

## **The Janus Face of Urban Learning— Comparing New Knowledge and Informal Networks in Four Cities**

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### **Synthesis**

#### **Purpose**

This paper examines mechanisms of learning in four case cities—Barcelona, Charlotte, Portland (OR), and Turin, Italy. The cases explore external sources and internal processing of new knowledge in the context of planning. The main objective is to gauge the relative importance of knowledge imported from other cities and to explore the mechanisms by which new ideas are considered internally by activist elites who engage in the planning process.

#### **Results and Conclusions**

Perhaps the most surprising finding is that informal networks of planners perform a clear role in converting knowledge into innovative applications to solve local problems. But networks also play multiple functions, including storage of knowledge and incorporation of new members into the elites. Each city exhibits a distinct structure of its informal network, suggesting that different pathways to success are possible. Also, quantitative measures of informal networks may be a useful indicator of the “innovative milieu” often mentioned in the literature. The research also found that city visits play an important role in acquiring new knowledge, the feedstock of innovation.

#### **Takeaway for practice**

Informal networks of trust are easily measured, quantifiable, and a useful method of gauging a city’s style of knowledge processing. Also, to be good learners, cities need to manage the tradeoffs between speed and diversity in internal deliberations. The outcome of this balance shapes the coherence of a city’s identity and its prospects for competitiveness. A related issue is the flux in membership among informal elites and the importance of incorporating new arrivals, immigrants who represent many varieties of global talent.

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### **Why Learning Cities?**

Cities around the globe are on the prowl to find and learn about successful practices that work, such as establishing a local distinctiveness, attracting pools of talent, maintaining environmental quality, and improving infrastructure and services. Scholarly and practitioner literature treat these objectives under the broad rubric of competitiveness, but they pay little attention to the spread of good ideas as a means of achieving them. How do cities learn the ropes of this competitiveness? Where do new ideas come from, how do cities gather and transform new knowledge for use back home and to what extent is learning associated with competitiveness? This paper pursues these questions based on case studies carried out in Barcelona, Charlotte, Portland (OR), and Turin.<sup>1</sup> The approach here is to see cities as Janus-faced actors, their civic leadership looking both outward to new knowledge and inward toward the mechanisms of processing and validating learning to solve local problems.

### **What do we know?**

Though policy makers and scholars have paid little attention to city learning, growing evidence suggests that cities are increasingly engaging in city-to-city exchange and forming or joining intermediary organizations for this purpose. In a recent syndicated news article I reported data from a web survey that suggests that

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<sup>1</sup> I carried out field work in each of the four cities during the summer and fall of 2009 as a Senior Fellow, Comparative Domestic Policy Program, The German Marshall Fund of the United States.

medium to large cities around the world engage in as many as tens of thousands of visits, *per year*. Coupled with this trade in knowledge is a growing family of city-membership NGOs, now numbering nearly 60 on the sustainability agenda alone; many more organizations have formed to promote local economic development, healthy cities, sister cities, and the like.

A review of the scholarly literature reveals that no single theoretical framework in any of several distinct domains—on regional competitiveness, organizational learning, and social capital and networks— captures the key dimensions in city learning. Rather, these separate but partially overlapping streams of work all contribute to a better understanding of the conditions and mechanisms of learning by multiple players in firms and organizations. Each body of thought recognizes the importance of trust, seen as a common denominator of a learning environment. A number of terms have been used to describe a learning environment. Nonaka uses the word “ba;” others have invoked “innovative milieu,” the “creative city,” and “soft infrastructure” (Nonaka, Toyama & Konno, 2000). All refer to similar elements, for instance, a trusting, open environment conducive to learning. I’ll use the term “soft infrastructure” for this paper.

Past work focuses mainly on firms, and numerous problems arise when thinking about soft infrastructure in a city as a learner. First, city leadership is rapidly changing. How can collective knowledge be identified, gathered, stored and made available to future policy-makers? And if “proactive” learning cities invest deliberately in learning, as I found in the cases of Seattle, Bilbao and Curitiba, (Campbell, 2009), do these cities also enjoy a soft infrastructure, a civic “ba,” so to speak? If so, how is this to be measured, and what connection is there between the collective learning being observed among leading cities with their success as competitive or just transformed places?

