

Matching supply of and demand

for skills: International perspectives

Jack Keating

Centre for Post-compulsory
Education and Lifelong Learning,
University of Melbourne



Program 5:
Understanding VET's current and adaptive capacity



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Jack Keating

*Centre for Post-compulsory Education and Lifelong Learning,
University of Melbourne*

The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian Government, state and territory governments or NCVER

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Level 11, 33 King William Street, Adelaide SA 5000
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

ph +61 8 8230 8400 fax +61 8 8212 3436
email ncver@ncver.edu.au
<<http://www.ncver.edu.au>>
<<http://www.ncver.edu.au/publications/2000.html>>

About the research



Matching supply of and demand for skills: International perspectives by Jack Keating

Skills for the future, changing employment patterns and their intersection with the vocational education and training sector was the broad research area investigated by a consortium of researchers from the National Institute of Labour Studies, Flinders University, and the Centre for Post-compulsory Education and Lifelong Learning, University of Melbourne. Included in the suite was an investigation by Jack Keating into what some other countries—Singapore, China, the United Kingdom, Norway and Germany—are doing to match the supply of skills with current and projected skill needs.

Keating's investigation found that Australia's vocational education and training (VET) system is held in high regard, with many elements copied by other countries. And while comparisons are difficult to make because of the strong influence of historical, cultural and political contexts on national training systems, getting an international perspective can help in considering how to tackle weaknesses in national systems, including Australia's.

Key messages

- Most countries recognise that investments in:
 - high-level skills are an effective contribution to productivity
 - low-level skills reduce social inequities
 - intermediate-level skills address unemployment
 - school-level VET means lowest opportunity costs.
- The key variable in national training systems and the associated mechanisms for the planning of training is the degree of autonomy of civil society, in particular industry from government.
- Most Organisation for Economic Cooperation and Development (OECD) countries have major issues regarding the ageing of the workforce, making adult training and lifelong learning key policy areas. This, and regional economic patterns, have also led to the encouragement of labour mobility and an increased demand for migrant workers.
- Australian secondary education is more generalised than almost all OECD secondary school systems. Its relative absence from the VET planning processes is therefore atypical.
- Comparisons between the international and the Australian VET sectors reveal that one of the Australian system's major strengths is a highly integrated model of national skill standards and a national framework for the awarding of qualifications.
- Weaknesses include the fact that industry-based planning processes are confined to the VET sector and that there is only a limited impact of market principles across the sector.

For a synthesis of the entire research program see *A well-skilled future* by Sue Richardson and Richard Teese.

Tom Karmel
Managing Director, NCVER

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Executive summary

This report is a component of a research program entitled *A well-skilled future: Tailoring VET to the emerging labour market*. This research program examines the evolving labour market and changing work organisation and management in the context of the vocational education and training (VET) sector and its role in the development of the appropriate levels, types and quantities of skills required to satisfy the future demands of Australian industry. The research reports have been produced by researchers from the National Institute of Labour Studies, Flinders University, and the Centre for Post-compulsory Education and Lifelong Learning of the University of Melbourne.

The report attempts to examine the methods used in other countries to plan or steer the supply of skills to meet current and future skill needs of industry, and to use this overview to reflect upon the methods used in Australia. This is a challenging exercise, given the wide range of methods that are employed by different countries. The complexity is increased by the diversity and variety of other demands and influences upon the skills-formation systems of individual countries. Furthermore, the development of industry skills occurs through the formal education and training system, work practices and experiences, and informal learning in a wide range of settings. Therefore, the report concentrates upon those elements of the formal education and training systems that are designed most directly to meet industry skills needs, namely, the vocational education and training sector.

Many countries have recently been implementing a number of measures designed to better align the supply of training with the demand for skills, such as the recognition of informal learning, national qualifications frameworks and competency-based approaches. These developments have dominated much of the recent VET reports and other literature from countries and international agencies such as the Organisation for Economic Cooperation and Development (OECD) and the European Union. However, as Australia has been at the forefront of most of these developments, they are not considered in this report.

This issue of meeting skills needs is located in a market that has three main sets of actors: employers, current and future workers, and government and its agencies. In an ideal context, the market should balance supply and demand, with employers and workers investing in skills to the level that meets their respective needs as judged by the respective returns of productivity gains and wage increases. However, training markets are imperfect, as training systems are subject to other demands and interventions, and productivity and wage levels are also influenced by other factors. Therefore, virtually all countries have some form of government intervention, frequently in conjunction with industry partners, in their national training or skills development systems.

Broadly, the mechanisms used can be located within three sets of strategies:

- ✧ state planning and associated interventions
- ✧ the use of the key elements of ‘civil society’, which in most cases are industry and employers, or in the case of European countries, the ‘social partners’
- ✧ the market.

All countries use a mixture of these strategies and they typically implement them through a number of mechanisms, which include:

- ✧ government agencies, such as training authorities, and employer-led councils or boards at national and regional level, with various degrees of authority to regulate and allocate public training funds
- ✧ national, regional and industry sectoral agencies, which typically are responsible for setting industry skills standards, and other advisory and quasi-regulatory roles
- ✧ incentives for individuals and enterprises, such as individual learning accounts that encourage investment in training, taxation incentives for individuals and enterprises, and training levies on enterprises
- ✧ information and intelligence on future skills needs and shortages at national and regional level, which are gathered and analysed by central or regional agencies
- ✧ innovations in funding systems which allow decisions about the type, timing and location of training away from the providers
- ✧ qualifications systems that are designed to influence investment in training by individuals and enterprises.

The report has attempted to construct VET system types through the selection of five different countries. The five models are:

- ✧ *Central planning model:* the example of Singapore tends to defy a general trend against central economic and social planning of the past two decades. It is an interesting example of a country that is moving towards a concentration on high skills.
- ✧ *High involvement and devolved model:* Norway is a typical example of the social partnership model of Northern Europe and of the strong presence of vocational training in the schools sector. It also has a high degree of devolution of the responsibility for VET to regional levels.
- ✧ *Social and economic integration model:* the huge investment in intermediate skills development of the famed German Dual System has faced major pressures over the past two decades and raised major policy challenges.
- ✧ *Mixed model:* England has employed a highly complex and dynamic mixture of market-based approaches and multiple planning agencies.
- ✧ *Institutional but market-based model:* The dynamic manufacturing-based economy of the Chinese province of Guangdong is producing a huge demand for intermediate skills.

These different types are all the products of particular national histories, economies and social and political cultures. Thus the applicability of particular overseas approaches to the Australian context is limited, and the report argues that the key variable that influences the intrinsic characteristics of types is the degree of autonomy of civil society from government across each of the countries. Thus, many of the mechanisms employed across the different types would be inappropriate in Australia.

Each of the types or sets of approaches has its own strengths and weaknesses. When these are compared with the Australian approach, there are also some observable strengths and weakness of the Australian model.

Some strengths appear to be:

- ✧ the highly integrated model of national skill standards and a national framework for the awarding of qualifications
- ✧ strong formal industry leadership and a focus upon the workplace for training standards
- ✧ detailed and integrated planning framework at national, state and territory and regional levels
- ✧ innovation in some areas, such as recognition of skills and the composition of training qualifications.

