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Experimental governance for low- carbon buildings and cities: value and limits of local action networks

**Jeroen van der
Heijden
Regulatory Institutions
Network
Australian National University**

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Abstract

City governments have become increasingly active in governing the transition to low-carbon buildings and cities. They are often more ambitious than the governments of the nation states they are embedded in. They are, however, limited by their national legal and policy frameworks in realising these ambitions. In response, city governments have begun to experiment with local action networks that bring together policymakers, city bureaucrats, firms, citizens, and civil society groups. To better understand their value and limits, this article studies four such action networks from Australia and the United States. It finds that the scalability of lessons learnt from these action networks is hampered by too strong a focus on leadership by the network administrators.

Keywords

experimental governance, action networks, low-carbon development and transformation, urban environmental governance, scalability

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Please forward any feedback, submissions or requests to: jill.mowbray@anu.edu.au or regnet@anu.edu.au.

Australian
National
University

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Experimental governance for low-carbon buildings and cities: Value and limits of local action networks

Jeroen van der Heijden*, Regulatory Institutions Network, Australian National University

Introduction

Cities are essential in the global response to climate change. They make up less than five per cent of the world's landmass, but it is here where most resources are consumed and wastes are produced—including 70 per cent of global energy consumption and 70 per cent of global carbon emissions. At the same time, cities hold much potential for significant reductions in resource consumption and waste production. Well trialled technology and knowledge of behavioural change is available to achieve reductions of up to 80 per cent at city level (IPCC, 2014; Van der Heijden, 2014b).

To achieve these reductions this technology and knowledge needs appropriate application, on a large scale, and in a timely manner. However, governing this transition is complicated. To date traditional governance instruments—such as direct regulatory interventions, subsidies, and taxes—have not been able to incentivise a large uptake of technology and knowledge. Legally binding commitments to carbon emission reductions are made at national level, and cities are often delegated to implement traditional governance instruments for low-carbon development and transformation that are developed by their national (or regional, state, or provincial) governments (Bulkeley, 2002; James, 2015).

Such high-level commitments and instruments often present 'one-size fits all' approaches to governing city development and transformation. At the city level more fine-grained approaches are often possible. Understanding the potential that cities have in the transition to a low-carbon society, city governments around the globe have begun to make pledges to reduce their resource and carbon intensity, often well beyond those of their national governments. They have also begun to experiment with novel governance instruments to achieve these goals.

One such experimental governance instrument is that of action networks. Action networks bring together various actors and seek to understand how they can collaboratively generate knowledge on how to reduce urban resources and carbon intensities. Such action networks might link cities with other cities—at regional, national, or international level—or they might link city governments with local

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firms, local citizens, and local civil society organisations. City-to-city networks have attracted a fair deal of academic scrutiny. Studies of well-known international networks, such as ICLEI (Local Governments for Sustainability) and the C40 Cities Climate Leadership Group, have found that these networks have generated valuable lessons on low-carbon development and transformation. Yet, they also point to limitations: these networks may exclude specific cities from the knowledge they generate, or they may only give the illusion of action whilst *de facto* doing nothing meaningful (Hoffmann, 2011; Kern & Alber, 2010).

Less well understood are local action networks. These often create a financially or otherwise secure local environment for applying innovative technology or state-of-the art ideas of how people can interact better with buildings or cities. This can be achieved, for example, by temporarily or locally lifting restrictive building regulations so that knowledge can be generated in a ‘tabula rasa’ situation, or by pooling resources so that the risks of losing the time and money invested do not have to be carried by a single person or firm. They are a popular approach for governing the transition to resource-efficient and low-carbon built environments around the globe (Bai, Roberts, & Chen, 2010; Bulkeley & Broto, 2013)

Are these local action networks capable of accelerating a transition to low-carbon cities and how might they achieve this? What are their values, and what are their limits? These questions are central to this research article. The article seeks to answer these questions by closely studying four local action networks—two from Sydney, Australia, and two from Chicago in the United States. They are studied as part of a larger research project on experimental governance instruments for low-carbon city development and transformation.¹ They were selected because of their mutual goal (reducing the energy and carbon intensity of office buildings), but also because of their slightly different approaches to achieving this.