#### **FOUR TRANSFORMATIVE CITIES—CASES AND INTERVIEWEES**

These questions are explored in the cases of Barcelona, Charlotte, Portland (Oregon), and Turin, selected to meet several criteria relevant to the questions at hand.

Although the cases reflect a range of initial conditions (historical, political and socio-economic), all the cities engaged in deliberate effort(s) to achieve transformation in areas such as regulations over urban land use; forms of transit and other infrastructure; creation of new downtown centers; production of culture, the arts, or sciences; and management and governance, including participation in the planning process.

These reformers have many aspects in common, although the cities started at different times and took quite different routes to success. Barcelona is often cited as a benchmark in achieving innovative reform. Catalonia, the region of which Barcelona is the capital, moved most quickly of any of the Spanish regions after the death of Franco (in 1975) to strengthen regional identity and political autonomy. Barcelona then stood at the center of a political renaissance in Catalonia. Turin accomplished a wholesale turnaround in its political life, impelled by the momentum of national decentralization policy, coupled with a strong sentiment for reform at the local level. One author calls Turin the most innovative of the cities covered in a recent study of urban change in Italy (Dente & Coletti, 2009). Portland established a landmark growth boundary in the 1970s and became a bellwether for U.S. cities by shunning more freeways in favor of light rail, and later in its evolution, emphasizing biking and walking in urban transit. Charlotte also has made wholesale changes in city center urban form, in urban transit, neighborhood relations, and in efforts to resolve social tensions and identify future leaders.

Note should be taken that these cities started at quite different historical points in their respective experiences of political, socio-economic and urban evolution.

Portland and Barcelona are the most advanced in modern strategic planning, in the

sense that each started with a fresh break from the past—in Portland, a new land use law in 1973 and in Barcelona, decentralization and regional autonomy after the death of Franco. These circumstances put the two cities a decade or more ahead in the modern phase of strategic planning in comparison to the other cities considered in this paper.

Charlotte started with a single-minded drive toward modernizing its downtown, guided at first by the 1966 Odell plan, an effort that was later modified to create an urban center suited to the city's ambition to become a global leader in the finance sector. This drive ultimately led to major changes in urban form, but the wider and longer term impacts of change in Charlotte's land use, transit, and social issues came decades later as logical sequels more than premeditated elements of the Odell plan. Turin experienced the most recent clear break from the past. In 1993, the national government promulgated decentralization (in elections, and later in finance and decision-making), triggering a political sea-change in participatory governance in Turin that paved the way for two strategic plans and a successful Olympic Games in 2006.

**Getting the Stories—Interviewees** I conducted a sample survey of key actors who took part in one or more of each city's planning efforts. Three main areas of inquiry were pursued. First is the nature of transformation of the city. I sought to understand how this defined in both physical terms of urban planning, as well as in social and economic change indicated by growth in wealth or social capital. A second area is knowledge. The field work sought to identify what, if any, were the sources of knowledge that contributed to change? The aim was to document specific contributions—a borrowed idea, a best practice, a policy reform observed or studied elsewhere—that made a significant difference in the outcome of a city's transformation and that could serve as a specific reference point. The argument is not that transformational change can only be explained by knowledge gained, but rather,

to gauge the extent to which knowledge, particularly knowledge gained from external sources, was important to the transformation. The third area of analysis is the nature of internal networks in each city. I'll go into more detail on internal networks in a subsequent section. Interviews were conducted with 15-20 persons in each city who were active participants in one or more city transformations.<sup>1</sup>

### THE APPARATUS OF CITY LEARNING

Right off the bat, it's useful to point out that all of the cities exhibited most of the characteristics of "proactive cities" mentioned earlier. Proactive cities are deliberate in having learning strategies, they sustain an effort to acquire and store knowledge, they are committed to allocating substantial public resources for learning, and they believe in building capacity to manage knowledge. Also, they employ at least two mechanisms of learning. One mechanism is exposure to outside sources of information; the other is internal networks of exchange. Though wide variations can be seen in the degree of use and importance accorded to one mechanism or the other, both were amply evident in each of the four cases.

