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ABSTRACT

The future of vocational education and training (VET) in Australia was explored in a project that was designed to identify emerging issues in VET, identify challenges and opportunities for strategic thinking about the future of VET, and establish a basis for ongoing consideration of strategic issues. The major project activities were as follows: (1) a preliminary national consultation to scope the project; (2) a detailed environmental scan of developments likely to shape VET's future; (3) workshops to develop alternative scenarios for VET and projected major challenges and opportunities; and (4) a national consultation to assess and refine the issues emerging from the scenarios and develop appropriate positioning strategies. The following scenarios were used to explore the future of VET: (1) a scenario called Oz Inc., which assumed a booming economy, privatization of government services, two types of jobs, and a knowledge- or personal service-intensive market in learning; (2) universal training; and (3) Australia's transformation into a community of learning. The national consultation confirmed the importance of the 11 major challenges and opportunities for VET's future and supported greater use of scenario planning. The following items are appended: a scenario planning manual; a list of participants in the national consultation exercise; and a list of 29 references. (MN)

Oz inc.

FOCUS ON THE FUTURE

universal training

community of learning

Focus on the Future of Vocational Education and Training.

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Focus on the Future of Vocational Education & Training

Scenario Planning Project

An ANTA National Project

managed by

The Victorian Office of Employment, Training and Tertiary Education (ETTE)

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Australian Centre for Innovation
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FOREWORD

The ***Focus on the Future*** project was born out of recognition that longer-term policy development and planning in the national Vocational Education and Training (VET) system has sometimes been hampered by the absence of a shared view of the future among stakeholders, State, Territory and Commonwealth VET policy makers, employer groups, unions and others.

There is growing understanding that VET faces significant challenges in the future along with the rest of the economy and society. Some of these are referred to in the VET national strategy, *A Bridge to the Future*. (ANTA, 1998)

The approach that was regarded by the National Planning Working Group as most appropriate to assist in developing a greater understanding of emerging longer term issues in VET was scenario planning. This approach was seen as providing a framework that would maximise learning opportunities, and allow individuals and organisations to develop and test their plans against a range of possible futures.

The scenarios developed from this process, and the key issues they highlight, should be of value to planners and decision makers in their own right. However, their greater value will be their use as tools and 'provocations' at a variety of levels to test and refine planning and policy settings. The process also provides the opportunity for strengthening the ongoing consideration of strategic issues in the VET system.

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EXECUTIVE SUMMARY

Executive Summary

1. This project has its origins in a broad recognition among the VET community of the challenges vocational education faces, and the need to develop mechanisms for a continuing identification, evaluation and response to strategic challenges and opportunities.

2. The specific objectives are to:

   - develop an increasing understanding of emerging issues in VET;
   - encourage the use of scenario-based approaches to planning;
   - deliver 2–4 scenarios for the future of VET;
   - identify challenges and opportunities for strategic thinking about the future;
   - establish a basis for ongoing consideration of strategic issues.

3. The project involved:

   - preliminary national consultation to scope the project;
   - a detailed environmental scan of developments likely to shape the future of VET;
   - workshops to develop alternative scenarios for VET and the major challenges and opportunities arising;
   - national consultation to assess and refine the issues emerging from the scenarios and to develop appropriate positioning strategies.

4. Scenario planning was established as a powerful tool to address uncertainty and a range of possible futures, to engage a variety of disparate stakeholders in sharing views of possible futures and appropriate positioning strategies, and to enrich planning processes and outcomes. There was a strong view that scenario-based approaches should be used on a continuing basis in planning and decision making.

5. Three scenarios were used to explore the future of VET:

   i) Oz Inc.
      - Economic boom rolls on, government services privatised, every Australian a stakeholder;
      - Two types of jobs.
      - Knowledge- or personal service- intensive; big private market in learning, quality self-regulated.

ii) Universal Training
- New economy abolishes business cycle;
- Australia joins Asian Economic Union;
- 'Platform for growth' – low taxes, high investment in skills and high amenity;
- Work becomes location-independent, contract-based;
- Learning seamless, through regional learning hubs;
- Driven by 'learning brokers', and national system of 'learning accounts'.

iii) Community of Learning
- Australia 'excluded' from major trade blocs, Economy nose-dives, big brain-drain;
- Tourism surges, but where are the benefits?
- National focus turning inward, to self-sufficiency, community and social rather than economic values;
- Education sectors collapse into each other, major role for charities and community groups.

6. Major challenges and opportunities for the future of VET are:

- From sectoral- to network-based organisation;
- Navigation through learning and working systems;
- Access to, and location of, learning;
- Differentiated approaches for a stratified society;
- The impact and opportunities of Information Technology;
- Efficiency and effectiveness in learning;
- Learning as a universal cultural value;
- Resources for learning;
- Quality management;
- Demographic change;
- The changing nature of work.

7. The national consultation confirmed the importance of the challenges and opportunities identified, supported the greater use of scenario planning, emphasised the different context and needs of the different regions, and pointed to entrenched structural barriers to change.

8. There would be great value in:

- accepting the findings of this project as an agenda for discussion about the future of VET;
- active dissemination of this report and debate to engage the wider VET community;
- formal consideration of appropriate positioning strategies;
- investment in the development of key 'early warning' indicators;
- purposeful consideration of enhancing the capacity of the VET community to address strategic, future-oriented issues.

INTRODUCTION

Our existential dilemma

'Life can only be understood backwards but must be lived forwards' (Kierkegaard 1813-1855)

'Scenario planning enables us to use the power of hindsight, by transporting us to a plausible future' (Johnston, 2000)

'*Focus on the Future*' was established as an ANTA national project, operating under a Steering Committee including government representatives from the Commonwealth and all States and Territories.

The Office of Employment, Training and Tertiary Education (ETTE) in Victoria received a National Projects grant to manage the project. The Project Director was John Sullivan, General Manager, Policy and Planning Division; the Project Manager was Mike Collin, Strategic Planning Branch; the Project Officer for the first phase was Steve Bright.

The objectives of the project were to:

- develop an increasing understanding of emerging issues in VET;
- encourage the use of scenario-based approaches to planning;
- deliver 2–4 scenarios for the future of VET;
- identify challenges and opportunities for strategic thinking about the future; and
- establish a basis for ongoing consideration of strategic issues.

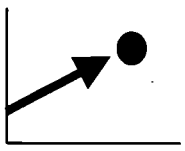
These objectives were pursued through a multi-stage project:

- Stage 1 – preliminary consultations were held with VET executives and workshops held in each State and Territory;
- Stage 2 – a detailed environmental scan was conducted, leading to an analysis of the major drivers likely to shape VET over the next 10-20 years;
- Stage 3 – a facilitated workshop involving participation of a range of VET stakeholders was used both to explore the approaches of scenario planning, and to develop four draft scenarios;
- Stage 4 – refinement of the scenarios;
- Stage 5 – identification of key issues for VET over the next twenty years under each and all scenarios and potentially appropriate positioning responses;
- Stage 6 – focus group meetings involving people with a wide range of relevant experience, including industry representatives, business leaders, unionists, academics, public policy makers, teachers and students were held in the capital city of every State and Territory over the month from mid-September 2000;
- Stage 7 – preparation and dissemination of a final report providing an analysis of the major drivers shaping vocational education and training, a set of scenarios of the future of national VET, emerging issues in VET in Australia, and a primer for scenario planning.

PART 1 – THE SCENARIO PLANNING PROCESS

1.1 Why Scenario Planning?

Situation 1



	1. A Clear Enough Future
What can be Known	▪ A single forecast precise enough for determining strategy
Analytic Tools	▪ 'Traditional' strategy tool kit
Examples	▪ School population

Today's organisations look out at a world marked by high uncertainty, rapid and often structural change, great complexity, and variety of often-contested perspectives. How do they begin to grapple with this range of potential challenges and opportunities?

Traditional strategic planning processes work well in relatively stable business environments. But when there is greater uncertainty about the future, they can be only marginally helpful and possibly highly misleading.

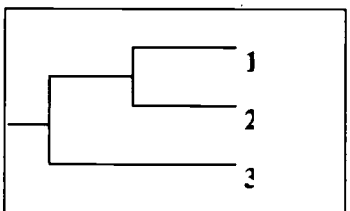
There are, however, other approaches to planning which are more appropriate to dealing with levels of uncertainty. Different situations require different tools.

A useful approach to classifying planning tools has been developed (Courtney et al. 1999).

In Situation 1 (see left), a clear enough future can be identified, either because one can confidently extrapolate from the current position (e.g. the number of Year 12 school students in five years time) or because the underlying determining structure or causes are known (e.g. the computing power of microelectronic chips in five years time).

Under these circumstances, the traditional tools of strategic planning which rely on choice of a preferred future, usually determined through a SWOT (strengths, weaknesses, opportunities and threats) analysis, and organisation of resources and processes to achieve that future, are appropriate.

Situation 2

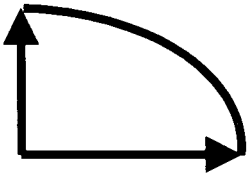


	2. Alternate Futures
What can be Known	▪ A few discrete outcomes that define the future
Analytic Tools	▪ Decision analysis ▪ Option valuation models ▪ Game theory
Examples	▪ NASA

Situation 2 is one in which a limited number of discrete outcomes define the future. This might be the case in the operation of a petrochemical plant, dependent on feedstock, required product mix, etc. Indeed, almost all project management approaches rely on the assumption of a limited number and range of possible outcomes. Strategists, whether military, geo-political or corporate, usually rely on a set of 'if x, then y' assumptions.

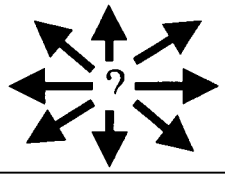
There has been extensive development of mathematical approaches to address the challenges of probability, and linear and non-linear systems. These include decision analysis, option valuation models and game theory. Many simulation models rely on these approaches, using the power of the computer to make multiple, fast computations to determine each particular outcome.

Situation 3



	3. A Range of Futures
What can be Known	▪ A range of possible outcomes
Analytic Tools	▪ Scenario planning
Examples	▪ Fast changing markets e.g. E-commerce

Situation 4



	4. True Ambiguity
What can be Known	▪ No basis to forecast the future
Analytic Tools	▪ Analogies and pattern recognition
Examples	▪ Russia in 1992

'Scenario planning can prepare us in the same way that it prepares corporate executives: it helps us understand the uncertainties that lie before us, and what they might mean. It helps us "rehearse" our responses to those possible futures. And it helps us spot them as they begin to unfold.'(Wilkinson 1996).

'Scenarios are not predictions. It is simply not possible to predict the future with certainty' (Schwartz, 1992).

Despite the power of these methods, there are many situations in which possible futures, cannot be reduced to a series of discrete possible outcomes. These cases described as Situation 3, are ones in which there is a wide range of possible outcomes or futures, with no theoretical, or evidential basis for making a clear choice of which is the more likely, or which factors will have a particular effect.

Under these circumstances, to apply the tools appropriate to Situation 1 or 2 is to invite a misleading, and possibly disastrous, consequence. They will provide an appearance of mathematical precision which is spurious because the underlying system does not exist, or cannot be characterised, as the product of a limited set of interacting variables.

It is in these situations that scenario planning is the appropriate tool to use for planning.

To complete the analysis, Situation 4 addresses circumstances of total ambiguity, in which there is no basis for planning the future beyond the use of analogies and pattern recognition i.e. what situations have previously been experienced that are like this new one, and what guidance can be drawn from that past experience.

Hence, when addressing situations of considerable uncertainty a scenario-based approach to planning is needed.

But, it is important to recognise that scenario planning is not a substitute for strategic planning. The two are complementary. Frequently, scenario planning can be used to address highly uncertain situations, but it leads into more traditional strategic planning when examining in detail how and what to do about it.

1.2 What is Scenario Planning?

Scenario planning, or scenario analysis as it is sometimes referred, is a strategic planning tool or method for improving decision making against a background of possible future environments. In simple terms, a scenario is an internally consistent account of how the business environment or the external environment in which an organisation operates might develop over time. An organisation assessing long term prospects with the aid of scenarios as part of its strategic planning would typically build up multiple scenarios to make sense of the large number of diverse, but inter-connected factors in the external environment, and to deal with the critical uncertainties that could affect the organisation's future direction.

A scenario is a tool for ordering one's perceptions about alternative future environments in which today's decisions might be played out. In practice, scenarios resemble a set of stories, written or spoken, built carefully around constructed plots. Stories are an old way of organising knowledge; when used as planning tools, they defy denial by encouraging – in fact, requiring – the willing suspension of disbelief.

Stories can express multiple perspectives on complex events; scenarios give meaning to these events.

'The scenario method begins from a recognition of the unpredictability of the future, but acknowledges that we need to take decisions in the present that will have future implications. Its intention is to help us make better decisions about the future in the presence of uncertainty.' (Schwartz 1992)

Scenarios address:

- issues, trends and events in the current environment that are of concern to the organisation's decision makers;
- elements in the environment that are determinable and somewhat predictable – pre-determined events or variables; and
- elements in the environment that are more uncertain, trend breakers that affect a system in unpredictable ways, but with understandable dynamics – turning points in the business, political or social environment, identifiable in the present, though often as early, weak signals of change.

'Scenarios are 'a tool for ordering one's perceptions about future environments in which one's decisions might be played out' (Schwartz 1992)

Scenarios are powerful planning tools precisely because the future is unpredictable. Unlike traditional forecasting or market research, scenarios present alternative images instead of extrapolating current trends from the present. Scenarios also embrace qualitative perspectives and the potential for sharp discontinuities that econometric models exclude. Consequently, creating scenarios requires decision makers to question their broadest assumptions about the way the world works so they can foresee decisions that might be missed or denied. Within the organisation, scenarios provide a common vocabulary and an effective basis for communicating complex – sometimes paradoxical – conditions and options.

Scenarios are 'Histories of the future' (Hirschorn 1980)

Despite its story-like qualities, scenario planning follows systematic and recognisable phases. The process is highly interactive, intense, and imaginative. It begins by isolating the decision to be made, rigorously challenging the mental maps that shape one's perceptions, and hunting and gathering information, often from unorthodox sources. The next steps are more analytical: identifying the driving forces (social, economic, political, and technological); the pre-determined elements (i.e. what is inevitable, like many demographic factors that are already in the pipeline); and the critical uncertainties (i.e. what is unpredictable or a matter of choice such as public opinion). These factors are then prioritised according to importance and uncertainty.

Scenarios are 'a hypothetical sequence of events constructed for the purpose of focussing attention on processes and design points' (Kahn and Wiener 1967)

A manual for a scenario planning exercise is included as Appendix 1.

'The purpose of scenarios is to help you change your view of reality – to match it up more closely with reality as it is, and as it is going to be. The end result, however, is not an accurate picture of tomorrow, but better decisions about the future.' (Schwartz 1992)

These exercises culminate in a small number of carefully constructed scenario 'plots'. If the scenarios are to function as learning tools, the lessons they teach must be based on issues critical to the success of the focal decision. Moreover, only a few scenarios can be fully developed and remembered; each should represent a plausible alternative future, not a best case, worst case and 'most likely' continuum. Once the scenarios have been fleshed out and woven into a narrative, the team identifies their implications and the leading indicators to be monitored on an ongoing basis.

Masser, Sviden and Wegener (1992) claim scenarios are 'superior to more rigorous forecasting methods such as statistical extrapolation or mathematical models if the number of factors to be considered and the degree of uncertainty about the future is high'

Millett (1988) quotes a survey of 1,500 major companies, which concluded that 'scenarios were the most used technique for "conjectural forecasting".'

Reviewing his experience of scenarios, Godet (1993) concluded that they contributed to 'stimulating strategic thought and communication within companies; improving internal flexibility of response to environmental uncertainty, and providing better preparation for possible system breakdowns; reorienting policy options according to the future context on which their consequences would impinge'.

