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Victoria

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Tasmania

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Training and Employment  
South Australia

Department of Training  
and Employment  
Western Australia

## **Skills in the Knowledge Economy:**

### Australia's National Investment in Vocational Education and Training

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# Table of Contents

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Executive Overview	1
Chapter 1	
<i>Introduction</i>	3
1.1 Competing in the ‘Knowledge Economy’	3
1.2 ‘Backing Australia’s Ability’	4
1.3 Vocational Education and Training in the Knowledge Economy	4
1.4 This Paper	5
Chapter 2	
<i>The ‘Knowledge Economy’ Imperative</i>	6
2.1 The ‘Knowledge Economy’ as Critical Competitive Domain	6
2.2 Implications for Education, Training and Work	8
Chapter 3	
<i>Skills and Vocational Education and Training in Australia’s Response</i>	13
3.1 Australian Enterprises Meeting the Challenge	13
3.2 The Link between High-Performing Enterprises and Skill Formation	14
3.3 Vocational Education and Training in Support of Competitive Australian Industry	18
3.4 Lifelong Learning	22
Chapter 4	
<i>Australia’s National Investment in Vocational Education and Training: Contributions and Benefits</i>	24
4.1 The Role of Government in Skill Development	24
4.2 Resourcing of Vocational Education and Training	27
Chapter 5	
<i>The net Benefits of Increased National Investment in VET</i>	34
5.1 Returns to the Individual from Education and Training	34
5.2 Returns to Enterprises	37
5.3 Overall Returns to the Economy	37
5.4 Integrating Contributions across All Educational Sectors	41
5.5 Social Returns: Maintaining Social Cohesion	42
Bibliography	44

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## *Executive Overview*

Commonwealth and State Ministers meet in mid March 2001 to discuss national arrangements for funding vocational education and training ('VET').

This area of investment in Australia's skills and innovative capacities now requires high priority — as the key area of unfinished business in the broad areas covered by the Commonwealth Government's series of Innovation Statements, in particular the recent '*Backing Australia's Ability*'.

The Commonwealth Government has announced via these Statements a series of initiatives in higher education, research and development, and aspects of school education — all designed to build Australia's response to the competitive challenges we face in the era of the 'knowledge economy'. Vocational education and training has not so far been the subject of such initiatives, but must also be a key component of a balanced and comprehensive response to those challenges.

Higher education has a greater role in research, but VET is more engaged in ensuring that those who actually make products and provide services have the skills and knowledge to translate innovation into real productivity gains. As the education and training sector closest to industry, VET has a special contribution to meeting skill needs associated with developing new products and processes.

Competing in the knowledge economy is primarily competition in building *intangible capital*, and particularly *human capital* — essentially skills and knowledge, and the ability to carry those into work processes and to adapt and innovate. International competitiveness has rapidly moved into that arena, and depends less and less now on traditional factors such as physical resources. Indeed financial capital tends to flow to nations which are most competitive in building their intangible capital — including importantly the skills of their workforce at all levels.

For Australia, this is not a matter only for the elite level of the workforce, or just for the 'high tech' sectors of our economy:

- Even in the high tech ('new economy') sectors narrowly defined, demand for those with VET qualifications is strong and growing. For example, in the information technology and telecommunications (IT&T) sector in Australia, for every three higher education (HE) graduates, two are needed with VET qualifications.
- Across the Australian economy generally, demand for those with VET skills, especially middle level and advanced VET skills, is both much larger than demand for HE graduates and is the area of fastest growth of labour requirements by a significant margin: half as great again as projected growth in overall labour demand over the half decade we have just entered.

VET also plays by far the greatest role among the educational sectors in re-skilling and up-skilling throughout working life, for all levels of the workforce — more than the other educational sectors combined. Higher education plays a considerably smaller role in re-furbishing the national skill base in this way.

VET has a particularly critical role in lifting the skills and qualifications of those with low skills — a very important matter for social cohesion and for avoiding growing polarisation by income level, as well as for national economic performance. A major challenge for all nations currently is the drying up of low skill jobs in all sectors, even services. Australia has transformed entry level training over the last decade. The challenge now is to give those already in the workforce without formal qualifications the opportunity to gain them; and to lift the skill levels of all those with lower level skills.

This is not simply a matter of equity, but of economics. Measured returns to investment in VET are high; indeed at the more advanced levels are relatively higher than for HE.

International comparisons of overall economic performance versus education and training performance show that the most competitive countries maintain a *balance* across sectors in expanding their investment in education and training. That is, those whose investment is skewed towards HE or to VET do not tend to perform as well as those whose skill investments are balanced across the sectors.

Australia does not show up particularly well in international comparisons focusing on the stock of skills, as indicated by the qualifications of our population; or in the balance between the sectors. We have some catching up to do, more so in VET than in HE.

Our national investment in VET has indeed been *falling* over recent years, strikingly so on a per student basis. VET expenditure has in fact been under a greater squeeze than has higher education, despite receiving much lower funding per student. In HE, which has received much public attention to its funding, strong growth in private revenues has essentially offset declining Commonwealth funding, leaving funding growing overall — even before the recent Innovation Statement, *Backing Australia's Ability*, announced increases in government support.

VET on the other hand, has seen its resourcing falling despite facing much greater excess demand than HE right now, and significantly greater projected future growth in demand. The Federal Government's Budget position has been able to accommodate increased physical investments, e.g. in roads, where net economic benefits appear modest. Here in VET the prospective returns are strongly positive.

There is a powerful case for national investment in VET to be lifted, to restore and maintain balance in our overall effort to build our skills and our ability to compete in the knowledge economy era.

## Chapter 1

# Introduction

### 1.1 Competing in the ‘Knowledge Economy’

In the recent past, Australia has been reminded by the financial markets that how well we are perceived as performing in the ‘new economy’ can have a bearing on investment flows and hence on the value of the Australian dollar. Whether or not such perceptions are well founded, if they persist they can themselves have an impact on our prosperity.

Ultimately, however the reality of how Australia actually is performing in what has been termed the ‘global knowledge-based economy’, or simply the ‘knowledge economy’<sup>1</sup>, will be more fundamental than perceptions. This is an economy-wide challenge.

#### *Intangible — primarily Human — Capital the Key*

Recognising our performance in the knowledge economy as fundamental is only to acknowledge the reality that increasingly, national economic competitiveness is based most importantly on the quality of a nation’s *human* resources — the knowledge and skills of its people and their capacity to adapt and innovate. That is, *intangible capital*, primarily *human capital*, is rising in importance relative to physical capital, natural resources and the like. This is true right across the economy, not just in high profile ‘new economy’ or ‘high tech’ sectors such as the information technology and telecommunications sectors. (However a nation’s position in the latter sectors has complementary importance with its strengths in human capital — since competitive information technology and telecommunications infrastructure are crucial to the ability to leverage knowledge and skills across the whole economy.)

In essence, nations which are successful, and seen to be so, in creating an environment in which skills formation and innovation flourish will ultimately be successful in attracting other forms of capital. Setting the right frameworks for education, training and innovation become key policy issues influencing national competitive success.

Expenditure in these areas is in every sense *investment*, yielding ongoing flows of net economic (and other) benefits well into the future. A country which is competitive in these areas will be able to sustain high levels of employment and high levels of real incomes.

This paper sets out why this effort must comprehend the whole of our education, training and innovation systems, and particularly vocational education and training — which is the sector responding most directly to enterprise requirements for the skills to compete.

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<sup>1</sup> These terms have been brought into common use largely by the OECD. See OECD (1996), *The Knowledge-based Economy*, discussion paper excerpted from the *1996 Science, Technology and Industry Outlook*, Paris.

## 1.2 *'Backing Australia's Ability'*

The Commonwealth Government's recent Innovation Statement, entitled *'Backing Australia's Ability'*,<sup>2</sup> is the latest in a series of policy initiatives targeting these issues. Earlier statements included *Investing for Growth* (December 1997) and *Knowledge and Innovation* (December 1999). The former provided support for business innovation via additional funding for research and development (R&D) grants, venture capital and technology diffusion and the latter announced a new policy and funding framework for higher education research and research training. There were also initiatives focused on research in the health and medical area.

*Backing Australia's Ability* announced funding for a package of initiatives including:

- additional funds for Australian Research Council (ARC) competitive grants, doubling their funding by 2005-06, together with substantial additional resources for research infrastructure and for centres of excellence in key enabling technologies (information and communications technologies, ICT; and biotechnology) plus support for investments in major research facilities;
- continued funding for the R&D Start Program and a new R&D tax concession 'premium rate' of 175 per cent for additional R&D activity (plus a rebate for small companies), and expanded funding for the Cooperative Research Centres (CRC) program, with initiatives to encourage greater access by small and medium enterprises;
- increased university funding to create 2000 additional university places each year with priority given to ICT, mathematics and science; and
- funding to foster scientific mathematical and technological skills and innovation in government schools in particular States, subject to a trigger.

It can be seen that these initiatives cover a range of areas in the framework for research and innovation, primarily in universities and industry, and aspects of the funding framework for two of the education and training sectors — universities and to a more limited extent schools, in both cases with a focus on mathematics, science and technology.

## 1.3 Vocational Education and Training in the Knowledge Economy

This paper focuses on the important role of vocational education and training (VET) in lifting Australia's performance in the knowledge economy, noting that while there is an ongoing framework for funding VET, this was not an area of focus for any of the three innovation related policy statements just outlined.

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<sup>2</sup> *Backing Australia's Ability: An innovation action plan for the future*, Statement by the Prime Minister, Commonwealth of Australia, Canberra, February 2001.

This paper sets out to show that what is required is a *balanced national effort* to lift investment in skill formation and in innovative activity, involving all three education training sectors — including vocational education and training — as well as other areas producing education, training and research, including industry itself.

Vocational education and training is arguably a more important economic contributor than higher education, in terms of the proportion of the workforce it covers, and plays a significantly more important role than that sector in re-skilling and lifelong learning, and generally the imparting of more specific and directly applicable skills:

- Of all the education sectors VET is the most directly responsive to enterprise skill needs, including indeed the skill needs of enterprises in the ‘new economy’ sectors most caught up in technological change;
- While the higher education and research sectors may generate more innovations, their incorporation into work across the economy depends on the types of training delivered by the VET sector; and
- VET is the major provider of qualifications forming the direct basis for employment opportunities for Australians generally.

#### **1.4 This Paper**

This paper reviews in greater depth the imperative to compete in the ‘knowledge economy’ facing Australia, examines the role that VET is playing in Australia’s response and assesses comparative investment in VET — relative to the investments that are being made on other relevant fronts. The paper also looks at the wider social implications and draws some conclusions about desirable goals for increased national investment in VET.

## Chapter 2

# The ‘Knowledge Economy’ Imperative

### 2.1 The ‘Knowledge Economy’ as Critical Competitive Domain

The concept of the ‘knowledge economy’ introduced above has been a major focus of the work of the OECD over the past decade. It is closely akin to ideas in economics which have been described as ‘new growth theory’:<sup>3</sup>

- increasingly seeing the ability to use information, to adapt to change and to innovate as the core bases for enterprise productivity and competitiveness in the prevailing environment of increasingly open international competition;
- consequently placing a sharper focus on ‘intangible capital’ generally, and human capital in particular — i.e. on the need to ensure that workers are better educated and trained, acquire a range of skills and build and adapt these continuously over time; and
- hence treating skill development as unequivocally an *investment* decision, comparable with other investment decisions — i.e. involving some up-front costs, both direct and indirect, in terms of forgoing some immediate output, but delivering over time higher productivity and incomes for enterprise, individual and nation. (Unfortunately, most education and training expenditure is treated as recurrent in government budgets; and its economic returns are harder to measure than those of tangible investments — e.g. in roads or other physical infrastructure.)

As the focus on the key factors in competitiveness shifts (in relative terms) between natural resources and physical capital and embodied technology, on the one hand, and towards intangible capital, on the other, it is increasingly clear that for a country to compete successfully it needs to create the environment and take actions such that:

- *high performance workplaces* predominate, in which managers introduce and maintain networked, flexible organisational forms, manage intangible capital and create conditions in which employees are motivated to give their best and are given opportunities to lift their skills and renew them regularly; and
- the community’s human capital overall is lifted to competitive levels through having a *world class education and training system*, working with enterprises, which provides excellent learning opportunities; and individuals are attuned to engaging in lifelong learning throughout their careers.

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<sup>3</sup> See OECD (1996), *op. cit.*

Box 2.1 below summarises the key requirements for success in the global knowledge economy.

Box 2.1

#### KEY REQUIREMENTS FOR SUCCESS IN THE GLOBAL KNOWLEDGE ECONOMY

- Flexible and agile enterprises able to manage and leverage knowledge
- Rapid increase in the number of high performance workplaces
- Comprehensive human investment strategies being implemented in most large and many small enterprises.
- Most individuals accepting responsibility for and investing in their own lifelong learning, supported by government and enterprises
- Attaining top five in the world performance for foundation and lifelong learning
- Increased social cohesion through improved learning opportunities and employment for those with major skills/education deficits.

Australia does not have the option of standing aside from these trends and the challenges they pose. They are not simply trends in elite thinking, promulgated by organisations like the OECD. Key bodies in a number of the leading OECD countries with which Australia compares itself and competes have long recognised and begun to act on the knowledge economy imperative.

