Globalisation, Competitiveness and Metropolitan Strategy

Technical Report 3

PLANNING MELBOURNE FOR THE 21ST CENTURY

Department of Infrastructure

Victoria
The Place To Be

Message from the Ministers

By world standards Melbourne is a great city. The Bracks Government is committed to maintaining Melbourne's reputation as a highly liveable city and an attractive investment destination. The Government has embarked on the preparation of a Metropolitan Strategy to set a clear vision for Melbourne's future liveability, prosperity and, importantly, its long-term sustainability.

The preparation of the Metropolitan Strategy is drawing on inputs from a wide range of sources. It is vital that the strategy has a sound research and information basis. It is also especially vital that community aspirations for the city's future be well understood. The key inputs to the strategy therefore include both a wide ranging public consultation program as well as a series of research or technical papers on issues that may have an impact on Melbourne's future.

The Bracks Government has given an undertaking to make as much of this background information as possible widely available to stimulate discussion about the future of Melbourne.

This report is one of the technical reports commissioned by the Department of Infrastructure, which we hope will stimulate feedback. At this stage content and recommendations are only the views of its authors and not necessarily the views of the Government. The Strategy is still in its early stages of development and we remain open to hearing what the broader community would like it to encompass.

We encourage you to read this and other technical reports and, should you wish, to make your views known about the future of Melbourne by contacting us on:

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Victorian Government
Department of Infrastructure

GLOBALISATION, COMPETITIVENESS AND METROPOLITAN STRATEGY

May 2000

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1 INTRODUCTION

The Department of Infrastructure (DOI) commissioned Spiller Gibbins Swan Pty Ltd (SGS) to undertake a review of economic competitiveness with the underlying aim of informing the metropolitan strategy formulation process.

The specific study aims were:

- *To understand the competitive strengths and weaknesses of the metropolitan Melbourne region's economy, in a national and international context, across a range of economic and social factors.*

- *To relate the main factors affecting the performance of the metropolitan Melbourne region to the global economy to the existing 'strategic architecture' of the region (the current paradigm).*

- *To develop insights into the emerging factors that may affect the competitive performance of the metropolitan Melbourne region in the global economy and the impact they may have for a different 'strategic architecture' for the region (the emerging paradigms) to meet changing business needs.*

- *To identify which factors a metropolitan strategy might have a role in supporting.*

2 STRUCTURE

In approaching this task SGS has drawn on the wide range of work previously undertaken by economic development, business strategy and urban management authors. We commence our analysis by documenting the movement from the industrially based processes of the old economy to the global production networks of the new.

Melbourne's emerging role in the global economy is then documented from a national perspective, recognising that Melbourne is part of a network of Australian cities which collectively contribute to our overall positioning. This is achieved by examining industrial employment changes over the past decade (Section 3).

The importance of economic regions within countries in the wealth creation process is then acknowledged in the review of theoretical

frameworks commonly used to describe the drivers of economic competitiveness (Section 4). Such theories meld classically economic and social factors to a point where they become indistinguishable. Thus this report does not explicitly delineate between economic and social drivers of competitiveness, rather it explores the inter-relationships in regional economies. Section 4 also devises a hierarchy of foundations that are required to compete in the global economy, differentiating those foundations that are 'paramount' to less developed or resource based economies.

Section 5 lists specific drivers of competitiveness within the regime of economic foundations, whilst section 6 nominates a number of indicators which might be used to measure the status of each of the specified economic drivers. Section 7 'benchmarks' the performance of Melbourne's economic region (or proxies for that region) against comparable cities, indicating the competitive strengths and weaknesses of the regional economy. Section 7 also identifies a number of data gaps that impede the measurement of Melbourne's relative performance.

Section 8 examines how urban or metropolitan policy may influence the economic competitiveness of the region, and the study concludes with recommendations regarding policy initiatives that further the understanding of Melbourne's competitiveness and project that boost that competitiveness.

3 THE DRIVERS OF ECONOMIC COMPETITIVENESS

3.1 Introduction

Each approach to analysing economic competitiveness acknowledges that an economy is a 'system' that relies on the interaction of a number of variables. Generally those variables describe the cost and quality of inputs, processes and distribution of production processes.

Prior to the onset of globalisation the focus of competitive analysis revolved predominantly around the components of production cost. Firms would gravitate towards locations that offered suitable and inexpensive resource sets for production. Such approaches hinged on the assumption that firms needed to operate from under the one roof.

However, globalisation has shown that this assumption is no longer valid. Firms can now locate different activities of their value chains in locations that offer the least expensive set of inputs for that particular activity. Globalisation has also shown that the ability of firms to innovate and adapt is fundamental to success: increasing the relative values of knowledge, technology and improvement capacity in the overall production process. Thus, cost minimisation is no longer an absolute constraint. The focus is now more on cost effectiveness in rapidly changing markets.

3.2 The Emergence of the Global Economy

At the start of the 20th century industry in America and Europe was beginning to assemble itself into large groups, largely because of America's cartel-busting Sherman ACT (1890). Firms could no longer collude under the ACT so they maintained their bargaining positions by merging into large, vertically integrated conglomerates (*The Economist, 1998*). The significant tariff barriers in existence also made it economic sense for firms to buy up their suppliers and scale up production to maximum capacity, knowing that their competitors would have to source relatively expensive imports, placing them at significant disadvantage (*Reich, 1992*). The processes of vertical integration were similarly widespread throughout Europe.

Following WWII national governments further contributed to this self-containment of wealth creation, which was predominantly manufacturing-based. They did this by developing large fully integrated manufacturing centres, in strategic locations, as part of policies to promote self sufficiency, import substitution, regional development and employment (*Roberts, 1997*). Those fully integrated systems of production, either driven by public or private integration and ownership, remained intact until the 1970's.

However, a number of things happened in the 1970's that had marked effects on the structure of manufacturing and business operation in general.

First, the poor performances of western production techniques were exposed. Associated with vertically integrated conglomerates were massive levels of idle inventory, inflexible production processes, and a general attitude that consumers would be content with the standardised products made. On the other hand, Japanese manufacturers were benefiting from lean manufacturing techniques - the habit of carrying minimal stocks, having parts delivered direct to the assembly line 'just in time', making sure that the quality was right from the word go, and rejecting the idea that only enormous batches of production were paramount to success.

Subsequently, western manufacturers fully embraced lean manufacturing and notions of continuous improvement in the 1980's, hoping to replicate the success of the Japanese. And they did. The production improvements at Caterpillar's Illinois plant are a good example of the turnaround. Prior to the adoption of flexible automation and JIT, both of which fall under the auspicious of lean manufacturing, it took 6000 workers 25 days to make one back loader (i.e. to produce one unit of production). After adoption that fell to 3000 workers and 6 days. Improvements in new product commercialisation times also reflected the benefits of adopting a lean culture, with the time reducing 10 years to 27 months *(The Economist, 1998)*.

Second, the removal of the gold standard and the promotion of free trade by the Bretton Woods agreement in 1972, and the subsequent General Agreement on Tariff and Trade (GATT) agreements[1], led to major structural changes in trade, industry location and investment *(Roberts, 1997)*. Most notably, those agreements facilitated foreign investment into the then termed 'developing world', particularly Asia.

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[1] Now administered by the World Trade Organisation (WTO).

Access to cheaper factor inputs (predominantly labour), and the willingness of Asian governments to provide investment incentives, promoted a mass migration of core manufacturing activity to the developing world during the 1970's and 1980's. The simultaneous advent of and rapid improvements in communications technologies allowed the front (i.e. product design, R&D, innovation, etc.) and back ends (i.e. marketing, distribution) of the production processes, and the corporate administration (i.e. planning, finance, etc.) to be retained by their original home countries.

The ease of merchandise, service and capital flows across international boundaries led to the industrialisation of 'developing' countries and the relative de-industrialisation of the 'developed' world, particularly OECD economies, with those latter economies focussing more on the provision of services that supported production.

Thus, the entire production chain was no longer achieved under one roof or even within one country. The production chain became more spatially dispersed, with individual links of the chain locating in regions with the most propitious conditions.

This was one of the reason why developed economies rose so quickly in service provision. Jobs that were previously defined as manufacturing now fell into service classifications. Goodbye to the old dividing line between manufacturing and services.

Other reasons for the rise in services included the rising income levels[2] of populations worldwide and the improved ability of entrepreneurs to access previously untapped markets. The ever increasing demand in Asia associated with industrialisation, and the growing trade-openness of the former Soviet Union, China and other non-democratic states, reinforced trade integration of economies worldwide.

The rising status of the world market presented significant opportunities for entrepreneurs. However, sustained international sales required efficiency in the organisation of production, as competitive threats were often more diverse than those experienced at home. Furthermore, the size of world niche segments provided incentive for organisations to best meet the changing wants of consumers, themselves gradually becoming better informed and demanding customised goods and services. On going adaptability thus became essential to the competitive framework.

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[2] Rising income levels allow consumers to dedicate more expenditure from non-essential food, shelter and clothing products.

Not only did companies have to chase cheap labour for the simpler parts of their global supply chains, they also had to bow to customers' demand by providing customised products and services at their doorstep. *Enter the importance of focussing on core competencies, which required the shedding of non-core organisational functions, and the importance of knowledge, innovation and flexibility as the key determinants of* <u>*corporate*</u> *success.*

In order to facilitate knowledge commercialisation, adaptability and innovation large corporations restructured. Bureaucratic structures were minimised and autonomy was pushed down the 'chain of command'. But intra-company changes were and are not sufficient to guarantee ongoing success in an environment where transport and communications costs have been slashed and where labour intensive processes can be located in areas with comparative labour cost advantages.

Porter (1998) argues that what goes on *inside* companies is obviously important, but a vital role in the creation of competitive advantage can also be attributed to the business environment immediately *outside* the company. He points to the current success of Silicon Valley in semi-conductors, Hollywood in entertainment, Wall Street in finance, Japan in consumer electronics, Southern Germany in high performance automobiles, and Northern Italy in fashion and shoes.

Porter attributes such success to the development of clusters of industry in those geographic regions, defining clusters as geographic concentrations of interconnected companies and institutions in particular fields. He goes further to suggest that clusters form an alternative method of organising the value chain, with companies benefiting from close buyer-supplier relationships without the need for vertical integration and benefiting from innovation, knowledge and flexibility enhancements without associated management woes.

Moore (1997) goes as far to suggest that successful organisations see themselves as part of an evolving ecosystem, with everybody else as possible members of their combined value chain. In this new economic terrain, ecosystems will compete against similarly structured ecosystems, both straddling traditional industry definitions.

The *US Department of Housing and Urban Development (1996)* contrasted the ramifications of the above processes using dimensions of economic change to delineate between the 'old' and the 'new' (alternatively labelled 'global') economy (Table 3.1).

The major changes in the paradigm of economic organisation include: the development of technological change and information as the key sources of productivity gain; the extension of trade from a home market to a global scale; and the concentration of both employment and industry within metropolitan regions in which specialisation has increased though the supporting industrial frameworks have diversified (i.e. the development of industry clusters in metropolitan regions).

*Table 3.1: **Key Dimensions of Economic Change.***

Key Dimension	Old Economy	New Economy (Global Economy)
Major Source of Productivity Gain	Better and more efficient use of energy and raw materials	Better and more efficient use of knowledge
Trade Patterns	National	Global
Successful Development Strategies	Protectionism, import substitution	Free trade; producing for global market; metropolitan regional strategies
Geographic Dimension	Company- or industry-towns with little diversification or clustering	Metropolitan regional clusters of complementary firms and industries

Source: *US Department of Housing and Urban Development, 1996.*

3.3 Melbourne's Role in the Global Economy

A simplistic but beneficial way of tracking Melbourne's emerging role in the global economy is to examine changes in the employment structure in recent years.

Such a method facilitates broad comparison with other Australian cities (i.e. economic regions), which, in itself, aids the identification of particular functions Melbourne might have in a national context. It also implicitly acknowledges that the quality of interaction between a network of cities might determine their collective prosperity given the increasing dominance of a few world cities in the global economy (i.e. London, Hong Kong, Tokyo, etc.) (Brain (1999), Brotchie *et al* (1995) and others).

Appendix A explores the interaction of the three eastern seaboard capitals of Australia by examining the changes in their employment structure between 1986 and 1996. The 'inner city' regions are analysed also, as separate areas, to demonstrate that they are in many ways driving industry development and job growth in their respective regional economies.

What comes out of this analysis is Melbourne's strength as a:

- ❑ Manufacturing centre, consolidating on its historical strength and moving into higher technology processing; and
- ❑ Cultural city, with strong growth in leisure and tourism industries, especially in the inner city area.

Past studies (see Text Box 1 and 2) suggest that the following can be added to Melbourne's strengths:

- ❑ Transport hub, capitalising on the infrastructure advantage afforded through the Port of Melbourne; and
- ❑ Research & development centre, acknowledging the relatively high levels of business R&D in Victoria.

Text Box 1	**Text Box 2**
Victoria leads the nation in seaport infrastructure. The Port of Melbourne is Australia's largest, handling 38% of the nation's container trade - it is well ahead of Sydney and almost double that of Brisbane, Fremantle and Adelaide combined. In terms of airfreight competitiveness, the curfew free Melbourne Airport holds it own. Only 19% of the State's possible air exports are uplifted through Sydney and even less through Adelaide, and these leakages primarily related to lower-value perishable commodities.	Victoria spends about 2% of Gross State Product (GSP) on R&D, compared to 1.5% for NSW and 1.6% for Australia. Victoria's lead primarily derives from its greater business spending on R&D, and possibly from the strong presence of Universities, not for profit health research organisations and Commonwealth institutions such as the CSIRO. Business expenditure on R&D in Victoria grew at an average annual rate of over 11% between 1990/91 and 1996/97. This was approximately 30% faster than NSW.
Source: *Spiller Gibbins Swan (2000).*	Source: *Spiller Gibbins Swan (1998).*

Sydney continues to dominate the national economy in terms of the finance & insurance and property & business service sectors, and in terms of its sheer size.

Brisbane, the fastest growing of all Australia capitals, appears to have strength in Government activity and health & community services but this may be due to its lack of critical mass in other industries.

4 THEORECTICAL FRAMEWORKS OF ECONOMIC COMPETITIVENESS

This section reviews the work of noted commentators on the drivers of economic competitiveness. It then develops a framework for approaching the foundations of economic competitiveness in the global economy.

4.1 Diamond of Competitive Advantage

Michael Porter (1990) was the first to comprehensively document the interactions that underwrote competitiveness in the global economy. Porter attributed global competitive advantage to particular industries in economies that had conducive conditions in, and interrelationships between, the following:

- **factor conditions**: the economy's position in factors of production such as skilled labour or infrastructure necessary to compete in a given industry;

- **demand conditions**: the nature of the local demand for the industry's product or service;

- **firm strategy, structure and rivalry:** the conditions in the economy governing how companies are created, organised, and managed, and the nature of domestic rivalry;

- **related and supporting industries**: the presence or absence in the economy of supplier industries and related industries that are internationally competitive;

- **chance:** acknowledging the extent to which an industry competitiveness is related to its historical path of development; and

- **government**: the ability of governments to manage other determinants of advantage to the benefit of their constituent industries.

He surmised that if those conditions were propitious within an economy that groups of industries would become mutually supporting, providing the basis for long term improvements in

prosperity. Porter illustrated the relationships between economic forces in his 'diamond' of competitive advantage (Figure 4.1).

Importantly, Porter recognised that regions within nations, and regions that transverse national borders, are the most appropriate geographical units of analysis when assessing the determinants of economic advantage.

Figure 4.1: **Porter's Diamond**
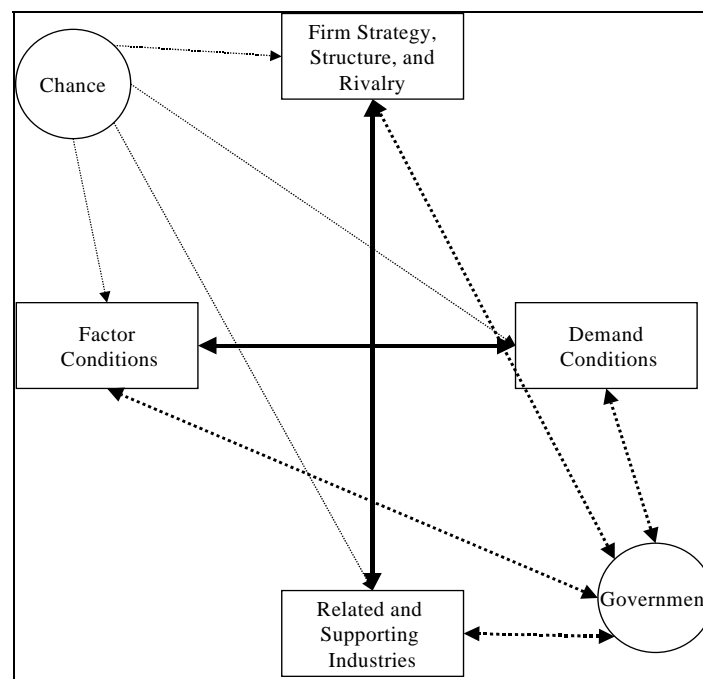
4.2   McKinsey & Company's Horizons Model

The competitiveness of an economy can be similarly traced using McKinsey & Company's three horizons model of business competitiveness. This holds that any business must maintain tight cost control to hold onto its traditional core business ('horizon 1'). But sustained prosperity must also involve the ongoing search for new business opportunities spinning off from the core ('horizon 2') and long term strategies to build entirely new business opportunities ('horizon 3').

Thus, long term business prosperity is regarded as a function of business's ability to regenerate itself as an operating environment, regenerate its strategic focus, and to regenerate its products and

services for future markets. Such notions are consistent with the requirement for adaptability and flexibility in the global economy.

White, Baghai and Everingham (1999) classified particular sectors of the Australian economy using the three horizon's model. Their work gives insight into the environments that economic regions need to foster to ensure economic prosperity. White *et al* (1999) classified traditional agriculture, mining and domestically focussed manufacturing as Australia's horizon 1 industries. They argued that sound productivity gains have been made in these sectors and that they will remain of great importance. However, Australia's enviable growth performance over the past 15 years (Australia's cumulative GDP growth over 1985-1998 was almost 50% compared to an OECD average of less than 38%) was attributed as much to strong investment in horizon 2 industries like ETM exports, communications, tourism and service exports. In the future, horizon 3 sectors like biotechnology and new services based on e-commerce will become increasingly significant as national economic drivers.

Importantly, the 'urban intensity' of sectors – i.e. reliance on a rich network of business services, access to universities and other key research institutions and availability of specialist skills - becomes more pronounced in moving up the horizons scale (Figure 4.2). This also underscores the strategic role which the major cities play in Australia's economic future.

Figure 4.2: **The Three Horizons of Australia**
(After McKinsey and Company)
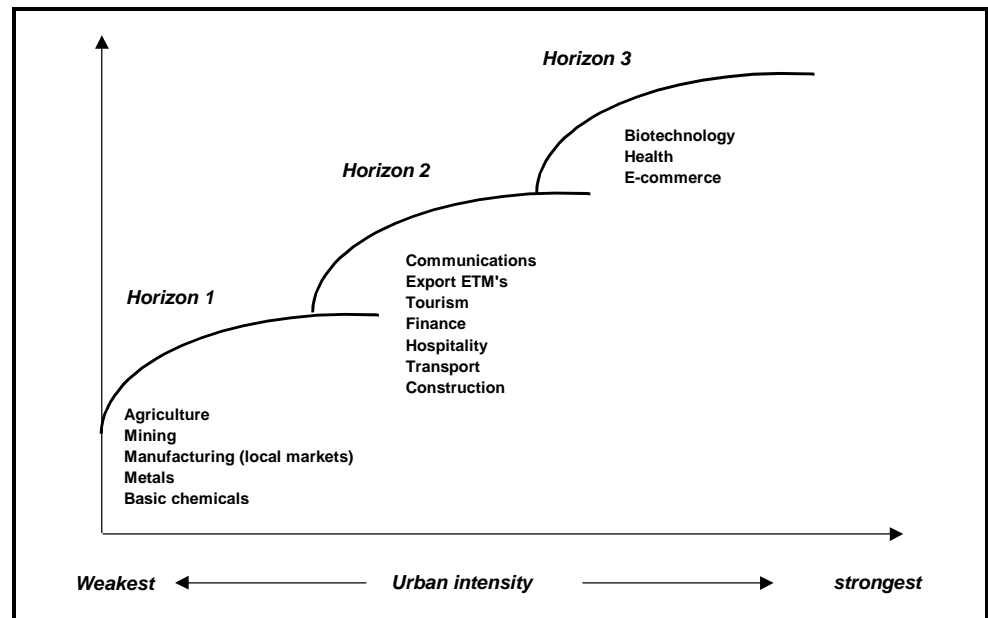
4.3   Institute for Management Development (IMD)

The IMD publishes the world competitiveness report each year which details the ability of nations to provide an environment which sustains the competitiveness of enterprises.

The methodology adopted by the IMD centres around the balancing of four forces. They include the trade offs within an economy of:

- Globality and proximity
- Assets and processes
- Aggressiveness and attractiveness; and
- Risk taking and social cohesion.

Though IMD limits its commentary on these forces it is generally understood that the tradeoff between

- globality and proximity refers to the 'containment' within an economy, recognising that external trading partners which provide cost effective inputs and markets may do so at the expense of local synergy development.

- assets and processes describes the importance of an economy's ability to create new wealth as opposed to its current consumption

of inherited wealth (i.e. to add value rather than to focus on natural resource based output).

▪ aggressiveness and attractiveness refers to an economy's acquisition of resources through direct foreign investment (e.g. Japan, Korea), anti-competitive practice, etc. compared to the level of external investment into an economy due to its conducive operational environment (e.g. Ireland, Thailand); and

▪ risk taking, which refers to a culture of entrepreneurship and opportunism, versus the tendency towards less risky and socially cohesive inertia.

The IMD suggests that those tradeoffs are manifest in eight competitive input factors which regulate the competitiveness and sustainability of economies. These include the:

▪ Local economic strength;
▪ Internationalisation of trade and investment;
▪ Conduciveness of Government policy;
▪ Capital market performance and quality of financial services (i.e. finance);
▪ Extent to which resources and systems are adequate to service the basic needs of business (i.e. infrastructure);
▪ Extent to which enterprises are managed in an innovative, profitable and responsive manner;
▪ Scientific and technological capacity combined with success in basic applied research; and
▪ Availability and qualifications of human resources (i.e. people).

Figure 4.3 replicates the IMD's representation of the interactions of competitiveness.

