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**The Transfer of Innovative Policies between Cities to Promote Sustainability:
Case Study Evidence**

Abstract

This paper describes how cities approach the challenging task of identifying, considering and adopting innovative transport policies. The paper begins by establishing a framework for analysing the process of policy transfer and policy learning, drawing on political science literature. The cities were selected based on their reputation for having adopted innovative policies. The data were collected from project reports and in-depth interviews with 40 professionals comprising planners, consultants and operators in 11 cities across North America and Northern Europe. This paper presents the findings from three key innovations: congestion charging; compact growth and transport planning; and car sharing. Each of these innovations was implemented in several sites, and there was evidence of learning across the sites studied. The case studies present a discussion of each policy alongside indications of the impacts of the policy (positive and negative), and then examine how the different cities approached the task of learning about how to introduce it and the issues they faced in doing so.

The paper identifies conditions which appear to support effective learning: the reliance on strong networks of personal and professional contacts, the need to draw lessons from multiple sites, and the importance of financial and institutional support to facilitate the uptake of 'risky' or technologically immature innovations.

1. INTRODUCTION

New policy initiatives which challenge or change the way we travel can be difficult to implement. Building political consensus for potentially 'risky' policies, developing local understanding of policy impacts, developing the necessary skills base to implement a project, and making any formal legal or institutional change can all act as serious barriers. It is therefore critical, where cities attempt to introduce such initiatives, that other cities learn from them. Several approaches have been developed to try to help facilitate the spread of these new practices including guidebooks, web-based communities of practice, and scanning visits. Yet the pace of transfer seems slow given the urgency of issues such as climate change, road safety and congestion.

This paper reports on the process of adopting transportation policy interventions in North American and Northern European cities. It draws on evidence from interviews with 40 practitioners in 11 cities. The paper is organised around the adoption of three key innovations which were identified as key policies in several sites:

- Congestion charging

- Compact growth and transport planning

- Car sharing

The paper begins by presenting the methodological approach to studying policy transfer and describes the city sample. Each of the three innovations is then described and the process of policy learning and adoption discussed. The paper concludes by looking for generic conditions which support the identification, evaluation, and implementation of these policies in the cities studied.

2. METHODS AND DATA

Policy transfer is a process and therefore requires investigation with agents involved in any particular transfer process (*1*). The focus of this research was city to city transfer, as the most serious transport problems are typically clustered in major urban areas. The research design focused on cities in Northern Europe and North America with a core population of over 250,000 and a wider metropolitan area of at least half a million. The literature suggests that one enabler to adopting new policies may be personnel and resource capacity within an organisation, which we would expect to find in cities of at least this size (*2*). The cities chosen were also the central cities of their region. Within this, the cities selected were those which were identified as having tried and succeeded with some leading edge transport policies. The focus was not solely on success stories, as these cities have also experienced some policy failures over time and lessons from these are equally valuable. The literature suggests that policy innovations are most likely to be adjusted and tailored more specifically to local needs by early adopters or 'pioneer cities' who take a more pro-active role in the policy learning process (*3*). More detailed consideration of the transfer process was therefore likely to be evident in these cities. Site selection was made by the research team on the basis of available databases of policy innovations and judgment based on experience within the given context. 11 cities were studied (seven in Northern Europe and four in North America) and the sites are shown in Table 1.

Data were collected for each city through interviews and document review. The interviews were conducted using a semi-structured approach which allowed issues not considered by the research team to be raised. The research is qualitative in nature, and the interview process allows for rich insights of the processes involved. There are, however, some important limitations which need to be acknowledged.

- The cities were purposively sampled as described above and extrapolations to cities with significantly different contexts would be risky (see also (*4*)).

- The research team identified key innovations to discuss. The cities, for practical reasons, determined who would be interviewed to a large degree. We experienced few difficulties in accessing individuals important to the implementation process. However, the answers obtained will to some extent be dependent on the selection of interviewees.