- In the United States the National Council on Competitiveness has said that:

“in the knowledge-based economy, individual, corporate and national competitiveness will require both new and more extensive skill sets than have been required in the past. With the ability to manufacture anywhere in the world and sell anywhere else, companies are investing wherever they find the best talent pool”.<sup>4</sup>

- The United Kingdom’s National Skills Task Force has identified that

“as industry changes so too does the nature of employment, the organisation of the workplace, and the skills that individuals need to participate successfully in the new world that is evolving ... the only sound option for this country is to achieve a high skill, value added economy in order to retain a significant future place in the global market-place”.<sup>5</sup>

- Ireland’s White Paper on Human Resource Development argues that:

“as the pace of change accelerates even further, it will be the adaptability of people and the ability of work organisations to move quickly to exploit new opportunities that will determine our ability to create and sustain competitive advantage.”<sup>6</sup>

The OECD summarises current trends by noting that:

<sup>4</sup> US Council on Competitiveness, Washington DC (1998), *Going Global: The New Shape of American Innovation*, p 10.

<sup>5</sup> UK National Skills Task Force (1998), *Towards a National Skills Agenda*, pp 11,12.

<sup>6</sup> Irish Department of Enterprise and Employment (1997), *White Paper on Human Resource Development*, p 11.

“investment in human capital is at the heart of strategies in OECD countries to promote economic prosperity, fuller employment, and social cohesion. Individuals, organisations and nations increasingly recognise that high levels of knowledge, skills and competence are essential to their future security and success”.<sup>7</sup>

No less an authority on current economic trends than US Federal Reserve Chairman Alan Greenspan has strongly emphasised not only the importance of skill building, but that it must embrace *all* levels of the workforce: see Box 2.2.

#### Box 2.2

#### ALAN GREENSPAN ON UP-SKILLING OF EMPLOYEES

... [If] we are to remain preeminent in transforming knowledge into economic value, the U.S. system of higher education must remain the world's leader in generating scientific and technological breakthroughs and in preparing workers to meet the evolving demands for skilled labor. However, the pressure to enlarge the pool of skilled workers also requires that we strengthen the significant contributions of other types of training and educational programs, especially for those with lesser skills.

The notion that formal degree programs at any scholastic level or that any other training program established today can be crafted to fully support the requirements of one's lifework has been challenged. We need to foster a flexible education system — one that integrates work and training and that serves the needs both of experienced workers at different stages in their careers and of students embarking on their initial course of study. Community colleges, for example, have become important providers of job skills training not just for students who may eventually move on to a four-year college or university but for individuals with jobs — particularly older workers seeking to retool or retrain.

... Several decades ago, much ... on-the-job training was acquired through work experience; today, businesses and labor unions are placing greater emphasis on the value of formal education and training programs — ranging from corporate universities to partnerships with community colleges and other providers — as well as relationships with public agencies, including welfare-to-work and school-to-work programs. These efforts recognize that technologically advanced learning must be grounded in real-world curricula that are relevant to changing business needs and that it be provided in flexible venues that open access to development of skills to as many workers as possible. Clearly, investing in human capital to complement physical capital is perceived by many businesses as adding to shareholder value.

We are experiencing an extraordinary period of economic innovation and have witnessed its dynamic effects on productivity, real income, and job creation. During the past several years, workers across the wage distribution — not just at the upper end — have seen noticeable increases in the inflation-adjusted value of their wages. Real wage gains have picked up for workers with less than a college education. These recent gains have not reversed the rise in wage inequality that occurred during the 1980s and early 1990s between workers with a college education and those with a high-school diploma or less.

... it is not enough to create a job market that has enabled those with few skills to finally be able to grasp the first rung of the ladder of achievement. More generally, we must ensure that our whole population receives an education that will allow full and continuing participation in this dynamic period of American economic history.

## 2.2 Implications for Education, Training and Work

In the quotation above from the OECD there is a hint that there are not only positive rewards to countries which embrace the knowledge economy, but potentially *adverse* consequences in a number of dimensions, including employment, incomes and income distribution and social cohesion, for those which do not. In a separate observation the OECD has noted that:

<sup>7</sup>

OECD (1998), *Human Capital Investment: An International Comparison*, p 7.

“[those countries] lower down the [skills] range may be at a disadvantage in the global knowledge economy if they fail to make up this shortfall in human capital. An alternative may be to accept more low-skill, low-wage jobs.”<sup>8</sup>

Table 2.1 shows that the OECD warning is well taken by Australia. We rank 18<sup>th</sup> out of 26 in the OECD in respect of the proportion of the total adult population who have completed at least upper secondary school. This performance may on current trends improve in the longer term, given the higher participation in secondary education by young Australians during the 1990s. However on projections to 2015 made on a static participation rate assumption, Australia could then still remain low in the rankings at 17<sup>th</sup> out of 20 countries for which such projections are available.

Table 2.1

**PERCENTAGE OF THE POPULATION WHO HAVE COMPLETED AT LEAST UPPER SECONDARY EDUCATION, BY AGE GROUP, 1995 AND 2015 (PROJECTED)**

	1996			2015
	Age 25–34	Age 35–44	Age 25–64 (all adults)	Age 25–64 (all adults)
<b>North America</b>				
Canada	85	81	76	84
United States	87	88	86	88
<b>Pacific Area</b>				
Australia	62 (21 of 26)	60 (18 of 26)	57 (18 of 26)	62 (17 of 20)
New Zealand	65	64	60	68
<b>European Union</b>				
Germany	86	85	81	89
Ireland	66	54	50	66
United Kingdom	87	81	76	86
<b>Other OECD countries</b>				
Norway	91	87	86	89
<b>Country Mean</b>	72	65	60	73

Source: 1996 data, OECD (1998b), *Education at a Glance: Indicators 1998*, p 44; 2015 projections, *ibid.*, p 39.

Note: Australia's ranking in brackets.

There are also implications for individuals from the OECD and ANTA commissioned research. McKenzie points out that the evidence suggests that low qualifications are associated with lower levels of labour force participation, a greater probability of unemployment, and lower earnings.<sup>9</sup>

The implication for Australia is that we have no attractive choice but to pursue the *high skill* road to competitive industries and quality jobs. An OECD survey that formed part of the OECD's program of investigation of the implications of the knowledge economy for enterprises showed that its consequences in sectors such as manufacturing have dramatic implications for the employment patterns that that would be sustainable in the future.

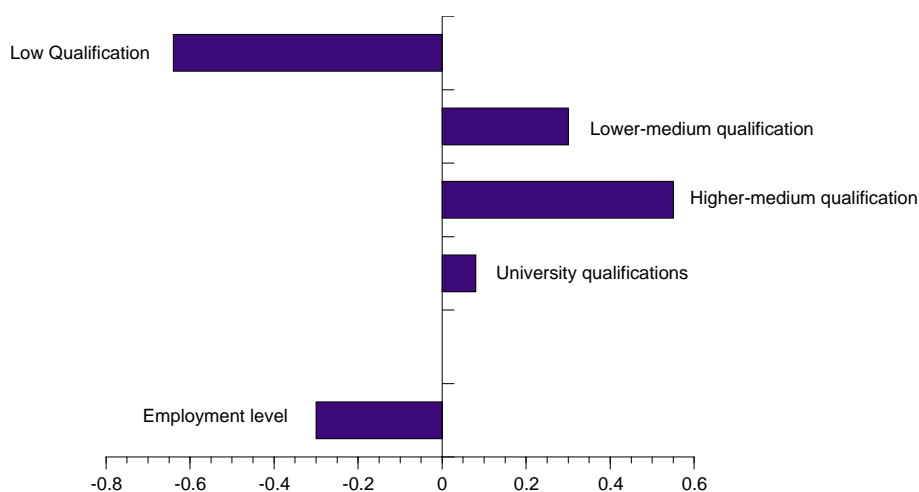
<sup>8</sup> OECD (1997a), *Education Policy Analysis*, p 36.

<sup>9</sup> McKenzie, P (1998), *Lifelong Learning as a Policy Response*, Paper presented to the CEET National Conference, Melbourne, 31 August 1998.

High skill new paradigms for manufacturing, termed ‘advanced manufacturing technologies’ (AMT), spell a significant decline in the need for workers with low qualifications, a slight increase in demand for individuals with university qualifications and above all a strong rise in demand for employees at the higher end of the medium level skill range. Figure 2.1, drawn from the OECD survey, in respect of a sample of Swiss manufacturing companies, depicts firms’ demand for labour at each skill level against a five point scale (minus two for low demand, plus two for high demand). While the particular finding is for the manufacturing sector, much the same pattern is emerging in all economic sectors, including the services sector.

Figure 2.1

### EMPLOYMENT EFFECTS OF THE INTRODUCTION OF ADVANCED MANUFACTURING TECHNOLOGIES<sup>10</sup>



Source: OECD (1997b), *Industrial Competitiveness in the Knowledge-based Economy: The New Role of Governments*, p 192.

Clearly other countries have recognised that they must take fresh steps to build and sustain a strong skill base, and so must Australia. It is also clear that this is a less critical issue for the elite end of the workforce. What is most critical is ensuring that as many people as possible migrate from low skill levels where demand for employment will be falling, and towards the middle and upper middle skill levels where demand is likely to be growing most strongly of all, as the figure depicts.

#### ***The key role of VET in migration from low to middle and high skill***

The implied *threat* to the sustainability of lower skilled areas of employment is also an *opportunity* for enterprises, individuals, government and the education and training system. For if human capital is the key competitive factor in the knowledge economy, then education and training are the keys to building it — and hence to reaping the rewards and avoiding the polarisation of employment opportunities and income levels implicit in the emerging trends in relative (and

<sup>10</sup> The OECD survey referred to covered 19 AMT elements including CAD/CAM, CNC/CND machines, robots, flexible manufacturing systems, use of LANs, Guided Vehicle Systems, etc. Dr H. Hollenstein, "The Effectiveness of the Diffusion-Oriented Technology Policy of Switzerland –The Case of Advanced Manufacturing Technologies (AMT)", in OECD (1997b), *Industrial Competitiveness in The Knowledge-Based Economy: The New Role of Governments*, p 182.

even absolute) demand for labour by level of skill. The part of the education system for which arguably the challenge is greatest, and has greatest implications for the community, is the vocational education and training sector.

Box 2.3 below reflects these points vividly, as recognised by the OECD and authorities in Switzerland and Germany.

## Box 2.3

**SKILLS, COMPETITIVENESS AND VET — THE PERSPECTIVE AROUND THE WORLD****OECD**

"Investment in human capital is at the heart of strategies in OECD countries to promote economic prosperity, fuller employment, and social cohesion. Individuals, organisations and nations increasingly recognise that high levels of knowledge, skills and competence are essential to their future security and success. The OECD *Jobs Study* placed particular emphasis on investment in people, in a framework that seeks to extend lifelong learning to all."

OECD, (1998), *Human Capital Investment: An International Comparison*, p 7.

**Switzerland**

"Education, training and technical innovation create human capabilities. They are strategic factors of production and determine international competitiveness, export performance and labour productivity, which in turn influence future income levels."

Strahm, R H (1997), *An Analysis of the Swiss Economy Under the Sign of Globalisation*, Werd Verlag.

**Germany**

"Vocational education in a raw materials poor country like Germany is an extremely important competitiveness factor. The international success of the German economy, and the strength of the 'made in Germany' label is due in large part to the high level of qualifications and the large number of vocationally trained German workers".

Federal Institute for Vocational Education, 1998.

***Substantial benefits for individuals and the community***

For *individuals*, achieving higher skills and qualifications enhances employment prospects and life choices, reduces the risk of unemployment — an increasing risk for those whose qualifications have given them only a low skill base — and hence provides the basis for good incomes in jobs that yield personal satisfaction. The wider potential gains to the *community* from increased skill development are extensive. They include:

- improved *international competitiveness* in traded goods and services, resulting in an increased national share of markets at home and abroad, and consequential expansion of output, and job generation at good income levels;
- *modernisation* of industry, so that more sophisticated product and process technologies can be effectively introduced and industry can make the shift towards more advanced value-added product and service delivery;
- enhancement of Australia's attractiveness as a base for *investment*;
- increased skills and increased *employment* among those in work, assisting to raise aggregate *incomes* and driving consumption demand in domestic markets; and

- higher skills among the *unemployed*, improving their chances of re-employment and job retention.

### *Need to 'Back our Ability' across the whole Workforce*

In summary, we have little choice but to pursue the high skill road, across the whole of the community and not only at elite levels, if we wish to avoid a future in which it is increasingly difficult to sustain employment of lower skilled people and in which therefore there is greater polarisation and less social cohesion.

On the contrary we have an opportunity, if we make increased national investments in our human resources, to lift the capacity for Australian industry to compete and create greater wealth, and to maintain the foundations for strong employment and higher living standards across the whole workforce. Quite clearly, while the effort must involve all education and training sectors, as well as for individuals, enterprises, research and development organisations and governments — indeed for the whole community — there is a particularly important role for vocational educational training.

Lifting our national investment in VET is of great importance in ensuring that there is not a tail of lower skilled people left behind, and that the likely strong growth in demand for middle and upper middle level skills by our enterprises is met as our transformation to being a competitive player in the knowledge economy proceeds.

