The failure to learn from others: vertical fiscal imbalance, centralisation and Australia's metropolitan knowledge deficit

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The paper rests on four arguments pertaining to metropolitan governance in Australia. The first is that, like other countries since the early 1990s (Brenner et al. 2010), the delivery of hitherto public infrastructure and services has been outsourced to the private sector. The second is that, unlike other countries since the early 1990s and the trend towards decentralisation to the metropolitan scale (Lefevre 1998; Brenner 2004), Australia has experienced increasing vertical fiscal imbalance (VFI) and the centralisation of intergovernmental roles and responsibilities (Phillimore and Harwood 2015). The third is that in the absence of metropolitan governance, combining Commonwealth, State and local governments leads to a lack of strategic clarity, ‘fragmented governance, and disjointed infrastructure and service delivery’ (Infrastructure Australia 2018:97). The fourth is that the consequence has been a diminished ability to learn from comparative experience, innovation and policy elsewhere in the world.

While the arguments are confidently advanced, detail regarding the metropolitan governance knowledge deficit is lacking. Aside from Davidson and Gleeson (2015), there has been little attention among urban academics in Australia to the potential for horizontal knowledge exchange and to whether this best occurs at a metropolitan scale (Tomlinson 2018; Tomlinson and Spiller 2018). The focus of the paper is on questioning the routes to knowledge of metropolitan governance elsewhere in the world and then seeking to be more specific regarding how and why these are blocked, or rendered more difficult, in Australia. These routes can differ markedly. For example, in the case of transnational municipal networks (TMNs), the most common area of knowledge exchange concerns climate change

(Acuto and Rayner 2016). In contrast, in the case of smart cities, TMNs give way to corporate advocacy (see below).

The paper has three sections. The first situates the paper in the literature on knowledge exchange (practitioners) and policy transfer (academics) (Tomlinson 2017) relevant to metropolitan governance. This is characterised as more or less horizontal, often peer-to-peer, knowledge exchange of metropolitan governance in the form of TMNs (e.g. C40 Cities Climate Leadership Group, the World Association of the Major Metropolises (Metropolis)), corporations selling smart city technologies (e.g. KPMG, Arup), and linkages to IOs (e.g. World Bank) and universities (e.g. University College London (UCL)). Individually and networked, these institutions promote the exchange of ideas, innovations, comparative experience and agendas.

The second explains the constitutional and fiscal backdrop to metropolitan governance in Australia; the 'unique' role of State governments in the funding, planning and management of cities; and the role and powers adopted by Commonwealth government that are made possible by VFI and the ability to select, and to impose conditions on the funding of projects and services. It is proposed that the "top down" imposition of policies, funding and the management of cities per Commonwealth and State political priorities prevents metro-scale adoption/adaptation of policies and innovations learned from experience elsewhere in the world.

The third advances the view that were Australia's cities to function independently, as metropolitan governments, the potential for knowledge exchange would be optimised. This thesis is explored in respect of the adoption of smart city technologies and, where comparisons help to make the point, also climate change.

Horizontal knowledge exchange relevant to metropolitan governance

The backdrop to the presentation of policy transfer/knowledge exchange is the confluence of geopolitical transformations which included, most importantly, the dissolution of the Soviet Union in 1991 that 'removed the brakes' on the 1980s policies of the Thatcher and Reagan era; the rise of neoliberal policy prescriptions – Fukuyama's (1992) *End of History* had in mind the demise of the socialist alternative and the reign of Western liberal democracy; and the practicability of using the Web for 'knowledge management' and the propagation of notions of best practice (Tomlinson and Harrison 2018). Reflecting the timing of these changes, '... it was not until the early 1990s that a genuine post-Keynesian, neoliberalized global rule-regime was consolidated' (Brenner et al. 2010:338).