Scenarios improve the quality of decision making by

- questioning assumptions
- developing fresh insight
- getting the 'measure' of problems
- developing shared understanding
- rehearsing responses
- developing robust strategies effective if circumstances change

(Johnston, 1999)

Good scenarios are plausible and surprising; they have the power to break old stereotypes; and their creators assume ownership and put them to work. Using scenarios is rehearsing the future; by recognising the warning signs and the drama that is unfolding one can avoid surprises, adapt and act effectively. Decisions which have been pre-tested against a range of what fate may offer are more likely to stand the test of time, produce robust and resilient strategies, and create distinct competitive advantage. Ultimately, the end result of scenario planning is not a more accurate picture of tomorrow but better decisions about the future.

1.3 The Strengths of Scenario Planning

An excellent summary of the advantages of scenario planning has been presented in a recent report on scenario-based transport planning for the Queensland Transport and the Department of Main Roads:

Scenarios explore the possible future shape of the strategic environment, the future context that could play a large role in determining the success of decisions made today. They are effective because they:

- allow 'thought experiments' – thinking through the implications of different strategies in different future environments;
- allow learning and rehearsal of the responses that would be required in plausible future worlds (e.g. developing strategies that might influence particular outcomes);
- challenge existing strategy and policy thinking;
- describe the conditions that decision makers may have to face – they do not describe the actions that policy makers intend to take, or conditions that they would necessarily like to see;
- deliberately present distinctly different possible futures – although the actual outcome may indeed be a blend of elements from more than one scenario. Portraying the future worlds as strongly different from one another allows greater learning than would a less distinct blend;
- sensitise decision makers to unwelcome or subtle changes in the environment. If a threatening potential future is clearly seen, it may lead to actions which deflect that possibility.

Ultimately, therefore, the measure of good scenarios is not whether they get the future right, but whether they lead to better decisions in the present.

1.4 Key Features of Scenario Planning

The essential elements of scenario planning, that differentiate it from strategic planning are:

- Rather than planning forward from the present, the approach rests on imagining forward to a possible future, then planning back (sometimes called backcasting);

Like many of the methods used to consider the future, the construction of scenarios is not an exact science. (Wright & Goodwin 1998)

With regard to the time horizon, a useful guide is that they should be 'short enough to be a reasonably foreseeable future, but long enough to encompass significant changes that are expected to impinge on the area of concern' (Cross 1982)

There is no one correct way of preparing scenarios, though common themes do appear in the literature (Wright & Goodwin 1998)

- It emphasises creative (right-brain) approaches over logical (left-brain) approaches; the qualitative shaping of narrative has priority over the precision of the quantitative;
- It relies on social, interactive processes rather than individual thoughts;
- It benefits from the involvement of a wide range of stakeholders at all levels, rather than restriction to acknowledged experts; and
- Much of the process is tacit, rather than explicit, and hence is understood more by 'doing', rather than by 'reading' or 'analysis'.

Other elements of good practice that have emerged include:

- Given that the process is cumulative, and develops out of a shared understanding of all the participants it is **important to commit to engagement for the whole process**. Individuals who attend a scenario planning exercise for some part will not comprehend the basis of the emerging shared narrative, and frequently only disrupt the process;
- It is necessary to adopt a time horizon sufficiently distant to escape from present-day concerns, but not so distant as to be subject only to fanciful conjecture; in general, for a broad issue of the kind being addressed in this exercise, a minimum of 10 and a maximum of 30 years into the future is appropriate (participants will make this decision);

Approaches to the Future

- **Extrapolators**
- Believe that the future will represent a logical extension of the past
- Identify past trends and extrapolate them
- **Pattern Analysts**
- Believe that the future will reflect a replication of past events
- Identify and analyse analogous situations from the past
- **Goal Analysts**
- Believe that the future will be determined by the beliefs and actions of individuals and institutions
- Examine the stated and implied goals of decision makers and trends
- **Counter Punchers**
- Believe that the future will result from a series of events and actions that are unpredictable and random
- Monitor developments and maintain flexibility
- **Intuitors**
- Are convinced that future will be shaped by a complex mixture of trends, random events, actions of key individuals and institutions
- Gather as much information as possible and depend on intuition
- Wait and see

- The effectiveness of scenario planning rests on the ability to develop and hold in the mind a clear picture of a number of feasible futures; hence the scenarios should differ as much as possible along key variables; likewise, the tendency to aim for a preferred future (in the scenario, not in the implications and opportunities) or a best versus worst case scenario, should be avoided.

Finally, we need to keep in mind that different people, not surprisingly, approach the future in different ways. Five distinct 'types' can be identified – Extrapolators, Pattern analysts, Goal Analysts, Counter Punchers and Intuitors. All types are in scenario in a planning exercise provided to participants recognise the value of each approach. Scenario planning is best conducted as a group activity.

1.5 Does Scenario Planning Work?

Objective assessment of the effectiveness of planning approaches is not easy, particularly when a long time period is involved.

If use can be taken as an indirect measure of value, many organisations use scenarios to varying degrees to assist their strategic thinking and planning. However, few of these have been written up because of the business sensitivity of the subject matter.

The development and use of scenarios in business is well documented for Royal Dutch, which is the recognised leader in scenario planning. A number of key strategic decisions, which turned out to be highly effective, can be traced to this company's scenario planning.

Shell uses scenarios to develop business strategies, to identify investment opportunities and to prepare for discontinuities and sudden change in the business environment. It develops global scenarios as part of its strategic planning for the whole organisation, and focused scenarios for the assessment of more specific strategic issues, at various levels in the organisation. Global scenarios are developed for the long-term, usually 30 years into the future, and focused scenarios, for 2 to 3 years hence.

While a comprehensive listing of the extent of use of scenario planning, is not available, the experience of scenario planning consultants, suggests that a substantial number, possibly a majority of government departments and agencies have engaged in a scenario planning exercise at least once. Many use scenario planning on a regular basis.

In addition many universities, research organisations and other non-government organisations are increasingly using scenario planning. The extent of use in the private sector is, as noted above, more difficult to assess because of commercial secrecy.

A wide range of benefits, or impacts, of scenario planning were reported during the national consultation exercise.

But a word of caution; it is not without its limitations. It should not be used to replace traditional strategic planning. It is important to link the insights and enthusiasm of scenario planning firmly into rational planning. It needs the support and full engagement of senior staff.
As a planning tool, it need not be reserved for the annual planning retreat. Its greatest impact will be through the regular injection of scenario planning thinking and processes into decision making at all levels and on a variety of issues.

Reported impacts of scenario planning

- Injected a stronger future orientation into planning
- Allowed us to think 'outside the box'
- Enabled junior staff to contribute their ideas, and have their capability recognised
- Established the need to make a greater allowance for uncertainty
- Built a strong feeling of sharing and team commitment
- Alerted us to possible new trends
- Challenged the tunnel vision that there was only one possible future
- Developed a shared view among traditionally antagonistic stakeholders
- Enabled us to establish early warning indicators of important possible changes
- Linked managers and staff in a common purpose
- Generated an enormous sense of fun, and new enthusiasm for the task

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PART 2 – THE FUTURE OF VOCATIONAL EDUCATION AND TRAINING – AN ENVIRONMENTAL SCAN

2.1 The Context – National VET Strategy – 1998-2003

The impetus for national reform in vocational education and training over the last ten years has been evolving. Starting as an essential complement to 'microeconomic reform'[1] the rationale now has a greater recognition. Forces for change in the economy are increasing the demand for skill rather than simply labour, that these skills need to be continually updated. There is also a recognition of a need to fundamentally transform the way skills are developed.

The increased stress on vocational and further education and training stems from the belief that competitiveness, the efficient use of technology, and improvements in product quality and innovation require an adaptable and broadly skilled workforce. There is an increasing realisation that in the future Australia will need to depend more on the skill of its people and less on the vast natural wealth of the country. Participation in education and training has been increasing but attainment of qualifications, as a proxy for skill levels, lags behind many of Australia's international competitors.

Introduced in 1992, competency based training and assessment was intended to encourage an outcomes focus on training and to free training from a strict adherence to time served. It focuses on what students need to know and do in the workforce as determined by industry and everyday life (i.e. competencies) rather than on internally referenced goals or processes. Industry and enterprises are the primary client of the system particularly in terms of determining competencies and standards. Competencies are determined for the immediate and relatively short-term future.

Management approaches to support the reform process include funding agreements tied to outputs, business plans, performance monitoring and reporting and increased consultation between governments and representatives of industry. Purchaser/provider pricing models and market-like mechanisms have been introduced to improve responsiveness to client needs at optimal unit cost.

Increased focus on both individuals and enterprises has been supported by significant market research at national and local levels.

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1 See for example TAFE IN THE 1990s: *Developing Australia's Skills* ESFC/NBEET, Canberra 1991 and *Description of the National Training Reform Agenda*, ANTA 1994

This is underpinned by five objectives:

- Equipping Australians for the world of work
- Enhancing mobility in the labour market
- Achieving equitable outcomes from VET
- Increasing investment in training
- Maximising the value of public vocational education and training investment

Specific information sources:

- Statistical data
- Industry and government information collections, national and international
- Relevant published literature
- Interviews with futurists and researchers in relevant fields
- Interviews and workshops with VET CEOs, policy-makers and planners
- The consultant's extensive experience and knowledge sources
- Input from stakeholders.

The National VET Strategy has a mission to ensure that the skills of the Australian labour force are sufficient to support internationally competitive commerce and industry and to provide individuals with opportunities to optimise their potential, thus equipping Australians for the world of work.

2.2 The Environmental Scan

The environmental scan provides an overview of the major forces shaping the environment within which vocational education will be shaped, planned and delivered. Relevant trend data which provide the basis of probable futures (all other things being equal – which they rarely are) are included. The scan draws on a mix of data, observations, individual views and speculations.

The environmental scan has identified seven major distinct categories of influence on the future:

- Social, cultural and demographic factors;
- Information technology;
- Economic Factors;
- Employment and work;
- Education;
- Environment; and
- Government.

We will examine these in turn.

ABS Population Clock

11 October 2000

19, 220, 503

(i) Social, Cultural and Demographic Factors

Population

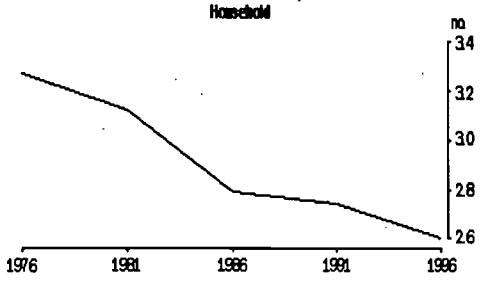
The Australian population exceeded 19 million in 1999 and on current estimates will reach about 22.8 million by 2020 (ABS 1999a)[2].

As at the 1996 Census, approximately 89% of Australians were urban dwellers, living in centres of 1,000 people or more. There were just five centres of 950,000 people or more. These five centres were home to 53.1% of the total population (ABS 1998).

Over the past 5 years, the fastest growing urban areas were those located at the fringes of our capital cities, or along the coastline of NSW, Queensland and WA (ABS 2000b). The tale for regional areas has, with some notable exceptions, such as Albury-Wodonga, been one of steadily reducing population growth and development, most notably in those centres of population less than 7,000 people. This trend has put significant pressure on infrastructure, both public and private. Banks, transport, health services and employment opportunities have all become increasingly centralised.

For VET, the implications include the need to develop effective modelling techniques for determining 'bricks-and-mortar' infrastructure investment, especially in rural and regional areas. Alliances with higher education and schools, on-line provision, increasing workplace training – all of these are strategies currently under development. However, VET is both a driver of development and provider of educational services.

5.42 AVERAGE HOUSEHOLD SIZE, Persons Per Household



Source: Census of Population and Housing, 30 June 1981: Summary Characteristics of Persons and Dwellings (2443.0); Household Estimates, Australia (3229.0); Australian Demographic Statistics (3101.0).

Families and households

In 1998 there were about 7.1 million households in Australia (ABS 2000b). Over the past twenty years, the average size of a household has fallen significantly. The number of one-person households has risen (due largely to the ageing of the population), as has the number of one-parent families.

In 1996, 19% of all families with dependent children were headed by sole-parents. Over the decade 1986–96, the number of one parent families increased by 50% (ABS 1997a).

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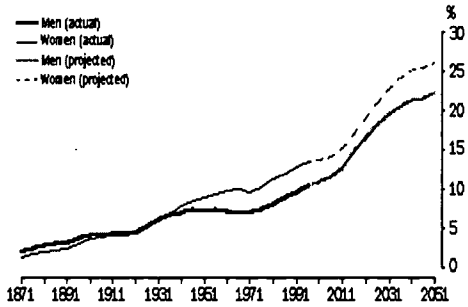
[2] Projections of Population by Age – Australia Series II contains the following assumptions: high fertility (1.85 children per woman), low overseas migration (100,000 people per annum). All ABS projections also assume a progressively declining mortality rate.

S2.2 PROPORTION OF THE POPULATION AGED 65 YEARS AND OVER



Source: Census of Population and Housing; Estimated Resident Population; and Population Projections.

In 1999, there were an estimated 1.7 million people living alone (ABS 2000b). If recent trends continue, the number of single person households will double by 2020.

A significant increase in the over-50 years age group will be evident by the middle of the 21st century. The 'baby boomer' generation will enter the over 65-year age group during the period 2011–2031 taking this age group to about 5 million by 2031. By 2020, the number of people over 65 is expected to reach about 4 million, equivalent to about 25% of the working age population (15–64 years) (ABS 1999b).

The health of the general population, including that of older people has improved. Over the thirty years 1967–97 the death rate for people ages 65–69 decreased by 47% and that for people aged 85 and over decreased by 29%. In 1996, the death rate for people aged 65 and over was 4,532 deaths per 100,000. Most older people surveyed in 1995 had at least one long-term health condition. The four most common conditions were: eye problems – including problems corrected by glasses – (96%), arthritis (49%), hypertension (38%), ear or hearing problems (32%). Over the period 1989–90 to 1995, the incidence of smoking by older people decreased, however, a high proportion of both men and women in this age group were found by the 1995 National Nutrition Survey to be overweight or obese (ABS 1999b).

In 1998 more than half of all people aged 65 and over had a disability and in most cases these disabilities resulted in a restricted ability to carry out one or more daily tasks: mobility, self-care, communication. Both the level disability and restrictions in activity increased with age. Trend data from the United States suggests that disability-free life expectancy is increasing although increases have yet to be reported for the current population of older people in Australia. The ABS estimates that the disability-free life expectancy for boys born in 1998 was 58 and for girls was 62 (ABS 1999b).

Implications include:

- **Job structures** – Older people, particularly those with semi-independent financial means, will more likely be involved in part-time and occasional work tailored to suit their needs.
- **Industry growth** – Personal care; financial, property and lifestyle advice; tailored services such as gardening, and help around the house, will all be growth areas that should provide significant opportunities for VET.
- **Marketing influence** – As a group, older people will have significant financial resources and political muscle.

- **Community activities** – Older people currently provide more than twice the number of hours of volunteer work than all other people (i.e. 15–64 year olds) in the health, welfare/community, cultural and religious sectors.

Australia is multi-ethnic, multi-cultural, multi-lingual

Culture

At present, nearly four million Australians were born overseas, in one of more than 200 countries. Another 3.8 million had one or both parents born overseas. About 2.5 million (16% of the population five years old and over) speak a language other than English at home.

As at 30 June 1996 Australia's indigenous population was estimated to be 386,000 or 2% of the total population (ABS 1997a) At that time, in most States and Territories, Aboriginal and Torres Strait Islander people accounted for 3% or less of the population. In the Northern Territory, 29% of the population were of Aboriginal or Torres Straits Islander origin.