- Policies can be considered and adopted in a matter of weeks (e.g. behaviour change campaigns) or over many decades (e.g. the London Congestion Charge). Our study was conducted in a six-month period over late 2008 and early 2009 and relied on the recollections of individuals over sometimes significant time spans.

Qualitative comparisons of the strength of occurrence of specific findings in each city were recorded and key quotations and comments are used to support and challenge overall findings. The full project report and analysis can be found at (*5*). In this paper we illustrate the insights which the study of policy transfer has provided through three implementation case studies.

3. CONGESTION CHARGING

Background

Congestion charging has long been discussed as an economically efficient way of charging drivers for the external congestion costs which they impose on other road users in urban areas (*6, 7*). Although congestion charging strategies are attractive to cities as a result of the dual congestion reduction and revenue raising potential which they hold, public acceptability issues have limited their introduction. While various road tolling systems have been in operation for some time, the only major urban implementation of a congestion-based scheme was, until 2003, in Singapore.

In 2003 London introduced an area-based charging system, which charged motorists £5 ($7.50) per day for travelling within the central area of 21km^2. The scheme is reported to have achieved a 30% reduction in congestion initially with increases in bus patronage and improvements in service reliability (*8*). The strategy has been extended to the West now and the charge increased to $12. Interestingly, the congestion benefits have eroded over time and are now similar to the pre-charge levels of 2002 even with the higher fee. This is thought to be the result of road works and reallocation of road space to public transport, pedestrians and cyclists (*8*).

In 2006 Stockholm introduced a six month cordon-based charging scheme pilot covering an area of central Stockholm of 30km^2. Drivers pay a sliding scale of up to $2.25 each time they

cross the cordon during the day (up to a maximum charge of $6.75). Following a public referendum, the charge was introduced on a permanent basis in August 2007 (*9*). The results of the Stockholm charging trial suggest that traffic was reduced by 20 to 25% with associated increases in reliability on links into and within the area (*9*).

London and Stockholm can be seen as examples of innovation in delivering this complex and controversial policy into a political environment quite different from that in Singapore. Other cities are looking to see whether this solution might also be an option for them. The selection of cities in our sample allowed us to consider this from the following perspectives:

1. Stockholm as an implementer was able to describe how it had approached the implementation and what it had learned from London.

2. Edinburgh proposed a two cordon charging project to tackle rising congestion and to help fund an ambitious future public transport expansion. The proposal was developed up to the design stage and then in 2005, the city held a public referendum on it. The voters rejected the proposal that led to its abandonment by the City Council which, by law, had to demonstrate public support for the proposal (*10*). Edinburgh was able to describe how it had approached the design of congestion pricing and why it had failed.

3. San Francisco and Copenhagen are actively researching the potential for the implementation of congestion pricing and were able to describe what they are learning from London and Stockholm and elsewhere.

Approaches to Learning

Stockholm had been debating the introduction of a congestion charge since the 1970s, although it was stated in the interviews that there were no active plans in 2002 when the national political parties agreed to propose cordon pricing for the city of Stockholm. The proposal came before London's congestion pricing project was introduced, and there appeared to be little direct contact between London and Stockholm at that stage. Stockholm's implementation was initially planned for 2004 (although this was subsequently delayed to 2006), and this required a very intensive planning process. London clearly provided an opportunity from which to learn. There has been good information exchange between the two cities yet little direct transfer of London's technology appears to have occurred. The London scheme was implemented over a short timescale and tracked movements within the charged area as well as across a cordon. Technological advances were made in the period between the London and Stockholm implementation such that the number plate recognition software adopted in Stockholm was an improvement on that in London. Stockholm adopted some evaluation approaches found in London (e.g. identifying the need for a clear business impacts assessment which had not initially been included in the London evaluation but which was subsequently required). There were also clearly some operational concerns discussed by the staff of the two cities such as the length of time necessary to see the true impacts of the project. Stockholm also wished to adopt a similar approach to payment whereby motorists had the 'immediate' feeling of having to pay the charge. Another feature of the London scheme that has been adopted in Stockholm is the exemption for "clean vehicles," which comprises 12% of the cars crossing the cordon.