**1. Exposure to outside influences.** The cities recognized that applicable lessons could be found in other cities. No matter what their starting point or area of interest, each city has engaged in a serious, conscientious and sustained effort to seek out knowledge from other cities and bring back lessons. Table One presents a few of the many features—organizing sponsor, delegation size, themes and hosts—typical of

Table One City-to-City-Exchanges: Typical Features

City	Routine Sponsor or Organizer of Visits	Typical Size	Sample Themes	Example of City Visited
Barcelona	City, Chamber of Commerce and LED* Agencies	25-75	Partnerships with private sector; Venture Capital	Seattle Silicon Valley
Charlotte	Chamber, LED Agency, GMF*	40-75	Land bridges light rail	Amsterdam Portland

<sup>1</sup> Assistance in compiling names was provided with the help of representatives of the Trans-Atlantic Cities Network of the Comparative Domestic Policy Program of the German Marshall Fund of the U.S. in Charlotte and Portland, and Turin. Also, local foundations, planners, media professionals, and others collaborated with the author in identifying candidates for interviews.

Portland	Chamber, GMF	45-70	Land use bicycles in transit	Copenhagen Brussels
Turin	City, LED Agencies, Chamber, GMF	25-50	Strategic planning Land use, LED	Barcelona, Stockholm Glasgow

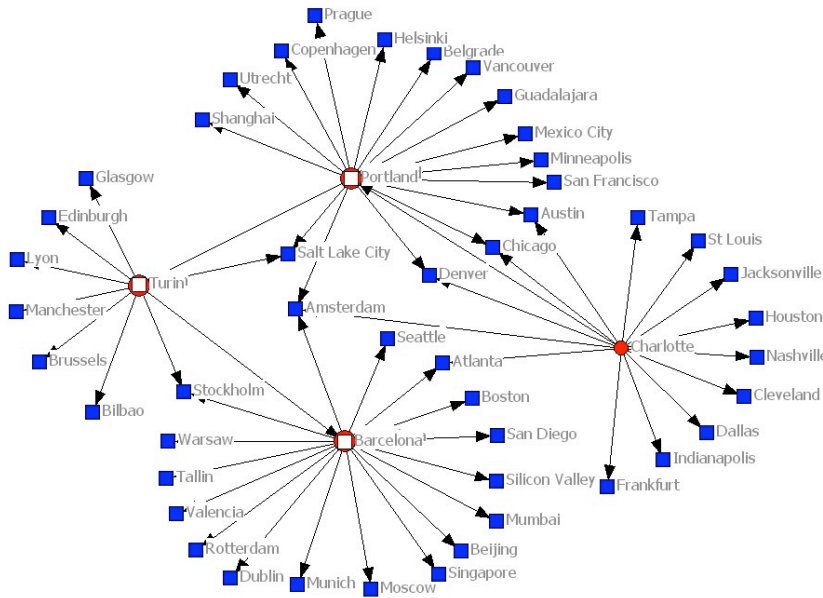
\* Note: LED = Local Economic Development; GMF = German Marshall Fund

learning from external sources.

All the cities engaged in a program of visits, some of which have been sustained over decades and involved multiple and direct exchanges covering a diverse set of issues. The cities were deliberate in their searches and acquisitions of lessons. They identified in advance specific objectives, selecting cities that were engaged in similar issues of policy and practice in infrastructure, services or social issues.

Figure One presents a schematic diagram of some of the cities cited by interviewees as study destinations. On the whole, each of the cities conducted at least one visit per year, almost certainly an undercount, given the limitations of this inquiry. The graphic shows that Barcelona has connected with a wider geographic array of cities (as is the case with most cities in the population range of five million or more).

