Overview: The connected city

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INTRODUCTION

The papers in this session address the conference theme of *The Connected City*, which explores the provision of urban infrastructure. The key infrastructure issues facing Australian cities today may be summarized briefly.

At the start of the 20th century, Australia’s major cities had either already developed a low-density townscape with significant decentralization of housing and jobs, or were beginning to sprawl at the edge of their old, compact core. Networks of suburban roads, railways and tramways, reticulated water supplies, underground sewerage systems, and gas and electricity distribution systems made it possible for large numbers of people to live in a suburban setting. Telegraph and telephone wires allowed the urban system to work effectively. The low-density physical form of Australian cities was built in an attempt to avoid the sort of urban problems that can develop in a high-density setting. Building such cities required heavy private and public investment, however, and the most rapid periods of suburban development took place during two periods of economic growth: the so-called ‘Long Boom’ from around 1860 to 1890, and the ten years preceding World War I. This economic growth, derived in part from the wealth of the rural sector, also stimulated job opportunities in country towns, many of which enjoyed a Golden Age of prosperity and high quality amenities before World War I. For example, Tamworth, Young, and many other towns in New South Wales had electric lighting before Sydney did (Frost and Dingle 1995: 24).

As the population of the capital cities continued to grow – from totals of 1.2 million in 1901 to 12.5 million in 2000 (Salt 2001: 2) – heavy investment in infrastructure was needed if this land-extensive housing stock was to be replicated and improved. During the 20th century, improvements in public transport such as the electrification of suburban trains and trams encouraged commuting and the creation of new suburbs, but eventually public transport systems became congested. Jobs came to be located increasingly away from the old CBDs and inner suburbs and commuters began to switch to private transport. Road building enabled cities to sprawl further and eventually to outrun their public transport systems. Suburban sprawl is a heavy user of water, can gobble up valuable areas of farmland, and can make it difficult for the providers of infrastructure to keep up with population growth. During Melbourne’s
post-World War II housing boom, the Board of Works ‘was like the runner restrained by the competitor tugging at the back of his singlet’ (Dingle and Rasmussen 1991: 214), as every new house built in the south and east took the Board’s pipes further away from the western suburbs sewage farm at Werribee. By the end of the 20th century, a perception had developed that the standard of infrastructure provision in both country towns and the outer suburbs of the capital cities was inadequate, and this has had important political implications.

In this session, the papers deal with issues of transport, mobility and accessibility (Robyn Dowling and Anna Lyth, Gabrielle Kniper and Chloe Mason, Paul Mees, Bruno Parolin and Serrie Kamara, Felicity Smith, Martin Watts, and Michelle Zeibots) and communications and information technology networks (Richard Brown, and David Wilmoth). Alan Perkins discusses the energy use implications of various urban forms, and Paul Tranter and Karen Malone’s paper on child-friendly cities has important implications for studies of social capital. These are high quality papers that will enhance our understanding of the current state of Australian cities, but it is important that we think about how the pieces fit together. I would like in this overview to consider a broader framework to consider the ways in which cities are ‘connected’. Such a framework should help us to see how the individual papers in this session fit together, and how they relate to the other themes of the conference. This broad approach also suggests a number of possible areas for further research.

**Connections and cities**

Cities may be defined as places where work based on a division of labour is concentrated and there are as a result a substantial number of occupations not directly involved in primary production. As the French historian, Fernand Braudel observed, towns exist by providing markets and facilities for the sale, processing and movement of commodities from the surrounding region, which in turn supplies food and raw materials that the town cannot produce itself. Though each town has its own distinctive features, all towns ‘necessarily speak the same basic language: common to them all are the continuous dialogue with their rural surroundings’ (Braudel 1981: 481). Without towns, there can be no division of labour, no international trade, no structural change in economies as people move from low-productivity land work to higher productivity service and manufacturing work, and little incentive for technological change. The peasant family that is isolated from external markets and
meets all of its needs for food, shelter and clothing itself, is the antithesis of a town and a region served by a town. Self-sufficiency and isolation are characteristics of peasant life; urban life depends on specialization and connections.