The same period saw the metropolitan rescaling of urban regions. Referring to the EU, Brenner (1990: 440) writes that this was viewed as necessary for the 'global structural competitiveness of a given urban region'. Arguably a metropolitan perspective is advanced among all countries with which Australia might choose to compare itself, for example,

Austria, Belgium, Canada, the Czech Republic, Denmark, England, Finland, France, Germany, Holland, Italy, Spain, Sweden, Switzerland and the USA (Tomlinson 2018).

Policy transfer or knowledge exchange

Academics commonly refer to ‘policy transfer’ (e.g. Peck and Theodore 2015; Dolowitz 2017; Hadjiisky et al. 2017; Dolowitz and Marsh 1996; Haas 1992; Stone 2013). Perhaps the most widely accepted definition of policy transfer is ‘a process in which knowledge about policies, administrative arrangements, institutions etc. in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place’ (Dolowitz and Marsh 1996:344).

Dolowitz and Marsh’s definition has subsequently come to embrace a diversity of institutions. Hadjiisky et al. (2017:2,3) point to an ‘entire global marketplace of ideas and recommendations on ‘best practices’ [that] has emerged, including IOs, commissions, donor groups, consultants, think tanks, institutes, networks and partnerships. They may not use the terminology of ‘policy transfer’ but that, in essence, is what they are debating and selling’ (pp. 2, 3).

It has previously been argued that policy transfer is the wording used by academics and practitioners: and knowledge exchange by practitioners (Tomlinson 2017). This distinction

partly reflects the practicability of using the Web for knowledge management. The World Bank's presenting itself as a 'knowledge bank' makes the point.

In 1996 James D. Wolfensohn recast the World Bank as a 'knowledge bank' that would provide city managers and other urban professionals 'with the right kinds of knowledge'. In 1999 he wrote that the Bank should support '[p]roactive knowledge management', with the apprehension that poor access to the Web will lead to 'knowledge gaps'. (The Web is central since knowledge gaps can be filled by googling a policy issue.) Employing hyperlinks, the World Bank provides 'over 3,000 cities' with explanations of the causes of urban governance issues, the policies that will best address the issues and how programs and projects can be financed and delivered.

From the point of view of a politician, city manager, an IO, a consultant and others, knowledge that is useful explains the causes of an issue and how it might best be addressed. Useful knowledge will often take the form of "packaged" knowledge products, interlinking areas of expertise that form part of a policy supply chain. For example, it has been demonstrated that a Web search for 'slum upgrading' favours the World Bank and provides hyperlinks to 'urban land markets', 'public private partnerships' and the Public Private Infrastructure Advisory Facility that, together, provide detailed explanations of why there are slums, the policies that might best be employed to upgrade slums, appropriate programmes and how these might be financed (Tomlinson, 2002).

The documents found on the Web, note not academic literature that typically exists behind a paywall, refer to ‘international best practice’ and ‘evidence-based best practice’; ‘global knowledge products’, ‘knowledge banks’, ‘knowledge storage’ and ‘knowledge management’; and the prevention of ‘knowledge leakage’ and the repetition of ‘knowledge mistakes’. The use of these expressions increased sharply in the early or mid-1990s, with this also being true for ‘knowledge exchange’ in the late 1990s. The sharp increase in the early to mid-1990s is also true for ‘neoliberalism’ and ‘governance’, and also for ‘new public management’ that, for about three decades, provided a theoretical grounding for outsourcing hitherto public infrastructure and services (Tomlinson and Harrison 2018).

The ability to represent knowledge products as best practice presumes that the source passes the test of ‘credibility, authority, relevance and currency’ (Head and Eisenberg 2009: 2), with credibility being essential because a ‘message is effective only if [...] the messenger is reliable and identifiable’ (Castells 2009:2). This ability is apparent if the knowledge is sourced from TMNs; philanthropies; IOs; global consulting firms; corporations such as Arup and KPMG; individual consultants when working for IOs; and academics working as consultants, especially when based in highly regarded universities. Within this constellation of institutions, when there is an alignment of knowledge products, the products can be certified as best practice. As best practices they acquire a prescriptive character, with policy makers coming to think that ‘there is only one viable perspective on policy’.¹ As Keynes (1936:157, 158) noted, ‘it is better for reputation to fail conventionally than to succeed unconventionally’.