The article unfolds as follows. In the next section I briefly introduce action networks and reflect on the governance literature to express expectations about their performance in a local city context. In the section that follows I briefly discuss the research methodology and approaches to data collection and analysis. This is followed by a discussion of the four action networks. In the final section I draw conclusions.

Action networks: An experimental governance theory perspective and expectations

The notion of experimental governance has made rapid inroads in governance theory and practice. Its origins can be traced back to renowned social reformers such as John Dewey (1991 [1927]) and Donald Campbell (1969). They argue that governance instruments need to be treated as somewhat malleable and fluid interventions, as opposed to the more conventional understanding of instruments

¹ For a full overview of the study see www.jeroenvanderheijden.net/research_current_VENI.html

as fixed programmes. In their opinion, instruments should be designed to address a specific societal problem, preferably at local scale; they should be implemented, monitored, and observed for their consequences and outcomes; and, based on lessons learnt, they should be adjusted, modified, discarded, or even scaled up. The expectations of such monitoring, flexibility, and adjustment are evident: if governance instruments are capable of responding to and are aligned with their specific local contexts they may be more effective and efficient than traditional ‘one size fits all’ instruments.

Since Dewey and Campbell’s pioneering work the understanding of what makes ‘good’ experimental governance has expanded. Experimental governance scholars now argue that a wide range of actors—those governing and those governed—should be involved in the development of experimental governance instruments. Through such collaborative approaches the tacit knowledge of those governed can be included in the instrument design, which may further their (local) effectiveness (De Burca, 2010; Sabel & Zeitlin, 2011). In addition, so argue these scholars, instruments should be developed and implemented in consensus based decision-making processes. This may increase the legitimacy of these instruments, as well as the willingness of those subject to the instruments to comply with them (Borzal, 2012; Davis, 2011). Finally, these scholars argue for a wider repertoire of governance instruments than traditional government-led direct interventions—such as regulation, subsidies, and taxes. By including market based approaches and incentives—such as benchmarking, information sharing, media attention—highly localised governance instruments can be developed that are of specific interest to local actors (Evans, 2011; Van der Heijden, 2014a). At city level governance, experimentation is considered as particularly promising because of scaling possibilities: if an experiment works in a specific part of a city it, or the lessons learnt from it, might easily be scaled up to other parts of the city or even to other cities (Sassen, 2015).

The four action networks that are studied in this article all fit these design characteristics of experimental governance. They were initiated by city governments (the City of Sydney and the City of Chicago) that have set more ambitious carbon emission reductions than their national governments have. They were developed in collaboration with the local actors they govern (predominantly property owners and office tenants). All programmes focus on reducing office building related resource consumption or carbon emissions. They reward participants with knowledge of how to achieve such reductions as well as with acknowledging their leading performance via local, national, and international media outlets. Finally, all programmes have a formalised structure for drawing lessons, and they have all been modified based on lessons learnt since they were implemented. In sum, these four action networks are illustrative of what may be expected to be promising experimental governance instrument designs. Table 1 presents a brief summary of the networks.

<INSERT TABLE 1 >

Research design

The four action networks were studied as part of a larger research project on experimental

governance for low-carbon building and city development and transformation globally (Van der Heijden, 2015). Cases (experimental governance instruments) were identified through internet searches and desk research. They can be understood as illustrative of the broader trend of experimental urban governance described above. By no means, however, does this article claim that the six examples are representative of all possible designs and contexts of local action networks around the globe.

Relevant data for analysing the networks was obtained from websites, existing reports, and other sources. New data was obtained through a series of interviews. These aimed to fill in gaps in the data from other sources, to resolve conflicts in data from other sources, and to gain additional insight in the practices under scrutiny. Interviewees were traced through internet searches and through social-network websites, particularly LinkedIn. Over 200 interviewees from various backgrounds, including policymakers, bureaucrats, property developers, architects, engineers, and property owners, were involved in the larger research project. Of these, 20 were specifically interviewed for insights into the four action networks studied here.

