 3 000 rooms per year. The company is now a significant employer of construction workers and tradespeople in the region, as well as engaging sub-contractors for specialist trade services. It was recently named Employer of the Year at the National Training Awards, which demonstrates its strong commitment as a company to workforce development and training.

A number of new training programmes have been set up to deliver the skills needed by the new industries. In early 2010, the Queensland Government established an AUD \$10 million industry training programme to help train workers for the operational phase of the energy industry - established on the basis of a 50/50 contribution from government and industry. The Department of Education and Training is working with industry to build local training provider capacity to meet emerging needs. This includes the expansion of the Southern Queensland TAFE Roma Campus to provide an energy resources training facility. ESQ is managing a project in collaboration with a number of Queensland departments on social inclusion in which indigenous people and the long-term unemployed are helped to gain skills for employment in the emerging energy industries. CSQ has also provided an initial AUD \$5 million to help train the workers required to build infrastructure in the Surat Basin, a large geological basin in eastern Australia.

Subsidiary SFS processes have been established in the Western Downs Region in manufacturing, electrical, automotive and machinery sectors. These have been critical in attracting and retaining skilled workers. The enterprises involved in these were assisted by the regional government office in better managing apprentices and their skill development, with support by local training institutions. They were also encouraged to share apprentices. This joint approach resulted in minimum ‘poaching’ of skills between firms and helped them to prepare to become part of larger supply chains. For example, in Dalby small manufacturers formed a cluster to share apprentices due to a shortage of young people interested in pursuing a career in manufacturing. They went into schools to drum up interest and the Chamber of Commerce played an active role in helping employers to retain apprentices.

Prior to the SFS coming on stream there had been requests for a new TAFE college to be established to create additional skills supply and thereby alleviate some of the pressing shortages. However, funding restrictions meant that no such college was going to be delivered in the near to medium term and regional actors understood that they would have to develop their own solutions and work to make the existing VET system more efficient and more relevant to the needs of regional industry. The SFS banner provided local groups and stakeholders with the momentum to launch new skills related initiatives and the network was better able to negotiate public training funds. Training provision changed locally so that it better matched local demand. The WDROC Tourism Group identified local training needs in the tourism sector and negotiated with the VET sector for this training to be delivered locally, while also recruiting skilled volunteers for future regional tourism events. A local agricultural college moved to providing shorter courses and more on-farm training, as well as continuing longer training courses. Collaboration between local TAFE and agricultural college providers resulted in the development of new locally required accredited and non-accredited training courses. Employment mapping for the region was carried out and efforts were made to ensure increased co-ordination between employers and registered training organisations.

Efforts were also made to strengthen links between employers and schools, and also to allow local organisations to link in with the process as an opportunity to promote wider economic investment in the

region. A regional industry–schools co-operative was formed to undertake activities such as an employability development day and a career and transitions expo. There were school visits by local business, and teachers were given tours of industry for professional development. The Chinchilla Economic Tourism Development Association created a ‘window to the world’ website, hosted a Business Investment Conference and produced a promotional brochure on the local relaxed lifestyle and investment opportunities. A Business and Industry Group was formed in one shire to promote business opportunities and coordinate a ‘shop local’ campaign and social networks were set up in the rural communities to support new residents.

A key factor in the success of the Western Downs Regional SFS was the skill of local facilitators. Two facilitators were appointed - one worked out of Chinchilla and the other out of Dalby, and both were hosted by local economic development agencies/chambers of commerce. The facilitators were carefully selected for their local knowledge, relationship building and leadership skills, and received in-service training. They were very clear about their role, facilitating action and leading the network through conversations rather than implementing activities themselves - a mistake which had been made in earlier SFS processes. The facilitators used a set stage process to build the expectations and capacity of local people and organisations in order to sustain momentum when funding ceased. They developed collaborative community networks which worked towards specifically agreed goals and which met regularly in formal and informal settings.

Impact of the process

While it is not possible to report quantitative outcomes from the Western Downs SFS (primarily due to experimentation with measures and because the project did not measure vacancies over time), results are nonetheless captured in stories of local community and business people who were actively engaged. In general, the community felt they had a significant impact on skills and labour shortages in the region. A wider range of linkages were developed, greater collaboration occurred and thinking about skills changed from pushing for greater supply to better using the existing framework and the skills in place.

The Western Downs SFS in both its initial and later manifestations was able to leverage industry ownership, responsibility and investment in workforce development and training. There is evidence of new business and product markets being developed, and these have the potential to increase wages and provide decent and meaningful work. Local business and industry associations across the region were supported in developing strategies and taking action to improve skills attraction, retention and utilisation, as well as improving the region’s image. As a result they fostered a better understanding of, and accepted more responsibility for, workforce management and development. The process led to greater community connectivity and created more confidence in the region’s ability to survive and thrive. The industry and community engagement processes put in place are continuing to play a role in supporting the development of a skilled workforce.

The main criticism of the process is that as it moved to engage constituents from higher levels of industry and government, some of the local issues have been suppressed and an element of local capacity building has been lost. This may be a result of higher level personnel being uninformed or unprepared to foster collaborative networks, as well as imposing performance measures that do not accommodate the needs of local SFS processes.

EVALUATION

A new type of industry engagement model

Most of the challenges which have emerged as part of the skills formation strategy process have derived from implementing a new model in the context of an existing one with its attendant funding, expectations, governance and accountability framework. The difficult issue to resolve has been managing significant change to political expectations and the policy environment and this has been particularly difficult in Queensland where both state and national governments are involved in skills policy. As noted earlier, this was overcome to some degree by first piloting the SFS process so that its ability to deal successfully with skills issues could be demonstrated before embedding the process in policy.