Although only one in four indigenous Australians live in rural areas, they form a larger proportion of the population in rural and remote areas than in urban areas (ABS 2000b).

Indigenous population younger, with lower participation in education

The Aboriginal and Torres Strait Islander population is younger than the population in general. In 1996 the 68.1% of this population was under 30 years of age. However, rates of participation in post-compulsory education and training and levels of educational attainment are significantly lower than for the population as a whole (ABS 2000b).

Youth

Young People (15-24 year olds) account for 14% of the population (June 1999). Over the next twenty years they will decrease as a proportion of the population however they are likely to continue to have special needs. Changes in the nature of work have already made transition a more complex process. For some young people health, income support and housing issues also significantly impact on their ability to participate in education and training and make successful transitions to employment. A growing number of young people are struggling to make successful transitions from school to work. Although school retention has risen, there has been only slight improvement in successful transition rates to either post-school education or employment from a low of 78% in 1994 to 85% in 2000.

(ii) Information Technology

IT&T (Information Technology and Telecommunications) businesses, which include telecommunications companies, employ about 208,000 people in Australia. Employment in the sector increased about 53% over the course of the decade to 1999.

Australia is among the leading nations in terms of key measures of Internet infrastructure, penetration and activity. Highlights of Australia's performance in the information Economy include:

- In the year to February 2000, an estimated 43% of adult Australians accessed the Internet, which places Australia marginally behind the United States in the group of leading nations.

- In the year to February 2000, an estimated 28% of Australian homes were on line placing Australia among the world's top performers. A further 1.1 million households not online expressed an intention to connect to the Internet by February 2001. If these intentions are realised then by February 2001 more than 43% of households will be online.

28% of homes on-line

- Metropolitan areas continue to lead the rest of Australia (33% compared to 19%, as of February 2000) in terms of households online. However, since February 1998 the number of households online in non-metropolitan areas has increased by 164% compared to 109% for metropolitan Australia.

- As of February 2000, the leading groups accessing the Internet continue to be:

Cities better connected than the regions

- 18 to 24 year olds, with 77% online;
- Australians earning $80,000 or more, with 73% online;
- Australians with a higher education qualification with 80% online;
- Australians employed as managers or professionals with nearly 70% online;
- Australian families with children with 40% online.

- With 37% of Australian businesses online, Australia is ahead of European nations where the United Kingdom is leading with 25% of all businesses online as of March 2000. Comparable data is unavailable for other countries.

37% of businesses online

- 6% of employed Australian adults had formal agreements to telework from home at February 2000. To enable them to work from home, 49% of teleworkers used a portable computer, 39% a mobile phone and 36% a modem to access an employer's computer system

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The main constraints include:

- security, authentication and payment schemes that are robust and acceptable to consumers;
- access to bandwidth – hardware and infrastructure (capacity and speed) is a more significant determinant of Internet success more than software;
- government responses to the development of e-commerce.

(iii) Economic Factors

Australia's sustained economic growth, including downturns in the business cycle, in the post World War Two period has been in keeping with the experience of most other industrialised countries. Since 1960, the output of Australia's economy has increased nearly fourfold and the quantity of goods and services available to the 'average' Australian has more than doubled.

More recently, after a severe recession in the early 1990s, Australia's per capita Gross Domestic Product (GDP) growth has averaged 2.7% per year, largely as a result of improved productivity as opposed to lower unemployment. Indeed Australia's rapid population growth, fuelled by immigration and a sustained baby boom, and increased labour market participation of women has significantly expanded the size of the labour force.

The integration of Australia's economy, through the deregulation of trade, capital, and financial markets into the global economy has also had significant effects, particularly in terms of increasing the exposure of Australian companies to overseas competition, greater foreign investment in Australia, and improving Australian access to overseas export markets. As the Prime Minister's Innovation Taskforce identified, Australia's future growth prospects in such a competitive international environment will increasingly depend on technological progress and public and private investment in social and physical infrastructure.

Economic policy makers in Australia have also followed international trends in monetary and fiscal policy. Like many countries, Australia's central bank is focussed on containing the inflation rate through manipulating interest rates with a view to creating a stable environment conducive to increasing economic growth and reducing unemployment. In terms of fiscal policy, Australia has sought to reduce budget deficits, again with the objective of creating an environment suitable for economic growth.

The substantial economic changes that have occurred in recent decades have impacted heavily on the composition of Australian industry. For instance, the proportion of the labour force employed in manufacturing industries has, while increasing in absolute terms, fallen from 16.5% to 12.5% between 1986 and 1999. Over the same period, the percentage of people employed in service industries has frown from 66.6% to 73.6%. These changes have led to the emergence of terms such as 'new economy', information economy', and 'knowledge economy' to describe the nature of Australia's economy. These terms, though useful in acknowledging the changing nature of Australian economic activity, tend to neglect the still important role of primary and secondary industries in providing employment and wealth to many Australians.

Past trends indicated that both domestic policy and international trends will have significant impacts on Australia's economic future. Possible scenarios are discussed in greater detail in *Alternative Future: Scenarios for Business in Australia to the Year 2015* (Australian Business Foundation 2000)

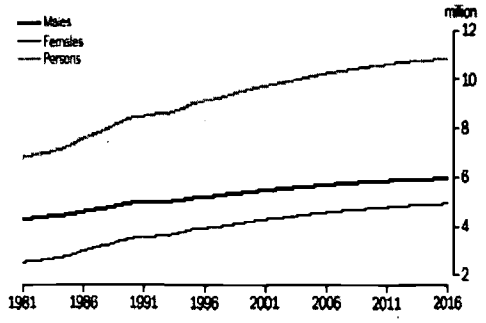
(iv) Employment and Work

For the year 1997–98, there were just over 9.4 million Australians in the labour force – 5.3 million males and 4.1 million females.

ABS forecasts predict a slowing in the rate of growth for the workforce over the next 15 years. The side figure shows ABS forecasts of the labour force (aged 15 years and over) up to 2016. The labour force is projected to reach 10.8 million people by 2016. Over this period the labour force is also expected to age dramatically.

Although these projections have not been extended by the ABS to the year 2020, it is likely that these trends would continue. The dominant driver is the aging of the Australian population and the ABS does not expect that changes in participation rates will have a significant impact on labour force projections (ABS 1999c).

Forecasts of Workforce size up to 2016



Source: Labour Force Projections, Australia 1999-2016 (Cat. no. 6260.0)

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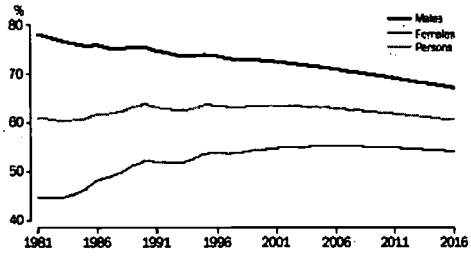
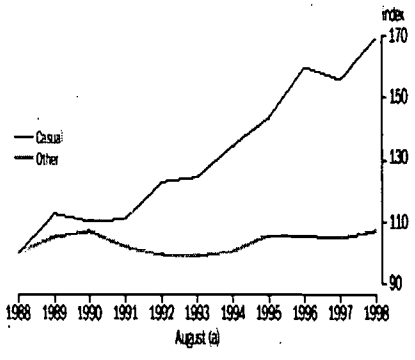
Participation in the Workforce



Source: Labour Force Projections, Australia 1999-2016 (Cat. no. 6260.0)

Job vacancies by industry 1995–99

1 GROWTH OF CASUAL AND OTHER EMPLOYEES, August 1988 = 100



(a) For 1991, collected in July.

The labour force participation rates (how many of the available people are actually employed or want to work) for males have remained relatively static since 1986, varying between 72–74%. For females, there has been a significant rise in labour force participation from 47.4% in 1986 to 53.8% in 1996, after which female participation has remained steady varying between 53.6% and 53.9% (ABS 1997a, 2000b). Over the next 15 years the male participation rate is expected to fall slightly while female participation is expected to remain steady (ABS 2000)

Since 1986 the percentage of employed people working in the service industries has grown from 66.6% 1986 to 73.6% in 1999. During the same period the percentage working in manufacturing industries has declined from 16.5% to 12.5% (ABS 1997a, 2000b).

Changing employment arrangements

In the period 1989 to 1999 the proportion of persons employed on a casual basis rose from 20% to 26.4%. This was an increase of almost 51.7% in the number of people working as casual employees (ABS 2000b).

Although the rate of casualisation is higher for women (31.8% of all employed females) than for men (22.0%), males have been subject to a rapid increase in the rate of casualisation during the 1900s from 13.1% in 1989 to 22.0% in 1999 (compared with an increase from 29.3% to 31.8% for females over the same period) (ABS 2000b). The trend for the future in casualisation is likely to continue upwards.

Data collected in 1998 indicate that rate of 'non-traditional working arrangements' (i.e. casualisation, part-time work, restricted tenure jobs or jobs paid by labour hire firms), is highest in lower skilled occupations: elementary clerical, sales and services jobs and labouring and related jobs. The rate of casualisation is particularly high for these occupations. High rates of casualisation are also found in the accommodation, cafes and restaurant industry; retail trade; and the agriculture, forestry and fishing industries where seasonal and trading day variations in demand are also prevalent (ABS 2000b).

The percentage of employed people working on a part-time basis has increased from 18.3% in 1986 to 26% in 1999 (ABS 2000b).

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Skills required in the workplace of the future

Foundation Skills:

- **Basic skills**: reading, writing, speaking, arithmetic
- **Thinking skills**: reasoning, making decisions, solving problems
- **Resource skills**: researching, organising, planning
- **Personal qualities**: responsibility, self-esteem, sociability, honesty

Competency skills:

- **Information skills:** computer literacy
- **System and process skills:** understanding and improving systems
- **Technology utilisation skills:** selecting technology and applying it to a task
- **Interpersonal skills**: negotiating, leadership, teaching new skills, servicing clients

(v) Education

There are three sectors of formal education in Australia – the schools sector, the vocational education and training sector and the higher education sector.

Date for 1999 (the most recent year for which information on all three sectors is available) indicates that the relative size of each of these sectors is as follows.

	Students	Equivalent Full-Time
Higher Education	686,300	544,100
Publicly funded Vocational Education and Training	1,647,200	459,800
Schools (all years)	3,252,420	3,237,935
Schools (Years 11 and 12 and upgraded)	444,772	431,808

Note: 1 Fulltime equivalence in the VET sector is equal to 720 annual hours.
2 These figures have not been discounted to account for students who enrol in more than one sector simultaneously.

Sources: NCVER (2000) Australian VET Statistics 1999: In Detail
DETYA (2000 and 2001) Selected Higher Education Statistics
ABS (2000) Schools, Australia. Catalogue Number 4221.0

Vocational Education and Training

The Commonwealth, State and Territory governments contribute $4 billion annually towards vocational education and training. There is also a significant amount of non-government expenditure on training. Non-government funded training activities are harder to quanitify and do not necessarily result in formally recognised qualifications but the quantum of activity is significant. It is is estimated that in 1998 (the most recent data available) about $4.5 billion was contibuted from non-government sources.

As indicated above there were 1.65 million students enrolled in publicly funded VET in 1999. The majority of these were enrolled on a part-time basis.

Training Providers

In 1999, there were 85 TAFE and other government institutes with 1,132 provider locations delivering vocational education and training. There were also 1,075 community centres and 2,465 other registered providers delivering VET on a basis of, at least partial, public funding.

In 1999, TAFE and other government providers enrolled 74.8% of all publicly funded VET students. Community providers enrolled 14.3% and other registered providers enrolled 10.9% of publicly funded VET students.

Students

In 1999, there were 1.65 million VET individual students. Over the three years between 1995–1998, the number of enrolments grew from 9.6% of the population to 11.2% of the population. The largest growth areas were in the 15-19, and 20–24 years cohorts.

Males tend to study in TAFE/VET earlier than females, and then to move out of the tertiary training sector. In all age groups from 16 to 30 males, significantly outnumber females. By contrast, in all age groups from 30 to 65+, females significantly outnumber males.

People with a disability are slightly under-represented in VET compared with their representation in the general community. People from other major equity groups - Aboriginal and Torres Strait Islander Peoples, people of Non-English Speaking Background, people from rural and remote areas and women are well represented. However the employment outcomes for Indigenous people, people from a Non-English Background and women is not as high as that for TAFE graduates as a whole.

Publicly funded VET students are enrolled across a range of levels as shown in the following table. Fifty percent of students are enrolled in AQF Certificates I, II, III or IV and another twelve percent are enrolled in AQF diploma level or higher. Nineteen percent of students are enrolled in non-award courses and 5.7% are enrolled in single modules.

Level	Percentage
AQF Certificate I	5.5%
AQF Certificate II	15.9%
AQF Certificate III	19.6%
AQF Certificate IV	10.1%
AQF Diploma or higher	12.2%
Other recognised courses	11.9%
Single modules	5.7%
Non-award courses	19.0%

The most popular field of study is *Administration, business, economics, law* (19.0% of students), closely followed by *Social educational & employment skills* (14.2%), Engineering, processing (13.1%) and Mathematics, computing (11.1%)

Field of Study	Percentage
Administration, business, economics law	19.0%
Social educational & employment skills	14.2%
Engineering, processing	13.1%
Mathematics, computing	11.1%
Hospitality, tourism, personal services	7.9%
Health sciences	7.5%
Humanities	7.3%
Built environment	5.4%
Visual/performing arts	4.7%
Agriculture, renewable resources	3.9%
Sciences	2.7%
Social studies	1.7%
Education	1.4%

Surveys of student satisfaction show that graduates from TAFE institutes undertake VET studies for work related reasons. Completion of a VET qualification tends to improve the employability of VET graduates and assist people already employed in moving to more highly skilled occupations.

**VET Teaching Staff
1998–99**

	F/T staff '000	P/T staff '000	Total '000
Males	9.9	5.2	15.1
Females	5.7	8.2	13.9
TOTAL	15.6	13.3	28.9

Source: ABS 2000

Teaching staff

The ABS reported in 1997 that almost 90,000 people were engaged in the provision of training within public and private training organisations. Of these 46,000 worked in TAFE institutes. Many more were engaged in the provision of training within an organisation.

More is known about people working in the TAFE sector than those working for private providers but the size of the TAFE sector makes trends significant in their own right. In 1998, 54% of the almost 30,000 teachers in the sector were employed full-time. Of all full-time VET teachers, 63% were male. In contrast, 62% of part-time teachers were female.

The staff cohort in Australian TAFE/VET is ageing, with approximately 40% of all teachers likely to retire within the next five years. This has the potential to create a significant resourcing problem.

Recent education trends

The proportion of wage and salary earners who had a post-school qualification increased between 1989 and 1997 from 47% to 54% (ABS 1997b). Since 1993, the increase in proportions has been more substantial for those with a higher education qualification (from 24% to 28%), than for those with vocational qualifications (from 23% to 24%). However this figure undercounts the number of people with vocational qualifications because only the highest level of qualification is counted. Increasing numbers of higher education graduates are turning to the VET sector for further qualifications and skills updates.

VET is an important source of education and training for people already in the workforce. In 1997 there were just over one million workers enrolled for a post-school qualification. Over 47% of these were enrolled for a higher education qualification, and 53% for a vocational qualification.

Within the VET sector, 259,880 (in 1999) people are engaged in New Apprenticeships. New Apprenticeships have increased by more than 100,000 since 1995. New Apprenticeships are available acoss a wider range of industries and occupations than ever before include clerical sales and services occupations as well as traditional trades.

Another recent innovation has been the VET in Schools programs which make it possible for students in year 11 and 12 to undertake training which is nationally recognised by the VET sector and also counts towards their senior secondary certificate. It is also possible for VET in school students to commence a New Apprenticeship on a part-time basis. Enrolments in these programs have grown exponentially since VET in schools was introduced in the early 1990s.