The Edinburgh congestion charging proposal developed over a period of around 10 years from its first discussion in a regional transport strategy. Unlike the Stockholm system where the

primary mandate was political (at the national level), the Edinburgh interviewees felt that the main momentum for the congestion charge came from the local staff. While local politicians provided some support to the scheme, the lack of political lead on the charge was part of the reason for its failure to win public support. Edinburgh was involved in European projects which included London and Stockholm and which helped to facilitate visits and knowledge exchange. The officials learned a lot about the back-office management of a congestion charge. Ultimately, however, the different political process which was adopted to seek approval for the project in Edinburgh meant that the learning was not put into practice. At the time of the interviews in Edinburgh, Manchester (England) was also holding a public referendum on its congestion pricing proposal. Manchester had not visited Edinburgh to discuss the reasons for its scheme failure or to discuss how this might affect the development of a proposal to the public. The Manchester scheme was rejected by a similarly large proportion of voters (*11*).

San Francisco has been pursuing congestion pricing to address increasing traffic congestion and improve transit service. In 2005, the city received $1 million in federal funds to develop a cordon pricing plan for downtown. As part of a larger regional grant from the U.S Department of Transportation, it also was set to receive federal funds for a congestion pricing experiment on a major city facility, Doyle Drive, which connects the Golden Gate Bridge to San Francisco. At the time of the interview, San Francisco was exploring options for pricing the Doyle Drive corridor and developing an aggressive study approach for cordon-based congestion pricing. However, as of this writing, pricing in the Doyle Drive corridor has been shelved due to disagreement among public agencies on the project's design and implementation.

A San Francisco interviewee stated that the London and Stockholm pricing examples were viewed as relevant because western democracies implemented them (as opposed to Singapore). Importantly, Stockholm's use of an initial pilot scheme was appealing. According to an interviewee, "pilots are less threatening," and these can be monitored and evaluated before committing to long-term implementation. San Francisco's pricing materials (Powerpoint presentations, reports, fact sheets) also feature European examples to demonstrate to the public and key stakeholders that pricing is not a new concept and has succeeded in the "real world." Key elected and senior officials in San Francisco also conducted a study tour to meet with their counterparts in London.

Copenhagen is currently considering the implementation of a congestion charging scheme (*12*). Its motivation is the forecast growth in vehicular traffic (20-35% over the next decade) which comes on the back of around 20 years of almost zero growth (the combination of good planning, high vehicle taxes and low economic growth). The central area of Copenhagen has a high quality urban environment and little space to expand vehicular capacity. There would need to be a change in national law to make a charge possible. Hence the city is at the stage of conducting a feasibility study of different designs with surrounding local authorities to develop a case to the national government. As there has been no significant congestion pressure in the past 20 years, congestion charging was not seriously considered before now. Officials in Copenhagen reported good contacts with officials in London and Stockholm and noted that the technology suppliers were also keen (for obvious reasons) to demonstrate their experiences in the two cities. Local officials involved in the charge investigation suggested that the design of the cordons, operation times and exemptions were locally specific matters where learning from others was likely to be limited. The main opportunities for learning were in back-office operations as congestion charging schemes are, in their view, complex IT projects. So, for example,

Copenhagen was learning from Stockholm about how they managed the contracts with their system suppliers and what they would do differently.

While the interaction among staff members is important, Stockholm officials reported that interactions with elected politicians have also been frequent as they look to evaluate whether this controversial policy might work for them. Since 2007 Stockholm has hosted the mayor of Copenhagen, the leaders of New York and Chicago, a cabinet member from Montreal, the leader of Manchester City Council and elected politicians from Gothenburg, Prague and Berlin. It was suggested that these top level contacts were very important in establishing trust among the visiting politicians in the technical presentations they subsequently received (i.e. they had the opportunity to quiz the realities with people in their position).