The extended concept of skills policy in the strategies is time consuming to achieve and it is challenging to document and validate outcomes in a manner traditionally sought by government. Nevertheless, stakeholders report high satisfaction with the process because it builds their capability to deal with skills issues and allows modification of entrenched bureaucratic systems, policies and processes to individual circumstances. Indeed, the effectiveness of the SFS process in resolving the identified skills and labour market issues has led to quite intense competition for the SFS model of industry engagement.

SFS are by their nature not as prescriptive in their outcomes as other skills engagement strategies in Queensland. The approach is not a ‘one-size-fits-all’ model but an industry engagement model that allows flexibility to suit the diagnosed skills issues. Flexibility in design, outcomes and funding allows the process to be tailor-made to local skills issues, and ensures there is good fit between skills required and skills supplied. This reduces skills wastage which can occur in supply-side only approaches.

Redefining stakeholders’ roles in skills policy

The Skills Formation Strategy approach has dispelled the myth that increasing training supply alone can resolve skills shortages. It is as much about business development and good workforce management as it is about training. The Queensland SFS process re-defines industry’s role in skills policy, moving it from advising to proactively pursuing inclusive workplace practices that have the potential to provide social and economic benefits in both industry sectors and regions. The SFS approach can, if strategically structured and managed, build the capability of industry to better understand and manage the workforce in the context of limited and highly competitive labour markets. It can improve business performance and labour productivity by delivering relevant skills that are effectively utilised, all of which have the potential to lead to industry growth and a demand-pull for labour. For example, as seen in the Western Downs region the process has transformed the capability of local organisations to train, attract and retain labour as the energy industries develop. The SFS process has led to new forms of industry engagement and indeed new structures have arisen specifically to assist the SFS, for example Centres of Excellence (see Box 6).

Box 6. Centres of Excellence

Centres of Excellence have been developed in some key industry sectors in Queensland over the past six years. Besides Mining, centres have now been developed in Aviation, Construction, Energy, and Manufacturing and Engineering. They have been set up, along with the SFS process and other strategies such as the Health and Community Services Workforce Council Skills Alliance, as different forms of industry engagement. The Centres of Excellence are owned and operated by industry, provide a point of engagement with the industry for government, and they are ideally placed to lead workforce development in specific sectors.

As a result of the strategies training organisations have become better positioned to understand and respond to industry needs. Training providers were initially problematic in the process because they tended to ‘sell’ training instead of responding to identified needs, a behaviour driven by revenue generation performance indicators specified in contracts. It can also be tricky persuading training providers to nominate representatives that can contribute meaningfully to network deliberations and who have legitimate authority to vary training delivery methods and funding. This was a particular issue in Queensland where training providers operate in a market characterised by competition and revenue generation which juxtapose with flexibility and responsiveness in training provision. However, after eight years of operational experience with SFS, training provider capability is no longer as big an issue.

Skill Formation Strategies have been able to support and improve the diverse ways that people acquire new skills. This occurred in the Health SFS, for example, where improvement in job satisfaction and career outcomes resulted from improved workforce management practices and job re-design. They have put in place linkages and the strategic frameworks necessary to address balanced skills strategies across a number of sub-occupational categories. The Health strategy has been particularly successful in this and has developed multi-occupational competencies across the health sector. It is considered an ideal test bed in Queensland for exploring the notion of occupational streams - a concept developed by the Workplace Research Centre (Buchanan et al, 2009) which has the potential to streamline supply-side strategies, support career paths and the mobility of workers.

Some networks have also addressed recognised and supported informal training, despite the resistance this has faced. In the pilot SFS stage the government questioned the value of strategies that did not deliver more formal training and the development and reporting of informal training and tacit knowledge was an initial challenge - the VET system was only able to report formally accredited training on its electronic accountability systems. Yet efforts to deliver non-formally recognised training (in the Boat Building SFS over half of all training delivered was of an informal nature – see Box 7) contributed significant value to the networks and such training was often highly regarded by industry and seen as a valuable up-skilling process.

Box 7. Informal training in the Boat Building SFS

One of the first Queensland SFS comprised a cluster of boat building firms and supply chains in the Gold Coast region in North East Queensland. In order to up-grade painting and fairing skills relating to new marine paint technology, the cluster sponsored the New Zealand paint manufacturer to come to Australia to deliver training workshops for cluster members for a small fee. In this case, the application and use of the new marine paint was disseminated to relevant members of the SFS cluster. Over 55% of the training delivered in the boat building SFS cluster was of an informal nature and it included a range of technical, administrative and business management skills. The Queensland VET system was, at the time, only able to report formally accredited training on its electronic accountability systems. Informal training was not part of the accountability framework yet such training was highly regarded by industry and was a valuable up-skilling process.

Brokering collaborative arrangements

Well managed and facilitated SFS are able to broker collaborative arrangements between a diverse range of stakeholders, and they can be modified, integrated and linked to other relevant strategies and policy areas at all levels of government. In some cases local stakeholders were difficult to bring on board, especially small enterprises as they had few resources to contribute to industry development, workforce management and skills. However as strategies have strengthened over time, small enterprises have become an integral part of the process, such as in the Western Downs Regional Strategy where local businesses were included in supply chains and saw improvements in their bottom lines as a result. Current industry engagement mechanisms have built on and learned from the earlier SFS process.

