Planning directions for metropolitan Sydney

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EXECUTIVE SUMMARY

The economic performance of Australia’s big cities

Australia’s big cities – Melbourne and Sydney in particular – are still key drivers of national wealth. In 2010 Sydney and Melbourne contributed over 40 percent of national GDP. However, while Sydney tracked national per capita growth rates in GDP in the decade to 2000, since then the city’s economy has been slowing down and its growth rate has decoupled from those of New South Wales and Australia. While the mining regions and other cities expanded on the back of infrastructure investments and very rapid relative population growth, Sydney lost ground.

Although Sydney’s growth rate has been lower than Melbourne’s for the last decade, Sydney retains a strong productivity advantage, with a much higher share of knowledge generated income; that is, income generated from professional services (such as engineers, lawyers and accountants) and finance and insurance. However, Sydney’s share of knowledge-generated income has been falling since 2000, while Melbourne’s has been slowly rising.

Productivity and the role of agglomeration

The factors that contribute to the productivity of firms include economies of scale, technological progress/innovation, investment in physical capital, human capital development and agglomeration.

The last of these – agglomeration – is the most relevant in the context of cities. Agglomeration refers to the density of economic activity. Firms are generally more productive in denser areas for the following reasons:

− They have access to economies of scale and scope, which means they have an ability to specialise, given the large pool of potential customers that are readily accessible
− The availability of numerous supply sources and potentially specialised infrastructure, and the competitive environment that stems from this
− Access to a deep and diverse pool of skilled labour, often complemented by high levels of technological/knowledge transfer between firms, which helps bolster innovation.

Human capital development is also accelerated in cities. Human capital comprises the knowledge and skills that enable a worker to contribute to a firm’s production and to earn a wage. It can be expanded by investment, such as formal education and gaining experience, which will increase the worker’s skill and productivity. But workers also gain in densely settled areas through ‘knowledge spillovers’ resulting from interaction (such as seminars and meetings) and from employees changing firms, which facilitate sharing of information, ideas and technical progress.

SGS has developed a measure of agglomeration which incorporates both local scale and accessibility to economic activity, as measured by employment, for small geographical regions. The measure is known as Effective Job Density (EJD). Consistent with the theory SGS has found variations in the productivity of firms across and within cities, that is firms located in areas with a high EJD (e.g. in the CBD) are more productive. The same pattern exists for human capital. This is highest in city centres, and the higher a person’s level of education, the more they benefit from increases in effective job density.
SGS has found that a doubling of an area’s EJD makes firms around 8 percent more productive, which fits with international literature (though of course this varies for different industries; for example, productivity in manufacturing reduces as EJD increases and puts pressure on land prices and transport networks).

EJD and other indicators can be used to compare the structure of Sydney and Melbourne, and perhaps explain some of the recent divergence in economic performance.

The structure of Sydney and Melbourne

1 **The availability of centrally located land for employment activities**

Data illustrating the price of prime and secondary office rents confirms that the cost of prime office space is considerably lower in Melbourne ($721 per square metre in central Sydney and $431 per square metre in central Melbourne). Expressed in terms of agglomeration benefits we can say that the price of a unit of agglomeration in Melbourne is much lower than Sydney.

The large (virtually unconstrained) supply of strategically located employment land in Melbourne is likely to be a significant factor in this difference. In existing employment sites in the City of Sydney there is potential for in the order of 114,000 new jobs, including after upzoning for perhaps 15,000 new jobs in the South Sydney employment area. This is a drop in the ocean compared to what might be available in inner Melbourne – estimated at capacity for +500,000 jobs in the City of Melbourne alone.

2 **Structure and geography**

Melbourne has a mono-centric structure, a concentration of jobs in and around the centre and relative ease of access between these jobs provided by road (and to a lesser extent, rail). In Sydney, the harbour forms an obvious natural barrier through the metropolis that increases north-south and other ‘cross radial’ travel times.

3 **Scale**

In employment terms, Sydney is bigger and this results in Sydney having greater EJD overall. Of course effective job density has two dimensions – jobs and the accessibility of those jobs. This is where the importance of transport networks becomes clear.

4 **Transport**

Sydney suburbs display much greater public transport mode shares in the outer suburbs compared to Melbourne, with Sydney’s bus network playing an important role in the accessibility of suburban centres. However congestion around Sydney CBD is a significant issue that undoubtedly dilutes EJD in the city’s core. In comparison, Melbourne’s inner area is well serviced by public transport and there is relative ease of movement, while in middle and outer areas there is very little public transport and the car dominates.

**Implications**

While Melbourne can offer agglomeration benefits at a highly competitive rate, Sydney clearly has the greater economic mass in absolute terms. However, Sydney’s EJD map is a patchwork and the agglomeration challenge for Sydney is joining up this patchwork though seeking opportunities to raise EJD at critical nodes and seeking opportunities to better connect nodes. There is a range of issues here: supply of floorspace capacity in the GEC; the provision of
infrastructure between nodes; and, institutional challenges presented by the need for integrated land use and transport planning.

Of course, there are factors beyond agglomeration economics responsible for the economic performance of Sydney and Melbourne. It could be argued that Melbourne’s recent strong performance has been boosted by good marketing, focussed industry policy and general good governance, while Sydney may have been ‘held back’ somewhat by poorly co-ordinated government policy, particularly where the integration of transport and land use planning is concerned.

The next step is to think how some of these challenges can be met at the strategic and local level. What is an appropriate planning response in Sydney?

Key ideas for Sydney

Urban structure can boost, or dilute, agglomeration and human capital benefits. In Sydney however, it is not sufficient to concentrate ever more business service type jobs in the centre of the city and do our best to connect the rest of the metropolis with these jobs by motorways and public transport (basically, the approach taken in Melbourne). Geography and topography and existing development patterns are beginning to constrain the city’s ability to grow jobs in the centre of the city. Furthermore, this approach is likely to neglect large areas of western Sydney where there are already two million people with a further one million expected in the next 25 years or so. There is a major social agenda (also linked to productivity in the form of enhanced conditions for human capital development) to be addressed in considering the future of western Sydney.

The appropriate urban structure in Sydney – to address the productivity and social agenda – is to develop a ‘network and polycentric city’ with a greater share of highly cross connected employment centres in a larger, higher density core area but also with a few key suburban centres (the regional cities of Parramatta, Penrith and Liverpool) beyond this core where employment development is encouraged. Sydney’s Metropolitan Plan from 2010 points to this future.

Source: Metropolitan Plan for Sydney 2036, 2010
In reality, the city is closer to this combination of ‘network’ and ‘polycentric’ metropolis than this timeline suggests, but additional planning, transport and government investment decisions are required to accelerate progress.

Five key ideas are identified:

1 **Expanding locations for employment in the inner city and networked city.** New areas for employment in the central city – such as the Bays Precinct and the Western Distributor Corridor – need to be developed, while employment growth in networked centres such as Macquarie Park and Olympic Park needs to be accelerated.

2 **A denser ‘network city’ core.** Residential development in inner Sydney is concentrated in apartment forms in existing centres. There is significant additional potential in areas close to transport. Additional residential development in low rise forms such as terraces, duplexes and triplexes and villa units needs to be facilitated in these areas.

3 **A rejuvenated regional city agenda.** The Cities Taskforce undertook some initial planning of the regional cities of Penrith, Parramatta and Liverpool. This work needs to be extended beyond revised planning controls, to focus on local infrastructure and public domain improvements, better coordinated government investment and other initiatives to accelerate employment in these centres.

4 **Transport for a polycentric and network city.** All major transport investments should support the polycentric and network city agenda. Faster rail connections to the centre, better connecting existing employment hubs with public transport and much improved radial connections to the hinterlands of central Sydney and the regional cities are the key initiatives in this project.

5 **Connecting Sydney to Melbourne and beyond.** The economic power residing in our major cities should be reinforced and further developed by enhancing connections between Sydney, Melbourne, Canberra and Brisbane. There needs to be a more integrated focus on the city-shaping potential of the high speed rail and second Sydney airport.