Some firms may have a low skill, capital intensive alternative to remaining cost competitive — at least in the short to medium term. In the longer term however, even from a narrow commercial perspective, such strategies are likely to be dominated by high skill strategies, especially in a rapidly changing market environment. The point was well made in a recent address by Dr Ken Boston, Managing Director of TAFE NSW:

“As the Japanese say, ‘we must give wisdom to the machine’.

A recent analysis of 400 large US companies shows those that put new technology in place — along with new work systems like self-managing teams and frontline decision-making — enjoyed a sharp rise in productivity.

Other companies that just deployed technology without investing in new ways to liberate the output and skills of their workers ended up *less productive* than those doing nothing at all.”

Boston, Dr Ken (2001), “Successful Nation: TAFE and Innovation”, Address to TAFE Directors Australia Annual Conference, 5 March 2001.

From the perspective of the community as a whole the high skill route is not merely preferred but imperative, for both economic and strong social reasons. It is particularly because of the wider community interests at stake that government must take the lead in national VET investment. Business, for its part, needs to ensure that work organisation and processes adapt to the evolving skills profile of the workforce.

### Chapter 3

## Skills and Vocational Education and Training in Australia's Response

### 3.1 Australian Enterprises Meeting the Challenge

A survey covering skill needs across a range of sectors of the Australian economy was recently conducted by the Allen Consulting Group for the Australian Industry Group (AiG).<sup>11</sup> The survey showed that Australian companies have been implementing a range of strategies to lift their competitiveness. Many of these strategies are inter-related. Increased technology is one integral factor changing the nature of work and it therefore also changes the skill requirements of Australian enterprises, as indeed does change itself. For example that survey showed that:

- many have introduced multi-skilling (77 per cent);
- many are introducing new products and processes and greater automation (66 per cent of companies);
- a majority have restructured their workforces (64 per cent);
- a majority are rigorously measuring their performance through extensive benchmarking (63 per cent); and
- nearly half of those surveyed have blurred the distinction between manufacturing and services by shifting their focus to a greater service orientation while maintaining their manufacturing capability (43 per cent).

Many companies have reaped the rewards of these strategies and are increasingly able to compete with success in global competition and markets, with:

- many seeing themselves as mostly competing against international companies (37 per cent);
- many confident that their export orientation will increase significantly in the next 3-5 years (37 per cent); and
- an important group exporting the majority of their goods (17 per cent).

#### *Australian Enterprises Competing Globally*

Overall, the survey indicated that over 40 per cent of companies were actively developing a more global competitive and innovative orientation. This is a remarkable figure when it is considered that only two decades ago it would have been very unusual to find many companies outside the mining sector, and a few other sectors, which were much involved in markets outside Australia — especially among smaller and medium sized enterprises.

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<sup>11</sup> The Allen Consulting Group (1999), *Training to Compete: The Training Needs of Industry*, Report for the Australian Industry Group.

This process of engagement is one that is still in train. Many of the companies surveyed had not yet developed fully integrated strategies, including fully marshalling and developing their human resources, but many of the best performing companies were well advanced in doing that. It is increasingly recognised as imperative right across the Australian economy that enterprises integrate skills and training with their general competitive strategies if Australia is to continue to perform comparably with other advanced countries. The challenge has been thrown down particularly by North America and Europe which in some dimensions may have pushed ahead of Australia in embracing the ‘new economy’ — although this is a narrower focus (emphasising ICT sectors) than the *economy-wide* embracing of the ‘knowledge economy’. At the end of the day, how widespread is the application of new technologies right across our economy will matter more than how prominent we are in the ICT sectors *per se*. And how widespread is their application will depend strongly on the skills and adaptability of our whole workforce.

The survey just referred to showed that more than a quarter of companies had developed strategies which supported their competitiveness through a range of knowledge building activities, including R&D and the development of their people through training. For most of these companies an ongoing commitment to training and to building the knowledge and skill of their people is a core element of their competitive strategy. Accordingly in the analysis of the survey companies in this leading subset were identified as ‘best performers’ — those which had all the key elements of high performance evident in their strategies as well as in their demonstrated success in the marketplace.

### **3.2 The Link between High-Performing Enterprises and Skill Formation**

It is useful to draw out from the findings of the AiG survey the characteristics of several groups within the survey population, including the ‘best performing’ group just mentioned, which strongly expressed different approaches to, or experiences, in competing in the marketplace, on the one hand, and differences in their competitive strategies in responding to that environment, on the other. The three groups of companies of most interest were:

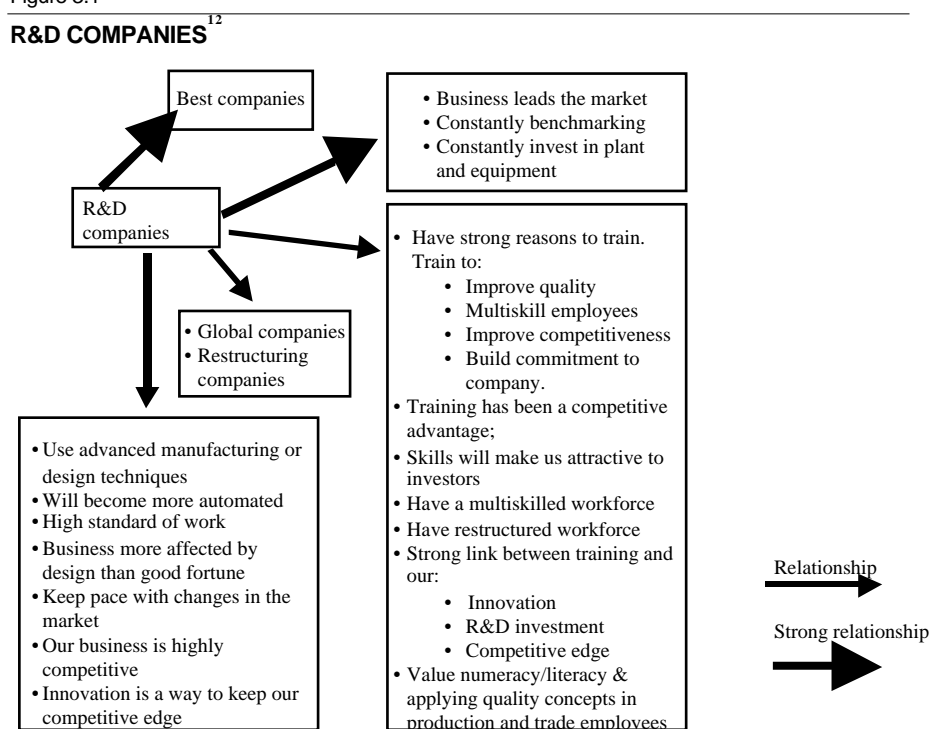
- *global and competitive companies* — companies which operate in environments in which most of their competitors are from overseas, which export a large proportion of their output and which judge their own businesses to be competitive;
- *R&D companies* — companies which stated that they were constantly endeavouring to improve the way they conducted their businesses and are constantly endeavouring (including via strong R&D activities) to develop new products and processes; as well as
- *best performing companies* — as already mentioned, companies which express themselves as focusing strongly on quality, planning and leadership in a changing marketplace, and regarding themselves as successfully competitive in that marketplace; companies which invested in new plant and equipment as well as in their human capital and regularly benchmarked their performance against others.

**Global and Competitive and R&D Companies**

Companies in the *Global and Competitive* category tended to be large, tended also to be among the best performing companies, and tended also to be among those as well that placed greater emphasis on research and development. These companies, very strongly focused on the export market place tend to have relatively diffuse relationships among their various characteristics but they are ones which express a strong link between training and innovation and which emphasise skills and qualifications.

The *R&D companies* in the survey were also very likely to be among the best performers and to be leaders, including in investment for the future. The links between their key attributes as revealed by the survey were thus even stronger than for the preceding group, as depicted in Figure 3.1 below.

Figure 3.1



Drawn from The Allen Consulting Group, Australian Industry Group Skills and Training Survey.<sup>13</sup>

These R&D companies exhibit a wider range of relationships between elements of their strategies and in particular ones which identified strong reasons not only to innovate in the sense of conducting R&D, but also strong reasons to train — including for quality, multi-skilling, competitiveness and employee commitment.

<sup>12</sup> Three levels of relationship are depicted in the models — *strong*, where the magnitude of statistical correlation is greater than 0.45; *relationship*, where the magnitude of correlation is 0.3–0.45; and *trend*, where magnitude of correlation is 0.2–0.3.

<sup>13</sup> The Allen Consulting Group (1999), *op. cit.*

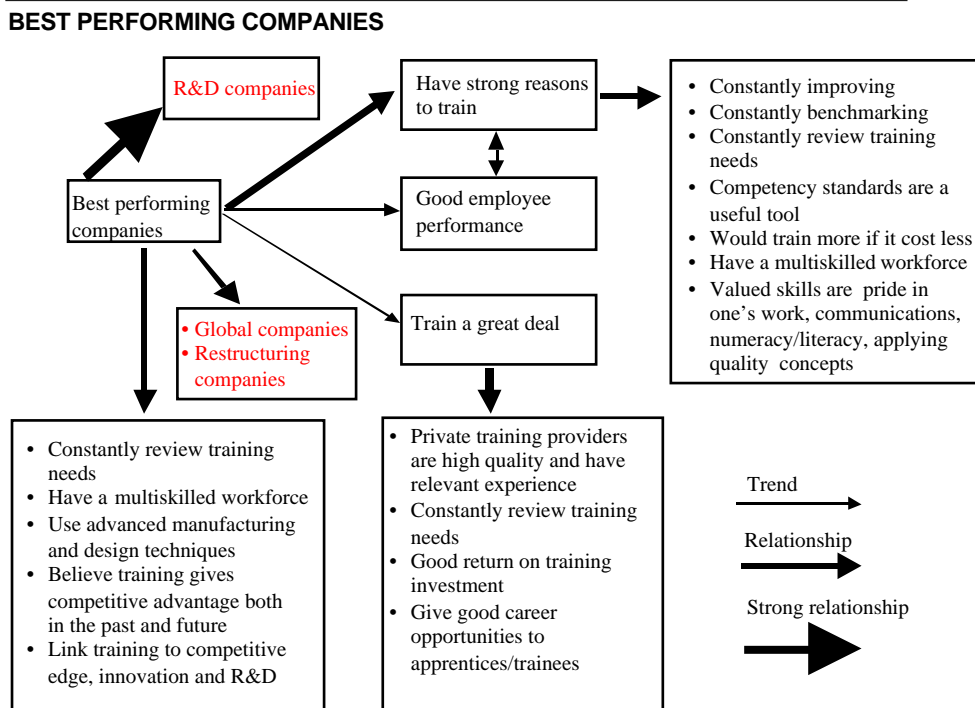
These companies place considerable value in having not only excellent staff at professional levels but also skilled production and trade employees who perform well in the basic generic skills including numeracy and literacy and ability to apply quality concepts as well as in their technical skills. Generally these companies see a link between training and skill for all their employees on the one hand and their competitiveness and attractiveness to investors on the other.

These companies are obviously one of the groups at which measures in *Backing Australia's Ability* are particularly targeted, and they exemplify the need for a *balanced* strategy in which there is complementary national investment in vocational education and training — not only at entry but at all stages of working careers, and at all levels of skill.

**Best Performing Companies**

The companies identified in the survey as ‘best performers’ are really those which have the most comprehensiveness and balance in their strategies supporting their market leadership, and in turn their focus on quality, planning and investment for the future and constant benchmarking of performance. Figure 3.2 illustrates the relationship between their key attributes.

Figure 3.2



Drawn from The Allen Consulting Group, Australian Industry Group Skills and Training Survey.

These companies when compared to others in the surveyed group tend very strongly to be ones which are innovative and invest in R&D. As a group they overlap therefore with the other two categories above — the global and competitive companies and the R&D companies. Of importance here they assert very strong reasons to train including competitiveness, multi-skilling, quality and company commitment.

As a group they emphasise not only training for specific company competitiveness needs but laying a good base through giving career opportunities to apprentices and trainees. They work with training providers including private providers to maintain and build their skills and are constantly reviewing their training needs and endeavouring to identify the returns they are making on their investments in training. Interestingly the *quantum* of training that the companies in this group undertook was not vastly greater than the extent of training by other companies, the primary difference being on *ensuring quality and value* from the training that they did undertake.

These companies clearly take a benefit/cost approach to their investment in VET, and how much of the cost they bear is one factor in their decisions to invest in skill development. The important implication is that just as they can be expected to respond to enhanced incentives to undertake R&D (as *Backing Australia's Ability*, envisages), they will also increase their skill building in response to enhanced government support for VET.

### ***All companies***

The process of adapting to compete in the knowledge economy is one that will be in train for years to come. For the best performing companies, about a quarter of the survey population in the AiG study referred to above, their enterprise competitiveness is importantly supported by a regime of knowledge building activities including R&D and developing their people through training.

However, for many other companies, while the direction in which they must go may be broadly evident to them, their state of progress varies widely. On the positive side, for the whole group of respondents to the survey:

- companies see a significant increase in the relationship between the quality of training and their competitive edge over the next three to five years. They also see strong links between training and their innovation and research and development efforts;
- companies report they will be training more at each skill level in the future;
- many companies are introducing advanced manufacturing techniques;
- where applicable, nearly 40 per cent of companies have most of their employees using computers in their work and over half expect this to be the case in the near future;
- most companies view their businesses as competitive;
- most companies are investing in new plant and equipment;
- most companies report they are constantly trying to improve the way they do things;
- most companies are constantly developing new products and processes; and
- many companies are projecting significant increases in exports.