The period since the early 1990s that saw intergovernmental decentralisation and the commodification of hitherto public infrastructure and services also saw a sharp increase in the number of TMNs (Acuto and Rayner 2016:1156). Later, starting in the mid-1990s, the smart city concept gained currency (Calzada 2016:28). Some of the TMNs are sector specific, for example, C40 is a network of large cities that address climate change; and others have a variety of initiatives, such as Metropolis and the International Council for Local Environmental Initiatives – Local Governments for Sustainability (commonly known by its abbreviation, ICLEI).

In regard to cities in the North, TMNs are a foremost source of knowledge exchange among cities. For example, Metropolis presents ‘WHAT WE DO’: ‘We promote collaborative projects and learning programs between the major cities of the world’.² To this end ‘The Policy Transfer Platform is a global peer-to-peer learning and networking portal for urban practitioners, experts and researchers. It documents innovative projects and policies that cities can take as inspiration and guidance.’³ Arguably the World Bank has been the primary source of knowledge of urban governance in cities in the South. In the light both of increasing engagement between the World Bank and TMNs and of many cities in the South playing an increasingly significant role in TMNs, it seems reasonable to hypothesise that metropolitan governance best practice knowledge products will be much the same in cities in the North and cities in the South located in the BRICS (Brazil, Russia, India, China, South Africa) countries and, for example, Ankara and Mexico City (Harrison 2015).

Acuto and Rayner (2016) refer to exchanges between cities and between cities via TMNs as the ‘traditional’ view and introduce the notion of ‘hybrid’ TMNs that work with IOs, companies, NGOs and with other TMNs. C40 is a prominent example of this complexity. Since 2009 C40 and Arup, a global consultancy firm, have worked together to identify strategic areas of research and, in 2015, ‘Arup and C40 ... announced the formation of a collaborative global partnership. Over the next three years, Arup will invest \$1 million into research through the partnership with C40, to offer cities increased insight to accelerate action on global climate change’.⁴ The outcome is:

Deadline 2020 – How Cities Will Meet the Paris Agreement

Deadline 2020 is the first significant routemap for achieving the Paris Agreement, outlining the pace, scale and prioritization of action needed by C40 member cities over the next 5 years and beyond.⁵

The partnership is supported by the City Leadership Initiative at UCL, which is a collaboration between UCL, the World Bank and UN-Habitat. In 2011 C40 entered into a partnership with the World Bank.

It is apparent that the hybridisation of some TMNs constrains generalisations about TMNs, but the same is not true in respect of their ongoing commitment to knowledge exchange among cities. A rationale Acuto and Rayner (2016) provide for an increased number and role

of TMNs is dysfunctional governance by higher levels of government. To the extent that, in seeking to set the policy agenda, TMNs are possibly diminishing the role of national governments, this is not a position one can argue for Australia. In a context of intergovernmental centralisation and TMN knowledge that is, in large part, being exchanged at a metropolitan scale, in Australia there is no metropolitan scale to adopt and adapt knowledge.

Smart cities

In the midst of many and contested definitions, Rob Kitchin and Sung-Yueh Perng, (2016:2) venture that smart cities are ‘densely instrumented urban systems that can be monitored, managed and regulated in real time, ... whose data can be used to better depict, model and predict urban processes and simulate future urban development, ... and whose deployment facilitates new forms of digital subjectivity, citizenship, participation and political action’.

Although some TMNs facilitate and promote smart cities, to the author’s knowledge there are not networks of cities functioning as TMNs that identify their primary role as the promotion of smart cities. Many TMNs do promote smart city technologies, but this is with a view to serving other objectives. The C40 and Arup partnership helps to explain this happenstance. In their 2015 *Polisdigitocracy* publication they urge the adoption of smart city technologies relevant to climate change adaptation and mitigation. TMNs can be expected to promote smart city technologies relevant to their mission.