Managing and understanding the expectations and capabilities of network stakeholders has been an additional challenge. For example, in some of the early SFS such as boat building and marine tourism, industry buy-in was initially problematic because industry was used to the advisory supply driven model with no accountability or responsibility to effectively utilise skills, referred to earlier as Keep's notion of 'business welfare'. Despite the focus on tackling poor management practices and improving job quality, union involvement has often posed a challenge, perhaps because the engagement with the unions on this type of initiative is rarer in Australia than in some other countries. Unions have been less involved in SFS in the manufacturing sector in particular primarily because of traditional tensions. However, as outlined above, better ways of engaging with industry have been developed as a result of the process.

Monitoring, evaluating and ensuring accountability

There are difficulties in monitoring and evaluating formation strategies and in ensuring their accountability (see p.34 in Toner's comment). Barriers to monitoring and evaluating can be attributed to their 'experimental' nature and the relatively short time period over which the projects operated and therefore the limited time to assess their effects. In addition, unlike supply-side measures the application of quantitative targets, such as increases in labour supply, is not generally appropriate.

In the Queensland context, it has been found beneficial to extract the SFS programme from the reporting arrangements of the main VET system by establishing a small number of Key Result Areas relevant to network collaboration. These use specific indicators as drivers to achieve objectives and were established at the state level (see Box 8). This enables the geographical scope of the SFS to align with functional labour markets and not be confined to existing statistical divisions. The important indicators for each SFS are unique to that SFS, and there seems little value in allowing the form of existing data collections to drive what is essentially a local industry development and decent job creation process. It has been found more expedient to build the capability of stakeholders to establish their own data sets which are aligned to their specific issues. In turn, each SFS has its own set of local quantitative and qualitative indicators which are aligned to its specific objectives. In this way, the process has maintained its flexibility and is not driven by inappropriate reporting requirement.

Box 8. Drivers to achieve objectives: Key Result Areas

Skills Formation Strategies use specific indicators as drivers to achieve objectives - higher order Key Result Areas (KRAs). These were established at the state level and include:

- **Collaboration:** All stakeholders have an ability to influence skills work as a collaborative network taking shared responsibility for developing and deploying labour.
- **Industry Ownership and Responsibility for the Workforce:** Collectively industry practices good workforce management that supports business goals, provides decent work, and develops the potential of individuals.
- **Stakeholder Capability:** The SFS process builds the capability of all stakeholders to manage the inter-dependent factors that impact on skills in the specific industry. Capability scales were developed for industry, government and VET providers to clarify the expectations of these specific actors.
- **Sustainability:** The SFS network sustains the activity post public funding. One key capability is the ability to negotiate and leverage funding for training purposes.
- **Education and Training Providers:** Education and training providers service the training needs of the network in a flexible and innovative manner. Their involvement is not influenced by their own performance measures.

As the process progressed, various integrated accountability frameworks comprising both objective and subjective criteria were piloted.⁸ The Most Significant Change (MSC) methodology was one technique used to assess the processes and outcomes of SFS projects in the Health and Community Services sector. Adapted from the MSC methodology is a story telling process which was designed to monitor changes resulting from aid projects in communities and is meant to be a participatory form of monitoring and evaluation. It entails the compilation and assessment of representative 'stories' from and by participants in the SFS process, and is used together with other objective and subjective data sets and information. The MSC process has proven very useful in conveying to funding agencies and other stakeholders the success or otherwise of projects in this sector (see Box 9).

Box 9. Most Significant Change Methodology

The Most Significant Change (MSC) technique is a form of participatory monitoring and evaluation. It is participatory because many project stakeholders are involved both in deciding the sorts of change to be recorded and used in analysing the data. It is a form of monitoring because it occurs throughout the project cycle and provides information to help people manage the project. It contributes to evaluation because it provides data on impact and outcomes that can be used to help assess the performance of the project as a whole.

A panel of designated stakeholders discuss 'significant change' stories emanating from the project participants and determine what the 'most significant change' is. The process helps to build industry and community ownership through participatory evaluation. The process involves the collection of significant change stories from the operational level, and the selection of the most important by panels of designated stakeholders. These stakeholders are asked to search for project impact. Once changes have been captured, various people sit down together, read the stories aloud and have in-depth discussions about the value of the reported changes

8. A framework for monitoring and evaluating SFS has been conceptualised (Eddington et al, 2010a) but has not been trialled at this point in time.

Designing an accountability framework for balanced skills strategies in the context of a supply-side only policy environment also needs to be carefully managed. In Queensland, it proved beneficial to anticipate the problem and not to attempt to rationalise an unfamiliar approach with decision makers using both demand-side and supply-side measures. Standard government accountability measures were considered inappropriate in the SFS method because they were comprised exclusively of data relating to supply-side training activity which tended to drive the wrong stakeholder behaviour, for example by increasing training supply without attending to effective utilisation of skills or the reduction of workforce churn.

Working to ensure sustainability

The SFS process is vulnerable as a skills model as it relies on on-going funding, commitment and understanding from the host organisation. Funding and the time needed to support the development of SFS is not easy to negotiate in VET systems that measure success in terms of formal training outputs. It can be difficult for funders, for example, to accept the establishment of a Women's Group as a strategy to keep families and their skills in remote communities yet this was a very successful strategy in one Queensland SFS for dealing with skills drain to the coast.