These developments reflect a strong emphasis on investing for the future in both physical and human capital, and are consistent with the Swiss study quoted above showing demand for skilled workers outstripping that for those with low skills. They are also consistent with various Australian analyses of the likely future demand for middle skills in particular.

### 3.3 Vocational Education and Training in Support of Competitive Australian Industry

The implication of the above survey findings and other studies is that the VET sector will be critical to the upskilling of the Australian workforce. As quoted by the IT&T skills taskforce,<sup>14</sup> the Monash Centre of Policy Studies prediction is that in the next five years the demand for workers with vocational education and training qualifications will expand significantly faster than employment growth overall. The Centre (Box 3.1) forecasts that demand for VET qualifications will significantly outstrip all other labour demand.

Box 3.1

#### FORECAST DEMAND FOR VET QUALIFICATIONS

Demand for workers qualified in VET will increase by 19 per cent over the period 1997-98 to 2005-06, compared with overall employment growth over that period of 13.4 per cent.

Demand growth in the areas related to the so-called 'new economy' is, not surprisingly, stronger currently than in other areas of skill. Skill shortages in information and communications technology (ICT) are increasingly being seen as an important constraint on the growth and competitiveness of industry in Australia, not only in the emerging information economy but more widely across the economy wherever these technologies are applied. The IT&T Skills Task Force estimates that the ICT skill shortage in Australia is already 30,000 people, with demand set to grow to over 180,000 by 2004.<sup>15</sup>

The Task Force states that "on the current employment base, these numbers represent a growth rate of 8.7 per cent in the next 12 months, 24.8 per cent over the next five years. These growth forecasts cover a wide range of IT&T activities and various levels of employee skill requirements and qualifications. It is estimated that:

- 45 per cent will require a *higher educational qualification*, that is, a university degree or equivalent;
- 31 per cent will require *some vocational educational training (VET)* or equivalent such as that provided by institutes of technology, TAFE and private IT education providers; and
- 24 per cent will require *no formal IT qualification.*"

<sup>14</sup> IT&T Skills Task Force (2000), *Future demand for IT&T Skills in Australia, 1999-2004*, accessed at <http://www.ittskills.com.au/>.

<sup>15</sup> *Ibid.*

Thus even in this very high technology area, at least two employees with VET level qualifications will be needed for every three with HE skills; and only a quarter of employees will be needed with no formal IT qualification.

The phenomenon of formal skill requirements rising right across the economy is very much evident in the development and roll-out through the VET sector of Training Packages. The examples shown in Box 3.2 below include ones in which occupations previously not requiring formal skills are having their skills lifted and recognised in formal qualifications; and ones where existing formal skill requirements are being lifted or extended.

#### Box 3.2

### TRAINING PACKAGES REFLECTING RISING SKILL REQUIREMENTS

#### **Manufactured Mineral Products**

Manufactured Mineral Products Training Package PMC99 covers a wide range of industry sectors that previously had no formal training e.g. Cement, Ceramics, Clay, Concrete, Glass and related Products.

#### **Asset Maintenance**

The Waste Management sector of the Asset Maintenance Training Package PRM98 recognises increased demand for training in this area, which given increasing environmental concerns and regulations is a growth industry for the economy.

#### **Aeroskills**

The integration of CASA licensing/regulatory requirements into the Aeroskills Training Package MEA97 qualifications will increase the level of training required in this industry.

#### **Laboratory Operations**

Laboratory Operations Training Package PML99 provides a new range of industry specific qualifications at Diploma level across a wide range of industry sectors including Process Manufacturing, Pathology, Biological and Environmental and Food Testing.

#### **Financial Services**

The Diploma in Financial Services from the Financial Services Training Package FNB99 will be a new high demand sector due to the ageing population and the demand for financial planning services. Increasing regulations faces this sector.

#### **Agriculture, Horticulture and Seafood**

The quality assurance requirements specified in the skills required to meet overseas Quality Assurance has considerably increased the quantum and quality of training e.g. beef cattle for the export market. This has increased dramatically in the recent weeks with the emergencies in Europe and UK.

The Horticulture Training Package has now required extra skills for the delivery of produce. International requirements for supply and purchase of produce have required an increase in Quality Assurance training.

A significant number of qualifications covering five sectors of the seafood industry have been introduced and this responded to a huge increase in training demand. Most of these sectors have not previously had formal training.

Source: Department of Employment, Training and Industrial Relations, Queensland.

An important point here is that it is the VET sector which is ‘on the front line’ of lifting the skill levels of the lower and middle levels of the workforce in response to the skill needs generated by the new global competitive environment (e.g. sophisticated new quality assurance methodologies for traditional export industries).

While the Australian education and training system has adapted in many ways to the challenges of the changing environment, at *all* levels, from school to vocational education and training and higher education, clearly much more must be done. As a nation we must ensure that the education and training system — and clearly most importantly the vocational education and training sector — is able to meet both the volume of growing demand for skills, particularly in the middle and upper middle skill levels, and to respond to the ongoing needs for ‘tactical’ training responding to immediate enterprise needs, re-skilling and lifelong learning in general, as well as entry level training. The education and training sectors, especially VET, must not only continue to provide the foundation learning for Australian workers in future, but increasingly work with enterprises like the best performers in the AiG survey to constantly refresh and refocus Australians’ skills in an environment of change.

### ***HE, VET and Industry Skill Needs***

The recent debate about innovation culminating in the government’s latest statement on innovation policy, *Backing Australia’s Ability*, placed strongest emphasis on research, both pure research and R&D, and on the role of universities (with one element involving school education). However it is important to understand that even in the most ‘technological’ areas of the new economy, university training is seen in industry as less directly effective in producing *specific applicable skills* and abilities than is vocational education and training. The following is a quote from one of the IT companies which participated in the AiG survey:

"Most universities think lectures are the universal method of instruction, when it is often ineffective. They don't understand behavioural objectives. In industry we use all methods of instruction — lecturing to group facilitation, etc ... Lecturers (in universities) are often behind and the skills taught aren't commercially focused enough. UTS is the only university in NSW that is in tune with what the industry is looking for. They attempt to get students involved in industry — and to get industry involved in programs."

Other examples of how fruitful the interaction can be between innovative companies and the education and training system, when it is seamless between the education and training sectors — particularly VET and higher education — is illustrated by the widely praised successful interactions between the University of South Australia (which is a cross-sectoral institution, combining HE and VET in its offerings) and the companies at the Technology Park at The Levels in South Australia, including prominent technology companies like Vision Systems.

The phenomenon of industry finding higher education valuable in laying down the theoretical foundations in areas like computer science but the vocational education and training sector being the one to impart the more specific applicable skills is reflected in the not very widely known fact that many more university students go on to complete their training in the VET sector than the other way round, as illustrated in Table 3.1.

Table 3.1

**STUDENT MOVEMENT BETWEEN VET AND UNIVERSITIES, 1994 AND 1997**

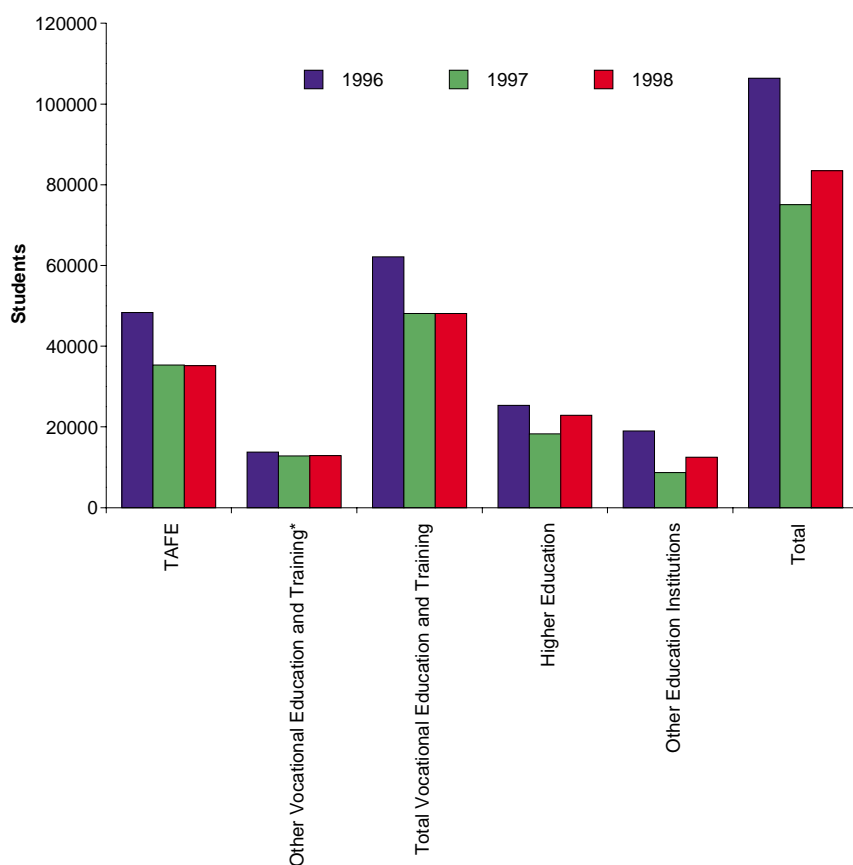
Student Movement	1994		1997	
	Students	% of Total	Students	% of Total
VET to University (commencing students only)	15,800	7.0	22,400	8.4
University to VET (all students)	39,800	3.6	76,700	5.3

Source: Borthwick, S (1999), *Overview of Student Costs and Government Funding in Post-compulsory Education and Training* (p 12), DETYA, Canberra.

As can be seen from Table 3.1, in 1997 22,400 students went on from VET to university (commencing students only) whereas in the reverse direction 76,700 students went on from university to VET. The point here is not that Australia does not need strong investment in the higher education sector, but that it needs complementary, and if anything even stronger, investment in VET in the current environment. Figure 3.3 presents evidence that the VET sector is currently facing much greater *excess* demand, i.e. demand relative to its capacity, than is the HE sector.

Figure 3.3

**UNMET STUDENT DEMAND**



Source: ANTA (1998), *Annual Report*.

Unmet demand data have well known limitations. Nevertheless, given that it is the demand for VET qualifications which is projected (e.g. in the Monash Centre of Policy Studies analysis summarised above) to be strongest over the next half decade, the issue posed is that the sector is already not keeping up with demand and needs a significantly increased national investment effort if it is to met the national skills requirement.

### 3.4 Lifelong Learning

The flows of students between vocational education and training and higher education highlighted above are a part of the pattern of *entry level* training. The discussion throughout this paper so far of the needs of Australian enterprises for skills and skill development focus very much on training throughout career, and not simply at entry level. Indeed an important theme in debates about the future of vocational education and training in Australia is the future of the VET sector's response to the need for lifelong learning, as discussed in a recent paper by Chris Robinson of NCVER. In that paper Robinson notes that:<sup>16</sup>

“The unparalleled changes that have occurred in recent years mean that a continuing focus on the preparation of young people for entry to the workforce as the keystone of post-compulsory education and training will no longer be sufficient. There are two reasons for this. They are:

- First, on the demand side, technological change and other changes stemming from globalisation of economies around the world are now having a profound impact on the nature of work, the way it is organised and the skills it requires. These changes are now so rapid that people cannot expect to be working in the same areas even for a part of their working lifetimes. Many specific skills now have a very short ‘half life’.
- Second, on the supply side, the workforces of most countries, including that of Australia, are ageing. There will be relatively fewer young people entering the workforce than in the past. Skill formation policies will therefore need to be more heavily focused on the adult workforce than in the past, and include reskilling older workers. Continuous learning is required.

If Australia is to maximise its economic potential, policies to further promote lifelong learning are the key direction for the future.”

As Robinson notes, some 1.5 million or 12 per cent of the 15-64 year old population are enrolled in publicly funded vocational education and training programs each year (cf 5.4 per cent of the same population enrolling in higher education), and overall nearly 77 per cent of economically active people took some kind of education or training in the year in question (1997). Many of these people received some kind of employer provider training. Robinson notes however that much of the present education and training activity is unstructured, informal and not very extensive, and that a more comprehensive system of lifelong learning is required. He says that:

“Future directions will need to focus on:

- the development of *new learning pathways* for adults as well as young people so that lifelong learning for all can become a reality. This will require a substantial reform to the post-compulsory education and training system to ensure a wider range of appropriate learning options are available; [and]

<sup>16</sup> Chris Robinson (1999), “New Directions in Australia’s Skill Formation: Lifelong Learning is the Key”, National Centre for Vocational Education and Research (NCVER), Adelaide.

- an *increased national investment* in skills and knowledge. Even though successive governments in Australia have ensured that we have a comparatively sound level of national investment in education and training, it is difficult to see how we can become a world leading skills nation, as we must, without raising national investment further, not just public sources, but from private sources also.<sup>17</sup>

Table 3.2 shows that of those participating in formal education and training in the working age range (15 years of age and older) the proportion of that training provided by the vocational education and training sector exceeds that of the other two main educational education and training sectors combined.