Braudel also wrote that ‘wherever it may be, a town is inseparable from certain realities and processes, certain regular and recurring features’. In that sense, ‘a town is always a town, wherever it is located, in time as well as in space’ (Braudel 1981: 479, 481). The physical structure of towns, and the ways that this contributes to economic life, is something that is as relevant to Australian cities today as it has been to cities in different times and different parts of the world.

Apart from being connected physically through infrastructure, cities are, and always have been, ‘connected’ in four ways:

1. Urban-rural connections
By establishing links with rural areas, towns have stimulated the growth of market-minded, specialist rural producers. Town markets and services encouraged technological change in agriculture, which encouraged the movement of surplus land workers into the urban sector. Within each productive region, a large number of small towns and villages developed to provide a means of meeting the simple, frequently occurring needs of rural producers. A smaller number of larger towns provided a more complex range of goods and services, the demand for which arose intermittently; while a single metropolis was usually the region’s centre of government, industry, commerce, and link to international markets. In each region, the urban hierarchy was pyramid-shaped, with a metropolitan apex supported by a broad base of smaller towns.

No individual town was functionally isolated from others at different levels of the urban hierarchy. Businesspeople in small towns were in frequent contact with local rural producers, and provided the inputs, repair facilities, commercial and other services, and pool of casual labour that made efficient farm production possible. Agents and commercial travellers distributed products from the larger towns to farmers and small town residents. Roads, waterways and railways allowed goods and services to move between towns. People from farms or small towns could migrate to the larger cities, where there were greater opportunities to use and
develop their talents. There was, as Wrigley (1991: 110) puts is, ‘a continuum running between the myriad of small market centres and the great central places. It was of the essence of the urban system that there should be a constant interchange throughout the settlement hierarchy, a constant flow of products, services and people between settlements in different size categories’.

2. Economic connections
Towns are also conducive to the generation of agglomeration economics, the advantages that are derived from bringing workers with valuable and diverse skills into close proximity. Alfred Marshall wrote that in such towns ‘each man profits by the ideas of his neighbours: he is stimulated by contact with those who are interested in his own pursuit to make new experiments; and each successful invention, whether it be a new machine, a new process, or a new way of organizing the business, is likely when once started to spread and be improved upon’ (Marshall and Marshall 1881: 53). Technological change is diffused rapidly and acquires the characteristics of a public good, and in such communities ‘the mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously’ (Marshall 1920: 225). As a result, there is the potential for technological spillovers to occur as firms compete with one another and react to what their rivals are doing. Jane Jacobs (1984) has argued that when cities are able to start producing for export a wide range of the products that they formerly imported, the result is increases in wealth and jobs not just in the cities themselves, but also in their hinterlands. Bursts of technological change that originate from a city automatically exert powerful influences on economic activity in the surrounding region.

The terms that are used by economists to describe these beneficial exchanges – such as ‘clusters’, ‘outsourcing’, ‘production chains’, and ‘technological spillovers’ – point to the economic importance of connections in urban life.

3. ‘Neighbourly’ connections
In many cases, the value of a house or place of business is affected substantially by its location, and in particular the uses to which land in the surrounding neighbourhood is put. In pre-modern cities, the ‘suburbs’ outside town fortifications were the location of noxious trades and criminal activity and only the poor and other
outcasts chose to live there (Fishman 1987). In modern metropolitan areas, new office and retail space clusters in 'edge cities', where there is land that is affordable (with plenty of space for free parking), accessible to major highways, and close to ‘nice’ areas that are suitable for executive housing (Garreau 1991). Some residential areas are sought after because they are close to public transport or to strips of cafes and boutique stores; in other areas there are land use issues that arouse NIMBY opposition from local residents who declare that they do not want certain activities close to their homes.

