

Multi-Scalar Large Institutional Networks in Regional Planning

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ABSTRACT

Over the past century metropolitan regions have become the dominant economic units in global society. The multiple networks of organizations that govern growth in metropolises extend far beyond the geographic bounds of any particular region, and involve multiple levels of government. Large institutional networks are the emerging form of these multi-scalar interactions. That metropolitan region planning institutions are comprised of this new composite, termed Multi-Scalar Large Institutional Networks, has implications for theory, practice, and research because they evolve, learn, and act on emergent phenomena and via emergent processes in extraordinarily complex and dynamic settings in ways radically distinct from individual organizations and institutions. This article assesses institutional theory in this framework, focusing on institutional design and performance, and closes with implications for research.

Key words: planning theory; networks; institutions; governance; rescaling; research design

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This article explores connections among three strands of the debate on metropolitan region planning – networks, governance, and scaling – in a critical review. Their common threads are linked under a single theoretical rubric, multi-scalar large institutional networks. Implications for future theoretical and empirical analyses conclude.

Over the past century metropolitan regions have emerged as dominant economic units in global society, (Storper, 1997; Sassen, 2001; Scott, 2001). Some investigators have argued that metro areas will become a key level of governance, supplanting national, regional/provincial/state, and local governments as the locus of decision-making (Altshuler, et al., 1999; Katz, 2000). Several tendencies interact with the rise of metropolitan regions: the shift in the locus of power from government to governance (March and Olsen, 1995), network forms are transforming, supplanting, or supplementing historical structures such as markets and hierarchies (Castells, 1996), and the rediscovery of the spatial in policy disciplines (Le Galès, 1998; Salet and Faludi, 2000). A considerable number of scholars and entities have been analyzing the linkages among these emergent concepts (Castells, 2001; Scott, 2001; World Bank, 2003). Spatial planning has been a fertile field for this analysis (Vigar, Healey, Hull, Sivoudi, 2000; Albrechts, Alden, and da Rosa Pires 2001; Salet, Thornley, Kreukels, 2003).

Metropolitan governance gains as national and regional governments devolve functions, and localities cooperate amongst themselves. How metro governance institutions assert their influence varies widely. In some instances, metropolitan government is constitutionally legitimated, such as in Portland, Oregon and Brussels, Belgium. In other places, it has a checkered history, as in London. In some places such as New York, a non-governmental organization, the Regional Plan Association, and a bi-state quasi-public authority, the Port Authority of New York and New Jersey, both conduct regional planning. In others, associations of local governments plan as best they can. Often, a mix of individual sectoral-functional agencies (transport, water, air, other) independently plan and manage their own slice of the regional pie. Many national and regional (state, provincial) constitutions do not authorize metropolitan government as a separate, independent unit. One response has been self-made regional governance coalitions (Innes, *et al.*, 1994). Nations that established metropolitan governments have done so recently when compared to the ages of nations and municipalities. Where metropolitan / regional governments do exist, their effectiveness is mixed, at best (Putnam, 1993; Albrechts, Alden, and da Rosa Pires, 2001). Permutations of these different approaches to metropolitan region governance reflect a high degree of institutional innovation attendant to their youth, before a proven and preferred paradigm is widespread. The competition among new institutional approaches coincides with the paradigm breakdown (of hierarchy, of nation-states?) and new paradigm development stages in Kuhn's sequence of intellectual revolutions (Kuhn, 1961). This complexity and variety hinders simple comparative analysis and facile generalizations.

Three avenues are being explored by researchers and practitioners of metropolitan and regional governance. One avenue is networking. The webs of their networks encompass processes and flows, actors and interests, organizations and structures, and ideas and capital to form the network society (Castells, 1996). Network theories have had a large impact on institutionalism. The second is governance, representing the shift from the control by government over policy making. Governance claims to engage a wider range of sectors and interests in governing than mere government. This proposition merits scrutiny in the face of long-standing yet declining corporatism in Europe, clientelism in less developed nations, and pluralism in the United States. The third avenue is the scale of governance. Research traditions associated with scale (or scaling) have a somewhat longer history than governance or network traditions, when scaling is understood by its underlying phenomenon of identifying the proper placement of governing responsibility. Scaling has antecedents that include coordination among levels of government (Hambleton, et al., 2002; Dijst, et al., 2002), decentralization from higher to lower levels, devolution of functions among levels, and subsidiarity, which attempts to locate functions at the most appropriate level.