Table 3.2

**PARTICIPATION IN FORMAL EDUCATION AND TRAINING IN AUSTRALIA BY PEOPLE AGED 15 YEARS AND OVER, 1998**

Age (years)	No. of students/trainees ('000)				Proportion of population <sup>(a)</sup> (%)			
	Schools <sup>(b)</sup>	VET <sup>(c)</sup>	Higher <sup>(d)</sup> education	Total	Schools	VET	Higher education	Total
15-19	654.2	335.8	181.4	<b>1171.4</b>	49.7	25.5	13.8	89.0
20-24	4.2	260.1	220.4	<b>484.7</b>	0.3	19.1	16.2	35.6
25-29	0.0	193.4	90.7	<b>284.1</b>	0.0	13.1	6.2	19.3
30-39	0.0	333.2	105.6	<b>438.8</b>	0.0	11.5	3.6	14.8
40-49	0.0	255.1	57.2	<b>312.3</b>	0.0	9.4	2.1	11.5
50-59	0.0	116.6	14.5	<b>131.1</b>	0.0	5.7	0.7	6.4
60-64	0.0	20.1	1.6	<b>21.7</b>	0.0	2.7	0.2	2.9
65+	0.0	21.0	0.5	<b>21.5</b>	0.0	0.9	0.0	0.9
<b>Total</b>	<b>658.4</b>	<b>1535.2</b>	<b>671.9</b>	<b>2865.5</b>	<b>4.4</b>	<b>10.4</b>	<b>4.5</b>	<b>19.3</b>

- (a) Includes the number of students/trainees enrolled in each section in 1998 as a proportion of the June 1998 population.
- (b) The 20-24 year old category includes all school students aged 20 years or more, as almost all of these were aged 20-24 years.
- (c) Includes the small number of VET students aged under 15 years.
- (d) 2115 higher education students are aged 60 years and over, but the age split between those aged 60-64 years and those aged 65 years and over was not available. Thus for the purposes of this report 1600 have been included in the 60-64 category and 516 in the 65 and over category.

Source: Australian Bureau of Statistics (1998a), Australian Bureau of Statistics (ABS) Catalogue No. 3201.0, *Population by Age and Sex, Australian States and Territories*; Department of Education, Training and Youth Affairs (DETYA) (various years), *Selected Higher Education Student Statistics*, and National Centre for Vocational Education Research (NCVER) (various years), *Australian Vocational Education and Training Statistics*.

The Table reinforces the point already made in various ways: that if Australia is to compete most effectively in the knowledge economy then, even more so in the future than in the past, the vocational education and training sector will have to play a key role, and the national investment made through it will have to be lifted accordingly.

<sup>17</sup> Ibid p vi.

## Chapter 4

# Australia's National Investment in Vocational Education and Training: Contributions and Benefits

### 4.1 The Role of Government in Skill Development

As the second of the quotations in Section 3.4 above from Chris Robinson of NCVER suggests, there is scope for increased contributions to investment in VET from all involved — not only governments, but also enterprises and indeed individuals themselves.

The traditional reasons justifying a major government contribution are well known and accepted. It is accepted on mainly equity grounds that government will provide much of the resourcing for young people to gain the opportunity of at least a first vocational qualification; and will assist with re-training of those affected by change. It is also accepted that all training, even that responding to relatively specific needs of enterprises, involves *externalities* — i.e. contributes to a common skill pool whose benefits are widely shared.<sup>18</sup> This justifies a degree of public support for training not only at entry level (where there is a special case) but at all levels.

The advent of the global knowledge economy brings a new dimension, although related to the last point about externalities. This new dimension for the role of government concerns what the government of a country can do in the new competitive environment to ensure that that country will be successful in international competition in trade and for investment flows.

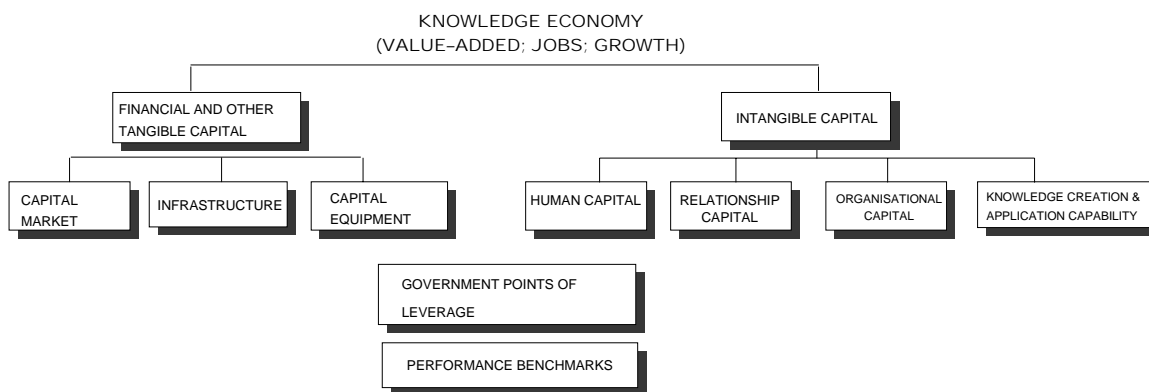
The work undertaken at the OECD and elsewhere over the past decade on the implications of the knowledge economy has given rise to an emerging consensus about what the new role for government is, and where the new points of leverage are, in the process of adapting to compete in this new arena. Figure 4.1 below depicts the key elements in the competitive equation in the knowledge economy, and symbolically indicates where government has its main points of leverage, and where it must focus in benchmarking national performance. These points of focus are on the interface of the nation's intangible capital, especially its human capital, on the one hand, and the physical capital and infrastructure (which can be abstracted) which that human ingredient can make most productive, on the other.

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<sup>18</sup> See The Allen Consulting Group, *Successful Reform: Competitive Skills for Australians and Australian Enterprises*, Report to the Australian National Training Authority (ANTA), 1994.

Figure 4.1

**THE KNOWLEDGE ECONOMY**

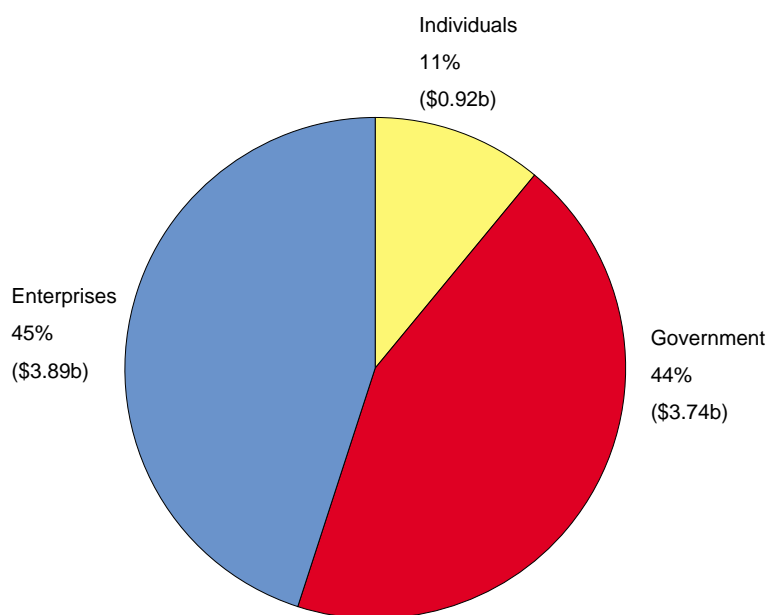


Essentially the core of the knowledge economy concept is that it brings into prominence alongside tangible capital the intangible capital invested in people and groups, predominantly human capital or knowledge and relationships created by it. The successful government is one which focuses on these areas and ensures that its community and the environment it presents to companies operating or investing within its borders meet competitive performance benchmarks vis-à-vis other jurisdictions. A critical part of this is for government to ensure that the education and training systems within its borders are well resourced to provide both foundation learning and skills and regular upgrading of skills in response to the needs of enterprise and individuals.

***Contributions to the Funding of Vocational Education and Training***

As Figure 4.2 below shows, in vocational education and funding responsibilities have traditionally been divided about equally in Australia between enterprises and government, with individuals themselves also making a significant contribution. In the light of the discussion above, there is a needed for all contributions to this investment to be lifted — and in particular that of government.

Figure 4.2

**ESTIMATED EXPENDITURE ON VET: DISTRIBUTION**<sup>19</sup>

Source: ANTA (1998), *Annual Report*, Volume 3.

The figure shows that:

- Even without making allowance for the foregone income of individuals undertaking education and training rather than working, individuals pay a modest (but still significant) 11 cents in the dollar of overall expenditure on vocational education and training. This is understated to the extent that it does not fully value the opportunity cost to individuals of income forgone while they undertake training.
- More importantly, the figure shows that employers pay an amount that is very similar to the amount paid by governments, indeed slightly more on the basis of the estimates shown. As the notes to the figure suggest however, if anything the contribution of enterprises is significantly understated, as it does not include employer support for unstructured training and for paying wages while employees are undertaking their training.
- The government share of only 44 cents in the dollar is obviously considerably less than the share that government pays in respect of school education, but is also less than government pays in respect of higher education — which (see below) is still more than half, even after considerable increases over recent years in the share from other sources (notably the Higher Education Contribution Scheme, HECS).

<sup>19</sup> These data have limitations. The contribution by enterprises does not account for employer support for unstructured training and wages paid to employees while engaging in training. Nor does it show industry's substantial in-kind contributions to the development of Australia's vocational education and training system, such as leading the development and implementation of Training Packages, participation on industry advisory bodies and so on. On the other hand, some non-VET training expenditure by employers is included. On the government side, some payments that support training activity are also not counted.

It might be argued that since vocational education and training is that part of the education training sector which most directly responds to the skill needs of enterprises, there is a weaker, or even no, case for government support here. While the case for public support remains strongest at entry level, there is a case for some public support beyond this — for the reasons outlined earlier, especially in the era of global competition among jurisdictions in the knowledge economy.

The case for some government support at levels of training beyond entry level is indeed stronger in the past — supporting both up-skilling to lift competitiveness and re-skilling to assist individuals affected by structural change. In these cases there is an inter-twining of both economic considerations (facilitating adaptation to change) and social considerations, not only in the case of structural change but for e.g. the re-entry to the workforce of women (mainly after parenting breaks).

Nevertheless the main case for greater public investment in lifelong learning in the era of the knowledge economy is based on the positive economic benefits for the whole community of promoting that activity. As shown earlier, by far the greatest contribution to lifelong learning in quantum is made by vocational education and training sector (relative to the other education and training sectors), and the implication is that vocational education and training investment by governments (as well as others) should be rising in the course of the transition we are undertaking.

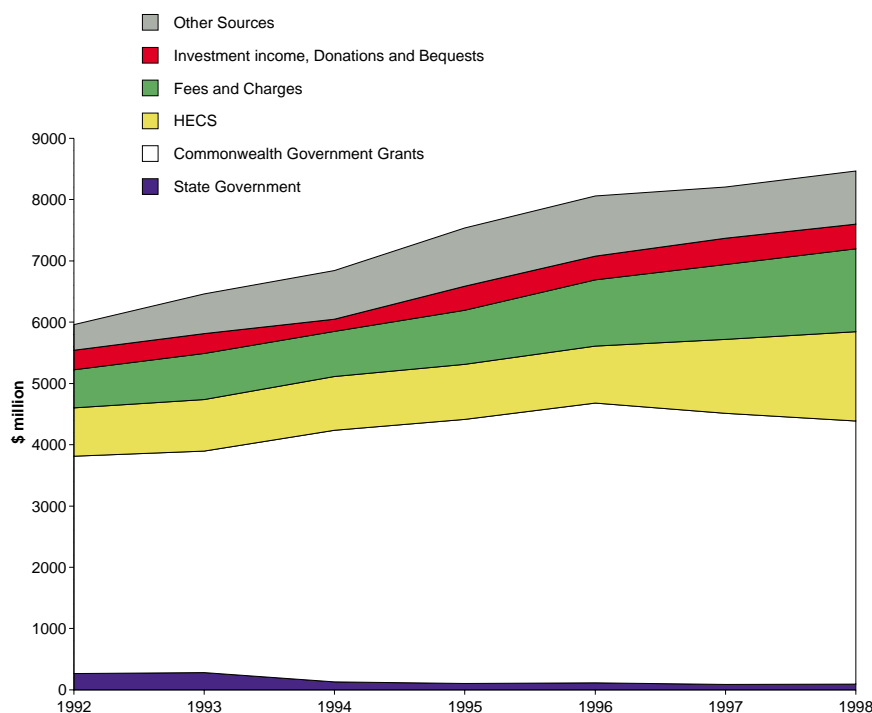
## **4.2 Resourcing of Vocational Education and Training**

The Monash Centre of Policy Studies analysis discussed earlier shows that future demand growth for vocational education and training will outstrip growth in the workforce and will outstrip demands for other kinds of education and training, and as well there is evidence of a greater excess demand for VET relative to capacity than for other education and training. Since government is such a major player in vocational education and training both as funder and as provider, through the TAFE sector and other publicly funded vocational education and training, this issue lies primarily at the door of governments to address — including the Federal Government which has taken responsibility for growth funding for VET under successive ANTA Agreements and which for decades past has taken the major responsibility for funding investments in VET infrastructure.