The interviews were recorded and, based on the recording and notes taken during the interviews, a summary report was drafted that was returned to the interviewees for validation. The interviewees were often aware of and involved in more than one experimental governance instrument. It is expected that this (partly) helped to overcome a sampling bias of administrators (and participants) who were overly enthusiastic about their 'own' example (Sanderson, 2002). Interviews lasted for approximately one hour and were generally conducted at the interviewees' work location. The interview data and additional data were processed by means of a systematic coding scheme and qualitative data analysis software (Atlas.ti). Using this approach, the data was systematically explored and insight was gained into the 'repetitiveness' and 'rarity' of experiences shared by the interviewees.

Each action network was asked the following questions: What initiated the development and implementation of the network? Who are the main actors involved and how are they involved in the development and modification of the network? What lessons have been learnt, if any? What modifications have been made to the network, if any? What is the potential to scale up the network or the lessons resulting from it throughout the city, or even to other cities? These questions follow other studies into experimental urban governance instruments (e.g., Boyd & Ghosh, 2013; Hohn & Neuer, 2006).

The four action networks studied

In what follows I present each action network and reflect on the questions that guided the research. To prevent too much overlap between the case descriptions, however, I specifically focus on the unique insights that were drawn from each.

Better Buildings Partnership, Sydney, Australia

Inspired by similar action networks in London and Toronto, the Better Buildings Partnership was launched in 2010 by Sydney City Council and the city's 14 major property owners. These property owners collectively own over 50 per cent of the city's commercial property. Because considerable carbon emissions reduction are possible at building level, Sydney City Council staff realised that if these 14 major property owners agreed to retrofit their (predominantly existing) properties, the city would make a huge step towards achieving its ambition of cutting its 2006 carbon emissions by 70 per cent in 2030—an ambition that goes well beyond the national carbon emission reduction target of the Australian Government (City of Sydney, 2011). In 2014, the Partnership was opened up to allow smaller property owners to participate as well.

Participants commit to reducing the 2006 levels of the carbon emissions of their (existing) property by 70 per cent by 2030. In return, the City of Sydney supports them in achieving this goal, and rewards their achievements with considerable media attention in national and international forums. The Partnership involves the participating property owners in city development policy processes so that they can plan their future investments accordingly. 'It provides them the opportunity to actually influence and to be inside the tent with the City, and with the City's ambitious agenda', a Sydney City Council policymaker explained. 'And from a City point of view we need them as well. ... We need their expertise and experiences as well to show us and challenge us to get the best solutions' (int. 42).²

Through the Partnership the property owners share their experiences of retrofitting buildings. Technical working groups within the network transform these experiences into documented knowledge. The Council provides a platform for sharing this knowledge to the larger construction and property community—it administers a website with case studies and best practices on office building retrofits.³ It is particularly because of the close collaboration and alignment of individual and collective goals that the programme is expected to achieve promising results for individual property owners and for the city as a whole. 'They know that the next step, the next reach of reductions, they cannot just do that alone,' the policymaker continued. 'They rather do it in collaboration with the building owner next door, or the City and thereby networking with all the building owners in the City. The next jump [can only be achieved] by actually working together (int. 42).

In 2015 the Partnership reported that it was halfway to meeting its emissions reduction target (Better Buildings Partnership, 2015). The administrators and participants did not expect that the Partnership would achieve this result so quickly. When interviewed in 2011 and asked what they thought of the Partnership, a senior manager representing one of the participants stated: 'We are waiting for the city to roll out their plans. To push it a bit more. Maybe the Better Building Partnership has got in too early. The value for us is in being at the table with our competitors and peers. I'm not sure what other value actually comes from the initiative than just being a part of what everybody is a part of at the moment'

² Interviewees were promised anonymity in research publications. Interviewees are numbered consistently throughout all publications resulting from the larger project.

³ See: <http://www.sydneybetterbuildings.com.au> (24 July 2015).

(int. 44). Administrators interviewed in 2011 expected that demands for better performing office space by office tenants would be a particularly dominant incentive for the 14 property owners to commit to the Partnership (int. 41 and int. 42). However, a programme administrator explained in a follow-up interview in 2014 (int. 42) that this demand had not increased as strongly as expected. The Partnership is now actively involved in informing and educating tenants about the advantages of leasing low-carbon office space (Blundell, 2014). It does so, among others, through active engagement with CitySwitch (discussed below) and has begun to experiment with green leases—leases that state landlords' expectations of the behaviour of tenants of an office building with high levels of urban sustainability, as well as the services a tenant of such buildings may expect from the landlord.