The Ontologies of Level and Scale

Many metropolises are not governed by a single governmental entity. If metropolises are not governed by a single entity, then to the extent that they are governed, or governable, in practice it occurs by governance shared through a network of local jurisdictions. These local jurisdictions may number over one thousand in a large metropolis (including public utility districts and school districts). In the US, the New York metropolis of twenty million inhabitants spans four states, scores of counties, dozens of regional functional entities, and hundreds of cities, towns, townships, boroughs, school districts, and utility districts.

Metropolitan governance is complicated by the inter-relationships that metropolitan areas and their localities have with larger levels of government. Responsibilities and functions are scattered. Even where there is a

single entity nominally in charge, the question of what they are in charge of (functional scope) and how effectively they discharge responsibilities (performance) are of prime importance.

Metropolitan institutional networks extend far beyond the geographic bounds of any particular region, and involve multiple scales or levels of government. The notion of *scale* or *level* of governance is a hold over from an ontology based on hierarchy. The term level implies superordination and subordination, and precise delineation and demarcation. Scale, on the other hand, refers to size and extension, and relative comparison. Scale has been resurgent in government, policy, and institutional discourses because the “reterritorialization” of the economic and social spheres is exerting its imprint on the public sector (Keating 1997). Neither scale nor level captures well the flexible network geometries of governments forming coalitions as they struggle to compete in continental and global arenas and cooperate in local and regional ones. This multi-networked and multi-scalar reality manifests a different ontology from hierarchy. The new ontology is based on centers/nodes, connections among them, and the webs they form. Networks perform different types of work than hierarchies. They enable and serve different functions and purposes. If this is true, then why do we still use the terms “level” and “scale” in network debates?

Part of the answer is that we are in the midst of a change in paradigm from hierarchy to network. This ontological and terminological confusion is problematic for theory development and research design. Another facet of this confusion transcends theory and research – the application of criteria to measure institutional efficacy. Efficiency, a common measure of efficacy in the past, is linear, and thus a readily apparent measure for hierarchies. Efficiency may be suitable to measure simplistic and perhaps trivial aspects of network efficacy such as speed or cost of communications. By this calculus, the multiplex and long term collaborations attendant to regional governance can be considered inefficient when measured by time or cost alone – what Williamson called transaction costs in institutional economics (Williamson, 1975). However, when trying to measure equity, environmental quality, democracy, or service quality; criteria other than efficiency may be more valued. These indicators are network indicators and need to be measured as such, because of the reciprocal interactions and mutual impacts among activities. Networked measures are qualitatively different from linear measures. Accordingly, the ontological change from hierarchy to network needs to be accompanied by a change in operational instruments. Ontological change seems easier than transforming the fine grit enmeshed in the interlocking gears of societal institutions that are laden with inertia. We cling to the old because it is known, it is easy, and (used to) work.

Another reason, and an important part of this essay’s contention, centers precisely on the persistent idea of distinguishing among scales or levels of government in the face of blurred boundaries brought on by networked governance. Distinguishing among scales furthermore isolates one from the others, opposing the very intent of networking. New networks have emerged improvise to span jurisdictions, and have been the subject of much recent scholarship, reviewed below. There is significant interaction (if not integration, as in the Miami-Dade consolidated city-county government and the Berlin-Brandenburg city-*land* combination) among these scales. Interactions are increasing and may be reasonably expected to continue as metropolises grow, technology makes mobility and communications easier, and networking becomes more prolific. As indicated, these metro region governance networks already accommodate hundreds and in some cases thousands of institutional actors at all levels. We denominate them Multi-Scalar Large Institutional Networks.¹

Recent literature on rescaling has tended to analyze the shift of responsibilities from *one* level to another (Brenner, 2003). In contrast, we contend that large institutional networks are the emerging form of these multi-scalar interactions. As Gualini and Woltjer found, “the emergence of a governance environment characterized by multiple constellations and multiple coalitions for development that define a geography of governance that is flexible, often overlapping, and increasingly autonomous from given territorial jurisdictions” (Gualini and Woltjer, 2004).