TMN interest in smart cities is apparent from searching their websites. For example, Metropolis collaborates with Cisco and the Barcelona City Council, with Cisco funding the creation of the Barcelona Institute of Technology for the Habitat (BIT-Habitat) to undertake research on smart cities.⁶ ICLEI promotes a Smart Cities Agenda as one of its Urban Agendas⁷ and includes supporting city-business collaboration. In addition, Bloomberg Philanthropies colourfully write that **‘IN GOD WE TRUST; EVERYONE ELSE BRING DATA’**.⁸

This search of websites confirms Kitchin (2014:2) writing that smart cities have an ‘underlying neoliberal ethos that prioritises market-led and technological solutions to city governance and development, ...’ An attraction of TMNs to corporations is that they represent a self-selected multi-city market. The consultancy Frost & Sullivan (2014) estimate that the ‘global smart city market will be valued at US\$1.565 trillion in 2020’ in the areas of smart energy, buildings, mobility, healthcare, infrastructure, technology, education, governance and citizens. Inevitably, ‘The smart city agenda and associated technologies are being heavily promoted by a number of the world’s largest software services and hardware companies who view city governance as a large, long-term potential market for their products’ (Kitchin 2014:10).

So it is that the corporate role in promoting the Commonwealth government’s introduction of *City Deals* and the *Smart Cities Plan* is worth noting. In 2014 KPMG, with the Property Council of Australia, spruiked *Introducing UK City Deals: A Smart Approach to Supercharging Economic Growth and Productivity* (KPMG, 2014). In 2017 KPMG

announced a *KPMG and Cisco alliance to drive Australian Smart Cities* and, in the same year, in its *Smart cities: A snapshot of Australia in 2017*, KPMG reported that ‘To find out what really makes a city smart, KPMG and the Public Sector Network brought together more than 440 leaders from government, universities and industry across six events around the country ...’.⁹ In addition to KPMG, many other corporations promote smart city technologies in Australia; for example, IBM, Microsoft, Cisco, Siemens and Arup.

The spruiking of smart cities cannot be said to be peer-to-peer in the sense of city(ies)-to-city(ies). In the case of smart city technologies, the point is self-evident in the light of there not being metropolitan governments, the role of State governments in delivering certain metro-scale projects and services, and the role of the Commonwealth government in funding smart city projects at the local government level. It is to be expected that companies are opportunistic, that their marketing efforts will be located where the market is. Nonetheless, corporations are alert to the metropolitan contradiction. Referring to Australia, KPMG (2017:14) makes the point that ‘data has to be collected, structured, analysed and made available to be used and re-used in real time right across the urban fabric, not just by the local government organisation. It should also move across city boundaries. This quality of interoperability will become a more pressing requirement as the Internet of Things pervades our urban spaces’.

Tim Williams of Arup is even more to the point:

‘Smart governance has been at the heart of smart cities internationally and we have had fractured governance here – councils that sit in silos ... What we need are bigger, more empowered councils – fewer of them sharing more; think metropolitan-scale government ... Dr Williams says Australian cities have been slow learners because while we are producing a massive amount of knowledge-rich data. ‘There is no, one city-wide body or city government – unlike Chicago or Barcelona –empowered to gather that data.’ (*Australian Financial Review* 2018:40).

Constitutional and fiscal backdrop to metropolitan governance in Australia

It has been ventured that a significant source of knowledge for cities around the world is peer-to-peer knowledge exchange, often in the form of knowledge exchange facilitated by TMNs; and also that knowledge exchange has hybridised to include IOs, corporations, consultants and others. In a context of global economy wherein cities are central to a nation’s competitiveness; and in a context of an accelerating rate of change in metro-scale technologies concerning, inter alia, energy, transport, climate change adaptation and mitigation; fleet-footed, differentiated metropolitan governance, policies, programs and projects are essential. In contrast, in Australia urban policies serve Federal and State political agendas, are top down, standardised, cannot be said to be evidence-based (see comments

below on project funding) and become cemented in Federal and State policies and funding processes.