Figure One  
Schematic Map of City-to-City Exchanges



Key: circle = sending city; square = receiving city; square over circle = both.  
 Note: The cities named in Figure One are only a partial list compiled from information in interviews and complemented by other sources to reflect activity during a representative span of time, for instance, during strategic planning 1993-2005 in Turin; the period 1995-2009 in the other cities. Also, outside agents such as the Transatlantic Cities Network of the

Comparative Domestic Policy Program, have sponsored visits or exchanges involving Turin, Portland and Charlotte. Other programs in the German Marshall Fund have sponsored exchanges, but not always related directly to city issues.

The other three case cities, all smaller in population, stayed mainly in Western Europe and the U.S. A handful of cities attracted visits from both sides of the Atlantic.

At the same time, many differences distinguish external learning in these case cities. As we shall see in the ensuing discussion, visits organized by business and trade interests often, but not always, operate on more commercial criteria with somewhat narrower focus than those organized by the city hall or city development agencies. For example, Barcelona's visit to Silicon Valley (indicated in Figure One), organized by the development agency and the chamber of commerce was aimed at exploring the robust system of venture capital in the Valley. No such system has been developed anywhere in Spain, and many businesses were vitally interested in supporting high tech startups being launched in Barcelona. In contrast, the visits by Turin organized by city hall, and those by Portland sponsored by the Comparative Domestic Policy Program of the German Marshall Fund of the United States aimed at issues more in the public realm— for instance, strategic planning and democratic participation in Turin and bicycles and open space in Portland.

In the case of Turin, specific and well-targeted connections were arranged to help the city guide its own work in two strategic planning cycles during the period 1993 to 2005. During each period of strategic planning, Turin arranged for guest presentations to be made by visiting delegations from European cities. In the first planning phase, when the idea of a strategic plan was novel in Turin, five cities with well known experiences in strategic planning (Barcelona, Bilbao, Glasgow, Lyon, and Stockholm) were invited in sequence by the city of Turin to present their experiences to a local audience of planners and the public. The audience included a wide cross-section of Turin's political leadership, its technical professionals, business groups, as well as the broader public.

Charlotte was similar to Turin, though on a smaller scale and with a more active role of the chamber of commerce, for instance focusing on downtown urban design and infrastructure. Charlotte's visit to Portland studied practical and financial issues in the light rail system. Chamber of commerce visits to Amsterdam and Denver were cited in interviews as helpful in understanding issues about moving people in higher density, downtown spaces. In the latter half of the last decade, the focus in Charlotte began to shift toward changing demographics, and a variety of other issues connected to changing economic fortunes of the city brought on by globalization of the financial sector and the recent financial crisis. These learning experiences triggered an intensive introspective approach to civic and racial relations in Charlotte, covering issues such as inter-neighborhood equity, quality of education, and civic leadership. The most recent city visit was a "self-visit"—organized by the chamber of commerce with good reviews from participants—to look internally at the economic and social issues affecting the Charlotte's own economy and inward investment.

City-to-city learning in Portland was pursued explicitly as a source of new knowledge, and recently, in contrast to Turin's focus on strategic planning, Portland has focused on what might be called second generation public-goods issues arising from earlier innovations in land use regulation. Many complicated ramifications flowed from the imposition of the physical growth boundary put in place in the 1970s. The planning focus fell onto the integration of land use with transit, and in particular, with light rail, street cars, walking, bicycles and the connections between mobility and green space and livable neighborhoods.

Many persons interviewed in Portland spoke of "eye-opening" insights about the use of bicycles and walk-ways in Amsterdam and Copenhagen. These cities view pedestrian modes as functional elements in the overall transit network. Portlanders learned that bike and walk paths have "to have a destination." The European cities

taught Portland that bicycles and walkways were not merely aesthetic or recreational elements, but legitimate, even essential parts of the urban transit system.