Increasingly VET qualifications are gaining recognition by the higher education sector. With the development of linked qualifications and credit transfer agreements.

Overseas students

30,000 overseas students in VET sector

Australia is heavily dependent on overseas students in both the university and VET sectors. In 1999, there were approximately 158,000 international students studying in Australia in all education sectors (including schools). Approximately 30,000 or 20% of the total of these students were studying in the VET sector. An additional 9,000 students undertook English language training at VET institutions.

Of these 30,000 VET students, 24% were studying with public providers to whom they paid about $68 million.

Approximately 85% of VET students came from Asian countries, the most popular being India, Indonesia and Japan.

The most popular field of study in the vocational education sector in 1999 was Business Administration and Economics, which represented 62% of all enrolments. Within this category, three quarters of students were studying Business and Administration, most of which occurred in privately funded vocational education institutions. Another popular field of study within the vocational education sector was Science (15.1%), with nearly all in this category studying Computer Science (97%). DETYA (1999) was used as a reference for figures for this section.

(vi) Environment

Threat of global climate change

Global environmental drivers will be among the most significant factors shaping the development of Australia's economy and society over the next 10 to 20 years. Paramount among these will be global climate change, and the need to achieve or approach sustainable development.

The threat of global climate change through greenhouse gas emissions presents a major challenge. Predicted changes in temperature and sea level could have major consequences. The physical and biological impacts of global climate change are difficult to predict; the possible impacts of policy and regulatory responses flowing from the Kyoto Protocol are even more uncertain.

Greenhouse gas concentrations have been increasing since the Industrial Revolution starting in the late 18th century. Consequent climate change effects are difficult to assess because of natural climate variability. However, the global mean surface air temperature has increased, and global sea levels have risen by between 10 and 25 cm over the past 100 years.

In 1990, estimates from the UN Inter-governmental Panel on Climate Change (IPCC) predict an effective doubling of CO_2 between 2000 and 2025–2050. If this occurred, there would be an increase in global mean temperatures of 1°C above the present value by 2025 and 3°C before the end of the century. A rise of 20cm in the sea level is predicted by 2030, and about 65cm by the end of the century.

These changes in temperature and sea level could have major consequences. The range of areas of potential impact include: rainfall patterns; crop growth potential; land degradation; pest and disease spread; forest growth potential; changes within ecosystems and in the boundaries of vegetation zones; species extinction; threats to hydrology and water resources, air quality, human health, human settlement, transport and industry, coastal zones, barrier islands and reefs, estuaries and wetlands and seasonal snow cover.

In general, Australia would appear to be exposed to a relatively moderate scale of impacts, certainly compared with many other countries and regions. However, Australia's relatively low latitude makes it particularly vulnerable to impacts on its scarce water resources and on crops growing near or above their optimum temperatures.

The greenhouse effect poses special challenges. Global climate change is the first environmental problem that humans have had to face in a worldwide context It will be necessary to devise collaborative solutions involving all the countries of the world, via a complex negotiation process. In addition, the time scale involved is so long and the natural processes involved so little understood that any attempt at even the most approximate quantification of the damages and mitigation costs becomes a formidable task.

In addition to the challenge of global climate change, the pressures to achieve sustainable development are likely to be a major shaper over the next twenty years. Much of the resulting effort may be aimed directly at such issues as land and ocean degradation, land use, and threats to bio-diversity. But concerns about pollution are also likely to lead to much more stringent examination of the environmental performance of companies, as judged by regulators, customers, the stockmarket and local and international communities.

Major environmental issues:
- land salinisation
- maintaining biodiversity
- salinisation of inland waters
- erosion
- eutrophication
- land contamination
- loss of fringing vegetation

The 1998 State of the Environment Report (SOE) for Australia identified the major environmental issues as land salinisation; maintaining biodiversity; and salinisation of inland waters; erosion; eutrophication; land contamination; and loss of fringing vegetation.

Sustainable development objectives will place great demands on governance since it will require the integration of:
- environmental, economic and social concerns within government policy;
- policy across departments and agencies within the same level of government (i.e. horizontal integration);
- policies between levels of government (ie. vertical integration between Commonwealth, State and local governments); and

- policy across time (ie. generational integration), so that cumulative environmental effects can be managed.

(vii) Government

Globalisation – the increasing integration of the world's economies through trade, finance, transport and communications – is changing the shape and role of national governments.

Challenges to governance

The Australian political landscape has been in a state of flux for most of the past decade:

- Governments – both State and Federal – are being elected with either a landslide majority or the barest of workable margins;
- In the space of one election cycle a significant electoral advantage – of either popular support or seat numbers – can disappear;
- The rise of issues-based parties and independent members of parliament;
- The balance of power being held, and exercised, by independents;
- The formation of temporary coalitions;
- The rise of small parties.

This is a global pattern. At the same time many governments are redefining their roles, moving from being a provider of services to being a purchaser of services.

60% of revenue for VET comes from States/Territories

This impact of the role of government and the VET sector is complex because both Commonwealth and State/Territory levels of government have significant roles in funding and policy. Primary responsibility for administration of the VET system lies with the State and Territory governments. Operating revenue is provided primarily by those governments (59% in 1999), with additional funds being provided by the Commonwealth Government (22%). The balance of revenue (19%) came from fee-for-service activities, ancillary trading and student fees and charges.[3]

There have been significant changes in national and State TAFE policies and activities over the past decade, including:

- adoption and roll out of national competency standards, training packages and a new emphasis on assessment; and
- the adoption of a new apprenticeship and traineeship system;
- ongoing demand for efficiencies within constrained or reducing budgets;
- fiscal responsibility;

[3] Note that the various States have significantly different funding systems. NSW, which accounts for about 40% of total system activity, is primarily funded through State resources, which tends to skew the overall picture.

Challenges to governance

- Commonwealth versus State power
- International treaties and regulations
- Globalisation
- Indigenous causes
- Search for community

- emphasis on post compulsory education and the development of a 'culture of lifelong learning';
- facilitation of transition to work;
- achievement of lower unemployment numbers, particularly for youth;
- industry policy – the addressing of skills shortages proactively;
- development of learning communities.

Within the broad framework of change there are several parallel issues being acted out which have an impact on the scope and nature of government, including:

- impacts of the GST and the potential for increased State-based power;
- international identity under the pressures of global economic reform and the knowledge society;
- national identity in the midst of a continuing debate about the efficiency of our model of government, the number of houses of parliament, the number and regularity of elections, and the viability of Constitutional reform;
- indigenous relations, including the issues of reconciliation, land rights and indigenous cultural heritage;
- the way governments respond to globalisation pressures;
- local politics and the rise of communities:
    - 'think globally, act locally' responses;
    - competition for resources between rural and urban communities;
    - the potential of the Internet to enable new communities to form, inform each other, and act to further their interests.

PART 3 – SCENARIOS OF THE FUTURE OF VOCATIONAL EDUCATION & TRAINING

3.1 Drivers of the future of Vocational Education and Training

A Bridge to the Future: Australia's National Strategy for Vocational Education and Training 1998–2003, identified twelve major forces for change:

- The growth in global markets accompanied by intensified international competition and the lowering of tariffs in Australia;
- The emergence of service and knowledge-based industries as importance sources of employment;
- Changes in the geographical and regional distribution of employment opportunities;
- The impact of new information and communication technologies on the community in general, and on Australian enterprises in particular;
- The growth in small business and changes in working arrangements such as increasing part-time and casual employment, and the use of outsourcing arrangements and labour hire firms;
- Changes in the ways in which work is organised within enterprises such as the use of flatter business structures and an emphasis on teamwork and multiskilling;
- Demographic changes such as the ageing of the Australian population (although some groups, such as Aboriginal and Torres Strait Islander peoples, are experiencing a reduction in the average age), the ethnic diversity of the population and the feminisation of the labour force;
- Social changes such as those brought on by changes in family structures, lifestyles, sources of income and personal aspirations;
- Community expectations that all Australians, including those who are most disadvantaged, should have the opportunity to realise their full potential for example through education and employment opportunities;
- The continuing need to reduce the level of unemployment;

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Major Driving Forces

- Globalisation
- Electronic connectivity
- The 'new economy'
- New forms and organisation of work
- Demographic shifts
- Understanding of how people learn
- Social values
- Government decisions

- increasingly sophisticated consumer expectations about the range and quality of products and services; and

- changes in the roles of governments, away from direct service provision to the purchasing of services, with an increased focus on competitive processes and purchasing outputs.

Focus on the Future

The first workshop identified a series of major drivers likely to shape the future of vocational education and training over the next twenty years.

It is interesting to note the high degree of overlap between the list of drivers identified in the Focus on the Future workshop process and those identified in the National Strategy for VET.

Almost 200 candidate-driving forces were identified, which were aggregated into eight clusters:

i) Globalisation

The term globalisation is commonly used to refer to the combined processes and effects of the organisation of and access to capital, technology, labour and markets on a global basis. This has had a range of effects, including the ability to mobilise (and move) capital far more easily, the exposure of the markets of most nations to global competition, the emergence of truly global (as opposed to national and multi-national) companies, a reduced capability of governments to protect the local economy, and a need to attract and enhance economic activity. (See Part 2, Section 2.2, vi)

ii) Electronic Connectivity

This driver encompasses the converging processes of digitisation of information and interconnection via the Internet and other communication media. Growth rates of almost any parameter have been exponential over the past 3–4 years. It is generally agreed that this technology has created a completely new 'economic space', with enormous, but as yet unknown implications for existing business and organisations, and opportunities for new ones. (See Part 2, Section 2.2, ii)

iii) The New Economy

The emergence of a 'new' or 'knowledge' economy, the rules of which are apparently very different from that of the old economy. The principal difference is the extent to which knowledge has become the dominant factor in economic growth and competitiveness. Knowledge is an intangible asset, and does not conform to the assumptions of scarcity and consumption on which neo-classical economic theory is based. The new economy also

is dominated by service industries, with a higher knowledge intensity than that of commodity industries.

Key characteristics of the new economy are proposed as:

- higher long-term trend growth due to higher multi-factor productivity growth based on more efficient business practices linked to information and communications technologies (ICT);
- a shift in the business cycle resulting from the combined effects of ICT and globalisation, allowing the economy to expand for a longer period without inflationary pressures emerging;
- new sources of economic growth, based on certain sectors of the economy benefiting from increasing returns to scale, network effects and externalities.

iv) New Forms and Organisation of Work

This refers to the operation of the three previous drivers towards increasingly flexible and specialised labour inputs. This driver manifests in a number of trends including: outsourcing, casulization, contract employment, multiple job holding, self-employed contractors, use of labour-hire companies. (See Part 2, pp. 2.2, iii).

At the same time, there is a growing tension between the operation of the driver in this way, and the recognition of staff as knowledge assets under the new economy.

v) Demographic Shifts

This driver encompasses the various significant shifts in the demography of the nation. The most significant of these is the ageing but able population, with evident implications for health and support services, revenue raising and educational needs. Other significant demographic shifts include the declining birth rate, and the growth of single parent families and people living alone. (See Part 2, Section 2.2, i)

vi) Understanding of How People Learn

This driver was based on the view that current, and new knowledge of how people, organisations and communities learn will have a strong influence on the organisation and delivery of educational services. The impact of technology and socio-economic factors on learning habits, attitudes and opportunities are all relevant areas of research as are developments in psychology and neurology.

vii) Social Values

As in the past, it is likely that social values such as about human rights, the responsibilities of Government, the degree of responsibility for less fortunate, the ethical basis of business, will have a strong driving influence on the future of vocational education and training. The 'status' of learning as a value in its own right will also be a key driver.

viii) Government Decisions

While governments might make a wide variety of decisions in the future, it was considered impossible to conceive of a set-up in which governments would not continue to have a very strong influence on the shape and organisation of education, given the level of government funding for training and education.

Critical Uncertainties

3.2 Scenario Logics

The time frame chosen for consideration of the future of vocational education and training at the national workshops was twenty years, i.e. 2020. The scenarios for the future of vocational education and training developed through this project were based on:

- the set of key predictable variables, identified through the analysis, which provide the basis for a *probable* future, and which could be assumed to operate in all possible scenarios;
- critical uncertainties, which could provide major discontinuities, or step changes in the development of vocational education and training. These have the characteristic of being both highly uncertain, and having a potentially very significant impact.

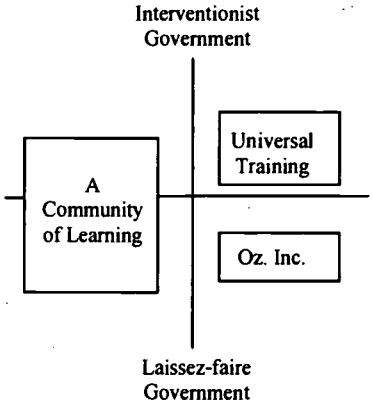
There are a number of ways in which the defining parameters, or 'logics' of scenarios can be developed (see Appendix 1, Stage 6). In this case, two sets of drivers emerged as having a potentially very high impact of the future of vocational education and training and about which there was a high degree of uncertainty about their future course.

Axis 1. Evolution of the new economy, globalisation and electronic connectivity

The **first axis** selected to form the basis of the scenario logics was based on the set of drivers associated with globalisation, electronic connectivity and the new economy. These were seen as being highly connected with each other, and representing the major forces for and direction of change in the international economic order. The form and extent of these changes is presently highly uncertain, as reflected in debates about, and protest movement against, the future of globalisation, and the resistance of many national governments, including the Australian Commonwealth Government, to increasing international regulation.

Axis 2. The nature of government engagement: interventionist or laissez-faire

There was strong agreement that the form and extent of development of this new economy would have a profound effect on the Australian economy, the kind of economic activity that would be favoured, and hence the future requirements of vocational education and training.



The **second axis** selected was the nature of government engagement. It was recognised that the future organisation of vocational education and training would be critically shaped by the extent to which governments pursue a limited role, making space for market forces to determine and respond to consumer needs, versus a strongly interventionist role, in which governments used their resources and power to strongly drive the organisation and delivery of education and training in Australia.

These two axes provided the basis for four distinct scenarios, based on:

- high globalisation–low intervention government;
- high globalisation–high interventionist government;
- low globalisation–high interventionist government; and
- low globalisation–low interventionist government.

The drivers of demography, the changing nature of work, social values, and new understanding of learning processes were considered to operate within, and hence need to be taken account of in each scenario.

The scenarios were developed, tested and refined, and used to identify key decision points, and significant issues. However, it emerged that the level of distinction between the low globalisation–high interventionist government, and the low globalisation–low interventionist government scenarios were not sufficient to continue to maintain the separation. As a result, only three scenarios are presented here. The low globalisation – low interventionist government scenario has been omitted as it did not produce a significantly different future.

Once the scenarios had been developed in draft form, the question was posed as to whether there were other major uncertainties or 'wildcards' which could dramatically affect the ways in which the scenarios would develop. A number of possible major shocks were identified:

- ecological/environmental instability or destruction e.g. massive greenhouse effects;
- mass immigration, through voluntary or 'forced' policy;
- regional political instability, civil unrest, possible wars;
- pan-epidemic leading to massive loss of life.

Possible shocks

- environmental disaster
- mass immigration
- regional instability/war
- panepidemic

However, it was agreed that these uncertainties should not be introduced into the scenarios, as they may lead to the scenarios being less plausible to those encountering them for the first time. Nevertheless, the possibility of such major disruptions should always be borne in mind.

Finally, it was recognised that scenarios for the future of vocational education and training could not be constructed in isolation from the other education sectors. Hence, in general, a broad approach was adopted, encompassing all elements and levels of education, but with an emphasis on the organisation and delivery of education related to vocational and occupational needs.

The future of vocational education and training cannot be considered in isolation from that of school and higher education

It must be remembered that these are not preferred scenarios. Indeed, for some of the participants, they were highly non-preferred. However the power of scenario planning rests on contemplating the possibility of non-preferred futures.