Figure 4.3: **IMD Framework for Economic Competitiveness**
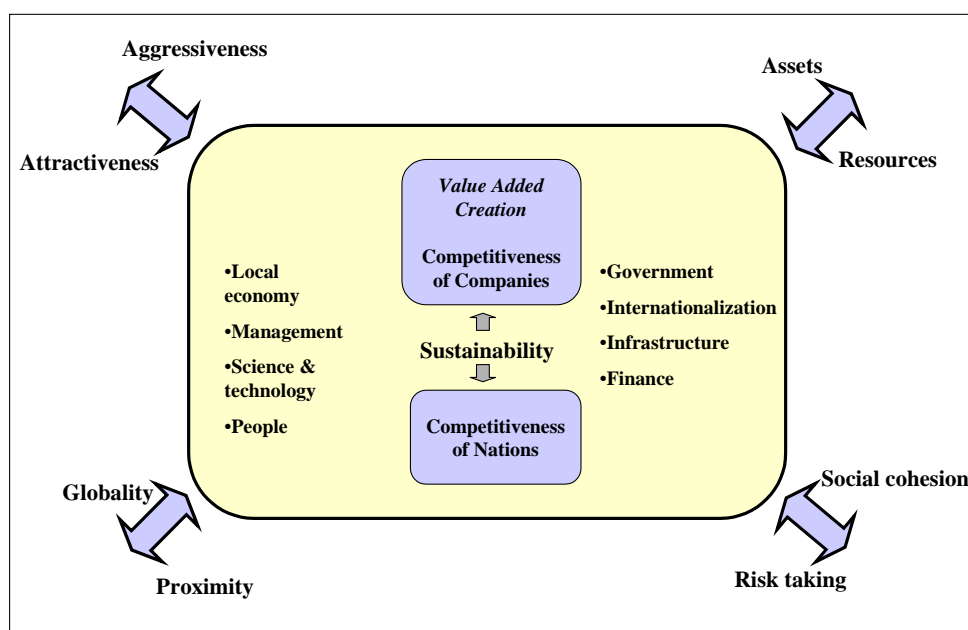
Each of the previous perspectives on economic performance weighs the current efficiency and effectiveness of economies with the ability of the economy to engender the movement to new frontiers of activity in the future. That is, each specifically acknowledges the importance of current operating environments and the ability of firms to improve their environments in the longer term. Such is touted repeatedly by global economy commentators. Brain (1999) p.13 summarised much of the thoughts of others when he stated:

"… competitiveness depends on a range of complex factors – including the macroeconomic environment, trading relationships, social and political stability, resource endowments, R&D, education and training systems, technological capabilities and the dynamism of entrepreneurial orientation of institutions and industries".

4.4   Framework for Approaching Economic Drivers

The proceeding sections detail some of the perspectives in which the drivers of economic competitiveness can be approached. They flagged some common drivers that are undoubtedly crucial to all economies that wish to share the benefits of long term prosperity.

However, prior to the specification of an exhaustive list of economic drivers, it is important to note that each region will focus on different drivers depending on its current economic position and therefore its

primary impediments to competing in the global economy. This focus may stem from instability in labour markets, political attitudes, social inequities or from the plethora of other factors which influence economic stability. Shortages in the economy, inferior production systems or stagnation in entrepreneurial drive could similarly direct the focus.

What is important to recognise is that economic foundations are required for each threshold of competitiveness, be they in resource-based economies, in 'old' industrially based economies, or in the new 'global' economic framework. The following examples highlight the significance of such 'economic foundations' and their required accumulation within regions in order to move to the next threshold of competitiveness.

East Timor has recently suffered from a spate of civil unrest which resulted in significant violence, destruction, and looting and required the intervention of international peacekeepers. Similar situations have been experienced in Chechnya, Kosovo and Rwanda. Obviously, some primary issues for these economic regions are social stability, governance structures and the physical health of their people. Without improvement in such underlying infrastructures economic growth and competitiveness will be limited.

On the other hand isolated regions such as the North West of Western Australia have, on the whole, developed governance structures and benefit from well developed economic and social infrastructure links. Safety, health and basic education are no longer issues (i.e. they are assumed). However, the regional economy is heavily dependent on resource based income such as mining, agriculture and tourism, and as a result little value adding takes place within the region. It is a consumption-based economy. Similar situations are apparent in Alice Springs, Darwin, and parts of New Zealand, Greece and South Africa.

Some production based economies such as the Philippines, Southern China and Taiwan undertake extensive value adding, as global entrepreneurs capitalise on the availability of cheap production inputs - predominantly labour - and the proximity to large numbers of consumers. However, the corporate headquarters of the organisations locating in these regions usually locate externally from the production centre due to the lack of financial capacity, high level skills, capacity building institutions such as education and research centres and the disparity between such societies and 'western' culture, particularly the English language.

Brisbane, Perth and Adelaide have more developed and diversified economies than isolated, purely consumption-based and low to

medium tech manufacturing regions. Quality education institutions operate within the economy yet much of the quality skills migrate to other regions because of the improved prospects of employment (i.e. brain drain to Sydney, Melbourne and various international locations). These destinations are better linked to the global economy due to the existence of greater levels of expenditure on R&D, better information and entrepreneurial networks and more intense concentrations of economic, social and cultural activity.

At the top echelon of economic competitiveness exist regions that are 'world cities' and/ or 'world class centres of excellence'. New York and London are world cities. They are concentrations of power – political, financial and economic. Income levels in these cities are high, at least for those knowledge-based workers embracing and driving the global economy.

Silicon Valley is the most famous example of a world class centre of excellence. Its entrepreneurial and collaborative business culture, its access to specialist and complementary skills and enabling infrastructure such as venture capital, IT test-beds, etc. combine with its amenable location to underwrite the world's most vibrant centres for information and communications technology. Business growth rates and start up rates are extremely high in such centres.

Yet although the competitiveness of these latter regions rely on higher level skills and infrastructures, they also implicitly rely on elements that make it attractive for knowledge workers to continually locate and reside there. That is, they still fundamentally require quality health, sanitation, transport and basic education systems, law and order, and various other factors that contribute to the perception of a 'quality' environment. Knowledge workers are highly mobile and any threat to their individual environment or to the environment in which they interact with other key players in the global economy would be detrimental to the economic region's competitiveness.

Figure 4.4 illustrates how the foundations for knowledge based economies build on those of production based economies, which in turn build on resource based economies. It also shows how the focus on product costs in the industrial economy is replaced by cost effectiveness and capacity boosting institutions in knowledge based economies.

Figure 4.4: **Hierarchy of Economic Foundations**.
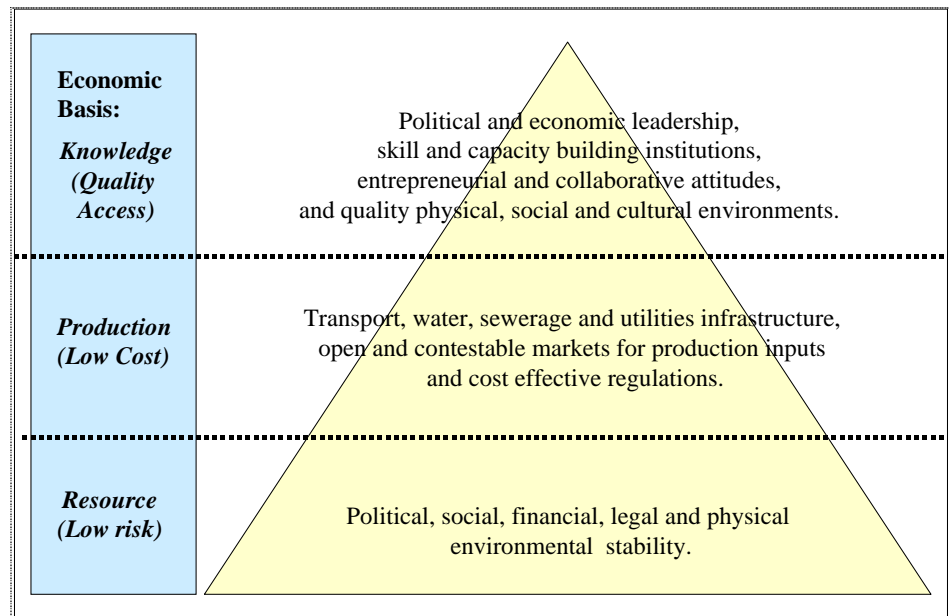
In the subsequent sections only limited discussion of the resource base economy's foundations is made. This does not limit the analysis because it recognises that Melbourne and Victoria compete against other economies where the stability of political, social, financial and physical environments are assumed.

5 DRIVERS OF ECONOMIC COMPETITIVENESS

A specification of the drivers of economic competitiveness for specific regional economies is listed in Table 5.1 below. Each driver has been grouped under the low risk, low cost and quality access framework developed in section 4.4. When reading the Table note that some drivers could fall within a number of the regime groupings. For example, excellent civil regional and national leadership has been placed under the heading of 'low risk', yet it could equally be placed under the 'quality access' (i.e. to skills, knowledge and innovation capacity) heading as such leadership may facilitate access to new markets.

*Table 5.1: **Drivers of Competitiveness in the Global Economy***

Regime of Competitiveness	Economic Driver
	A competitive regional economy is characterised by….
(a) Low Risk Business Environment	▪ Stable government and judicial institutions.
	▪ Independent anti-corruption institutions.
	▪ Independent industry regulators (e.g. telecommunications, media, infrastructure, etc.)
	▪ Stable financial markets with strong prudential regulation and transparent trading.
	▪ Excellent civic, regional and national leadership.
(b) Low Cost Structures	▪ Competitive market structures for service and material inputs.
	▪ Flexible labour markets and industrial relations system.

Table 5.1: Continued

Regime of Competitiveness	Economic Driver
	A competitive regional economy is characterised by….
Low Cost Structures (Continued)	▪ "Natural monopoly" in energy generation, transmission and retailing reformed or regulated to produce competition like outcomes.
	▪ "Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes.
	▪ "Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes.
	▪ "Best practice" investment in and management of roads infrastructure.
	▪ "Best practice" investment in and management of rail freight infrastructure.
	▪ "Best practice" investment in and management of seaports infrastructure.
	▪ "Best practice" investment in and management of airports infrastructure.
	▪ High quality airline connectivity.
	▪ Cost effective regulatory environment
	▪ World competitive company tax regime.
	▪ Well organised urban regions/settlement pattern for production logistics.

Table 5.1: Continued

Regime of Competitiveness	Economic Driver *A competitive regional economy is characterised by….*
(c) Quality Access	▪ High incidence of scientific skills in the labour force.
	▪ High incidence of other professional skills in the labour force.
	▪ Secure supply of technical/trade skills.
	▪ A high quality university system.
	▪ A high quality school education system.
	▪ A pervasive R&D culture.
	▪ An entrepreneurial and risk taking culture.
	▪ Liberal migration laws for people with professional skills.
	▪ A tolerant culture open to new ideas.
	▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.
	▪ Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.

5.2   Emergent Keys to Competitiveness

As explained, the economic drivers set out above reflect a transition from 'old economy' models of competitiveness - which relied essentially on cost control (e.g. proximity to resource inputs, abundant unskilled labour suited to Fordist production technologies, efficient utilities and freight transfer systems and so on) to 'new economy' models which have put a new emphasis on value creation through innovation and specialisation.

Thus, factors which relate to the creation and transformation of knowledge have become pre-eminent. In one sense, these drivers continue to be the emerging keys to competitiveness.

But the issue of 'emerging drivers' can also be addressed from the perspective of 'defendability'. That is, those advantages (related principally, though not exclusively, to knowledge creation and transformation) which are most difficult for competitors to replicate or match are likely to be those that demand special attention in policy development.

Advantage can be bought, acquired or engineered much more readily in some drivers than others. For example, effective management of natural monopolies in electricity or water supply infrastructures is, arguably, readily achieved given a will to do so by the governments in question. Progress on such matters is not contingent upon locally specific factors or difficult to replicate conditions but, rather, relies largely on a review of experience elsewhere and the 'short and sharp' injection of expertise. For these reasons, there is a tendency for convergence in infrastructure management practices across regions regardless of political system or stage of economic development. In other words, any boost in competitiveness that may be gained through the application of international best practice in these sectors – as important as this is – cannot be relied upon to deliver advantage in the longer term. The region's competitors face relatively low barriers in catching up.

This contrasts with, say, the competitive advantage deriving from a pervasive R&D tradition and an entrepreneurial and risk taking culture. These advantages form part of the fabric of the community and could take generations to build even with focussed policy effort on the part of national and regional governments.

Similarly, the drivers of competitiveness which stem from locally tied resources may be easier to defend. For example, those regions which have better managed planning for the aviation industry, including reservation of appropriately located land for secondary or support airports, will enjoy a robust advantage against those cities which must deal with constrained land stocks or a history of fragmented planning in this area.

An assessment of the robustness of advantage in the various drivers of competitiveness is made in Table 5.2. On this basis, the emergent 'strategic' drivers are as follows.

- **Leading management of 'structural transportation infrastructure', especially airports and the urban arterial road system.** In larger cities within advanced economies, public intervention to retrofit appropriate arterial road infrastructure or airports is often very expensive and fraught with political risk. Such regional economies may be forced to resort to cost boosting rationing strategies, or default to management by congestion.

- **Well organised urban regions / settlement patterns for production logistics**. Similarly, it is financially and politically very costly to attempt to 'turn around' an inefficient urban structure. Moreover, the pay off period can be very long term, adding to the political risk associated with such policies.

- **High incidence of scientific and other 'symbolic analyst' skills in the community, and access to a high quality education system.** These skill stocks tend to be an echo of historic wealth creation capacity. Past prosperity in advanced regions enabled investment in the education, training and research institutions required to generate a consistent flow of premium skills. Such historically rooted production processes cannot be easily replicated, especially given the exponential accumulation of production capacity in research institutions through networking and clustering.

- **A pervasive R&D / innovation culture and a propensity towards risk taking entrepreneurship**. Although such drivers are often characterised as 'personality traits' of certain nations (most notably the US), they are, again, more likely to be a reflection of historically created wealth. The greater the unencumbered asset base of a household, firm or region, the greater the capacity to absorb exogenous economic shocks, to take risks and pursue alternative income generating opportunities. And, again, such historically created endowments are difficult to replicate in the near term.

- **A tolerant culture open to new ideas**. This takes a long time to build (witness Australia's 40 year program of multiculturalism - still an unfinished business) and can be fragile given the added pressure which globalisation places on marginal groups in the workforce (witness the *One Nation* phenomenon in Australia and the outbreaks of extreme right parties dedicated to 'cultural purity' in Europe).

- **Liveable cities**. While there are well documented cases of cities that have achieved an apparent elevation in liveability through a concerted program of investment (e.g. Barcelona, Glasgow), these transformations often relate to down town areas or other precincts

of civic significance. Transformations of 'quality of life' for the great mass of residents - including quality affordable housing, access to a wide pool of jobs through an efficient transportation system, the opportunity to resort to areas of environmental and cultural significance for rest and recreation, access to wide range of lifestyle opportunities and so on, generally require a much longer time frame.

While such factors with high 'dependability' can be expected to take on greater strategic significance, this should not be interpreted as an opportunity to reduce performance on other factors, for example, maintaining the efficiency of basic utilities and sea ports. As emphasised in the McKinsey '3 horizons model', a successful economy will simultaneously take care of basic cost control as it searches for new wealth creation opportunities linked to its intellectual capital.

*Table 5.2: **Defendability of Competitive Advantage***

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage
(a) Low Risk Business Environment	▪ Stable government and judicial institutions.	**Moderate**
	▪ Independent anti-corruption institutions.	**Moderate**
	▪ Independent industry regulators (e.g. telecommunications, media, infrastructure, etc.)	**Moderate**
	▪ Stable financial markets with strong prudential regulation and transparent trading.	**Moderate**
	▪ Excellent civic, regional and national leadership.	**Moderate**
(b) Low Cost Structures	▪ Competitive market structures for service and material inputs.	**Moderate**
	▪ Flexible labour markets and industrial relations system.	**Moderate**
	▪ "Natural monopoly" in electricity generation, transmission and retailing reformed or regulated to produce competition like outcomes.	**Low**
	▪ "Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes.	**Low**

▪	"Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes.	**Moderate**
▪	"Best practice" investment in and management of roads infrastructure.	**High**
▪	"Best practice" investment in and management of rail freight infrastructure.	**Low**

Table 5.2 Continued

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage
	▪ "Best practice" investment in and management of seaports infrastructure.	**Low**
	▪ "Best practice" investment in and management of airports infrastructure.	**High**
	▪ High quality airline connectivity.	**Moderate**
	▪ Cost effective regulatory environment - workers compensation, OH&S, corporate affairs and fair dealing.	**Moderate**
	▪ World competitive company tax regime.	**Low**
	▪ Well organised urban regions/settlement pattern for production logistics.	**High**
(c) Quality Access	▪ High incidence of scientific skills in the labour force.	**High**
	▪ High incidence of other professional skills in the labour force.	**High**
	▪ Secure supply of technical/trade skills.	**Moderate**
	▪ A high quality university system.	**High**
	▪ A high quality school education system.	**High**
	▪ A pervasive R&D culture.	**High**
	▪ An entrepreneurial and risk taking culture.	**High**
	▪ Liberal migration laws for people with professional skills.	**Low**
	▪ A tolerant culture open to new ideas.	**High**
	▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.	**High**
	▪ Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.	**Moderate**

6 INDICATORS THAT MEASURE THE QUALITY OF ECONOMIC DRIVERS

Previous sections (i.e. Section 4.4 and Chapter 5) have established a framework for approaching the drivers of economic competitiveness, and have documented those specific drivers in terms of the low risk business environment, low cost structure and quality access economic foundations.

This chapter lists indicators that help measure the current 'state of play' for each of the economic drivers. Commentary is provided where appropriate, noting that Appendix B lists the method of calculation, the data source and the regions used to contrast the performance of Melbourne, Victoria or Australia in the global economy. Also note that the Dept. of Infrastructure constrained its data gathering brief to only secondary.

6.1 Low Risk Business Environment Indicators

The following drivers form the basis for initial investment and operating decisions. They are a necessity for most types of enterprise regardless of their engagement with the global economy.

6.1.1 Stable government and judicial institutions

Indicators of this driver are:
- Political risk indices
- Country risk indices
- Bureaucracy indices
- Legal framework indices
- Credit ratings

Political and country risk assessments are likely to be prepared by specialist consulting firms, financial institutions or development agencies. However, it is unlikely that they would be published in a quantitative format that allowed ready comparison. One exception to this rule is the International Country Risk Guide (ICRG) (1999) which is cited in *Benchmarking Melbourne's Advantages*.

It is arguable that the credit ratings placed on central government borrowers and Government Business Enterprises by organisations such as Moodys, Standard and Poors, Dun and Bradstreet, The World Bank and the International Monetary Fund rate the stability of government. However, such credit ratings reflect a range of political, social and financial issues and are provided only to fee-paying clients.

6.1.2   Independent anti-corruption institutions

Indicators of this driver are:
- Corruption indices.
- The existence of anti – corruption institutions (i.e. yes or no).

It is feasible to determine if such institutions/ regulators exist in particular economies, but determining their effectiveness is another matter altogether.

6.1.3   Independent industry regulators

Indicators of this driver are:
- Cost per unit of industries prone to natural monopoly status, such as energy, water, transport and telecommunication infrastructure.
- The existence of industry regulators (i.e. yes or no).
- The existence of competition policy (i.e. yes or no).

See comments at section 6.1.2.

6.1.4   Stable financial markets with strong prudential regulation and transparent trading

Indicators of this driver are:
- Volatility levels in equity markets (i.e. share market indices).
- Volatility levels in debt markets (i.e. central bank 'prime' rates).
- Existence of financial regulators (i.e. yes or no).
- Liquidity risk indices.
- Average corporate credit rating (local companies only).
- Volatility of exchange rate.

Such indicators are unlikely to be available for economic regions within nations, and given the universality and ubiquity of today's capital markets those indicators are likely to be highly correlated.

6.1.5 Excellent civic, regional and national leadership

Indicators of this driver are:
▪ Not readily available.

However, indicators listed in section 6.1.1 might provide some insight into the leadership situation. Leadership also influences the capacity for economies to change, hence some of the drivers listed under 'quality access' are heavily influenced by quality leadership as they rely on visionary investments and actions e.g. high incidence of skill levels, quality education systems, risk taking, entrepreneurship, etc.

6.2   Low Cost Structure Indicators

Low cost structures allow economic agents to effectively organise production given an acceptable but uncontrollable risk environment. They ensure that the processed natural resources and traditional merchandise goods can be delivered to consumers efficiently enough to guarantee domestic market competitiveness.

6.2.1 Competitive market structures for service and material inputs

Indicators of this driver are:
▪ Gross operating surpluses of industry as a proportion of regional production.
▪ Proportion of competing imports to regional production.
▪ Proportion of regional exports to regional production.
▪ The existence and extent of World trade Organisation (WTO) sanctions.
▪ The existence and extent of import embargoes/ quotas.
▪ The existence and extent of import tariff structures.

Average gross and trading margins of firms are encapsulated in gross operating surplus figures, which are often published at the national level (Australian National Accounts), but unfortunately these surpluses are influenced by many other variables such as management ability, taxes and general economic conditions.

6.2.2   Flexible labour markets and industrial relations systems

Indicators of this driver are:
▪ Union membership rates of workforce.
▪ Number of production days lost to industrial disputes.
▪ Number of arbitered labour agreements.
▪ Mobility of labour.
▪ Labour force participation rate.
▪ Part time to full time employment ratio.
▪ Average income levels for particular occupation categories.

In delineating the range of occupation skills it might be useful to use Reich's (1992) conceptualisation of work in the global economy, which breaks global labour into three types: symbolic analysts; in-person service workers; and routine production workers (Text Box 3). O'Connor (1999) has initiated this process across Australian capital cities, however, international comparisons may be hampered by occupation classification inconsistencies and inadequacies.

Text Box 3:

Symbolic Analysts
High skilled information and knowledge workers which dominate value creation in the world economy. Jobs in finance, business services, design, information technology and research are included in this group. Also included would be certain classes of 'hi-touch' workers, artists, musicians, writers and other content producers. Symbolic analysts have high economic wealth, relative job security and good career prospects. These workers are increasingly 'footloose' at an international level; they have the ability to market themselves as independent enterprises working for a several clients and pursuing several careers simultaneously.