In the case of the Commonwealth government, when it sets out to shape metropolitan outcomes, it does so without a constitutional remit. The Commonwealth's ability to steer metropolitan outcomes is made possible by VFI. As noted by Paul Keating (1991), the former Treasurer and Prime Minister of Australia, 'The national perspective dominates Australian political life because the national government dominates revenue raising and only because the national government dominates revenue raising.' Enabled by VFI, in the *Australia Infrastructure Plan*¹⁰ (Infrastructure Australia, 2016, 33) it is written that the Commonwealth government 'should drive change in the planning and operation of Australia's cities through the use of Infrastructure Reform Incentives [and] tie the provision of additional funding for infrastructure to the delivery of a range of city-based reforms, focused on improving the quality of planning, development and infrastructure across Australia's cities'. Further to the point, in its *Smart Cities Plan* (2016, 4) the Department of Prime Minister and Cabinet aims to 'rethink the way our cities are planned, built and managed'¹¹. It is no wonder that Helen Silver (2010: 326), former Secretary of the Victorian Government Department of Premier and Cabinet, observes that VFI 'creates a perverse incentive for the Commonwealth to operate in areas of state and territory responsibility, without due regard to the principle of subsidiarity'. Government commitments to subsidiarity notwithstanding, prior to the 2016 elections, in the Eden-Monaro electoral division the Liberal Party federal electoral manifesto included replacing a roundabout with a signalised

intersection¹²; a matter surely best left to local government. Similar examples of subsidiarity upended are possible for the Australian Labor Party.

The fiscal manifestation of these assumed prerogatives is evident in the *Smart Cities Plan* and in the *Smart Cities and Suburbs Program* (2017)¹³. ‘As part of the 2016 election campaign the Australian Government announced the establishment of a \$50 million competitive *Smart Cities and Suburbs Program* to support projects that apply innovative technology-based solutions to urban challenges’ (Department of Prime Minister and Cabinet 2017: 5). Eligible organisations are ‘local governments, private companies, research organisations and not for profit bodies’. In Round 1 there were 176 applications and 52 projects received a total of \$28.5 million in Australian Government funding and \$38 million in applicant funding’.¹⁴ The lead applicants were local governments (65%) and the balance is roughly divided among universities and private companies. Round 2, with \$22 million available, began in May 2018.

This assumption that the Commonwealth government knows best cannot be contested at the metropolitan scale. As already noted, State governments are constitutionally mandated to know best for their cities, but they face fiscal constraints and dependence on transfers from the Commonwealth. WestConnex is an expensive example and a legacy of former Prime Minister Tony Abbott who said that ‘I want building the roads of the 21st Century to be a hallmark of my government’ (Department of Infrastructure and Regional Development 2013). He found a positive response among big-budget State government transport departments.

WestConnex, a motorway and tunnel project for metropolitan Sydney that is in implementation and is proceeding as the Sydney Motorway Corporation, a private company established by the New South Wales (NSW) Liberal government. WestConnex is projected to cost more than \$45 billion (Saulwick 2017). Its 'proponent' is an agency of the NSW government, Roads and Maritime Services. The project has been strongly opposed by the mayor of the City of Sydney, the Labor Party and the Greens, an active citizenry and the Committee for Sydney (2016:6) that calls for 'Work to improve infrastructure appraisal methods, learning from global best practice, so the right projects for the city are prioritised'. Infrastructure Australia (2016: 5) found a benefit-cost ratio exceeding 1 that comprises travel time and vehicle operating cost savings as the 'core benefits'. The opportunity cost of employing this most narrow criterion (KPMG 2017:4) – KPMG writes that benefit-cost analysis should be replaced by an estimate of contribution to gross value added to the metropolitan GDP – the denial of interdisciplinary expert contributions and the exclusion of un-scripted public engagement (Stirling 2018¹⁵) beggars the opportunity of building the city residents of metropolitan Sydney want.