Some weaknesses or potential weaknesses are:

- ✧ the limiting of the industry-based planning processes to the VET sector and its isolation from the schools and higher education sectors. As a consequence, the responsibility for skills shortages within current debates appears to be directed mostly towards the VET sector
- ✧ a lack of diversity within the VET sector, with the dominance of large technical and further education (TAFE) institutes/colleges with significant regional responsibilities for multiple client groups. There may be a weak capacity of the Australian system to respond to the need for high-order industry skills needs in the future
- ✧ potential limitations in the capacity of the formal VET sector to be demand-responsive and innovative
- ✧ the limited impact of market principles and mechanisms across the VET sector.

This study has not attempted to compare the relative effectiveness of VET systems in other countries with that in Australia. Indeed, strengths and weaknesses have been placed in the historical and current social, economic, geographic and political contexts. The Australian VET sector in its approach to meeting skill needs has many strengths and has been much copied by other countries. However, there are tensions, some of which are likely to increase. Comparisons with approaches and developments in other countries can provide some capacity to look over the horizon to foresee these issues more clearly and to consider possible responses.

Background

This report attempts to provide descriptions of some of the approaches used by other countries in attempting to match the supply of skills with current and projected skill needs. Given that all countries attempt to optimise this match, the approaches that are reported are inevitably selective. Because of their economic and governance similarities with Australia and the availability of reliable information, the research concentrates mainly upon OECD countries. It has been developed through a review of the available literature and through interviews with personnel involved in VET planning and delivery in a number of countries (Singapore, China, the United Kingdom, Norway and Germany).

This study focuses upon the mechanisms used by, or on behalf of, governments that influence the formal and informal processes and outcomes of skills formation. This includes the management and direction of VET systems, financing and other levers that influence the type, amount and location of training and other skills formation processes.

The capacity for comparisons with Australian approaches is limited because of the different structures of formal education, training sectors and labour markets. For example, most OECD countries have a larger percentage of their workforce in the manufacturing sectors and lower levels of casual employment. Some European labour markets are more regulated than the Australian labour market, with regulations or sectoral agreements specifying the types and levels of qualifications required for occupations and industry job types. Most countries have a stronger emphasis upon VET in secondary education and many, in contrast to the Australian system, attempt to orient their school-based VET towards industry areas.

On the other hand, across a number of countries, and especially European Union (EU) countries, there have been some recent themes within the broader technical and vocational education sectors. They include:

- ✧ a trend towards the partial integration of vocational and general education in secondary schools (Norway, England and Wales, France, Netherlands)
- ✧ measures to promote the recognition of prior learning (OECD 2006a)
- ✧ the establishment of national qualification frameworks (OECD 2006b)
- ✧ the adoption of competency-based approaches to VET delivery and recognition and the use of industry-led sector agencies to develop standards (Sung et al. 2006).

Australia has been in various ways at the forefront of international developments in these four areas. As well, each of these developments, with the partial exception of the recognition of informal learning, is not especially related to the question of how countries match the processes of skills formation and distribution with current and projected national and regional skill needs. Therefore, these developments are not reported in any detail in this section.

The market for skills

All countries strive to meet their current and anticipated skill needs through a number of means. This includes the output of skills from their formal and informal education and vocational training systems. The management of this supply involves several challenges:

- ✧ how to match the supply of skills delivered by training systems with the types and levels of skills needed by industry in the immediate and longer term
- ✧ how to time and locate the supply of skills to the time and location of the demand for skills
- ✧ how to encourage workers and employers to invest in skills that they anticipate that they will need in the future.

A perfect skills market would achieve relative equilibrium in the short and longer term such that it continued to encourage workers to invest in skills, and encouraged employers and the labour market to provide sufficient but not excessive wage and occupational or career incentives for workers to invest. It also would encourage employers to invest in skills, and in particular, would encourage them to maximise the capacity for technology transfer, through the availability of skills at a reasonable price, and the associated labour productivity gains in increasingly competitive global markets.

In most, if not all countries, there are patterns of under-investment in skills (Brunello & De Paola 2004). This under-investment has been attributed variously across countries to a variety of factors, including structural imperfections in labour markets and the consequential disincentives for investments in skills. They include dependence upon immigration, disincentives caused by poaching of skilled workers between enterprises, the education and training background of employers, lack of wage incentives for workers to invest—or cost disincentives for employers to pay for skills—the short-term characteristics of finance markets that discourage long-term investments in skills, a trend towards small firm sizes, over-regulated labour markets, voluntarism in the absence of legislated compulsion to invest in training, and costs pressures in short-term product cycles, amongst others. Correspondingly, the formal VET sector has frequently been seen as too inflexible, lacking demand responsiveness, unconnected to current and future technologies and skills needs, and subject to provider capture.

These different analyses overlay a wide variety of labour market and industry structures and cultures in countries, as well as different structures and cultures of formal education and training systems. Industry and labour markets and education and training systems have a degree of inter-relatedness (Raffe 2006). However, they are partially autonomous from each other as they also have partially autonomous relationships with both the state and civil society (Offe & Ronge 1981). As a consequence, the strategies that have been used by countries to influence their skills markets are diverse, and in most cases quite dynamic. For example, countries have:

- ✧ induced employers to invest in skills development through the imposition of levies or taxation incentives or have taken a voluntary approach and encouraged a social commitment
- ✧ used labour market regulations to force industry to employ skilled labour, or alternatively used deregulated labour markets to allow greater industry flexibility and labour market mobility as a means of encouraging the hiring of skilled labour
- ✧ planned the supply of skills through formal training systems or used a more market-driven approach as a means of directing the supply of skills.

For comparative purposes, the challenge is to explain and reconcile the apparent contradictions in strategies used by and within countries. An initial explanation is that education and training systems have evolved at least somewhat separately from national and regional economies and labour markets. There are linkages, but the degree of congruence between them varies, from a relatively high degree of confluence in Germany, to a relatively low degree in the United Kingdom.

An analysis is further complicated by the fact that formal education and training sectors are just one means of meeting current and future skill needs. For example, migration within and between countries has been another source of meeting skill needs, although the level of international skill flows may not be high, with less than 1% of workers moving between European Union countries on an annual basis (EC 2002). There is also the role of informal training provided by firms.

Nevertheless, in the age of globalisation, and given the high premium set on labour productivity and the supply and industry match for skills, there should be some common strategies for the supply of skills emerging from countries, albeit mediated by local circumstances in the form of, or expressed by, the institutional structures that define skills formation systems, and which in turn provide many of the levers for policy in this area.

Structural influences

Across most developing countries, a common set of mechanisms are being adopted within their VET sectors. They include employer-led governance, the use of industry sectoral skill standards or competency-based training, diversification of more autonomous education and training providers, qualifications systems and frameworks, and state interventions in the form of economic and social priorities and strategies.

The mix of these interventions is influenced by structural characteristics within countries. They include the relationship of the VET sector with the school sector, the characteristics of the tertiary education sector, the structural and institutional characteristics of the labour markets, and the structure of government.

Typically, approaches to VET planning are directed through government priorities, a range of national, regional and industry sectoral agencies, and the mechanisms that are at hand. These mechanisms can include government purchasing, levies, qualifications systems and the information and intelligence systems for assigning skills needs and supply.

Mechanism

Three key mechanisms

For government and the industrial partners who may share responsibility for steering national training systems, there are a number of mechanisms that are available to influence the supply of skills and the alignment of these skill needs.