In-Person Service Workers
The symbolic analysts are driving demand for low skilled service work in hospitality, cleaning, security and entertainment. The in-person service workers support the lifestyles of the symbolic analysts. Relative to the symbolic analysts, workers in this group have low economic wealth, job insecurity and uncertain career prospects. These workers are also casualised in the sense that they may not have a permanent employer. However, they do not have the control and choices open to the symbolic analysts.

Routine Production Workers

These include factory workers and clerks who require a reasonable level of education but who are nonetheless vulnerable to job loss through automation, or job export to lower wage regions around the world. Routine production workers may well have (so called) permanent jobs and tend to be in highly unionised sectors.

6.2.3 "Natural monopoly" in energy generation, transmission and retailing reformed or regulated to produce competition like outcomes

A natural monopoly arises in a market where the costs of production are minimised when one firm supplies the market. This can arise when supply involves a capital intensive distribution system, such as for energy, telecommunications, transport and water. It can also arise when economies of scale are not fully utilised at the level of output that will be purchased by the market, such as for steel and certain specialised equipment.

In the case of utilities and transport which have traditionally been operated by government agencies but are now subject to contestability due to competition policies, the regulation of new structures should aim to ensure that economies of scale are maximised and duplication minimised. The success of that regulation will be reflected in the indicators in this and the two subsequent sections. On the whole these indicators measure the infrastructure network access charges, usage charges per unit of consumption and quality of service.

Indicators of this driver are:
- Price per kilowatt/hr.
- Price per megalitre of natural gas.
- Standard network connection fees.
- Network coverage (as a proportion of land space or population served).
- Number of competing providers.
- Service quality measured by response times for connection, reconnection, or repairs and maintenance.
- Service quality measured by the proportion of time not available, or proportion of time below 'normal' quality levels (eg. blackouts/brownouts/power surges).
- Number of blackouts/brownout/power surges p.a.

6.2.4 "Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes

Indicators of this driver are:
- Price per megalitre.
- Standard network connection fees.
- Network coverage (as a proportion of land space or population served).
- Number of competing providers.
- Service quality measured by response times for connection, reconnection, or repairs and maintenance.
- Service quality measured by the proportion of time not available, or proportion of time below 'normal' quality levels.
- Number of days water unavailable p.a.

6.2.5 "Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes

In the global economy 'connectivity' is crucial to success as it facilitates integration with other economic agents. Modern communications technologies utilise a range of media, but at this stage of development fixed handset and mobile telephones and Internet are dominant.

Indicators of this driver are:
- Fixed handset telephones per capita.
- Mobile telephones per capita.
- Internet connections per capita, including home and work connections.
- Charge per connection minute – international.
- Charge per connection minute – local.
- Charge per connection minute – Internet (standard).
- Proportion of land area or population serviced by broadband communications infrastructure.
- Average Internet download rates (in KB per second).
- ISP servicing rate per capita.
- Number of competing infrastructure providers.
- Service quality measured by response times for connection, reconnection, or repairs and maintenance.
- Percentage of total time networks unavailable or below normal' quality.

6.2.6 "Best practice" investment in and management of roads infrastructure

Investment in and management of road infrastructure ensures efficient travel times for commuters and freight movements.

Although it is arguable that the relative value of bulk merchandise goods and commodities have diminished in the global economy, efficient transport networks are still vital due to the increased emphasis placed on response times and the downward pressure on operational costs.

Indicators of this driver are:
- Journey to work travel times (peak and off-peak).
- Traffic density (No. of vehicles per km of road).
- Average intra-regional freight times.
- Average cost per tonne and/ or cubic metre by market destination.
- Number of road accidents per annum.
- Average vehicular speed.
- Proportion of road public transport versus private vehicles.
- Airport travel times*

(*Indicator also used to measure "best practice" investment and management of airports infrastructure).

6.2.7 "Best practice" investment in and management of rail infrastructure

Indicators of this driver are:
- Average cost of freight per km/tonne.
- Average cost per tonne and/ or cubic metre by market destination.
- Proportion of land area or population served by rail freight infrastructure.
- Average vehicular speed.
- Proportion of journeys to work by rail.
- Number of rail accidents per annum.

6.2.8 "Best practice" investment in and management of seaports infrastructure

A major seaport acts as a draw-card for industries that need to import and export bulky goods.

Indicators of this driver are:
- Tonnage capacity p.a. of port infrastructure.
- Container traffic p.a.
- Average sea freight costs per tonne and/ or per cubic metre by market destination.
- Average turnaround time for container ships.

6.2.9 "Best practice" investment and management of airports infrastructure

Indicators of this driver are:
- Flight capacity per 24 hour period.
- Number of international carriers.
- Airport travel times*
- Number of international airports within the region.
- Number of terminal gates.

(*This indicator is also used to measure the 'best practice" investment and management of road infrastructure).

6.2.10 High quality airline connectivity

High quality airline connectivity is important for connecting people to other regions for business with minimal ease, and for moving airline freight to different markets with ease.

Indicators of this driver are:
- Passenger traffic volumes p.a.
- Distance of airport from CBD (km).
- Travel times from CBD to Airport (minutes). This indicator should be compiled for both private and public transport.
- Number of airlines with direct international air links.
- Frequency of flights per week to major economic centres.
- Cost of travel to the airport by taxi.

6.2.11 Cost effective regulatory environment

The indicators included within this section may best be estimated using 'compliance' costs or total employee 'on-costs' but may also be well represented by the number of claims/ incidents per employee p.a.

Workers compensation
Indicators of this driver are:

- Estimated compliance costs per employee.
- Number of claims per employee p.a.
- Levy per employee p.a.

Occupational Health and Safety
Indicators of this are:
- Average number of days without accident.
- Number of workplace accidents pa.
- Estimated compliance costs per employee.

Corporate affairs and fair dealing
Indicators of this driver are:
- Not readily available.

6.2.12 World competitive company tax regime

Indicators of this driver are:
- Corporate tax rate.
- Existence and extent of indirect, sales, payroll taxes and other excises (i.e. complicity of taxation structure).
- Average administrative and compliance costs per business establishment p.a.
- Number of countries with complementary tax treaties.
- Existence of tax incentives.
- Hierarchy of personal income tax rates may also influence the attractiveness of locations from an employees perspective.

6.2.13 Well organised urban regions/settlement pattern for production logistics

The level and pattern of development activity in an urban region reflects the opportunities that exist for investment and the demand by users of property. However, specific property development indicators reflect broad assessments of the attractiveness of particular regions and are heavily influenced by macroeconomic variables.

More accurate measures of the quality of settle patterns may need to focus on the level of constraints to further development, be that more consolidated or fringe development.

Indicators of this driver are:
- Not readily available.

However, some insight might be gained from the indicators listed in sections 6.2.1, 6.2.6 and 6.2.7.

6.3   Quality Access Indicators

Quality access indictors measure the capacity of an economy to engender change, to be flexible and to exploit opportunity. They relate predominantly to competitiveness in non-traditional industries (i.e. in the new economy) and the ability of traditional industries to rewrite their operating paradigms.

6.3.1   High incidence of scientific skills in the labour force

Indicators of this are:
- Proportion of workforce holding graduate and post graduate engineering and science degrees.

6.3.2   High incidence of other professional skills in the labour force

Once again Reich's conceptualisation of symbolic analysts may be appropriate (Text Box 3).

Indicators of this driver are:
- Proportion of workforce with tertiary or higher degrees.
- Proportion of workforce in 'symbolic analyst' occupations.
- Within the confines of Australia, proportion of workforce in management and administration, professional and para-professional occupations.
- Number of corporate headquarters locating within the region.

6.3.3   Secure supply of technical/trade skills

Indicators of this driver are:
- Proportion of population with trade qualifications.
- Proportion of workforce employed as 'routine production workers'.
- Within the confines of Australia, proportion of workforce in trade and related occupations.
- Proportion of population currently enrolled in technical or trade institutions.

6.3.4 A high quality University system

Indicators of this driver are:
- Enrolment rate in higher education.
- Proportion of international students to local students enrolled in higher education.
- Number of PhDs awarded p.a.
- Average ratio of students to lecturers in higher education institutions.
- Public expenditure per capita on higher education institutions.
- Number of universities within the region.

6.3.5 A high quality school education system

Indicators of this driver are:
- Literacy rates per capita.
- Public expenditure on primary and secondary education per capita.
- Primary school enrolment ratios.
- Secondary school enrolment ratios.
- Average years of schooling.

6.3.6 A pervasive R&D culture

Innovation and commercialisation capacities are increasingly major sources of competitive advantage in economies, as they challenge and sometimes replace existing industry paradigms that govern overall performance. The City of Melbourne (1998) has proclaimed its view by stating:

"The most prosperous cities, regions, and nations will be those that go beyond their 'natural' advantage and seek 'creative' advantage"

Indicators of this driver are:
- Within Australia, share of Large Grants Research Funding from Australian Research Council (ARC).
- R&D expenditure by business sector as a proportion of gross regional product (GRP).
- Patent registrations per capita p.a.
- Proportion of university research directly funded by the private sector.
- Innovation indices.

- The existence and extent of patent, copyright and other intellectual property protection*

(*This indicator is also used to measure 'entrepreneurial and risk taking culture').

6.3.7   An entrepreneurial and risk taking culture

An entrepreneur is defined as an economic agent who perceives market opportunities and assembles the factors of production to exploit them in a firm (Bannock, Baxter and Davis, 1992).

Section 3.2 (and 4.4) implicitly includes entrepreneurship and risk taking as a determinant of economic performance, as those 'cultures' are necessary for economic agents to identify new opportunities and take action to exploit them prior to their exploitation by another agent. Although the economic environment benefits in the longer term from entrenched innovation and adaptability, often risk must be assumed in the shorter term.

Indicators of this driver are:
- Innovation expenditure per business establishment.
- Proportion of businesses undertaking technological innovation.
- Number of venture capital investments made p.a.
- Quantum of venture capital investments made p.a.
- Number of venture capital investors located in the region.
- Bankruptcy rate per business establishment.
- Number of business 'start ups' per capita p.a.
- The existence and extent of patent, copyright and other intellectual property protection*.

(*This indicator was also used to proxy for 'a pervasive R&D culture).

6.3.8   Liberal migration laws for people with professional skills

Indicators of this driver are:
- Average skill levels of new migrants.
- Current migration rates.
- The existence of business migration programs (i.e. yes or no).

6.3.9   A tolerant culture open to new ideas

Indicators of this driver are:
- Ethnicity of population.
- Rates of fluency in non-English languages.
- Number of major Arts events/ activities.

Text Box 4:

Professor Peter Dawkins from the Institute of Applied Economic and Social Research compared the attitudes and values of Melbourne residents with residents of 17 other cities in Australia and throughout the world, using the results of a 1995-96 social science survey.

One of the major themes of the survey was the residents' acceptance of immigrants. He found that Melbourne was significantly more open to accepting those from overseas, other religions and non-English speaking persons than most cities in the survey.

6.4   Liveable cities and regions with the capacity to attract and hold a highly skilled workforce

A region's ability to attract and hold a highly skilled workforce depends on the liveability of the region and the quality of life derived from residing there.

Indicators of this are:
- Quality of life indices, which might measure generally accepted elements of quality such as climate, health levels, cultural diversity, accessibility of goods and services, the strength of social networks, housing standards, education levels, personal security, natural environment amenity, and extent of isolation.
- Average income levels.
- Polarisation of income levels.
- Cost of living estimates.
- Domestic purchasing power.
- Rates of reported crime.
- Life expectancy.
- Number of hospital beds per capita.
- Climatic indicators such as annual days 'sunny' and average temperature by season.
- Number of cultural events p.a.

6.5 Presence of globally recognised business clusters

Michael Porter (1990) received great attention for his treatise[3] which argued that a region's economic competitiveness is determined by the inter-relationships within and between a number of variables (see Porter's diamond in section 4.1). He argued further that where the inter-relationships were mutually supportive clusters of competitive industries drove growth and prosperity.

In a study conducted by the U S Department of Housing and Urban Development (1996) eighteen major cluster categories were identified in the US economy contributing 54 per cent of employment. In a prior study conducted by DRW/McGraw Hill, 350 individual clusters accounted for 57 percent of employment, 62 percent of output, and 78 percent of exports (cited in Williams (1996)). Both of these studies add weight to Porter's summation that clusters drive economic performance and are underwritten by the drivers specified in his diamond.

Unfortunately clusters cannot be readily identified using employment concentrations, the only official statistics readily available, as the linkages within and between various economic sectors are fundamental to their performance. For instance, one of Silicon's Valley greatest attribute as a IT cluster is its availability of venture capital, its level of knowledge diffusion between economic agents and its entrepreneurial drive.

Indicators of these drivers are:
- Specialisation rates of industries.
- Strength of relationships between industry value chain members.
- Export earnings per capita.
- Value added per capita.

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[3] Porter, M.E. (1990) *The Competitive Advantage of Nations*, The Macmillan Press, London.

7 COMPETITIVE STRENGTHS AND WEAKNESSES OF MELBOURNE'S REGIONAL ECONOMY

7.1 The Geography of Comparable Regions

Prior to examining the relative position that Melbourne sits in relation to other economic regions, it is important to note that the rationale by which the comparative regions are chosen.

In theory, there are numerous ways of viewing the urban (or economic) hierarchy in the global economy. One of the most accepted theories describes the emergence of world cities as effective 'control centres' for the global network of capital flows (economic, human and cultural) that sustain the economy. These sites house most of the leading financial markets, NGOs and IGOs, transnational corporate headquarters, media organisations and advanced business services.

Within this context, second tier cities link into the global economy via world cities and via their trading relationships with other second and third tier cities. Second tier cities often house 'specialist' firms that have over the preceding decades clustered together to give power in specific industries. Thus, second tier cities are often world class centres of excellence (e.g. Silicon Valley) in specific areas of industrial expertise. Second tier cities also form the economic focus of their surrounding hinterland which is often significant in national terms.

Third tier cities and then regional centres feed off specific supply and demand relationships with their 'superior' cities, forming the lower levels in this hierarchy or network of economic strength.

However, within such theory there exists considerable 'grey' area in what delineates world from second tier cities, and in turn, second and third tier cities from their respective subordinates. Those grey areas concern the connectivity of the city, be that through information, goods or people movements, the human capital encapsulated in the area, levels of international migration, and importantly, the economic power and foci of the city.

Sydney's position within world city parameters is debatable, suggesting that Melbourne could well be placed as either a second or

third tier city. That makes it difficult to accurately compile a list of comparable cities to benchmark Melbourne against. And this dilemma takes no account of the ability, whether that is realistic or not, of Melbourne to eventually position itself as a world city.

In practice, there have been a number of perspectives from which comparable cities to Melbourne have been framed. Underpinning all such perspectives has been a 'consensual' not rigorously 'scientific' selection criterion.

The first, undertaken by the City of Melbourne in a series of workshops, nominated cities that were
▪ subordinate to national capitals (in Australia's case – Sydney);
▪ similar in population size;
▪ similar in terms of historic development (i.e. manufacturing/port cities with relatively open trading relationships); and
▪ either a competitor for, or a source of, investment.

Cities identified using this and subsequent processes are listed in Table 7.1 (overleaf). The City of Melbourne also listed a number of other cities useful for benchmarking due to their excellence in particular fields. These included: Glasgow (culture); Helsinki (culture); London (world); New York (world); Paris (world); and Tokyo (world).

The perspective adopted by The Queensland Government, the Property Council of Australia and Telstra was similarly consensual in nature. It basically viewed Australia as an attractive location for global companies' regional headquarters, servicing Asia Pacific. Thus, the cities nominated where seen to be competitors in that investment market.

Business Victoria has undertaken two benchmarking studies. Their first – *Advantage Melbourne* – gives no rationale for their choice of comparative cities. Their second cites 'relevant cluster metrics' as the key selection criterion. Although there is little supporting commentary, it has been confirmed[4] that the comparative locations were chosen because of their apparent strength in industries which Melbourne could potentially be globally competitive in. These industries or functions included regional headquarters/ shared services; multimedia, IT and telecommunications; R&D; biotechnology/ pharmaceuticals; advanced manufacturing; resource intensive (based) industries; and food processing and beverages.

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[4] Barry Ferguson DSRD

*Table 7.1: **Comparative cities used in previous benchmarking studies**.*

City of Melbourne	Qld Government, Property Council of Australia and Telstra)	Business Victoria *(Advantage Melbourne)*	Business Victoria *(Benchmarking Melbourne's Advantages)*
▪ Bangkok ▪ Barcelona ▪ Boston ▪ Brisbane ▪ Copenhagen ▪ Hamburg ▪ Kuala Lumpur ▪ Manchester ▪ Milan ▪ Montreal ▪ Osaka-Kobe ▪ San Francisco ▪ Santiago ▪ Seattle-Tacoma ▪ Singapore ▪ Sydney ▪ Tianjin ▪ Toronto.	▪ Adelaide ▪ Brisbane ▪ Dublin ▪ Hobart ▪ Hong Kong ▪ Los Angeles ▪ Malaysia ▪ Manila ▪ Mumbai ▪ New York ▪ Perth ▪ Singapore ▪ Sydney ▪ Taipei ▪ Tokyo	▪ Auckland ▪ Bangkok ▪ Brisbane ▪ Guangzhou ▪ Hong Kong ▪ Jakarta ▪ Kuala Lumpur ▪ Los Angeles ▪ Osaka ▪ Shanghai ▪ Singapore ▪ Stuttgart ▪ Sydney	▪ Bangalore ▪ Bangkok ▪ Berlin ▪ Boston ▪ Chicago ▪ Dublin ▪ Hong Kong ▪ Jakarta ▪ Kuala Lumpur ▪ London ▪ Manila ▪ Osaka ▪ San Francisco ▪ Seoul ▪ Singapore ▪ Stuttgart ▪ Tel Aviv

7.2   Melbourne's Position

Appendix C and D score the relative competitiveness of Melbourne when compared to other economic regions. Unfortunately, not all the indicators of competitiveness are available at the metropolitan level. This is caused primarily by data inadequacies and the over-riding institutional frameworks impacting on the competitiveness drivers that nationally or state based.

Consequently, it is often impossible to directly compare Melbourne's economic region with that of other competing economic regions. In such circumstances country to country comparisons form the bulk of available information This is particularly the case for the following drivers:

▪ Stable government and judicial institutions;
▪ Stable financial markets with strong prudential regulation and transparent trading;
▪ Flexible labour markets and industrial relations systems;

- World competitive company tax regime; and
- Liberal migration laws for people with professional skills.

In other circumstances the published information is inconsistent when contrasting Melbourne against competing regions. This stems from the different underlying purposes for the initial data collection. Sometimes states are used, sometimes countries, and sometimes specific domestic and international cities. This comparative inconsistency combined with the outright 'lack of information' concerning some drivers makes it difficult to assess the intensity of relative strength or weakness.

Noting this, Table 7.2 (overleaf) ranks Melbourne for each driver as an obvious strength, a likely strength, as neither a strength nor weakness (i.e. as average), or as an obvious or likely weakness. Where the data gaps are too large to make an assessment that is indicated.

7.2.1 Melbourne's Strengths

Melbourne has a number of potential strengths but only four drivers of those have been ranked as 'obvious strengths', with the rest ranked as 'likely strengths'. This is primarily due to the lack of international data which might support Melbourne's superior position over the domestic capitals at an international level.

The obvious strengths from an international perspective include Melbourne (and Australia's):

- Stable government and judicial institutions;
- Independent anti-corruption institutions based on the corruption index. Note that the existence and, more importantly, the effectiveness of anti-corruption institutions are difficult to ascertain;
- High incidence of scientific skills in the labour force; and
- High incidence of other professional skills in the labour force.

The likely strengths Melbourne has a region competing in the global economy include its:

- Independent industry regulators, which have ensured competitive pricing of utilities and which enforce competition and trade practices legislation;
- Reformed natural monopoly in energy, water and sewerage systems, rating well in terms of unit cost but which go largely un-scored in terms of service availability and quality;

- ▪ Reformed natural monopoly in telecommunications, with the availability and cost of services consistently scoring better than average;

*Table 7.2: **Melbourne's Competitive Strengths and Weaknesses***

Economic Driver	Obvious Strength	Likely Strength	Neither Strength nor Weakness	Likely Weakness	Obvious Weakness	Data gap
▪ Stable government and judicial institutions.	✔					
▪ Independent anti-corruption institutions.	✔					
▪ Independent industry regulators		✓				✔
▪ Stable financial markets with strong prudential regulation and transparent trading.			✓			✔
▪ Excellent civic, regional and national leadership.						✔
▪ Competitive market structures for service and material inputs.						✔
▪ Flexible labour markets and industrial relations system.						✔
▪ "Natural monopoly" in energy generation, transmission and retailing reformed or regulated to produce competition like outcomes.		✓				✔
▪ "Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes.		✓				✔
▪ "Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes.		✔				
▪ "Best practice" investment in and management of roads infrastructure.			✓			✔
▪ "Best practice" investment in and management of rail freight infrastructure.						✔
▪ "Best practice" investment in and management of seaports infrastructure.		✔				
▪ "Best practice" investment in and management of airports infrastructure.			✔			
▪ High quality airline connectivity.			✔			
▪ Cost effective regulatory environment.						✔
▪ World competitive company tax regime.			✔			
▪ Well organised urban regions/settlement pattern for production logistics.						✔
▪ High incidence of scientific skills in the labour force.	✔					
▪ High incidence of other professional skills in the labour force.	✔					
▪ Secure supply of technical/trade skills.		✔				
▪ A high quality university system.		✓				✔
▪ A high quality school education system.			✔			
▪ A pervasive R&D culture.		✓				✔
▪ An entrepreneurial and risk taking culture.				✓		✔
▪ Liberal migration laws for people with professional skills.						✔
▪ A tolerant culture open to new ideas.			✓			✔
▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.		✔				
▪ Presence of globally recognised business clusters.				✓		✔

- Best practice investment in the management of seaports infrastructure, when interstate comparisons of freight movements and capacities and international freight costs are cited;
- Secure supply of technical trade and skills, at least from an interstate point of view, but this may require adjustment after viewing international data;
- A high quality university system, if that can be measured in terms of enrolment rates and institutional availability;
- Protection offered to IP creators via patent, copyright and other protection, which is further boosted by Melbourne's competitive position in terms of interstate R&D and innovation expenditure comparison; and
- Liveability as a city, scoring well in quality of life and domestic purchasing power indices, though these measures obviously exclude the non-financial elements of liveability.

7.2.2 Melbourne's Weaknesses

There is no obvious weaknesses shown in the data available. This might be influenced by the promotional nature of the documentation containing the data. It might also stem from the significant data gaps uncovered.