Implementation of such an agenda requires a special metropolitan focus. One idea would be to establish a metropolitan agency which is ‘above’ local and state politics, with both major infrastructure and land use planning responsibilities, financial independence and preferably some democratic legitimacy [with a combination of state and local representatives ‘on the board’]. Metropolitan Sydney needs such an agency as an advocate for the big moves required to secure a prosperous future.
1. INTRODUCTION

1.1 The productivity power of cities

It has been acknowledged throughout history that cities make us smarter. In ancient cities such as Pompeii, Ephesus, Troy and Barcino (the foundation Roman settlement to Barcelona), there was a role in military domination of a productive hinterland. But it is also evident that these cities fostered the specialised skills: engineering, law, trade and transport, which enabled the hinterland to elevate its productivity. This is an example of trade theory in practice – cities were able to specialise in brainpower and export this to grow aggregate income.

It took a couple of thousand years for this dynamic to be crystallised into a theory of agglomeration and productivity. Alfred Marshall was probably the prime mover around a century ago, followed by a non-economist in Jane Jacobs who instinctively knew about the productivity power of density and diversity. She, in turn, inspired the new growth theorists, including Paul Lucas. The tradition continues today in the fêted works of celebrity academics such as Richard Florida and Ed Glaeser.

The latest frontier in this unfolding enlightenment regarding urban agglomeration and its impact on productivity, is the step change witnessed in global economic integration over the past three decades due to technology, political liberalisation and trade law innovation. A growing, albeit minority grouping, of cities are now no longer primarily in the service of their immediate hinterlands. They have developed such advanced service offerings that these are being exported to an inter-regional and global clientele. So much so, that these cities have become primary economic drivers in their own right, as well as enhancing the value of exports from their host regions and countries.

1.2 The services role of Australia’s two big cities

The contributions of regional Western Australia and Queensland are well in excess of these regions’ shares of population. However, in absolute terms, the heavy lifting in growing Australia’s GDP has fallen to Sydney and Melbourne. Together, these cities accounted for a third of Australia’s growth from 2000, notwithstanding that Sydney’s economy was in the doldrums.

The explanation for these figures is twofold; firstly, these two cities are direct partners in Australia’s mining boom. More than a third of the inputs in the mining value chain rest in professional and technical services – engineers, IT specialists, human resource brokers and managers, strategic planners and designers, commercial lawyers and financial brokers of all sorts; trade of about $46 billion per year.

Many of these services are sourced in Sydney and Melbourne. Indeed, many of these services are sourced in Sydney and Melbourne for all manner of exporters beyond the mining sector, whether Toyota in Altona, a gourmet food exporter in the Barossa Valley or UTS chasing overseas students.

Secondly, these specialised urban services are increasingly being directly exported to clients overseas. The value of Finance, Insurance and other Business Service exports from Australia is around $5.5 billion. If Education exports are included, the figure is around $12 billion.

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1 Based on exports of $190 billion, with value added at 30 percent.
Of course, trade can go both ways. Australia can readily import these thinking services if needs be. For example, many of the engineering and related technical services required for coal seam gas exploration and exploitation are being imported from Houston.

The capacity of our cities to remain competitive in these vital services goes back to the principles first enunciated by Alfred Marshall – considering economies of scale and scope, diverse skilled labour, availability of several supply sources and knowledge spillovers. The elements of agglomeration, and how to measure their contribution to productivity, are discussed in more detail in the following section. These advances in our ability to quantify the links between urban structure, density and productivity strengthen our ability to frame national urban policy that is properly focused on the Commonwealth’s interest; namely, sustainable prosperity for all Australians.

One evident trend across all advanced economies is that one or two metropolitan areas assume a senior role in the inter-regional export of key services. In services, there would appear to be forever increasing returns to scale, providing the metropolitan fabric maintains its functionality – most particularly in terms of transport.

1.3 Context and content

This paper has been produced from material presented at the SGS Economics and Planning ‘Mine or Mind’ seminar held in Sydney on 27 March 2012. It is written at a time where there is a focus on national economies and much discussion of a two-speed economy in Australia with areas dominated by the resources sector being in the fast lane. The question posed by the seminar was: where does this leave the much discussed knowledge economy and the cities that have knowledge intensive jobs?

Following this introduction the paper is structured as follows:

1. Section two looks at the relative recent economic performance of Australian cities, in particular Sydney and Melbourne, and then discusses the theory of agglomeration
2. Section three compares the structure of Melbourne and Sydney, including a consideration of central city potential to host future employment activities
3. Section four discusses five key ideas for Sydney’s future development – building on the analysis of the previous sections.

The City of Sydney supported the production of this paper but it is not council policy. The paper is intended to provide a context for the Council’s policy and strategic development processes and support constructive dialogue with key stakeholders. With this in mind, the paper has identified areas where further policy attention could significantly enhance the longer term economic prospects of the City.
2. AUSTRALIAN CITIES & AGGLOMERATION

2.1 GDP shares and growth

Table 1 shows the 2010 share of GDP for selected Australian cities and regions, and the estimated recent contributions to growth in GDP for different time periods (Appendix 1 outlines the methodology that has been used to calculate these city region GDP figures). Metropolitan Sydney is just under a quarter (22.9 percent) of the Australian economy and in the decade to 1999 in the lead up to the Olympics the city region’s contribution to growth exceeded this share (26.9 percent). In the years since 1999 Sydney’s contribution to growth has fallen (to 14.5 percent in 1999 to 2010), while the mining regions and other cities contributed strongly, and above their overall shares of the economy.

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<tbody>
<tr>
<td>Sydney</td>
<td>22.9</td>
<td>26.9</td>
<td>14.5</td>
<td>16.6</td>
</tr>
<tr>
<td>Regional NSW</td>
<td>9.1</td>
<td>7.3</td>
<td>7.2</td>
<td>17.6</td>
</tr>
<tr>
<td>Melbourne</td>
<td>17.8</td>
<td>16.5</td>
<td>18.1</td>
<td>20.5</td>
</tr>
<tr>
<td>Brisbane</td>
<td>9.1</td>
<td>10.5</td>
<td>10.6</td>
<td>2.9</td>
</tr>
<tr>
<td>Regional QLD</td>
<td>10.7</td>
<td>10.6</td>
<td>15.5</td>
<td>-1.1</td>
</tr>
<tr>
<td>Perth</td>
<td>8.4</td>
<td>8.5</td>
<td>8.3</td>
<td>20.7</td>
</tr>
<tr>
<td>Regional WA</td>
<td>6.0</td>
<td>6.0</td>
<td>10.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Rest of Australia</td>
<td>16.0</td>
<td>13.7</td>
<td>15.0</td>
<td>19.9</td>
</tr>
</tbody>
</table>

Source: ABS State Accounts (cat no 5220.0); SGS Economics and Planning, 2012

Figure 1 shows that in terms of per capita growth in GDP, Sydney tracked national growth during the 1990s; since 2000, the city’s economy has been slowing down and its growth rate has decoupled from those of New South Wales and Australia.

While the mining regions and other cities expanded on the back of infrastructure investments and very rapid relative population growth Sydney lost ground. The preponderance of the finance and insurance sector located in Sydney (as shown in Figure 2) exacerbated the Sydney economy’s contraction during the global financial crisis.

**FIGURE 2. SYDNEY INDUSTRY SHARE OF ECONOMY**

The picture in Melbourne is somewhat different. Given the city’s more diversified economy it tracked the national rates more closely and suffered less of an impact in 2008/09. Melbourne’s better performance over the past decade could be due to the investment in major infrastructure investments such as Docklands\(^3\) and EastLink\(^4\), in addition to three extensions to the tram system\(^5\), which have improved accessibility and raised the productive capacity of the city.

**FIGURE 3. MELBOURNE GDP PER CAPITA GROWTH**

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\(^3\) Melbourne Docklands is one of Australia’s largest urban renewal projects with a total value of $12 billion. It commenced in 2003 and is being developed in stages, with completion expected in around 2020.

