"The Impact of the New Technologies and Globalization on Cities"

from Arie Graafland and Deborah Hauptmann (eds.), *Cities in Transition* (2001)

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EDITORS' INTRODUCTION

Sociologist Saskia Sassen taught for many years at the University of Chicago and is now the Robert S. Lynd Professor of Sociology and a member of the Committee on Global Thought at Columbia University. Sassen has an extraordinarily international background. She grew up in Argentina and Italy, learning to speak five languages. Before earning her PhD at Notre Dame University in Indiana, she studied and taught at the University of Poitiers, the University of Buenos Aires, and the Universita degli Studi Roma, and she has also frequently been a visiting professor at the London School of Economics. It is perhaps not surprising that her work has analyzed data on information technology, the economies, and the organization of physical space in the most advanced cities and metropolitan regions in the world and that she originally coined the term "global city."

In the following selection Sassen describes how globalization and information technology are changing relationships among cities and reconfiguring the physical arrangement of activities within metropolitan space. The global cities that Sassen is most interested in – as in her groundbreaking book *The Global City: New York, London, Tokyo* (Princeton: Princeton University Press, 1991/2001) – are places where international financial functions are concentrated and whose economies are most closely integrated with the world economy. She argues that globalization is both concentrating and simultaneously dispersing activity at the global, national, and metropolitan levels. At the global scale, economic power is increasingly concentrated in cities like New York, London, and Tokyo. But cities as dispersed as Mexico City, Taipei, Bangkok, Buenos Aires, São Paulo, Frankfurt, Zurich, and Sydney may also be characterized as global cities – not just important regional cities – in that they serve as focal points and operation centers of the global economy.

As economic activity is increasingly globalized and as industries need more specialized services, Sassen believes a new world "system of cities" is emerging unlike anything that has previously existed. What Sassen terms "corporate service complexes" – sophisticated networks of high-level financiers, lawyers, accountants, advertising professionals, and other skilled professionals serving international corporations – are clustered in global cities. Decisions made by joint headquarters/corporate services complexes in London, New York, Tokyo, and other global cities affect not only the residents of these cities, but jobs, wages, and the economic health of cities as dispersed around the globe as Kuala Lumpur, Malaysia, Saigon (now Ho Chi Minh City), Vietnam, and Santiago, Chile. If financial analysts advise their corporate clients that Argentina's economy is weakening and lawyers inform them that legal reforms in China present new opportunities for super profits, the corporations may pull billions of dollars out of Argentina and redirect the funds to Shanghai – assisted by a small army of advertising executives touting their products in China's vast emerging markets. The overall effect of these developments and practices, according to Sassen, are the concentration of great wealth in the hands of a few and severe dislocations

in the lives of the many. In this regard, her work invites comparison with Friedrich Engels's observations about nineteenth-century Manchester in *The Condition of the Working Class in England, 1844* (p. 53).

A traditional reason why businesses cluster in large cities has been to be in touch with other businesses and with lawyers, accountants, bankers, advertising firms and other specialized service providers that help them do business. It is efficient to walk next door to a lawyer's office and down the block to do business with a major business partner. Cities had what economists call "agglomeration economies." Now in the age of digital telecommunications, as Manuel Castells (p. 229) makes clear, information can travel almost instantly to anywhere in the world. Business professionals no longer need to walk next door to communicate with their lawyers or down the street to meet with a business partner: they can just phone, fax, e-mail, or video conference next door or to a remote location anywhere in the world, so long as the telecommunications infrastructure permits. Highly developed telecommunications infrastructure in global cities facilitates transmission of information in staggering quantities at lightning speed. International banks in Rio de Janeiro can bounce a year's worth of financial records to a New York bank via satellite in seconds.

Anticipating these trends, urban planning professor Melvin Webber prophesized more than three decades ago, in an article provocatively titled "The Post-City Age," that information technology would make space increasingly irrelevant and, as a consequence, cities would diminish in importance. But Sassen makes clear that has not happened, at least so far. Surveying the data, she notes that global cities such as New York, London, and Tokyo have actually grown in population, wealth, and power since the information revolution. And their status and importance continues to grow, not decline. On the other hand, many cities that historically once served as secondary corporate command and control centers are in economic decline as corporate power continues to concentrate in the most advanced global cities. Paris is growing in economic power and wealth; Marseilles is declining.