Broadly, the mechanisms used can be located within three sets of strategies:

- ✧ state planning and associated interventions
- ✧ the use of the key elements of civil society, which in most cases are industry, employers and unions, or in the case of European countries the ‘social partners’
- ✧ the market.

All countries use these three mechanisms, but to different degrees and in different locations. State institutional forms of skills development are premised, in part, upon market failure or elements of market failure. However, they are also the products of social policies, industrial policies and legacies, and the formal education and training systems, and therefore may not be ideally designed to create the types of market interventions that best align supply with demand.

In particular, interventions:

- ✧ are also designed to achieve social objectives, including regional objectives, as well as particular economic or development objectives

- ✧ in the case of most countries, the secondary education systems are core elements of the initial training systems. Australian secondary education is more strongly focused on general education than almost all OECD secondary school systems
- ✧ are designed to co-opt the support and authority of the industry or social partners in the workplace
- ✧ are influenced by the constitutional and administrative structures of government.

Government and sectoral agencies

There appears to be a tendency, at least in some countries, for the establishment of multiple agencies at the central and regional levels. These agencies have general remits of national and regional economic development, skills development and social development and integration. An example of multiple agencies is that of the UK. Regional political and cultural differences are recognised in the different patterns in the location of responsibility for education and training within the four constituent nations: England, Scotland, Wales and Northern Ireland. Within the largest nation, England, there is a central body, the Learning and Skills Council (LSC), responsible for the overall directions and funding of VET, and 47 regional LSCs. There is also a Sectoral Skills Development Agency (SSDA) and 25 employer-led, independent Sector Skills Councils (SSCs) with responsibilities for reducing skills gaps, increasing skills demand and supply. Added to this, are nine Regional Development agencies. Apart from the central department (Department for Education and Skills – DfES) there also is the Qualifications and Curriculum Authority, which accredits all VET qualifications and registers providers, and a large number of VET Awarding Bodies, although three dominate the market.

There are some elements of this approach in Australia, with national and state agencies, sectoral bodies such as Industry Skills Councils (ISCs) and Industry Training Advisory Bodies (ITABs), the broad regional roles of the TAFE sector and the establishment of regional networks and committees by state governments in Victoria, Western Australia and South Australia.

The market for skills is segmented on the basis of industry sectors in most countries. These segments vary across countries for obvious reasons. Norway, for example, has prominent fishing and oil sectors. Sectoral agencies include the SSCs in England and Wales, Canadian Sectoral Councils, Industry Training Organisations in New Zealand and the *Chambres* in Germany. The sectoral agencies, in most cases, are located at the national level and vary in their influence in the directions and management of the training systems. This is influenced by the degree of integration of skills training into the school sectors and the extent to which management of these is located at the local or municipal levels.

Incentives for individuals and firms

At the individual level, countries have used regulations and incentives as a means of encouraging individuals to invest in skills. Several countries require participation, full or part-time, in education and training until the age of 18 (Germany, Netherlands). A range of countries have experimented with incentive-based schemes such as individual learning accounts, vouchers and loans, and the Foster (2006) report in the UK has argued that learning accounts should be expanded as a key means of bringing market mechanisms into the supply of training.

Training levies have been implemented either by governments or by industry sectoral agencies (either through government delegated authority or as voluntary contributions). Levies can either be used as a means of building a central training fund, which in some cases can only be used by contributing enterprises, or as a mechanism to encourage investment in training by requiring only those enterprises that do not invest to pay the levy. Levy schemes have been widespread throughout Latin America, Europe, Africa and Asia, and have a mixed history (World Bank 2004).

Information and intelligence

Virtually all developed countries maintain centrally generated labour market surveys. Within the EU, all member countries are required under EU regulations to carry out labour force surveys and the results are publicly available through Eurostat. Most countries use the information gathered by the central agencies to support national and regional information systems for employers and workers or job seekers. In most cases these systems are factual, based on survey information, and limited to the input of empirical data. However, the O*NET system in the USA is based upon projections using previous survey data.

Some countries maintain dedicated agencies that research the links between the labour market and education and training programs and qualifications. One of the most prominent of these is CEREQ in France (Centre for Research on Education and Qualifications), which undertakes a range of regional, sectoral and educational level studies. The BIBB (Bundesinstitut Berufsausbildung) in Germany plays a similar role, but is more focused upon the VET sector. Across the EU, the VET research agency, CEDEFOP, plays a major coordination and integration role in labour market and education and training studies and the links between them.

The extent to which sectoral agencies are involved in the gathering and articulation of intelligence on employment and skills needs varies. They have a strong role providing both industry and employer-sourced intelligence and in the analysis and synthesis of a range of statistical and other data in countries such as New Zealand, South Africa and the UK. However, in those European countries where there is a high level of integration between general and vocational education, and hence the schools and VET sectors, the sectoral and industry aspects also tend to be integrated into the planning and steering of those sectors.

For example, in the Netherlands, the apprenticeship and secondary vocational programs have been integrated through a common set of 19 Knowledge Centres that mirror 19 sectoral education groups. These are all located within the MBO Raad, formerly the BVE Raad (Netherlands Council for VET), which also acts as an umbrella body for the 43 regional and 13 specialist training centres (Maes 2004).

Qualifications

There is a huge investment in national qualifications frameworks (NQFs) across both developed and developing countries. For example, CEDEFOP (2006a) identifies 31 out of 33 European nations (including the three British nations), which have either developed, are developing, intend to develop, or are considering the development of NQFs. These frameworks frequently have been led by the VET sector and in some cases they remain confined to the VET sector.

NQFs have a variety of purposes (see OECD 2006b; Coles 2006), but they include the broad objectives of facilitating lifelong learning, including skills training and updating, through better articulation between courses and qualifications and better recognition systems for informal learning.

Funding systems

Different ways of funding training are seen as a means of reducing provider control of training and of better aligning training delivery with skill needs. Innovations include the purchase of training for specified forms of delivery, allowing contestability for training delivery through tender processes, and the location of decisions about training in the individual through forms of vouchers, including individual learning accounts.

Other drivers of planning

Within these social, institutional, governance and developmental constraints, the broad objectives of VET planning systems typically are efficiency and equity. For most OECD countries there have been a set of relatively recent factors that also are driving planning for the development of skills.

- ✧ Most OECD countries have major issues of the aging of the workforce.
- ✧ Divergent patterns of regional economic and industry growth, especially in Europe, have influenced education and training policies and patterns of public and private investment in training.
- ✧ The mobility of labour associated with ageing workforces and regional economic patterns have led to policies of encouraging geographical and occupational mobility of workers, and the dependence on skilled migrant workers.

Types

There is a considerable risk in identifying typologies or models of national or country approaches to matching the supply of skills with current and future needs, and attempting to apply them elsewhere. National approaches are the result of the historical interplay between the evolution of labour markets and education and training systems and the mediation of institutional and social and political cultures, and in the latter case structures such as Australian federalism.

As a consequence, the key purpose of the comparative study is to examine the interactions that have led to national approaches and, if possible, to draw lessons from countries about the impact of approaches and innovations that can be used to reflect upon the Australian context. Broadly, the approaches to aligning skills supply with industry skill needs can be classified into three types:

- ✧ state-regulated, where government autonomously intervenes through direct measures such as the management of training providers, as in Singapore
- ✧ regulated through agreements between the social partners, where central and regional agreements between industry, unions and government will influence the programs provided by training providers
- ✧ market steering, where direct interventions are minimal and the market generates demand for training (Descy & Tessaring 2002).