A common criticism of the SFS model is the short funding period. Projects are funded for two years which is considered an insufficient amount of time. Commonly real progress is only made in the second year and beyond as the first funding year is generally devoted to sector or regional research, establishing base data, developing project specific performance criteria and setting up a collaborative network. In some cases, however, where budgets permit, Queensland government does extend the funding period to ensure outcomes are achieved. Many projects would have achieved more had funding been available for a longer period, and while the two year funding did push the projects to achieve some outcomes these were often the 'easy wins' such as raising awareness or making changes to the supply of skills. Many SFS projects reached the end of their funded phase when they were on the brink of achieving significant outcomes or of demonstrating the value of sustaining them to local stakeholders, but had not quite broken through. The initial funding period needs to be longer than two years - preferably three to five years.

The SFS approach is also made vulnerable by its dependence on facilitators with specific attributes and skills which are often difficult to find. The facilitator needs to have, or be able to quickly gain, the respect of the industry or community concerned so that buy-in can be achieved quickly. Personnel changes can impact on the success of a SFS. However, a pool of skilled facilitators has been established in Queensland and in-service training and support programmes managed through central office reinforce this.

Looking ahead: advancing the model

The SFS model has continued to adapt and learn from previous SFS experiences and outcomes. One such example is the Workplace Partnership and Productivity project, developed in 2008 as an advanced and more sophisticated form of the SFS. Led by the Queensland Department of Employment, Economic Development and Innovation, it focused on interlocking skill formation into the industry development process and explored in more detail how policy areas could interconnect to support business development and productivity. Decent work and employee engagement were of specific interest (see Box 10).

Box 10. Advanced SFS: Workplace partnerships and productivity project

In 2008, the Department of Employment, Economic Development and Innovation (DEEDI) commenced an advanced SFS type project - the Workplace Partnership and Productivity project. DEEDI recognised the need to tie skill formation into the industry development process and established a collaborative network with the Department of Justice and Attorney General, the Department of Education and Training, unions and industry associations. Each government agency contributed funds and in-kind contributions to provide a budget of AUD \$750 000.

Working in the manufacturing sector, the Workplace Partnership and Productivity project engaged with the national government's Enterprise Connect Program which provides business diagnostics. It supported strategic analysis, planning and high performing workplace practices, with a focus on lean manufacturing, decent work and employee engagement. Employee engagement was of specific interest to the industrial relations division in the Department of Justice and Attorney General, whose objective was to explore labour productivity growth through the involvement of unions and social partners.

DEEDI saw advantages in setting the SFS-type process in the context of an industry development culture that drew in work and skills policy agencies, and it strategically set up the project to explore short and long-term gains to labour productivity in individual firms. Demand-side actions were segmented into four categories:

- Skills attraction;
- Skills development;
- Effective skills utilisation, and
- Retention.

The intention was to pilot two tools for potential use in future skills policy, i) a monitoring and evaluation framework, and ii) a set of capability scales which represent a conceptual, longer term approach for monitoring and evaluating SFS-type projects. It also allowed departments to explore in more detail how policy areas could interconnect to support business development and productivity.

Not all SFS have been successful, particularly in the first two or three years when a learning process was adopted. For example, the Lower Gulf SFS was requested by a senior administrator who saw the SFS process as a way to resolve tensions between local stakeholders but the process was hijacked into a skills needs analysis and traditional supply-side advisory process. Several manufacturing SFS managed within the Department of Education and Training have also achieved sub-optimal outcomes, mainly because of a reluctance to integrate demand-side strategies relating to job re-design and employee engagement.

Perhaps the long-term value of the SFS approach to VET may be in the experiences it provides to policy makers regarding the different skills needs of industry and of individuals. In Queensland, the concept of a VET system comprising two streams (industry and individuals), each with its own role, purpose, governance and accountability framework, has been discussed for some time. The industry stream could be based on the principles of the SFS process while the stream for individuals would entail modifications to the existing supply-side VET model. Such a model would be more secure in its funding of balanced skills strategies and could be the likely next step in a future VET model.

Queensland is continuing to support balanced demand- and supply-side strategies with its own funds. Although there remains some resistance to the Skills Formation Strategies per se at the national level, learnings from them are continuing to influence the incremental adoption of demand-side strategies, for example the National Workforce Development Fund provided by the Commonwealth Government. It provides AUD \$538m over four years for workforce development in enterprises or industry clusters and is designed to encourage organisations to undertake workforce planning and skills needs analysis to develop

training solutions that align with business goals. This fund bodes well for future workforce development as it gives every state, industry and firm the opportunity to apply for funding to address related issues and is evidence of incremental systemic reform which involves balanced skills strategies. The fund, managed by the recently established National Workforce and Productivity Agency, is targeted to priority industry areas and priority cohorts such as women returning to the workforce or non-English speakers.

The earlier more narrowly based national skill ecosystem projects and the Queensland SFS have both been influential in progressing these demand-side workforce development processes at the national level, and independent research into an alternative holistic VET model based on these models is continuing. In addition, Professor John Buchanan of the Workforce Research Council, University of Sydney, regularly supported and was engaged with the Queensland SFS processes. Through his advisory role to Skills Australia (now the National Workforce and Productivity Agency) the process is continuing to have a strong influence on balanced demand- and supply-side skills policy directions at the national level.