Sassen points out that production and retailing are becoming more dispersed. Many corporations design products at a headquarters location – perhaps (but not necessarily) in a global city like London. They contract with firms in a developing country like Malaysia to produce the products they have designed. And then they market the finished products worldwide. This kind of production process requires sophisticated support to manage dispersed and rapidly changing operations all over the world – lawyers familiar with British law, accountants who understand Malaysian accounting practices, and advertising executives sensitive to the cultural preferences of German consumers. Corporations rarely have the internal capacity to do all that. Instead they turn to networks of specialized firms located in global cities to provide the services they need.

Sassen questions the whole notion of "rich" countries and "rich" cities; places central to the world economy, and those that exist at the margin. She argues that economic inequality is sharply increasing – particularly in global cities at the center of the world economy. The opportunity for hyper-profits in international finance is creating extraordinary wealth for Wall Street bankers. But many of the low-paid janitors and file clerks who work on Wall Street were born in Third World countries and live in ethnic New York neighborhoods just a short distance away. In São Paulo, wealthy Brazilian nationals and expatriates earn salaries and participate in lifestyles more like those of wealthy New Yorkers than those of the people in São Paulo neighborhoods a few blocks from where they work. An important public policy question facing countries all over the world is how to promote economic equality and help more of their citizens benefit from the new world economic order.

Urban regions are also changing as a result of globalization and information technology. Sassen argues that economic activity within the metropolitan areas of global cities manifests a dynamic of both concentration and dispersion just as is occurring in the world system of cities. At the time that Ernest W. Burgess developed his concentric zone theory (p. 178), Chicago and many other cities had a distinct central business district (CBD) where intense economic activity was concentrated. In advanced metropolitan areas today there is often no longer a single, clearly demarcated CBD. Sassen believes four different models are emerging. In some cities something close to a classic CBD still exists. New York City's Wall Street area is an example. In others there is a new pseudo-CBD just outside the historic city center, such as the massive planned office complex named La Défense just outside the center of Paris. In other regions Sassen sees nodes of intense business activity emerging along "cyber routes" or "digital highways." Sassen points out that these spaces along which information flows often follow historic infrastructure for highways, high-speed rail lines, and airports. Twentieth-century infrastructure

appears to be shaping the spatial organization of twenty-first-century regions. Sassen also discerns agglomeration and centralization across physical space and within cyber-space – transterritorial centers of intense economic activity and centrality in electronically generated space.

Sassen's most recent book on global urbanism, a searing indictment of the devastating effects of unrestrained capitalism, is *Expulsions: Brutality and Complexity in the Global Economy* (Cambridge, MA: Belknap Press, 2014). Her books include *Territory, Authority, Rights: From Medieval to Global Assemblages* (Princeton, NJ: Princeton University Press, 2006), *Denationalization: Economy and Polity in a Global Digital Age* (Princeton, NJ: Princeton University Press, 2003), *Global Networks/Linked Cities* (New York and London: Routledge, 2002), *Guests and Aliens* (New York: New Press, 1999); *Globalization and Its Discontents*, co-authored with Anthony Appiah (New York: New Press, 1998), *Losing Control?: Sovereignty in an Age of Globalization* (New York: Columbia University Press, 1996), *Cities in a World Economy*, 3rd edn (Thousand Oaks, CA: Pine Forge Press, 2006), and *The Mobility of Labor and Capital: A Study in International Investment and Labor Flows* (New York: Cambridge University Press, 1988).

For an excellent set of readings on the impact of globalization on cities see Neil Brenner and Roger Keil (eds.), *The Global Cities Reader* (London and New York: Routledge, 2005). *The Urban Sociology Reader*, edited by Jan Lin and Christopher Lee (London and New York: Routledge, 2005), contains important materials on urbanization and global change, and Part III of Nicholas Fyfe and Judith Kenny's *The Urban Geography Reader* (London and New York: Routledge, 2005) discusses the impact of global economic and cultural restructuring on cities. J. John Palen's *The Urban World*, 8th edn (Boulder, CO: Paradigm Publishers, 2008) is a useful overview, and Stephen Graham (ed.), *The Cybercities Reader* (London and New York: Routledge, 2003), contains additional writings on how information technology is impacting cities.