In contrast, in Victoria, it cost of \$1.1 billion (Cuganesan and Hart (n.d)) for the residents of metropolitan Melbourne to not get what they did not want or, more generously, most did not prioritise; the East-West [road] Link for metropolitan Melbourne was cancelled after the Coalition lost the State government elections. The Labor government is proceeding with the Metro Tunnel that is to be run by the Melbourne Metro Rail Authority, a body reporting to the State government.

State government knowledge, as it were, for the metropolitan areas is not to be read from the strategic plans they prepare for metropolitan areas. State governments may themselves apply smart city technologies at a metropolitan scale. Notably, in the 1970s the NSW government developed the Sydney Coordinated Adaptive Traffic System (SCATS) that has evolved with improvements in ICT and the evolution of smart city technologies. SCATS, ‘manages the dynamic (on-line, real-time) timing of signal phases at traffic signals, meaning that it tries to find the best phasing (i.e. cycle times, phase splits and offsets) for a traffic situation (for individual intersections as well as for the whole network)’.¹⁶ SCATS is integral to WestConnex.

It is not that State governments are not smart, but this cannot be said for their understanding of metropolitan areas. Generalising somewhat, metropolitan strategic plans prepared by State governments are distinguished by being short-lived and revised following elections or, for example, census data that may render an existing plan redundant; shaped by the interests of property developers and of favoured electoral constituencies; having little influence on ‘big-budget’ State government departments that typically operate in silos; are influenced by the funding priorities of the Commonwealth government; mutate when the State government accepts unsolicited bids for the construction of projects; projected far into the future shy of an understanding of the rates of change within cities and of smart city technologies; and, while committed to subsidiarity, undertake to ‘Develop policy and guidelines on establishing new village café[s]’ to the year 2050 (State of Victoria, 2014, 117) (Yencken, 2001; Mees, 2003; Dodson, 2009; Searle and Bunker, 2010; Gleeson et al., 2012; Spiller, 2018; Infrastructure Australia, 2018). State government strategic planning reflects more a shotgun of political

expediency and global city orthodoxy than it does applied contextual research and the potential for peer-to-peer knowledge exchange. (An exception might be the Greater Sydney Commission that was created in 2015 and reports to the UNSW government, and has demonstrated a command of metropolitan matters.)

In practice, governance in Australia is characterised by ‘cost- and blame-shifting [and] a loss of accountability to voters’ (Department of Prime Minister and Cabinet 2014:2; also see Brown and Bellamy 2007), sectoral and data silos (Spiller 2018), and PPPs or privatisation that accentuate opaque accountability (Warren 2014). Knowledge, such as it is, filters downwards through a thicket of political priorities. This is evident in the funding for metropolitan projects that is top down and inept. Referring to Australia’s cities, Marion Terrill (2016) of the Grattan Institute notes that ‘Investment has not focused on prosperity [and] has served political goals’. Similarly, the John Grill Centre for Project Leadership (2018) of the University of Sydney reports ‘increased spending on infrastructure projects failing to deliver meaningful benefits. We estimate that up to \$63 billion of road projects alone may have no social impact or economic output’.¹⁷ Terrill (2016) summarises:

- Spending has been very high in the past decade
- Investment has not focused on prosperity
- Investment has served political goals

‘The real deficit is in the governance arrangements for deciding how much money gets spent on what’ (Terrill and Coates 2016). This is, in the first instance, a failure of democracy. The users who pay for the projects (user charges and taxes) and others affected by metro-scale projects and services, do not have a voice. Thus it is that the influential, largely private sector Committees from Perth, Melbourne and Sydney all call for metropolitan governance and/or government.

If one returns to the need for differentiated and fleet-footed metropolitan governance, this is rendered impossible by the Commonwealth and State governments for which power and the allocation of resources rests on aligning planning, projects and services with electoral constituencies. The prospect of a voice for a metropolitan community of interests is denied because the legal framework State governments have enacted mean that ‘... issues of great importance to city residents never become subjects of serious political debate because cities [have] little power to address them’ (Frug and Barron 2008: 17)¹⁸.