With all is said in praise of the Partnership, it should be kept in mind that the Partnership covers a relatively small area: the Sydney City Council governs the Sydney central business district and some surrounding inner city suburbs—25 square kilometres; in contrast, the greater metropolitan area of Sydney that measures 12,300 square kilometres—and the Partnership only applies to some 100 buildings (which is often not reported in international media outlets by the Sydney City Council). The Partnership is an absolute elite-group of property sector leaders and within that group highly professional senior managers represent their respective organisations in the Partnership. They are strongly committed to the Partnership, they have the financial means for carrying out retrofits (they have already committed AUD \$105 billion to retrofitting their building stock), and they have a high level of certainty that they will see their returns on their investments (Sydney's central business district will most likely remain one of the world's prime office markets). The Partnership also plays a strong role in the Sydney City Council's 'ultimate' ambition that: 'Sydney will be seen as a global leader for best practice in sustainability in buildings, precincts and urban development' (Better Buildings Partnership, 2015, 8). In addition, the reported performance should be considered in the light that a number of building energy efficiency improvements have been made (or were planned) by the participating property owners in the five years before the network was implemented. In other words, the 2006 benchmark skews the reported performance of the network.

Property owners and government staff in other major Australian cities explained that they are unable to duplicate the Partnership. This is because their cities do not have the advantage of a relatively small elite group owning a large share of commercial property. An administrator from another major Australian city further explained that Sydney provides property owners who commit to the Partnership with a reputational advantage that cities, such as his, cannot offer: 'We host the back offices of the big companies. It is in the interest of these big companies to have the city where they have their headquarters, the city that they want to be their springboard to the world, to hum and look fantastic. It is not necessarily of interest to them to have their back offices in a high cost work environment, with [higher levels of built-environment] sustainability, higher rental costs and all that' (int. 50).

CitySwitch Green Office, Australia

CitySwitch Green Office was also implemented as part of the City of Sydney's ambition to reduce its 2006 levels of carbon emissions by 70 per cent by 2030. Sydney City Council developed this action network in collaboration with representatives of the office tenants. The network requires participants to achieve at least a 4 star rating under the National Building Energy Rating System (NABERS) certification programme. NABERS allows for certifying the energy performance of buildings on a 6 star scale. NABERS is mandatory for buildings of 2,000 square meter or larger that come to the market for sale or lease—it does not, however, mandate the level of certification (the number of stars) a building has to meet. The 4 star rating CitySwitch requires indicates beyond average market performance in terms of building energy consumption.⁴

CitySwitch was introduced in 2010 in Sydney, but quickly attracted attention in other cities in Australia and was made an Australia-wide programme in 2011. The network is administered by local governments with support from a national body. Local administrators support participating office tenants via local platforms for obtaining and sharing knowledge—often in the form of workshops and seminars—and administrative and, sometimes, financial support. 'Key to the network is learning', a local programme administrator explained, 'and we can best be understood as a facilitator in this learning process through the meetings and lectures we organise' (int. 35). The national CitySwitch administration provides a broad knowledge platform. It transforms participant experiences in knowledge documents and makes these available to the broader property and construction community through a website.

Another key activity of the national administration is celebrating and rewarding leadership: It hosts an annual awarding ceremony to celebrate the best performing participants, and promotes their performance through ongoing media campaigns. According to their 2015 marketing material, in 2014, CitySwitch participants 'achieved reductions of over 85,000 tonnes of carbon emissions and 75GWh energy, delivering a saving of over [AUD] \$14 million to [participants] and energy savings equivalent to the energy use of 12,712 average homes'.⁵

But what does this reported performance imply? The 75GWh savings by 650 participants in 2014 corresponds with a 13 to 16 per cent reduction of their 2011 energy consumption—when CitySwitch was launched Australia-wide.⁶ At first glance this is a moderate improvement of their building energy

⁴ On NABERS, see: www.nabers.gov.au (10 November 2015).