These are not preferred scenarios

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3.3 The Scenarios

Oz. Inc.

Economic boom rolls on

The Australian economic boom of the late 1990s rolled on, with economic growth continuing at 4%, and inflation staying low despite a nervous flutter when the GST and higher oil prices impacted together. The triumph of the Sydney Olympics in 2000 produced a new surge of self-confidence – the crucial ingredient needed to make Australians more entrepreneurial, and confident about selling their unique goods and services overseas. Employment, wages and living standards all grew, at least for most people.

Government services privatised

Throughout the boom, Governments privatised a number of public assets, and contracted out the delivery of government services. Ther was success in privatising employment services, health, education, housing, revenue raising, and further components of defence.

Apathy towards government and politicians

For an increasing proportion of the population, Governments were seen as increasingly expensive and irrelevant, given their limited influence on global economic parameters (oil prices, currency exchange rates, interest rates) and their lack of involvement in supply of other services. The extent of the decline in the faith in elected politicians was reflected in the significant voter boycott of the 2010 Commonwealth election, with their slogan – 'never trust and never elect a politician'.

However, there were still things for Governments to do. One major role was to pursue inward investment by overseas companies, and outward expansion by local companies. This was pursued largely through the removal of regulatory and other barriers to access to domestic markets and the movement of capital. Corporations were encouraged to come and go, or 'to come and grow'.

Everyone's a shareholder

More than three-quarters of all Australians were shareholders, keenly following the daily performance of their portfolio. Many children were given shares for their 15th birthday and young women started building their share portfolio instead of their wedding trousseau. There had even been a significant redistribution of personal expenditure out of gambling and into the sharemarket.

Growth of individually managed investment, supported by intelligent agents

The steadily increasing over-65 age cohort, recognising that their superannuation investments and government pensions were quite insufficient to support the continuing active lifestyle they highly valued, have become particularly closely involved in managing and re-directing their investments. This could be done from home, but increasingly investor clubs met to discuss price movements and to develop investment strategies.

The new (and reinvented) knowledge companies which now dominated the economy required new sets of skills from their employees and contractors. There was a continuing emphasis on understanding basic science and technology, but in addition a need for a range of skills,

such as creativity, pattern recognition (i.e. picking out trends or key results from a mass of confusing data), tolerance of complexity and ambiguity, communication and teamwork.

Knowledge intensive skills in great demand, with great rewards

Given the competitiveness of the knowledge economy, leading companies went to very great lengths to recruit and develop the knowledge capacity of key individuals, and to retain their services. This was achieved by a combination of high financial rewards, and working conditions that maximised freedom and creativity.

For most, personal service work

Two jobs better than one

For those without these skills, there was ample work in the flourishing personal services industries. Everything from table-waiting to hairdressing, from personal fitness trainers to lawn-mowing, from chauffeuring to shopping, provided high levels of employment, even if pay-rates were not very high. But given the alternative, since there were only minimal government-funded support services, and then only for very short periods, any job was better than no job (and often, two jobs were better than one job).

As with other former public services, mass public education, funded and delivered by governments, was largely a thing of the past. The value of getting a good education was obvious to all, with the high-flying knowledge workers' salaries and lifestyles regularly portrayed in the press and TV shows. There was one high-rating 'interactive' (as they call Internet games these days) in which you could try to determine the career and social moves of knowledge workers in a hot firm, and see them played out in the daily doc-drama.

Booming private market in education

Once it was established that education pays, the market took off. The number of commercial providers of school education boomed, some of which leased former school premises. The churches and charities grew rapidly as education providers, in the same way they had become major providers of employment services in the late 1990s. New land development schemes (and increasingly existing ones) had to include a fully serviced education component in order to be competitive. There was still a moderate level of public schooling, but it was considered (and was) inferior.

Universities and VET providers exposed to international competition

VET providers retained their traditional roles from 20 years earlier. But the picture was more complicated. Both sectors were exposed to strong competition from international learning companies. This produced a major round of alliance formation, with corporates, and within and between themselves. The increasingly demanding and well-informed education consumer wanted customised education, accessible when, how and where they wanted it.

Of course the Internet had proved a huge boon to learning, and to the many specialist software education packages that had been developed to service it. Courses were commonly menu driven, just like any Microsoft

program. One of the real technology breakthroughs was 'simos' – simulation modelling supported by readily available high performance computing. This allowed for experiment ('what if' exercises), access to previously limited experiences, and greater levels of safety.

Work and learning intertwined

With companies recognising the value of investing in and retaining skills, most so-called vocational education and training was provided within corporations as an indivisible component of the work process. But the service was largely provided by specialist learning corporations. A number of former VET providers had repositioned themselves in this market, with short-term contracts to companies to deliver highly specific skills, and longer-term contracts to deliver a more general program of learning appropriate to a particular industry.

Quality based on self-regulation

Quality and accreditation was largely based on self-regulation within the education industry (driven by a powerful education industry association), with a charter of obligations companies had to commit to in order to be licensed to practice in this industry.

Universal Training

Business cycle a thing of the past

The first decade of the 21st century showed the largest continuous economic growth of any time in economic history, with average growth rates of the OECD member nations (now numbering 30) of 4.5%. Markets for previously unimaginable goods and services continued to explode.

Australia joins Asian Economic Union

This boom also affected far more of the world's population than any previous economic growth phase, significantly improving the living standard of more than 80% of the world's population. This was largely due to the decision of the major economic powers to cancel all third world debt in 2005, which liberated a great deal of capital and thereby produced a new surge of investment. The one big exception remained the African continent.

The prolonged economic boom, leads to a much greater level of trade in both directions between Australia and its Asian neighbours and a generational change in leadership,

Australia gained entry to the flourishing Asian Economic Union in 2007. This produced a new surge of trade between members, as barriers were systematically dismantled.

Strength in content industries

The major catalyst appeared to be Australia's strengths in the sporting, education and cultural industries, which were of course crucial content industries for the ever-expanding telecommunication-based entertainment and information industry.

But of equal importance was the recognition of the Commonwealth and State Governments, back in 2002, that while economic activity was largely driven at the regional (i.e. super-national) level, a nation's policies and resources could play a huge role in making it an attractive location for economic activity.

This led to agreement, and commitment, for the first time in Australia's history, to the four-pronged platform for economic development over the next ten years to make Australia financially attractive, educationally attractive, environmentally attractive, and culturally attractive.

Platform for growth
- low taxes
- high investment in skills
- high amenity value

Thus, by 2007:

- Australia had completely done away with company taxes, given the deterrent effect they had (and the difficulty of collecting them). Revenue was raised largely through a GST set at 30%;

- The achievement of a high and plentiful level of internationally recognised skills, maintained by substantial national investment in all forms of education, a liberal entry program for skilled migrants, and an incentive program to attract expatriates with international business experience to return to Australia;

- Establishment of Australia as one of the top quality of life countries in the world, through progressive introduction of stronger environmental standards, national investment in remediation, and support for its cultural and sporting industries – all of which made Australia an attractive location for economic activity.

Of course the economic boom rested on continual removal of barriers and frictions to economic activity. As a consequence, work was radically restructured from the historical job model. For many, work became something you did under contract for a variety of clients. The client might be in the same city, or on the other side of the world. But the competition was fierce. It was essential to continually invest in your own learning and development so that you had a knowledge capability of value to the client.

From employee to contractor; from job to business

One great advantage was that a lot of this 'work' no longer required 'going to the office'. It could be done from home, the cyber-resort, or at the community tele-centre. While face-to-face contact with your client was still important, it could be less frequent. This flexibility was seen as a 'win–win' situation for all, keeping costs down for producers, and giving contractors many more options to balance work, learning, family and recreation responsibilities and preferences. The other bonus was the reduction in traffic jams, and the resulting pollution.

Location-free work

Under the competitive pressures of the global market, education had become seamless, borderless and fully embedded in economic and social activity. It was not that universities or VET providers were abolished; that would have been politically impossible. But with education accessible from anywhere in the world, and being increasingly tied to economic return, the sectoral boundaries that were already being eroded by the end of the twentieth century just made no sense.

Seamless learning

The States and Territories retained their role in education by taking prime responsibility for the establishment of multi-purpose regional learning hubs, where students of any age and with any learning objective could access education at the level they desired from anywhere in the world. In practice, public-private partnerships were the dominant model for their funding and operation, but two chains were operated, on a franchise basis, by multinational education corporations. Experience gained in their development and operation also provided the platform for a booming export market for the Australian education business.

Regional learning hubs

The learning content could be drawn from anywhere, but one of the responsibilities of the Association of Learning Hubs was to ensure that the material met the new tough standards of ISO 43,000, which had become the internationally accepted standard for learning materials and service. The tutor support scheme was an important component, whereby the student had access to learning support, via email, or through video-appointment, face-to-face.

International learning standards

Learning could be accessed from home or from these centres. But the buzz at the hubs, with people of all ages and inclinations, united by their

Learning hubs prove to be community focus

focus on learning, made them very attractive. It was interesting to note that this strong focus on learning was not simply driven by economic necessity. Rather, under the positive economic conditions, there was a strong flowering of interest in learning, the arts, and culture as crucial aspects of an advanced and caring society, particularly among the many Third Age learners.

New market for education brokering

Given the strong consumer needs orientation, the notion of pre-established sets of courses, which must be completed to achieve a specific qualification, was largely eroded, except in fairly narrow technical areas. But there was still the need to develop skills and learning in packages that would be seen as having value in the market-place. Hence, a new industry emerged in education brokering, which provided advice on content, and compared cost and quality to enable learners to locate courses appropriate to their needs, interests and budget.

The 'learning account'

There was one quite radical policy that contributed greatly to the development of this strong learning orientation. Firstly, every citizen was provided with a 'learning account', once they completed their school education to an appropriate level. This guaranteed access to a minimum of education and training, selected by the individual within broad guidelines.

Individuals could invest in their learning account, essentially through a private learning bank scheme. There were tax incentives for personal investment, and it had become accepted to build in a 2% learning levy into all contracts. On the occasions when employees were made redundant, employers were required to lodge a payment sufficient to cover six months learning in the individual's learning account as part of their separation package.

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A Community of Learning

The economic boom looked like it was permanent as we burst into the new millennium. If every economy was growing, and inflation was a thing of the past, what could possibly stop it? Privatisation of former government services seemed to help drive the expanding economy. Thus all of post-secondary education was deregulated, with a steadily diminishing share of public funding.

Warning signs for economic performance

Mind you, even then, there were lots of niggling worries. Not everyone was doing so well. Natural disasters in foreign places seemed to be reported weekly on the television: floods, storms, earthquakes – were they a sign of things to come? The anti-globalisation demonstrations were getting bigger. And the numbers of disadvantaged, surviving at the margins of the cities, grew steadily.

The most significant warnings were hidden away in the trade statistics. The real growth in trade was occurring almost entirely within the three major trade blocs ('The Triad') – the European Union of 18 (having absorbed the former Eastern European countries), AFTA (the American Free Trade Association of Canada, US, Mexico, Brazil, Argentina and Chile) and the ASEAN + 7 – Dr Mahathir's realised dream. Australia was not part of any of these, trading as an outsider with all.

Australia 'excluded' from major trade blocs. WTO in retreat

So when the protracted dispute about protection for food production reached a new crisis in 2007, at the same time as the dispute built up between the US and China about greenhouse gas targets, free trade simply slipped off the agenda, taking with it the power of the World Trade Organisation to regulate it. The markets within each trade bloc were big enough to sustain the member national economies, and most companies. Minnows like Australia were largely incidental to the main game.

Economy nose-dives
Unemployment soars

Australia's economic position, which had been undergoing steady decline, largely concealed by buoyant growth figures based on domestic demand and consumer credit, worsened abruptly. Access to the markets of the Triad became very difficult. Real and defacto trade barriers, and bloc subsidies, made it very difficult for Australian products and services to compete. The value of commodity exports plummeted. Technology-based manufactured goods and services became effectively impossible to export, and prohibitively costly to import. Unemployment soared.

The big brain drain

Those who had the talent, or the passport, to move into one of the trade bloc regions did so, creating a substantial drain of brains and capital out of Australia. Multi-national firms saw limited value in serving what was at best a static market, and moved almost all their remaining production elsewhere.

The Commonwealth Government, with a shrinking tax base, reacted in three ways.

'Cairns 88' trade association

First, a major effort was made to create a counter-balancing fourth trade bloc, based on the 'Cairns 88' group of agricultural producing nations, and particularly those in Oceania. It helped, but as trade was mostly within the blocs, the problem was that we were all trying to trade agricultural goods with each other. In addition, the Triad nations were seeking to drive the price of the natural resource commodities produced by the Cairns 88 Group ever lower, producing inevitable friction as the competition got fierce and deals were done.

The gap gets wider

Second, in an attempt to shore up the economy, legislation was passed to ensure Australian ownership of local companies would not fall below 51%, and prohibiting repatriation of profits by overseas companies operating in Australia. While politically popular at home, this only served to reduce even further Australian connections with the trade blocs.

Tourism grows, but the benefits are limited

Third, recognising the continuing international attractiveness of the Australian landscape and flora and fauna, and the low currency value of the A$, the Government sought to promote the Australian tourist industry. While this succeeded, the needed capital and expertise was largely imported. Only the low skill, low paid jobs were available to Australians.

Social breakdown

With unemployment, poverty and crime all on the increase, the resources available for education were dramatically reduced. Those who could afford it could still access the best of international education via the Internet. Numbers attending universities plummeted as attention was shifted to getting any kind of job to bring in some money.

Schools run by charities and local community groups

School funding declined, and schools were increasingly run by the churches, charities, or local community groups. There was a demand for practical 'hands-on' skills by employers, largely focused on supplying the local market.

Australia looks inward to self-sufficiency

Inevitably, the economic emphasis turned inwards towards establishing self-sufficiency. Business was oriented to supplying the local market. Thus there was renewed attention to agriculture, and in particular small-scale food production. Also many small-scale traditional manufacturing companies were reformed, to make essential goods.

The shift to the regions

With the collapse of electronic commerce, many jobs and companies concentrated in the capital cities providing intangible services disappeared. This produced a strong flow of population out of the cities and into the regions where the possibility of self-sufficiency, and a strong community, were more attractive. While there was little sign of economic growth at the national level, some of the regional areas started to thrive, in comparative terms, with the influx of people with a wide range of valuable skills and a determination to make a new start.

Economic rationalism rejected

Through this economic turmoil the dominance of a narrow economic perspective had been shattered. Social values emphasised 'a fair go for all', reduced inequity, increased sharing of the available employment and wealth, and universal access to education. Along with these new social

values came a much stronger sense of community and an emphasis on decision-making and power being connected to the local or regional level.

Education sectors collapse into each other

By dint of necessity and economic pressure, vocational education and training was no longer recognised as a separate education sector. Limited public funds were concentrated in basic schooling. Apprenticeships and Traineeships, often completed fully on-the-job, were the major route to a trade qualification. Universities were for the rich and elite. However, community based centres of learning developed strongly in some of the regions, providing access to the only learning available for all ages and at all levels.

But having finally reached the bottom, the only way was up. The strength of the commitment to social values, and the shared experience of economic disruption, provided a platform on which a sound economic and educational future could begin to be constructed.

PART 4 – POSSIBLE CHALLENGES & OPPORTUNITIES FOR THE FUTURE OF VOCATIONAL EDUCATION AND TRAINING

From education and training to learning

4.1 Towards an Agenda for the Future of Vocational Education and Training

This report does not attempt to identify all of the implications arising from the scenarios, still less to develop a blueprint of how to address these challenges. Rather, a clear objective of the project, and this report, is to provide a sound and productive starting point for consideration of the many challenges facing vocational education and training, by all stakeholders, at a range of levels, and in a variety of forums.