\(^4\) The $2.5 billion EastLink project, part of Melbourne’s Metropolitan Ring Road, was constructed between 2005 and 2008.

\(^5\) Namely the $28 million extension to Box Hill completed in 2003, a $7.5 million extension in Docklands completed in 2005, and a $42.6 million extension to Vermont South completed in 2005.
2.2 Productivity

While Sydney’s growth rate has been lower than Melbourne’s for the last decade, Sydney retains a strong advantage over the southern city.

Table 2 shows gross value-added per worker per hour relative to the Australian base. Labour in Sydney is the most productive among the cities, which provides the city with a competitive advantage. The result is largely due to the high value-add of the financial services sector; however, people in these jobs will move between industries to other high end jobs and bring productivity benefits between sectors. The high values seen in regional Western Australia are due to the investment in capital intensive machinery for mining, which enables a unit of labour to be considerably more productive.

**Table 2. Relative Productivity Performance**

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<tbody>
<tr>
<td>Sydney</td>
<td>107.5</td>
<td>104.1</td>
<td>108.1</td>
</tr>
<tr>
<td>Melbourne</td>
<td>97.2</td>
<td>95.7</td>
<td>96.6</td>
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<tr>
<td>Brisbane</td>
<td>99.3</td>
<td>92.6</td>
<td>93.8</td>
</tr>
<tr>
<td>Regional QLD</td>
<td>90.7</td>
<td>97.3</td>
<td>93.4</td>
</tr>
<tr>
<td>Perth</td>
<td>109.7</td>
<td>106.1</td>
<td>105.1</td>
</tr>
<tr>
<td>Regional WA</td>
<td>168.4</td>
<td>181.8</td>
<td>215.5</td>
</tr>
<tr>
<td>Australia</td>
<td>100</td>
<td>100</td>
<td>100</td>
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*Source: SGS Economics and Planning, 2012, using ABS data*

Sydney also has a much higher share of knowledge generated income; that is, income generated from professional services (such as engineers, lawyers and accountants) and finance and insurance, as shown in Table 3.

**Table 3. Knowledge Intensive Services League Ladder**

<table>
<thead>
<tr>
<th>Metropolitan area</th>
<th>Export oriented services jobs</th>
<th>Share of advanced business services</th>
<th>Share of all jobs nationally (%)</th>
<th>Share of export jobs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>63,061</td>
<td>49.8</td>
<td>20.9</td>
<td></td>
</tr>
<tr>
<td>Melbourne</td>
<td>43,091</td>
<td>34.0</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>Brisbane</td>
<td>8,742</td>
<td>6.9</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td>Canberra</td>
<td>6,505</td>
<td>5.1</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Perth</td>
<td>5,277</td>
<td>4.2</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td>Adelaide</td>
<td>net importer</td>
<td>0</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Hobart</td>
<td>net importer</td>
<td>0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Darwin</td>
<td>net importer</td>
<td>0</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Spiller, 2010*

Sydney and Melbourne together account for more than 80 percent of Australia’s specialised service exports (compared with less than 40 percent of all employment). Canberra is also highly specialised in this regard.

These figures point to a range of critical planning issues.

- Can Sydney maintain its competitive strength in the production of advanced services? Are its vital agglomeration economies under threat from poor connectivity and inadequate planning for employment in accessible central locations?
- How can the co-production of these key services between Sydney, Melbourne and Canberra be strengthened, to the nation’s benefit?
- How can Canberra (that is, the national Government) break free from the political dictates of federalism, where infrastructure resources need to be spread around relatively evenly regardless of returns to the nation, and invest in what is clearly a strategic corridor for Australia: the Sydney, Canberra and Melbourne trilogy?
As shown in Figure 4, though, Sydney’s share of knowledge generated income has been falling since 2000, while Melbourne’s has been slowly rising.

**FIGURE 4. SHARE OF KNOWLEDGE GENERATED INCOME**

![Graph showing the share of knowledge generated income for Sydney and Melbourne over time.](source: SGS Economics and Planning, 2012, using ABS data)

Sydney’s key role in Australia’s knowledge economy appears to be slowly eroding, with initiatives like Docklands in Melbourne offering a lower cost location for knowledge-related activity. The Age\(^6\) notes that Sydney is now the fifth most expensive place to do business, more expensive than New York, and ahead of Melbourne (ranked the ninth). Sydney is also a more expensive place to live – ranking the seventh most expensive city in the world in a cost of living survey of 130 cities, above Melbourne in eighth position\(^7\). The share of professionals located in Perth and Brisbane has also grown to support the mining sector.

In summary, cities are driving Australia’s economic growth, with Sydney having a larger economic base and substantial proportion of high productivity knowledge jobs. However, the city’s growth relies on the performance of the financial sector and may be constrained by a lack of infrastructure projects with the potential to increase capacity. In addition, Sydney’s share of the country’s knowledge generated income is falling, which is a concern for future growth.

So if cities are driving growth, what is driving the productivity of firms in urban locations?

Factors that contribute to productivity of firms include:
- economies of scale
- technological progress/ innovation
- investment in physical capital
- human capital development
- Agglomeration.

The last of these – agglomeration – is the most relevant in the context of cities.

---


2.3 Agglomeration

Agglomeration refers to the density of economic activity. Firms are generally more productive in denser areas for the following reasons:

- They have access to economies of scale and scope, which means they have an ability to specialise, given the large pool of potential customers that are readily accessible
- The availability of numerous supply sources and potentially specialised infrastructure, and the competitive environment that stems from this
- Access to a deep and diverse pool of skilled labour, often complemented by high levels of technological/ knowledge transfer between firms, which helps bolster innovation.

Human capital comprises the knowledge and skills that enable a worker to contribute to a firm’s production and to earn a wage. It can be expanded by investment, such as formal education and gaining experience, which will increase the worker’s skill and productivity. Workers also gain through knowledge spillovers resulting from interaction (such as seminars and meetings) and from employees changing firms, which facilitate sharing of information, ideas and technical progress.

Although a well recognised factor driving productivity growth, data at a fine grained level has only recently become available to enable agglomeration to be quantified.

Agglomeration has been historically measured in a number of ways including city population, industry employment, the number of industrial plants and effective job density depending on data availability. But it is not just density itself that leads to agglomeration: accessibility plays an equally important role.

As such, the simple measure of looking at the employment density of an area does not adequately reflect the phenomenon of agglomeration. A firm in a relatively low density employment area but located on the edge of the CBD could potentially capture agglomeration benefits through such proximity.

Any method of measuring agglomeration needs to incorporate both local scale and accessibility to economic activity, as measured by employment, and be able to be calculated for small geographical regions. To provide an insight into agglomeration economies SGS has developed the measure of effective job density (EJD) as described in the box below.

### Effective Job Density

SGS has developed a measure of accessibility for a location and the ability to access the overall economic mass of a city or region from that location. It is known as Effective Job Density (EJD). It is estimated using the relative time taken to access all employment in the city or region with travel times weighted by transport mode (taking into account the mode split of workers travelling to their workplaces: the proportion of users of public transport, private car and so on in specific areas). The formula used to calculate EJD is presented below.

$$EJD_l = \sum_{j} \left( \frac{PT \ Mode \ Share_j \times Emp_{ij}}{PT \ Travel \ Time_{ij}} + \frac{(1 - PT \ Mode \ Share_j) \times Emp_{ij}}{PV \ Travel \ Time_{ij}} \right)$$

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The spatial organisation of the city can play a considerable role in influencing agglomeration, and consequently, the ease with which firms can interact with each other.

If density leads to productivity advantages, then variations in productivity of firms across the cities should be apparent; in other words, that firms located in areas with a high EJD should be more productive. This is indeed the case – for many industries, areas with higher effective job density, such as the CBD, have higher labour productivity. The same pattern exists for human capital: human capital is highest in city centres, and the higher a person’s level of education, the more they benefit from increases in effective job density.