4. COMPACT GROWTH AND TRANSPORT PLANNING

Background

Cities and regions throughout the world are grappling with how to coordinate transportation and land use planning in the face of climate change. Much research has examined "smart growth" and transit-oriented development (*13*), and the U.S. federal government recently launched a major sustainability initiative to coordinate federal transportation, housing and environmental policy (*14*). Far less is known of how knowledge of such planning efforts is transferred between local areas (*15*). Our research focused on innovative planning in Dallas, Texas, Seattle, Washington and Vancouver, British Columbia. We examined the extent to which information is sought, transferred and disseminated. A major focus in these plans is on compact development, sustainability/livability, and substantially enhanced pedestrian and bicycle networks. According to interviewees, all three cities were motivated to discourage dispersed low density development, in which solo driving would be necessitated. In terms of city-to-city learning, this example of disenchantment with auto-oriented cities is an important part of a city's motivation for improvement and learning.

The City of Dallas adopted a new plan called "forwardDallas!" in 2006. An interviewee stated that the plan "marked a milestone for change." Before the plan, urban development projects were approved and built on a case-by-case basis, and many of them were entirely auto dependent. The city had been growing so fast that "it had never been a problem to attract growth, but we had no long term strategy to position the city," stated an interviewee. However, some developer-driven projects of a notably different type were built – higher density mixed-use projects adjacent to rail stations. These projects demonstrated to the planning community and the broader public that a market existed for such projects. With this backdrop, the City of Dallas adopted the *forwardDallas!* plan. It makes a clear public statement that transit-oriented and sustainable neighbourhoods and development are a City Council priority. In addition, the Dallas Area Rapid Transit District (DART) recently adopted a TOD policy to institutionalize TOD as an agency activity.

Whereas Dallas is at the beginning stages of comprehensive planning, Vancouver has undergone a major transformation because of its city planning efforts over the last two decades. The city has focused on substantial intensification of residential and mixed-use development, provision of inviting public spaces, and transportation improvements to encourage transit, pedestrian and bicycle travel. In 1991, the City of Vancouver adopted the Central Area Plan, which set "Living First" in downtown as a major priority. As a result, the plan limited zoning of

commercial development to one-third of the original area, and encouraged high-density housing, mixed-use development and pedestrian amenities, particularly along the waterfront. From 1991 to 2001, the population of downtown residents increased by 60% to 76,000. (*16*)

The city later adopted the 1997 Vancouver Transportation Plan. The plan had two main policies: 1) any growth in travel was to be accommodated by alternative modes (transit, pedestrian, bicycle and transit) and not by auto and 2) road capacity was not to increase. "Every day, every staff member is acutely aware (of these two polices)," commented an interviewee. Key themes are integration of transit modes, extensive walk and bicycle network improvements and parking management. The approach is also integrated into activities such as street maintenance so that opportunities to improve options for non-car travel are not missed. Over the last decade, walking trips have increased by 44%, bike trips by 180% and transit by 20%. Further, vehicle trips have declined by 10% and are only 10% of all trips within downtown. (*17*)

Also motivated to counter auto-oriented travel and development, the city of Seattle recently developed a comprehensive plan with designated compact urban villages and supportive alternative mode strategies. A recent funding program assists with implementation of the related land use and transport plans. Adopted in 2006, the nine-year funding program is called "Bridging the Gap" and provides $544 million to fund transportation projects and programs. Approximately $365 million is generated from a transportation levy (a property tax that costs $36 per $100,000 in assessed value or $144 on a $400,000 house). The balance comes from $127.5 million in a commercial parking tax and $51.5 million business tax. In conjunction with other city dollars, the program funds capital projects, street and bridge maintenance and repair, transit service, and projects in the city's pedestrian and bicycle plan. Funds also are designated for street tree planting and maintenance and provide for "safe routes to schools". (*18*) According to an interviewee, this program has allowed the city of Seattle to move forward on its livable community and transit-oriented development goals of directing growth to its downtown and key urban centers.