Noting this, it is reasonable to conclude that Melbourne has likely weaknesses in at least the following areas:

- An entrepreneurial and risk taking culture, with Australian business consistently highlighting the difficulty in attracting seed and development capital; and
- Presence of globally recognised business clusters, with prior experience suggesting that firms located within Melbourne have poorly developed collaborative links with their local value chain members when compared to various international locations. This general lack of collaboration possibly influences the 'commercialisation' of R&D and innovation expenditure, the level of private sector leadership and the competitiveness of service and material input markets all of which suffer from data gaps.

7.3 Identified Data Gaps

Major data gaps have emerged in the analysis. They relate specifically to the:

- Existence and effectiveness of anti-corruption institutions and industry regulators, especially in international locations;
- Stability of financial markets, noting that markets are globally integrated and thus volatility levels are highly correlated;
- Quality of civic, regional and national leadership;
- Competitiveness of market structures for service and material inputs;
- Flexibility of labour markets;
- Service quality, network connection fees and network coverage of energy, water and sewerage systems;
- Effectiveness of road and rail transport systems;
- Cost effectiveness of regulatory requirements imposed on business[5];
- Quality of organisation of settlement patterns from a production/logistic perspective;
- Quality of education systems and their output;
- Availability of private funds to support R&D, innovation, entrepreneurship and risk taking; and
- Presence of globally recognised business clusters. Although substantial work has been done in terms of identifying concentrations of industries little exists regarding the containment of value chain members within the regional economy and the relationships between those entities.

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[5] Limited information exists concerning the workers compensation, OH&S and corporate affairs and fair dealing environments between Australian State capitals, and no information is readily available with respect to international locations. However, the labour 'on-costs' measure recorded in *Advantage Melbourne* considers payroll tax, workers injury insurance, holiday pay loading, employer superannuation contributions, training levies and other miscellaneous labour costs to the employer, suggesting that Melbourne is about average in competitiveness.

8 THE INFLUENCE OF URBAN POLICY

8.1   Scope of Urban Policy & Metropolitan Strategy

Because most endeavours in public policy become evident in some way within the built environment or the geography of economic activity, there is a temptation to construe 'urban planning policy' as having a very wide mandate. Taking this view, it could be argued that the policy levers within the 'urban planning portfolio' extend to such matters as education and training programs, housing assistance, arts and cultural development and even micro-economic reform initiatives such as the restructuring of the utilities sector.

However, for the purposes of this study, a more conventional definition of the scope of planning policy has been adopted. The focus here is on those policy instruments which directly influence settlement patterns, embracing such issues as the form and density of development, the hierarchy of activity centres, the means of interaction between land uses and the management of impacts on sensitive environments.

8.2   Planning Policy and Competitiveness

While there is a growing body of literature on the general connections between urban management and national prosperity (see, for example, Property Council of Australia & Council of Capital City Lord Mayors, 2000), we have not been able to source any texts which explore the influence of *specific* planning levers on *particular* drivers of economic competitiveness as defined in this report. The discussion in this section is therefore based on a first principles analysis (and is demanding of empirical testing requiring resources beyond those available to the current study).

Table 8.1, commencing overleaf, provides an assessment of the influence which urban policy and metropolitan strategy in particular might have on the various drivers of competitiveness discussed in Chapter 5. This assessment involves three ratings. Where adequate performance in respect of a nominated driver cannot be achieved without effective planning policy, the influence of the latter has been

rated as *'critical'*, notwithstanding that a range of other policy ingredients need to be in place.

A rating of *'secondary'* has been used to describe those situations where planning policy can make a substantial and sometimes strategic contribution, but where it cannot be deemed to be a *necessary* condition for success.

Planning policy has been dubbed *'supportive'* in those areas where linkages to competitive performance are more diffuse and indirect.

Qualitative analysis on this basis suggests that urban policy – narrowly defined – has an important part to play in regional economic competitiveness. Planning measures have a critical or secondary role in 8 of the 30 nominated drivers. When its supportive role is included, urban policy could be claimed to influence more than half of the drivers.

Perhaps of greater importance is an assessment of the role of planning policy in building robust competitive advantage. Of the 11 drivers in which are adjudged to have high robustness as competitive advantages (see Section 5.2 for discussion), planning policies can be seen to play a critical, secondary or supportive role in 7 - see Table 8.1. This is not surprising. It reflects the fact that urban policy generally deals in locationally specific factors, in entities which generally take a long time to reshape or redirect (eg metropolitan areas in advanced countries) and environmental attributes which can have a major bearing on quality of life and the ability to attract and retain skills.

Table 8.1: Competitiveness and Planning Policy.

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage	Influence of urban planning policy/ metropolitan strategy	Relevant Levers
(a) Low Risk Business Environment	Stable government and judicial institutions.	**Moderate**		
	Independent anti-corruption institutions.	**Moderate**		
	Independent industry regulators (e.g. telecommunications, media, infrastructure, etc.)	**Moderate**		
	Stable financial markets with strong prudential regulation and transparent trading.	**Moderate**		
	Excellent civic, regional and national leadership.	**Moderate**	**Supportive**	Overarching planning legislation facilitating community involvement in strategic planning and clear partnerships between the spheres of government.
(b) Low Cost Structures	Competitive market structures for service and material inputs.	**Moderate**		

Table 8.1: Continued

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage	Influence of urban planning policy/ metropolitan strategy	Relevant Levers
(b) Low Cost Structures (Continued)	▪ Flexible labour markets and industrial relations system.	**Moderate**	**Supportive**	▪ Public transport strategies ▪ Activity centre policy ▪ Transportation pricing policy
	▪ "Natural monopoly" in electricity generation, transmission and retailing reformed or regulated to produce competition like outcomes.	**Low**	**Supportive**	▪ Infrastructure co-ordination systems and land release strategies. ▪ Development standards (to facilitate efficient cable roll out).
	▪ "Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes.	**Low**	**Supportive**	▪ Infrastructure co-ordination systems and land release strategies. ▪ Catchment protection policy ▪ Development standards (to facilitate efficient roll out and maintenance of reticulated infrastructure).
	▪ "Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes.	**Moderate**	**Supportive**	▪ Infrastructure co-ordination systems and land release strategies. ▪ Development standards (to facilitate efficient cable roll out).

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage	Influence of urban planning policy/ metropolitan strategy	Relevant Levers
(b) Low Cost Structures (Continued)	▪ "Best practice" investment in and management of roads infrastructure.	**High**	**Critical**	▪ Public transport strategies ▪ Road network planning reservation of rights of way. ▪ Activity centre policy ▪ Transportation pricing policy ▪ Parking policies
	▪ "Best practice" investment in and management of rail freight infrastructure.	**Low**	**Secondary**	▪ Activity centre policy ▪ Employment zone policy and standards
	▪ "Best practice" investment in and management of seaports infrastructure.	**Low**	**Secondary**	▪ Activity centre policy ▪ Employment zone policy and standards
	▪ "Best practice" investment in and management of airports infrastructure.	**High**	**Critical**	▪ Strategic reservation of airport sites. ▪ Activity centres policy ▪ Employment zone policy and standards
	▪ High quality airline connectivity.	**Moderate**		
	▪ Cost effective regulatory environment	**Moderate**	**Critical**	▪ Overarching legislation regarding land us 'licensing', including
	▪ World competitive company tax regime	**Low**		

Table 8.1: Continued

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage	Influence of urban planning policy/ metropolitan strategy	Relevant Levers
(b) Low Cost Structures (Continued)	▪ Well organised urban regions/settlement pattern for production logistics.	**High**	**Critical**	▪ Metropolitan form and density ▪ Activity centre policy ▪ Public transport strategies ▪ Road network planning ▪ Transportation pricing policies
(c) Quality Access	▪ High incidence of scientific skills in the labour force.	**High**	**Supportive**	▪ Policies to enhance 'urban quality' residential planning standards heritage conservation activity centre policy (especially vibrancy of metropolitan central activities district) commuter / business integration with regional centres (maximising lifestyle choices) urban design policies and conventions
	▪ High incidence of other professional skills in the labour force.	**High**	**Supportive**	▪ Policies to enhance 'urban quality' (see above)
	▪ Secure supply of technical/trade skills.	**Moderate**	**Supportive**	▪ Policies to enhance 'urban quality' (see above)
	▪ A high quality university system.	**High**		

Table 8.1: Continued

Regime of Competitiveness	Economic Driver	Potential for robust competitive advantage	Influence of urban planning policy/ metropolitan strategy	Relevant Levers
(c) *Quality Access* (*Continued*)	▪ A high quality school education system.	**High**		
	▪ A pervasive R&D culture.	**High**		
	▪ An entrepreneurial and risk taking culture.	**High**		
	▪ Liberal migration laws for people with professional skills.	**Low**		
	▪ A tolerant culture open to new ideas.	**High**	**Supportive**	▪ Policies to enhance 'urban quality' (see above)
	▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.	**High**	**Critical**	▪ Policies to enhance 'urban quality' (see above)
	▪ Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.	**Moderate**	**Secondary**	▪ Activity centre policy ▪ Employment zone policy and development standards

8.3   Priority Areas in Planning Policy

By relating the types of planning policy levers relevant to each driver of competitiveness to the robustness of the drivers, it is possible to set priorities on policy development effort within urban planning and metropolitan strategy formulation.

Generally speaking, the policy levers which are most relevant to drivers with a high degree of robustness are:

- Policies to enhance *'urban quality'* for example:
    - Road network planning;
    - Activity centres policy;
    - Employment zone policy and standards; and
    - Airports policy.

Planning policy initiatives in the following areas are undoubtedly important, but they cannot be expected to yield sustainable advantage from a regional economic development point of view.

- Overarching planning legislation facilitating clear partnerships between the spheres of government
- Land use 'licensing', including transparent and accountable administrative review processes
- Planning scheme structure and legibility.
- Infrastructure co-ordination and land release systems.

9 RECOMMENDATIONS

9.1 Ground-truthing Competitiveness

It is recommended that the drivers of economic competitiveness be 'bounced off' corporate leaders in Melbourne to ensure their accuracy and concision. Presentation of the study findings to an invited room of corporate leaders would most likely be the best means for achieving this. Such a presentation may also lift private/ public ownership of specific projects which boost specific drivers of competitiveness.

9.2 Monitoring Competitiveness

Numerous studies benchmarking Melbourne's competitiveness with respect to certain economic drivers have been completed. Though these may have been initiated for different purposes there is certainly a common interest in the results from numerous public sector organisations, including the Dept. of Infrastructure, the Dept. of State and Regional Development and the City of Melbourne not to mention other State Capital based Governments.

Alternatively, it may be appropriate for a national body such as the Council of Capital City Lord Mayors to establish a common framework for undertaking further benchmarking studies. Such a national focus will allow common economic foundations to be researched more efficiently and may promote sufficient resource allocation to remedy the numerous data gaps discovered during this study.

9.3 Implications for Planning Policy

This study has not been directed at developing specific planning policies to promote Melbourne's and Victoria's competitiveness. However, as illustrated in the foregoing Chapter, it provides a conceptual framework for rating the contributions which different types of planning policies might make in building a prosperous State.

In particular, the study has identified where planning policy can contribute to long lived competitive advantage. Some examples of specific initiatives which, prima facie, could have such an effect are

indicated in the table below. It should be noted that the listed
initiatives are illustrative rather than exhaustive of the possibilities.

Priority field of planning policy	*Possible initiatives*
Urban quality	▪ Expand Victoria's lifestyle 'offer' through better integration of key regional centres within metropolitan Melbourne. Fast train links and telecommunications infrastructure have a vital role to play, but should be matched by policies to preserve landscape and environmental quality in the regions. ▪ Retain a strong emphasis on capital city policy, continuing to invest in down town cultural, educational, entertainment and sporting infrastructure. Improve regional access to the City, rather than spread available investment and risk losing critical mass. ▪ Substantially increase resources for urban design 'consciousness raising', to build a metropolitan wide reputation for quality design and living.
Public transport strategies	▪ Address key system gaps and deficiencies- e.g. City Loop capacity constraints, CBD - airport rail link. ▪ Consider deployment notional car parking contributions for public transport enhancement.
Road network planning	▪ Develop shadow tolling policies and strategies to maintain private sector interest in arterial road investment. ▪ Re-examine the feasibility and utility of more generic tolling of key arterial roads or 'cordon pricing'.
Activities centres policy	▪ Retain and renew policy for a limited number of major centres in Melbourne's suburbs and regional Victoria - principally to provide the urban quality to support advance business service formation.
Employment zone policy	▪ Abandon official distinctions between various forms of industry (with the possible exception of 'Hazardous'), in favour of more generic employment zones providing for a mix of uses, including residential, retail and entertainment, linked to the onsite employment or production processes. Focus on design quality and environmental performance standards in regulating land use - as opposed to arbitrary land use categories.
Airports policy	▪ Resolve the site for Melbourne's second international airport. ▪ Develop a specific economic development strategy for the CBD - Airport corridor.

10 BIBLIOGRAPHY

Bannock, G., Baxter, R.E., and Evans E. (1992) '*Dictionary of Economics*', Fifth Edition, Penguin Books Ltd, England.

Brain, P. (1999), '*The Factors and Outcomes Driving Metropolitan Development Over The Next Quarter Century*', conference paper Future Cities Conference Paper Melbourne Town Hall and Hotel Sofitel, 19-20 October 1999.

Brotchie, J., Batty, M., Blakely, E., Hall, P. and Newton, P., (1995) '*Cities in Competition: productive and sustainable cities for the 21st century*', Longman Australia, Melbourne.

BusinessLINC, (1998), *Business-to Business Relationships that Increase the Economic Competitiveness of Firms,* Report to Vice President Al Gore, Presented at the Second White House Business and Entrepreneurial Roundtable : New Opportunity, A Stronger Economy.

City of Melbourne, (1998), '*Benchmarking Cities '98: Conference Papers*', Prepared for the City of Melbourne Research Conference.

City of Melbourne, (1998), '*Benchmarking Melbourne Urban Indicators: Status Report*'.

City of Melbourne, (1999), '*Future Cities: Conference Papers*', Prepared for City of Melbourne Research Conference.

DRW/McGraw Hill (cited in Williams, I.F. (1996) '*Networks, Clusters and Export Development - A New Zealand Perspective*', Firm Connections.

Human Development Index 1997 and 1998, www.undp.org

IMD (1998) '*The World Competitiveness Yearbook*', International Institute for Management Development, Lausanne, Switzerland.

Lepani, B, Freed, G, Murphy, P and McGillivray, A, (1995), '*The Economic Role of Cities: Australia in the Global Economy*', Australian Government Publishing Service, Canberra.

Lindfield, M. and Clark, L. (2000) '*Smart Infrastructure and the Globalisation of Production*' unpublished report prepared by Australian Housing and Urban Research Institute.

Moore, J.F. (1997), *The Death of Competition - Leadership and Strategy in the Age of Business Ecosystems*, HarperBusiness, New York.

O'Connor, K, and Stimson, R, (1995), '*The Economic Role of Cities: Economic Change and City Development, Australia 1971-1991'*, Australian Government Publishing Service, Canberra.

O'Connor, K., (1999) '*Economic and Social Change and the Futures of Australian Metropolitan Areas'* conference paper Future Cities Conference Paper Melbourne Town Hall and Hotel Sofitel, 19-20 October 1999.

Porter, M.E. (1998) *Clusters and The New Economics of Competition*, Harvard Business Review, November-December.

Porter, Michael, E, (1990), '*The Competitive Advantage of Nations'*, The Macmillan Press, London.

Property Council of Australia and Council of Capital City Lord Mayors (2000), *The Capital Cities and Australia's Future.*

Queensland Dept. of State Development, Property Council of Australia and Telstra, (1999) '*Benchmarking Queensland as an Investment Location in the Asia Pacific Region, Volumes One and Two*'.

Reich, R.B. (1992) *The Work of Nations – preparing ourselves for 21st century capitalism,* Vintage Books.

Roberts, B.H., (1997) *Inventing a Future for Regions: New Frameworks for Regional Economic Development Planning*, Western Regional Science Association Annual Conference, Waikola Resort, Hawaii, 23 – 27 February.

Spiller Gibbins Swan Pty Ltd (2000), '*A New Partnership: The Capital City and regional Victoria'* report to City of Melbourne..

Spiller Gibbins Swan Pty Ltd (1998), '*A Strategic Business Plan for 'Thinking Melbourne'.*

The Economist (1998) *Meet the Global factory: A survey of manufacturing*, June 20th.

U.S. Department of Housing and Urban Development (1996) '*America's New Economy and the Challenge of Cities – A HUD Report on Metropolitan Economic Strategy'*.

White, D., Bagai, M. and Everingham, B. (1999), '*Enterprise creation is imperative to success*', Australian Financial Review, August 20.

11   APPENDIX A – JOB STOCK CHANGES IN MELBOURNE, SYDNEY AND BRISBANE

The six geographic areas subject to the analysis are defined as follows.

❑ *Greater Melbourne* = Melbourne Statistical Division.
❑ *Inner Melbourne* = former municipalities of Melbourne, Fitzroy, Collingwood, Richmond, Prahran, St. Kilda, South Melbourne and Port Melbourne.
❑ *Greater Sydney* = Sydney Statistical Division.
❑ *Inner Sydney* = municipalities of Sydney, South Sydney, Woollahra, Leichhardt, North Sydney and Mosman.
❑ *Greater Brisbane* = Brisbane Statistical Division.
❑ *Inner Brisbane* = Brisbane City Inner Ring-City Core, that is, suburbs of Bowen Hills, Brisbane City, Dutton Park, Fortitude Valley, Herston, Highgate Hill, Kangaroo Point, Kelvin Grove, Milton, New Farm, Newstead, Paddington, Red Hill, South Brisbane, Spring Hill, West End and Woolloongabba.

These areas are shown indicatively in Figure A1 overleaf. The maps show metropolitan boundaries at 1996.

Table A1 shows that job stock in the greater metropolitan areas of Melbourne, Sydney and Brisbane increased significantly in the ten years to 1996. However, Inner Melbourne's job stock increased marginally between 1986 and 1996, in contrast to the inner regions of Brisbane and Sydney which experienced strong job growth.

Table A1: ***Overview of Job Stock***

Number of Jobs in Selected Areas, 1986 - 1996

	1986	1996	No.	Change %	Annual Ave.
Melbourne Inner	360,932	361,869	937	0.3%	0.0%
Sydney Inner	382,126	401,655	19,529	5.1%	0.5%
Brisbane Inner	136,681	172,305	35,624	26.1%	2.3%
Greater Melbourne	1,065,894	1,253,938	188,044	17.6%	1.6%
Greater Sydney	1,253,306	1,511,454	258,148	20.6%	1.9%
Greater Brisbane	406,094	601,912	195,818	48.2%	4.0%

Source: Australian Bureau of Statistics 1986 and 1996 Census of Population and Housing, Industry by Work Destination.

Figure A1: **The Eastern Seaboard Capitals and their Inner Areas**

GREATER MELBOURNE

INNER MELBOURNE

GREATER SYDNEY

INNER SYDNEY

GREATER BRISBANE
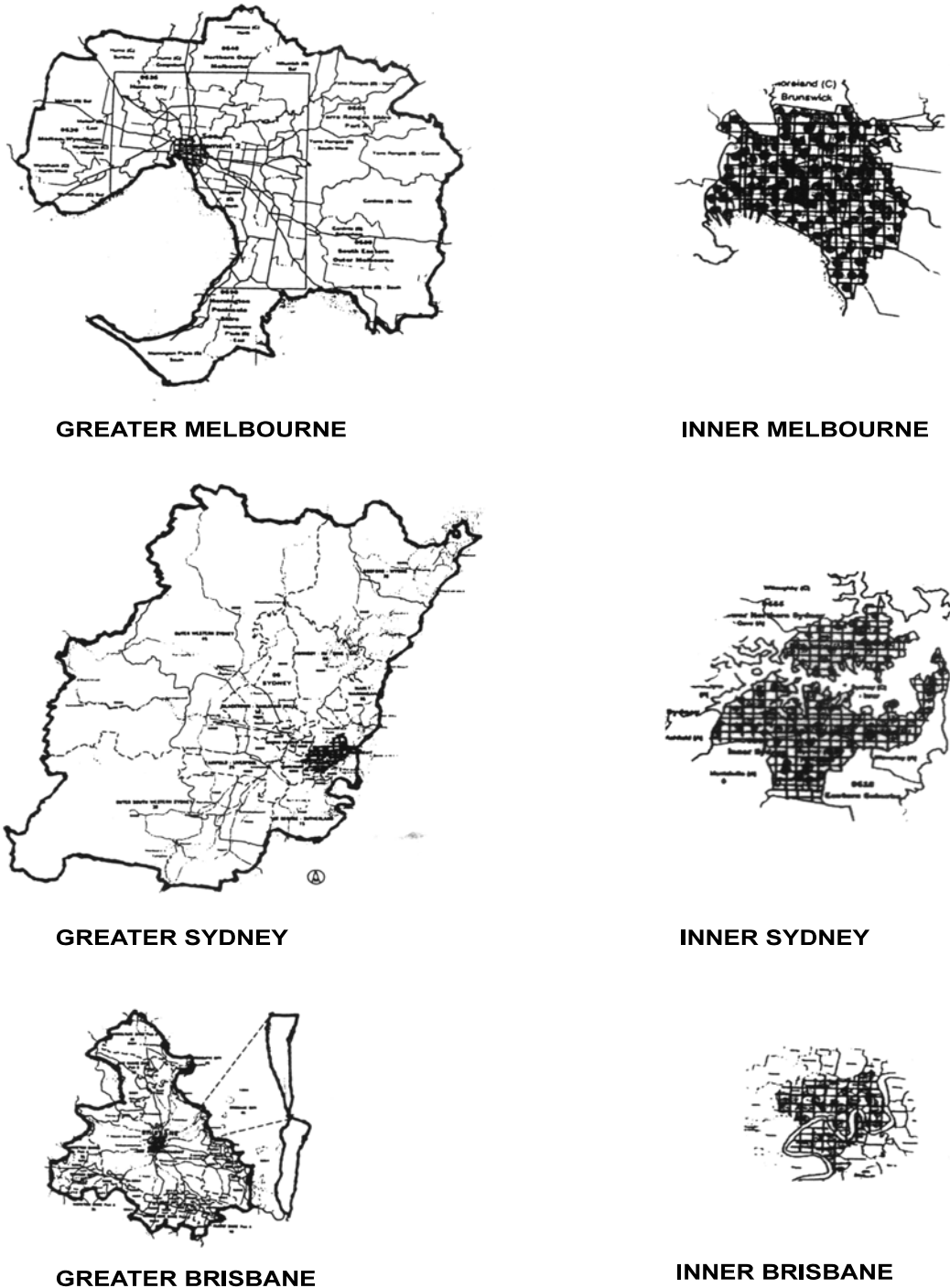
INNER BRISBANE

COMPARATIVE SIZE OF GEOGRAPHIC AREAS

Job growth in Brisbane's inner area between 1986 and 1996 accounted for 18.2% of total metropolitan growth. In Sydney the figure is 7.6% and Melbourne 0.5%.