Telecommunications and globalization have emerged as major forces shaping the organization of urban space. This reorganization ranges from the spatial virtualization of a growing number of social and economic activities to the reconfiguration of the geography of the built environment for these activities. Whether in electronic space or in the geography of the built environment, this reorganization involves a repositioning of the urban and of urban centrality in particular.

The growth of global markets for finance and specialized services, the need for transnational servicing networks due to sharp increases in international investment, the reduced role of the government in the regulation of international economic activity and the corresponding ascendance of other institutional arenas, notably global markets and corporate headquarters—all these point to the existence of a series of transnational networks of cities. We can see here the formation, at least incipient, of transnational urban systems. To a large extent it seems to me that the major business centers in the world today draw their importance from these transnational networks. There is no such thing as a single global city—and in this sense there is a sharp contrast with the erstwhile capitals of empires.

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WORLDWIDE NETWORKS AND CENTRAL COMMAND FUNCTIONS

The geography of globalization contains both a dynamic of dispersal and of centralization, the latter a condition that began receiving recognition only recently. The massive trends towards the spatial dispersal of economic activities at the metropolitan, national and global level which we associate with globalization have contributed to a demand for new forms of territorial centralization of top-level management and control operations. The rapid growth of affiliates illustrates this dynamic. By 1998 firms had about half a million affiliates outside their home countries. The sheer number of dispersed factories and service outlets that are part of a firm's integrated operation creates massive new needs for central coordination and servicing. Thus the spatial dispersal of economic activity made possible by telecommunications and the new legal frameworks for globalization contribute to an expansion of central functions if this dispersal is to take place under the continuing concentration in control, ownership and profit appropriation that characterizes the current economic system.

Another instance today of this negotiation between a global cross-border dynamic and territorially

specific sites is that of the global financial markets. The orders of magnitude in these transactions have risen sharply, as illustrated by the $75 U.S. trillion in turnover in the global capital market, a major component of the global economy. These transactions are partly embedded in telecommunications systems that make possible the instantaneous transmission of money/information around the globe. Much attention has been given to the capacity for instantaneous transmission of the new technologies. But the other half of the story is the extent to which the global financial markets are located in particular cities in the highly developed countries; indeed, the degrees of concentration are unexpectedly high, a subject I discuss empirically in a later section.

Stock markets worldwide have become globally integrated. Besides deregulation in the 1980s in all the major European and North American markets, the late 1980s and early 1990s saw the addition of such markets as Buenos Aires, São Paulo, Mexico City, Bangkok, Taipei, etc. The integration of a growing number of stock markets has contributed to raise the capital that can be mobilized through stock markets. Worldwide market value reached over 20 trillion dollars in 1998. . . .

The specific forms assumed by globalization over the last decade [i.e. since 1990] have created particular organizational requirements. The emergence of global markets for finance and specialized services, the growth of investment as a major type of international transaction, all have contributed to the expansion in command functions and in the demand for specialized services for firms.

By central functions I do not only mean top level headquarters; I am referring to all the top level financial, legal, accounting, managerial, executive, planning functions necessary to run a corporate organization operating in more than one country, and increasingly in several countries. These central functions are partly embedded in headquarters, but also in good part in what has been called the corporate services complex, that is, the network of financial, legal, accounting, advertising firms that handle the complexities of operating in more than one national legal system, national accounting system, advertising culture, etc. and do so under conditions of rapid innovations in all these fields. Such services have become so specialized and complex, that headquarters increasingly buy them from specialized firms rather than producing them in-house. These agglomerations of firms producing central functions for the management and coordination of global economic systems, are disproportionately concentrated in the highly developed countries—particularly, though not exclusively, in the kinds of cities I call global cities. . . . Such concentrations of functions represent a strategic factor in the organization of the global economy, and they are situated right here, in New York, in Paris, in Amsterdam.

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NEW FORMS OF CENTRALITY

Today there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, or the central business district. In the past, and up to quite recently in fact, the center was synonymous with the downtown or the CBD. Today, the spatial correlate of the center can assume several geographic forms. It can be the CBD, as it still is largely in New York City, or it can extend into a metropolitan area in the form of a grid of nodes of intense business activity, as we see in Frankfurt and Zurich. The center has been profoundly altered by telecommunications and the growth of a global economy, both inextricably linked; they have contributed to a new geography of centrality (and marginality). Simplifying, one could identify four forms assumed by centrality today. First, while there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, or the central business district as was the case in the past, the CBD remains a key form of centrality. But the CBD in major international business centers is one profoundly reconfigured by technological and economic change.