SGS has found that if you double an area’s EJD, firms become around 8 percent more productive, which fits with international literature. Figure 5 shows the elasticity of productivity of firms with respect to changes in the EJD. The elasticity can be understood as the impact that doubling effective job density has on productivity of firms. This could be achieved as a result of policy decisions driving spatial land use change, or by improving transport connections so that more people lie within a half hour catchment area of jobs.

FIGURE 5. AGGLOMERATION AND PRODUCTIVITY: EFFECTS OF CHANGES IN EJD ON PRODUCTIVITY


Services centred industries tend to benefit more with changes in EJD, as they are client/ people driven industries. Productivity gains in the knowledge industries mentioned earlier (the two labels in green above), from a doubling of the effective job density, are higher than the industry average.

Conversely, manufacturing, wholesale trade, and transport, postal and warehousing sectors benefit from locating in less dense areas. This is because, as EJD increases, services start to occupy areas and bid up rents which slows growth of that industry in that area and results in reducing productivity gains. EJD and other indicators can be used to compare the structure of Sydney and Melbourne, and perhaps explain some of the recent divergence in economic performance.
3. STRUCTURE OF MELBOURNE & SYDNEY

3.1 The availability of land for employment in central Sydney and Melbourne

Cities clearly retain a vital role in the economy. Their importance for economic growth is underpinned by agglomeration economies, that is, their ability to offer productivity and human capital benefits stemming from proximity and accessibility for people and businesses.

Over the past ten years or so, Sydney’s economy has shifted dramatically away from dependence on manufacturing and towards service sectors. In part, this has been driven by the way that value chains have become unbundled in the post-industrial economy. Service functions that would previously have been handled in house are now out sourced to other businesses. This has resulted in the finance and insurance sector overtaking manufacturing in the late 1990s and professional, scientific and technical services overtaking manufacturing in the last few years, as shown in Figure 6. Although there are admittedly many forces at play in shaping Sydney’s economy, the capacity of the city to grow knowledge intensive sectors reflects its offer of superior agglomeration benefits for these industries.

![Figure 6: Sydney contribution to GDP by sector](source: SGS Economics and Planning, Australian System of National Accounts (cat. No. 5204), 2012)

We can demonstrate that productivity in knowledge intensive sectors is directly linked to economic mass or agglomeration. We can also see that there is a price to pay for these benefits.
Data illustrating the price of prime and secondary office rents in Sydney and Melbourne confirms not only the perhaps obvious fact that prime rents are higher than secondary rents, but also that the cost of prime office space is considerably lower in Melbourne (see Figure 7).

**Figure 7. Prime and Secondary Office Net Rents, per square metre**

Source: Knight Frank Melbourne and Sydney office market overviews, May 2012

Expressed in terms of agglomeration benefits we can say that the price of a unit of agglomeration in Melbourne is much lower than Sydney. Land availability is likely to be a significant factor in this difference.

Melbourne has an apparent advantage in the knowledge economy in that it has a relatively large supply of strategically located employment land. This land has been released at critical times for the growth of the city: St Kilda Road in the 1960s, Southbank and the knowledge precinct in the 1980s and Docklands in the 1990s. Docklands in particular came on stream at a critical time when the Victorian economy was still adjusting to the Hawke-Keating roll back of protectionist policies for manufacturing. Docklands gave Melbourne a competitive advantage by providing opportunities for campus-style accommodation in areas with ready access to skills and services. Since this time knowledge industries have grown strongly in the city-region.

Looking forward, there appears to be ample opportunity areas for future growth: the established greenfields of Docklands and Southbank have further capacity for development. Detailed planning has already been undertaken for new sites such as E Gate, City North and Arden Macaulay to plan for large scale future development. Preliminary planning work around Fishermans Bend has commenced. Potential locations for further development in addition to these include Dynon Road and the rail corridor from Federation Square to the MCG, as well as the established CBD grid, which still has capacity for significant further developments.
**FIGURE 8.** LAND FOR KNOWLEDGE INTENSIVE SERVICES IN MELBOURNE CBD


Melbourne Docklands
Sydney’s knowledge intensive services are concentrated in the global economic corridor – an area that stretches from Port Botany, through Randwick, Green Square, the CBD, North Sydney, Chatswood to Macquarie Park. If we examine the capacity targets for these areas published in the Sydney Metropolitan Strategy against documented capacity, we see that capacity shortages are possible over the next 25 years (see Figure 9) – particularly in the southern centres in the global economic corridor. Rezonings may be required to expand capacity in these centres.

**FIGURE 9. POTENTIAL CAPACITY FOR EMPLOYMENT IN GLOBAL ECONOMIC CORRIDOR CENTRES**

In particular, there is a shortage of long term commercial space in the Sydney CBD, though the extent of this is debated. The Property Council of Australia (2005) notes that the CBD is small by international standards and tightly constrained. Capacity estimates prepared by the PCA find that the commercial core of Sydney will ‘run out’ of office space in 12 to 15 years. The City of Sydney has undertaken more recent studies and concludes that across the City there is capacity to accommodate up to 86 percent of an employment target of 97,000 for the LGA (2006 to 2036) under the controls proposed by the City Plan (Draft LEP 2010). The City of Sydney found that there is up to 20 years of supply available in central Sydney).

It is noteworthy that the City of Sydney studies do not indicate an excess of capacity against targets in current or proposed controls (confirming the directions identified by Figure 9) implying a limit to the ‘contestability’ in the market (much less in evidence in Melbourne).

12 City of Sydney, Capacity Study 2008, viewed 31 August 2012

City of Sydney, Capacity Study 2008, City Plan Supplement, August 2010, viewed 31 August 2012,
To address supply constraints, in 2005 the PCA recommended:

- increasing commercial FSR in the CBD in line with that of residential development
- establishing a commercial-only zone where residential development is excluded
- a staged release of new commercial space in Barangaroo
- promoting the redevelopment of lower grade commercial buildings
- enhancing the public transport system
- reforming strata title laws.

Preston Rowe Paterson suggest that increasing demand for commercial space is expected to be accommodated by the Barangaroo project, which from 2013 will provide approximately 343,356 sqm of commercial space. Knight Frank’s recent ‘Sydney CBD office market overview’ highlighted an absence of any new developments in Sydney CBD completing in 2012.

North Sydney may be able to accommodate some ‘spill over’ demand from the CBD but we have to acknowledge that North Sydney tends to serve different market segment so capacity there is not the answer. There is also very high demand forecast for the centres between the CBD and Sydney Airport with Green Square, Randwick Specialised Centre and Sydney Airport Specialised Centre. Although complete capacity data for the corridor is not available, it appears that capacity shortages may exist in the city and proximate centres. This is fuelled by continued strong demand for land that is close to the city, the port and the airport. To the north of the harbour, there are fewer capacity issues. Macquarie Park, Chatswood and St Leonards appear to have more stable growth and have capacity at current growth rates.

Ensuring an expanded array of options for employment growth in inner Sydney should be a priority. As shown in Figure 10, there is limited existing capacity in sites where controls already provide for additional growth. These are as shown in Table 4.

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14 The PCA have recently commented that they would not wish to move towards the situation in Melbourne where very large capacity levels drive a boom and bust cycle. Rather, the aim should be to moderate amounts so that capacity is sufficient to meet projected growth in demand.


FIGURE 10. OPTIONS FOR GROWTH IN EXISTING EMPLOYMENT AREAS IN THE CITY OF SYDNEY

![Map of Sydney employment areas](image)


Note: Numbers are best estimates based on available information. Precincts in italic text are those for which employment capacity is less certain.