Approaches to Learning

Each case study's city policy board has made choices about the city's future because of increasing concerns over the impacts of auto-oriented development. As a result, city officials look for new innovations from a different vantage point:

- Dallas was moving towards new planning policies because of growing traffic congestion and recognition of an emerging TOD market. Dallas looked to other city practices to blend together.

- Vancouver has been successful at compact growth and alternative transport, and staff are motivated to search for innovative strategies from elsewhere to continue its success

- Seattle was interested in strengthening its downtown and other core areas. Similar to Vancouver, it is often looked to as a model, but staff seek to learn from other cities about specific issues such as parking management and bicycle network design.

The interviewees reported that they look to the experiences of other cities to identify policies, practices, and outcomes on compact development and alternative transport. The process

by which they do so typically begins with staff research, which was described as often "quick and dirty" and follows two general approaches:

- articles and reports published the American Planning Association, Transportation Research Board (TCRP, NCHRP and Transportation Research Record) and Urban Land Institute are scanned

- informal emails are sent to associates in other organizations, especially to individuals in "leading" cities and transportation agencies, to see if they have recommendations on staff or cities to contact.

Much learning is done through formal or informal professional networks. For example, interviewees noted that Seattle and Vancouver often are looked to for best practices on pedestrian and bicycle planning and that staff in both cities contact each other to exchange information. In Dallas, staff looked to the literature for examples of adopted TOD policies, which could be used to generate ideas and potentially as the basis for policy. They also contacted others known informally through a national committee email list. This then led to email exchanges on potential policies and processes. The San Francisco Bay Area Rapid Transit District's joint development policies were discovered in this way and were used as a key example.

Learning also occurs through consultancy and university assistance. Outside experts often are consulted to provide information on other cities, particularly on best practices. The reason is two-fold according to several interviewees: 1) staff levels are "lean and mean" (i.e., there are not that many staff and they do not have the time for the research) and 2) outside experts providing recommendations on policy change are sometimes taken more seriously by policymakers. An interviewee observed that policymakers are more willing to consider criticisms and recommendations from outside experts than from in-house staff. University researchers also are seen as independent as well as authoritative. In some cases, one interviewee said, "We could do it (the analysis) ourselves, but it could be seen as suspect." In Dallas, the lead consultant team for the *forwardDallas* plan had vast experience in compact development and TOD policies and practices in Denver, Colorado and Portland, Oregon and was able to draw from this background for the Dallas plan.

In addition, learning is achieved through "face time" and dialogue at conferences, or participation in study tours, site visits or specific organized meetings. For example, Seattle staff members visited Copenhagen to examine its extensive bicycle network. Vancouver and Seattle interviewees stated that staff from other cities are invited to meet to discuss the practical aspects of potential projects. In Vancouver, some staff also use their vacation time to attend conferences or travel to interesting cities. They then return to the office and share information.

Finally and perhaps most importantly, the organizational context sets the stage for policy transfer. Comments and observations made during the interviews suggest that public officials and senior managers highly value staff for their knowledge and creativity. There appeared to be an organizational culture that encourages and supports learning and knowledge dissemination by actively participating at conferences and on professional committees, and thereby cultivating professional networks.

5. CAR SHARING

Background

Car sharing (sometimes referred to as City Car Clubs) provides people with access to a car without the need to own a vehicle. Individuals typically register to join a club and then pre-book and pay for use of the vehicle (by hourly rates, distance charges or access plans) (*19*). In a review of the worldwide growth of car sharing, Shaheen et al. note that while car sharing of one form or another has been in operation since the 1940s it has only really taken off since the 1990s (*20*). In 2006, it was estimated that there were over 348,000 members of car clubs in 600 cities worldwide (*20*). There is rapid growth in the market at the moment. In the UK for example, car share membership doubled between 2007 and 2008 to 64,000 (22) although few of the schemes currently operate at a profit.