The scenarios, and the drivers and the uncertainties, from which they have been constructed, raise many issues for the organisation and delivery of vocational education and training. Indeed, they challenge the very notions of the extent to which education and training will be distinguished from each other.

Over the last 2–3 years, learning has become the preferred term for several reasons:

- 'learning' implies that the learner is an active participant in a learning process rather than the passive recipient of education training;
- 'learning' takes place in a whole range contexts;
- 'learning' encompasses both education and training.

Towards an agenda for the future of VET

The following set of issues and the barriers to change identified through the scenario development and analysis workshops and the national consultation process that followed, should therefore be considered as a draft agenda. This agenda is designed to structure and promote productive discussion and debate about the future of vocational education and training.

4.2 Some Issues

Challenges and opportunities for the organisation and delivery of vocational education and training were developed under each of the scenarios. The approach of scenario planning is to identify issues that would have needed to be addressed to produce the most beneficial outcome, with the benefit of hindsight, in each scenario of the future. (See Appendix 1, Stage 9)

In the national workshops these issues clustered wherever common elements could be identified. In addition, any issues that appeared as critical in any one of the scenarios were retained. Finally, issues arising from the operation of the 'predictable' drivers were added to the list.

It must be emphasised that the focus was on identifying potential challenges and opportunities under each of the scenarios. One of the strengths of scenario planning rests on the capacity of the processes to identify new issues. Developing possible solutions rests on more traditional strategic planning and policy development processes. (Manual, Appendix 1, Stage 10)

i) From sectoral- to network-based organisation

From sectoral- to network- based organisation of education

Arising from each of the scenarios, for different reasons, was the view that the organisation of education was faced with a continuing shift from a sectoral- and institutional-based organisation to one operating through networks. Whether because of the shift towards meeting individual consumer preferences, or the demands of work that require both cognitive and operational knowledge and skills and their effective interaction, or the pressures of a globally competitive learning industry, the existing hierarchy and predominantly linear progression of school/VET/ university does not appear to be sustainable into the future.

Towards seamless learning

This shift is associated with a strong trend towards 'seamless' and borderless learning, at least from the perspective of the learner, and of industry. The learner, and employers will seek, indeed demand, to be able to access those elements of learning that are required to develop a specific capability, or address a new challenge. They will want their learning to attract accreditation, but not necessarily in line with any of the current packages on offer.

Experimental developments

There is already a significant range of developments that are crossing these boundaries e.g. the offering of VET courses in school (VET in School); the number of universities with direct responsibility for delivery of VET or, more precisely, there are a number of cross-sectoral institutions which operate in both university and VET sectors and the growing strength of collaborative arrangements including dual qualifications; shared development and use of facilities; and articulation between the two sectors. There are even school-VET-university linked programs, as in the Ballarat VCE approved Certificate IV in Food Technology, linking to the VET Diploma of Food Technology, linking to the Bachelor of Applied Science in Food Science and Technology.

From structure to relationships

These are examples of a network-based approach to organisation, where linkages between institutions are more important than the institutions themselves. In addition, the scenarios see a strong trend to work and learning becoming indissolubly intertwined, with much accredited learning occurring in the work environment. This also puts a premium on network-based organisation.

Further alliances between public and private providers of education and training services, and links with enterprises in industries with a strong investment in knowledge generation will also be of increasing importance. In scenarios of high globalisation, such networks and alliances will increasingly operate at an international level

Barriers to change

There are significant barriers to such a change, and many historically entrenched interests (discussed in more detail in the next section). However, looking back from the perspective of 2020, it was not possible under the variety of futures considered to see that sectoral institutional-based organisation would confer advantage, or could survive.

What role for VET?

A major challenge raised by this issue is how to plan and manage a coherent and effective evolution from a sectoral-based to a network-based organisation of learning. A second challenge is the role to be played by the current VET sector – whether it takes a strong lead to move in this direction (at some risk to its continuing existence and identity) or is a reluctant player, waiting to be wooed by others (with perhaps even more negative consequences).

ii) Navigation through learning and working systems

From supplier- to consumer-driven learning

With the shift to a greater consumer orientation, in a situation where learners can pick and choose their own learning path, there will be a strong need for guidance in selecting this pathway. Presently, choice is largely constrained by pre-selected pathways offered by suppliers, sometimes on the basis of valid professional or pedagogical requirements, but all too often to meet logistical requirements of the supplier.

But with the technology of the Internet and other media offering apparently limitless choice, and industry moving to the concept of the 'market of one', such limitations of choice will no longer be defendable, on educational grounds or in the market-place.

Market for learning navigators

There should therefore be an ample market, for education institutions and specialist organisations to provide an educational brokering service. Such a service would need to be based on detailed knowledge of the changing skill needs in the target field, occupation and industry; the key trends within industries and technologies; and the competitive standing of various types of 'qualifications' education and training products and services. Price, or value-for-money, may also be an important factor. Internet-based and other companies are already offering this kind of consumer advice for other kinds of purchases.

iii) Access to, and location of, learning

Location-independent access to learning

Under the conditions of seamless, network-based learning, with the learner 'picking and choosing' as they see most appropriate to their situation, and the ever-increasing need to acquire new knowledge and skills in a continuous, or at least semi-continuous fashion throughout one's lifetime, ease of access will become critical.

Further development of the technology, pedagogy, and necessary support for 'distance learning' will enable substantial elements of learning, particularly where the subject matter is highly structured, to be accessed from anywhere – home, work, seaside retreat. But the value of personal and social interaction, and the need to make learning services available to those without the necessary technology, is such that convenient locations to access learning will also be important.

Regional learning hubs

In all the scenarios, with their very different futures, there was a strong regional emphasis. In various forms and labels, the future access to learning, within the seamless model, was seen as being enhanced through investment in the establishment of 'regional learning hubs', where education could be accessed from a wide variety of sources (Australian and international), and at a wide variety of levels, as required. These learning hubs were seen as developing into powerful community centres, providing an environment for intellectual and social nourishment, and also a node for engagement in local/regional governance.

iv) Differentiated approaches for a stratified society

Special role of learning in social change

All the scenarios project a world of considerable change. Under any circumstances of change, new winners and losers emerge. (There are also winners and losers in stable systems, but their relative positions are more entrenched, and hence become more 'natural'). Under these circumstances of change, it was regarded that learning institutions had a special responsibility, and capability, to mitigate negative economic and social consequences, and to assist losers to re-equip and position themselves to find an appropriate place in the changed world.

Need for pluralism

This would require a differentiated learning system, designed to address the learning needs and opportunities of all. This might be approached by a mix of specialisation within the overall system, and plurality within individual components of the system.

Continuing need for public funding

This issue raises strongly the question of 'who pays'. Within this broad approach of outlining issues, not solutions, it was considered there would be a continuing need for public funding.

v) The impact and opportunities of Information Technology

Unimagined impacts of IT

There has already been much discussion and considerable experimentation with the application of IT to learning. Evaluative research is still at an early stage, and there are many opinions as to effectiveness and optimal use. However, drawing a line from existing and projected impacts of IT and resulting inter-connectivity on all other spheres of human activity, the only safe course would be to assume that there will be great consequences for learning.

Need for a coherent approach to develop capability

This is not a specialist report and hence does not seek to draw from the extensive literature on this subject. However, there was a common concern about the lack of a coherent and focused approach to progressively developing the kind of capability and positioning that would allow effective investment, training and application decisions to be made.

Flexible learning

The current significant promotion and development of 'flexible learning' within the VET sector may provide an appropriate vehicle for pursuing these objectives.

Another consideration is the demand for and availability of IT&T skills in Australia (IT & T Skills Taskforce 1999).

When technology is changing rapidly, strong commitments to any one approach are likely to be inappropriate. Equally, under these conditions, encouragement of a range of individual experiments may also be appropriate. But there is little evidence of a well-articulated approach to capturing and sharing the learning from each of these experiments, and of explicit evaluation of each.

A useful start has been made by the EdNA VET Advisory Group, which has produced a report entitled *Flexible Learning for the Information Economy: A Framework for National Collaboration in Vocational Education and Training 2000-2004.*

It may also be appropriate to explore the formation of alliances with private sector corporations in this area to jointly develop and apply appropriate products and services.

vi) Efficiency and effectiveness in learning

Diffusion of good practice

There has been much study of learning processes over the past twenty years, ranging from detailed neurophysiological mapping of the brain and cognitive processes through to the sociology of team learning. Understanding has been significantly advanced. However, relatively little of this knowledge appears to have been effectively converted into good teaching and learning practice. Nor are explicit diffusion processes obvious.

Program and targets to increase efficiency and effectiveness of learning

Given the increasingly high economic value to be placed on learning, and the inevitable cost and cost/benefit pressures it will operate under, it would seem appropriate to establish strategies designed to enhance the efficiency and effectiveness of learning, based on focussed research and effective transfer and diffusion processes.

vii) Learning as a universal cultural value

One of the challenges that emerged under each scenario was that the objectives and benefits could only be achieved if, in one way or another, learning was established as a highly valuable and respected economic and social good.

Progressive removal of barriers of learning as a core value

The ANTA National Marketing Strategy identified learning as 'a core Australian value. However this does not translate into satisfaction with the products and experiences of formal education and training.'

The issue could not be more clearly stated. The challenge is not to infuse Australians with a love of learning. Rather it is to remove the various causes and forms of bad experience that adolescent children in particular have, that seems to colour their attitudes to learning throughout their lifetime.

viii) Resources for learning

Who pays?

The issue of who pays for what and how much is a perennial one, which is not escaped via scenario planning, even though funding was not considered as a central driver, but rather the outcome of the interplay of other driving forces.

Distinction between public and private good blurring

The general thrust of the scenarios would suggest a greater recognition of the private value of education. Of course all students (or their parents) already make some payment for their education, from modest to large, reflecting some recognition of this private value. However, the view also emerged that the distinction between public and private good may well be blurring, though this remains a matter for lively debate.

Again the emphasis was not on providing a solution to the issue. However, establishing the basis for a positive, long-term debate and development of ideas about the appropriate level, balance and source of resources would appear to be a precursor for any strong national learning system.

ix) Quality management

New approaches to quality management and accreditation

Quality assessment and assurance, the basis of accreditation and hence the need for regulation, has long underpinned the basis of education and training for the 'professions' and traditional trades, and is largely applied to all public education systems at post-compulsory level. An independent check of some kind is needed to assure students and potential employers of the value of their qualifications. In many cases such processes have become highly elaborate and embedded.

However, they largely rest upon supplier-controlled education systems. How appropriate will they be, and what forms of modification or substitution might be needed to address the challenges of the much more consumer-oriented, market-driven model of learning outlined above? Now is the time to explore the issue of quality management in a seamless, just-in-time learning system. Where both providers and clients operate in local, regional, national and international contexts.

x) Demographic change

Challenges of demographic change

The issue of demographic change has been explored in some detail in Part 3. The most profound change is that resulting from an ageing, but able population. Other significant shifts, for the future of vocational education and training, arise from the declining birth rate, and the possible variations in immigration policy.

Life-long learning is not only 'end of life' learning

One point to note is that the concept of lifelong learning has in part been captured by those interested in the provision of learning for seniors. While this is an entirely appropriate objective, the term has a wider connotation, and reflects the shift to continuing learning needs at all stages of the lifespan, 'from cradle to grave', in response to changes in technology and work organisation.

xi) The changing nature of work

Workers: casual contractors versus knowledge asset

This issue has also been explored at length in Part Three. The changing nature of work may best regarded as the opposite side of the coin from the changing nature of learning. Each is strongly determined by the other. Any consideration of the future of vocational education and training must take this relationship as a key starting point.

4.3 Views from the National Consultation

Strong endorsement for the findings

The most significant result of the national consultation was effectively universal agreement, and endorsement, that the challenges and opportunities for the future of vocational education and training identified through the scenario planning process were appropriate, important and urgent.

Scenario planning experience positive

A second result was that, among this large sample of policy makers, managers, ITAB members, private providers, employers, teachers and students, about 40% had previously had some experience of scenario planning. This experience was strongly positive, while acknowledging limitations and difficulties in its use. However, there was a strong view that scenario planning could be used more effectively and regularly, in planning and decision-making processes.

Regional diversity

A third finding emerged from the diversity of the discussion, the issues raised, and the environment within which vocational education and training is planned and delivered around this country. The needs and problems of different regions, cities and rural areas, and of different groups in our society, most notably the indigenous people, are themselves so different that standard models, formulations, regulations and targets will always be inappropriate somewhere.

We were presented with many views about the precise nature and scope of the opportunities and challenges for the future of vocational education and training. There were even more ideas and opinions about how VET should be positioned in order to address most effectively the challenges and to take best advantage of the opportunities identified. This, and the commitment of the participants in the national consultation, constitutes a resource which can contribute to refining the agenda, and conducting the debate, about the future of vocational education and training.

Finally, a series of significant barriers to an effective response to these opportunities and challenges were identified. These included:

i) Fragmented and competitive responsibilities

As with all areas of education, State and Territory Governments have formal responsibility, but the Commonwealth Government has interests and responsibilities in pursuing a national agenda.

While various coordination mechanisms, such as MINCO and ANTA have been established, there is a long history and continuing pattern of pursuit of distinct agendas, and the investment of considerable effort in limiting the claims of others. One consequence is that strong leadership is difficult to pursue, and ultimately foregone.

At another level, vocational education and training impinges on issues that are well beyond an education portfolio. Examples were provided of involvement with issues of health, welfare and community services. In some cases, a 'whole of government' perspective may be appropriate.

ii) Structural and organisational barriers to change

The VET sector has a considerable history, and its many players (at both the institutional and individual level) may have established positions of influence. This, of course, is not restricted to the VET sectors. Change inevitably produces challenges to existing interests, whether seen as 'genuine' or vested. Any program of change management must recognise existing constellations of interests, and seek to engage them in a continuous fashion in the processes of planning and implementation.

There is an argument that the VET sector has been subject to far more change in recent years than the other education sectors. This may have some truth. However, the notions that 'it is someone else's turn to change', or that 'we can't change anymore; we're suffering from change fatigue', while acting as perceptual barriers, are unlikely to have a strong influence with decision makers.

Another specific structural impediment to change may be presented by the age profile of TAFE staff, with a substantial cohort approaching retirement age. This demographic profile within the profession will need to be taken into account in addressing the future of the sector.

iii) Variability in the context and needs of vocational education and training

The variability has already been identified as the third major funding of the national consultation. Planning, program design and delivery need to be conducted with an enhanced awareness of this variability, and the need to eschew 'one size fits all' approaches.

iv) Wider stakeholder perceptions and interests

It is important to remember that the stakeholders of vocational education and training are wider than the providers, the employers, the managers, the planners and the founders. Students, and their families, constitute a very important group of stakeholders, whose awareness of the range of issues shaping VET, and experience, may limit their understanding, or lead them to favour different, in some cases more traditional approaches.

Considerations of the future of vocational education and training need to take the interests and perceptions of this group of stakeholders (or potential clients) into account, and seek to find ways to engage them or accepted representatives.

v) Sub-optimal implementation

Substantial evidence was presented of sub-optimal implementation of worthy schemes. Under conditions of considerable resource constraints, the motivation for establishing a particular program may be more with accessing resources than the underlying educational objectives. In other circumstances, new developments can rest excessively on the energies of one or two committed advocates, with limited institutional backing and support.

In addition, while competition between institutes can enhance the level of performance and outcomes, evidence was also presented of dysfunctional consequences of excessive competition, where a more collaborative approach may have yielded a better result.

PART 5 – WHERE TO FROM HERE?

This report, and the processes on which it was based, raises significant issues for the future of vocational education and training. The ready and enthusiastic engagement of the members of the steering committee and the other participants in the scenario planning process, and the positive response to the key issues during the national consultation, suggests this report should be disseminated widely. Even more, an active process of diffusion and communication could contribute significantly to establishing an ongoing basis for dialogue and consideration of strategic issues.