A Network Paradox

Researchers have located sources of inadequacies in infrastructure governance: 1) fragmented and uncoordinated processes due to overlapping jurisdictions; 2) financing for individual projects instead of entire networks; 3) lack of institutions and plans for comprehensive management; and 4) lack of metrics for measurement of performance (Altshuler and Luberoff, 2003; Dowall and Whittington, 2003; Flyvberg, et al., 2003; Moss, Marvin, and Guy, 2001; Neuman and Whittington, 2000). The first three findings relate directly to issues of scale and networks. Taken together, these three findings reveal the fundamental contradiction that attends the shift from hierarchy to network, at least as it pertains to metropolitan governance. The paradox lies in the expectation that in networks is salvation, or at least improvement. Network proponents assert better communication, coordination, and collaboration. Yet without strong means of control, networks are ineffective. Networks do not manage or coordinate by their own accord. The internet, for example, is held up as an archetype of a functioning and vital network. Yet without the iron grip of self-regulation for technologies and protocols that lays in the hands of several groups (Internet Architecture Board, Internet Corporation for Assigned Names and Numbers, and Internet

Engineering Task Force; operating under the umbrella of the International Telecommunications Union, and delegating tasks to the Root Services Oversight Board) the internet would not be possible. In fact, networks complicate control by their very nature. They diffuse, disperse, and distribute. Whereas hierarchies, especially Max Weber's ideal type bureaucracy, contain, control, and command. Is there a way out of this paradox?

One way recognizes a fundamental principle of certain types of networks. These networks need a strong central hub or node for management tasks that differ from management functions that work in a bureaucracy. "Central" here means central to the functioning of the network, not central in physical space. The composition of the central hub is not only or necessarily structural. Instead or in addition it can include institutional artifacts such as a guiding norm, a set of protocols, constituting laws, a "brand" identity, and so on. Their centrality derives from their nature – they are essential or ontological. Centrality is expressed in visions and moral codes, or symbols and events. Centrality might derive from power or legal authority that overrides others. The composition and location of the central hub in a network is one key to solve the metropolitan governance puzzle.

While hierarchies may possess these characteristics, they manifest themselves differently in networks, and are used in different ways by the networks. For example, some managerial activities in hierarchies are performed by the structure itself, such as delineating organization boundaries and chains of command, and establishing authority. In a distributed network, however, where the nature and position of the nodes are more equilibrated in value and space, clarity may decrease. Networks diffuse and distribute, and a network norm is internalized and subscribed to by individuals in the network. Hierarchies contain instead of distribute, and its norms are mandated and regulated upon individuals. Hierarchies and networks treat more than just norms, boundaries, and authority dissimilarly. Issues regarding opacity / transparency, accountability / responsibility, and empowerment / control, among others, are also distinct in hierarchies and networks, and are worthy of theoretical and empirical study. Sensitive to management differences between networks and hierarchies is a crux of metro governance.

Selected Theoretical Propositions Framing Institutional Networks

This section reviews selected recent institutional theory and organizes institutional phenomena under three categories: structures, processes (including agency), and doctrine (including its embodiment in images and symbols). It further looks at three topics of contemporary interest: institutional networks, governance, and rescaling.

Some theorists contend that structure (forms of organizational and interorganizational arrangements, rules) and agency (the intentional actions of individuals, groups, organizations, and institutions (types of social agents)) are salient institutional characteristics (Gordon, 2003; Goodin, 1996; Williamson, 1996; Giddens, 1984). Others find that history, culture, and norms play significant roles in institutions (Brenner, 2003; Lieberman, 2002; Sen, 1997; North, 1990). Doctrine is the systematic embodiment of norms and traditions in operational behaviors, such as military doctrine (Kingdon, 1995; Faludi and van der Valk, 1994). Doctrine is a category that encompasses the ideas, norms, and values prevalent in an institution. Documents, images, and symbols are representational media that embodies doctrine. Doctrine gets embedded into institutional structures and processes, endowing them with power and longevity. Structure, agency, and doctrine are categories of analysis that have become institutionalized. Recently, some researchers using these variables found that collaboration across networks elicits benefits such as increased legitimacy through democratic participation, increased equity, and increased cooperation (Agranoff and McGuire, 2003; Goodin, 2003; Innes and Booher, 2003; Hambleton, 2003; Vigar, et al., 2000).

In institutional contexts, tradition weighs against innovation, unless innovation itself is the tradition, as in universities. The tradition versus innovation maxim holds true for numerous structural, procedural, and doctrinal aspects of institutions. Context and criteria of appropriateness apply to institutional design for regional planning and governance as well. An underlying tension for institutional designers lies in trying to reconcile traditions as expressed in institutional norms and forms with change and reform. Yet institutions by their nature resist rapid change. The duality of persistence and change is vital to institutions. How tradition-bound institutions have incorporated new ideas and technologies is an indicator of network flexibility and adaptability (Altshuler and Luberoff 2003; Albrechts, et al., 2001).