It is important to note, however, that the five-year period 1991-96 was significant for inner Melbourne in that the region experienced a reversal of previous trends of absolute job losses. Job stock in inner Melbourne declined for much of this century, especially since the 1950s. Between 1971 and 1991, for example, the number of jobs in inner Melbourne decreased from 381,357 to 359,295 representing a reduction of 22,062 jobs or -5.8%.

The long term decline in inner Melbourne jobs is attributed to suburbanisation of population and economic activity and structural economic change which resulted in the decline of labour-intensive sectors, especially in manufacturing.

Between 1991 and 1996 however, the job stock in inner Melbourne increased by 2,574, compared to a fall of 1,637 jobs in the previous five years.

Figures A2 and A3 show the composition of jobs in the inner cities and metropolises under examination in 1996. The charts show that the economies of the inner cities differ from the wider metropolitan economies in a number of ways.

The biggest employers in the inner city economies are generally property & business services, finance & insurance and to a lesser extent health & community services, retail, government administration & defence and manufacturing.

The biggest employers in the greater metropolitan economies are manufacturing, retail, property & business services, health & community services and to a lesser extent education and wholesale trade.

The inner city of Sydney is a step above its Melbourne equivalent in finance & insurance and property & business services. On the other hand inner Melbourne leads significantly in health & community services. The smaller inner Brisbane region has a commensurately smaller jobs base in most industries.

It is no surprise that the biggest of the three cities considered here, Sydney, leads or is on equal terms with Melbourne in most sectors when absolute job numbers are considered except for manufacturing, where the southern city has significantly more jobs.

Figure A2 – Inner City Job Stock Structure
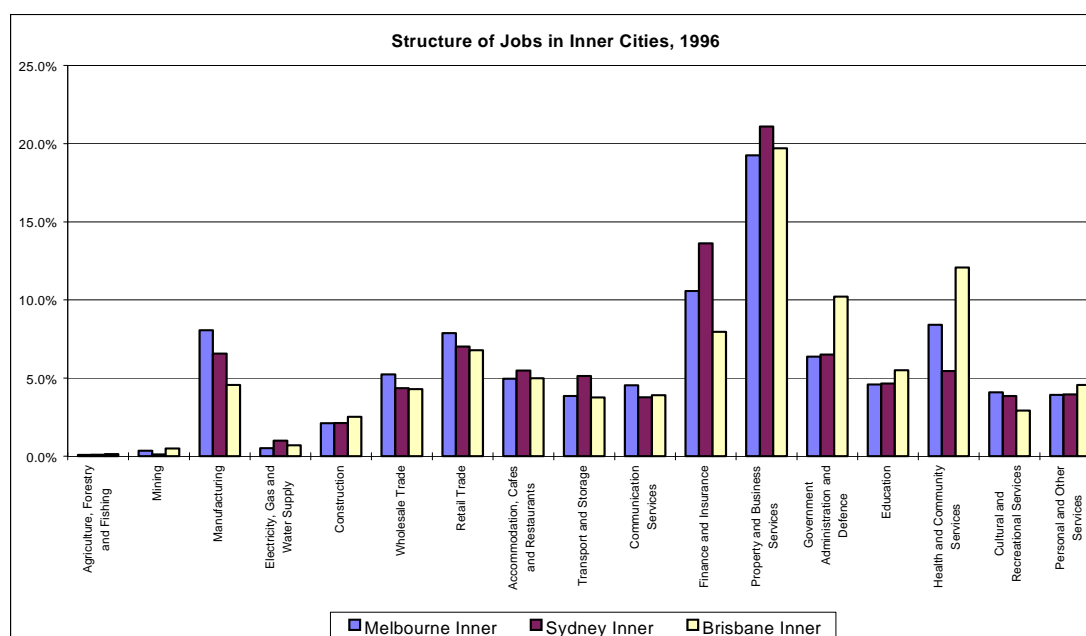
Source: Australian Bureau of Statistics 1986 and 1996 Census of Population and Housing, Industry by Work Destination.

The relative strengths of the inner cities correspond to the relative strengths of the wider metropolitan areas, and visa-versa. Manufacturing is relatively strong in Melbourne's inner city and it is also strong at the metropolitan level. Similarly, finance & insurance and property & business services emerge as key sectors at both the inner city and metropolitan levels for Sydney. For Brisbane, government administration & defence and health & community services are relatively strong at both spatial levels.

Figure A4 shows that inner Melbourne has generated many new jobs in 'growth' industries and shed jobs in a range of economic sectors. Between 1986 and 1996, inner Melbourne experienced significant job growth in:

❑ property & business services (+ 27,254 jobs);
❑ cultural & recreational services(+ 7,561); and
❑ accommodation, cafes & restaurants (+ 6,353).

In this time, inner Melbourne lost a significant number of jobs from:
❑ manufacturing (- 15,726);
❑ government administration & defence (- 11,050);
❑ transport & storage (- 10,408); and
electricity, gas & water supply (- 8,114).

*Figure A3 **– Metropolitan Job Stock Structure***
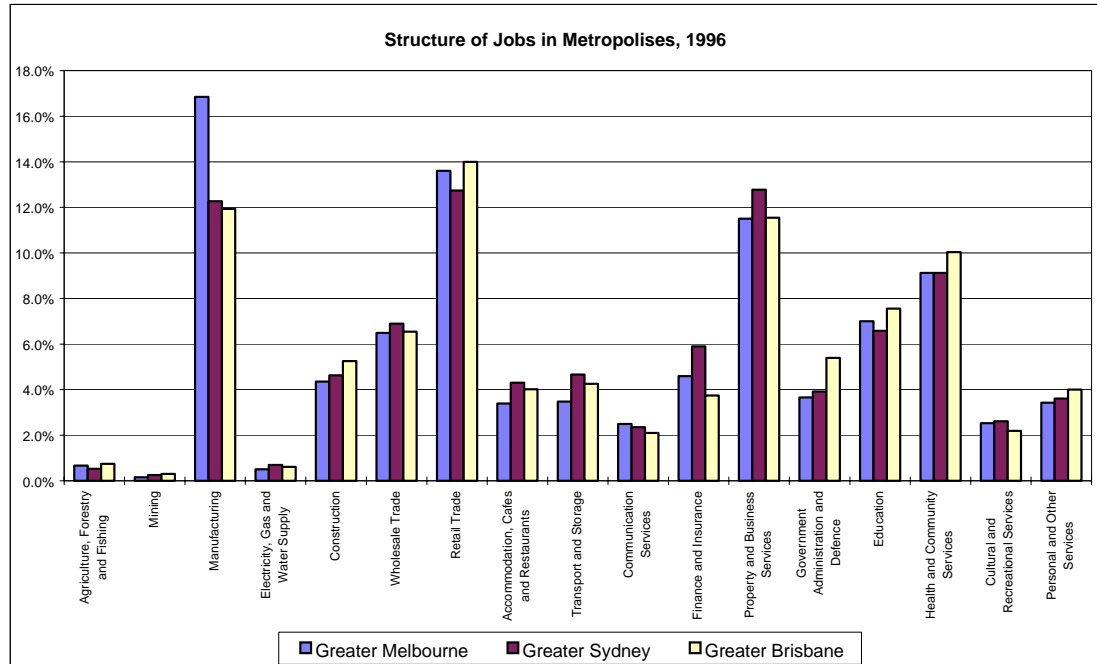
Source: Australian Bureau of Statistics 1986 and 1996 Census of Population and Housing,
Industry by Work Destination.

*Figure A4: **Change in Inner Melbourne's Job Stock***
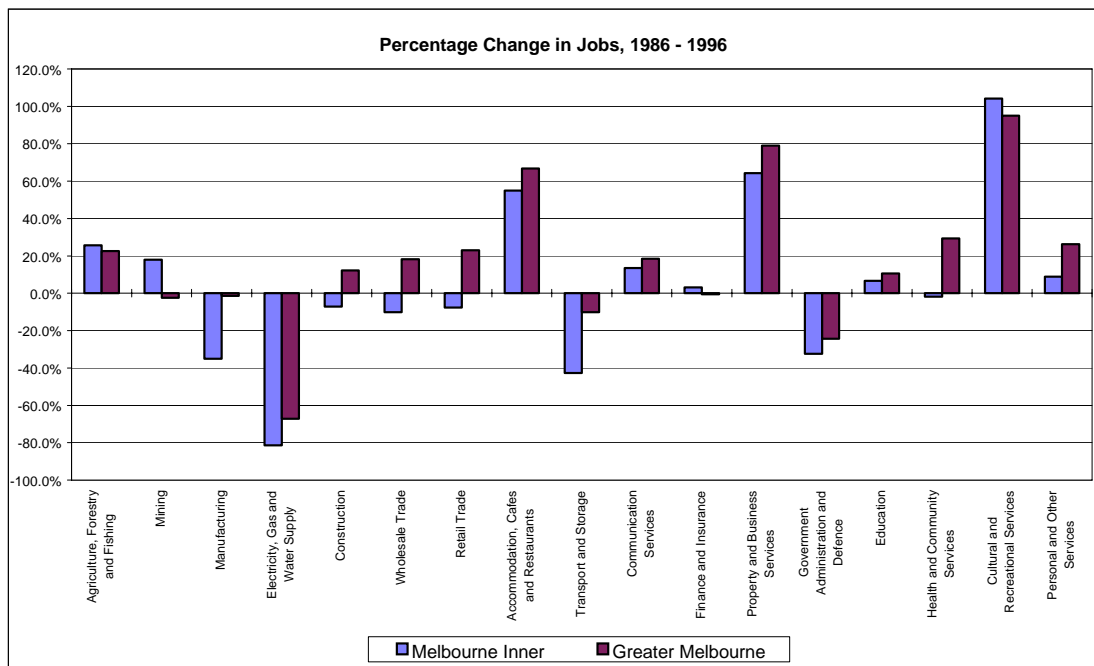
Source: Australian Bureau of Statistics 1986 and 1996 Census of Population and Housing, Industry by Work
Destination.

The bulk of inner Melbourne's job growth was in a narrow band of sectors - mainly service and leisure/tourism activities - and losses were spread across production, government, transport and utility sectors. Melbourne's inner city economy is specialising in service and leisure sectors. In other words, it appears that inner Melbourne is developing an economy with employment strengths in globally focussed industries and is doing so whilst building quality lifestyle environments for knowledge workers.

Greater Melbourne is similarly growing those industries that are prospering in the inner city. Industries driven by suburban population growth are complementing such growth (eg. retail trade, community services, recreational services). A significant decline in job stock was experienced in only the government (- 14,822) and utility (- 12,811) sectors across the metropolitan area.

Greater Melbourne's key job generating sectors between 1986 and 1996 were:
- property & business services (+ 63,657);
- retail trade (+ 31,828);
- health & community services (+ 25,982);
- accommodation, cafes & restaurants (+ 17,023);
- cultural & recreational services (+ 15,450); and
- wholesale trade (+ 12,499).

These compositional changes are also evident in the inner city and metropolitan regions of Sydney and Brisbane but with minor variation.

At the metropolitan level, 'culture and recreation' grew more rapidly in Melbourne than in Sydney. Melbourne also distinguished itself by the slower rate of decline in manufacturing and the sharper decline in Government employment.

For its part, Sydney enjoyed faster growth in education and personal services by comparison with Melbourne. Metropolitan Sydney experienced marginal growth in finance and insurance while a fall was recorded in Melbourne.

In line with its rapid population growth, Brisbane recorded growth across all sectors with exceptions of mining and utilities. Of particular note was the strong growth in property and business services, accommodation and cafes, and culture and recreational services. Perhaps the most remarkable feature for metropolitan Brisbane was the growth in manufacturing jobs while the other two cities experienced falls.

The data suggests that the inner city regions of Melbourne, Sydney and Brisbane have developed strong business and lifestyle economies. Melbourne's inner city can be distinguished as a cultural centre. Sydney has continued its development as a key node for business and living and inner Brisbane is starting to 'come of age' in terms of inner city lifestyle and culture. Another notable trend is the declining importance of government to job stock in the inner cities of Melbourne and Sydney whereas this sector remains more important for inner Brisbane.

The metropolitan economies are showing similar signs of change. Greater Melbourne and Sydney's job stock increased in service, lifestyle and consumption sectors and declined in utility and government sectors. Significantly, Melbourne largely held its ground on manufacturing, recording a modest decline in that sector's job stock. Sydney however experienced significant decline in manufacturing and sharpened its specialisation in business services and associated lifestyle activities.

Greater Brisbane is 'catching up' on a number of fronts. That city's change in job stock mirrors Sydney's to a certain degree but also with gains in manufacturing and the continuing importance of government to overall jobs. Jobs are increasing in population driven industries in the rapidly growing Queensland capital.

12 APPENDIX B - ECONOMIC COMPETITIVENESS INDICATORS

See attached spreadsheet.

13   APPENDIX C – MELBOURNE'S RELATIVE COMPETITIVENESS

Economic Driver	Economic Indicator	Area Used to Represent Melbourne's Economic Region	Comparative Geographic Areas	Score of Competitiveness
Stable government and judicial institutions	Political risk index	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Country risk	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Bureaucracy index	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Legal framework	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Credit rating	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
Independent anti-corruption institutions	Corruption index	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
	Existence of anti – corruption institutions	Data gap		
Independent industry regulators	Cost of natural gas	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average

	Cost of water	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Cost of electricity	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Cost of telecommunications	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Existence of industry regulators.	Data gap		
	Existence of competition policy.	Data gap		
Stable financial markets with strong prudential regulation and transparent trading	Volatility levels in equity markets.	Data gap		
	Volatility levels in debt markets.	Data gap		
	Existence of financial regulators	Data gap		
	Liquidity risk index	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Average corporate credit rating (local companies only).	Data gap		

	Volatility of exchange rate.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
Excellent civic, regional and national leadership	Not readily available.	Data gap		
Competitive market structures for service and material inputs	Gross operating surplus/ GRP	Data gap		
	Value of competing imports/ GRP	Data gap		
	Value or regional exports/ GRP	Data gap		
	Existence of WTO sanctions	Data gap		
	Import embargoes/ quotas	Data gap		
	Tariff structure	Data gap		
Flexible labour markets and industrial relations systems	Labour on-costs	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Union membership as a proportion of workforce	Data gap		

	Number of production days lost to industrial disputes	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Number of arbitered labour agreements	Data gap		
	Mobility of labour	Data gap		
	Labour force participation rate	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Part time to full time employment ratio	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Average income levels for particular occupation categories	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
"Natural monopoly" in energy generation, transmission and retailing reformed or regulated to produce competition like outcomes	Price per kilowatt/hr.	Costs of high voltage electricity are measure in cents per KWH. See above extracted from Benchmarking *Melbourne's Advantages*.		
	Price per megalitre of natural gas	A similar measure using cost per gigajoule is constructed in *Benchmarking Melbourne's Advantages*. See above.		
	Standard network connection fees	Data gap		
	Network coverage	Data gap		

	Number of competing providers	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Service quality measured by response times.	Data gap.		
	Overall service quality	*Advantage Melbourne* records the responses of industrial users when asked to score the reliability and quality of electricity supply. However, those scores are compared to Melbourne and are based on perception.		
	Number of blackouts/ brownouts/ power surges	Data gap		
"Natural monopoly" in water supply and sewerage systems reformed or regulated to produce competition like outcomes	Price per megalitre	A similar measure using cost per KL is constructed in *Benchmarking Melbourne's Advantages*. See above.		
	Standard network connection fees	Data gap		
	Network coverage	Data gap		
	Number of competing providers	Data gap		
	Service quality measured by response times	Data gap		
	Overall Service quality	*Advantage Melbourne* records the responses of industrial users when asked to score the reliability and quality of water supply. However, those scores are compared to Melbourne and are based on perception.		

	Number of days water unavailable pa.	Data gap		
"Natural monopoly" in telecommunications infrastructure reformed or regulated to produce competition like outcomes	Fixed handset telephones per capita.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Mobile telephones per capita.	Data gap		
	Internet connections per capita, including home and work connections.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Call Costs - International subscriber dial services.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Charge per connection minute – international.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Local and STD call costs.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Charge per connection minute – local.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Charge per connection minute – Internet (standard)	Data gap		
	Proportion of land area or population serviced by broadband communications infrastructure	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average

	ISP servicing rate per capita	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
	Average Internet download rates	Data gap		
	Number of competing infrastructure providers	Data gap		
	Service quality measured by response times	Data gap		
	Percentage of total time networks not available	Data gap		
"Best practice" investment in and management of roads infrastructure	Journey to work travel times (peak and off-peak).	Data gap		
	Traffic density (No. of vehicles per km of road)	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
	Average intra-region freight times	Data gap		
	Average cost per tonne and/ or cubic metre by market destination	Data gap		
	Number of road accidents per capita pa.	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average

	Average vehicular speed.	Data gap		
	Proportion of road public transport versus private vehicles	✓ Melbourne SD ☐ Victoria ☐ Australia	✓ Domestic capitals ☐ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Airport travel times	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
"Best practice" investment in and management of rail infrastructure	Average cost per km/tonne.	Data gap		
	Average cost per tonne and/ or cubic metre by market destination.	Data gap		
	Proportion of land area or population served by rail freight infrastructure	Data gap		
	Average vehicular speed	Data gap		
	Proportion of journeys to work by rail	✓ Melbourne SD ☐ Victoria ☐ Australia	✓ Domestic capitals ☐ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
	Number of rail accidents per capita pa..	Data gap		
"Best practice" investment in and management of seaports infrastructure	Tonnage capacity pa.. of port infrastructure.	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average

	Container traffic pa..	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Average sea freight costs per tonne and/ or per cubic metre by market destination.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Average turnaround time for container ships	Data gap		
"Best practice" investment and management of airports infrastructure	Flight capacity per 24 hour period	Data gap		
	Number of international carriers	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Number of international airports within the region	Data gap		
	Number of terminal gates	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
High quality airline connectivity	Passenger traffic volumes pa.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Distance of airport from CBD (km).	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Travel times from CBD to Airport (minutes).	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average

	Number of airlines with direct international air links.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Frequency of flights per week to major economic centres.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Cost of travel to the airport by taxi.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
Workers compensation	Estimated compliance costs per employee.	Data gap		
	Number of claims per employee pa.	Data gap		
	Levy per employee pa.	Data gap		
Occupational Health and Safety	Average number of days without accident.	Data gap		
	Number of workplace accidents pa.	Data gap		
	Estimated compliance costs per employee.	Data gap		
Corporate affairs and fair dealing	Not readily available.	Data gap		

World competitive company tax regime	Corporate tax rate	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Indirect, sales, payroll taxes and other excises.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Average administrative and compliance costs per business establishment pa.	Data gap		
	Number of countries with complementary tax treaties.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Existence of tax incentives.	Data gap		
	Hierarchy of individual tax rates.	Data gap		
Well organised urban regions/settlement pattern for production logistics		Data gap		
High incidence of scientific skills in the labour force	Proportion of workforce holding graduate and postgraduate engineering and science degrees.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
High incidence of other professional skills in the labour force	Proportion of workforce with tertiary degree or higher.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Proportion of workforce in 'symbolic analyst' occupations.	Data gap		

	Proportion of workforce in management and administration, professional and para-professional occupations.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Number of corporate headquarters.	Data gap		
Secure supply of technical/trade skills	Proportion of population with trade qualifications.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Proportion of workforce employed as 'routine production workers'.	Data gap		
	Proportion of workforce in trade and related occupations.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ✓ Below average ☐ Average ☐ Above average ☐ Well above average
	Proportion of population currently enrolled in technical or trade institutions.	Data gap		
A high quality University system	Enrolment rate in higher education.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Proportion of international students to indigenous students enrolled in higher education.	Data gap		
	Number of PhDs awarded pa.	Data gap		
	Average ratio of students to lecturers in higher education institutions.	Data gap		

Category	Indicator	Region	Comparison	Rating
	Expenditure per capita on higher education institutions.	Data gap		
	Number of University's within the region.	☐ Melbourne SD ✔ Victoria ☐ Australia	☐ Domestic capitals ✔ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✔ Above average ☐ Well above average
A high quality school education system	Literacy rates per capita.	☐ Melbourne SD ☐ Victoria ✔ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✔ Other countries	☐ Well below average ☐ Below average ☐ Average ✔ Above average ☐ Well above average
	Public expenditure on primary and secondary education per capita.	☐ Melbourne SD ☐ Victoria ✔ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✔ Other countries	☐ Well below average ☐ Below average ✔ Average ☐ Above average ☐ Well above average
	Primary school gross enrolment ratios.	☐ Melbourne SD ☐ Victoria ✔ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✔ Other countries	☐ Well below average ☐ Below average ✔ Average ☐ Above average ☐ Well above average
	Secondary school gross enrolment ratios.	☐ Melbourne SD ☐ Victoria ✔ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✔ Other countries	☐ Well below average ☐ Below average ☐ Average ✔ Above average ☐ Well above average
	Average years of schooling.	☐ Melbourne SD ☐ Victoria ✔ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✔ Other countries	☐ Well below average ☐ Below average ✔ Average ☐ Above average ☐ Well above average
A pervasive R&D culture	Share of Large Grants Research Funding from Australian Research Council (ARC).	☐ Melbourne SD ✔ Victoria ☐ Australia	☐ Domestic capitals ✔ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✔ Above average ☐ Well above average
	R&D expenditure by business sector as a proportion of gross regional product (GRP).	☐ Melbourne SD ✔ Victoria ☐ Australia	☐ Domestic capitals ✔ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✔ Above average ☐ Well above average
	Patent registrations per capita pa.	Data gap		

	Proportion of university research directly funded by the private sector.	Data gap		
	Innovation index	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	The existence of patent, copyright and other IP protection.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
An entrepreneurial and risk taking culture	Innovation expenditure per business.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Proportion of businesses undertaking technological innovation.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Number of venture capital investments made pa.	Data gap		
	Quantum of venture capital investments made pa.	Data gap		
	Number of venture capital investors located in the region.	Data gap		
	Bankruptcy rate per business establishment pa.	Data gap		
	Number of new business start ups per capita pa.	Data gap		

	The existence of patent, copyright and other IP protection.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
Liberal migration laws for people with professional skills	Average skill levels of new migrants.	Data gaps		
	Current migration rates	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	The existence of business migration programs.	Data gap		
A tolerant culture open to new ideas	Ethnicity of population	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Rates of fluency in non-English languages.	☐ Melbourne SD ✓ Victoria ☐ Australia	☐ Domestic capitals ✓ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Number of major Arts events/ activities.	Data gap.		
Liveable cities and regions with the capacity to attract and hold a highly skilled workforce	Quality of life indices.	✓ Melbourne SD ☐ Victoria ☐ Australia	☐ Domestic capitals ☐ Australian states ✓ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ☐ Above average ✓ Well above average
	Average income levels	✓ Melbourne SD ☐ Victoria ☐ Australia	✓ Domestic capitals ☐ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Polarisation of income levels.	✓ Melbourne SD ☐ Victoria ☐ Australia	✓ Domestic capitals ☐ Australian states ☐ International cities ☐ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average

	Cost of living estimates.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Domestic purchasing power	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Rates of reported crime.	Dat gap		
	Life expectancy	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ☐ Average ✓ Above average ☐ Well above average
	Number of hospital beds per capita.	☐ Melbourne SD ☐ Victoria ✓ Australia	☐ Domestic capitals ☐ Australian states ☐ International cities ✓ Other countries	☐ Well below average ☐ Below average ✓ Average ☐ Above average ☐ Well above average
	Climatic indicators such as annual days 'sunny' and average temperature by season.	Data gap		
	Number of cultural events pa.	Data gap		
Presence of globally recognised business clusters.	Specialisation rates of industries.	Data gap		
	Strength of relationships between industry value chain members.	Data gap		
	Export earnings per capita.	Data gap		

	Value added per capita.	Data gap

14 APPENDIX D – NUMERICAL BENCHMARKING

See attached spreadsheet.