As part of the initiatives announced in *Backing Australia's Ability*, funding for both research and teaching is to be increased in the higher education sector, whereas there were, as noted, no announcements in respect of VET. Those initiatives will only increase the relative need to lift investment in VET, as the following exhibits clearly demonstrate.

Figure 4.3 shows that while Commonwealth Government grants to higher education have been trimmed over recent years, this has been more than offset by strongly growing private sources of funding — primarily HECS and other fees and charges (from individual fee-paying foreign and Australian students, employers for customised programs etc). Overall, HE resourcing has continued to grow.

Figure 4.3

**HIGHER EDUCATION REVENUE BY SOURCE — 1992 TO 1998**

Source: DETYA (various years), *Selected Higher Education Finance Statistics*.

Figure 4.4 shows the equivalent picture for the VET sector. It demonstrates that:

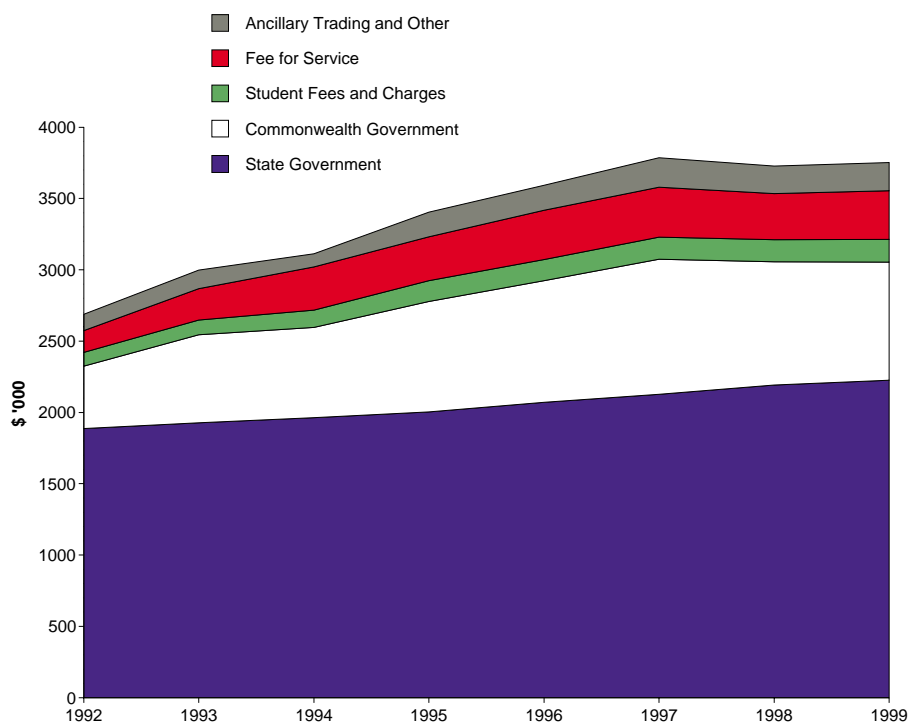
- (a) government funding has also been reduced to VET — and in this case it is only Commonwealth funding that has been cut back, while the States have maintained steady growth in their resourcing; and
- (b) there has not been a corresponding increase in private funding. There is no equivalent of HECS — and among other issues, equity considerations limit how far HECS could be emulated here; and there are limits on the potential for lifting revenue from overseas students and employers. (This is not to say that the potential in all of these areas should not be more fully explored.)

The decline in total Commonwealth funding is despite the commitment to maintenance of the level of a major part of the funding covered by agreements with the States. As can be seen, however total Commonwealth funding has indeed fallen, and as a result, total resourcing of VET has ceased to grow — indeed has been flat in dollar terms from 1998 onwards.<sup>20</sup>

<sup>20</sup>

The funding data in Figures 4.4, 4.6 – 4.8 reflect expenditure rather than appropriations. This partly explains why Commonwealth government VET funding has decreased in recent years despite the commitment to maintenance of ANTA funding. In addition, sources of Commonwealth funding other than those subject to the commitment have declined over these years.

Figure 4.4

**VET REVENUE BY SOURCE — 1992 to 1999**

Source: NCVET (various years), *Australian Vocational Education and Training Statistics*, and unpublished NCVET data.

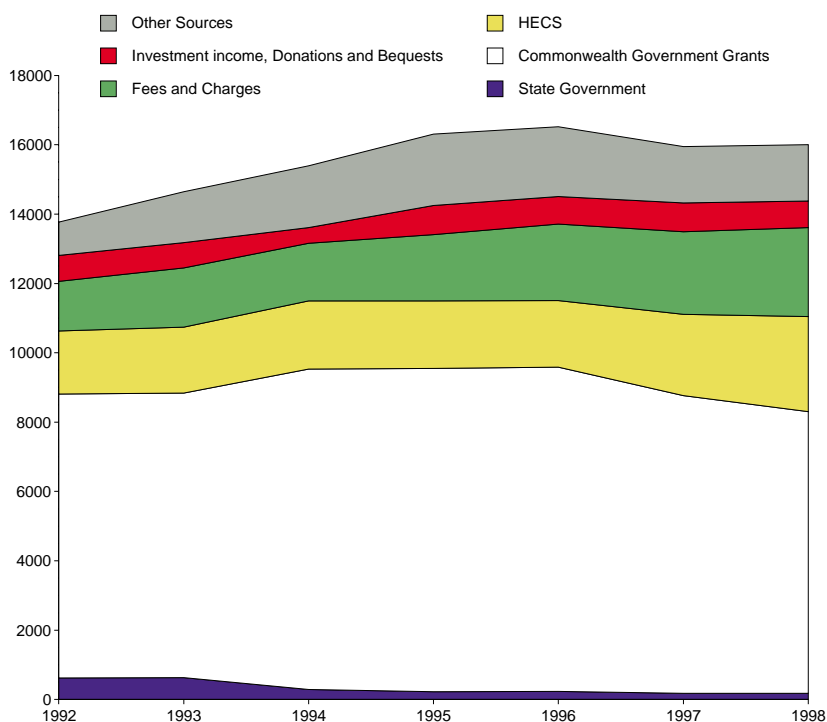
The comparison of resourcing between the sectors is sharper when made relative to measures of student load (numbers of students, full-time equivalents or module hours — as appropriate to each sector). The simplest comparison to make, albeit with some qualifications — given that HE and VET have different mixes of full versus part-time students and that VET module hours are growing more slowly than student numbers — is in terms of funding per EFTSU<sup>21</sup> for HE and per student for VET. This approximates a per student spending comparison.

Figure 4.5 shows that (before *Backing Australia's Ability* there has been some squeeze on HE funding per EFTSU, although not a dramatic squeeze. Total resourcing remains in the broad order of \$15,000 per student (EFTSU) per year.

<sup>21</sup> Equivalent full-time student unit.

Figure 4.5

**UNIVERSITY FUNDING (BY SOURCE) PER EFTSU**

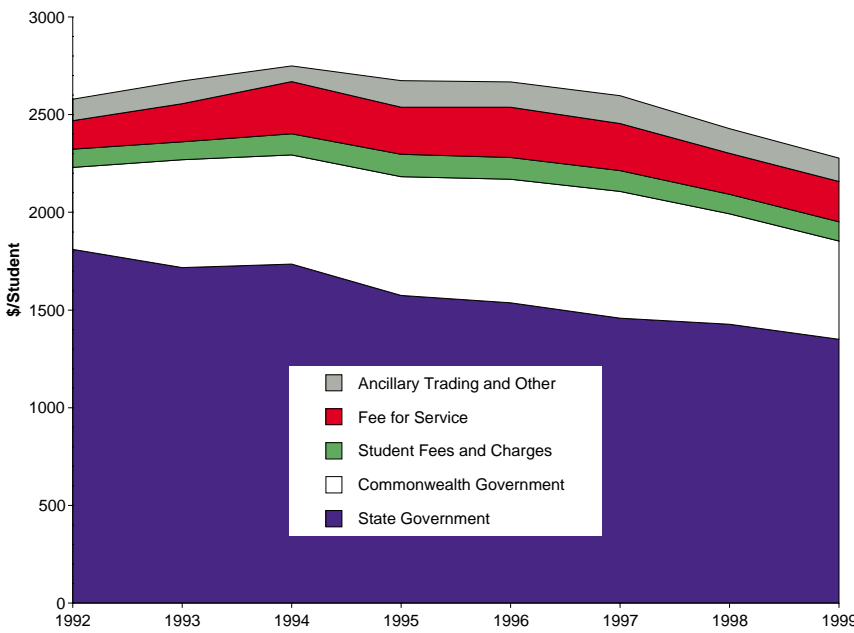


Source: DETYA (various years), *Selected Higher Education Finance Statistics* and *Selected Higher Education Student Statistics*.

Figure 4.6 for the VET sector shows a very different picture: absolute funding levels per student are about one-sixth of that for HE (albeit for a mix involving considerably more part-time students and shorter courses), but more importantly the downward trend in funding per student evident through the mid-1990's accelerated over the past few years. The Commonwealth's component has been cut back most in relative terms, but on this per student basis, State Government funding has also gradually declined.

Figure 4.6

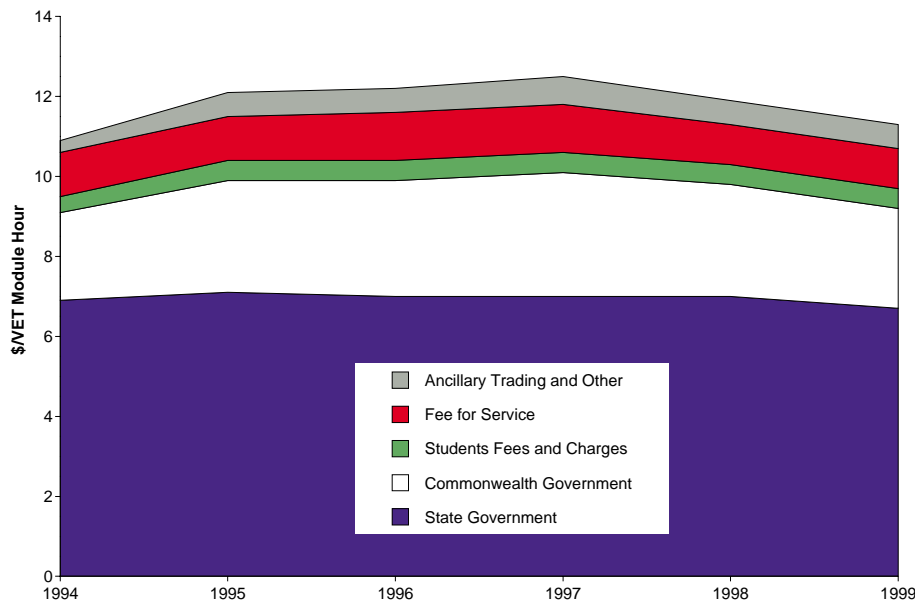
**VET FUNDING (BY SOURCE) PER STUDENT**



Source: NCVER (various years), *Australian Vocational Education and Training Statistics*, and unpublished NCVER data.

Figure 4.7 shows the trend in funding on a per module hour basis. As can be seen, the squeeze on this per load basis is less dramatic but still evident.

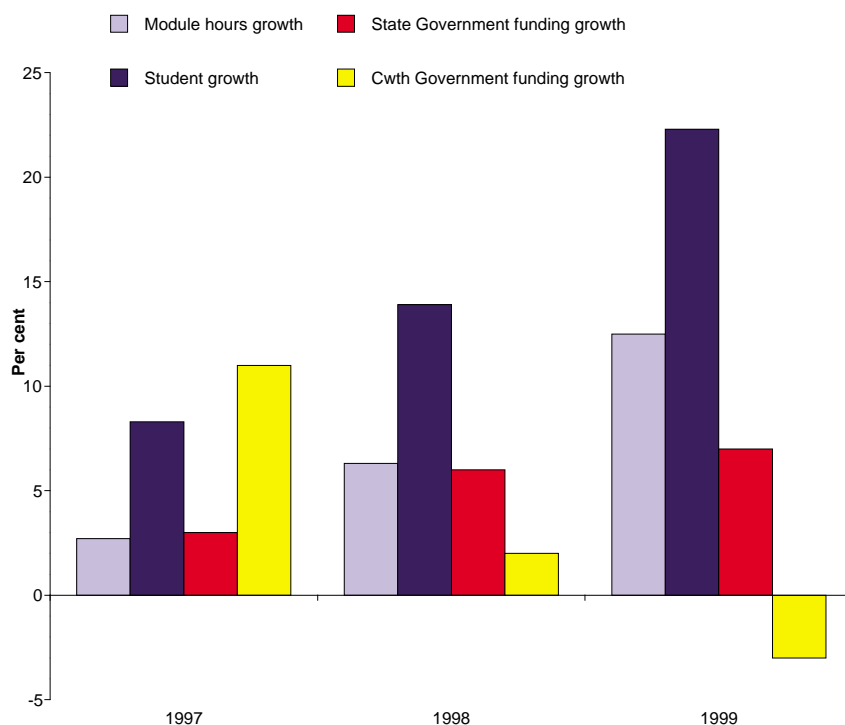
Figure 4.7



Source: NCVER National statistics collection, accessed at <http://www.ncver.edu.au/statistics/aats/index.htm>

Figure 4.8 shows a more direct comparison of rates of growth of load in VET, on both student numbers and module hours bases, versus funding — from both State and Commonwealth governments.