As design in the institutional context concerns transformation of existing patterns into something new, where does the innovation come from? Often it is imported. The transfer of institutional "technologies" has received limited attention by theorists and researchers, although it has been of interest to historians and economists. A parallel for institutional technology transfer is in the work of historians and sociologists of technology. Thomas Hughes's model of the social construction of large technological systems accounts for social, economic, scientific, and institutional factors in the transfer of ideas (Hughes, 2004, 1983; North, 1990).

Research on institutional reform would benefit from exploring this question. Has the imported idea been an asset or liability in its implementation in the new context? A study on planning in one metropolitan region revealed that ideas imported from abroad and inserted into a new milieu in ways that are not culturally or institutionally

responsive repeatedly (over 150 years) had the reverse effect of retarding or hindering – rather than stimulating – the development of planning tools, processes, and organizations. They also inhibited the effective performance (Neuman, 1996). A groundbreaking comparative study of the “transplantation” of institutional adaptation to improve policy making and service delivery found that institutional technology transfer is widespread across policy fields in Europe. Outcomes spanned the range from success to failure, and each instance presented both advantages and disadvantages (de Jong, Lalenis, and Mamadouh, 2002). Cross-continental comparisons of network adaptability in policy areas where one continent has an advantage due to more experience may be instructive. In Europe, for example, policy responses to terrorism and spatial policy have been operative for decades, while in the United States disaster planning and response has a longer history. These subjects need careful consideration and continuing analysis in order to evaluate the efficacy of technology transfer (employing a broad conception of technology). Martin Heidegger’s famous essay “The Question Concerning Technology” provides a remarkable treatment of the philosophical and theoretical ramifications of this issue from an institutional perspective (Heidegger, 1977). Henri Lefebvre’s *The Production of Space* is salient in the realm of city building and planning (Lefebvre, 1991).

Some accounts of institutional transformation analyze the internal conditions of institutional change or the external forces that act on it, instead of both and the interplay between the two. As a consequence of theory and research that concentrates either in internal or external factors but rarely on both simultaneously, their accounts elide or are somewhat naïve about the sources of ideas that spark change or the substantive content underlying the ideas. Various students identified internal conditions necessary for reform, including interactive double-loop learning, iteration and feedback, trust and cooperation, the creation and use of intellectual, social and political capital, and stakeholder collaboration (Argyris and Schön, 1978; Innes, Gruber, Neuman, and Thompson, 1994; Healey, 1997).

Appropriate technology can guide institutional innovation. Appropriate technology arose when advanced technologies of industrial nations were exported to “less developed” nations and their impacts were not absorbed by the receiving nation, resulting in negative consequences (Schumacher, 1973; McRobie, 1981). An example in city planning – the propagation of zoning – presaged the appropriate technology movement by several generations, yet its consequences are still being felt today. Zoning is based on the idea of segregating land uses from one another, an anathema to the very idea of a city, which is to bring people and uses together. Zoning has turned out to be a classic case of inappropriate technology. Appropriate technology illustrates that there is not one rule that applies in all circumstances in deciding the aptness of the transfer of institutional knowledge or technologies. The inverse, institutions perform more effectively when they innovate based on local knowledge is a proposition ripe for testing. *Institutional Networks* Networks of collaboration are noted for their benefits (Saxenian, 1994; Castells, 2001). Networks also have their costs, including time, increased transaction costs, decreased stability, diffusion of authority, and erosion of accountability (Milward, 2000; Provan and Milward, 2001). Some have gone so far as to call the weak network forms of governance “the hollow state” (Milward, 1996). A way to test for network effects in practice is to measure their effectiveness using institutional performance criteria. Measuring institutional performance has received growing attention (Jennings, et al., 2002; Boyne, et al., 2001; Innes and Booher, 1999). Most have tested results of institutional innovation for single agencies or levels of government (Lowry, 2003; Chisholm, 2002; Heinrich, 2002; Wang, 2002), or limited functional networks (Provan and Milward, 2001). Multi-level or multi-scalar institutional networks are beginning to receive attention (Kickert, Klein, and Doppenjan, 1997).

In urban regions, pluralist and autocratic models manifest themselves differently, a key finding of network and governance research. Policy networks in governance account for new actors differently than classical pluralism. Furthermore, the locus of pluralist models was at a single polity level, usually national or local. Pluralism played on proximity - democratic representations of local interests. In network society, time is more important than distance, and accessibility is valued more highly than proximity, due to new telecommunications technologies (Dijst, Schenkel and Thomas, 2002). Autocratic models have difficulties when applied to network phenomena. In the face of these and other limitations, pluralist and autocratic models are being replaced by governance.