SFS are the most effective and most economical way for governments to facilitate the right skills, in the right place, at the right time, and so remove imbalances. They are a much more effective way of dealing with skills and labour shortages as they remove the “business welfare” that creeps into demand-side only skills policy. With the growing debate about the usefulness of supply-side only skills strategies and how suitable they are for dealing with the complexity of skills in the modern world, the SFS process could well be adapted to other OECD countries. The key to transferring the process lies in the political will of countries to accept a variety of accountability measures that measure change in industry and individual variables, but which may not be available in the short-term. However, given that the accountability issue in bureaucracies tends to derive from the use of public funds, there is an argument to be made that in the case of SFS, minimal public funds can be used to facilitate activity and engender industry ownership for skills in the context of broader business activity.

To date Skills Formation Strategies have been used on a project basis, with government funding for a limited period only, but once the process is familiar to stakeholders and they see the benefits, the processes could be systematised to form one arm of skills policy – which could be called Industry Skills Policy. Governments would still need the traditional arm of skills policy for individuals – Skills Policy for Individuals - where public funds support specific cohorts or even severe skill shortage areas (where government determines it wants to intervene). It is industry responsibility to cater for its future skills needs with public support provided in the initial stages.

CRITICAL SUCCESS FACTORS

Start with the right conversation

If one key finding were to be drawn from the Queensland experimentation with SFS it is that the design of future VET systems needs to start with conversations about the very role and purpose of those VET systems and how ownership by network stakeholders might enhance competitiveness, profitability and sustainability.

Industry buy-in

Industry must be willing to build capability to collaboratively diagnose, plan, develop and align skills to business needs, and utilise skills inclusively and effectively. Terminology here is important. Whilst improving the capacity of industry means to some having enough adequately trained staff, to those involved in SFS it means their capacity to take collective ownership of workforce issues and to implement solutions. Effective networks are essential. Within those networks, government should support the project facilitator in developing facilitation skills and the formation of strategy, before standing back and letting the industry cluster lead the process. This can sometimes be difficult for industry where government officers have traditionally employed a 'top down' directive approach.

Role of the host organisation

The host organisation must have a clear understanding of industry development and change management processes. It must also be supportive rather than directive, allowing the project to evolve irrespective of whether it meets the needs or agenda of the host agency itself. The host organisation needs to foster an honest and open relationship between stakeholders, and be well connected so that the SFS can be linked into existing networks.

Facilitators – having the right skills and providing central agency support

Variations in facilitators' skills and staff changes can impact on the success of a SFS. Facilitators need to have, or be able to quickly gain, the respect and connections with all stakeholders concerned so that industry buy-in can be achieved quickly. Where this cannot be achieved it may be necessary for industry leaders to commission consultants to develop relationships and/or to do specific aspects of a SFS. SFS facilitators often feel isolated and torn between the agendas of the many stakeholders involved. Valuable support can be provided by the central agency through establishing a Facilitator Network that meets several times a year for face-to-face training, information and experience sharing. Such networks provide a vital source of encouragement and learning.

Time to build relationships

Adequate time and funding should be provided to ensure effective relationships and strategies are put in place and desired impacts and outcomes are well on the way to being achieved.

Provide ‘breathing space’

The SFS model works best when there is some ‘breathing space’ provided by outlining broad deliverables at the state level rather than locking down specific outcomes. It is important, however, to establish clear deliverables, both quantitative and qualitative, for each SFS at the local level.

Sustainable support

The SFS process needs long-term sustainable support. In the Queensland SFS, this has generally been provided by state departments e.g. Department of Employment, Economic Development and Innovation, local government, industry peak organisations, or service providers such as TAFE colleges. A long-term key driver enables the sustainability of the process. Small to medium enterprise clusters can pose a problem in this regard, and some form of public financial support may need to be continued, albeit possibly at a reduced rate.

Disseminate success stories

Dissemination of successful workforce strategies and initiatives to encourage broader application and learning through e.g. bulletins, workforce innovation seminars, and website communication strategies, can be a useful way to attract interest and garner support.

COMMENTARY ON SKILLS FORMATION STRATEGIES REPORT⁹

This brief comment on the Skills Formation Strategies report provides additional contextual information on skills in Australia and the predominance of the supply-side approach. It sets out the Skills Formation Strategies as an alternative approach to skills and outlines the factors leading to the establishment of the process within a fast changing labour market and industrial climate. The comment discusses the difficulties in quantitatively evaluating SFS and ways in which this can be improved, and concludes by discussing whether the strategies can be considered a 'local experiment' with limited potential for mainstreaming nationwide.

The supply-side approach to skills formation

The supply-side approach assumes that skills are synonymous with education and training qualifications and/or years of work experience, and that market forces create strong incentives to ensure workers' skills are fully and efficiently used within the firm. In Australia, implementing the supply-side approach has involved:

- the setting of workforce-wide targets for the attainment of education (typically increasing the proportion of the school age population completing 12 years of schooling) and post-school qualifications (typically proportion of the workforce with a VET qualification at a level of a Certificate III or above or a university degree).
- large scale public support for national labour market intermediary institutions - Industry Skill Councils (ISCs) - which are responsible for developing national standards for occupational training (Training Packages), and advising government on broader VET policy issues.¹⁰ Training Packages specify the minimum skills and knowledge required to achieve competency in given VET occupations. ISCs are comprised of representatives from national peak bodies such as government education and training departments, employer associations and unions.
- a strong focus on improving the technical and allocative efficiency of publicly funded VET delivery. Technical efficiency can be defined as reducing inputs per unit of output. Allocative efficiency in the context of VET refers to a closer alignment between training inputs and the needs of students and employers.