We may be seeing a difference in the pattern of global city formation in parts of the United States and in parts of Western Europe. In the United States, major cities such as New York and Chicago have large centers that have been rebuilt many times, given the brutal neglect suffered by much urban infrastructure and the imposed obsolescence so characteristic of U.S. cities. This neglect and accelerated obsolescence produce vast spaces for rebuilding the center according to the requirements of whatever regime of urban accumulation or pattern of spatial organization of the urban economy prevails at a given time. In Europe, urban centers are far more protected and they rarely contain significant stretches of abandoned space; the expansion of workplaces and the need for intelligent

buildings necessarily will have to take place partly outside the old centers. One of the most extreme cases is the complex of La Défense, the massive, state-of-the-art office complex developed right outside Paris to avoid harming the built environment inside the city. This is an explicit instance of government policy and planning aimed at addressing the growing demand for central office space of prime quality. Yet another variant of this expansion of the 'center' onto hitherto peripheral land can be seen in London's Docklands. Similar projects for recentralizing peripheral areas were launched in several major cities in Europe, North America, and Japan during the 1980s.

Second, the center can extend into a metropolitan area in the form of a grid of nodes of intense business activity. One might ask whether a spatial organization characterized by dense strategic nodes spread over a broader region does or does not constitute a new form of organizing the territory of the 'center', rather than, as in the more conventional view, an instance of suburbanization or geographic dispersal. Insofar as these various nodes are articulated through cyberroutes or digital highways, they represent a new geographic correlate of the most advanced type of 'center'. The places that fall outside this new grid of digital highways, however, are peripheralized. This regional grid of nodes represents, in my analysis, a reconstitution of the concept of region. Far from neutralizing geography the regional grid is likely to be embedded in conventional forms of communications infrastructure, notably rapid rail and highways connecting to airports. Ironically perhaps, conventional infrastructure is likely to maximize the economic benefits derived from telematics. I think this is an important issue that has been lost somewhat in discussions about the neutralization of geography through telematics.

Third, we are seeing the formation of a transterritorial 'center' constituted via telematics and intense economic transactions. . . . The most powerful of these new geographies of centrality at the interurban level binds the major international financial and business centers: New York, London, Tokyo, Paris, Frankfurt, Zurich, Amsterdam, Los Angeles, Sydney, Hong Kong, among others. But this geography now also includes cities such as São Paulo and Mexico City. The intensity of transactions among these cities, particularly through the financial markets, trade in services, and investment has increased sharply, and so have the orders of magnitude involved. At the same time, there has been a sharpening inequality in the concentration of strategic resources and activities between each of these cities and others in the same country. For instance, Paris now concentrates a larger share of leading economic sectors and wealth in France than it did fifteen years ago, while Marseilles, once a major economic hub, has lost its share and is suffering severe decline.

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Fourth, new forms of centrality are being constituted in electronically generated spaces. Electronic space is often read as a purely technological event and in that sense a space of innocence. But if we consider for instance that strategic components of the financial industry operate in such space we can see that these are spaces where profits are produced and power is thereby constituted. Insofar as these technologies strengthen the profit-making capability of finance and make possible the hyper-mobility of finance capital, they also contribute to the often devastating impacts of the ascendance of finance on other industries, on particular sectors of the population, and on whole economies. Cyberspace, like any other space can be inscribed in a multiplicity of ways, some benevolent or enlightening; others, not. My argument is that structures for economic power are being built in electronic space and that their highly complex configurations contain points of coordination and centralization.

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A CONCENTRATION AND THE REDEFINITION OF THE CENTER: SOME EMPIRICAL REFERENTS

The trend towards concentration of top-level management, coordination and servicing functions is evident at the national and international scales in all highly developed countries. For instance, the Paris region accounts for over 40% of all producer services in France, and over 80% of the most advanced ones. New York City is estimated to account for between a fourth and a fifth of all U.S. producer services exports though it has only 3% of the U.S. population. London accounts for 40% of all exports of producer services in the U.K. Similar trends are also evident in Zurich, Frankfurt, and Tokyo, all located in much smaller countries.