What happens when governance occurs in large, complex networks that are patched together over time? Network patching is an outcome of several factors, including institutional fragmentation, and the bias of decision-making toward individual projects rather than entire networks (Neuman and Whittington, 2000).

Governance Many studies addressing metropolitan governance from an institutional perspective have done so by testing one or two parameters at a time. Research on *restructuring*, for example, often has tested its effect on decision-making rather than performance (Albrechts, Healey, and Kunzmann, 2003; Gualini, 2001; Keating, 1998; LeGalès and Lequesne, 1998). Research on *coordination* has also tested its effects on decision-making and local democratic participation rather than performance (Drabek, 2003; Hambleton, et al., 2002; Dijst, Schenkel and Thomas, 2002; Fubini, 2003; Katz, 2000). *Privatization* research has tested its effects on performance, and found mixed results: some efficiency gains, some efficiency losses, and increased cleavages among sectors and levels of government (Sclar, 2000; Keating, 2002; World Bank, 2002). A recent assessment on privatization has revealed

more problems, especially social inequity and negative environmental impacts (World Bank, 2004).

Decentralization studies have also found mixed results: some efficiency gains, some efficiency losses, increased equity (Newman and Herrschel, 2002; UNCHS, 2001; Besley and Coate, 1999). *Agency* has been a source of innovation, but has not been systematically and comparatively measured in terms of outcomes (Simmie, 2002; Albrechts, 1999). In American metropolitan planning, “bottom up federalism” with enhanced local involvement in national policy (ISTEA and TEA21 laws, Altshuler and Luberoff, 2003) contrasts with increasing involvement of national governments in regional policy in Europe (Newman and Herrschel, 2002). *Doctrine*, such as coordinating spatial policy via planning, or using ideology or a governing image to coordinate policy, was studied for decision-making, and not performance (Gualini, 2004; Healey, et al., 2003; Healey, 2002; Faludi and van der Valk, 1994).

Some research has analyzed several parameters of institutional design (Salet, et al., 2003; Faludi and Waterhout, 2002; Dijst, Schenkel, and Thomas, 2002; Graham and Marvin, 2001; Vigar, et al., 2000). Schenkel found that policy networks operate as a sort of “market of decisions”, in which collaborative networks “give higher priority to knowledge-based power than to financial and political power”. According to his findings, regional governance is network management, which is “quite distinct from the ordinary tasks of management”. Governance includes strategy formation, and structuring and leading the policy networks; whereas ordinary management concerns the day-to-day operations (Schenkel, 2002, 102-9). Salet et al. have conducted cross-disciplinary research on strategic spatial planning, finding that cross-sectoral spatial linkages established through comprehensive infrastructure planning were institutional innovations that enhanced political legitimacy and functional effectiveness (Salet and Faludi, 2000). Another comparative study of metropolitan and regional planning in Europe found that four different institutional models governed infrastructure planning, each with different impacts on multilevel governance relationships (Salet, Thornley and Kreukels, 2003).

A National Research Council study called for assessing “three broad categories of measures: effectiveness, reliability and cost”(NRC, 1995, 3). We can add two more: social equity and security. Recently, investigators have theorized or analyzed multiple performance measures that provide useful models for empirical research (Carmona, 2003; Wong, 2003; Hendrick, 2003; Adyer, et al., 2003; Young, 2002).

One governance issue important to spatial planning turns on two different forms of governing. One – the project basis – is a political model that depends on tradeoffs and choices between individual projects. Power is usually the determinant factor. The other – a plan basis – also involves choices and tradeoffs. Yet these choices tend to be structured and adjudicated in different forums and arenas, with criteria other than power exerting influence (see Altshuler (1965) and Meyerson and Banfield (1955) for classic accounts of the intertwining of politics and planning). In plan-based governance, institutionally embedded collaborative processes sometimes have resulted in horizontal and vertical policy integration using a comprehensive plan (Healey, 1997; Neuman, 1999; Gualini, 2001). In institutional setting there are several integrating devices: discourse (Dryzek, 2000; Hajer and Wagenaar, 2003), stories (Throgmorton, 1996), and images embodying doctrine and norms (Faludi, 1996; Neuman, 1996).