From the late 1980s technical and allocative efficiency was achieved primarily by amalgamating public providers of VET, known as Technical and Further Education (TAFE) colleges, to exploit scale economies and minimise duplication, and introducing national consistency in training content for specific occupations (Training Packages) and qualifications. During the last decade policy has shifted substantially, with efficiency promoted by the application of neo-liberal economic policy to the public funding of VET. This is marked by competitive tendering for the provision of publicly funded VET with TAFE colleges competing with private providers for the delivery of training. More recently VET policy has moved to the

9. The commentary is provided by Dr Phillip Toner, Honorary Senior Research Fellow, Department of Political Economy, University of Sydney.

10. <http://www.isc.org.au/>

allocation of public training funds through training ‘vouchers’ available to eligible students, which are redeemable up to a certain dollar value at any registered training provider. In some states, such as Victoria, the majority of public VET funding is now delivered by the private sector. In turn this reflects the neo-liberal conviction that decentralised investment decision making in skills, at the level of the individual and firm, is the optimal approach to meeting skill shortages.

Criticism of the supply-side approach

Eddington’s report identifies a number of deficiencies in the supply-side approach. The approach ignores the actual process of skill utilisation by firms and the complexities and impediments to developing and utilising the productive potential of a firm’s workforce. How firms use and develop their workforce skills is a complex process and it cannot be assumed that this use is optimal. This complexity is not captured by the supply-side approach which assumes there is a simple relationship or ‘fit’ between qualifications and occupations.

For example, in Australia in 2008, only 30% of recent VET graduates reported that they were employed in an occupation group that was related to their training course (Productivity Commission, 2010). Eddington also notes the widespread phenomena of over-education or credentialism whereby employers report that qualifications held by their employees exceed that required to competently perform the job. Ensuring the skills available to a firm are fully engaged requires a detailed consideration of work organisation arrangements and HR practices. More broadly, the well-established phenomena of ‘low-skill equilibrium’ points to structural factors, such as the bases of competition adopted by firms, that can ‘lock in’ a vicious cycle of low productivity and low wages (Department of Trade and Industry, 2003).

Skill supply and skill formation is the outcome of complex economic incentives and interaction of institutions. For example, it is well established in labour economics literature that the growth of non-standard forms of employment, such as casual, part-time, contract and labour hire, constrains the incentive and often the financial capacity of individuals in these employment forms to invest in training. Employers also have a reduced incentive to invest in the training of these workers. Similarly, the widespread privatisation and/or corporatisation of public entities such as water, electricity and gas utilities is associated with significantly reduced workforce training (Toner, 2003). These institutional barriers to skilling will not be addressed by a supply-side focus on individual workers and firms.

The central role of labour market intermediaries operating at a national level also raises a number of problems. Because of their focus on the needs of specific industries (ISCs represent 11 discrete industries) inter-industry barriers to skills formation are difficult to resolve. Firms and workers in regions feel removed from the policy process and the system is unable to adapt to the needs of particular regions, sub-industries or clusters of firms. Eddington suggests the biggest failing of the supply-side approach is that it was based on a simple linear model where national training priorities devised by labour market intermediaries were translated into VET funding priorities by government and delivery. This model reduces the responsibility of firms for skill formation to the passive role of accepting the policy priorities of intermediaries and government and shifting the cost of training substantially onto government. There is a strong element of ‘business welfare’ in this model. The model is also associated with persistent skill shortages due to its failure to directly address the causes of skill shortage and skill utilisation.

Factors leading to the establishment of Skills Formation Strategies

The first Queensland SFS was implemented in 2002 as a response to the paradoxical situation of persistent skill shortages, especially for tradespeople, para-professionals and professionals, and simultaneously greatly expanded public and private expenditure on VET and universities. There was also a

large increase in the proportion of the workforce holding either higher level VET qualifications or university bachelor degrees.

Four key factors can be underlined as having led to the establishment of the SFS model. First, skill shortages, which occurred across Australia, were exacerbated in Queensland due to a large increase in export demand for its extensive mineral resources, such as coal, alumina, zinc, manganese, gold and liquefied natural gas and were a prime contributing factor to developing the SFS approach. The resource boom saw volumes and prices of minerals increase markedly over the period, with employment in the mining industry growing at 14% p.a. between 2004-2009. This is a phenomenal rate of growth. Second, the mining boom was also a factor in the large internal migration from the rest of Australia into Queensland. Whilst this would appear to add to the labour force it was a mixed blessing. The mining boom combined with large population growth boosted construction activity and also large annual increases in employment in Electricity, Gas and Sewerage and the Health industries as these forms of infrastructure are critical to the needs of a growing population. Rapid growth in the output of and employment in these industries, as well as the growth in Tourism, caused skill shortages. The particular occupational requirements of these industries were only partly satisfied by internal migration as only a small percentage of employed persons moving to Queensland had the qualifications and experience to work in these industries.

Third, in general the mining industry meets a large proportion of its skill needs by attracting workers from other industries - or less politely, poaching (Dalitz, Toner and Turpin, 2011). It is well established that the mining industry does not adequately invest in training skilled new recruits to enter the industry. A key indicator of this with respect to VET occupations is that the share of total tradespeople employed by the mining industry is much larger than its share of total apprentices in the same occupations. In other words, it makes an inadequate contribution to the reproduction of the trade skills it employs and attracts from other industries. This applies in trade and technician occupations such as electrical, metal fabrication and machining, diesel mechanics and construction trades. These occupations are used intensively in mining and allied industries. The National Centre for Vocational Education Research (2011) estimates the mining industry would have to increase its number of apprentices three to four fold for its share of tradespeople in these occupations to match its share of total apprentices in these occupations.