Barcelona has benefited from many resources for learning not readily available to the other cities considered in this analysis. Barcelona's early (1980s) drive to establish a regional identity, then to bid for and hold the Olympic Games, and form a metropolitan organization all benefited from extensive exchange. For instance, the Barcelona Metropolitan authority (now defunct) organized many targeted visits, among them to Warsaw to study labor relations, Helsinki on health and education, and Stockholm on waste incineration. Each of these cities was chosen with care, and delegations of metropolitan representatives participated in order to facilitate consensus on how to move forward at home.

In the late 1990s, Barcelona began to transform its economy by emphasizing knowledge-intensive industries in bio- and life-sciences, university education, and a specialized innovation district known as "22@Barcelona." This push for knowledge intensity, combined with expanded facilities in international conferencing, put in place the foundations for a self-reinforcing process of city learning. Barcelona's leadership was aware that Bilbao and Madrid were pursuing similar strategies. Bilbao eventually proclaimed itself a "learning center with the institutionalization of knowledge management." Partly because of this competition, Barcelona's learning effort reached a wider array of global destinations than did the smaller cities considered in this study (refer again to Figure One).

In sum, the cities shared strong interest in city-to-city learning, but differences are evident in agency, sponsorship, purpose and destination of learning. On the whole, U.S. cities tended to be lead somewhat more by business groups, European cities by city hall and economic development agencies. Portland and Charlotte relied mostly, but not entirely, on city visits driven by the chamber of commerce or other local business groups in annual, well-attended and productive events. Interspersed with

these were specific visits organized by outside groups such as the German Marshall Fund. Somewhat in contrast is Turin, where the city and its agencies (economic development and *Torino Internazionale*, an agency whose mandate is to implement the strategic plans) took the lead. Turin's business groups were involved, but were secondary or at least were not alone in driving the process and shaping the agenda. Similarly in Barcelona, the metro agency planning unit designed learning visits, and these were complemented by other development groups as the city's global intentions began to gain momentum.

**2. Internal process: Novel Measures of Soft Infrastructure** Now that we have explored the importance of external knowledge, what about the internal-looking face of Janus? To better understand internal processes, I drilled down into the professional trust networks of each player interviewed. This probing produced novel measures of the working environment, especially of trust.

Here's how the process worked. During the interviews, each informant was asked to name up to 10 persons who were 1) trustworthy and active. "Trustworthy" was defined as a mutually reciprocal relationship of trust in which, for instance, a request by a "trusted other" to provide a judgment or perspective would be done openly, without posturing or nuanced shading or gamesmanship. Similarly, trustworthy was understood to mean that an interviewee's request for information from a "trusted other" would be handled in the same way. "Active" was defined as someone who cared about the city, was civic minded, and had demonstrated a commitment through actions to take part in planning discussions, debate or project implementation in either a personal or professional capacity. During the interviews, I emphasized that persons named should not be selected necessarily for position, rank, family or corporate status, but purely in terms of trustworthiness.

As expected, many inter-connections linked individual networks in each city. After all, interviewees were selected based on active participation in planning or