Car sharing is thought to offer several advantages for transport demand management (*21*). First, car sharing reduces the need to own vehicles, although the size of the reduction is dependent on the extent to which a supporting public transport network is available. Studies suggest that each car share vehicle reduces the number of vehicles owned by between 6 and 23 in the US and Canadian context (*19*) whilst in the UK this is estimated to be 14 vehicles (*22*).

Car sharing exists in many cities and more standardised operating models and technologies have now emerged. It is an innovation which is moving beyond niche status yet it is still limited in application in most cities that do have it, and there remains many cities which have yet to adopt such systems.

We conducted interviews with individuals responsible for two successful car share programs in Europe (Bremen, Germany and Edinburgh, UK). The interviews allowed an exploration of how Edinburgh learned from Bremen and how the systems have evolved over time. The lessons relate particularly to the issue of early adoption and would not all apply in the same way to those selecting the more mature corporate solutions available today. Briefly, the nature of the Bremen and Edinburgh schemes are as follows:

- StadtAuto car sharing in Bremen began in 1990 with 28 participants. This grew to 1100 participants in 1997 accessing 57 vehicles. By 2002 the numbers had grown to 2,455 and by 2005 to 3,512. Around 100 vehicles are now available.

- The CityCarClub in Edinburgh was initially launched in 1999, was withdrawn for six months due to problems with the initial operator and then resumed with a new operator in 2000. Outside London, Edinburgh has the largest number of members of any car share scheme in the UK (2200 in 2008) with a utilisation rate of around 25% for the vehicles.

Approaches to Learning

Edinburgh first learned about car sharing through a joint European project which involved Bremen. A local official found out about the scheme on a visit to Bremen, and following discussions with colleagues felt that it had a good policy fit for Edinburgh (Edinburgh has large amounts of relatively high density development in the central city areas with limited on street parking). The initial identification of the scheme was in 1994, and it was not until 1999 that a project was implemented in Edinburgh.

The system that was operational in Bremen predated the Internet and relied on advanced telephone bookings. The keys to the vehicles were left in a safe box near the vehicles on-street. Records of vehicle use were recorded on paper. It was felt that such a scheme would not work in Edinburgh due to the likelihood of vandalism of the safe box and a lack of trust in the paper based system as a means of tracking use. Crucial to the Edinburgh scheme was the availability of a grant of over £100k ($150k) from the central government to support technical innovations to promote more sustainable travel. This led to the development of a computerised booking and access system and also allowed for market research to be conducted around the introduction. Edinburgh adopted assumptions about likely car club use using the demographics of early scheme adopters within Bremen (younger people, tending to hold degree level education). The interviewees felt that the scheme would not have received local political approval without the technological developments. The elected officials would have seen the risk of the scheme not functioning to be too great so direct emulation was not feasible.

The Edinburgh program suffered a temporary failure in 2000 when the operator (Budget Car Rental) withdrew from the contract. The key individual within Budget who had been taking the project forward had left, and the official at Edinburgh city council felt that there was no corporate champion within Budget to deliver the scheme (which was also facing some operational difficulties with the IT systems). The current contractor is a dedicated car share scheme company. The IT systems which are now in operation are based on those which were developed in Bremen as they updated their program. Bremen's influence stretches further afield, running the back office functions for a scheme in Ireland. Bremen has also tried new ideas such as placing car share sites at intermediate transport interchanges in suburban areas and to integrate the smart card ticketing with public transport ticketing. These elements have not transferred to Edinburgh.

Within the UK, Edinburgh's car program has the highest utilization rate, and the car share organisation running the operation suggests that it is the only UK car sharing program to be making a profit. Much of this is due to the city council being a major corporate user (employees for business) and also ensuring that new land-use developments include spaces for car share vehicles and that developers provide incentives to residents to join the program (such as free membership in Year 1).