Obstacles to learning from others in Australia

The author’s enthusiasm for horizontal knowledge exchange at the metro-scale, in contrast to top-known knowledge reflected in Commonwealth and State political priorities and funding conditionality, is tempered by his earlier chronicling the prescriptive character of claims concerning ‘best practice’ or equivalent wording employed by TMNs, IOs and others. Best practice is something one wants from a dentist and views somewhat sceptically when asserted

as metropolitan best practice, with this being all the more so in the context of a ‘democratic deficit’ (Gleeson et al., 2012). When the Australian Prime Minister says that he wants to build the roads of the 21st century and provides money for Commonwealth-selected freeway projects for metropolitan areas, the absence of metro-scale democracy is self-evident.

Reference to metropolitan resonates, both positively and negatively, in Melbourne and Sydney. In Melbourne, the Melbourne Planning Authority was created by the State government in 2014; a metropolitan perspective, one might think. In 2016 the authority was rejigged as the Victoria Planning Authority. Demonstrative of the lack of a metropolitan perspective, in the State of Victoria *Plan Melbourne 2017-2050* and the *Five-Year Implementation Plan*, there is no mention of a smart city and when the word digital is used the reference is to the economy and connectivity to regional Victoria. In the case of climate change, in *Victoria’s Climate Change Framework* the State government commits itself to ‘reduce Victoria’s greenhouse gas emissions by 15-20 per cent below 2005 levels by 2020’.¹⁹ It is in *Victoria’s Climate Change Adaptation Plan 2017-2020* that the State government commits itself to working with the 31 local governments on implementing *Resilient Melbourne*. The State has ambitious environmental goals, but contrary to international experience (e.g. Kern and Bulkeley, 2009; Davidson and Gleeson, 2017), the point seems simply that a role for metro-scale intervention escaped imagining.

The contrast is with the City of Melbourne. In its *Council Plan 2017-2021* the City pledged ‘to help deliver the Paris Agreement to limit global temperature rise’ (p. 17). Melbourne is a member of C40 and ICLEI and the 100 Resilient Cities (100RC) challenge that was

‘pioneered’ by the Rockefeller Foundation. Participating in the 100RC the City obtained the commitment of the 31 local governments comprising the metropolitan area and relevant State government agencies (e.g. Melbourne Water) in the preparation of, and the commitment to, a resilience strategy, much of which involves climate change mitigation (*Resilient Melbourne* 2016).²⁰ The City is investing in smart city technologies that overlap with both its resilience and climate change objectives; objectives that are best addressed at a metropolitan scale.

Another contrast is with the NSW Greater Sydney Commission whose *Our Greater Sydney. A metropolis of three cities – connecting people* (draft) was ‘prepared concurrently with the Government’s *Future Transport 2056* and Infrastructure NSW’s *State Infrastructure Strategy* to align land use, transport and infrastructure outcomes for Greater Sydney ... All data in this draft Plan is based on current Government approved and published data sourced from the relevant State agency’ (Greater Sydney Commission 2017: 16). The draft proposes the objective of ‘A low-carbon city [that] contributes to net-zero emissions by 2050 and mitigates climate change’. It is understood that ‘The future will require people to adapt to climate change, to mitigate future impacts and to be more efficient with resources ... Infrastructure needs to be not only resilient but adaptable to technological transformation such as renewable energy, smart energy networks, distributed energy and water systems and energy-efficient homes and buildings ...’ (p.22). Environment and a commitment to smart city technologies overlap.