**Figure Two**  
Graphical Representation of Informal Networks  
(circles are “sources” squares are “trusted peers”)

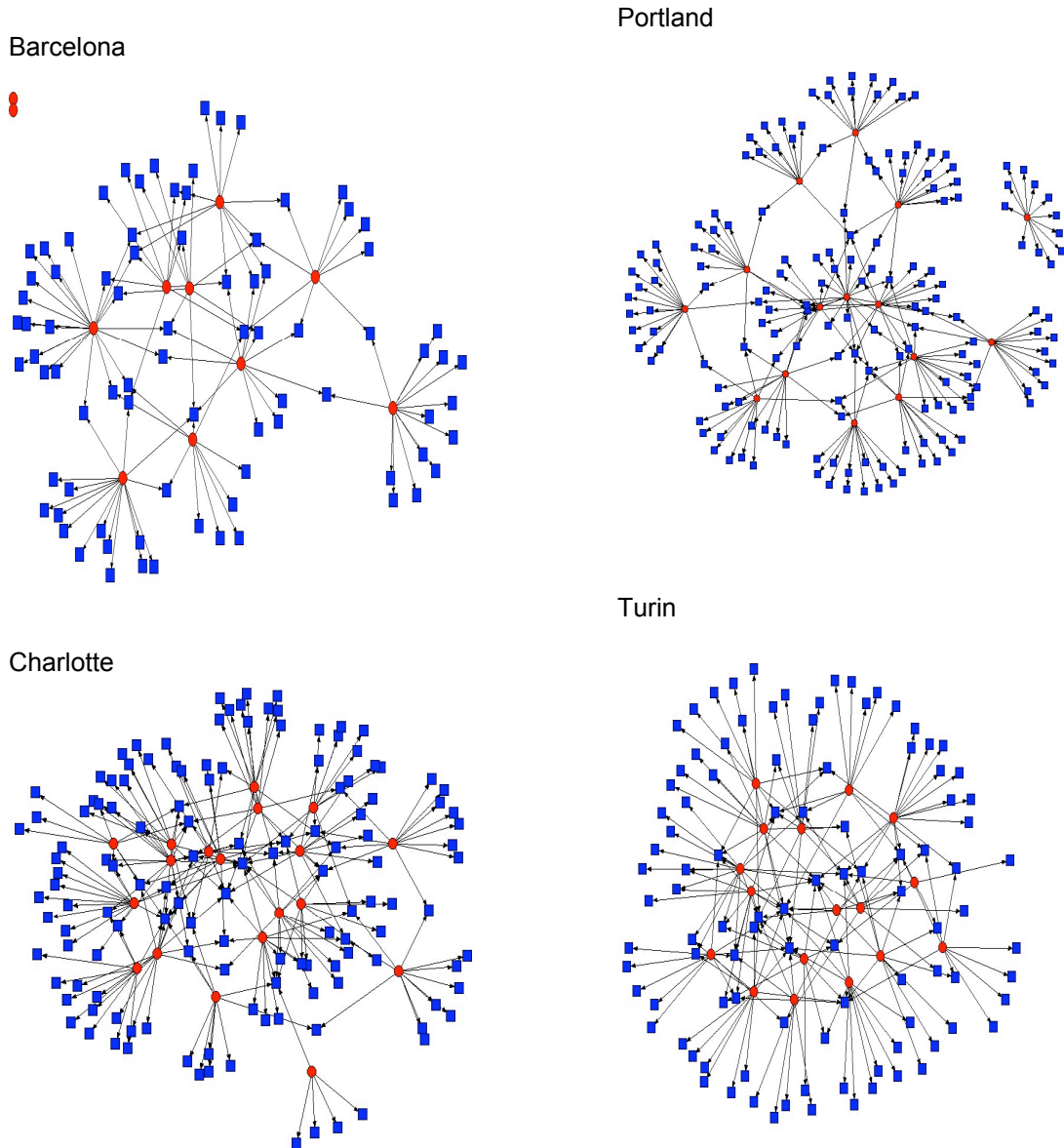


Table Three Coherence Measures

City	Density	Av. Distance	Diameter
Portland	0.085	4.432	8.000
Charlotte	0.085	3.976	6.000
Turin	0.105	3.569	6.000
Barcelona	0.126	3.879	6.000

implementation. The personal networks of each interviewee were melded into a single graphic for each city, shown in Figure Two.

**The Role of informal networks.** The strategic planning process in each of the cases featured many forms of participation by the public and professionals. The cities went to lengths to mobilize or sample opinion in order to tap into sentiment across a broad spectrum of social groupings in the community. For instance, Portland and Charlotte were deliberate in mobilizing many clearly-delineated but overlapping interest groups. In Portland, park and open space persons and bicyclists forged ties and alliances with urban trails advocates and public transit enthusiasts and have either been invited or made their way into decision-making circles in the city.