It is interesting to contrast the approach to promoting car sharing in Bremen and Edinburgh. Bremen has been very proactive and influential in the car share debate in Europe and the city continues to try new activities (described above). These elements have not transferred to Edinburgh. Also, despite its car sharing program's profitability, Edinburgh only recently has begun to communicate its success through the organisation of a conference to celebrate 10 years of car sharing, at which the leading Bremen car sharing official was a keynote speaker. In discussions with the officers in both cities, it was apparent that there were different elements to be learned from each (e.g. Edinburgh had a more developed approach to integration in the planning system and Bremen a more developed approach to integration with public transport) yet the main European good practice information portals would point authorities considering such a system to Bremen.

6. IMPLICATIONS

These three case studies provide an opportunity to synthesise some key lessons about the innovation process. In drawing the implications together we have identified common themes and related them to literature where this exists. The interpretations have not been validated with practitioners and remain those of the research team.

Within our sample, there is a very active process of seeking to learn about new policies which could transfer from one city to another. The innovations that are adopted typically involve the combination of lessons gleaned from a few comparator sites together with local adaptations in the program or project design, plus adjustments to local policies. Innovation therefore may be new and progressive in the context of a particular city, even if it is not the first time a proposal has been made or the first implementation of it. Innovation may also take the form of a new combination of pre-existing policy elements and actions (*24*). The actual project design is likely to be significantly influenced by local context. For example, congestion charge cordon location was largely constrained by geography in Stockholm and by desires to protect the urban core in Copenhagen. Procedural aspects of implementations may be easier to learn from others, such as back office system design and contract arrangements (Copenhagen learning from Stockholm), evaluation procedures (Stockholm and San Francisco learning from London) and marketing and implementation procedures (e.g. selecting the target market for car share in Edinburgh, considering potential perceived impacts to businesses and residents for which San Francisco looked to London). Some technological designs have been transferred too (e.g. the latest car share booking technology), but this seems to be most likely to happen as the systems mature. The expertise of local officials is important in knowing what to transfer and what has to be adapted to local conditions.

The initial search for lessons is fairly informal – described by those we interviewed as "quick and dirty", "ad-hoc" and "unsystematic". The ad-hoc nature of this search was seen to be inevitable and monitoring new developments was seen to be an interesting part of the job. Interviewees described the difficulty that the expanding information age has created in providing too much information. Below the general system description, the information found often was not seen to provide enough practical details on project implementation such as staffing, sample policy documents, project costs, and technical and political feasibility.

Interested individuals therefore emerged as being critical both in searching for and directing others to new solutions, particularly for implementation lessons. Whilst the internet, professional magazines and good practice guides provide a window into the explicit knowledgebase available, it appears that the most trusted and effective sources of transfer of knowledge are personal and professional networks. The importance of human interaction in providing a validation of experiences is well understood in the organisational learning literature (*25, 26*). Shared working experiences engendered through working groups or technical committees of TRB, American Public Transit Association, Institute of Transportation Engineers and the American Association of State Highway Transportation Officials and, in Europe the Civitas cities programme were noted to be important routes to broadening the network of contacts beyond obvious neighbouring authorities.

Resource limitations (both time and financial) and cultural barriers (the view that learning from overseas or other national cities that 'aren't like us' might be wasteful) were important constraints in some of the cities we studied and these also emerge in other studies (*23, 27*). The presence of a supportive organisational environment which encourages the search for lessons

from elsewhere seems an important factor in the extent, or at least speed, with which innovations are considered.

Risk is clearly an important part of any innovation process. There are rapid technological advances which occur and there are distinct advantages to not being the first mover (*23*) as experienced with the technological advances trialled in the Edinburgh car share system. Some authorities preferred to wait to see how policies were working elsewhere before adopting them. Funding support for innovations, particularly from the central government, is important in encouraging cities to overcome the costs and risks of being an 'early adopter' (as in the case for the San Francisco congestion pricing studies, the national funding of the initial six month long Stockholm congestion charging trial and the Edinburgh car share system.)