Victorian Government
Department of Infrastructure

EXECUTIVE BRIEFING PAPER

GLOBALISATION, COMPETITIVENESS AND MELBOURNE'S METROPOLITAN STRATEGY

October 2000

This paper has been produced as a background discussion document for the Melbourne Metropolitan Strategy Project. The contents of this paper do not necessarily represent the position of the Department of Infrastructure or its employees or of the State of Victoria.

Comments with respect to the contents of this paper should be sent to:

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1 INTRODUCTION

The Victorian State Government is constantly seeking to bolster the economic competitiveness of Victoria to ensure the continued prosperity of Victorian businesses and residents. *The Metropolitan Strategy for Melbourne*, currently being formulated by the Department of Infrastructure (DOI), will outline integrated land use and transport planning strategies for enhancing Melbourne's competitive edge, its liveability and its sustainability.

The Strategy will underpin Melbourne's current competitive strengths and provide a framework for developing new competitive advantages.

This Briefing Paper summarises the findings of a recent DOI report identifying the drivers of regional competitiveness and the status of Melbourne's competitiveness.

The DOI has recently commissioned a study entitled *Globalisation, Competitiveness and Metropolitan Strategy* so that the strategy formulation process takes account of recent changes in the economic environment. The Study, recently completed by Spiller Gibbins Swan Pty Ltd (SGS), is now being distributed to industry leaders throughout the State for the purposes of 'ground truthing'.

The specific objectives of the Study were:

- *To understand what drives regional economic competitiveness in the global economy;*

- *To understand how Melbourne's is placed in terms of these economic drivers; and*

- *To identify which drivers a Metropolitan Strategy might have a role in supporting.*

Industry leaders are asked to review the findings in preparation for a 'ground truthing forum' with DOI.

This Executive Brief summarises the major findings of the Globalisation, Competitiveness and Metropolitan Strategy report so that industry leaders may contribute to a "ground truthing forum", scheduled for early November.
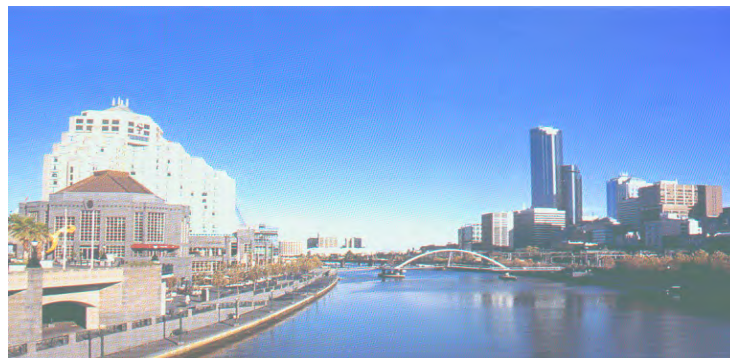
2 STRUCTURE

Industry leaders are asked to:

...consider Melbourne's developing strengths and global positioning...

...review and comment on a list of economic competitiveness drivers...

...review Melbourne's positioning in terms of these drivers.

This paper commences with an examination of recent changes in the economic landscape. Specifically, the movement from the industrially based processes of the old economy to the global production networks of the new economy are traced over recent decades.

Melbourne's emerging role in the global economy is then documented from a national perspective, recognising that Melbourne is part of a network of Australian cities which collectively influence and contribute to the metropolitan area's overall economic performance. This is achieved by examining industrial employment changes since 1986. Industry leaders are asked to consider Melbourne's developing strengths and global positioning.

SGS drew from the wide range of conceptual work previously undertaken by economic development, business strategy and urban management authors. These are summarised prior to the documentation of a hierarchy of economic foundations that are required to compete in the global economy. Out of these foundations emerge drivers of economic competitiveness in resource-based, production-based and the global economy: each building on the former.

Industry leaders are called on at this stage to review the list of economic drivers. Contextual and supporting information has been included in this brief so that the drivers of competitiveness derived from theory can be contrasted against the key drivers perceived by industry leaders.

SGS benchmarked Melbourne against competing cities using quantitative and qualitative indicators of competitiveness drivers. Although this analysis has not been included in its entirety in this paper, a summary of Melbourne's relative positioning is developed for *review* by industry .

3 THE EMERGENCE OF THE GLOBAL ECONOMY

Prior to the onset of globalisation the focus of competitive analysis revolved predominantly around the components of production cost. Firms would gravitate towards locations that offered suitable and inexpensive resource sets for production. Such approaches often hinged on the assumption that firms needed to operate from under the one roof.

Globalisation allows firms to distribute their production activities across national boundaries.

Globalisation means that this assumption is no longer valid. Firms can now distribute the activities of their value chains across national and international locations that offer the least expensive set of inputs for that particular activity. With globalisation the ability of firms to innovate and adapt is fundamental to success: increasing the relative values of knowledge, technology and conceptual skills in the overall production process. Thus, cost minimisation is no longer an absolute constraint. The focus is now more on cost effectiveness in rapidly changing markets.

3.1 From Production to Knowledge Economies

At the start of the 20th century, industry in America and Europe was beginning to assemble itself into large groups. America's cartel-busting Sherman Act of 1890 heavily contributed to this process. As firms could no longer collude they merged into large, vertically integrated conglomerates (*The Economist, 1998*). Also, as a consequence of the significant tariff barriers in existence, it made economic sense for firms to buy up their suppliers and scale up production to maximum capacity, knowing that it would require competitors to source relatively expensive imports placing them at significant disadvantage (*Reich, 1991*). Similarly, the processes of vertical integration were widespread throughout Europe.

Following World War II national governments contributed further to this self containment of wealth creation, which was predominantly manufacturing-based. They did this by developing large fully integrated manufacturing centres, in strategic locations, as part of policies to promote self sufficiency, import substitution, regional development and employment (*Roberts, 1997*). Those fully integrated systems of production, either driven by public or private integration and ownership, remained intact until the 1970's.

Several developments in the 1970's had marked effects on the structure of manufacturing and business operation in general.

First, the poor performance of western production techniques were exposed. Associated with vertically integrated conglomerates were massive levels of idle inventory, inflexible production processes, and a general attitude that consumers would be content with standardised products. On the other hand, Japanese manufacturers, were benefiting from lean manufacturing techniques - the practice of carrying minimal stocks, having parts delivered direct to the assembly line 'just in time' (JIT), making sure that the quality was right from the word 'go', and rejecting the idea that economies of scale were the sole or prime determinants of success.

In the global economy more value is placed on knowledge-based activities than traditional manufacturing

Western manufacturers fully embraced lean manufacturing techniques and notions of continuous improvement in the 1980's, hoping to replicate the success of the Japanese. And they did. The production improvements at Caterpillar's Illinois plant are a good example of the turnaround in western manufacturing throughout the 1980's. Prior to the adoption of flexible automation and JIT it took 6000 workers 25 days to make one back loader. After adoption of these techniques, productivity increased dramatically. One back loader was produced by 3000 workers in 6 days on average. Improvements in new product commercialisation times also reflected the benefits from adopting a lean culture, with the lead time reducing from 10 years to 27 months *(The Economist, 1998).*

Second, the removal of the gold standard and the promotion of free trade by the Bretton Woods agreement in 1972, and the subsequent General Agreement on Tariff and Trade (GATT) agreements, led to major structural changes in trade, industry location and investment *(Roberts, 1997).* Most notably, these agreements facilitated foreign investment into the then termed 'developing world', particularly Asia.

Access to cheaper factor inputs (predominantly labour), and the willingness of Asian governments to provide investment incentives, promoted a mass migration of core manufacturing activity to the developing world during the 1970's and 1980's. Simultaneous improvements in communications technologies allowed the front (i.e. product design, R&D, innovation, etc.) and back ends (i.e. marketing, distribution) of the production processes, and the corporate administration (i.e. planning, finance, etc.) to be retained by home countries.

The ease of merchandise, service and capital flows across international boundaries led to the industrialisation of 'developing' countries and the relative de-industrialisation of the 'developed' world, particularly

OECD economies, with the latter focussing more on the provision of services that support production.

Service provision has grown much more rapidly than goods production.

Thus, the entire production chain was no longer achieved under one roof or even within one country. The production chain became more spatially dispersed, with individual links of the chain locating in regions with the most propitious conditions.

This was one of the reasons why developed economies rose so quickly in service provision. Jobs that were previously defined as manufacturing now fell into service classifications - goodbye to the old dividing line between manufacturing and services.

Other reasons for the expansion in services included the rising income levels of populations worldwide and the improved ability of entrepreneurs to access previously untapped markets. The subsequent rises in demand stemming from Asian populations, associated with industrialisation, and the growing trade-openness of the former Soviet Union, China and other non-democratic states, reinforced trade integration of economies worldwide.

Global markets have presented considerable trading opportunities.

The increasingly integrated world market presented significant opportunities for entrepreneurs. However, sustained international sales required efficiency in the organisation of production, as competitive threats were often more diverse than those experienced at home. Furthermore, the size of world niche segments provided incentive for organisations to better meet the changing wants of consumers, themselves gradually becoming better informed and demanding customised goods and services. Successful and ongoing adaptability thus became essential to the competitive framework.

Capacity for change is key to organisational performance.

Not only did companies have to chase cheap labour for the simpler parts of their global supply chains; they also had to bow to customers' demand by providing customised products and services at their doorstep. Enter the importance of focussing on core competencies, which requires the shedding of non-core organisational functions, and the importance of knowledge, innovation and flexibility as the key determinants of corporate success.

Regional environments have underpinned competitiveness.

In order to facilitate knowledge commercialisation, adaptability and innovation large corporations have restructured. Bureaucratic structures have been minimised and autonomy has been pushed down the 'chain of command'. But intra-company changes are not sufficient to guarantee ongoing success in an environment where transport and communications costs have been slashed and where labour intensive processes can be located in areas with comparative wage cost advantages.

Porter (1998) argues that what goes on *inside* companies is obviously important, but a vital role in the creation of competitive advantage can also be attributed to the business environment immediately *outside* the company. He points to the current success of Silicon Valley in semi-conductors, software and venture capital, Hollywood in entertainment, Wall Street in finance, Japan in consumer electronics, Southern Germany in high performance automobiles, and Northern Italy in fashion and shoes.

Relationships between companies and institutions have become increasingly important

Porter attributes such success to the development of 'clusters' of industry, i.e. geographic concentrations of interconnected companies and institutions in particular fields. He goes further to suggest that clusters form an alternative method of organising the value chain, with companies benefiting from close buyer-supplier relationships without the need for vertical integration and benefiting from innovation, knowledge and flexibility enhancements without associated management woes and risk.

Moore (1997) goes as far to suggest that successful organisations see themselves as part of an evolving ecosystem, with everybody else as possible members of their combined value chain. In this new economic terrain, ecosystems will compete against similarly structured ecosystems, both straddling traditional industry definitions.

The US Department of Housing and Urban Development (1996) contrasted the ramifications of the above processes using dimensions of economic change to delineate between the 'old' and the 'new' (alternatively labelled 'global') economy (Table 3.1).

Better and more efficient use of knowledge has emerged as the key to productivity gains

The major changes in the paradigm of economic organisation include: the development of technological change and information as the key sources of productivity gain; the extension of trade from a home market to a global scale; the concentration of both employment and industry within metropolitan regions; and the development of clusters.

Table 3.1

Key Dimensions of Economic Change.

Key Dimension	Old Economy	New Economy (Global Economy)
Major Source of Productivity Gain	Better and more efficient use of energy and raw materials	Better and more efficient use of knowledge
Trade Patterns	National	Global
Successful Development Strategies	Protectionism, import substitution	Free trade; producing for global market; metropolitan regional strategies
Geographic Dimension	Company- or industry- towns with little diversification or clustering	Metropolitan regional clusters of complementary firms and industries

Source: *US Department of Housing and Urban Development, 1996.*

Melbourne has strengths in: manufacturing;

culture, leisure and tourism;

transport; and

research and development.

4 MELBOURNE'S ROLE IN THE GLOBAL ECONOMY

Job stock in the greater metropolitan areas of Melbourne, Sydney and Brisbane increased significantly in the ten years to 1996 (the latest year of definitive data). However, Inner Melbourne's job stock increased marginally between 1986 and 1996, in contrast to the inner regions of Sydney and Brisbane which experienced strong job growth. It is important to note. Having said that, the five year period 1991 to 1996 was significant for inner Melbourne in that the region experienced a reversal of previous trends of absolute job losses.

The long term decline in inner Melbourne jobs (now reversed) was attributed to suburbanisation of population and economic activity and structural economic change which resulted in the decline of labour-intensive sectors, especially in manufacturing.

The biggest employers in the inner city economies are generally property & business services, finance & insurance and to a lesser extent health & community services, retail, government administration & defence and manufacturing.

The biggest employers in the greater metropolitan economies are manufacturing, retail, property & business services, health & community services and to a lesser extent education and wholesale trade.

What comes out of this analysis is Melbourne's strength as a:

- Manufacturing centre, consolidating on its historical role in this fiield and moving into higher technology processing; and

- Cultural city, with strong growth in leisure and tourism industries, especially in the inner city area.

Past studies (see Text Box 1 and 2) suggest that the following can be added to Melbourne's strengths:

- Transport hub, capitalising on the infrastructure advantage afforded through the Port of Melbourne, Tullamarine Airport and the city's strategic location vis-à-vis the Australian population base; and

- Research & Development centre, acknowledging the relatively high levels of business R&D in the State.

Text Box 1	*Text Box 2*
Victoria leads the nation in seaport infrastructure. The Port of Melbourne is Australia's largest, handling 38% of the nation's container trade - it is well ahead of Sydney and almost double that of Brisbane, Fremantle and Adelaide combined.	Victoria spends about 2% of Gross State Product (GSP) on R&D, compared to 1.5% for NSW and 1.6% for Australia.
In terms of airfreight competitiveness, the curfew free Melbourne Airport holds it own. Only 19% of the State's possible air exports are uplifted through Sydney and even less through Adelaide, and these leakages primarily related to lower-value perishable commodities.	Victoria's lead primarily derives from its greater business spending on R&D, and possibly from the strong presence of Universities, not for profit health research organisations and Commonwealth institutions such as the CSIRO.
	Business expenditure on R&D in Victoria grew at an average annual rate of over 11% between 1990/91 and 1996/97. This was approximately 30% faster than NSW.
Source: *Spiller Gibbins Swan (2000).*	Source: *Spiller Gibbins Swan (1998).*

Sydney continues to dominate the national economy in terms of the finance & insurance and property & business service sectors.

Brisbane, the fastest growing of all Australia capitals, appears to have strength in Government activity and health & community services but this may be due to its lack of critical mass in other industries.

5   FRAMEWORK FOR APPROACHING ECONOMIC DRIVERS

Knowledge economy infrastructures must build on production and resource economy infrastructures...

It is evident from the discussion in Appendix A, which reviews the determinants of regional competitiveness according to 3 noted authors, that leading economic regions rely principally on a good supply of higher level skills and infrastructure. They also implicitly rely on elements that make it attractive for knowledge workers to continually locate and reside there. That is, they still fundamentally require quality health, sanitation, transport and basic education systems, law and order, and various other factors that contribute to the perception of a 'quality' environment. Knowledge workers are highly mobile and any threat to their individual environment or to the environment in which they interact with other key players in the global economy would be detrimental to the economic region's competitiveness.

Figure 5.1 illustrates how the foundations for knowledge based economies build on those of production based economies, which in turn build on resource based economies.

Figure 5.1
Hierarchy of Economic Foundations.

Economic Basis:	
Knowledge (Quality Access)	Political and economic leadership, skill and capacity building institutions, entrepreneurial and collaborative attitudes, and quality physical, social and cultural environments.
Production (Low Cost)	Transport, water, sewerage and utilities infrastructure, open and contestable markets for production inputs and cost effective regulations.
Resource (Low risk)	Political, social, financial, legal and physical environmental stability.

6 DRIVERS OF ECONOMIC COMPETITIVENESS

These can be broadly grouped into 3 categories.

Knowledge workers assume competitive input costs and stability...

Firstly, there are those conditions or policies which create a low risk business environment. In general, these relate to governance structures, political leadership and market supervision institutions. The second group of factors relate to reducing business input costs. Infrastructure, tax structures and efficiently structured regions figure prominently here. The final, and increasingly critical, category concerns access to knowledge, creativity and entrepreneurship. These factors are not confined to education, R&D, venture capital and the like. They embrace urban quality, arts, culture and other determinants of 'livability' which must be competitive if a region is to attract and retain the best and brightest talent.

...and historic wealth cannot be ignored.

One further 'contextual' factor could be added to this list. *Historic wealth* inevitably plays an important part in a region's economic fortunes. The 'echo effects' of capital formed in the past can take many generations to 'wash through' a regional economy. A significant proportion of the activity witnessed in a region today is attributable to reinvestment of, or drawing down on, historically accumulated wealth as opposed to external trading based on current competitive advantage. Consequently, many so called 'lagging regions' continue to provide reasonable living standards despite weak contemporary economies (e.g. Tasmania). The wealthier a region, the more able it is to withstand economic shocks, to engage in counter cyclical investment and to take entrepreneurial risks. This partially explains the on-going strength of the US's New York - Boston - Chicago super region despite the celebrated acceleration of new investment in the 'sunbelt' regions of that country.

The drivers of regional economic competitiveness are detailed below in Table 6.1.

Table 6.1

Economic Competitiveness Drivers

Regime of Competitiveness	Economic Driver
	A competitive regional economy is characterised by….
(a) Low Risk Business Environment	▪ Stable government and judicial institutions.
	▪ Independent anti-corruption institutions.
	▪ Independent industry regulators (e.g. telecommunications, media, infrastructure, etc.)
	▪ Stable financial markets with strong prudential regulation and transparent trading.
	▪ Social cohesiveness.
	▪ Excellent civic, regional and national leadership.
(b) Low Cost Structures	▪ Competitive market structures for service and material inputs.
	▪ Flexible labour markets and industrial relations system.
	▪ "Natural monopoly" benefits in energy generation, transmission and retailing.
	▪ "Natural monopoly" benefits in water supply and sewerage systems.
	▪ "Natural monopoly" benefits in telecommunications infrastructure.
	▪ "Best practice" investment in and management of roads infrastructure.
	▪ "Best practice" investment in and management of rail freight infrastructure.
	▪ "Best practice" investment in and management of seaports infrastructure.
	▪ "Best practice" investment in and management of airports infrastructure.
	▪ High quality airline connectivity.
	▪ Cost effective regulatory environment - workers compensation, OH&S, corporate affairs and fair dealing.
	▪ World competitive company tax regime.
	▪ Well organised urban regions/settlement pattern for production logistics.

Table 6.1 Continued

Regime of Competitiveness	Economic Driver
	A competitive regional economy is characterised by….
(c) Quality Access	▪ High incidence of scientific skills in the labour force.
	▪ High incidence of other professional skills in the labour force.
	▪ Secure supply of technical/trade skills.
	▪ A high quality school education system.
	▪ A pervasive R&D culture.
	▪ An entrepreneurial and risk taking culture.
	▪ Liberal migration laws for people with professional skills.
	▪ A tolerant culture open to new ideas.
	▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.
	▪ Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.
	▪ The accumulation of historic wealth.

The ability to attract and retain knowledge workers through an attractive living environment is becoming increasingly important to economic competitiveness.
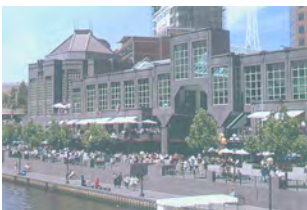
7 COMPETITIVE STRENGTHS AND WEAKNESSES OF MELBOURNE'S ECONOMY

7.1 Melbourne's Position

Unfortunately, Melbourne cannot be categorically rated as strong or weak in all the drivers of economic competitiveness due to substantial data inadequacies.

It is often impossible to directly compare Melbourne with other competing economic regions. Country to country comparisons form the bulk of available information. This is particularly the case for the following drivers:

- Stable government and judicial institutions;
- Stable financial markets with strong prudential regulation and transparent trading;
- Social cohesiveness;
- Flexible labour markets and industrial relations systems;
- World competitive company tax regime; and
- Liberal migration laws for people with professional skills.

Notwithstanding these data limitations, Table 7.1 (overleaf) ranks Melbourne for each driver as an obvious strength, a likely strength, as neither a strength nor weakness (i.e. as average), or as an obvious or likely weakness. Where significant data gaps exist the driver has not been ranked. Feedback from industry leaders is sought regarding this evaluation.

Feedback from industry leaders is sought regarding this evaluation of Melbourne's strengths and weaknesses.

7.2 Melbourne's Strengths

Melbourne has a number of potential strengths but only four drivers of those have been ranked as 'obvious strengths', with the rest ranked as 'likely strengths'. These strengths stem from institutional and social frameworks built at the national level, natural monopoly benefits and best practice management in infrastructure provision, labour force skills, city liveability and the accumulation of historic wealth.