The demonstrated advantages of the scenario-based approach to planning, and the breadth of experience and interest in the use of scenario planning, provides another justification for the wide and active distribution of this report, containing as it does a substantial introduction to and analysis of the use of scenarios, and a practical manual to guide its use. It would also appear appropriate to encourage the use of scenario-based approaches to planning and policy by and between stakeholders, at various levels.

The key issues identified pose substantial challenges for the future organisation and delivery of vocational education and training. They have been offered as an agenda for consideration and a fruitful starting point for debate. It would be appropriate to foster this debate at appropriate forums.

In particular, wide input into the consideration of appropriate positioning strategies for a highly uncertain and rapidly changing future is likely to generate not only good ideas, but a collective capability and commitment which can be mobilised to address particular challenges.

APPENDIX 1 – SCENARIO PLANNING MANUAL

The following manual is derived from the relevant literature, both academic and consultant, discussions with scenario planning practitioners, and extensive personal experience. It inevitably incorporates others' conceptual explanations and memorable phrases. However, we think this field has advanced sufficiently to move from copyright to common language.

Because so much of the process of scenario planning rests on tacit knowledge and every exercise has its own special features and learning opportunities, this manual could well be written as a long novel, or at least a collection of short stories.

However, in order to provide a readily usable tool, this approach has been resisted in favour of a brief 'how to' manual. But it must be understood that skill in scenario planning processes relies crucially on practical experience.

This manual should be read in accompaniment with Part 1 of this report, which lays out the conceptual basis of scenario planning.

A great deal of the process of scenario planning rests on the range of personal and facilitation skills which underpin any mechanism based on engagement of people. These can be learnt, or at least improved. However, they have not been included in this Manual. Furthermore, every exercise in scenario planning has its own special features, and those engaged in such exercises will need to be flexible and adapt to different circumstances.

With these caveats, the following ten-stage process provides a generic guide to the conduct of a scenario planning exercise, and should assist anyone interested in using the technique. The bibliography provides further details of some of the key sources and guides.

The special ingredient is the imagination and enthusiasm of the facilitator and the participants.

Stages 1-4 deal with the set-up phase, stages 5-8 with the scenario process itself, and stages 9-10 with the drawing of implications for strategic planning and decision-making.

Stage One – Setting the Direction

Aim: *To establish the focal issue, objectives and timeframe*

Approach:
The starting point for an effective scenario planning exercise is the identification of an appropriate focal issue that is crucial to the organisation or body planning the exercise by the level of uncertainty attached (see Part 1, Section 1.1). Ideally, the focal issue should be highly strategic, and should be as specific as possible. Broad, vague issues, such as the future of capitalism, do not lend themselves to effective scenario construction.

The objectives of those planning the exercise must also be clarified and made explicit. A frequent cause of limited outputs from a scenario planning exercise is when managers are unclear about what their objective was, or uncommitted to a stated objective.

An appropriate timeframe must also be selected. It is necessary to adopt a time horizon sufficiently distant to escape from present-day concerns and constraints, but not so distant as to be subject only to fanciful conjecture. The appropriate timeframe will depend on the focal issue. However, in general, the timeframe should be longer rather than shorter.

The emphasis of scenario planning is not on planning for the distant future, but on taking the distant future into account in addressing the near future.

'You need to adopt a twenty-year time horizon, in order to collectively look out five years' – scenario planning participant.

Stage Two – Selecting and Engaging Appropriate Participants

Aim: *To identify and engage all the relevant key stakeholders in the scenario planning process*

Approach:

The selection of participants is a crucial component of the process, as it is their collective knowledge, experience, and willingness to consider alternative futures which provides the major resource for scenario analysis. It is important to include a sprinkling of 'outsiders', whether by employment, expertise or interest, to provide a breadth of perspective.

It is important to allow sufficient time, and commit sufficient resources, to this stage. Shortcuts will lead to either an insufficient range of perspectives on which to build useful scenarios, or inadequate engagement of key decision makers who consequently are unlikely to be receptive to the outputs of the scenario process.

Stage Three – Environmental Scan

Aim: *To identify the major factors likely to have an effect on the focal issue and to develop a set of basic data about these factors*

Approach:

The intention of this stage is not to pre-empt the consideration of key factors, or drivers, by workshop participants. Rather it is designed to encourage participants to start reflecting about the issues, and to provide a compilation of basic data to ensure the process does not get bogged down by arguments about what the facts are.

A common approach is for the facilitator, or managers of the process, to prepare a 'background' or 'issues' paper for distribution to participants in advance. This paper can outline the focal issue and the objectives, provide some background on scenario planning, and lay out a range of issues and relevant data.

Some general categories, which can be used as a checklist, include:

- demography – population and its characteristics;
- resources – food, water, energy, materials, human;
- environment – sustainability, pressures, disasters;
- governance and geo-political trends – globalisation, regionalisation, national sovereignty, role and structure of governments;

- economics – regional economies, debt and savings, living standards, finance and trade;

- industry and employment – rise of service industries, multi-national, multi-domestic and global operations, ICT in business, changing form and location of work;

- social trends in inflation, employment, crime and security, tolerance, multi-culturalism, gender equity, education, health care.

Stage Four – Planning the Logistics

Aim: To set up an effective program and supporting arrangements

Approach:

There is no fixed model for the arrangements to support a scenario planning exercise. They need to be customised to meet criteria such as time availability of participants, time for the project, ease of access and cost. In general, a two-part workshop, in a location where people will not be interrupted or distracted, led by an experienced facilitator, is most appropriate.

With regard to the length of the process, a minimum of a half-day (4 hours) is needed to go through the necessary stages of socialisation, idea exchange, and scenario development to produce a fairly rough set of scenarios. A full-day allows much more effective development, and provides a greater sense of value and commitment to participants. However, the nature of the process is such that opportunities to reflect overnight lead to substantial refinement and increase in plausibility of the scenarios (see Stage 8): so, the ideal is about 1½ days, with provision for a dinner to socialise and exchange ideas.

The translation from scenario to strategy (Stages 9 and 10) is best conducted separate from, and a short time (2– 4 weeks) after the scenario stages, but should involve the same participants. A small number of extra participants can be added at this stage, provided they are taken through an induction into the scenario process.

The location should allow for both plenary and small-group work. While break-out rooms can be used, there is a considerable transfer of enthusiasm and energy from the groups working within earshot of each other, though sufficiently distant to be able to communicate effectively. For this purpose, a large room with round tables around which the groups can sit in plenary and work in small groups is ideal.

The preferred number of participants is around thirty, developing three or four scenarios. Fewer than twenty may not provide sufficient breadth of perspective, or may result in one person dominating in the small group. If there are over forty participants and numbers become difficult to manage, and they become frustrated at not being able to get their ideas heard.

After each small-group session it is important to have a reporting-back stage, to capture and share what has been developed. Ideas and processes developed in one group can be copied by others. The usual workshop tools of flip charts, transparencies for overhead projection, electronic whiteboard and Post-it Notes are used.[4]

[4] Electronic developments include the use of 'grouputers', which allow simultaneous input from individuals and groups, and projection onto a large screen, and Web-based exchange of information. However, it is clear the process rests critically on social interaction and engagement.

Stage Five – Identifying the Drivers of Change

Aim: To identify the potential drivers of change, to cluster them into a manageable set, and to rank them according to their impact and uncertainty

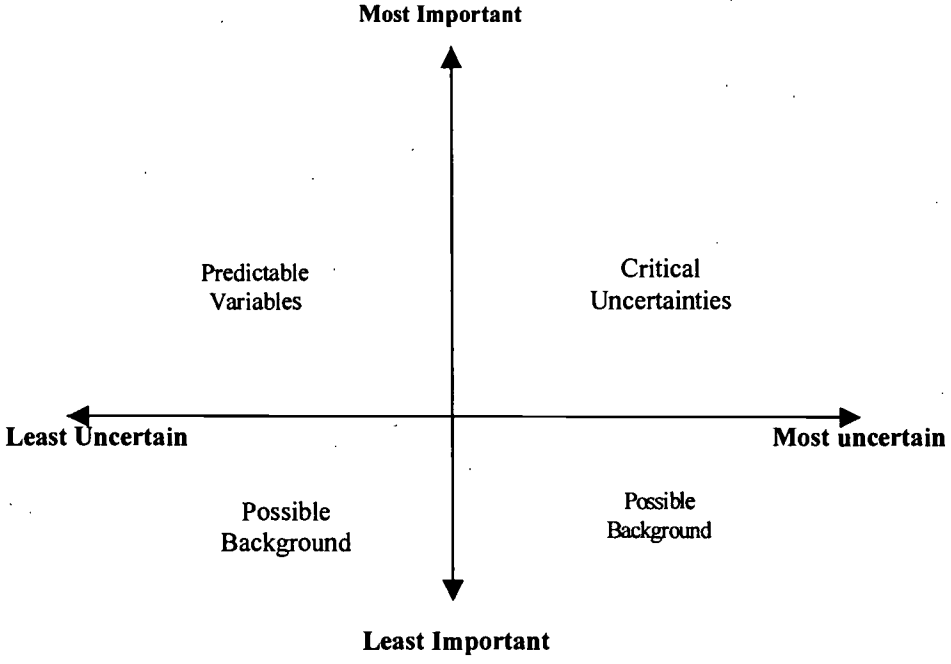
Approach:

Participants are invited to identify drivers of change that are likely to influence the focal issues. A brainstorming approach is most appropriate, with the emphasis on capturing as many ideas as possible, without filtering, and adding ideas stimulated by another. Flip charts can be used, but Post-It Notes provide a much greater capability to easily move and re-arrange candidate ideas. With people moving around the room reading and adding their own ideas, a ferment of creativity and interaction can be achieved, and hundreds of candidate drivers generated in the space of 15–20 minutes.

Progressively, with guidance from the facilitator, a process of clustering can be encouraged, in which like ideas are grouped with each other to form 'clusters' of drivers. In general, the aim is to arrive at a manageable number, in the range of 8–12.

The third phase involves ranking the clustered drivers against two axes: importance to the focal issue, and degree of uncertainty. For the latter, it is important that uncertainty not be confused with probability. Factors, to which a high probability or a low probability can be assigned, are both relatively low on uncertainty. It is those factors for which there is no basis for assigning a probability that are highly uncertain.

The axes are shown in the figure below. As indicated, the predictable variables are applied to all the scenarios, but it is the critical uncertainties that provide the basis of difference between the scenarios.



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Stage Six – Selection of Scenario Logics

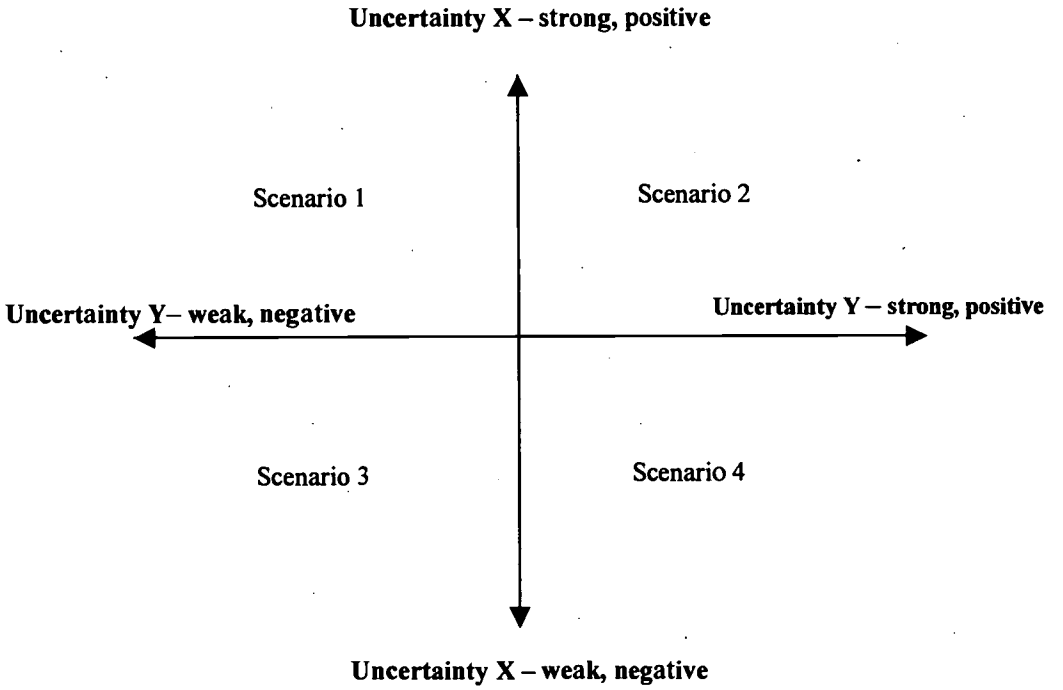
Aim: *To select or devise the basis of the different scenarios*

Approach:

This is a crucial stage and relies heavily on the judgment and experience of the facilitator and the project manager. The key criteria are that they will lead to scenarios which are shaped by factors of crucial significance to the focal issue, and which are highly different from each other ie the futures projected should be as different as possible within other constraints.

One relatively straightforward approach is to select a single critical uncertainty as the basis of each scenario eg three scenarios might address the same set of drivers, but one with an emphasis on economic uncertainties, another on environmental uncertainties, and a third on social uncertainties.

Another approach is to identify two key critical uncertainties, and to construct a matrix where each of these uncertainties can be either in a high or strong state, or a low or weak state. The figure below illustrates this approach[5]:



[5] This approach to scenario logics was used in this project assessing the future of vocational education and training

Stage Seven – Creation of the Scenarios

Aim: *To develop the scenarios*

Approach:

There is no standard approach to the development of scenarios. Different individuals and groups choose different approaches, all of which can be effective. Unfettered imagination and creativity together with a willing projection into the future are the keys.

> It is now 2020 and we are looking all the way back to what happened long ago in 2000 and since then. Remember how they used to do things?

However, the following list of activities can be useful in developing and fleshing out scenarios:

- Engage in a preliminary familiarisation of the selected future through a series of questions: Where do I live? What is my job? What do I do there and how? How did I travel here today? How do I get in contact with my family? What is my biggest challenge?
- Develop a set of bullet points of what might have been the major developments along the way;
- Develop a series of story lines (strings of causally linked events – this led to this and on to this, etc) that might happen based on the key driving factors;
- Do not be restricted to the use of words – pictures often convey or capture rich images;
- Construct a series of dated newspaper headlines indicating the major events of the day;
- Weave the process together in the form of a narrative, considering questions such as: How would we have got from here to there?, or What could have triggered this big shift?, or What had to have happened to make the endpoint of the story plausible?;
- Construct a timeline which shows what events, decisions and actions took place when;
- Develop a script (as for a television program) with a standard cast for each scenario, to convey just how each of the characters is going about their life;
- Present the draft scenario regularly to other groups, both for the group to agree on the essential elements, and to get feedback from others;
- Move towards a fairly brief narrative (200–500 words) with a catchy title.

Stage Eight – Refinement of the Scenarios

Aim: To refine and strengthen the scenarios

Approach:

No matter how fertile the creative process, scenarios always benefit from revision and refinement, with the objective of increasing plausibility, coherence, internal consistency and richness.

Evaluation can be carried out against the strength of the logic, the plausibility (Could this really have changed so quickly, so dramatically?), the identification of key events and turning points, and the strengths of the linkages between the various events. In addition, it is important to review the scenario to ensure it addresses all aspects of the focal issue.

Some things change quickly, some slowly. Which applies to which?

The scenario should also be checked against the full set of drivers, predictable and uncertain, to ensure coverage and consistency.