Figure 4.8

**GROWTH IN VET FUNDS AND ACTIVITY SINCE 1996**

Source: NCVET, Australian Vocational Education and Training Statistics.

Given its lesser ability to raise private funds than HE, and the considerably smaller contribution that individuals make to their education and training in the VET sector — as a matter of reality, equity and government decision — the need of the VET sector for government to undertake the major responsibility for growing VET investment is obvious. Equally obvious is that while both levels of government needs to play their part, it is the cut-back in Commonwealth resourcing of VET that most needs reconsideration — for all the same reasons that gave rise to the initiatives announced in *Backing Australia's Ability*, and to complement and balance those initiatives.

Obviously there is scope for examining the possibility of the VET sector generating more of its revenues from private sources. Apart from possibilities for individuals making a greater contribution to the cost of their training than the present relatively modest administration charges that TAFE students pay, there is no doubt scope for the sector to derive more private funds from training which is provided in a flexible and customised way to meet the needs of enterprises for upskilling and other components of lifelong learning.

Realistically however, competition among jurisdictions for economic activity is conducted in part by their presenting enterprises with a rich skill pool and often with incentives for training that meets their specific needs. Given that capital and enterprises are more mobile across borders than ever in the past, there are realistic limits to what proportion of the costs of ongoing training enterprises will realistically be willing or could be required to pay. However with greater

focus on enterprise needs, and a perhaps more flexible approach to the regulation of training,<sup>22</sup> this source can contribute more. The fact remains however that the growth required in VET investment must substantially come from public sources.

### ***A Goal for National Investment in VET***

VET, like all sectors of the economy, should be constantly improving efficiency in the delivery of training. Nevertheless, there is considerable evidence that VET resourcing generally has become very tight over recent years, posing quality concerns.<sup>23</sup>

Taking the funding levels of the 1990s (say 1995-1996) on a per module hour basis as a benchmark, there appears to be a case for restoration of that benchmark, subject to periodic adjustments in future based on demonstrated efficiencies achieved while delivering VET on a best practice basis; and to growing the number of module hours funded in line with projected demand (so that excess demand does not grow).

Hence, in more concise terms, *an appropriate goal for public investment in VET is that it should be restored to the average levels of the mid 1990s on a real per module hour basis, and grown in aggregate terms in line with projected growth in the quantum of demand for VET, subject to best practice efficiencies.*

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<sup>22</sup> E.g. with considerable caution on quality issues etc, extending training incentives to enterprises seeking training that may not lead to a completed recognised qualification or which is customised and does not fully conform to recognised (generic) training.

<sup>23</sup> See for example Schofield, K (2000), *Delivering Quality: Report of the Independent Review of the Quality of Training in Victoria's Apprenticeship and Traineeship System*, Report to the Minister for Post Compulsory Education, Training and Employment, Victoria, May 2000.

## Chapter 5

# The Net Benefits of Increased National Investment in VET

### 5.1 Returns to the Individual from Education and Training

While not everyone readily sees it this way, expenditure on vocational education and training is, as previously argued, undoubtedly an *investment*, in the sense that some alternative uses of the resources involved are forgone at the outset in return for the benefits that flow later, in terms of increased income as well as more personal and social benefits. Table 5.1 below summarises these benefits and costs, both from the perspective of the individual and from that of the community.

Table 5.1

#### POTENTIAL IMPACTS OF INVESTMENT IN EDUCATION AND TRAINING

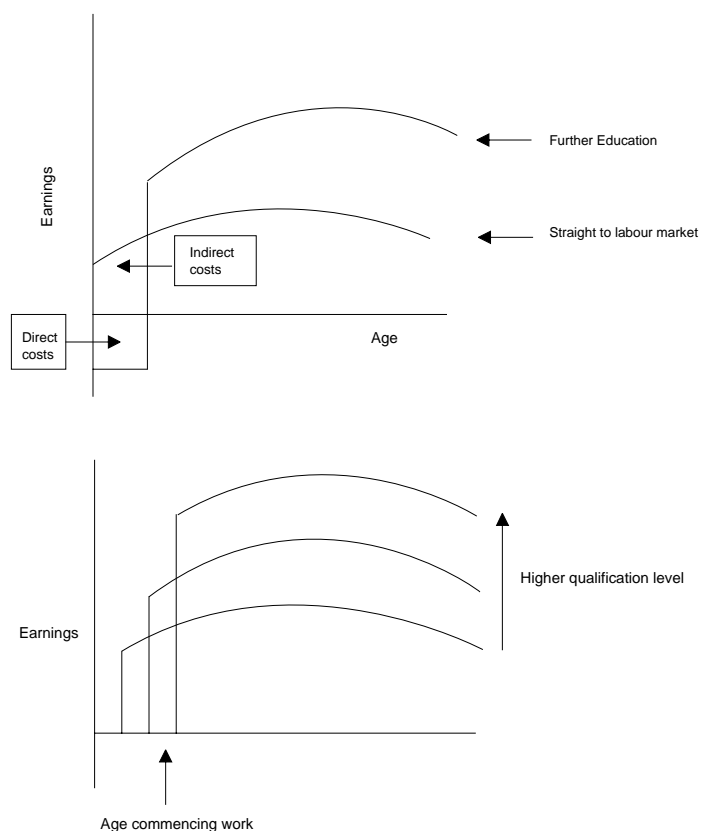
Benefits	Costs
<i>To individual</i>	
<ul style="list-style-type: none"> <li>• Increased income</li> <li>• More fulfilled life</li> <li>• Personal enrichment</li> </ul>	<ul style="list-style-type: none"> <li>• Forgone leisure time</li> <li>• Forgone income</li> <li>• Foreshortened working life</li> <li>• Cost of books, fees etc</li> </ul>
<i>To community</i>	
<ul style="list-style-type: none"> <li>• More educated workforce</li> <li>• More informed electorate</li> <li>• Greater tax revenue</li> <li>• More productive workforce</li> </ul>	<ul style="list-style-type: none"> <li>• Total cost of education infrastructure</li> <li>• Loss of work output</li> <li>• Opportunity cost of non-vocational education</li> </ul>

The two-panel figure below, Figure 5.1, shows graphically the nature of the investment. The upper panel shows that when somebody defers entry to the labour market in order to continue education and training, he or she typically incurs some *direct* costs (or someone else incurs those costs on his or her behalf), along with the *indirect* cost of the forgone income that they could be earning if the person went straight to work. As a result of further education, however, the person has a greater earning capacity — the returns from which are realised over the rest of the career, more than making up for the initial costs. The lower panel of the figure indicates how typically the returns continue with additional education and training steps, whether made initially or later on in career. The figure is adapted from a 1999 paper by Kevin Johnson of the Western Australian Department of Training.<sup>24</sup>

<sup>24</sup> Kevin Johnson (1999), “Value for Money: Comparative Returns on Investment in Education Training”, WA Department of Training.

Figure 5.1

**MODEL AGE-EARNING PROFILES**



Source: Adapted from Johnson (1999), *op. cit.*

In concrete terms, what may be a surprise to some is that the rates of return to the individual from investment in the more advanced levels of vocational education and training (as distinct from the basic or intermediate levels) are higher than for a university education, on the basis of an analysis of 1996 census data by Kevin Johnson of the Western Australian Department of Training, Research and Development Branch. This is true for both Engineering type courses and Arts type courses — see Table 5.2.

Table 5.2

**INTERNAL RATE OF RETURN TO EDUCATION AND TRAINING (%)**

Qualification Level	IRR Engineering	IRR Arts
Basic Vocational	21.28	21.50
Skilled Vocational	37.42	37.99
Associate Diploma	32.03	32.57
University	29.35	32.69
Advanced University	7.14	10.95

Source: Johnson (1999) *op. cit.*

The percentage internal rate of return perspective does of course not tell the whole story. The *absolute* returns to a university degree are somewhat higher of course than those to a skilled vocational or associate diploma level VET qualification. Interestingly, the returns to qualifications in the Arts area, broadly defined (which can include e.g. management and certain IT courses) apparently exceed those in the Engineering area for both VET and Higher Education.

Table 5.3

**NET PRESENT VALUE FROM EDUCATION AND TRAINING INVESTMENT (\$)**

Qualification Level	NPV Engineering	NPV Arts
Basic Vocational	19,771.23	19,895.07
Skilled Vocational	59,806.69	60,322.03
Associate Diploma	62,615.38	63,130.72
University	76,588.07	80,450.47
Advanced University	-4,862.17	528.75

Source: Johnson (1999) *op. cit.*

To make clear what the qualification levels mean, Table 5.4 below associates the terminology used in the figures above with the terminology used in ABS publications and those used in the Australian Qualifications Framework (AQF).

Table 5.4

**QUALIFICATION LEVELS COMPARISON**

Qualification Level	ABS Equivalent	AQF Equivalent
<ul style="list-style-type: none"> <li>• No Qualification</li> <li>• Basic Vocational</li> <li>• Skilled Vocational</li> <li>• Associate Diploma</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable</li> <li>• Basic Vocational</li> <li>• Skilled Vocational</li> <li>• Associate Diploma</li> <li>• Skilled Vocational</li> <li>• Associate Diploma</li> </ul>	<ul style="list-style-type: none"> <li>• No Qualification</li> <li>• Certificate I and II</li> <li>• Certificate III</li> <li>• Certificate IV</li> <li>• Diploma</li> </ul>
<ul style="list-style-type: none"> <li>• University</li> </ul>	<ul style="list-style-type: none"> <li>• Bachelor Degree</li> <li>• Undergraduate Diploma</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced Diploma</li> <li>• Undergraduate Diploma</li> </ul>
<ul style="list-style-type: none"> <li>• Advanced University</li> </ul>	<ul style="list-style-type: none"> <li>• Higher Degree (PhD, Masters)</li> <li>• Postgraduate Diploma</li> </ul>	<ul style="list-style-type: none"> <li>• Higher Degree</li> <li>• Postgraduate Diploma</li> </ul>

Source: Johnson (1999) *op. cit.*

Johnson's findings are broadly consistent with the results of other such studies, Australian and overseas. Some cautions attach to these kinds of return to investment calculations, however, not least because there tends to be some self-selection in those who follow further education and training or higher education opportunities: that is the people who take these additional steps in their education and training tend to be those who have aptitudes which might well have fitted them to do better in other avenues than typical individuals in those other avenues. Nevertheless it is widely accepted that the education and training

*per se*, as distinct from inherent individual attributes, does play a considerable role in the measured return.

Another caution is that studies measuring these rates of return from smaller samples of data tend to produce considerably varying estimates. For example a 1997 survey by the Employment Services Group at Deakin University found for vocational education and training a range of rates of return to *individuals* between 5.6 per cent and 86 per cent, clustering in the area a little under 20 per cent.

## 5.2 Returns to Enterprises

The Deakin University Group also surveyed a number of studies examining the returns to *enterprises* from increased training. These results are summarised in Table 5.5 below.

Table 5.5

### TRAINING AND ENTERPRISE PERFORMANCE

Studies	Outcome
Daly et al 1985	Comparison of Germany and British plants: Higher average labour productivity in German plants associated with greater skills and knowledge.
Koning 1994	Netherlands: 2000 companies doubling of training effort increased productivity by about 10%.
Mason & van Ark 1994	Comparison of UK and Dutch metal plants: Lower output per hour in UK plants because of lower average levels of skills and knowledge.
Mason et al 1992	Food Processing: Higher levels of training correlated with reduced breakdown rates, less waste in plants, productivity advantage and ability to satisfy customer requirements.
Mason et al 1994	Comparison of food processing in Britain, Germany, Netherlands and France. Skill levels related to industry performance.
Prais et al 1989	German hotels more productive than British due to training differences
Steedman & Wagner 1987	German firms more productive than British, with training one of the important factors.
Steedman & Wagner 1987	Better qualified German machine operators German machine contributed to increased productivity

Source: Deakin University Employment Services (1997), *Returns to Training: A Literature Review*, Deakin University. A background paper for Developing a Training Culture, ANTA, Brisbane, 1998; and references cited therein.

The results here tend to be more qualitative but, not least because the enterprises' and others' investments in the training were not always comprehensively or accurately measured. Nevertheless the message is clear: that enterprises are significant beneficiaries of the greater of increased investments in the training of people throughout the career from entry level onwards.

## 5.3 Overall Returns to the Economy

At the end of the day what is most important to the Australian community is what we can expect to generate as net benefits at the national level if we make greater investments in education and training at all levels. At this macro-economic plane, it is even more difficult to measure the benefits in relation to the costs — i.e. the net benefits — in the ordinary calculus of investments (internal rates of return and the like).

The two tables below show summaries of findings of two groups of studies which in the first case cover the links between secondary school education and economic growth and in the other a wider selection of human capital investments of different kinds and their effects on economic growth.