7.3 Melbourne's Weaknesses

There are no obvious weaknesses shown in the data available. This might be influenced by the promotional nature of the documentation containing the data. It might also stem from the significant data gaps uncovered.

Noting this, it is reasonable to conclude that Melbourne has likely weaknesses in at least the following areas:

- An entrepreneurial and risk taking culture, with Australian business consistently highlighting the difficulty in attracting seed and development capital; and

- Presence of globally recognised business clusters, with prior experience suggesting that firms located within Melbourne have poorly developed collaborative links with their local value chain members when compared to various international locations. This general lack of collaboration possibly influences the 'commercialisation' of R&D and innovation expenditure, the level of private sector leadership and the competitiveness of service and material input markets all of which suffer from data gaps.

Table 7.1
Melbourne's Strengths and Weaknesses

Economic Driver	Obvious Strength	Likely Strength	Neither Strength nor Weakness	Likely Weakness	Obvious Weakness
▪ Stable government and judicial institutions.	✔				
▪ Independent anti-corruption institutions.	✔				
▪ Independent industry regulators		✔			
▪ Stable financial markets with strong prudential regulation and transparent trading.			✔		
▪ Social cohesiveness.		✔			
▪ Excellent civic, regional and national leadership.					
▪ Competitive market structures for service and material inputs.					
▪ Flexible labour markets and industrial relations system.					
▪ "Natural monopoly" benefits in energy generation, transmission and retailing.		✔			

Economic Driver	Obvious Strength	Likely Strength	Neither Strength nor Weakness	Likely Weakness	Obvious Weakness
▪ "Natural monopoly" benefits in water supply and sewerage systems.		✔			
▪ "Natural monopoly" benefits in telecommunications infrastructure.		✔			
▪ "Best practice" investment in and management of roads infrastructure.			✔		
▪ "Best practice" investment in and management of rail freight infrastructure.					
▪ "Best practice" investment in and management of seaports infrastructure.		✔			
▪ "Best practice" investment in and management of airports infrastructure.			✔		
▪ High quality airline connectivity.			✔		
▪ Cost effective regulatory environment.					
▪ World competitive company tax regime.			✔		
▪ Well organised urban regions/settlement pattern for production logistics.					
▪ High incidence of scientific skills in the labour force.	✔				
▪ High incidence of other professional skills in the labour force.	✔				
▪ Secure supply of technical/trade skills.		✔			
▪ A high quality university system.		✔			
▪ A high quality school education system.			✔		
▪ A pervasive R&D culture.		✔			
▪ An entrepreneurial and risk taking culture.				✔	
▪ Liberal migration laws for people with professional skills.					
▪ A tolerant culture open to new ideas.			✔		
▪ Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.		✔			
▪ Presence of globally recognised business clusters.				✔	
▪ Accumulation of historic wealth.		✔			

8 APPENDIX A: THEORETICAL FRAMEWORKS OF ECONOMIC COMPETITIVENESS

This section reviews the work of noted commentators on the drivers of economic competitiveness. The information contained within this section is synthesised in Sections 5 and 6.

8.1 Diamond of Competitive Advantage

Porter (1990) explained global competitive advantage in terms of 6 elements:

- **factor conditions**: the economy's position in factors of production such as skilled labour or infrastructure necessary to compete in a given industry;

- **demand conditions**: the nature of the local demand for the industry's product or service;

- **firm strategy, structure and rivalry:** the conditions in the economy governing how companies are created, organised, and managed, and the nature of domestic rivalry;

- **related and supporting industries**: the presence or absence in the economy of supplier industries and related industries that are internationally competitive;

- **chance:** acknowledging the extent to which an industry competitiveness is related to its historical path of development; and

- **government**: the ability of governments to manage other determinants of advantage to the benefit of their constituent industries.

Porter surmised that if these conditions were propitious within an economy, groups of industries would become mutually supporting, providing the basis for long term improvements in prosperity. He illustrated the relationships between economic forces in his 'diamond' of competitive advantage (Figure A.1).

Importantly, Porter recognised that regions within nations, and regions that transverse national borders, are the most appropriate geographical units of analysis when assessing the determinants of economic advantage.

Figure A.1
Porter's Diamond
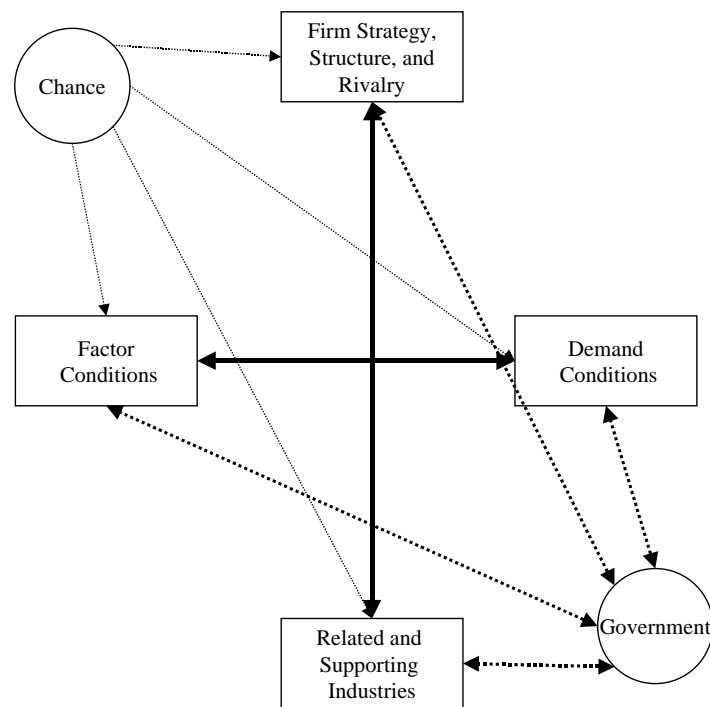
8.2 McKinsey & Company's Horizons Model

The competitiveness of an economy can also be analysed using McKinsey & Company's three horizons model of business competitiveness. This holds that any business must maintain tight cost control to hold onto its traditional core business ('horizon 1'). But sustained prosperity must also involve the ongoing search for new business opportunities spinning off from the core ('horizon 2') and long term strategies to build entirely new business opportunities ('horizon 3').

Thus, long term business prosperity is regarded as a function of business's ability to: regenerate itself as an operating environment; regenerate its strategic focus; and regenerate its products and services for future markets. Such notions are consistent with the requirement for adaptability and flexibility in the global economy.

White, Baghai and Everingham (1999) classified particular sectors of the Australian economy using the three horizon's model. Their work gives insight to the environments that regions need to foster to ensure economic prosperity. White *et al* (1999) classified traditional agriculture, mining and domestically focussed manufacturing as Australia's *horizon 1* industries. They argued that sound productivity gains have been made in these sectors and that they will remain of great importance. However, Australia's enviable growth performance over the past 15 years (Australia's cumulative GDP growth over 1985-1998 was almost 50% compared to an OECD average of less than 38%) was attributed as much to strong investment in *horizon 2* industries like ETM exports, communications, tourism and service exports. In the future, *horizon 3* sectors like biotechnology and new services based on e-commerce will become increasingly significant as national economic drivers.

Importantly, the 'urban intensity' of sectors - i.e. reliance on a rich network of business services, access to universities and other key research institutions and availability of specialist skills - becomes more pronounced in moving up the horizons scale (Figure A.2). This also underscores the strategic role which the major cities play in Australia's economic future.

Figure A.2
The Three Horizons of Australia
(After McKinsey and Company)
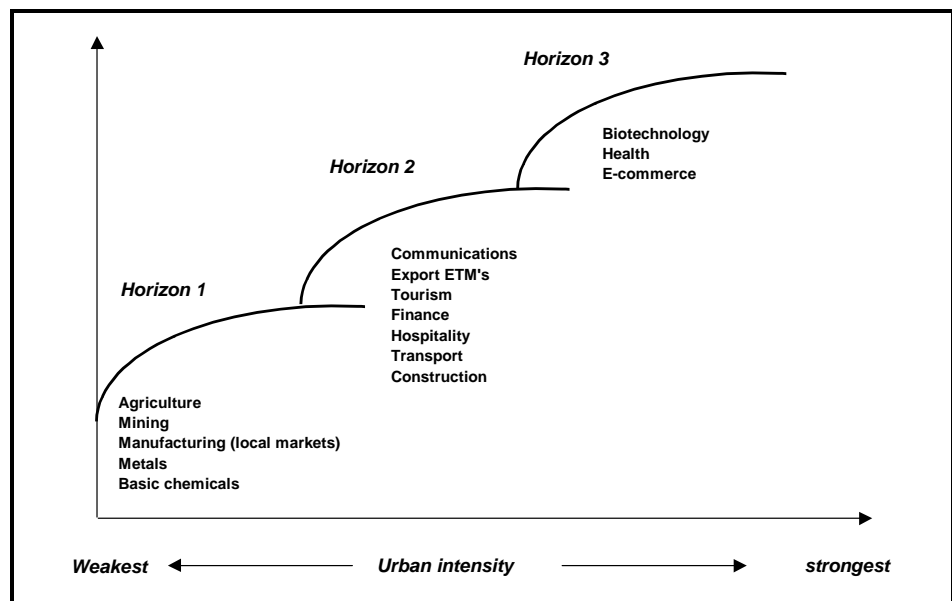
8.3 Institute for Management Development (IMD)

The method adopted by the IMD for assessing regional competitiveness focuses on four forces. They include the trade offs within an economy betwwen:

- Globality and proximity
- Assets and processes
- Aggressiveness and attractiveness; and
- Risk taking and social cohesion.

Though IMD limits its commentary on these forces it is generally understood that the tradeoff between:

- globality and proximity refers to the 'containment' within an economy, recognising that external trading partners which provide cost effective inputs and markets may do so at the expense of local synergy development;

- assets and processes describes the importance of an economy's ability to create new wealth as opposed to its current consumption of inherited wealth (i.e. to add value rather than to focus on natural resource based output);

- aggressiveness and attractiveness refers to an economy's acquisition of resources through direct foreign investment (e.g. Japan, Korea) , anti-competitive practice etc. compared to the level of external investment into an economy because of its conducive operational environment (e.g. Ireland, Thailand); and

- risk taking refers to a culture of entrepreneurship and opportunism versus the tendency towards mitigation of business risk by fostering social harmony.

The IMD suggests that these tradeoffs are manifest in eight competitive input factors which regulate the competitiveness and sustainability of economies. These include the:

- Local economic strength;
- Internationalisation of trade and investment;
- Conduciveness of Government policy;
- Capital market performance and quality of financial services (i.e. finance);

- Extent to which resources and systems are adequate to service the basic needs of business (i.e. infrastructure);
- Extent to which enterprises are managed in an innovative, profitable and responsive manner;
- Scientific and technological capacity combined with success in basic applied research; and
- Availability and qualifications of human resources (i.e. people).

Figure A.3 replicates the IMD's representation of the interactions of competitiveness.

Figure A.3
IMD Framework for Economic Competitiveness

Victorian Department of Infrastructure

Globalisation, Competitiveness & Melbourne's Metropolitan Strategy

Community and Industry Leaders Forum

December 2000

TABLE OF CONTENTS

INTRODUCTION

This report summarises the proceedings and outcomes of a business leaders forum facilitated by Spiller Gibbins Swan Pty Ltd (SGS) to 'ground-truth' the findings of a study commissioned by the Department of Infrastructure entitled *Globalisation, Competitiveness and Metropolitan Strategy*. SGS also prepared this original study.

The objectives of the original Study were as follows:

- *To understand the competitive strengths and weaknesses of the metropolitan Melbourne region's economy, in a national and international context, across a range of economic and social factors.*

- *To relate the main factors affecting the performance of the metropolitan Melbourne region to the global economy to the existing 'strategic architecture' of the region (the current paradigm).*

- *To develop insights into the emerging factors that may affect the competitive performance of the metropolitan Melbourne region in the global economy and the impact they may have for a different 'strategic architecture' for the region (the emerging paradigms) to meet changing business needs.*

- *To identify which factors a metropolitan strategy might have a role in supporting.*

GROUND TRUTHING PROCESS

Preliminary Activities

The ground truthing process culminated with a forum of community and business leaders. However, prior to this the following tasks were completed.

- Summarising the Study in an *Executive Briefing Paper*;

- Identifying a diverse range of community and industry leaders appropriate for the review task;

- Contacting these leaders and individually briefing them on the objectives and major findings of the original Study (15 leaders were taken through this process); and

- Inviting the selected leaders to the forum after allowing them sufficient time to review the *Executive Briefing Paper*.

Conducting the Forum

The forum was planned around the following questions as prompts for discussion.

- What will govern metropolitan Melbourne's ability to generate jobs and investment over the next decade?

- What will be Melbourne's main strengths and weaknesses in generating jobs and investment over this period?

- What are the priority initiatives required of Government to get the best jobs and investment outcome for Melbourne/ Victoria?

- How important is the Metropolitan Strategy in getting the best jobs and investment outcome for Melbourne/ Victoria?

In practice, the forum proceeded in a less disciplined way. Participants generally chose to express views on a range of related issues as well as on the questions posed by the facilitator, leading to successive rounds of 'side comment'. Nevertheless, the output from the discussion can be directly related to the concepts and hypotheses explored by the original study.

Forum Attendees

The forum was attended by the following:

Mr. Chris Fitchett
Commercial Television Production Fund
Australian Film Commission

Capt. Trevor Jensen
Operations and Inflight Services
Ansett Australia/ Air New Zealand

Mr. Stewart Adam
School of marketing
RMIT University

Ms. Janine Kirk
Committee For Melbourne

Mr. Alan Wein
Small Business Advisory Council/ House

Mr. Rowan Tuckfield
Infrastructure Planning Council/ Mawson Capital

Mr. Daniel McKinnon
Looksmart International

Ms. Andrea Hull
Victorian College of the Arts

Other attendees included Prof. Lindsay Neilson. Geoff Anson, John Bruce and Rudy Kohut from the Department of Infrastructure and Marcus Spiller and Andrew McDougall from SGS.

ROBUSTNESS OF THE FRAMEWORK

The framework devised by SGS for analysing the competitiveness of regions identified three broad categories of drivers:

- Low risk;
- Low cost; and
- Quality access to knowledge.

The Executive Briefing Paper included the entire list of drivers for reference purposes.

At the conclusion of the forum, participants were asked if there were any major gaps in this framework, or issues that were not adequately addressed. None were volunteered suggesting that the framework is reasonably robust.

MELBOURNE'S COMPETITIVENESS

Strengths and Weaknesses

The original study summed up the principal strengths and weaknesses of the Melbourne regional economy as follows.

MELBOURNE'S STRENGTHS
- Relative political/ government stability and transparency
- Natural monopoly benefits in utility service provision
- Scientific and professional skills
- Education systems
- R&D culture
- Livability (Quality of Life).

MELBOURNE'S WEAKNESSES
- Lack of entrepreneurial and risk taking culture
- Lack of globally recognised business clusters

MELBOURNE'S UNKNOWNS
- Quality of leadership
- Competitiveness of market structures
- Regulatory environment
- and others

Spiller Gibbins Swan Pty Ltd

The various observations and arguments put by the forum participants have been analysed by SGS in terms of the framework developed in the original study. The results are shown in the chart overleaf.

Broadly speaking the assessment made in the original report was borne out in the forum. This is particularly so in respect of poor co-ordination of government, industry and institutional players around key business clusters like aviation, manufacturing and the creative arts (see further discussion below).

Regime of Competitiveness	Economic Driver	Commented on by Forum Participants?	Views Expressed	A Melbourne competitive strength (✓) or weakness (✗)
(a) Low Risk Business Environment	• Stable government and judicial institutions.	Yes	Melbourne and Australia generally were seen to enjoy a high level of political, financial and social stability	✓
	• Independent anti-corruption institutions.	No		
	• Independent industry regulators (e.g. telecommunications, media, infrastructure, etc.)	No		
	• Stable financial markets with strong prudential regulation and transparent trading.	No		
	• Social cohesiveness.	Yes	Reference was made to the relative cohesiveness of Melbourne community, and its greater propensity to 'pull together' compared to other major centres. Melbourne's western culture and English language economy were also seen as an advantage. Participants also remarked that collaborative attitudes were more prevalent amongst business in Victoria, compared to other Australian centres.	✓
	• Excellent civic, regional and national leadership.	Yes	An often-repeated comment was that Melbourne failed to market itself effectively in the international community. A greater focus on communication and promotion strategies was required.	✗
(b) Low Cost Structures	• Competitive market structures for service and material inputs.	No		

• Flexible labour markets and industrial relations system.	Yes	Melbourne was seen to offer major advantages with respect to labour costs in an international context. This comment appeared to relate mainly to higher order skills - engineers, scientists, financial analysts, business consultants etc. However, many participants referred to Melbourne's perceived poor environment with respect to industrial relations.	✓ ✗
• "Natural monopoly" benefits in energy generation, transmission and retailing.	Yes	Reference was made more than once to the apparent lack of security in Melbourne's power supplies.	✗
• "Natural monopoly" benefits in water supply and sewerage systems.	No		
• "Natural monopoly" benefits in telecommunications infrastructure.	Yes	Participants indicated that Melbourne enjoyed a 'connected business environment', especially in terms of its embracing of e-commerce technologies. Nevertheless, concerns were expressed about the cost of broadband access, especially the 'last mile' to smart buildings.	✓ ✗
• "Best practice" investment in and management of roads infrastructure.	Yes	Melbourne has limited road congestion compared to Sydney and international competitors.	✓
• "Best practice" investment in and management of rail freight infrastructure.	No		
• "Best practice" investment in and management of seaports infrastructure.	No		
• "Best practice" investment in and management of airports infrastructure.	No		

• High quality airline connectivity.	Yes	Participants remarked that Melbourne's curfew free international airport was a strategic asset. Nevertheless, Melbourne's distance from international markets was seen as a significant problem.	✓✗
• Cost effective regulatory environment - workers compensation, OH&S, corporate affairs and fair dealing.	No		
• World competitive company tax regime.	Yes	One participant argued that Australia's company tax regime, indeed its general tax arrangements, were lacking in competitiveness notwithstanding recent reforms.	✗
• Well organised urban regions/settlement pattern for production logistics.	Yes	Several comments were made about how 'easy it was to move people and goods around Melbourne'	✓
(c) Quality Access			
• High incidence of scientific skills in the labour force.	No		
• High incidence of other professional skills in the labour force.	No		
• Secure supply of technical/trade skills.	Yes	Some participants felt that technical/trade training had not kept pace with the pace of reform in the university sector	✗
• A high quality school education system.	No		
• A pervasive R&D culture.	Yes	Participants portrayed Melbourne as a "University Town', at least in a national context. The potential is there to create a pervasive R&D culture	✓
• An entrepreneurial and risk taking culture.	No		
• Liberal migration laws for people with professional skills.	Yes	Melbourne's multi-cultural nature was seen as a big plus.	✓

• A tolerant culture open to new ideas.	Yes	Melbourne's cultural diversity was seen to support a strong propensity for creativity. ✓
• Liveable cities and regions with the capacity to attract and hold a highly skilled workforce.	Yes	Melbourne was seen to enjoy a very high level of liveability in terms of employment opportunities, cultural diversity, recreational opportunities and quality environments within the city and within easy reach of the city. ✓
• Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.	Yes	Some participants felt that Melbourne lacked an 'export culture'. More generally, participants lamented the lack of co-ordination between key industry players, Government, the unions and the community, to build world competitive 'business clusters'. Victoria's and Australia's retreat from an active industry policy aimed at building and protecting core competencies in manufacturing in particular was seen to be inhibiting the emergence of internationally recognised business clusters. Participants referred to the need to support 'strategic industries', to lift the level of intra-governmental co-ordination and the imperative to establish 'centres of excellence'. ✗
• The accumulation of historic wealth.	No	

The forum also identified some additional strengths and weaknesses as follows:

Strengths
- The relative cohesiveness of the Melbourne community.
- The English language base of the Australian economy.
- Melbourne's rich multicultural base.

Weaknesses
- Leadership could be improved in terms of marketing what Melbourne has to offer.
- Perceptions of a poor industrial relations record in Victoria.
- Cost of access to broadband.
- Perceptions of a vulnerable electricity supply system.

Opportunities and Threats

According to comments made by forum participants, opportunities for Melbourne include:

- The Commonwealth Games, major events such as the Grand Prix and other tourism attractions, especially in an environment that is likely to see continuing weakness in the Australian dollar. Such events are excellent avenues for marketing and promotion, as evidenced by the success of the Sydney Olympics;
- Producing content for Internet and other electronic publishing media taking advantage of the city's strength in creativity, the arts and design;
- Aviation industries given the curfew free airport and established training and development infrastructure.

Apart from the negative publicity associated with industrial disputes, and concerns regarding a lack of a business cluster 'culture', participants identified the following threats to Melbourne's ongoing prosperity:

- Complacency; and

- Lack of clear direction (a role potentially for the Metropolitan Strategy);

Participants felt that the State Government needs to make clear public decisions regarding its willingness to facilitate investment. This would be evidenced by:

- Enticing strategic industry decision makers to locate operations in Melbourne;

- Removing investment constraints (i.e. complexity of regulation and procedures);

- Facilitating public private partnerships aimed at building industry centres of excellence and supporting their ongoing competitiveness.

BUSINESS CLUSTERS: A KEY ISSUE FOR THE METROPOLITAN STRATEGY

Perhaps the strongest message received from the forum was Melbourne's weakness in terms of the 'competitiveness driver' characterised in the original framework as;

> *Presence of globally recognised business clusters, engaging in high levels of international exports and facilitating strong inward investment.*

The concept of 'business clusters' and how they might be advanced through the DoI's strategic planning effort deserves special discussion here. This is not to suggest that the other themes identified in the original report (livability, efficient transport systems, secure power supplies etc) should be less of a priority in the development of the metropolitan strategy. Rather it reflects both the strong sentiments of the forum and the emergent literature which suggests that those regions that can harness 'cluster power' are most likely to succeed.

The remainder of this paper is therefore dedicated to an exposition of the role and nature of clusters, and how policy can be deployed to nurture them. This material draws heavily from recent SGS work in the business clusters field.

What are Business Clusters?

> *'A cluster allows each member benefits as if it had greater scale or as if it had joined others without sacrificing its flexibility.' (Porter, 1998).*

There is a degree of confusion in the policy literature regarding how the economic concept of clustering fits with the land use planning concept of the "business precinct", with economic classification techniques such as the "industrial sector", and other economic production arrangements i.e. "networking".