Stage Nine – Determination of the Implications of the Scenarios

Aim: To determine the implications under each, and all, of the scenarios for the focal issue

Approach:

The implications of each scenario are examined by returning to the focal issue. What emerges as the consequences under each scenario? What vulnerabilities have been revealed?

The approach used here is sometimes referred to as 'backcasting'. It applies the advantages of hindsight from the perspective of the plausible future constructed in each scenario, to look back to the present. Key questions to ask, from this advantaged standpoint, include:

- what were the crucial turning points or decision points?
- what decisions would we have taken back then, if only we had known what was going to happen?

Having determined the implications under each scenario, the next step is to examine these for commonality. Are there some implications which emerge, in various forms, in all scenarios? In addition, are there implications which are critical under any one scenario?

It is important to remember that in scenario planning, the objective is to identify issues that would need to be addressed in order to produce the most beneficial outcome under the range of scenarios developed. The aim is not to plan for the most likely or preferred option, but to position so as to be able to respond effectively to an uncertain future.

Stage Ten – Interfacing with Strategic Planning and Decision Making

Aim: To inject the findings and implications of the scenario planning process into strategic planning and everyday decision making.

Approach:

At this point, the organisation's or system's interests and capabilities are introduced. Scenarios and the resulting implications can be integrated with the scenario planning process through the traditional SWOT analysis for the organisation against the implications, and the posited futures, under each scenario. The implications could also be used as an agenda for consideration of how well the organisation is positioned, and what changes might be needed, for the futures presented by the scenarios.

One of the particular strengths of scenarios is their ability, through the change in mental set they provide, to alert individuals and organisations to 'early warning' signs of change. In order to strengthen this effect, indicators of key potential changes can be developed and monitored, in order to enhance the ability to detect key changes at early stages – an enormous advantage in any sphere.

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APPENDIX 2 – PARTICIPANTS IN NATIONAL CONSULTATION EXERCISE

Australian Capital Territory

Chris Peters, ACT and Region Chamber of Commerce
Heather McMillan, APTS
Bob Edwards, BSSS
Stephen Bramah, OTAE
Paul Fennell, OTAE
Peter Veenker, CIT
Wendy Coutts, College Principals Association
Jenny Wardrop, The Combined Industries Consortium Inc.
Allyson,Wedrat, IT, Communication Printing ITAB
Paul Stubing, ACT Regional Building and Construction Industry Training Council
Peter Galvin, ACT Community Services and Health Industry Training Advisory Board
Karin MacDonald Business Training Advisory Board (ACT) Inc
Gerald Crawford, Tourism & Wholesale, Retail and Personal Services ACT
Barrie Cooke, Tourism & Hospitality ITAB
Bob Waldron, Industry Training and Assessment Services ACT Inc.
BobTaylor, Utilities – Electrical, Water & Light Manufacturing ITAB
Jeremy Pyner, Trades & Labour Council
Clive Haggar, Australian Education Union
Brand Hoff, Information Industries Development Board
Robyn Bergin, DETYA
Anne Byrne, DETYA
Catherine Wildermuth, DETYA
Margaret Henderson, DETYA

Northern Territory

Doug Phillips, Deputy Chair NTETA Board
John Clarke, Community Services and Health ITAB – Executive Officer
Rosie Warden, Territory Health Services & Chair Community Services and Health ITAB
Phil Wall, Batchelor Institute
Ann Coles, Batchelor Institute
Veronica Arbon, Batchelor Institute
Antoine Barnaart, NTU
Shirli Dovaston, Dovaston and Associates
Dennis Kuhl, Centralian College
Steve Sjoberg, Casuarina Secondary College
Brian Munro, Rural ITAB
Brian Bates, Construction ITAB
Bronte Cooper, Automotive ITAB
Jan Munday, Chief Minister's Department
Jenny Thamer, Group Training Company
Amanda Howden, NT Education and Training Authority
Robyn Manners, NT Education and Training Authority
Peter Johnston, NT Education and Training Authority

Victoria

Judy Bissland, Swinburne University of Technology
Liz Wright, Victorian Community Services and Health ITB
Jaquie O'Brien, Victorian Food ITB
Julie McQueen, President, ACE (Vic) Inc.
Ashley Cox, Australian Workers Union
Pam Jonas, Victorian Employers Chamber of Commerce and Industry
Richard King, Victorian TAFE Association Inc
Julie Moss, ACPET
Brian Neil, Australian Industry Group
Greg Barclay, Australian Education Union
Barry Smith, Group Training Australia
Paul Miller, President, Victorian TAFE Students & Apprentices Network
Noel Lyon, International Training Australia

New South Wales

Gary Willmott, NSW Department of Education & Training
Di Murray, South Western Sydney Institute
Paul Rodney, Catholic Education Commission
Terry Chapman, Association of Independent Schools of NSW
Pam Christie, Department of Education & Training
Donna McLaren, Department of Education & Training
Michael Gadiel, Labor Council of NSW
Kathy Rankin, Australian Business Ltd
Gerry McLean Group, Training Association of NSW Inc
Brad Main, Department of Education & Training
Amanda Moore, Board of Adult & Community Education
Warwick Moore, NSW Agriculture
David Patterson, NSW Board of Studies
Susan Scowcroft, NSW Community Services
Linda Simon, NSW Teachers Federation
Gary Watkins, Australian Retailers Association
Richard Winter, Email Ltd
Peter Hack, Department of Education and Training
Louise Smith, Student Representative
Kylie Morgan, Student Representative
Rachel Gully, Student Representative
Jaclyn Pope, Student Representative
Judy Finn, Department of Education & Training

Western Australia

Geh Tuan, West Coast College of TAFE
Richard Daxter, Midland College of TAFE
Sue Bennett-Ng, Great Southern Regional College of TAFE
Michelle Hoad, Central West College of TAFE
Jenny Kroonstuiver, Curtin University, Kalgoorlie Campus
Bill Swetman, Karratha College
Tom Morris, South West Regional College of TAFE

David Bowman, CY O'Connor College of TAFE
Bill Roberts, WA Information, Electrotechology and Utilities Industry Training Council

Roma Sharp, WA Finance, Property and Business Services Industry Training Council
Meryl Cruickshank, WA Government Health Training Advisory Board
Anthea Kilminster, WA Hospitality and Tourism Industry Training Council
Caroline Thompson, WA Light Manufacturing Industry Training Council
Ian Hall, WA Metals, Manufacturing and Services Industry Training Council
Amelia Mosquere-Pardo, WA Transport and Storage Industry Training Council
Kerry Filkin, WA Chamber of Commerce and Industry
Laurie Kruize, WA Residential Training Advisory Foundation
Steve Arrowsmith, WA Department of Training and Employment
Simon Walker, WA Department of Training and Employment
Rowan Maclean, WA Department of Training and Employment
Colin Clark, WA Department of Training and Employment
Jacque McNamara, WA Department of Training and Employment
Chris Buckley, WA Department of Training and Employment

South Australia

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Rosemary Canavan, Comskil
Joanna Crinion, Australian Retailers Association
Brenton Pilkington, Automotive Industry Training Board (SA) Inc.
Marcus d'Assumpcao, Construction Industry Training Board
John Turner, SA Public Administration Industry Training Advisory Board Inc.
Mark Cody, Seafood Training SA
Gary Andrew, MERSITAB
Graham Warren, United Trades and Labour Council
Bob Perry, Business SA (Employers Chamber)
Alison MacTarist, Business SA (Employers Chamber)
Elayne Neill, Office of Vocational Education and Training
Richard Osborne, Office of Vocational Education and Training
Ingrid Rozenbergs, Office of Vocational Education and Training
Ben Samy, Office of Vocational Education and Training

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Marcus Pelto, Australian National Training Authority
Drena Strange, Retail Association of Queensland
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Donna Mildren, QCCI
Walter Sommer, Sommer and Staff Constructions
Karen Thorburn, Sheraton
Liz Mackie, Qld Council of Unions
Rene Veltmeyer, Australian Manufacturing Workers Union
Dr David Finch, Maunsell McIntyre
Professor Simon M Kaplan, University of Queensland
Sandra Harrington, Qld Independent Education Union
Rod Williams, National Indigenous Alliance Development

Craig Sherrin, TAFE Board & Northpoint Institute of TAFE
John Swete-Kelly, Moreton Institute of TAFE
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Zea Johnston, DETIR

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Ms Jane Bell, Tasmanian Community, Property and Health Services ITAB
Mr David Morgan, Tasmanian Arts Communications, Information Technology, Printing and Recreation ITB
Mr Michael Stevens, Department of Education
Ms Therese Taylor, OVET, Department of Education
Ms Annette Dallas OVET, Department of Education
Mr Graham Walsh, OVET, Department of Education
Mr Chris Johnston, OVET, Department of Education
Ms Lynne Fitzgerald, Tasmanian Trades and Labor Council
Mr Bruce Lipscombe, Tasmanian Chamber of Commerce & Industry Ltd
Mr John Smyth, TAFE Tasmania
Ms Debra Hill, Department of State Development
Mr Clive Attwater, Department of State Development
Mr Roger Stafford, Tasmanian Group Training
Mr Russell Scott, Island Group Employment Inc
Mr Gary Knight, Building Group Apprentice Scheme Inc

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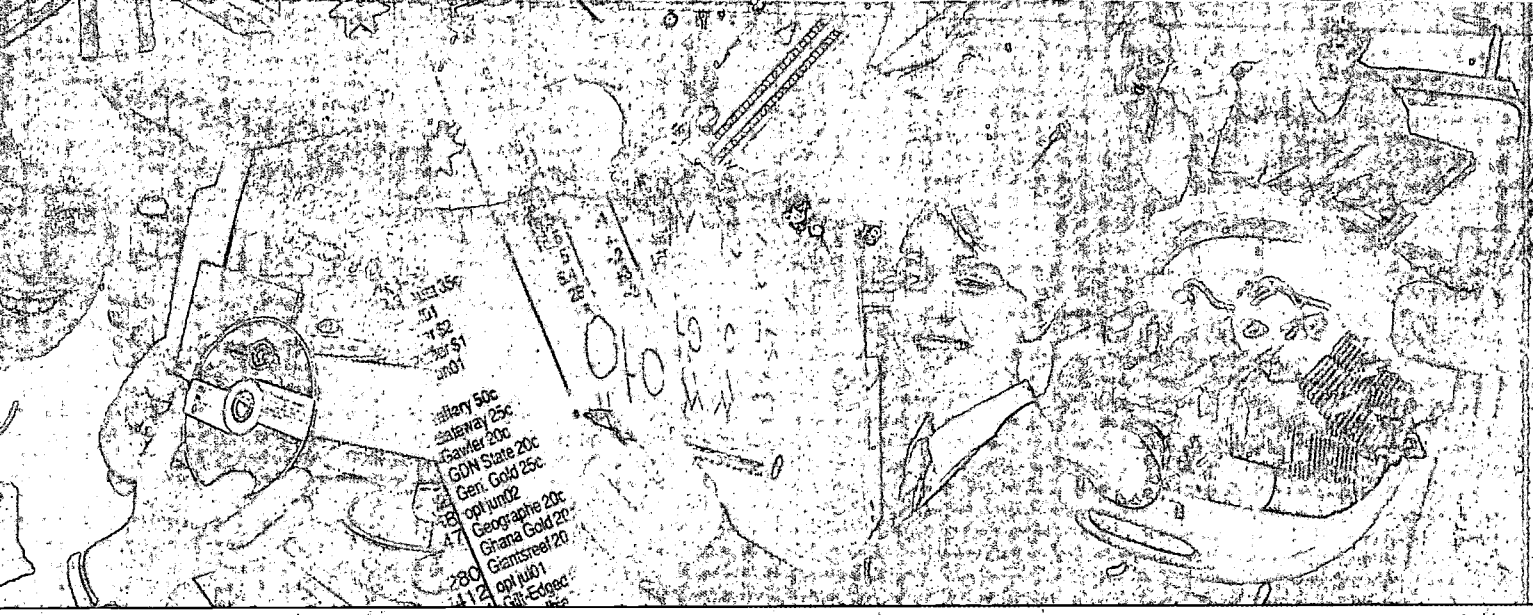

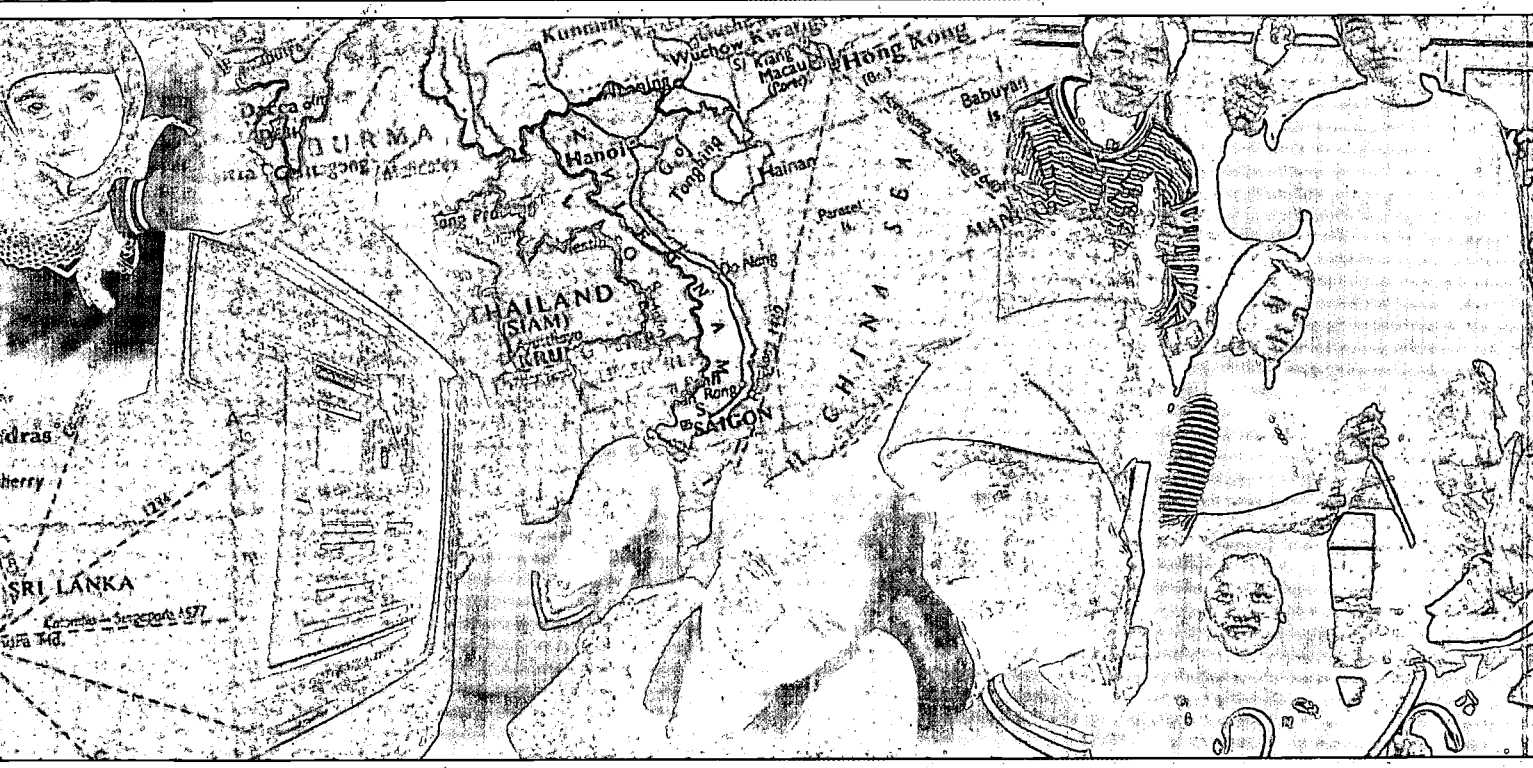

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