⁵ <http://www.cityswitch.net.au/News/TabId/97/ArtMid/491/ArticleID/10311/CitySwitch-signatories-celebrate-record-achievements.aspx> (29 March 2015).

⁶ The 650 CitySwitch participants (tenancies) corresponds to over 2.3 million square meter of office area, or 6 per cent of the total office area of Australia in 2014 (40 million square meter). Energy consumption of offices in Australia for the base year 2011 was 35PJ (additional data from, COAG, 2012). Under a situation of equal uptake of CitySwitch throughout the Australian office market, the offices of the 2014 participants consumed some 2PJ (petajoule) in 2011 (5.75 per cent of 35PJ)—the 75GWh, or 0.27PJ energy savings, corresponds to 13 per cent of 2PJ. The assumption of 'equal uptake' can be challenged however. On average, CitySwitch tenants hire more energy efficient buildings than non-participants and the total energy consumption of their 2011 buildings was,

efficiency, but is not overly impressive when keeping in mind that (Australian) office tenants are reported to waste 50 per cent of their energy in ways that can be easily addressed (Greensense, 2013). When contrasted with the full Australian office market's energy consumption of 2011, the programme's performance is even less impressive: its 2014 energy consumption reductions correspond to 0.8 per cent of the consumption in 2011.⁷ This has a considerably less successful ring to it. Local and national administrators have, however, a strong incentive to frame this marginal performance as a considerable success. To understand why this is the case some further exploration of the programme is required.

Not all participants comply with the requirement to achieve a NABERS rating of 4 star or higher (CitySwitch, 2015). According to a national administrator, this non-compliance is not penalised, and non-complying participants are not excluded from the network (int. 41). Furthermore, participants tend to fail to comply with the requirement of providing NABERS ratings annually (obtaining ratings is expensive and may cost up to AUD \$5,000; sometimes more than the cost of installing energy efficient measures) but are not disciplined for this either: 'This [non-reporting] distorts the data we have. Based on the current data only very flawed predictions of reductions can be made', the administrator explained (int. 41). The reported performance data is likely to be a theoretical best-case scenario, with real performance being lower than the reported numbers. However, the administrator continued by explaining that predictions have to be made and numbers have to be reported because the local councils that support the programme (administratively, financially, or both) require numerical results to give account of the programme at the local level. This gives administrators a strong incentive to present performance data in the best light possible—funding depends on it.

In addition, the network appears attractive only to those most likely to achieve a leading performance because that is what places them in the spotlight at the awarding ceremonies. This was confirmed by the national administrator: 'It is about leadership, it is about being seen to participate. The programme helps leaders to feel good about what it is they are doing, and have a place to speak about it', she explained. 'The awarding scheme helps in this and we very much aim to market [their performance] to the best of our ability' (int. 41). A local administrator considered this dominant focus on leadership to be the major shortcoming of the network. 'What we found is that the first things people ask is, "Well, what's in it for me? What is it that council is going to pay for?", they ask' (int. 50). This administrator suspects that CitySwitch is not attractive to less ambitious tenants. His suspicion is confirmed by participant data: for a prolonged period new participants, on average, have higher NABERS ratings when committing to the network than non-participating office tenants. This indicates that CitySwitch

therefore, likely to be lower than 2PJ. The average CitySwitch tenants NABERS rating of 3.9 stars indicates they occupy (approximately) 15 per cent more energy efficient buildings than non-participants (see further www.nabers.gov.au). Corrected for this difference, the energy savings of CitySwitch participants in 2014 are 16 per cent of 2011.

⁷ The 0.27PJ savings of 2014 are 0.78 per cent of the 35PJ total energy consumption in 2011 (see previous note).

attracts the already leading tenants in the office market and not those who lag behind (CitySwitch, 2013, 2014, 2015).

Retrofit Chicago, Chicago, United States

In 2008, the City of Chicago adopted the Chicago Climate Action Plan. This Plan has an overarching goal of reducing the city's 1990 carbon emissions by 80 per cent by 2050, with an interim goal of a 20 per cent reduction by 2020 (City of Chicago, 2011). As in many other cities, buildings are a key source of carbon emissions in Chicago—they account for 70 per cent of the city's emissions. Retrofit Chicago is one of a number of experimental governance instruments implemented to reduce the carbon intensity of buildings in Chicago.