In the case of the City of Sydney, it is one of 35 local councils comprising the metropolitan area. In the *City of Sydney: Sustainable Sydney 2030: Community Strategic Plan 2017–*

2021²¹, the City aims for a ‘green’, ‘global’ and ‘connected’ Sydney. The Plan is implemented through the *Annual Plan and Budget*, with multiple State Departments and other levels of government (including the local councils) responsible for implementation. The role of the State departments is not necessarily welcome, with this especially evident in the State’s investment in private transport and the City’s opposition to WestConnex (p. 48). Perforce, the Plan is aligned with ‘federal and NSW government policies and commitments’ (p. 11). The mayor holds that ‘Our greatest challenge is climate change’ (p. 9) and the City aims to achieve a ‘70 per cent reduction in greenhouse gas emissions based on 2006 levels by 2030 and by 2050, achieve a net zero emissions city’ (p. 23). The City similarly commits itself to the adoption of smart city technologies, except that the ability of the City to realise such a city is compromised by the need to ‘Advocate to other levels of government for policy and regulatory reform and investment in infrastructure and services’ (p. 31). The City perforce adopts ‘influencing strategies’.

Scale is critical to effective smart city technologies. By now beating the familiar drum of metropolitan scale, Anna Gerber (2018), writing for IBM, notes that ‘Connected cities emerge when IoT technologies are applied across an entire metropolitan area.’ Further belabouring the point, the OECD (2014, 16) urges that ‘Governments should encourage the production of data at the right territorial scale to inform investment strategies and produce evidence for decision making. For example, data at only a city level may limit the capacity to make strategies at the scale of the metropolitan area’.

Returning to smart cities, is it to be expected that the Commonwealth and State governments are well versed in smart city technologies and are mindful of the metro-scale of many (most?) smart city technologies? Commonwealth selection and funding of competing local government projects is not encouraging. Although open data is a precondition to funding, there appears to be little comprehension that funding local government adoption of the technologies and local government use of different companies and their different algorithms and data management systems renders all the more difficult and costly the inevitable metropolitanisation of many smart city technologies.

Conclusion

Does knowledge exchange about metropolitan governance presume a particular level of government at the learning end of the exchange? One might write that in the light of the global trend towards metropolitan governance, by definition, knowledge exchange involving TMNs occurs at the metropolitan scale. This appears to be the case for both smart cities and climate change. The thrust of this paper is that peer-to-peer knowledge exchange does occur at the metropolitan scale and only ineptly is adopted and translated by higher levels of government, as appears to be the case in Australia. Australia's defining context is VFI, the roles, responsibilities and funding of the Commonwealth and State governments, and fiscal and other Commonwealth policies that have unintended consequences for cities (Tomlinson 2012).

Commonwealth and State governments bring with them party political constituencies and priorities. Needless to say, these constituencies and priorities change with a change in government. The outcome of these changes is haphazard for metropolitan areas, as in the cases of WestConnex, where there was not a change in government and the project is ongoing, and in the East West Link and Roe 8 in Perth, where newly elected State governments cancelled projects advanced by the Commonwealth government. Australia's metropolitan areas are at the receiving end of policies, projects and services over which they have no voice unless it be political protest or legal action by local governments, as in the case of the East-West Link. The objection State governments will raise concerns public participation exercises that the author has found to be choreographed and whose views too often are simply ignored. For example, after her resignation from the Melbourne metropolitan strategic planning Advisory Committee, Roz Hansen, former Chair of the Committee and who undertook public participation exercises, said 'We are not being asked by government if we want this project; we are being told we must have it' (Dow 2013).

It is apparent that metropolitan policy priorities and project and service funding decisions are not made by a level of government that has fiscal autonomy and that represents and is accountable to the users of the projects and services. It is at this level of government where there is greater policy continuity. It is also at this level of government where knowledge abounds and where innovation and adaptation to changing technologies and climate change is ongoing. The contrast is with the Commonwealth's *City Deals* policy. It was adapted from the United Kingdom where it has been abandoned in favour of *Devolution Deals* and the creation of metropolitan governments. At the 2018 Australian Smart Communities

Association conference the representative for the Department of Infrastructure, Regional Development and Cities said that *City Deals* are the primary means for the delivery of smart city technologies. It is not at this scale that innovation and the adoption or adaptation of comparable metropolitan scale smart city technologies is possible. It is at the metropolitan scale where Australia's economic, social and environmental future lies and this future is being compromised.

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