Table 5.6

**SECONDARY SCHOOL EDUCATION AND ECONOMIC GROWTH**

Author	Sample	Outcome	Partial Correlation
Barro 1991	98 countries (1960-89)	Positive impact	+0.29*
De Gregorio 1996	90 countries (1970-85)	No impact	+0.24#
De Long & Summer 1991	61 countries (1960-85)	No impact	-0.01#
Easterly et al 1993	98 countries (1960-89)	No impact	+0.05#
Easterly et al 1993	105 countries (1970-88)	Positive impact	+0.22*
Japelli & Pagano 1994	30 countries (1960-85)	Positive impact	+0.36*
Levine & Renelt 1992	119 countries (1960-85)	Positive impact	+0.20*
Mankiw et al 1992	98 countries (1970-85)	Positive impact	+0.66*
Tallman & Wang 1994	Taiwan (1965-89)	Positive impact	+0.60*

\* denotes a statistically significant relationship. # denotes statistically significant.  
Source: Deakin University Employment Services (1997), *op. cit.*, and references cited therein.

Table 5.7

**OTHER MEASURES OF HUMAN CAPITAL AND ECONOMIC GROWTH**

Author	Sample	Outcome	Partial Correlation
Azaridis & Drazen 1990	71 countries (1960-80)	Positive impact	LIT: +0.29*
Benhabib & Spiegel 1994	115 countries (1965-85)	No impact	HK: +0.02# LIT: +0.01#
Englebrecht 1997	21 countries (1971-85)	Positive impact	YS: +0.16*
Ghura 1995	33 countries (1960-89)	Positive impact	HK: +0.10*
Lee et al 1994	Taiwan (1964-66)	Positive impact	HE: +0.71*
Murphy et al 1991	91 countries (1970-85)	Positive impact	ENG: +0.17*
Otani & Villanueva 1990	55 countries (1970-85)	No impact	BS: -0.26#
Tallman & Wang 1994	Taiwan (1965-89)	Positive impact	HE: +0.61* HK: +0.67*

\* denotes a statistically significant relationship. # denotes statistically significant.  
YS = years of schooling; HE = higher education rate; ENG = engineering; LIT = adult literacy; HK = human capital measure; BS = education expenditure as share of total budget.  
Source: Deakin University Employment Services (1997), *op. cit.*, and references cited therein.

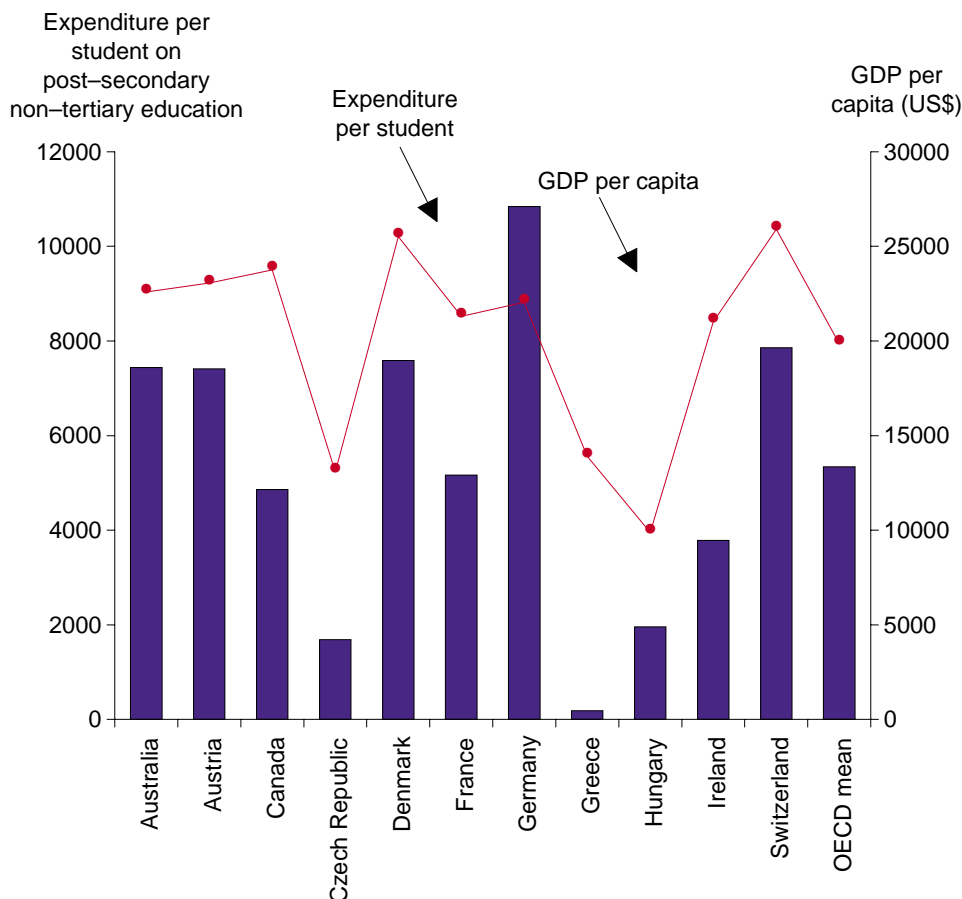
The most comprehensive investigation of a cross section kind in this area is that by Barro and Sala-i-Martin (1995). This study finds that for male education attainment higher initial secondary and tertiary education have significant positive effects on economic growth and these are more strongly evident when years of education are aggregated. Across a wide sample of countries it is found that post-compulsory education has especially a significant effects: increasing average male secondary schooling by 0.68 years raises annual economic growth by 1 percentage points per year while a very small increase of

0.09 year in average tertiary education investment raises annual growth by as much as 0.5 percentage points.<sup>25</sup>

The findings of these studies strongly support the earlier qualitative discussion of the importance of vocational education and training in the age of the knowledge economy. More evidence comes from international comparisons of VET type expenditure and GDP per capita levels, which are indeed positively correlated: see Figure 5.2.

Figure 5.2

**CORRELATION OF VET INVESTMENT AND GDP PER CAPITA**



Source: OECD (2000), *Education at a Glance 2000*.

Yet another demonstration, this one focused on the correlation between countries' focused on competitiveness rankings (based primarily on surveys of enterprises) and post-compulsory education and training rankings, is shown in Table 5.8.

<sup>25</sup> 0.68 and 0.09 years for secondary and tertiary education respectively each represent a one standard deviation difference from the respective mean years of educational attainment in the sample.

Table 5.8

**CORRELATION BETWEEN COMPETITIVENESS AND QUALIFICATION PROFILE RANKINGS**

	Competitiveness ranking	Post-compulsory ranking	Post-secondary ranking	Degree ranking
USA	1	1	2	1
Singapore	2	na	na	na
Hong Kong	3	na	na	na
Japan	4	na	na	na
Denmark	5	12	12	5
Norway	6	3	3	4
Netherlands	7	13	9	2
Luxembourg	8	na	na	na
Switzerland	9	4	11	18
Germany	10	2	7	8
New Zealand	11	14	8	17
Canada	12	6	1	3
Chile	13	na	na	na
Sweden	14	8	4	6
Finland	15	11	13	12
Austria	16	9	20	22
Belgium	17	16	6	13
Taiwan	18	na	na	na
UK	19	5	10	10
France	20	10	16	15
<b>Australia</b>	<b>21</b>	<b>15</b>	<b>11</b>	<b>7</b>
Ireland	22	17	14	16
Malaysia	23	na	na	na

Source: ANTA (1997), *Workskills & National Competitiveness: External Benchmarks Report No. 2: Benchmarking Australian Qualification Profiles*.

The most significant correlation<sup>26</sup> of competitiveness is with all post-compulsory qualifications followed by all post-secondary qualifications, followed by degrees. However, the correlation between post-compulsory rankings and competitiveness cannot be explained in terms of the final destination of some of this profile in either post-secondary or degree level qualifications, which suggests that countries which do not achieve a balanced development across the three profiles (post-compulsory, post-secondary and degree), will be less competitive than those which do.

In particular, this suggests that in the case of Australia, competitiveness impacts from successful degree levels reforms (rank 7) may have been offset by a lack of equivalent development at the post-compulsory level. Countries which expand university and other higher level post-secondary qualifications without expanding the post-compulsory school equivalent VET programs at the lower end of the profile seem to be less competitive than countries which achieve a balanced expansion.

<sup>26</sup> There has been some controversy about the validity or strength of such correlations (e.g. given that any one factor in competitiveness rankings, even with small weight, will be positively correlated with those rankings). However here the only aspect relied upon is the *relative* strength of the correlations of the different education and training rankings with the competitiveness rankings.

This report also presents data on the difference between the competitiveness rankings predicted by the rankings of qualifications profiles and actual competitiveness—this difference may be a measure of the capacity of different systems to translate education and training outcomes into competitiveness. Australia and the United Kingdom rank the relatively low on this measure suggesting that both countries have a weakness translating qualifications in competitiveness. This weakness may relate to issues of profile balance — both countries have reformed their university systems without creating a strong vocational stream at the upper secondary level.

### *Importance of Vocational Education*

While specific comparative data on vocational qualifications and enrolments are limited, those that are available suggest that Australia has a relatively low proportion of vocational to total qualifications, measured within the OECD framework (Table 5.9 below). This implies that any expansion of post-compulsory qualifications in Australia should emphasise vocational, as opposed to general education, programs.

Table 5.9

#### THE BALANCE OF GENERAL AND VOCATIONAL SKILLS

	USA	Sing'pore	NZ	Germ'y	UK	Aust	OECD Avge
<b>% of post-compulsory enrolments</b>							
Vocational			32.0	77.5	57.7	59.9	53
General			68.0	22.5	42.3	40.1	47
Total			100.0	100.0	100.0	100.0	
<b>Qualifications UK level 2 and above total pop.</b>							
Vocational				51.0	22.0	20.0	
General				20.0	24.0	22.4	
Total	50.0	51.0	43.6	70.0	45.0	42.4	

Source: ANTA (1997), *Workskills & National Competitiveness: External Benchmarks Report No. 2: Benchmarking Australian Qualification Profiles*.

## 5.4 Integrating Contributions across All Educational Sectors

The point has already been well made that adaptation to the challenges posed by the advent of the knowledge economy is not a matter for the higher education and research sectors alone. Indeed examples such as the integrated support for technology organisations offered by multi-sector education institutions such as the University of South Australia illustrate that the needs of industry in maintaining competitiveness draw on all education and training sectors, and in particular VET — and are most effective where seamlessly integrated.

The contribution of the school sector should also be kept in view in the process of adjustment to the knowledge economy. Indeed one major focus over the past half decade of education and training authorities in Australia has been their drive to lift activity in VET in Schools programs, integrated with senior secondary schooling. Such programs serve multiple purposes — including

broad vocational orientation, experiential learning, and familiarity with workplaces, as well as retention of young people in schools and assistance with offering them a variety of pathways. However one of the most important purposes is an early start to the acquisition of recognised vocational skills, and this area in which schools and VET integrate needs to be seen as part of any general initiative to lift investment in vocational education and training in Australia.

Of course, focusing on the senior secondary school area only serves to make the further point that the foundations laid in the primary and middle years of schooling, along with continuing education through the post-compulsory stages, are extremely important in setting the basis on which further education and training are built. That is, it will also be important to the nation to ensure that good foundations are laid for all the generic skills that Australians require: literacy, numeracy, ability to work in teams, IT skills and so on.

### 5.5 Social Returns: Maintaining Social Cohesion

Apart from its contribution to the national skill pool and the international competitiveness of Australian enterprises and the economy as a whole, vocational education and training has an important potential contribution to maintaining social cohesion in the process of adapting to the new competitive environment that Australia faces.

It is well known that there can be winners and losers in the process of adaptation to the new global environment, and in particular that workers with lower levels of skill may be among those who experience difficulties in the adjustment process. Box 5.1 makes this point, from an OECD perspective.

Box 5.1

#### GLOBALISATION AND SOCIAL COHESION

...changing trade and investment patterns, domestic market liberalisation and technological development provide opportunities for greater global efficiency, growth and employment, but have considerable structural and adjustment effects. The processes of globalisation and technological change are not smooth; while benefits far exceed costs, they accrue to different firms and individuals.

There has been a sharp increase in demand for more skilled workers, but impacts have been different across countries. English-language countries (notably the United States and United Kingdom) have seen increasing wage dispersion between high-skill and low-skill workers...The current situation of high and persistent unemployment and widening wage and income inequalities in many OECD countries mean that structural changes associated with globalisation and technological change are often difficult to absorb and that comprehensive responses are needed to ensure that the benefits of globalisation are fully realised and widely shared.

OECD (1997c), Directorate for Science, Technology and Industry, Industry Committee, *Industrial Performance and Competitiveness in an Era of Globalisation and Technological Change*.

VET is relevant to a far wider group in the community in re-training and maintenance of skills than is the case for other education sectors. Thus the objectives of maintaining social cohesion and avoiding polarisation in socio-economic status pose further reasons why investments in vocational education and training be kept at least in balance with increased investments in higher education which may be made as part of the process of adapting to the new competitive environment.

Ensuring that vocational education and training expenditure is maintained is not just a defensive social issue, but a matter of taking into account the broad contribution to the community through education and training generally, above and beyond the refurbishment of technical skills. The point has been well made as follows:

“Of course, the purposes of VET are far broader than those captured by the outcome measures commonly used by economists, such as increased earnings and productivity. Important educational objectives such as the development of individuals’ intellectual capacity and the promotion of a stable, tolerant and equitable society are difficult to measure in economic terms although they almost certainly have direct economic consequences.”

Selby Smith, C and Ferrier, F (2000), *CEET’s Stocktake of the Economics of Education and Training*, 9<sup>th</sup> Annual VET Training Research Conference, 5 July 2000 Coff’s Harbour.

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