These approaches form a continuum and all three are used across most countries. Typically, there are different emphases across initial and continuing vocational training, industry sectors and internal and external labour markets. On the whole, the financing and the steering of initial vocational training tends to remain largely input-based with minimal levels of market exposure. Thus countries that have high levels of integration of their initial VET systems within the secondary school system (Sweden, Norway, Finland, Singapore) have tended towards the state-regulated or social partner approaches (Germany, Denmark). The patterns can be different for continuing vocational training where most of the more advanced European countries have established relatively strong roles for industry or the social partners. Descy and Tessaring (2002) have used the following table from Aventur et al. (1999) in describing the role of employers in European countries in continuing and vocational training.

Table 1 The role of employers in initial and vocational training

Role of the employer ↓	Continuing vocational training →		
	Poor	Medium	Strong
Poor weight	Spain	Belgium	Finland Sweden
Little formalised	Italy Portugal Greece		United Kingdom
Initial vocational training	Minority and institutionalised	Ireland Luxembourg Netherlands	France
	Dominant and institutionalised	Germany Austria	Denmark

Source: Descy and Tessaring (2002, p.20).

The market approach can be said to use two sets of mechanisms.

- ✧ The devolution of authority for a range of decisions to training providers, and the associated removal or reduction of regulations. The areas can include enrolments, fee levels, course and service profiles and revenue sources, together with the capacity of private providers to come into the market.
- ✧ The use of financial and other mechanisms to stimulate demand for skills by employers and workers. Mechanisms used to increase employer demand include the creation of more choice between training programs offered by providers. Mechanisms include encouragement of individual investments, vouchers and learning accounts.

The most robust application of these measures has been in English speaking countries, including the UK and the USA. Some of the more radical market measures were implemented in Chile in the 1980s. Using the three sets of variables of state-regulated, social partners and the market, some typologies are attempted, using a specific country to elaborate the approach.

Each country has its own particular planning process for VET and for the objective of better directing the supply or production of skills to the type, level and quality, and location of the demand. The balance of, and interaction between, the mechanisms are the product of the historical, institutional, political and constitutional, demographic and geographical factors noted above. Some examples of types that express these interactions are as follow:

- ✧ *Central planning*: Singapore appears to deny the lessons (drawn from Latin American countries, for example) of the past few decades that central planning of the supply of training is a poor mechanism for meeting skills needs. It appears to achieve this through high levels of integration of its institutional arrangements and economic and social policies.
- ✧ *High involvement and devolved*: Norway combines high levels of state involvement (including financial), high levels of social partner involvement, strong institutional and policy integration, with high levels of devolution and local responsibility for planning and delivery.
- ✧ *Social and economic integration*: VET in Germany is both the mainstay for secondary education and the mechanism for skills supply. This has maintained its occupational orientation and its planning is a complex set of institutional arrangements involving government and the social partners at multiple levels.
- ✧ *Mixed model*: England has experimented with a range of innovations for the planning delivery of VET which has now evolved into what might be regarded as a mixed model. Funding and planning are retained in centralised agencies that have interactive relationships with regional agencies and with industry sector skills agencies. These in turn have interactive relationships with largely autonomous providers.

✧ *Institutional but market-based*: The pace of industry growth in China and the internal migration of up to 200 million workers are creating huge skill demands in China. The major strategy is institutional. Within a largely centralised system, it involves the consolidation of large secondary and post-secondary VET providers with high degrees of market autonomy, designed to build supply relationships with major industries and companies.

The high degree of diversity of approaches used by countries to best align their VET sectors with skills needs and shortages is not conducive to general conclusions. It seems that most countries believe that high-level skills will best contribute to productivity, investment in low-level skills best reduces social inequities, investments in intermediate-level skills best addresses unemployment, and investment in school-level VET has the lowest opportunity costs. However, countries are at different stages of economic development, have different types of industries, and different levels of technological investment. They are also encumbered with the historically formed structures and cultures of education systems, industrial cultures and governance structures.

Relative autonomy: the key variable

School education systems, in particular, have a partially autonomous status (Offe & Ronge 1981). They were not formed to primarily serve national or regional economies, and across different economies they retain different degrees of autonomy from the skills needs of industry. Countries where the social and political cultures have led to high degrees of autonomy for their education systems tend to spread this characteristic more broadly throughout civil society. This characteristic of partial or relative autonomy is a strong feature of liberal democratic societies, such as Australia and the UK, and contrasts with the weaker autonomy of education systems and more broadly of civil society, industry and employers, in China and Singapore.

On the other hand, the autonomy can be reduced through forms of social partnerships. Key elements of civil society—business and unions—working with government can reach agreements about not only industrial regulations and procedures, but also over other elements of social and economic policy. This social partnership or social contract approach to governance has been prevalent in Northern European countries in the post-war period. Although it has weakened in several countries over the past two decades, it continues to underpin the industrial cultures of several countries, including Norway and Germany. Although the social partners do not have direct steering of education and training systems, their historical influence is expressed through the structures and cultures of education and training, and their influence continues to be expressed in the VET sectors and especially the apprenticeship system of these countries. Indeed, the impact of the social partnership approach upon the VET sector in Australia was shown through the Prices and Incomes Accord between the Federal Labor Government and the Australian Council of Trade Unions in the 1980s. Aeuers (2005) argues that the Accord underpinned a quasi corporatist approach to some aspects of economic and social policy and was one of the key factors in the evolution of the national training system.

This characteristic of relative autonomy, therefore, is a variable that perhaps, more than any other, helps to explain the different methods used in different countries to steer the formal processes of skills formation. As a conceptual tool, it at once embraces the multiple players who influence this steering—government, business, union, education and training systems and providers—and provides a framework for their interrelationships. It also accounts for different governance structures (for example, federalism, unitary government) and cultures across countries. In turn, it can then be used as a filter to judge the applicability to Australian conditions of different initiatives and approaches used in other countries.

A comparative framework

The idea of relative autonomy, or more specifically, the relationships between and within civil society and government, can help to explain different approaches, but begs the question of how to compare their effectiveness.

One method is to compare the economic outcomes of the five different countries. Table 2 compares measures of labour productivity growth, unemployment, growth in gross domestic product (GDP) and the number of patents registered per one million of population. The enormous growth rates of Singapore and China are impressive, as is China's rate of growth in labour productivity. However, labour productivity is difficult to measure over the short-term, and both China and Singapore have low rates of patent registration, which is regarded as a key measure of a strong relationship between a high-quality education and training system and innovative knowledge-intensive industries. While the German economy is clearly lagging, and the Chinese and Singapore economies are booming, the overall comparisons provide few if any clues as to the effectiveness of the skill development systems.

Table 2 Annual labour productivity growth and unemployment (%), 2000–06

	Australia	China	Germany	Norway	Singapore	UK
Labour productivity growth – average 2000–06	0.97	3.0*	0.93	1.6	1.6*	1.5
Unemployment 2005	5.1	4.0 (2004)	9.6	4.6	3.6 (2006)	5.1
GDP growth 2006	2.5	10.5	0.9	3.7	7.9	2.9
Patents registered per 1,000,000 of population	75	1	235	103	8	82
Average years of schooling, 2000	10.6	5.1	9.89	11.6	6.6	9.4

Note: * 2005 levels only

Sources: OECD (2007); World Bank (2007); Barro and Jong-Wha (2002).