Scaling Let us distinguish between geographic and jurisdictional scales. A geographic scale is defined by the lens of the geographer, whereas a jurisdictional scale is defined by legal-constitutional instruments within a large polity. The distinction is important because the flexibility of institutional geographies and the overlapping of scales can lead to confusion and misinterpretations. In the past, governments were relatively autonomous. They exercised constitutionally-derived sovereignty within their jurisdiction. Relations with other levels involved the delegation of powers. In time lower levels obtained taxing powers and received subsidies and grants from higher levels of government. Their actions were increasingly regulatory. The governance transformation changed the nature of the relationship within and among scales of government by engaging more interests and sectors more directly and interactively in partnerships. During the same period institutional geometries were reconfigured from hierarchies to networks. The governance transformation also tries to cope with the greater interconnection among scales of societal and economic action. In the end, governance polities are socially constructed, compared to government jurisdictions, which are politically constructed. Political constructions define the terms of institutional arrangements among the hierarchical levels of government, while social constructions define the terms of the networked institutional arrangements among different scales of all actors.

Part of the tension that occurs during the transition from government to governance derives from the pressures generated along this political-social axis. It is due to the fact that emerging governance forms have not been constitutionally stipulated or enabled by higher levels of government. This may be acceptable at this early stage of experimentation and innovation as metropolitan regions struggle to find the most appropriate formats to develop and implement policy. In the long run, however, large multi-scalar networks need to more sharply identify control entities and procedures to manage their governance institution. A multi-scalar consciousness would need to be ingrained into constitutional texts to accomplish this.

A multi-scalar approach goes beyond the “rescaling” in recent theoretical literature (Brenner 2003, Salet, 2003; Gualini and Woltjer, 2004). A principle behind rescaling is to find the most appropriate scale of governance for policy delivery. Rescaling responded to the increasing variability and flexibility of institutional topologies by tilting governance networks in favor of metropolitan regions. In this, rescaling arguments have followed part of the logic inherent in their predecessors: coordination, decentralization, devolution, and subsidiarity. The evolution of terminology reflects two substantive facts. The first is the evolution of thought regarding institutional design and policy, which has recognized that hierarchical bureaucracies and command and control are not as effective in a flexible global economy and democratic institutions. In this sense, rescaling and its predecessors were intellectual variants of the response to the breakdown of hierarchy. The second is the emergence of governance alongside government. Regardless of terminology, efforts to pinpoint the most appropriate scale belie the emergent nature of multi-scalar governance of regions that implicates all levels of government and all sectors of society, thus hobbling arguments that are limited to one scale.

Multi-scalar Large Institutional Networks These networks are “large” because metropolitan regions extend over a thousand (even thousands) of square kilometers. More importantly, their tentacles extend far beyond the geographic bounds of any particular region. Part of this essay’s argument has centered on the persistent distinction among scales that tended to focus on one scale. The barriers among scales are being broken down. Nonetheless, these barriers still exist and are compounded by barriers among disciplines. As each level has its own elected and appointed officials, budgets, and laws; it is easy to fathom why separation persists. New networks have been established *ad hoc* to bridge separations. More interaction among these scales is evinced nowadays, as nearly all the researched cited has found. (We must be cautious here, as some increases in integration arise when the different levels of government belong to the same political party.) For these reasons we believe that *multi-scalar* approaches more accurately portray current realities. **Multi-Scalar Large Institutional Networks (MSLIN)** are the emerging form of these interactive webs.

In addition to the territorial dimension, there is the time dimension. The temporal extension of MSLIN’s may vary from short term, project- or strategy-specific coalitions to long term established arrangements. Multi-scalar coalitions and institutional networks are not new. In a different realm, “big science” (particle accelerators, *e.g.*) has taken the form of multi-scalar networks since World War II. What is new is their prevalence and extent, facilitated by new technologies. They also foment innovation and creativity by bringing together disparate individuals, interests, and ideas confronting new challenges. In this way they might foment conflict, even though they are constituted to resolve it.