The final factor, especially in relation to trade skills shortages, was that supply-side policies did respond to growing trade shortages by encouraging an increase in apprenticeship intake, but critically, there was a corresponding increase in apprentice non-completion rates. The net gain in tradespeople emerging from the expanded apprenticeship system was therefore much smaller than anticipated by policy makers. Over the last decade there has been a substantial increase in government financial incentives for employers to take on apprentices, and for young people to enter apprenticeships, so that government policy has largely focused on boosting intake numbers. And it has been successful; numbers have increased by just under 40% over ten years. The problem is that completion rates have not increased at the same rate and a third of current apprentices are now likely to discontinue their apprenticeship in their first year. 'The focus on intake numbers has effectively recruited many young people who are less committed, less well suited or less likely to complete the apprenticeship and recruited employers who are less likely to support an apprentice through to qualification' (Quay Connection et al, 2011, p.10).

This development neatly encapsulates the fundamental problem with the supply-side approach. The assumption that skills are efficiently deployed and developed within the firm is confronted with the reality that many firms who take on apprentices have inadequate recruitment practices and lack the capacity to mentor and develop the complex set of skills, knowledge and attitudes required to form a competent tradesperson. Whilst this adverse outcome was not unique to Queensland, the state was disproportionately affected by this dilemma given the scale of trade shortages occurring within its boundaries.

Difficulties in evaluating the process

Eddington notes the difficulties in evaluating Skills Formation Strategies, especially in developing quantitative metrics of outcomes. This is attributed to the experimental nature of SFS and the relatively short time period over which the projects operated and, therefore, the limited time to assess their effects. In addition, unlike supply-side measures the application of quantitative targets, such as increases in labour supply, is not considered generally appropriate. The ‘Most Significant Change Methodology’ is one technique, used mainly in Health and Community Services, to assess the processes and outcomes of SFS projects and is used only to support other data sources (see p.25).

One can add further reasons for difficulties in quantitatively evaluating SFS. There is the conventional argument regarding all government interventions - the absence of a ‘counter-factual’. It cannot be known with certainty what would have occurred in the absence of the SFS intervention. This problem is compounded when ‘*ceteris paribus*’ conditions do not hold. A major resource boom was occurring at the time of implementation and this degree of structural change makes assessing a counter-factual situation difficult. Further, the objectives of the SFS were very broad and ambitious, making it difficult to establish metrics for measurement. For example, the purpose of SFS *inter alia* was to drive what is essentially a local industry development, competitiveness, and decent job creation process. In addition, the unit of analysis under SFS is typically not a single firm or training institution, from which data could be readily extracted by researchers. SFS operate in clusters of firms and other entities across multiple industries and/or often in geographic regions whose boundaries did not necessarily conform to the boundaries used by official statistical collection agencies. These features of SFS make it difficult to draw on existing labour market and economic data sets to compare the ‘before’ and ‘after’ effects of SFS projects.

It can be argued that there is nothing inherent in the SFS objectives, techniques and outcomes precluding quantitative evaluation. Certainly, reliance on what is, in effect, compelling anecdotes, is not a robust evidentiary base. Indeed, Eddington notes the resistance from government authorities to SFS precisely because of the absence of data such as cost-benefit analyses and assessments of programme efficiency and effectiveness. These are standard practice in assessing the effect of government interventions. Accordingly, it is suggested that evaluation be integrated from the beginning into future SFS projects so that metrics are agreed and reliable methods for their collection and interpretation established (see Box 11).

Box 11. Simple quantitative evaluation metrics

A range of simple quantitative evaluation metrics appear suitable and these can be adapted to even those SFS projects that have multiple objectives. These include:

- Change in the level of unfilled vacancies;
- Increase in the proportion of a workforce receiving training;
- Change in rates of labour turnover;
- Job satisfaction ratings and change in the proportion of firms adopting work practices associated with the adoption of innovation and;
- Change in the proportion of firms innovating.

There are well-established definitions of these concepts and methods for data collection. The Australian Department of Employment, Education and Workplace Relations has for many decades published data on vacancies and conducted surveys of difficulties employers experience in recruiting skilled workers. These are conducted by the Labour Market Research and Information Branch of the department. Reliable techniques for assessing work organisation practices (OECD, 2010) and innovation (OECD, 2005) are also easily accessible.

A ‘local experiment’? Tensions within the skills eco-system and potential for mainstreaming

The Queensland Skills Formation Strategy model can be viewed as a local experiment, limited to one state with the circumstances for its introduction representing largely idiosyncratic factors. At the national level, the policy context for vocational training remains broadly unsupportive of the implementation of this type of measure. The dominant paradigm is still the supply-side approach. The official view of the sources and responses to skills shortages are reflected in the following statements by a leading Australian labour economist (Richardson, 2007). ‘In many cases, but not all, we can reasonably leave it to the labour market to sort out the problem of shortage (p.9)...The main instrument for solving shortages or surpluses in the labour market as elsewhere is the ‘price’ (p.22). The possibility of more structural or institutional causes of skill shortage, such as ‘low skill equilibrium’, are admitted, but these are regarded as exceptional events.