TABLE 4. CURRENT POTENTIAL TO MEET TARGETS

<table>
<thead>
<tr>
<th></th>
<th>Target 2036</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006 (a)</td>
</tr>
<tr>
<td><strong>Global Sydney</strong></td>
<td></td>
</tr>
<tr>
<td>Sydney CBD</td>
<td>358,000</td>
</tr>
<tr>
<td>Barangaroo</td>
<td>280,000</td>
</tr>
<tr>
<td>Pyrmont-Ulta precint</td>
<td>15,000</td>
</tr>
<tr>
<td>Redfern-Waterloo</td>
<td>5,000</td>
</tr>
<tr>
<td>City East precint</td>
<td>30,000</td>
</tr>
<tr>
<td>Frasers Broadway and</td>
<td>28,000</td>
</tr>
<tr>
<td>Sydney education and health precint</td>
<td></td>
</tr>
<tr>
<td><strong>South Sydney</strong></td>
<td>71,000</td>
</tr>
<tr>
<td>Green Square</td>
<td>71,000</td>
</tr>
<tr>
<td>South Sydney</td>
<td>7,000</td>
</tr>
<tr>
<td><strong>City of Sydney</strong></td>
<td>429,000</td>
</tr>
</tbody>
</table>


In these and some other areas there is potential for in the order of 114,000 new jobs, including upzoning (while maintaining important industrial activities) for perhaps 15,000 new jobs in the South Sydney employment area. This will make a difference but (even if under-estimated by say 50 percent) is a drop in the ocean compared to what might be available in inner Melbourne – estimated at capacity for +500,000 jobs in the City of Melbourne alone.
3.2 Comparing Sydney and Melbourne’s EJD

FIGURE 11. COMPARING EFFECTIVE JOB DENSITY AND URBAN FORM

We have already discussed the idea of effective job density (EJD) as a measure of agglomeration. There are some interesting comparisons to be made by comparing EJD in Sydney and Melbourne. This measure is based on jobs that are accessible within a half an hour travel times either by public or private transport. The dark blue areas are those there are either a high concentration of jobs, or very high accessibility to other jobs. This will be considered in more detail in the next section.

Melbourne has a significant economic mass within a 5 kilometre radius of the core, with consistently high EJD 10 kilometres from the CBD. We can also see higher EJD in the south-east (towards Monash) and in the north-west (towards the airport). Compared with Melbourne, Sydney has higher EJD overall. However, it is interesting to note that Sydney has lower ‘economic mass’ at the core. Higher EJD is evident in the lower north shore and corridor between the airport and Parramatta. The differences between the EJD maps for Melbourne and Sydney could be explained by four factors: land availability, structure and geography, scale, and transport networks.

Land availability

In terms of land availability, it can be demonstrated that Melbourne has much larger stocks of strategically located and readily available employment land. This has given the city a crucial advantage in the knowledge economy and has contributed to the revival of the metropolis’s fortunes over the past 15 years or so. Sydney’s prospects in the knowledge economy may be being constrained by capacity constraints and difficulties in identifying and releasing strategically located land. So while Sydney retains a productivity advantage at this point, this may be reflective of historic investments and, without renewal and reform to improve capacity and connectivity within the metropolis, the advantage may be eroded. The flip side of the Sydney ‘choke effect’ is greater polycentricity, which is good for equity of access to jobs in the suburbs.
Structure and geography

Melbourne’s map reflects its mono-centric structure, a concentration of jobs in and around the centre and relative ease of access between these jobs provided by road (and to a lesser extent, rail). In Sydney, the harbour forms an obvious natural barrier through the metropolis that increases north-south travel times. The existing polycentric structure; concentrations of employment outside of the core (Parramatta, Macquarie Park, Airport, Norwest, and so on) may help explain a reduced economic mass in the core. Sydney’s centres policy is the result of long term consistency and investment: the transport system supports the centres and the existing centres are much more established than Melbourne.

Scale

In employment terms, Sydney is bigger and this results in Sydney having greater EJD overall. The inner 10 kilometres of Sydney has an EJD of over 216,000, while in Melbourne the equivalent figure is just over 160,000. Of course effective job density has two dimensions – jobs and the accessibility of those jobs. This is where the importance of transport networks becomes clear.

FIGURE 12. PUBLIC TRANSPORT USAGE AND EJD

Transport

Sydney suburbs display much greater public transport mode shares in the outer suburbs (see Figure 12). Sydney’s bus network is larger and plays an important role in the accessibility of suburban centres. Sydney has also made significant recent investment in public transport in the west with transitways. So while Sydney’s west is not as well serviced by public transport as the east, there are still locations in the west where public transport offers a faster service to the CBD than car. This can be demonstrated in travel time matrix data by mode (Bureau of Transport Statistics and ABS Census data 2006). However, while major node to major node travel times are comparatively good by public transport, beyond this, there are problems. The most significant issue is congestion around Sydney CBD which undoubtedly affects EJD in the city’s core. In comparison, Melbourne’s inner area is well serviced by public transport and there is relative ease of movement, while in middle and outer areas there is very little public transport and the car dominates.
The other interesting element of this transport analysis is the fact that higher levels of EJD in Sydney line up with the suburbs with higher public transport mode share. Higher EJD in outlying areas is thus partly explained by superior public transport connectivity between employment nodes. This is interesting as it points to a relationship between investment in transport infrastructure, improved accessibility, higher EJD, and increased productivity. Given Sydney’s relative advantage in the existence of public transport infrastructure connecting the polycentric network and provided there is scope for lifting capacity in this public transport infrastructure, Sydney would appear to have a good long term platform for sustaining an agglomeration advantage.

3.3 Conclusion

While Melbourne can offer agglomeration benefits at a highly competitive rate, Sydney clearly has the greater economic mass in absolute terms. However, Sydney’s EJD map is a patchwork and the agglomeration challenge for Sydney is joining up this patchwork though seeking opportunities to raise EJD at critical nodes and seeking opportunities to better connect nodes. There is a range of issues here: supply of floorspace capacity in the GEC; the provision of infrastructure between nodes; and, institutional challenges presented by the need for integrated land use and transport planning.

Of course, there are factors beyond agglomeration economics responsible for the economic performance of Sydney and Melbourne. It could be argued that Melbourne’s recent strong performance has been boosted by good marketing, focused industry policy and general good governance, while Sydney may have been ‘held back’ somewhat by poorly co-ordinated government policy, particularly where the integration of transport and land use planning is concerned.

Much of the discussion up to this point has been at a strategic level. The next step is to think how some of these challenges can be met at the local level. What is an appropriate planning response in Sydney?
4. **FIVE KEY IDEAS FOR SYDNEY**

Urban structure can boost, or dilute, agglomeration and human capital benefits. The previous sections have focused on the benefits of agglomeration – in particular the importance of a dense city core containing a complex of jobs in higher value activities, well connected to residents in the surrounding hinterland.

If this were the only consideration in achieving productive cities from agglomeration, then the prescription would be to concentrate ever more business service type jobs in the centre of the city and do our best to connect the rest of the metropolis with these jobs by motorways and public transport. To some extent, this has been the model in Melbourne.

There are limits to this approach in Sydney. Geography and topography and existing development patterns are beginning to constrain the city’s ability to grow jobs in the centre of the city. Furthermore, this approach is likely to neglect large areas of western Sydney where there are already 2 million people with a further 1 million expected in the next 25 years or so. There is a major social agenda (also linked to productivity in the form of enhanced conditions for human capital development) to be addressed in considering the future of western Sydney.

This section considers:
- the urban form that best serves these twin agendas of agglomeration for productivity, and social and human capital development
- the associated planning priorities or ‘five key ideas’ to address these agenda items.

### 4.1 Social and human capital agenda

The social and human capital agenda needs attention in Sydney. As shown in Figure 13, a pattern of two Sydneys emerges, whichever indicator one chooses. To the north and east around the water: a highly educated, high income population, and to the west and south west: a poorer and more disadvantaged population, with fewer life opportunities. A metropolitan strategy for Sydney cannot afford to neglect these large areas of disadvantage.
Pointers to the answer are contained in the last Metropolitan plan for Sydney produced in 2010, which includes the graphic in Figure 14 showing a possible evolution of the urban structure of metropolitan Sydney from its past radial pattern to a network and polycentric city:

1. radial pattern of the past – with a dominant central Sydney providing most of the higher value employment opportunities
2. polycentric ‘city of cities’ as proposed in the 2005 Metropolitan Strategy – with a dominant central or ‘global’ Sydney and higher order employment nodes at Parramatta, Penrith and Liverpool
3. network city – with a greater share of highly cross connected employment centres in a larger, higher density core area with polycentric nodes beyond this core.