One issue which emerges through observation, and which was raised by two practitioners, is the tendency to focus visits on successful implementations. While there is a clear logic to this, lessons can be drawn from failures to a similar extent. It is interesting, for example, that Manchester did not visit Edinburgh to discuss their failed bid for a road pricing scheme prior to launching its public consultation and referendum. There is a reporting bias towards project successes and a tendency to gloss over negative or unsuccessful aspects of those in operation due to local political or personal sensitivities. Rose recommends that visits to cities to learn about new policies should include discussion of the project with skeptics as well as advocates (*28*). It is possible that the publicly available evaluation evidence base is biased, which may explain the importance of personal contacts in getting to the real story behind a project.

In conclusion, the key lessons for cities seeking to adopt innovative transport policies are:

1. It requires the development of a culture of learning where learning from outside the organisation is positively supported (Sections 3, 4 and 5)

2. Investing in networks and networking is the key to unlocking a more robust understanding about policies in action elsewhere (Sections 3, 4 and 5)

3. The learning task should be approached with a healthy sense of skepticism about the full scale and transferability of the benefits. Since "one size (often) does not fit all," lessons may be gleaned from several cities and then combined to produce a locally feasible strategy or program approach (Sections 3, 4 and 5).

4. All aspects of the implementation should be fully considered as lessons may range from the macro concept to the micro implementation level (Sections 3 and 5).

5. Researchers could play a greater role in developing detailed case studies of both implemented and unsuccessful projects. They could interpret the implications of the findings from a policy perspective, discuss how the research may be transferable to other areas, and consider more practical issues associated with project implementation (e.g., staffing needs, costs, revenues, discussion of required city processes to implement, critique sample ordinances) (Sections 3 and 4).

6. Federal and State governments should continue to provide financial and institutional support to those areas seeking to deploy innovative policies and projects to overcome the risks associated with them (Section 3 and 5).

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LIST OF TABLES

TABLE 1 Case Study Cities

Site	Population		Innovations known about at time of site selection
	City (000)	**Met Area (M)**	
Lyon France	415	1.78	Highly integrated public transport system with bus, trolley bus, Metro and rail. Advanced information systems and ticketing. Early adopter of driverless Metro system. Rent-a-bike system and school travel initiatives. Home of research institute CERTU
Nancy France	260	0.5	Rubber tired tram, integrated fares policy
Edinburgh Scotland	450	0.78	Held a referendum on congestion charging, early adopter of high priority bus corridors, planning a tram implementation project and UK's leading car club city.
Leeds England	443	1.5	Early adopter of HOV lanes, home zones and safe routes to school. A major hub for commercial car share. Involved in several road pricing studies. Recent failed tram proposal with trolley bus system now under consideration.
Bremen Germany	546	2.37	Participant in multi-city project with car sharing, introduction of some CNG stations, environmentally friendly delivery vehicles, tram-bus integration and environmental residential zones.
Stockholm Sweden	744	1.95	Active adopter of sustainable travel measures such as cleaner bus fleet (ethanol buses), smartcards, car sharing, safe routes to school. One of the few cities adopting congestion charging. Environmental restrictions around central area and a freight consolidation centre.
Copenhagen Denmark	656	1.6	High levels of cycle use, public cycle rental and evidence of policy transfer to other cities. Urban rail, bus and Metro system. Famous 'finger plan' land use approach. Host of Walk 21 conference and major pedestrianisation. Adoption of high quality bus corridors.
Seattle USA	582	3.9	High quality transit service and transit information, early visioning process for multiple dense centers (1970's and 1980's), creative use of density bonuses for transit, use of highway shoulders for bus lanes
Dallas USA	1230	6.15	Healthy core downtown with high rise buildings, free market transit-oriented development sites along light rail
San Francisco USA	765	7.3	Congestion pricing proposals, multimodal transit and pedestrian/bicycle planning and issues, parking management, carsharing. Complex institutional dynamics due to numerous cities and transportation agencies in the metropolitan area.
Vancouver Canada	600	2.5	Significant transit service, high quality design for buildings and overall sites, long term strategies for high density urban development/infill coordinated with transit and to build markets for transit, traffic calming, busways