Similar comparisons could be made between education levels. These measures are also problematic in that China suffers from a major educational lag, comparative measures are difficult for the non-OECD countries and the OECD countries all have relative strengths and weaknesses. It is difficult to locate a country that clearly has the strongest processes of human capital formation due to the lack of comparative databases outside the OECD countries. However, given the growth rates of educational attainment in Singapore, there is some basis for the observation that the country is approaching a very high standard of educational output.

It is difficult to build a comparative framework that can measure the effectiveness of national approaches to skills development and alignment to need, in a clear and valid manner. The contextual variables are too many and too complex and the data for comparisons are not available.

The alternative is to consider the effectiveness of the supply of skills in relation to the principles of a demand-driven skills system. Typically, it is expected that such a system should have a robust

capacity to express industry skill needs and standards, have providers that respond quickly to industry skill demands, be able to deliver skills that match new technologies and practices in industry, and deliver skills to the current and future workforce in a flexible manner and at a consistent level of quality. Upon this basis, and concentrating on the capacity to match supply of skills with current and future needs, the following questions can be used to compare the features of the five systems:

- ✧ How do countries identify the industry skills that are to be delivered through their VET systems?
- ✧ What mechanisms are used to allow industry to express its skill needs?
- ✧ What information systems exist to inform workers and labour market entrants of current and future industry skill needs?
- ✧ How do funding systems support industry leadership and promote VET system responsiveness in the supply of skills?
- ✧ Do the systems and processes used to determine the delivery of skills through the formal VET system encourage employers and individuals to invest in skills?

Singapore – state regulated

To an extent, Singapore has defied the general trend against a high degree of central planning in economic development and skills development. It remains essentially a government-run system in collaboration with the private sector. The economy is ‘directed’ through the Ministry of Trade and Industry and is supported by agencies, notably the Economic Development Board (EDB). The economic strategy is oriented towards inward investments by major transnational companies with orientations towards a number of industry clusters, and the skills development strategies are also oriented towards these clusters. The investments and start-ups have been attracted by optimising investment conditions, including the supply of trained labour financed through a levy on low-paid labour.

The skills programs were also directed by central agencies (Standards, Productivity and Innovation Board) in consultation with leading employers and employer groups (Kuruvilla et al. 2002). More recently, a Workforce Development Agency has been established. It funds a large number of centrally designed and tightly targeted programs for employers and workers (WDA 2006). The Singapore model, therefore, has been built upon a more traditional workforce planning approach, which in turn has been built upon an economic development model that has a high degree of planning.

The Singapore approach needs to be seen in relation to the country’s development cycle. The country has built its initial stage of development upon achieving a high standard of general education through a highly meritocratic and competitive school system. Singapore has not participated in the OECD PISA (Programme for International Student Assessment) studies, although it has consistently topped the tables in the TIMSS (Trends in International Mathematics and Science Study). Thus, students coming through the polytechnics and technical institutes have a high standard of general education and foundation skills. Labour market regulations have been designed to provide carrots and sticks for employers to employ skilled labour and invest in training. For example, there are taxation incentives for companies to hire trained or educated staff.

Singapore is moving towards another stage of development with an emphasis upon the knowledge-intensive industries and the location of the high-value added elements of transnational companies in Singapore. These strategies also are cluster-based, and built upon the idea of innovative industry clusters (OECD 2001). Singapore typically has invested in institutional forms of training with local and overseas technical institutes and universities. It is planned to build a high-level education and training capacity that will both serve the high-end skill needs of the new industries and build an international skills market. This strategy has two purposes. Apart from the establishment of another

industry, it will build a base capacity for the knowledge economy that is different from the former (although to an extent continuing) centrally directed system.

The new approach will allow the education and training sector to expand by responding to external market opportunities. As the industries shift towards the high skills which are more difficult to predict, there is a need to allow more flexibility and innovation to develop across the education and training system. Typically, however, this is being achieved through measures such as the implementation of quality systems that are linked to licenses for the enrolment of students, including foreign students. So the logic seems to be that an export market for skills can be used as a means of expanding the skills development capacity, but that intervention and regulatory measures will continue to be needed to ensure a concentration upon high skills and high quality.

Perhaps more than any other country, Singapore has gone through a deliberate, planned and successful process of economic development that is designed to strategically place itself within a global economy. As a consequence, its steering of its skills development system has been unusually centralised and strongly linked to its industry development strategies. Industry voice has been prominent, but industry steering has been minimal. Correspondingly, the training market has not been a significant element of the steering due to the meritocratic and competitive nature of the education system and the management of the training sector. However, it is likely that a shift towards an overseas skills market will bring stronger levels of market-based influence to the skills development system in the future.

In summary

In summary, Singapore has attempted to match skill supply through a major and highly planned investment in formal education and training in combination with interventions in the labour market that have been designed to encourage the demand by industry for high-level skills. As the country moves quite deliberately towards high skills and high value-added industries, this high intervention approach is now being moderated and complemented by a more market-based approach. This approach combines Singapore's high export orientation, the high skills and innovative industry cluster model as a basis for a more market-oriented high skills supply sector.

Norway – high involvement and devolved

Norway, like Singapore, has a small population with a high standard of education. However, it has low population density and an economy based mainly upon oil revenue and small firms. Similar to other Scandinavian countries, about half of senior secondary students are enrolled in vocational programs or apprenticeships, within common senior secondary schools and within a common set of 15 programs. Only a third of tertiary students are enrolled in universities, with the bulk enrolled in the vocational colleges.

Despite its small population, Norway has a highly devolved education and training system. While the responsibility for standards and qualifications is located at the national level, counties are responsible for the school system and for decisions on provision within the vocational colleges. They are also responsible for the management of the apprenticeship system, including the matching of apprentices with places. At the national level, sectoral influence is through the standards and curriculum for initial and continuing vocational training. This is overseen by nine Training Councils. The social partners (that is, business and unions) have majority membership on county vocational training committees. The apprenticeships have a two (school-based) + two (company-based) year composition. Formal continuing vocational training has a variety of forms and is delivered in vocational colleges, adult education providers and specialised university institutes and academies. Responsibility for various aspects of continuing education and training is split between the national and county level (CEDEFOP 2006b; EURYDICE 2003).

Despite Norway's impressive and expensive efforts in school education and training and its very strong support for youth transition and consequential low levels of youth unemployment, its company-based training levels are relatively weak. This is, in part, associated with the small size of companies, but the ready availability of public funding for education and training may have weakened the training market. On the other hand, adult education is strong and is delivered through both public and non-government providers. About a quarter of all adults attend study association courses and adult education also is provided through the Folk High Schools and the distance education institutions. Outside the public sector, adult education is financed mainly by participants and employers (OECD 1998).

The Ministry of Training and Research provides intelligence through the use of the labour market survey, and university and other research institutions also have high levels of public research funding. However, in the main, responsibility for matching the supply of training with demand for training is at the county level. There has been a significant problem of the mismatch of apprenticeship applicants with industry demand. The supply of trained graduates from the schools in some areas, notably manufacturing and fishing, has not met with company needs. As in other countries, there has been a tendency for elements of the VET pathways to be residualised through their patronage by the weakest students.