Recently, we have been observing mimesis of the two types in the formation of smaller MSLIN’s, including those for metropolitan and regional spatial policy governance. Many empirical analysts cited have been documenting these cases. Looking at them more closely, one detects an underlying logic of multi-scalar interactivity and its consequences, instead of rescaling to a single scale. The differences between multi-scalar and rescaling relate to the temporal dimension, in part. Two important differences are 1) the identification and location of the leading protagonist (the central node of the network) in any given project / process within the overall MSLIN, which may vary over time, depending on the project and interests at stake; and 2) the location and flow of power and resources through the MSLIN, and how constituent members use them in ongoing processes. Visualized conceptually, maps of the four dimensional MSLIN terrain can be metaphorized to float on the sea or wave in the wind, taking different shapes with peaks and troughs modulating over time. The peak nodes in the web’s carpet correspond to temporally concentrated flows of power, resources, thought, interests, and the like. Modeling them across space time is worth investigating for promising insights.² All these exhibit flexibility not only in three dimensional geometries, so often discussed in the geographical literatures, but also in four dimensions (adding time). The field of network optimization theory has addressed the time dimension extensively, and has begun to be imported into decision and corporate organization theories (Nagurney, 2000; Ball, Magnanti, Monma, and Nemhauser, 1995). Institutional governance theory may stand to benefit from it as well.

Past Empirical Studies as a Context for Future Research

To date, most institutional analyses of regions have been individual or comparative case studies, starting with Selznick’s classic study of the Tennessee Valley Authority (Selznick, 1949). Individual case studies, if expertly interpreted and contextualized, can be illuminating. Yet they typically have limited applicability to the variety and complexity of metropolitan governance arrangements around the globe because they are exceptionally difficult to generalize. Comparative studies offer an advance on case studies (Peters, 1998). Yet many planning and governance comparisons have been conducted using a single disciplinary lens, or focused on a single issue, such as transport. Many comparative studies have lacked a theoretical frame and/or prospective research design, limiting the transferability of findings. Of the few comparative regional government analyses based on a prospective research design (with hypotheses and variables), one concerned civil society, not institutional design (Putnam 1993). Another considered the effect of institutional design on performance, but stopped short of a multidisciplinary analysis (Ostrom 1990). Savitch and Kantor (2002) analyzed urban growth by comparing metro regions in Europe and North America from a political economy vantage. As a consequence, and in spite of existing research, there is a

gap in our current knowledge about which factors are critical in designing and managing governance institutions for metropolitan regions. A key factor for fruitful research is a prospective and comparative research design.

A distinctive characteristic of regional planning institutions is the primary importance of place. In this sense, analyzing metropolitan spatial planning institutions differs from the analysis of politics or legislatures by the addition of geographic variables (Harvey, 2001). A handful of political scientists and geographers (Hamilton, 2002; Agnew, 1987; Berry, 1991) and urban researchers (Carruthers and Gudmundur, 2002; Sassen, 2001; Healey, 1997; Castells, 1989) have analyzed the spatial dimensions of institutions. Geographical research is bearing fruit, where the rescaling debate is linked to a multi-scalar approach and a “relational geography of multiplex relations with very diverse scalar and temporal reach”.³ These ideas have implications for institutional design in regional planning and governance in the connections of multi-scalar geographies and institutional networks (Keating, 1998; Benz and Eberlein, 1999; Jessop, 2001; Scott, 2001; Salet, 2003; Gualini, 2004). Brenner, in a magisterial review of networked spatial decision making in European metro areas, ordered a lot of the “bewildering tangle” of metro institutions. He found that the multiple crises of the 1970’s stemming from the shift from a Fordist to global economy were “mediated through open-ended processes and strategies of regulatory change at multiple spatial scales” (Brenner, 2003, 319). These inter-scalar changes are the *sine qua non* of regional governance networks’ new roles as investment engines, surpassing their prior role as regulatory regimes. This observation extends Jessop’s analyses of the entrepreneurial city-region and its implications for governance and scaling (Jessop, 1998a, b).

The potential relationship between the reciprocal link between institutional design and institutional performance for metropolitan governance has not been critically evaluated. There is, therefore, a need to identify the underlying institutional factors that dictate effective decision-making and obtain desired performance in the metropolitan public policy arena. Researchers have begun to look at performance measures for institutions (Carmona 2003, 2004; Wong 2003). Typically, analyses of institutional performance evaluate a single or limited range of parameters. Institutional performance evaluations can be distinguished from other multi-criteria assessments in planning that are related to impacts and predicted costs and benefits. Yet these types of assessments measure only what a plan would cause to occur, if perfectly and completely implemented, and under a perfect match of their assessment model’s assumptions with on-the-ground conditions. They do not measure institutional performance, nor any past performance, except to the extent they use trend data to calibrate the model. Institutional impact assessments could be added to plan or project impact assessments in order to estimate the full cost of plan implementation. This is pertinent as impediments to plan implementation are usually institutional and political.