**FIGURE 14. POSSIBLE EVOLUTION OF SYDNEY’S URBAN STRUCTURE**

<table>
<thead>
<tr>
<th>PAST</th>
<th>‘CITY OF CITIES’ TO 2036</th>
<th>NETWORK SCENARIO BEYOND 2036</th>
</tr>
</thead>
</table>
| • A radial system focused on Global Sydney | • Radial system focusing on global Sydney and the Regional Cities of Parramatta, Penrith and Liverpool | • A network city
• Linked centres
• Strong cross regional links |

Source: Metropolitan Plan for Sydney 2036, 2010
In reality, the city is closer to this combination of ‘network’ and ‘polycentric’ metropolis than this timeline suggests. This should be the blueprint that all major planning, transport and government investment decisions in Sydney should be working towards.

4.2 Five key ideas for metropolitan planning

SGS believes that there are five key ideas that should be the mantra for Sydney’s metropolitan planning to address the issues outlined in this paper:

1. New job sites in the centre and networked city
2. A denser core
3. Focus resources and policy effort on regional cities
4. Transport for the network and polycentric city
5. Connecting the knowledge cities and beyond

New job sites in the centre and networked city

Suggested future prospects include the Bays Precinct, Western Distributor corridor and possibly Garden Island. These sites should be a focus for visionary planning. The Bays Precinct – a world class site just minutes from Barangaroo and the CBD by ferry – could conservatively accommodate an additional 20,000 new jobs (desirably as part of a mixed use development). There is the chance that its potential will be wasted without bold thinking. Already a plan to remove the Old Glebe Island bridge has been mooted, which would be a very short sighted action.

Another option for high value jobs is the Western Distributor corridor. In the City of Sydney’s Sustainable Sydney 2030 strategy, the idea of lowering the Western Distributor was raised. The sites freed by such a move [not to mention the amenity and environmental benefits] could house perhaps 20,000 new jobs. A more radical and longer term option is Garden Island, where perhaps 5000 jobs could be accommodated if Defence (the current occupant) decide to move on.
FIGURE 15. FUTURE EMPLOYMENT PROSPECTS IN INNER SYDNEY

Note: Numbers are best estimates based on available information. Precincts in italic text are those for which employment capacity is less certain.

TABLE 5. NEW OPTIONS FOR EMPLOYMENT GROWTH (ESTIMATES ONLY)

<table>
<thead>
<tr>
<th>Precinct</th>
<th>New job potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Sydney</td>
<td>25,000</td>
</tr>
<tr>
<td>Bays Precinct</td>
<td>20,000</td>
</tr>
<tr>
<td>Garden Island</td>
<td>5,000</td>
</tr>
<tr>
<td>Western Distributor corridor</td>
<td>20,000</td>
</tr>
</tbody>
</table>


To bring down potential rents (and the 'purchase price of a unit of agglomeration'), clearly it is not sufficient to match supply tightly with demand – there needs to be greater contestability in the market. Relying on central Sydney will not be sufficient. As mentioned previously, centres on the north shore including Macquarie Park (+20,000) have capacity. Further west, Sydney Olympic Park (+20,000) and Parramatta (+30,000) have capacity for significant future employment growth\(^\text{17}\). Better connections in a networked inner and eastern Sydney complex of employment locations will also be required.

\(^{17}\) As per the Sydney Olympic Park Masterplan, Macquarie Park studies and work being developed for Auto Alley in Parramatta.
A denser core

A dedicated effort and major community engagement is required to pursue opportunities for increased housing in the inner areas of Sydney.

SGS has undertaken work for the Department of Planning and Infrastructure and others that shows the areas where different types of infill housing will be feasible across the metropolitan area; finding that:

- the high land value locations along the waterfront and on the north shore are the only areas that support apartment buildings of up to eight storeys and return a margin of above 20 percent. In much of western Sydney, you can buy detached three bedroom houses for less than what it costs to build an apartment of this type.
- there are large parts of Sydney where 10 storey apartment buildings are not feasible, even though these buildings are at a greater scale with lower unit costs.
- with the lower building costs implicit in lower rise forms such as three storey apartments, much more of metropolitan Sydney becomes feasible for development. From an infill point of view the more challenging middle ring suburbs enter the equation.
- terrace or town house development is feasible all over metropolitan Sydney.

A key question for the short term is: where is acceptable density feasible?

If high rise is unacceptable or difficult in some centres, what about medium density just beyond the core in the ‘network city’? In this area, shown in Figure 16, there are well over a hundred railway stations. If we accept that the planning for higher density and higher rise futures needs greater attention over the medium to longer term, then in the short term we might focus on those areas where it will be easier for individual lots to ‘turn over’ and produce dwellings.

**FIGURE 16. RAILWAY STATIONS IN THE ‘NETWORK CITY’**
In the 500 to 1000 metre radius area of these railway stations (a 10 to 15 minute walk) the density is in the order of 33 dwellings per net hectare\(^\text{18}\). If there were a target to increase this to, say, 45 dwellings per net hectare (something achieved in a location like Dulwich Hill for visualisation purposes), there is scope for about 138,000 new dwellings. The Grattan Institute’s idea of a small lot development code that would make it easier to produce more housing in these areas is a good one\(^\text{19}\).

The initial focus should be on those station precincts where there is some existing rail capacity. In time additional public transport investment (including cross radial bus connections) will be required to support this residential intensification.

The aim should be to maximise potential yield from small lots without necessarily needing or requiring amalgamation. Small sites enable more builders and architects to get involved, encouraging greater affordability and diversity. There may also be a case for restricting car parking and on-street permits for new dwellings in these areas.

This could be achieved by allowing:
- more ancillary dwellings (granny flats) in backyards (of a not excessive minimum size)
- dual occupancy
- conversion of existing dwellings to multiple dwellings.

The floor plan below is of a detached house in Peakhurst, converted to two dwellings of approximately 50 square metres each. This is restricted in much of Sydney because of the minimum lot size required before a single dwelling can be converted to multiple dwellings. Such restrictions need to be revisited.

**FIGURE 17. 28 HENRY LAWSON DRIVE, PEAKHURST**

Source: Domain.com.au

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\(^{18}\) Calculated using ABS 2006 data by collection district

\(^{19}\) Grattan Institute, ‘Getting the housing we want’, 2011
Focus resources and policy effort on regional cities

The Metropolitan Strategy designates Parramatta, Liverpool and Penrith as the ‘regional cities’ at the heart of their respective subregions.

**FIGURE 18. REGIONAL CITIES**

The third agenda item is to renew the effort towards the polycentric city and put significant resources and policy effort into focusing new employment opportunities into the regional cities. This is perhaps the most challenging policy area because it defies the orthodoxy of ‘predict and provide’ that has tended to dominate approaches to infrastructure investment by NSW in recent years. Investing in these places is not necessarily consistent with market trends or demand – it is about shaping the city for ulterior ends.

The agenda is to make these places attractive across the spectrum, so they are desirable places to ‘live, work and play’. In each case, they have the basic DNA to build upon but it will take a deliberate and focused effort.

- From a ‘live’ perspective, the centres need to offer affordable housing and access to enhanced amenities, and good internal transport options.
- From a ‘work’ perspective, the centres need to compete with suburban business parks so settings in relation to parking and opportunities for large floor plate buildings need to be in place. Investment in health and education in these centres needs to be prioritised. Restrictions on major commercial and office development outside of these centres may need to be contemplated; major centres of Blacktown, Bankstown and so on should be more a focus for residential; proposals for new out of centre business parks ought to meet tougher criteria.
- From a ‘play’ perspective, the riverfronts and cultural and recreational assets and amenities need to be improved.
The Cities Taskforce plans from 2006 are a reasonable place to start (see images from these plans in Figure 19). These included around $300 million worth of proposed civic improvements in Penrith, Parramatta, and Liverpool. Once the wider city areas and additional projects are taken into account this might be double or more, closer to $600 million to $800 million. The best means of funding these works needs to be examined (the current approach is via a Section 94a levy).