This can be attributed, at least to some extent, to the broad range of economic theory that converges on discussions of economic space[1], all of which proclaim the benefits of proximity or industrial co-location.

Perhaps the best way to distinguish the often confused concepts is to contrast each against what are generally accepted to be the key elements of cluster definitions (van Dijk, 1997) i.e.: geographic concentration; similar firm activity; supporting and complimentary firm activity and infrastructure; and active channels of co-operation within the geographic concentration (see Table below).

The relationship between industry clusters and related concepts.

Related Concept	Geographic concentration	Similar firm operation	Supporting and complementary firm activity and infrastructure	Active channels of co-operation
Business precincts	✓	✓	✓	sometimes
Industry sectors	X	✓	X	X
Networks of production	X	✓	✓	✓
Industry clusters	✓	✓	✓	✓

The notion of *business precincts* stems from the town planning and urban development perspective of the world. Generally speaking, precincts are either planned developments or naturally occurring concentrations of businesses that have a particular focus within a tight geographic space. Examples might include technology or industrial parks, retail shopping centres or strip developments, or adjacent institutional development in the health, education, recreation or civic functional realms.

Precincts are driven by the need to plan and maintain the physical infrastructure (inc. landscape, transport, building and other infrastructures) that forms the urban product, which aims to provide users with an efficient and amenable system of interaction and operation.

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[1] Including transaction cost, industry location, economic growth and agglomeration theory, not to mention Michael Porter's great insights in regional competitive advantage.

Although precincts are concentrations of business, they are not 'clusters', as they do not <u>necessarily</u> have active channels of co-operation within the precinct.

Industry sectors refer to a "horizontally defined" economic activity. They include operators that are involved in the same or similar lines of business, usually described well by standard industrial classifications.

The location of firms within an industrial sector may not imply the existence of supporting or complementary links between their firms and institutions or the existence of, or potential for, active channels of co-operation.

Networks of production, which often rely on strategic alliances between firms and between firms and institutions, are closely related to clustering.

Some would argue that networks are a "post modern" view of clustering, in that it has all the elements of clustering that are argued to boost competitive advantage, without the need for propinquity. Arguably, the increased capacity of business to communicate and therefore to co-operate via information and communication technologies has removed the need for businesses to co-locate.

But, this view ignores the social mechanisms in which business co-operation is often initiated and maintained, and it understates the transaction costs involved in those processes i.e. it understates the value of, and the positive impact proximity has on, personal inter-mediation (Granovetter, 1985).

In 1995, the California Economic Strategy Panel (CESP) made clear its view that local ties continued to be important, even in industries such as multimedia, which extensively utilises information and communications technologies for product development, marketing and delivery:

> *"Some industry observers have predicted that multimedia, like the Internet, will be geography-independent because location is irrelevant; and that the Internet, through the World Wide Web and other innovations, will become the centre of multimedia innovation. However, many people in the industry are recognising that economic regions are becoming more important than ever in shaping new industries, primarily due to the importance of strong professional and inter-firm relationships and the importance of reduced transaction costs (e.g. the costs associated with accessing talent, technology, capital, specialised communications infrastructure, and specialised suppliers)".*

As previously mentioned, various trains of economic thought converge at the clustering concept. Though one definition is not universally accepted, Rosenfeld's is commonly used. It contains all the definitional elements surveyed by van Dijk (1997):

> *"A geographically bounded concentration of similar, related or complementary businesses, with active channels for business transactions, communications and dialogue, that share specialised infrastructure, labour markets and services, and that are faced with common opportunities and threats"* (Rosenfeld, 1997, p.10).

In terms of the related concepts, an industry cluster can be located within, or at least centred in a business precinct, though this is certainly not a necessity.

Clusters may revolve around the notion of industrial sectors, as they must have a concentration of similar firms, the sector classifications often providing the means for defining similarity in operation. But notions of shared infrastructure and common opportunities will often mean that clusters will involve firms drawing from a wide variety of industrial sectors.

Geographic Scope

Given that their definitional elements include specialised infrastructures, labour markets and services it seems reasonable to approach clusters from a metropolitan regional level.

Yet it is important to realise that the geography of relevance will be different for each cluster. Anderson (1994) argued that a cluster could span "an area as wide as it needs to" to gain access to the resources and skills necessary for production. In his work within the US, Anderson found that such an area was usually a metropolitan area that housed a population of at least 500,000 people.

Jacobs and de-Jong (1992) in their study of clustering in the Netherlands also concluded that the geographic area of relevance was cluster-specific. Furthermore, they concluded that the geographic scope may be regional national, or indeed international.

Geographic scope is thus another means by which clusters can be differentiated from business precincts and other planned physical developments. With clusters the linkages between the relevant firms drive the area of relevance, whereas with precincts, the physical boundaries of an urban product stipulate that area.

Economic Benefits of Clustering

The economic benefits of clustering have been proclaimed since the early work of Alfred Marshall (1920), though groupings of economic activity have been noted for centuries.

The recent attention to clustering can be attributed to the work of Michael Porter (1990), who documented the relationship between competitiveness and endowments, cultures and interactions in local economies.

Neither Porter's work, nor that of others (le Veen, 1998) establishes an indisputable causal link between clustering processes and economic growth. However, Porter documented numerous examples of regional inter-relationships to support his postulations. Furthermore, modellers of economic growth (Romer, 1986) are now placing greater emphasis on the increasing returns associated with innovation, technological change and knowledge accumulation which tend to be linked to location (Bureau of Industry Economics, 1993).

In this context the economic benefits that are associated with both co-located (or agglomerated) and clustered firms include better:

- access to employees, suppliers and other firms;
- access to specialised institutions and associated information;
- complementarity, for example, when a visit to a major tourism attraction is complemented by side trips to other attractions;
- access to infrastructure including institutions and public goods;
- availability of ancillary support services; and
- costs of communication and transport (Marshall, 1920 Scott, 1988).

Also, co-location exposes firms to better business practices by their neighbours. This can act as a spur to greater efficiency, partly because it allows better comparison of operations and therefore better performance measurement and motivation of staff. Firms can also lift their performance simply to maintain their reputation within the local business community.

However, some geographically co-located firms, while 'clustered' in the physical sense, do not fall within the common definitions of industry clusters, as the constituent firms and institutions fail to co-operate. That co-operation underlies economic benefits over and above agglomeration economies.

The essential element delineating a 'cluster' from mere co-locations is the social infrastructure that facilitates the building of co-operative business linkages. This incorporates the processes between people that

establish networks, norms and social trust and facilitate co-ordination and co-operation for mutual benefit (after Cox, 1995).

Effectively, a cluster requires social interaction, trust and a shared vision in order to create the dynamism of competitiveness and innovation (le Veen, 1998) that have been argued to be important determinants of regional prosperity (Porter, 1991 Nasbitt 1994, McKinsey & Co, 1994).

Social infrastructure allows firms within the cluster to tap into competitively valuable assets. Without such relationships (or linkages), co-located firms cannot fully take advantage of their location, as they fail to exploit collaborative opportunities in innovation, technology diffusion, research & development and other capacity building processes.

There is no clear boundary that indicates where the benefits from co-location end and the benefits from co-operative business relationships begin. However, what is known is that naturally-occurring co-locations of firms offer a propitious physical environment for competitive advantage development.

Porter (1990), on the one hand, argues that clusters develop among co-located firms largely because local competitive pressures ultimately drive selective co-operation, which, in turn, enables specialisation and innovative responses. On the other hand, Rosenfeld and others attribute cluster development more to a collaborative culture involving the sharing of information, knowledge and support. It seems likely that both forces are at work, to greater or lesser extent, in specific successful clusters.

Nurturing Clusters

The goal or purpose of cluster policy is enhanced regionally prosperity. To this end, the objectives of cluster policy are simply to have:

- more participants in a cluster;
- better performing members; and
- better linkages between those members.

Policies to nurture clusters must not only be adapted to the cultures of the locality, and the relevant industries, but also to the culture of government. Roelandt (1998) in an analysis of the cluster policies in the OECD member nations found that cluster strategies differ between countries depending on national traditions and cultures in policy making, the way dialogue between industry, research and government

has been instituted, the scale and scope of economic activity, the level and style of intervention that is tolerated and the composition and technology of economic activities. Moreover, the policy approaches vary according to the nature of the problems and opportunities that are being addressed.

Nevertheless, Roelandt identified a general framework for successful cluster policy development. Key elements include:

- Establish a stable and predictable economic and political climate;
- Create favourable framework conditions for smooth and dynamic markets;
- Create a context that encourages innovation and upgrading by organising a challenging economic vision for the region;
- Raise awareness of the benefits of knowledge exchange and networking;
- Provide support and appropriate incentive schemes for collaboration and network brokers and intermediaries who bring actors together;
- Act as a facilitator and moderator of networking and knowledge exchange;
- Facilitate an arena for informal and formal exchange of knowledge;
- Set up competitive programmes and projects for collaborative research and development; and
- Provide strategic information (projections, scenarios and strategic cluster studies).

Many of these policy strategies need to be addressed at a macro level. However, considerable progress can be made through action by local and regional bodies.

One approach is to consider the barriers to effective clustering in order to find solutions within local government's domain. The Table below indicates a variety of system imperfections that can act as a barrier to effective clustering, and indicates the policy responses for particular countries. The references to Australia are bold. Not only has Australia adopted relatively few cluster policies, but those policies are at a macro level. This suggests considerable potential for local and state level activity.

Cluster-based policy responses in OECD countries

System imperfection	Policy response	Countries
Inefficiently functioning markets	Competition policy and regulatory reform	Most countries, including **Australia**
Information failures	Technology foresight programmes	Sweden, Denmark, the Netherlands
	Strategic market information and strategic cluster studies	Canada, Denmark, Finland, the Netherlands, USA
Limited interaction between actors in innovation systems	Broker and networking agencies and schemes	**Australia**, Denmark, the Netherlands.
	Provide platforms for constructive dialogue	Austria, Denmark, Finland, USA, the Netherlands, UK, Sweden, Germany
	Facilitating co-operation in networks (cluster development schemes)	Belgium, Finland, UK, USA, the Netherlands
Institutional mismatches between (public) knowledge infrastructure and market needs	Joint industry-research centres of excellence	**Australia**, Belgium, Denmark, Finland Spain, Sweden, Switzerland, the Netherlands, Germany
	Facilitating joint industry-research corporations	
	Human capital development	Spain, Finland, Sweden
	Technology transfer programmes	Denmark, Sweden
		Spain, Switzerland
Missing demanding customers	Public procurement policy	Austria, the Netherlands, Sweden, Denmark
Government failure	Privatisation	**Most countries**
	Get out of subsidy business	Canada
	Horizontal policy making	Denmark, Finland, Canada
	Public consultancy	Canada, the Netherlands
	Downsizing government interference	Canada, the USA

While, there is no single best policy approach that will be optimal in all cultural contexts, Roelandt provides the following guidelines to avoid some pitfalls:

- Cluster creation should be driven by market led initiatives, rather than by the government;
- Direct subsidy of industries should be avoided as it limits rivalry;
- Intervention should only be in response to clear market failure, and then only when such intervention will improve the situation;
- Government should act as a catalyst or broker bringing together interested parties in an environment with incentives for innovation and clustering, rather than set the agenda;
- Cluster policy should not ignore small and emerging clusters; nor should it focus only on 'classic' and existing clusters;
- Clustering should not be an extension of traditionally defensive industrial policy to support declining industry; and
- Clusters should not be created from scratch.

Cultural Change

To the extent that cluster policy aims to change the culture of a location or of an industry, it is a long term objective that requires commitment and persistence. Ideally, a range of complementary policies with various time lines would be developed. Such a range may be:

- At the outset, the cluster needs to be made aware of itself, its opportunities, limitations and the social context of its operations. This is crucial because most parties to latent clusters may not be aware of the cluster and the role that it plays in their success. This would involve seminars, workshops and other opportunities to demonstrate the potential for social relations.

- In the short term (1-2 years), it may be possible to attract outside investment targeted to meet identified gaps in the local clusters. A company capable of filling such a gap would find a ready market, suitable skill base, and willing collaborators. Finding appropriate firms is a marketing issue. Another policy for the short term would be to help small firms gain accreditation or to bid jointly for contracts.

- In the medium term (2-5 years), policies could aim to strengthen the competitiveness of existing clusters. Such policies could include strengthening core competencies through the establishment of training facilities, or establishing incubators for spin-off developments.

- In the long term, policies to develop connections between clusters may be implemented. This may be most important at the regional level, where the interplay of clusters provide enhanced options as the insights and skills from various fields merge and spark new businesses and further innovation. In fact, the Cairns Regional Development Committee (1998) argues that:

     "*The potential for success of any cluster will be defined by its ability to create growth synergies with other clusters; sharing and building on such features as the marketing intelligence base, transport skills bases, complementarities of service provision, and opportunities for united efforts to create and expand infrastructure. The export service industries will not grow in isolation. Their growth prospects are directly dependent on what is happening in the broader FNQ economy, and the opportunities created in relation to the Region's major industries*".

Strategies to promote inter-cluster synergies would include the creation of industry based think tanks to look at commonalities and

parallels in operations. Long term policies to facilitate the creation or attraction of new industries may also include the establishment of an attractive physical, cultural and business environment. As the information and telecommunications revolution improves communication capacity of all areas, and as industry becomes increasingly knowledge rather than resource based the choice of location will increasingly depend on the attractiveness of the environment.

Role of the Metropolitan Strategy

It is abundantly clear from the literature and a review of clustering experience around the world, that the development of effective, export oriented clusters requires action on a wide variety of fronts, including a number of policy dimensions that can be effectively managed in an 'aspatial' framework. These might include:

- Taxation and fiscal policy treatment of R&D;
- Intellectual property laws;
- Technical and trade training;
- Export promotion;
- Telecommunications policy; and
- Entrepreneurship and industry leadership programs.

The metropolitan strategy for Melbourne must be built on a sound understanding of such policy fields. The strategy may well play an agenda setting role in some of these areas, for example, the need to accelerate broadband access in key activity centres.

Nurturing effective clusters also has an undoubted spatial dimension, albeit that the links between 'clustered' firms in a geographic context are often more complex than the benefits arising from simply being neighbours.

It is beyond the brief for this study to make a comprehensive assessment of Melbourne's key 'spatial' infrastructure for clusters. However, the following map highlights some assets which appear to have obvious strategic significance in building strong clusters for Melbourne and Victoria.

Infrastructure for Melbourne's Business Clusters.

A
AUTOMOTIVE INDUSTRY HUB
- Broadmeadows, Altona, Geelong and Fishermans Bend Dandenong are key locations in Victoria's/Australia's automotive industry.

Issues
- Quality transport links to these sites will help contain labour turnover and freight costs
- Access to excellent business services (engineering support, design etc.) is also critical

B
MELBOURNE AIRPORT
- Crucial to the health of the tourism cluster
- Provides the Victorian economy with excellent access to the global skills pool, especially regarding advanced business services
- A key element in Victoria's emergent aviation cluster

Issues
- Improving links with the CBD
- Formation of a flexible enterprise precinct in the airport corridor
- Preserving the airport's curfew free status
- Retaining options for a second international airport

C
DOCKLANDS
- A strategic seed-bed for innovative urban development approaches, including new models of business collaboration

Issues
- Governance integration with the rest of Melbourne
- Maintenance of an ongoing supply of "Dockland" style development opportunities

D
INFRASTRUCTURE FOR AN AVIATION CLUSTER
- Airports at Tullamarine, Pt Cook, Essendon and Avalon.
- R+D in the city's flagship universities
- Potential to secure "command and control functions" for leading world airlines
- Excellent training facilities

Issues
- Need for improved co-ordination between these cluster elements

E
CBD
- Key command and control centre. This status is important to retention of a deep local market in business services
- A flagship for wider Melbourne's internationally and nationally perceived livability which, in turn, is vital to the attraction and retention of skills

Issues
- Need to attract more head offices
- Need for continuous improvement in the cultural infrastructure of the CBD
- Maintain high levels of street amenity and personal security

F
RAIL LINK WITH SYDNEY
- Melbourne and Sydney have complementary skills. Closer integration of these centres would strengthen Melbourne/Victoria's strategic business clusters

Issues
- Resolving an appropriate VFT technology
- Forging an attractive and workable public/private partnership

G
SEA-PORT
- Melbourne has potential to become an exporter of logistics services given the city's status as Australia's transport hub

Issues
- Longevity of the sea-port
- Managing the environmental impacts of major vessel movements in Port Phillip Bay

H
YARRA VALLEY-CBD CULTURAL SPINE
- The Yarra Valley links many of Melbourne's iconic cultural symbols, both in geographic and historical terms. Key elements include the concentration of arts and tourism facilities in Southbank, Federation Square, the Yarra Valley Parklands, Heide Museum of Modern Art, the Heidelberg School Artists trail and the Yarra Valley wineries.
- This spine provides one "hook" for development of Melbourne's arts/culture "content provider" cluster

Issues
- Linking Melbourne's cultural attractions to generate a more powerful magnet for creative talent

I
SUBURBAN DISTRICT CENTRES
- Dispense higher order business services which are the 'glue' that holds clusters together
- Crucial to the perceived and actual livability of the suburbs

Issues
- Improving the accessibility of these centres by all modes
- Strategic planning to ensure emergence of genuine mixed use hubs

J
TECHNOLOGY / R&D PRECINCTS
- Parkville-CBD, Monash, LaTrobe, Werribee
- Vital to the innovation capacity of all Melbourne/Victorian clusters

Issues
- Further deepening the linkages between the R+D and business communities (eg Bio21)
- Providing greater local opportunities for business incubation

Source: Department of Infrastructure (2000)

CONCLUSIONS

We conclude from the forum and the briefings which took place prior to it that;

- The analytical framework of competitiveness drivers set out in the original study is robust.
- The assessment of Melbourne's strengths and weaknesses developed in that study is generally reliable.
- Some additional areas of weakness could include; a failure to capitalise on Melbourne's multicultural base, poor marketing of what Melbourne has to offer and perceptions of unreliable power and labour supplies.
- Development of a 'business cluster' culture should be a high priority issue for Government, including the formulation of the metropolitan strategy.

REFERENCES

Anderson, G. (1994) *Industry Clustering for Economic Development*, Economic Development Review, Spring.

Botham, R., 1998, *Cluster Strategies and Regional Development*, OECD Conference on Innovation and the Knowledge-based Economies, Sydney.

Bureau of Industry Economics (1993) *Recent Developments in the Theory of Economic Growth: Policy Implications*, Australian Government Publishing Service: Canberra.

Cox, E., 1995, *A Truly Civilised Society*, Boyer Lecture Series.

CREDC, 1998**,** *Cairns Region Tradable Services Opportunities*, CREDC, Cairns.

Glasmeier, A. and Harrison, B., 1997, *Response: Why Business Alone Won't Redevelop the Inner City: A Friendly Critique of Michael Porter's Approach to Urban Revitalization*, Economic Development Quarterly, 11(1): 28-38.

Glasson, J. (1974) *An Introduction to Regional Planning: Concepts, Theory and Practice*, Hutchinson & Co., London.

Granovetter, M. (1985) *Economic Action and Social Infrastructure: The Problem of Eembeddedness*, Am. J. Soc. 91, 481 – 510.

Jacobs, D. and de-Jong, M. (1992) *Industrial Clusters and the Competitiveness of the Netherlands*: *Empirical results and conceptual issues*, Economist-Leiden, 140(2), pp.233-252.

LeVeen, J., 1998, *Industry Cluster Literature Review*, http://www.unc/edu/depts/dcrpweb/courses/261/leveen/litrev/htm, April 1999.

Marceau, J. (1998) *The Triple Helix in National Context: Collaboration and Competition in the Biomedical Industry in Australia*, Industry and Higher education, 12(4) pp. 251-258.

Marceau, J. (1999) The Disappearing Trick: Clusters in the Australian Economy, Chapter 6 of OECD Proceedings Boosting Innovation The Cluster Approach, Organisation for Economic Co-operation and Development, France.

Matthews, J. and Weiss, L. (1991) *A Tale of Two Industries: Textiles in Italy and Australia*, Industrial Relations Research Centre, University of New South Wales.

McDougall, A.C. (1999) *Examining the Boat Building Concentration in South East Queensland,* unpublished report for the Australian Housing and Urban Research Institute at the Queensland University of Technology.

McDougall, A.C. (1999) *Examining the Multimedia Concentration in South East Queensland,* unpublished report for the Australian Housing and Urban Research Institute at the Queensland University of Technology.

McKinsey and Company (1994) *Lead local complete global: Unlocking the growth potential of Australian regions*, Office of Regional Development, Department of Housing and Regional Development, Canberra.

Molina, A., 1998, *Industrial Clusters and Knowledge Sharing Constituencies*, http://www.ispo.cec.be/industry/techmapp.htm, April 1999.

Nasbitt, John (1994) *Global Paradox: The bigger the world economy, the more powerful its smallest players*, Avon Books.

Porter, M., 1998 , *Clusters and the New Economics of Competition*, in *Harvard Business Review*, November/December.

Porter, M.E. (1990) *The Competitive Advantage of Nations*, The Free Press: New York.

Roelandt, T., 1998, Cluster Analysis and the System of Innovation Approach, *OECD Conference on Innovation and the Knowledge-based Economies*, Sydney.

Romer, P., 1990, Endogenous Technological Change, *Journal of Political Economy*, 98(5): S71-S102.

Romer, Paul M. (1986) *Increasing Returns and Long Run Growth*, Journal of Political Economy, 94, pp. 1002 – 1037.

Rosenfeld, S. 1996, *Overachieving Business Clusters at Work: Prospects for Regional Development*, Regional Technology Studies, Chapel Hill, NC.

Rosenfeld, S., 1997, Bringing Business Clusters into the Mainstream of Economic Development, *European Planning Studies,* 5(1): 3-23.

Scott A. J. (1988) Metropolis: *From the division of labour to urban form*, University of California Press: Berkeley.

Sheehan, P. and N. Pappas, 1998, The New Manufacturing: Linkages Between Production and Service Activities, in Sheehan, P. and G. Tegart, *Working for the Future, Victoria University Press*, Melbourne.

Smith, K., 1998, Specialization, Innovation and Growth Across Heterogeneous Economies – Issues for Policy, *OECD Conference on Innovation and the Knowledge-based Economies*, Sydney.

van Dijk, M.P. (1995) *Flexible specialisation, the new competition and industrial districts*, Small Business Economic 7, pp. 15-28.

Waits, M.J. and Howard, G., 1996 *Industry Clusters* in *Economic Development Commentary*, Vol 20(3) Fall 1996.