Retrofit Chicago was developed by the City of Chicago government, commercial property owners, and civil society organisations, and implemented in 2012.⁸ It brings together the city government, commercial property owners, and private sector fund providers. Comparable to the Better Buildings Partnership, this action network aims to generate and make available knowledge on how existing commercial property can be retrofitted. By participating in the network commercial property owners enter into an agreement with the City of Chicago to reduce the energy consumption of their property by at least 20 per cent over a five-year period. In return for participation, the City of Chicago facilitates networking and marketing opportunities for property owners and helps them to find funds for retrofits. The City closely collaborates with civil society organisations, such as the National Resources Defence Council, to transfer lessons from participants to knowledge documents. This knowledge is made available to other participants in the form of case studies and best practices via a member-only website.

By 2015, some 45 property owners—represented by a small number of professional property managers—had committed a little over 50 (mostly iconic) office buildings to the programme. In its first three years of implementation participants had reduced their building related energy consumption by 7 per cent as of the 2010 baseline, with some participants already meeting the 20 per cent reduction goal (NRDC, 2014). Energy improvements were particularly achieved through low-tech and low-intrusive interventions such as changing to energy efficiency LED lighting, installing motion sensors on heating, cooling and lighting systems, upgraded heating and cooling systems, and improved use of office equipment (such as computer monitors, Retrofit Chicago, 2015).

Also comparable to the Better Buildings Partnership in Sydney is the strong focus on encouraging and acknowledging leadership. 'In the [media] we praise [participating] buildings for being good for the community. Other building owners see that and they say: 'We want to be leaders too. We want to participate in this programme too', an administrator of the network explained (int. 188). The City of Chicago's website highlights the city's own interest in seeing the network becoming a success.

⁸ Retrofit Chicago also has a focus on residential buildings and municipal buildings. Here I focus only on the commercial buildings in the network.

‘Retrofit Chicago ... will help create jobs [and] demonstrate Chicago’s environmental leadership’, it claims.⁹ Yet again, questions rise as to whether reported performance can be contributed to Retrofit Chicago or whether the network claims successes from retrofits that would have been carried out without the network also (Lydersen, 2012). Questions also arise as to the overall impact of the network on reducing Chicago’s commercial building related carbon emissions. So far, the network has only attracted buildings and property owners in the relatively small central business district of the city. The 50 or so buildings that participate in the network are a very small fraction of all commercial buildings in Chicago, and the network has difficulty in attracting buildings from outside the central business district, explained the same administrator. She considered this to be a branding issue because the network is seen by ‘outsiders’ to be too much a central business district initiative.

Green Office Challenge, Chicago, United States

The Green Office Challenge is another experimental governance instrument that aligns with Chicago’s Climate Action Plan. The action network was developed by the City of Chicago Council in collaboration with the international cities network, ICLEI. It was implemented in 2008. The network challenges office users to reduce energy and water consumption, to produce less waste, to implement sustainable procurement practice, and to commute by public transport, bicycle or on foot. The administration of the programme is contracted out to a non-profit organisation that transfers lessons learnt from participating office users via knowledge documents and makes these available through a member-only website.

The network does not set minimum requirements for participants or goals to achieve, as do the other three networks studied, but because no mandatory requirements are in place in the United States in terms of the energy performance of existing buildings and their users, the network *de facto* requires beyond compliance performance. To ensure that participants take action the network organises office-to-office challenges. Participants use software to keep track of their own performance and the data they provide are compared—and made visible to other participants—to gain an understanding who is performing best (ICLEI, 2009). This is one of the first examples where ‘gamification’ is used to improve the behaviour of office tenants. A yearly awarding ceremony is in place to celebrate leading practice. Over the years the administrators have particularly focussed on making the digital interface of the Challenge as easy as possible for participants.

In 2015, some 170 office tenants were participating in the programme (representing a handful of tenants in Chicago’s central business district) and, collectively, they achieved energy reductions ‘equivalent to taking 43 homes off the grid for one year’, the programme administrator reported¹⁰—this corresponds to less than 0.01 per cent of all commercial building related energy consumption in

⁹ http://www.cityofchicago.org/city/en/progs/env/retrofit_chicago.html (11 November 2015).