The supply-side approach to initiatives such as the Skills Formation Strategies is unsupportive, in part, because the principal unit of analysis is the individual worker, student or firm. It assumes that decisions as to the type and quantity of investment in skills are best left to individual workers and/or individual employers and that the unregulated labour market is broadly efficient. This has been reinforced by the shift in the funding mechanism for public VET to extensive use of student vouchers (see Toner, 2011). The latter relies on individual consumer sovereignty to ensure the best labour market outcome. A shift to highly decentralised training investment decisions poses difficulties for SFS type strategies which are established on the premise that many labour market shortages are the outcome of economic and institutional factors operating outside the boundaries of a firm and require intra-and inter-industry and sectoral co-ordination for their resolution.

A shift to decentralised training investment decisions also points to tensions in current VET policy in terms of the continuing role and relevance of the large system of ISCs and other labour market intermediaries. A key function of these organisations remains, at least formally, to prepare detailed analyses of supply and demand conditions pertaining in particular , and identify distortions which the government can ameliorate by establishing funding priorities targeting growth in specific skills in demand. In addition, from the mid-1980s the Australian industrial relations system shifted away from industry level industrial relations bargaining to enterprise based bargaining. Implicit in this shift was that the locus of influence and action for productivity improvement, job design and innovation was inside the individual firm.

It has been argued that the shift in bargaining from industry to the firm constrains the ability of policy-makers and the industrial partners to diffuse improvements in productivity, such as those promoted by SFS type measures. Prior to this shift in the level of bargaining, agreements between the industrial partners to improve job design, productivity and training could be incorporated into industry level agreements and so diffused over time across entire industries (Buchanan and Jakubauskas, 2010). Eddington’s paper alludes to these matters, such as the reference to co-ordination of training and industry policies in corporatist states within the OECD. This is contrasted with the growth of more adversarial industrial relations over the 1990s in Australia under a previous conservative government.

At a more abstract level the experience with SFS reflects continuing tension within Australian training policy, and more broadly economic policy, between a neo-liberal approach and corporatist type model based on coordination between the industrial partners and government. The high point of the corporatist model was in the 1980s under the ‘Accord’, a formal agreement between unions and employers governing prices and incomes, in response to persistent stagflation. The Accord was also active in industry policy through a series of Industry Plans such as those for the car, steel, pharmaceutical, food processing, ICT and defence industries to education and training policy. In turn changes in job design, job classifications training and other productivity measures to implement these plans were negotiated between the industrial

partners and incorporated into industry-wide industrial relations agreements (Lloyd, Ewer and Hampson, 1992).

Over the last three decades economic and training policy has shifted incrementally towards neo-liberalism, as exemplified by the introduction of competitive tendering of publicly funded VET and expansion of student vouchers. This shift explains, in part, the fact that the Skills Formation Strategies remains a relatively modest and local initiative restricted to just one of six Australian states.

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APPENDIX 1

Queensland Skills Formation Strategies from 2002 to 2011

Skills Formation Strategies 2002 to 2005

Pilot Initiatives – transitioned to industry

Nursing and Aged Care
 Boat Building – Gold Coast
 Mining – North West Region
 Marine Tourism - Whitsundays

Smart VET Initiatives – transitioned to industry

Child Care
 Agriculture – Lockyer Valley
 Construction, Engineering and Minerals Processing – Townsville Region
 Electrotechnology
 Health – Northlakes
 Lower Gulf – Normanton
 Marine Tourism – Cairns
 Pharmaceuticals and Nutraceuticals
 Regional Tourism – Bundaberg
 Regional Tourism – Whitsundays
 Regional Tourism – Mackay
 Western Downs Region
 Wine - Stanthorpe

Skills Formation Strategies 2006 to 2008

Transitioned to industry

Advanced Manufacturing – Western Corridor
 Agriculture – Bundaberg Region
 Agriculture – Gayndah Region
 Aviation
 Biotechnology
 Emerald Community – Central Highlands
 Film, TV
 Digital Content
 Food Processing
 Health – State-wide
 Health – Indigenous
 Heavy Vehicle Repair
 Horticulture – Bundaberg Region
 Information and Communication Technology
 Local Government
 Manufacturing – Brisbane South (Machinery, Equipment and Metal Products)
 Mining – Bowen Basin

Sport, Fitness and Recreation
 Tourism Hospitality – State-wide
 Tourism Regional
 Tourism Regional – Sunshine Coast
 Tourism Regional – Fraser Coast
 Transport – Road
 Transport – Logistics
 Transport – Rail Manufacture
 Energy
 Aged Care – Toowoomba
 Atherton Tablelands – Northern Region
 Child Protection
 Fibre Composites

Skills Formation Strategies 2008 to 2010

Current

Coal Seam Gas – Liquefied Natural Gas
 Community Mental Health – State-wide
 Manufacturing & Engineering (Gladstone Region)
 Seafood – Moreton Bay, Gold & Sunshine Coasts Water

Transitioned to Industry

Environmental Industries – Sunshine Coast
 Ipswich Regional Community
 Mining – Automation
 Outback Tourism
 Redcliffe-Dakabin Corridor
 Agribusiness – Mackay Region
 Aquaculture
 Printing Industry – Digital Technology

Skills Formation Strategies 2011

Current

Retail – Mackay
 Abbot Point Development
 Mining & Support Services – Far North Queensland
 Engineering and Manufacturing – Wide Bay

Source: Adapted from Department of Education and Training and Skills Queensland information

SKILLS FORMATION STRATEGIES IN QUEENSLAND