Recent research has emphasized the economic importance of institutions and settings that allow people to make neighbourly connections that reduce the cost of doing business, facilitate the spread of knowledge, and promote outcomes that are good for society. This ‘social capital’ is a valuable resource that can make markets and government activities work more effectively, and help communities respond to changing economic circumstances. Several government strategies that might enhance social capital in urban communities have been identified: the encouragement of mixed urban land use; policies to contain urban sprawl and reduce commuting times; the provision of open public space where people may meet; and ‘traffic calming’ measures to restrict vehicle access and speeds in streets and encourage children to play together (Productivity Commission 2003).

4. Path-dependent connections
At any point in time, many of the characteristics of a city’s physical connections will be affected by planning and land use decisions that have been made in the past. Urban problems in one era are highly sensitive to the ways in which people have attempted to solve urban problems in the past. In turn, the ways in which people attempt to solve urban problems today will have a lasting impact on what people can do to solve urban problems in the future. This connection between key decisions made in the past and the present and future condition of cities is known as path dependency (David 1993). For example, a city that responds to increasing road traffic congestion by dismantling its public transport system to free up resources for extra road space is likely to create even greater road congestion problems in the future. New roads will encourage suburban development in distant locations that will extra investment in networks of pipes and wires. The further the metropolitan area sprawls, the more expensive it is to build the infrastructure that it needs, and the
problem will be difficult to solve in the future because of past choices made about the allocation of resources that are impossible, or very expensive, to reverse.

Areas for further research

These four types of connections mark out a big area of research – certainly bigger than what the conference organizers intended. Issues that I have identified as being relevant to *The Connected City* are being discussed in other sessions. ‘Economic connections’ are being explored in the session on *The Urban Economy*. There are papers dealing with social capital (‘neighbourly’ connections) in the *Social Conditions* and *Governance, Finance and Accountability* sessions. We need to take time to explore the connections not just between the papers in this conference theme, but also between the conference themes themselves. When we examine the state of Australian cities in this way, a wide range of research opportunities present themselves. For example, the changing spatial structure of cities has obvious implications for issues of transport, accessibility and mobility (as well as social and environmental issues). Garreau (1991) has argued that the formation of polycentric metropolitan areas will in time promote higher density urban living and reduced commuting times, but Lang (2003) has observed that in American cities most new office space is located away from CBDs and edge cities, in what he calls ‘edgeless cities’. Edgeless cities are characterized by sprawl, car dependence, and increased commuting distances. Lang’s findings have significant policy implications, which call for research to test their applicability to Australian cities.

Path dependency is another potentially fruitful area for research. The high sensitivity of infrastructure networks such as sewerage and public transport systems to initial planning decisions is obvious. However, we still lack studies that can inform policy debates in cases where urban infrastructure has been built in a way that limits the options that will be available in the future. If a city is travelling along a particular path, and producing outcomes that are less than optimal, is it plausible to suggest that its direction might be changed? There have been few investigations of this issue, but one study concluded that an appropriate decision at key points – such as when Melbourne did not tear up its tram tracks in the 1950s and abandoned plans in the mid-1960s to build a very large network of freeways that would have largely destroyed its inner suburbs – can send a city on a path towards a more desirable quality of urban life (Frost 2001).
Research is also needed on developments outside of the capital cities, where the fortunes of cities have in the past few decades been mixed. There has been strong growth in towns along Australia’s coast and in some inland provincial towns that have absorbed surplus labour from surrounding areas (‘sponge cities’), but demographic and economic stagnation or decline pretty much everywhere else (Salt 2001). Country towns have been adversely affected by a changing relationship between Australia’s urban and rural sectors. Technological change has ‘uncoupled’ rural output from small town employment opportunities. In the ‘sponge cities’, it seems highly likely that well-developed social capital has assisted in the creation of jobs and amenities, but there has been little research into the processes by which these successful cities have grown, or the infrastructure problems, such as traffic congestion, shortages of parking, and the availability of clean water, that they might face in the future.
REFERENCES


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