¹⁰ See: www.delta-institute.org/2015/06/tally-is-in-chicago-green-office-challenge-announces-winners/ (20 July 2015).

Chicago (additional data from: City of Chicago, 2014). When asked to explain the major complication faced in achieving desired outcomes, one of the Green Office Challenge administrators said: '[After some years] we realised that we were hitting a wall. [We attract] the early adaptors, anyone who is already a leader in this field. And we have difficulties getting those on board who have heard of the programme but do not see a need to participate' (int. 186). She further explained that the network faces a marketing problem similar to that of Retrofit Chicago in that outsiders considered it to be as a central business district initiative that is not of interest to them.

Comparable to the other action networks studied, interviewees were critical of the strong focus on leadership. They explained that not all prospective participants can or want to be leaders, and that not all knowledge created by leading participants resonates with other firms and individuals that the network targets. They further explained that prospective participants might consider the marketing of leading performance—through annual awarding ceremonies and by acknowledging leadership in the popular media—as too small an incentive to join a network (this holds for all networks studied). After all, only a few can be the absolute leaders, win awards, and be put in the spotlight by administrators. But does this imply that other participants are 'losers'? The administrator of the Chicago Green Office Challenge suggested that a solution to this winner-loser dichotomy is to introduce 'a wide range of awards to ensure that every participant has an opportunity to win. Participants are very concerned about their public standing', and winning an award would help them to improve their public image (int. 186). Yet, this strategy runs the risk of award-inflation: the value of an award as a means to distinguish oneself from peers is limited if all peers win a comparable award.

Discussion and conclusion: whether and how to scale up?

In this article I have mapped and evaluated four action networks that seek carbon emission reductions in commercial buildings. From studying the four local action networks a number of key findings stand out.

To a certain extent, all action networks may be understood as experimental governance instruments. They seek to generate local solutions for local governance problems. They were developed in collaboration with (representatives of) future participants in the networks. They have all been adjusted to the lessons learnt—for example, the Better Buildings Partnership now collaborates with CitySwitch to increase tenant demand for low-carbon office space, and the Green Office Challenge has responded to participants' requests to make the digital interface of the network as simple as possible. Furthermore, they have all either been scaled up over their lifetime or have sought to generate knowledge that is scalable, or both. This confirms the growing literature on experimental governance instruments in the transition to low-carbon buildings and cities.

That said, the networks studied do not live up to their (theoretical) expectations. The scalability of the knowledge generated by the networks was particularly questioned by interviewees—confirmed by additional data reported. The Chicago based programmes suffer from being considered by outsiders

as central business district only initiatives, and the Better Buildings Partnership in Sydney was considered as not replicable to other Australian cities. The difficulty of scaling up also becomes apparent when considering the performance of these programmes in terms of energy consumption reductions or carbon emission reductions: whilst some of the participants have achieved considerable results, this does not hold for all participants (who have access to the knowledge generated by the leaders), let alone for the larger property sectors in the context of these networks. The relative performance of all networks—when considering building related carbon emissions in Sydney and Chicago—is marginal.

The problem of scalability particularly relates to a key characteristic of the property and rental market sector that is rarely addressed in the literature. Scalability requires power laws—that is, situations where a new product or idea quickly spreads through a community either because of its popularity (laggards that follow leaders) or because a small group of individuals or firms dominates the production or consumption in a community (winner takes all markets) (Kane, 2014). In the property and rental market there are so many different clusters of individuals and firms (large property owners, small ones, multinationals seeking office space, a small local and temporary office user, and so on) that a single leader is unlikely to become an example to all laggards in these clusters. For example, it is unlikely that a small family business owning a single office in Sydney will be inspired by the multinationals that participate in the Better Buildings Partnership. In addition, the property and rental market sectors are highly fragmented and lack dominant players—such as those, for example, in the transport or supermarket sectors—that could drive up-scaling by mere volume.