FIGURE 19. IMAGES FROM CITIES TASKFORCE PLANS FOR REGIONAL CITIES

Transport for the network and polycentric city

Figure 20 shows the key employment locations identified in metropolitan Sydney, as discussed earlier. Enhanced connectivity between these locations and to surrounding residential areas will build EJD and agglomeration and human capital development outcomes. The ideas included here are about addressing outcomes and should not be considered detailed projects in their own right.

**FIGURE 20. PUBLIC TRANSPORT PRIORITIES**

1. Regional faster rail, from Penrith to Sydney through Parramatta and Sydney Olympic Park; and from Liverpool to Sydney through Milperra and Bankstown
2. Network city rail or metro program. This will involve existing system capacity expansion (potentially as part of a long term rail plan) and additions such as Epping to Parramatta via North Parramatta (on to Liverpool)
3. Upgrading and linking of global economic corridor services to create Sydney’s first circle service, servicing four universities, three hospitals, multiple interchanges, retail hubs and the major employment locations in Sydney (perhaps 600,000 jobs)
4. Inner city transit connecting inner Sydney – light rail or metro services, as currently being worked on
5. Radial services connecting hinterlands to regional cities – light rail or Rapid Bus Services (such as in inner Brisbane).

The price tag for this may be between $50 and $100 billion.
Connecting the knowledge cities and beyond

The fifth agenda is how better to connect Sydney into the complex of higher value city hubs along the east coast, and beyond to the world. The politics and funding solutions are enormously difficult, but we need national and state leadership and coordination to make bold decisions in relation to high speed rail and the second airport in Sydney. These have the potential to re-shape not only individual cities but also our national competitiveness.

Both of the recently released reports regarding high speed rail\(^{21}\) and a second airport\(^{22}\) say very little about the city shaping potential of these developments, from a metropolitan Sydney perspective. One radical option would be to close Mascot airport to provide high value residential development land in close proximity to concentrations of jobs in the city centre and develop a single new airport at Badgery’s Creek/ Luddenham – the preferred location based on benefits and costs identified in the recent study. A high speed train would connect Brisbane and Melbourne to Sydney via the new Sydney airport and Parramatta, and the same corridor used to satisfy the ‘faster regional city rail’ objective of connecting Penrith to the new airport, Parramatta, the Mascot redevelopment site and Macquarie Park. The combinations are numerous but this sort of thinking is missing from the current studies.

4.3 Implementation: who is responsible?

So on to the great implementation challenge. Who is to be responsible for these big projects and ideas?

FIGURE 21. METROPOLITAN SYDNEY 2036

State government needs to ‘sign off’ on the agenda but it has shown itself to be politically compromised when it comes to the detail. By definition the state has an array of responsibilities – Sydney is but one place (albeit important) in those it has responsibility for.


Are 40 local councils going to be able to implement this agenda? Not likely given their fragmentation and resource constraints.

Are the special purpose vehicles able to address the agenda?

Urbangrowth NSW is to be established via a merger of SMDA and Landcom. It has an existing agenda to facilitate renewal projects and it could certainly pursue the second ‘big idea’ to facilitate medium scale residential development near rail stations. However, it may not have an integrated planning agenda and employment outcomes may not be a priority.

Infrastructure NSW has yet to release its plan. The question must be if INSW doesn’t have the polycentric and network city agenda or at least the existing Metropolitan Plan as its mantra, how can it prioritise projects? Without such a framework it is likely to be left with projections of ‘business as usual’ and the ‘predict and provide’ mentality to underpin its recommendations.

One idea would be to establish an agency that has both major infrastructure and land use planning responsibilities, financial independence and preferably some democratic legitimacy. Metropolitan Sydney needs such an agency as an advocate for the big moves required to secure a prosperous future. The agency needs to be ‘above’ local and state politics but have democratic legitimacy. There are a number of emerging models and lots of debate about what the best form of metropolitan governance should be.

For example:

- The Greater London Authority has certain administrative powers for major development and sets strategic planning policy, and works in tandem with Transport for London, policing and emergency services. Statutory and lower order planning is still controlled by the borough councils, though it must be consistent with the policy set by GLA in the London Plan.

- Auckland Regional Council is a recent amalgamation of the existing seven councils. It is a major ‘unitary’ regional council similar to Brisbane Council.

- The Western Australia Planning Commission is the executive decision making arm of planning in the state. Under the Planning and Development Act 2005 they coordinate strategic planning and funding for planning in Western Australia. The commission has up to 15 members who represent a broad range of interests. This includes an independent chairman and the seven director generals of other government agencies (including one from planning) and representatives from fields that are related and impacted by planning. The latter include members representing interests in regional development, ecological interests, economic development, coastal management and local government.

A review of local government is currently being undertaken by a panel headed by Professor Graham Sansom from UTS. This will ‘examine the financial sustainability, governance structures and boundaries of local government and investigate ways to strengthen the role of local councils within the government system’23. However, such a focus may be insufficient. It would be desirable for the question needs to be broader, including addressing the best way to implement long term strategic policies for a more efficient, productive and sustainable metropolitan Sydney.

One model for a Sydney Metropolitan Authority governance model is included in Table 6.

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### TABLE 6. ELEMENTS OF A SYDNEY METRO AUTHORITY MODEL

<table>
<thead>
<tr>
<th>Element</th>
<th>Governance model detail</th>
</tr>
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<tbody>
<tr>
<td><strong>Structure</strong></td>
<td>– Governing board of State appointees and members elected directly or by electoral colleges (of constituent local councils organised by relevant and meaningful subregions or just of the councils with key strategic centres and employment areas).&lt;br&gt;– Staffed by professionals transferred from the current DoPI or councils, funded by a metropolitan development levy on rates&lt;br&gt;– Independent, albeit subsidiary, mandate to that of the State Government. Limited local council amalgamations required.</td>
</tr>
<tr>
<td><strong>Plan making and coordination responsibilities for:</strong></td>
<td><strong>Urban limits</strong>&lt;br&gt;<strong>Major activity centres</strong>&lt;br&gt;<strong>Major transportation corridors</strong>&lt;br&gt;<strong>Land supply for housing</strong>&lt;br&gt;<strong>Land release in growth areas</strong>&lt;br&gt;<strong>Infrastructure roll-out to urban renewal and growth areas</strong>&lt;br&gt;<strong>Key employment nodes</strong>&lt;br&gt;<strong>Airport zone</strong></td>
</tr>
<tr>
<td><strong>Approval responsibilities (with further independent JRPP style panel?)</strong></td>
<td>Development proposals of a certain type or threshold size or in the key locations where the agency has plan making responsibilities</td>
</tr>
<tr>
<td><strong>Funding and asset responsibilities</strong></td>
<td>– Assume current Office of Strategic Lands responsibilities for Sydney Region Development Fund (and expand)&lt;br&gt;– Potentially, a fully fledged institution with responsibility for public infrastructure and major environmental assets…</td>
</tr>
<tr>
<td><strong>Projects and catalysts</strong></td>
<td>– Establish a separate ‘delivery arm’</td>
</tr>
</tbody>
</table>


Such an agency could combine the functions of Infrastructure NSW and SMDA, but with some decision making autonomy and teeth. This could be funded via a metropolitan levy of, say, $50 per year on rates (on approximately 1.7 million properties this is about $85 million per year), and Urbangrowth NSW could be retained as a delivery agency.