Charlotte was somewhat more deliberate about assembling networks. In the 1980s, a small group of business elites (including Bank of America president Hugh McColl and newspaper publisher Rolfe Neill) formed "The Group" after having observed a similar arrangement in Pittsburgh. The Group expanded and for several decades was a central actor in plotting Charlotte's future. With retirements and the rapidly change financial sector in recent years, Charlotte is now developing a new generation of leaders.

In each case, interviews revealed instances in which internal networks processed, discussed, and absorbed lessons from other cities. For instance

bicycle use in Amsterdam excited the biking enthusiasts in Portland and fueled their inputs in that city's planning. Light rail seen in Denver and Portland filtered into many discussions by leading exponents of Charlotte's planning. Barcelona drew inspiration and debated specific planning designs in observation of Olympic Games preparations as well as in the creation of 22@Barcelona, the innovation area and industrial incubator. Similarly, Turin learned from cities like Glasgow and Barcelona and debated openly the specifics of local economic development and strategic planning process. These instances are not the only, and perhaps not the most important, knowledge brought into the city. But in each instance, outside lessons were clearly identifiable reference points brought into the discussion and debate by interviewees as they reflected on their own networks of trust.

**Features of informal networks.** Although at least three cities resemble each other in general form, each city presents a distinct overall pattern. On the whole, Barcelona and Turin are more tightly knit than Charlotte and Portland, as measured by the inter-connections among circles. But even here there are subtle differences, as reflected in standard arithmetic measures of coherence used in social network analysis—density, average distance, and diameter (Table Three). Density refers to the number of connections present as a proportion of the total connections possible, the range of which is 8.5 percent in the case of Portland and Charlotte and up to 12.6 percent in Barcelona. Average distance, for instance 4.43 in Portland, means that, taking all linkages into account, any member of the network is a little more than four links away, on average, from any other. Diameter,

another reflection of coherence, is the number of nodes across the entire graph. In short, one might say that the informal network in Barcelona is tight, and the other cities less so.

Though Portland is least dense of the four sampled networks, the overall structure (especially diameter) connects a wide range of subgroups, about a dozen of them surrounding the perimeter of Portland's "core." Peripheral groupings could all be considered something akin to Granovetter's loose ties (Granovetter, 1973), in the sense that they are not connected directly to many others elsewhere in the network. These small clusters represent sources of ideas that are likely to be different from the consensus ideas that are manufactured and circulated in the core.

Granovetter theorized that loose ties of roughly this kind are "bridges" to sources of fresh and out-of-the-box thinking. In contrast, strong ties, bonds of family and close friends (ties that also entail reciprocal obligation), are less likely to provide new or fresh information. Strong ties therefore offer less chance of a bridge to new resource connections. Loose ties in Portland's case might mean that it has relatively more access to that key idea from out of the blue that just might solve the problem at hand.

Conversely, the comparative advantage of tighter coherence in Barcelona and Turin would be speedy transfer of ideas between and among members in the network, perhaps with the fillip of being able to reach a consensus more quickly. But though they are fast and coherent, Barcelona and Turin might not have the range of options that Portland could develop with its links into many peripheral interest groups. Charlotte falls somewhere in

between these “extremes,” a density equivalent to Portland but a tighter overall grouping (diameter of 6).

Several other features of the networks bear scrutiny: the power positions and the isolates. In all the cases, several people were named repeatedly. They are what social network analysts call “power nodes,” because these persons gather information from many sources and can exercise discretion about when, with whom, and how to divulge what they know (Borgatti, Everett & Freeman, 2002). They may also be latent leaders. Network members interviewed for this study did not always recognize the degree to which popular figures were inter-connected to each other, nor did interviewees always recognize the extent to which specific individuals had the trust of their peers, or conversely were isolated, sometimes completely from their peers. Uncovering this information itself proved to be surprising for many of the interviewees.