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In the financial district in Manhattan, the use of advanced information and telecommunication technologies has had a strong impact on the spatial organization of the district because of the added spatial requirements of 'intelligent' buildings. A ring of new office buildings meeting these requirements was built over the last decade immediately around the old Wall Street core, where the narrow streets and lots made this difficult; furthermore, renovating old buildings in the Wall Street core is extremely expensive and often not possible. The new buildings in the district were mostly corporate headquarters and financial services industry facilities. These firms tend to be extremely intensive users of telematics, and the availability of the most advanced forms typically is a major factor in their real estate and locational decisions. They need complete redundancy of telecommunications systems, high carrying capacity, often their own private branch exchange, etc. With this often goes a need for large spaces. For instance, the technical installations backing a firm's trading floor are likely to require additional space equivalent to the size of the trading floor itself.

The case of Sydney illuminates the interaction of a vast, continental economic scale and pressures towards spatial concentration. Rather than strengthening the multipolarity of the Australian urban system, the developments of the 1980s—increased internationalization of the Australian economy, sharp increases in foreign investment, a strong shift towards finance, real estate and producer services—contributed to a greater concentration of major economic activities and actors in Sydney. This included a loss of share of such activities and actors by Melbourne, long the center of commercial activity and wealth in Australia.

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THE INTERSECTION OF SERVICE INTENSITY AND GLOBALIZATION

To understand the new or sharply expanded role of a particular kind of city in the world economy since the early 1980s, we need to focus on the intersection of two major processes. The first is the sharp growth in the globalization of economic activity; this has raised the scale and the complexity of transactions, thereby feeding the growth of top-level multinational headquarter functions and the growth of advanced corporate services. It is important to note that even though globalization raises the scale and complexity of these operations, they are also evident at smaller geographic scales and lower orders of complexity, as is the case with firms that operate regionally. Thus while regionally oriented firms need not negotiate the complexities of international borders and the regulations of different countries, they are still faced with a regionally dispersed network of operations that requires centralized control and servicing.

The second process we need to consider is the growing service intensity in the organization of all industries. This has contributed to a massive growth in the demand for services by firms in all industries, from mining and manufacturing to finance and consumer services. Cities are key sites for the production of services for firms. Hence the increase in service intensity in the organization of all industries has had a significant growth effect on cities in the 1980s. It is important to recognize that this growth in services for firms is evident in cities at different levels of a nation's urban system. Some of these cities cater to regional or sub-national markets; others cater to national markets and yet others cater to global markets. In this context, globalization becomes a question of scale and added complexity.

The key process from the perspective of the urban economy is the growing demand for services by firms in all industries and the fact that cities are preferred production sites for such services, whether at the global, national, or regional level. As a result we see in cities the formation of a new urban economic core of banking and service activities that comes to replace the older typically manufacturing oriented core.

In the case of cities that are major international business centers, the scale, power, and profit levels of this new core suggest that we are seeing the formation of a new urban economy. This is so in at least two regards. First, even though these cities have long been centers for business and finance, since the late 1970s there have been dramatic changes in the structure of the business and financial sectors, as well as sharp increases in the overall magnitude of these sectors and their weight in the urban economy. Second, the ascendance of the new finance and services complex, particularly international finance, engenders what may be regarded as a new economic regime, that is, although this sector may account for only a fraction of the economy of a city, it imposes itself on that larger economy. Most notably, the possibility for superprofits in finance has the effect of devalorizing manufacturing insofar as the latter cannot generate

the super-profits typical in much financial activity. This is not to say that everything in the economy of these cities has changed. On the contrary, they still show a great deal of continuity and many similarities with cities that are not global nodes. Rather, the implantation of global processes and markets has meant that the internationalized sector of the economy has expanded sharply and has imposed a new valorization dynamic—that is, a new set of criteria for valuing or pricing various economic activities and outcomes. This has had devastating effects on large sectors of the urban economy. High prices and profit levels in the internationalized sector and its ancillary activities, such as top-of-the-line restaurants and hotels, have made it increasingly difficult for other sectors to compete for space and investments. Many of these other sectors have experienced considerable downgrading and/or displacement, as, for example, neighborhood shops tailored to local needs are replaced by upscale boutiques and restaurants catering to new high-income urban elites.