A hypothecated Sydney Metropolitan Improvement fund – involving a modest levy on local government rates – should be considered to catalyse effective planning and the initial expenditure required to implement some of the ideas discussed.
5. TECHNICAL APPENDIX

The gross value added for each industry for Australia is derived in the annual supply and use tables using the double deflation technique. That is, subtracting estimates of intermediate input from estimates of output. Where possible the same data has been used in estimating state level industry gross value added. The details of this estimation method are outlined in Information paper: Gross State Product using the Production approach GSP (P). In estimating the Sydney level industry gross value added, where possible, the same data sources have been used. The following section provides a summary of the data sources used to estimate gross value added for each industry. A quality assessment is also provided.

Agriculture, forestry and fishing

Method

Australian National Accounts: State Account (cat. no. 5220.0) provides a measure of gross value added for the Agriculture, forestry & fishing industry in New South Wales. Data from the Agricultural Commodities: Small Area Data, Australia, 2006-07 (cat. no. 7225.0) provides information on the gross value of agricultural production within Sydney and Regional New South Wales.

The share of the gross value of agricultural production within Sydney is used to allocate the State gross value added figure to Sydney for 2006-07. The Sydney share is altered in every other year using the hours worked from the Labour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003).

Quality

The most reliable estimate is for 2006-07, with slightly lower quality estimates based on the labour force survey. The 2006-07 share based on the Agricultural Commodities: Small Area Data, Australia publication is 8.5 percent and the Labour Force, Australia, Detailed, Quarterly estimate is 8.3 percent. This indicates that the labour force survey is a good proxy of economic activity in the agriculture, forestry and fishing industry.

This method would be unlikely to capture head office operations of agriculture, forestry and fishing firms located in Sydney. This would have a very small downward bias on the estimates. Due to the relatively small size of the industry in Sydney (0.2 percent in 2006-07), it is likely to have little impact on the quality of Sydney’s GDP.

Mining

Method

The gross value added per hour worked (labour productivity) for the professional, scientific and technical services industry is multiplied by the total hours worked in the mining industry in Sydney. This is done as much of the mining activity in Sydney is related to head office operations.

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The professional, scientific and technical services gross value added per hour worked is thought to reflect the type of activities carried out by head office operations.

Quality
Due to the conceptual issues with measuring mining production associated with city based workers and lack of data, the mining estimates of gross value added are of a very low quality. The method would not account for direct mining operations (quarries, sands and so on) that take place in Sydney. This could have a very small downward bias on the estimates. Due to the relatively small size of the industry in Sydney (between 0.1 percent and 0.4 percent) it is likely to have little impact on the quality of the Sydney’s gross domestic product.

Manufacturing
Method
Data from the Manufacturing Industry, New South Wales and Australian Capital Territory (cat. no. 8221.1.55.001) publication provides information on the sales income share between Sydney and the balance of New South Wales for 2001-02. Manufacturing Industry, Australia, 2006-07 (cat. no. 8221.0) provides the sales income split for 2006-07.

The share of the income within Sydney and the balance of New South Wales is used to allocate the state gross value added figure to Sydney for 2001-02 and 2006-07. The Sydney share is altered in every other year using the movements in hours worked from the Labour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003) publication.

Quality
The most reliable estimates are for 2001-02 and 2006-07 with slightly lower quality estimates based on the labour force survey. The 2001-02 income share for Sydney is 69.8 percent and the labour force hours worked is 72.8 percent. The 2006-07 income share for Sydney is 68.6 percent and the labour force hours worked is 70.3 percent. This indicates that the labour force survey is a reasonably good proxy of economic activity in the manufacturing industry. The availability of detailed manufacturing industry statistics data for 2001-02 and 2006-07 means that the estimates of Sydney’s industry gross value added are good quality.

Electricity, gas, water and waste services
Method
National gross value added for the two digit industry subdivisions from Australian System of National Accounts (cat. no. 5204.0) and the Census two digit industry subdivision place of work data is used to estimate an average gross value added per worker. The Census place of work data for Sydney and the balance of New South Wales is then applied to these averages. The share of the total estimated gross valued added is applied to the Australian National Accounts: State Account (cat. no. 5220.0) gross value added for the electricity, gas, water and waste services for New South Wales. This produces an estimate for 2005-06 for Sydney and balance of New South Wales gross value added for this industry. Population growth is then used to create a time series for industry gross value added.

Quality
The quality for the electricity, gas, water and waste services industry estimates is low, due to the lack of data. The conceptual issue of splitting gross value added between generators/ water
treatment plants and distribution networks is also challenging. The industry is estimated to represent around 2.0 percent of Sydney’s gross domestic product.

Education and training

Method

The Australian Bureau of Statistics publication, *Australian National Accounts: National Income, Expenditure and Product* (cat. no. 5206.0) provides a measure of gross value added for the education industry in Australia. *Government Finance Statistics, Education, Australia (5518.0.55.001)* is used to split the national estimates of education gross value added into school and post school education.

*Australian National Accounts: State Account* (cat. no. 5220.0) provides a measure of gross value added for the education industry in each State. The *Survey of Education and Training* (cat. no. 6278.0) provides data on people with education qualifications, and estimates of school aged population taken from *Population by Age and Sex, Regions of Australia* (cat. no. 3235.0) are used to allocate the state estimate of education by level to the capital city. This method is outlined in Figure 22.

FIGURE 22. METHOD SUMMARY
Quality
The quality of this industry estimation is good, given the detailed level of data being used and the fairly straightforward nature of the delivery of education and training services (in a spatial sense).

Ownership of dwellings

Method
Average rents in Sydney and regional New South Wales are derived from the *Housing Occupancy and Costs, Australia, 2005-06* (cat. no. 4130.0) publication and combined with population data to estimate the share of ownership of dwellings for the two areas. This is then applied to the ownership of dwellings gross value added from the *Australian National Accounts: State Account* (cat. no. 5220.0).

Quality
The quality of this industry estimation is good, due to the quality of the available data and the clear conceptual boundaries.

All other industries

Method
In the absence of any data which would allow the share between Sydney and regional New South Wales to be estimated, the hours worked from the *Labour Force, Australia, Detailed, Quarterly* (cat. no. 6291.0.55.003) is used. The industries which this method is applied to are:

- Construction
- Wholesale trade
- Retail trade
- Accommodation and food services
- Arts and recreation services
- Other services

For some industries one adjustment is made to the hours worked share. The hours worked are weighted by an average wage rate for Sydney and regional New South Wales from the Census. This accounts for different economic structures within each industry in Sydney and regional New South Wales. For example, in financial and insurance services the type of activities (from basic banking operations up to hedge funds) is much wider than in regional New South Wales (where basic banking operations are the most common activities). The industries which this method is applied to are:

- Information media and telecommunications
- Financial and insurance services
- Rental, hiring and real estate services
- Professional, scientific and technical services
- Public administration and safety
- Health care and social assistance
Quality
The quality of the various industry estimates varies and should be treated with some caution but in aggregate the method should be provide a good estimate of Sydney’s gross domestic product.

Taxes less subsidies on products

Method
Australian National Accounts: State Account (cat. no. 5220.0) provides a measure of taxes less subsidies on products for the agriculture, forestry and fishing industry in each state. The Sydney share of agriculture, forestry and fishing industry gross value added is used to split the value of taxes less subsidies on products this industry. The residual of the New South Wales taxes less subsidies on products is then split using the total industry value added (excluding ownership of dwellings) for Sydney and the balance of New South Wales.

Quality
This method should produce reasonable estimates of the split between Sydney and regional New South Wales for taxes less subsidies on products.

Aggregation of estimates to gross domestic product
Via the use of the implicit price deflation technique, the chain volume measures of industry gross value added are converted into current prices. This method overcomes the non-additivity issue with the chain volume measure and allows the aggregation of industry estimates of gross value added to overall gross domestic product. In order to maintain consistency with the wider National Accounts, the production approach estimate of Sydney gross domestic product is benchmarked to New South Wales gross state product. The New South Wales industry implicit price deflation is applied to each of the industries in both Sydney and regional New South Wales.
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