The Norwegian approach is a combination of high stakeholder involvement within a devolved system. The social partners are involved at the central and county levels and through the companies. Providers, especially at the post-school level, are relatively autonomous. However, there is high central government involvement through the high levels of funding and a range of programs. The planning processes for meeting current and future skill needs are relatively limited in this model, and are located mainly at the county and provider levels. The problems that currently exist in the apprenticeships could extend to other elements of the VET and adult education sectors if the levels of public funding are reduced, which may occur as oil revenue diminishes.

Norway is a typical Northern European 'high trust' education country, where skills formation is built upon high standards of, and investment in, school education, social partnerships and broad public commitment to continuing education or lifelong learning. The capacity of the Scandinavian countries to maintain this social capital has been subject to recent internal and external debate.

In summary

In summary, Norway embodies many of the assets that attracted Australia's interests in the 1980s: high levels of social capital and social investment, high levels of public investment in education and training, and high involvement of the social partners in education and skills planning. It requires high involvement on the part of the social partners and minimal direction from the central government. Given the country's low productivity growth in recent years, albeit from a high base, and the high costs of the current system, the model is not readily transportable. Perhaps its key achievement is the public commitment to lifelong learning.

Germany – institutional, social and economic integration

The once envied German skills formation system has suffered several major shocks over the past two decades. The first was reunification, which added a burden of technical and corporate backwardness to the then strong West German economy. The second has been a longer process of partial obsolescence of the training system that is oriented to the formation of mostly occupational and mostly middle-level skills in a context of the growing importance of higher-level skills. The third has been the very poor performance and the large gaps in the performance of German students in the OECD PISA studies (2000, 2003). These developments have put considerable pressure upon the main element of the VET sector, the Dual System of apprenticeship, which provides the destinations for up to 60% of school leavers.

In a formal sense the German system is demand-led, as it is largely based upon the apprenticeship places that are offered by mainly private sector companies, and has governance structures which consistently include the social partners in the decision-making. However, it is essentially a front-end system that supplies a large number of apprenticeship-trained workers. It is also highly regulated and there is a complex process that involves the Lander or regional governments and the social partners in the establishment of apprenticeships, the associated qualifications and regulations related to duration and processes for apprenticeships. This is essentially a corporatist approach, where all participants are tightly integrated 'into the process of determining the need for and delivery of qualifications and training for various occupations in the different industry sectors' (Sung et al. 2006, p.100). Essentially, it is a planned model but one that integrates levels of government and the social partners, and links the institutional structures of VET with the economy.

The Dual System has been in an ongoing state of crisis related to the lack of training places for at least a decade. This has led many observers to regard the system and especially the underpinning labour market structures as too rigid (for example, Wurzul 2006) and to observe that the less regulated approach to skills formation in countries such as the UK are more appropriate as economies become more globalised and knowledge-based (for example, Culpepper 1999). The system is also very expensive and it appears to have a double impact upon the school system. First, it has been argued that the poor PISA results are related to the early (11+) streaming of students into academic and vocational pathways that lead to the apprenticeship system. Second, it has encouraged a large percentage of parents to buy their way out of the public secondary system. Over 10% of secondary students (higher than England) are in private secondary schools compared with 1% for primary schools (EURYDICE 2000).

Part of the costs is met by the levies imposed by the industry Chambres. This and the front-end aspect of the German VET system probably have contributed to the relatively low levels of investment in continuing vocational training (1.5% of labour costs compared with 2.3% for all EU countries, CEDEFOP 2006c). The levy-based cost of the initial vocational training and the highly regulated nature of this system have been criticised by employer groups. They have argued for greater flexibility within the system and some cost shifting.

Sung et al. (2006) have concluded that 'it is only a matter of time before the system has to go through a major overhaul' (p.104). The historical strength of the system was its base of shared training culture and its complex institutional forms, and their links to industry have been the expression of this culture. The challenge will be to maintain this culture but to create more flexibility, market responsiveness and innovation within the training system, including some radical reforms to its foundations in the school system.

While the highly planned and regulated German system retains a capacity for its initial training system to deliver large numbers of labour market entrants with industry specific intermediate skills, this is achieved at significant costs. They include the demands upon industry, and especially small businesses for apprenticeship places, and a tightly streamed school system that has low standards. There also seems to be evidence that this highly planned and pathways (see Raffe 2006) based system is not conducive to the development of the generic skills that underpin flexibility and innovation in the workforce. As well, Germany records low levels of participation in adult education (OECD 2006). This is likely to be associated with limited occupational mobility and reluctance for industry to invest in adult education due to its heavy commitment to the Dual System.

In summary

The German skills development system has plummeted from its lofty position in the 1980s, as the most complete national system of intermediate skills formation, to its current situation of ongoing crises and major critiques of its apparent obsolescence. Reflections on the reasons for this fall have identified the negative impact of the dual system on the overall education system, the problems of shifting a highly structured and regulated intermediate skills development system to a concentration

upon advanced skills, and the limited capacity of a tracked and regulated system to build flexible and transferable skills and competencies.

The UK – a mixed model

The UK economy, political culture and the education and training system have all changed considerably over the past three decades. The economy, amongst the most successful of EU economies over the past decade, has shifted from a mix of manufacturing and service industries to a stronger focus upon services. The historical traditions of liberalism of the 19th century have re-emerged in forms of neo-liberalism in economic policy cultures that contrast with the social contract cultures and systems of many European countries; elements of governance have been devolved to Scotland; and there has been an ongoing process of innovation in policy and programs in education and training (Cuddy & Leney 2005).

As a consequence, the UK has evolved into what might be termed a 'mixed model' in its VET system and its approach to meeting current and future skill needs. The basic structures of education and training differ across the four composite nations. Scotland is now mostly autonomous in education and to a lesser extent in training, and the secondary schools in Scotland, Wales and Northern Ireland are mostly comprehensive with vocational elements that are similar to VET in Schools in Australia. In England, secondary education is diverse both in relation to provision and programs. A large percentage of students have moved to further education (FE) colleges and unresolved tension between academic and vocational qualifications has resulted in the compromise of Vocational A levels and a new suite of vocational programs.

Responsibility for the VET sector was removed from local government in the 1990s, and the sector has been subject to a range of innovations from a number of government departments. While VET in the UK has been based essentially upon a voluntary model, there were some sector-based levies imposed by industry bodies. However, by the late 1980s, these had mostly disappeared and a market-based system of employer-led regional Training and Enterprise Councils (TECs) and sectorally based Lead Bodies was established. They have since been replaced in England by the nine Regional Development Agencies, the Learning and Skills Council (LSC) and its regional council and the Sector Skills Development Agency and its 25 Sectoral Skills Councils (SSCs). The TECs effectively have survived in Scotland in the form of two area-based enterprise agencies. There have been ongoing efforts through the Qualifications and Curriculum Authority to consolidate the vast array of VET qualifications.

Similar to the Australian context, there is an ongoing tension between the management and direction of a system that is designed to stimulate a training market and the maintenance of the public FE colleges. These colleges also have regional or community roles and provide programs for school age students and access programs, as well as diploma-level programs and Foundation Degrees. It has recently been announced that some colleges have the capacity to be self-accrediting in these qualifications. The regional emphasis of FE colleges, however, would be less than most TAFE institutes and the market exposure of the colleges was shown by the effective closure or takeover of some colleges in the 1990s. The recent Foster (2005) review has proposed greater contestability in the distribution of funds to the sector.