Though at a different order of magnitude, these trends also became evident during the late 1980s in a number of major cities in the developing world that have become integrated into various world markets: São Paulo, Buenos Aires, Bangkok, Taipei, and Mexico City are only a few examples. Also here the new urban core was fed by the deregulation of financial markets, ascendance of finance and specialized services, and integration into the world markets. The opening of stock markets to foreign investors and the privatization of what were once public sector firms have been crucial institutional arenas for this articulation. Given the vast size of some of these cities, the impact of this new core on the broader city is not always as evident as in central London or Frankfurt, but the transformation is still very real.

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The formation of a new production complex

According to standard conceptions about information industries, the rapid growth and disproportionate concentration of producer services in central cities should not have happened. Because they are thoroughly embedded in the most advanced information technologies, producer services could be expected to have locational options that bypass the high costs and congestion typical of major cities. But cities offer agglomeration economies and highly innovative environments. The growing complexity, diversity, and specialization of the services required have contributed to the economic viability of a freestanding specialized service sector.

The production process in these services benefits from proximity to other specialized services. This is especially the case in the leading and most innovative sectors of these industries. Complexity and innovation often require multiple highly specialized inputs from several industries. The production of a financial instrument, for example, requires inputs from accounting, advertising, legal expertise, economic consulting, public relations, designers, and printers. The particular characteristics of production of these services, especially those involved in complex and innovative operations, explain their pronounced concentration in major cities. The commonly heard explanation that high-level professionals require face-to-face interactions needs to be refined in several ways. Producer services, unlike other types of services, are not necessarily dependent on spatial proximity to the consumers, i.e. firms, served. Rather, economies occur in such specialized firms when they locate close to others that produce key inputs or whose proximity makes possible joint production of certain service offerings. The accounting firm can service its clients at a distance, but the nature of its service depends on proximity to specialists, lawyers, programmers. Moreover, concentration arises out of the needs and expectations of the people likely to be employed in these new high-skill jobs, who tend to be attracted to the amenities and lifestyles that large urban centers can offer. Frequently, what is thought of as face-to-face communication is actually a production process that requires multiple simultaneous inputs and feedbacks. At the current stage of technical development, immediate and simultaneous access to the pertinent experts is still the most effective way, especially when dealing with a highly complex product. The concentration of the most advanced telecommunications and computer network facilities in major cities is a key factor in what I refer to as the production process of these industries.

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This combination of constraints suggests that the agglomeration of producer services in major cities actually constitutes a production complex. This producer services complex is intimately connected to the world of corporate headquarters; they are often

thought of as forming a joint headquarters-corporate services complex. But in my reading, we need to distinguish the two. Although it is true that headquarters still tend to be disproportionately concentrated in cities, over the last two decades [i.e. since 1980] many have moved out. Headquarters can indeed locate outside cities, but they need a producer services complex somewhere in order to buy or contract for the needed specialized services and financing. Further, headquarters of firms with very high overseas activity or in highly innovative and complex lines of business tend to locate in major cities. In brief, firms in more routinized lines of activity, with predominantly regional or national markets, appear to be increasingly free to move or install their headquarters outside cities. Firms in highly competitive and innovative lines of activity and/or with a strong world market orientation appear to benefit from being located at the center of major international business centers, no matter how high the costs.

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The region in the global information age

The massive use of telematics in the economy and the corresponding possibility for geographic dispersal and mobility of firms suggest that the whole notion of regional specialization and of the region may become obsolete. But there are indications that, as is the case for large cities, so also for regions the hypermobility of information industries and the heightened capacity for geographic dispersal may be only part of the story. The evidence on regional specialization in the U.S. and in other highly developed countries along with new insights into the actual work involved in producing these services point to a different set of outcomes.

What is important from the perspective of the region is that the existence of, for instance, a producer services complex in the major city or cities in a region creates a vast concentration of communications infrastructure which can be of great use to other economic nodes in that region. Such nodes can (and do) connect with the major city or cities in a region and thereby to a worldwide network of firms and markets. The issue from the regional perspective is, then, that somewhere in its territory the region connects with state-of-the- art communication facilities which connect it with the world and which bring foreign firms from all over the world to the region. Given a regional grid of economic nodes, the benefits of this concentration in the major city or cities are no longer confined only to firms located in those cities.

Secondly, given the nature of the production process in advanced information industries, as described in the preceding section, the geographic dispersal of activities has limits. The importance of actual face-to-face transactions means that a metropolitan or regional network of firms will need conventional communications infrastructure, e.g. highways or rapid rail, and locations not farther than something like two hours. One of the ironies of the new information technologies is that to maximize their use we need access to conventional infrastructure. In the case of international networks it takes airports and planes; and in the case of metropolitan or regional networks, trains and cars.