For example, in Turin, though the current mayor is an obvious and well-recognized political leader in the community, the most frequently named trusted persons were not in the public sector at all. That prize went to the rector of one of the universities. Charlotte offers a different picture. That city is going through a serious transition in its leadership, the older “benevolent dictators” have passed, and trust is directed most often toward the CEO of a major foundation. In Barcelona, co-occurrences were few, although the long-standing head of metropolitan planning was one of the most often-named as trusted peer. As for isolated characters (good examples are the two circles in the upper left of Barcelona in Figure Two), these represent interviewees

whose references coincided with no one named by any of the others interviewed and to whom no other interviewee made reference. These may merely be anomalies of a small sample, but they nonetheless illustrate a real concern because they are like sink holes in the community.

Other findings relate to both growth of new edges and the durability of networks of trust. Data in Portland and Turin showed clearly how new members, not before linked to traditional power elites, were inducted or welcomed into established networks during the planning process. A common theme heard in phrases of young persons interviewed in Portland—"it's not done yet," "you get heard"—reflected an openness to young people and new ideas. Participants involved in strategic planning in Turin found the new openings created by Mayor Castellani both unexpected and unprecedented. Several interviewees explained that they had not anticipated being a part of the deliberative efforts in strategic planning in Turin, since they were not connected to "the right family, nor to the right industrial, or social patron."

In short, the internal networks of the four successful cities offer insight into many aspects of processing and exchanging planning information. Tight networks offer some advantages, e.g., speed of circulation, which is the obverse to the advantage of loose networks, e.g., access to a variety of ideas. Arguments can be made how both can serve the planning process. One area of interest is whether a few adjustments in key linkages within a network would be sufficient to increase both speed and diversity, an idea that has been raised by some scholars (Lazer & Friedman, 2007). Also, data of this kind offers insight into possibly "hidden" leaders or information power centers. Another

story emerging from this analysis is about the openness and growth of networks, a point that is of potential importance to meet new challenges posed by groups of foreign and immigrant talent taking up new positions in cities.

## **LEARNING AND SOFT INFRASTRUCTURE OF CITIES**

### **POLICY DIRECTIONS**

The analysis of these four case cities has attempted to understand the role of learning in a city, whether the idea of soft infrastructure can be defined and measured, and to explore whether soft infrastructure is associated somehow with learning and competitiveness. The cases suggest that new knowledge in general, and particularly cities that are pro-active in acquiring new knowledge, are associated with successful outcomes in terms of urban transformation. Learning appears to be both acquired for purposes of, and is associated with improvements that enhance, competitiveness, at least in the eyes of interviewees. It remains to be shown whether this association can be demonstrated with more objective rigor. At least the questions posed here, and the data generated, suggest a new window of inquiry in urban development. The findings also suggest that external and internal learning are themselves a kind of soft infrastructure and are intricately involved in transformations. To the extent this is true, city and national policy may wish to look more favorably on learning and seek to facilitate the process rather than treat it with indifference, as is the case in some cities.

More evidence is needed at both macro and micro levels to better establish the importance of external knowledge gathering as opposed to other forms of learning and to map out the translation of new knowledge in competitiveness. For one thing, further observation will help to understand the process of absorption and adaptation and may have useful insights in terms of the speed and coherence of city development policy. Further analysis along

these lines would also help to establish the overall scope of exchange currently on-going, to document the scale of demand as well as the costs and benefits of this and other, complementary or competitive, forms of learning.

The findings also suggest that informal trust networks may be a useful indicator of soft infrastructure, although much additional work is needed to clarify and understand these ideas. The tools of social network analysis offer promise to both describe and quantitatively measure variables of connectivity and trust in a way that can be compared both overtime and across space. One area of further work suggested by these cases is that cities achieve knowledge processing by different routes, possibly trading off speed of reaching consensus with richness and diversity in possible solutions.

A third area of interest, one that concerns many cities coping with the management of global talent, is that of attracting new social capital or managing the stocks already in town. The four cases here have shown quite distinct styles of incorporating new blood into informal planning networks, somewhat aligned with the styles of diversity and speed, discussed earlier. The findings also suggest that the shape of networks may matter as much if not more than their size.

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