Planning for VET provision is area and industry sector-based and is effectively through the funding model of the LSC. This is constructed through the nine regions and the Development Agencies. It is informed by the labour market survey and the annual National Employer Skills Survey (n=70 000 employers) combined with the analyses provided by the SSCs. There is a recent emphasis upon light touch planning, driven by Treasury and by the employers (the Confederation of British Industries). Approximately 80% of funds are delivered as profile to the colleges and 20% held back for unanticipated employer demand. The means of encouraging greater provider responsiveness are being investigated, including the use of tender approaches that give providers greater flexibility in modes of delivery.

England has implemented numerous measures to stimulate employer and individual demand for training. They include the Investors in People program, Training Credits (vouchers) and a wage subsidy of up to £5 per hour for the wage costs for workers from SMEs attending designated training programs. Essentially this issue of building demand for training is the major challenge of the voluntary and mixed model (LSDA 2005).

The mixed model metaphor for the UK and especially the English approach also refers to the underlying principles of the system. The UK has long taken a liberal or voluntary approach towards industry's role in meeting its skills needs. Yet over the past few decades, governments have managed to impose an extraordinarily complex and constantly changing overlap of central and regional planning councils and boards, and the capacity of these multiple bodies to effectively work together and the ability of industry to comprehend and be served by them must be questionable. The Leitch (2006) and Foster (2006) reviews have signalled a movement away from planning and regulation to a more market-based and contestable approach.

In summary

Numerous people over the past two decades have criticised the apparent incapacity of the UK to develop high levels of skills (for example, Finegold & Soskice 1998). However, the UK has been amongst the most successful of EU economies over the past decade. Despite its voluntarist tradition in training, a heavy planning regime has been established in England, with multiple bodies and overlays of planning regimes. This may suggest that the Government and its agencies have tried too hard, and the Leitch and Foster reviews are now signalling a more liberal or market approach.

China (Guangdong) – institutional but market-based

The Chinese economy is projected to become the world's largest within two decades. Its growth rate has consistently reached or exceeded 7% over the past decade and there has been a high level of social and industrial change and dislocation. There has been rapid growth of some economic regions such as Shanghai and Guangdong, mainly in manufacturing industries. This has resulted in the movement of up to 200 million workers from rural to urban regions and from poorer and mostly inland provinces to the rapidly developing and mostly coastal provinces (Ng 2005). The associated demand for skills from industry and from the migrant workers is enormous. Because of the size of the Chinese economy and population and the characteristic of internal migration, it is more realistic to examine approaches in the province of Guangdong.

In 2005, the national Ministry of Labour and Social Security reported that the province was facing an overall labour shortage of up to two million workers, with heavy labour needs in the Pearl River delta area.¹ The provincial Bureau of Labour and Social Security has estimated that there will be a need for an extra 8 800 000 VET certificate holders within five years, and in 2004 there were 9 897 100 registered labourers from other provinces.² Urban industrial economies in China have moved rapidly from state-owned enterprises to a growing percentage of private, and in the case of Guangdong, transnational companies, which are the drivers of growth. One driver is the availability of low wage but relatively skilled labour.

Governance in China is hierarchical but multi-layered, with central, provincial, municipal and district levels. VET provision is through technical and vocational schools, technical institutes and training centres. There are a small number of private training centres, some of which provide publicly funded programs on a contract basis. The state also supports a network of jobs centres that deal with the migrant population. The larger ones provide some basic training. All certificates are based upon occupational standards developed by the national Ministry of Labour and Social Security.

¹ Reported in the *International Herald Tribune*, 20 April 2005.

² Guangdong Statistical Yearbook, 2005

The rapid growth of the manufacturing sector in areas such as Guangdong has created a high demand for middle-level skills. As a consequence of this demand, there is a strong link between these industries and the upper secondary technical and vocational skills. Overall, the graduates from these schools have a higher rate of employment entry than the graduates from either the universities or the academic secondary schools. In Guangdong, officials consistently report rates of over 97% (Keating 2006).

China has instituted a system of 'key schools'. Such schools can be national, provincial, municipal or district. The national and provincial schools typically are better funded and have high levels of autonomy. They specialise in different industry areas and many have established close relationships with a small number of large enterprises. These enterprises typically provide practical placements or internships for periods of up to six months and in some cases provide equipment and even some support for building programs. Upon graduation, many students will be given employment in these enterprises. For example, about 40% of the graduates in automotive from one school in the city of Guangzhou gained employment with the nearby Honda factory in 2005. Another example is that of the municipality of Heyuan, which has matched an investment in an industrial park with an investment in a key school for the supply of trained workers to attract enterprises.

Guangdong therefore is an example of a market-based approach within a tight institutional structure. This has led to direct relationships between partially autonomous providers and individual firms. There is virtually no sectoral representation in the governance of VET in China. Industry input is achieved through localised and market relationships between providers and individual companies.

There is a small private training sector that has minimal access to public funds. Some high tech companies have established their own tertiary-level training colleges or polytechnics and there are a small number of high-quality private secondary technical colleges for the children from middle class homes, whose test scores do not allow them to enter the elite public schools. The 'system' is driven by a huge demand for skills, but depends mostly on a combination of public investment in schools and fees paid by students in these schools. The bulk of the population, and especially the migrant workers, do not have the resources to invest in training and, with minimal levels of industry investment in training, there is an under supply of skills. However, there is evidence of strong potential individual investment in training if personal finances to do so are available (Keating 2006).

Planning is multi-level with each level of government able to implement key schools and schools able to decide on specialisations. All courses deliver national qualifications based upon skill standards developed at the central government level.

In summary

The economic growth figures for both China and Guangdong are remarkable, and the quality of graduates leaving the middle-level training institutions is clearly high. One clear advantage of the Guangdong approach is its simplicity. Technical and vocational schools have large occupational training schemes that have direct links with enterprises and most of their graduates enter these enterprises upon graduation. This model clearly and observably works. However, Guangdong and especially China also have a huge pool of surplus labour that has been displaced and left behind by the rate of industry and economic change.

Judging effectiveness

In the past, countries have been judged as more and less effective in their processes of skills formation, in their capacities to align the supply of skills with industry needs, and in their capacities to deliver the new skills required for emerging industries. Into the 1990s, Japan in particular was seen as having the base line educational capacity and the flexible skills formation capacity to provide high-level skills for its rapidly changing industry technologies. More recently, however, some observers

have questioned the capacity of the Japanese system and educational culture to develop more flexible or soft skills (for example, generic, non-technical skills and personal capacities).

Judging effectiveness therefore is difficult in the changing global economy. This study is concentrated upon the approaches used by countries to align the supply of skills with current and future skill needs. However, this challenge requires the alignment of the types, levels, quality, time and location of the supply skills with industry needs. This supply clearly includes the university sector, especially in the supply of high-level skills and it also has major implications for the schools sector, which provides the educational underpinnings for occupational and industry skills.

It cannot be assumed that booming economies and rapidly increasing labour productivity are the result of the supply and alignment of skills. On the other hand, the level, quality and alignment of the supply of skills should be a factor, and there is evidence from Singapore and China that their approaches to the development and delivery of skills have some advantages. The problem in drawing lessons is the major differences in contexts between these countries and the Australian contexts.

A first approach is to consider the performance of each of the systems against the questions listed above (p.18). In doing this, there is little point in evaluating the countries' performances. As we have argued, the skills formation systems of all countries are influenced by a myriad of factors, including political cultures, which are not mutable in the short term. Therefore, an alternative approach is to use the typologies that are represented by each of the countries and consider some of the strengths and weaknesses of these approaches.