The importance of conventional infrastructure in the operation of economic sectors that are heavy users of telematics has not received sufficient attention. The dominant notion seems to be that telematics obliterates the need for conventional infrastructure. But it is precisely the nature of the production process in advanced industries, whether they operate globally or nationally, which contributes to explain the immense rise in business travel we have seen in all advanced economies over the last decade [i.e. since 1990], the new electronic era. The virtual office is a far more limited option than a purely technological analysis would suggest. Certain types of economic activities can be run from a virtual office located anywhere. But for work processes requiring multiple specialized inputs, considerable innovation and risk taking, the need for direct interaction with other firms and specialists remains a key locational factor. Hence the metropolitanization and regionalization of an economic sector has boundaries that are set by the time it takes for a reasonable commute to the major city or cities in the region. The irony of today's electronic era is that the older notion of the region and older forms of infrastructure re-emerge as critical for key economic sectors. This type of region in many ways diverges from older forms of region. It corresponds rather to the second form of centrality posited above in this paper—a metropolitan grid of nodes connected via telematics. But for this digital grid to work, conventional infrastructure—ideally of the most advanced kind—is also a necessity.

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THE INTERSECTION BETWEEN ACTUAL AND DIGITAL SPACE

There is a new topography of economic activity, sharply evident in this subeconomy. This topography weaves in and out between actual and digital space. There is today no fully virtualized firm or economic sector. Even finance, the most digitalized, dematerialized and globalized of all activities has a topography that weaves back and forth between actual and digital space. To different extents in different types of sectors and different types of firms, a firm's tasks now are distributed across these two kinds of spaces; further the actual configurations are subject to considerable transformation as tasks are computerized or standardized, markets are further globalized, etc. More generally, telematics and globalization have emerged as fundamental forces reshaping the organization of economic space.

The question I have for architects here is whether the point of intersection between these two kinds of spaces in a firm's or a dynamic's topography of activity, is one worth thinking about, theorizing, exploring. This intersection is unwittingly, perhaps, thought of as a line that divides two mutually exclusive zones. I would propose, again, to open up this line into an 'analytic borderland' which demands its own empirical specification and theorization, and contains its own possibilities for architecture. The space of the computer screen, which one might posit as one version of the intersection, will not do, or is at most a partial enactment of this intersection.

What does contextuality mean in this setting? A networked subeconomy that operates partly in actual space and partly in globe-spanning digital space cannot easily be contextualized in terms of its surroundings. Nor can the individual firms. The orientation is simultaneously towards itself and towards the global. The intensity of its internal transactions is such that it overrides all considerations of the broader locality or region within which it exists. On another, larger scale, in my research on global cities I found rather clearly that these cities develop a stronger orientation towards the global markets than to their hinterlands. Thereby they override a key proposition in the urban systems literature, to wit, that cities and urban systems integrate, articulate national territory. This may have been the case during the period when mass manufacturing and mass consumption were the dominant growth machines in developed economies and thrived on the possibility of a national scale. But it is not today with the ascendance of digitalized, globalized, dematerialized sectors such as finance. The connections with other zones and sectors in its 'context' are of a special sort—one that connects worlds that we think of as radically distinct. For instance, the informal economy in several immigrant communities in New York provides some of the low-wage workers for the 'other' jobs on Wall Street, the capital of global finance. The same is happening in Paris, London, Frankfurt, Zurich . . .

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CONCLUSION

Economic globalization and telecommunications have contributed to produce a spatiality for the urban that pivots on cross-border networks and territorial locations with massive concentrations of resources. This is not a completely new feature. Over the centuries cities have been at the crossroads of major, often worldwide, processes. What is different today is the intensity, complexity and global span of these networks, the extent to which significant portions of economies are now dematerialized and digitalized and hence the extent to which they can travel at great speeds through some of these networks, and, thirdly, the numbers of cities that are part of cross-border networks operating at vast geographic scales.

The new urban spatiality thus produced is partial in a double sense: it accounts for only part of what happens in cities and what cities are about, and it inhabits only part of what we might think of as the space administrative boundaries or in the sense of a city's public imaginary. What stands out, however, is the extent to which the city remains an integral part of these new configurations.