This then poses two questions of theoretical and policy relevance about the type of action networks studied here. First is the question of elite participation versus open participation. Networks that focus on elite groups of participants (such as the Better Buildings Partnership and Retrofit Chicago) are more likely to attract participants that will achieve considerable improvements to their buildings—simply because they have the means and ambitions to do so. The knowledge generated by such networks may, however, resonate less well with the broad variety of firms and individuals in the property and rental market sectors. Networks that are open to all prospective participants (such as CitySwitch and the Green Office Challenge) may, in turn, result in knowledge that is attractive to a wide range of others. Their participants' (average) performance will, however, probably be poorer than that of elite participants.

Second, and related, is the leadership fixation of the programmes studied. Should programmes focus as strongly on leadership as is the case in those studied here? Being seen as a leader is only attractive for specific participants and not for others. By making leadership a driving force of these networks a broad group of prospective participants may be put off from participating—either because becoming a leader sounds like too much work, or because the chance of not becoming a leader is not worth the money and effort of participating. In particular, city governments involved in these action networks might want to decouple their own ambition of being seen as a world leader in low-carbon city development and the ambition they want to encourage at participant level in these action

networks. Alternative incentives may be found in the provision of information on low-carbon development and its advantages may be specifically targeted at laggards, or towards information campaigns that focus on the 'normality' of low-carbon development as opposed to such development signifying 'leadership'.

One solution to these problems is increased joint learning about this type of governance instruments. Lessons from these instruments in the Sydney central business district may have relevance for the implementation of similar instruments in the Chicago central business district, and vice versa. In drawing such lessons, however, one needs to keep in mind that small differences in city contexts (economic development, demography, age of the built environment, and so on) may have considerable impact on the transferability of lessons (see further, Van der Heijden, 2014b). Key players for the collection and dissemination of such lessons are organisations such as the Cities Climate Leadership Group and ICLEI. These organisations have the networks, the means, the experience, and, also important, the legitimacy for successful knowledge dissemination.

To conclude, the value of local action networks for low-carbon building and city development and transformation, such as those studied in this article, lies predominantly in the knowledge they help to generate on how to reduce the carbon intensity of buildings and cities. Their limitations relate to the difficulty in scaling up the knowledge generated. This is partly a consequence of too strong a focus on leadership within the networks—which itself is driven by the involved cities' eagerness to be seen as global leaders in low-carbon urban development. Perhaps less ambitious local action networks will, paradoxically, result in better scalable knowledge. This makes for a captivating question for future study.

Table 1 **Brief summary of the characteristics of the four action networks**

Characteristics	Better Buildings Partnership	CitySwitch Green Office	Retrofit Chicago	Green Office Challenge
<i>Year established</i>	2011	2010	2012	2008
<i>Initiator</i>	City of Sydney Government	City of Sydney Government	City of Chicago Government	City of Chicago Government
<i>Collaboration</i>	Major property owners and two universities.	Office tenant representatives.	14 major property owners.	ICLEI and office tenant representatives.
<i>Aims</i>	Reduce building related carbon emissions in 2030 by 70 per cent as of 2006 emissions. Generate and make available knowledge on achieving this goal.	Improve building energy efficiency at tenant level within two years of joining the network. Tenants are expected to achieve a NABERS 4 star rating.* Generate and make available knowledge on achieving this goal.	Reduce building related energy consumption of participating property owners by 20 per cent over a five-year period. Generate and make available knowledge on achieving this goal.	Generate and make available knowledge on how to reduce energy and water consumption by Chicago based office tenants.
<i>Participant rewards</i>	Knowledge on reducing carbon emissions; acknowledgement of leadership.	Knowledge on reducing energy consumption; acknowledgement of leadership.	Knowledge on reducing energy consumption; acknowledgement of leadership.	Knowledge on reducing energy and water consumption; acknowledgement of leadership.
<i>Learning</i>	Formalised in technical working groups.	Formalised at national level.	Formalised through involvement of civil society organisations.	Formalised through involvement of the Delta Institute.**
<i>Modification</i>	Network has scaled up to include smaller property owners.	Network has scaled up from a local Sydney based network to a national one.	Network has scaled up to over 50 participants.	Administration of network is contracted out to Delta Institute

* NABERS = National Building Energy Rating System, further discussed in the main text.

** The Delta-Institute is a Chicago based non-profit.

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