The state-regulated and planned approach (for example, Singapore):

- ✧ has the capacity to increase the demand for skills, and in particular increase the skill levels that are demanded
- ✧ could be applicable in high-tech innovation clusters
- ✧ is more applicable in a context of intense growth driven by high tech and export-oriented industries
- ✧ would have limited applicability in a larger and more diversified economy and in a liberal democratic social and political climate.

High involvement and devolved approach (for example, Norway):

- ✧ has the capacity to strengthen direct linkages between industry and VET providers, especially schools, at the local level
- ✧ can build high levels of trust at the local level
- ✧ may not be conducive to the building of a flexible training market, especially one that has a diversity of provision.

Institutional, social and economic integration approach (for example, Germany):

- ✧ can produce a large volume of intermediate skills
- ✧ provides strong pathways from education to employment
- ✧ can lack flexibility in the types and locations of skills
- ✧ can have a negative impact upon the quality of education and weaken the platform for the development of high-order skills and generic skills
- ✧ relies heavily upon complex and multiple planning functions which lack flexibility.

Institutional and market-based approach (for example, China):

- ✧ has the advantage of close links between training providers and large enterprises, which leads to providers responding to industry needs and strong industry pathways

- ✧ is unlikely to be effective in more diversified service-based economies with mainly small enterprises, economies that do not have such a huge demand for skills, and societies where there is not such high individual demand for and willingness to invest in skills.

Mixed model approach (for example, UK):

- ✧ through its multiple initiatives has the advantage of raising awareness of the need to invest in skills
- ✧ by mixing planned and market-based approaches can increase innovation and flexibility in skills development, including local variations in training delivery
- ✧ runs the risk of excessive complexity in planning
- ✧ can lack transparency and make it difficult for employers and individuals to understand the training and especially the adult education and training system
- ✧ in comparison to the other models can tend to exclude the school sector in the skills development 'system'.

Implications for Australia

As we have stressed, a country's skills development system is historically constructed and is influenced by multiple political, structural, economic and cultural variables. We have argued that the key variable that helps to explain the characteristics of national training systems and the associated mechanisms for the planning of training is the degree of autonomy of civil society, in particular industry, from government. The quasi corporatist or social partnership models that were established in the post-war period in Northern European countries, including Norway and Germany, were not adopted in Australia. As well, Australian industry, or for that matter the broader community, would never accept the state authoritarianism that underpins the Singapore and Chinese models. It is not surprising that the Australian conditions should most resemble those of the UK. But here there are clear differences in governance structures with the advent of devolution in the UK.

On the other hand, it is possible to borrow from overseas. Several innovations in the VET sector in Australia, including traineeships and the training guarantee were informed by overseas practices. Indeed the Training and Incomes Accord that provided much of the governance and ideological underpinning of the National Training Reform Agenda was informed by Scandinavian social partnership models (Aeuchers 2005).

The national approaches to planning and steering the development of skills, reviewed in this report, differ greatly, and unlike views prevalent in the 1980s of the superiority of the German and Japanese systems (for example, see Dore & Sako 1990), it would be rash to suggest that there is a best model. The alternative is to consider the strengths and weaknesses of the different models and to use these to consider the features of the Australian approach.

In the 1990s, Australia was amongst the most robust in reforming its training sector, and compared with other countries, VET in Australia:

- ✧ is based upon a highly integrated model of national skill standards (competencies) and a national framework for the awarding of qualifications
- ✧ provides strong formal industry leadership and a focus upon the workplace for training standards
- ✧ has a relatively detailed and integrated planning framework at national, state and territory and regional levels
- ✧ has been innovative in some areas, notably recognition of skills and the composition of training qualifications.

On the other hand, international comparisons suggest some areas where the Australian system is weaker, including the following:

- ✧ The Australian model isolates the three education and training sectors and limits the industry-based planning and market model to the VET sector. The planning processes for higher education and schooling are quite separate, there is a weak presence of VET and applied learning in secondary schooling, and there is little attempt to align VET in Schools to current and future skill needs. As a consequence, there is an underlying assumption in much of the national debate about skills shortages that the responsibility for addressing this lies at the door of the VET sector.

- ✧ The VET sector is relatively undiversified. It is based primarily upon TAFE institutes that have strong community provision responsibilities and must serve multiple roles and clients. Australia lacks the advanced technical training institutions that are common in Europe and are being developed in the advanced Asian countries (OECD 2005a). There may be a weak capacity of the Australian system to respond to the need for high-order industry skills needs in the future.
- ✧ The combination of the multiple client groups for TAFE (school age students, school leavers, adults, second chance students, apprentices, industry clients) and the highly detailed planning processes and purchasing agreements may reduce flexibility and innovation within the sector.
- ✧ Although market principles and some instruments have been introduced into the Australian VET sector, the two main elements—user choice and contestable funds—are a minor element of publicly funded training and outside the informal training sector, the training market is relatively undeveloped.

This study has not attempted to compare the relative effectiveness of VET systems in other countries with that in Australia. Indeed, strengths and weaknesses have been contextualised in historical and current social, economic, geographic and political contexts. The Australian VET sector and approach to meeting skill needs have many strengths and have been much copied by other countries. However, there are tensions, some of which are likely to increase. Comparisons with approaches and developments in other countries can provide some capacity to look over the horizon to foresee these issues more clearly and to consider possible responses.

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Appendix 1:

Skills consortium publications

The following is the complete list of titles produced by the National Institute of Labour Studies, Flinders University and the Centre for Post-compulsory Education and Lifelong Learning, University of Melbourne, through the research project, A well-skilled future: Tailoring VET to the emerging labour market.

Forecasting future demands: What we can and cannot know

Sue Richardson and Yan Tan

Future skill needs: Projections and employers' views

Diannah Lowry, Simon Molloy and Samuel McGlennon

Demographic impacts on the future supply of vocational skills

Yan Tan and Sue Richardson

Skill acquisition and use across the life course: Current trends, future prospects

Bill Martin

What is a skill shortage?

Sue Richardson

Changing forms of employment and their implications for the development of skills

Sue Richardson and Peng Liu

Changing work organisation and skill requirements

Bill Martin and Josh Healy

Social area differences in vocational education and training participation

Richard Teese and Anne Walstab

Participation in vocational education and training across Australia: A regional analysis

Anne Walstab and Stephen Lamb

Current vocational education and training strategies and responsiveness to emerging skill shortages and surpluses

Jack Keating

Matching supply and demand: International perspectives

Jack Keating

Impact of TAFE inclusiveness strategies

Veronica Volkoff, Kira Clarke and Anne Walstab

A well-skilled future

Sue Richardson and Richard Teese



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The consortium, *A well-skilled future: Tailoring vocational education and training to the emerging labour market*, comprises researchers from the National Institute of Labour Studies in South Australia and the Centre for Post-compulsory Education and Lifelong Learning in Victoria. Its program of research aims to investigate future work skill needs and work organisation arrangements, and their implications for vocational education and training.

**National Centre for Vocational
Education Research Ltd**

Level 11, 33 King William Street
Adelaide SA 5000

PO Box 8288 Station Arcade
South Australia 5000

Phone +61 8 8230 8400
Fax +61 8 8212 3436
Email ncver@ncver.edu.au

www.ncver.edu.au