Implications for Future Research

Understanding the forms and functions of multi-scalar large institutional networks is a step in taking institutionalism to new ground. What matters most is not how these governance networks make decisions, but how their decisions improve their lives and the world around them. Accordingly, an important long-term goal for research on metropolitan and regional planning is to understand the effects of innovations in institutional design on institutional performance. Performance refers to measurable changes to institutional structures, processes, and doctrine; as well as external outcomes of institutional actions - changes in conditions “on the ground”. The relation between design and performance contributes to knowledge in institutional and network theory, the other is practical.

An objective for experimental research is to test the extent to which independent variables cause changes in dependent variables. Researchers and theorists alike have indicated relationships between institutional structure and institutional outcomes. Institutional design and constitution writing are premised on that relationship. In historical institutionalism terms, institutional structures form a basis of path dependence in which they literally shape outcomes. To cite a prominent example, differences between autocratic and pluralist institutions have been studied for a wide array of institutional reform strategies – restructuring, coordination, privatization, and decentralization. Autocratic and pluralist conceptions of institutions differ in that autocratic models value the accumulation and projection of power by a single entity; pluralist models value the distribution of power through cooperation and consensus. Each model (autocratic / pluralist) has its characteristic structures (hierarchy / networks), agency processes (sequential / directive and iterative / interactive), and doctrine (control / consent). These differences in institutional theory have deeply marked past research and research design.

Research on metropolitan planning and governance could assess changes in performance (dependent variable) through changes in the structures and processes of metropolitan governance networks (independent variable). Problems related to institutional performance persist because metropolitan governance is often fragmented into sectoral-functional organizations rather than into comprehensive ones. This formulation follows the general hypothesis above, that institutional design affects overall institutional performance. We could venture a specific hypothesis, that a metropolitan governance institution of mixed design, of an autocratic structure with

pluralist agency and doctrine, will more efficiently, effectively, and equitably implement planning policy. Other hypotheses could be put forward and tested.

The rationale for this research is both practical and theoretical. First, regarding metropolitan and regional decision dynamics, with a better understanding of the relationships between institutional design and institutional performance, lawmakers, institutional designers, and policymakers will be better able to develop strategies to improve metropolitan conditions. Second, it contributes to theory by answering the question of whether an autocratic (single power), pluralist (distributed power), or mixed model is more effective for obtaining better performance. It also seeks to answer corollary questions: As societies continue to transform toward liberal democracies, is a partial institutional design or reform such as decentralization or privatization alone sufficient to accomplish public policy reform (Bellah, *et al.* 1991)? Is an established civic culture alone sufficient to achieve progressive change and effective governance performance (Putnam 1993, 2000)? To what extent can an idea (strong democracy, sustainability) motivate decision-making (Barber, 1984; United Nations, 1987; Ostrom, *et al.*, 1993)? Can institutional evolution be guided to support emergent learning networks that successfully adapt to technical and social change, or resist their pathologies (Ostrom, 1990; Elster, 1998; Neuman 1999)?

The central hypothesis of this research can be tested by articulating variations in the structures, agency, and doctrines of the institutions in regard to performance outcomes. An interesting hypothesis is that if structures and processes (forms and rules) are easier to change than doctrines (based on norms and traditions), then institutional leaders choose structural reform because they can manipulate it to show (at least administrative) results. That is, they make the easier choice to show that they acted decisively, independent of the performance outcomes of those decisions. Another hypothesis is whether networked governance with more looped and iterative (less linear) path dependence and greater organizational and social learning, or autocratic governance with more linear path dependence and less organizational and social learning is correlated a greater effect on on-the-ground performance outcomes. The thrust is research design that prospectively specifies hypotheses, variables, cases, and methods.

In conclusion, the essay argued that spatial planning institutions are comprised of multi-scalar large institutional networks. Understanding them as such has implications for research, including its design and methods. Multi-scalar large institutional networks (MSLIN) evolve and learn through complex, emergent phenomena and processes in ways that are distinct from the ways that "mere" organizations and individual institutions. Grasping the way a MSLIN evolves and learns is central to understanding how they function and malfunction, how they create, decide on, and execute policies and plans, and how they exert power and influence to obtain outcomes, and how, in turn, they are affected by the power and influence of their own members and by those outside the MSLIN.

¹ See Thomas Hughes's Large Technical Systems that identified large infrastructures as binding agents of linked systems of science, technology, construction, finance, management, entrepreneurship, government (Hughes, 1983).

² Digital terrain modeling is a visualization and analytical technique advanced in many disciplines, including video animation, genetics, mathematics (topology), landscape ecology, biological ecology, astrophysics, and meteorology.

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