
Impacts of Information Technologies on Urban Economies and Politics*

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Economic globalization and telecommunications have contributed to produce a spatiality for the urban which pivots on de-territorialized 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 intersection of processes with supra-urban and even intercontinental scalings. What is different today is the intensity, complexity and global span of these networks, and the extent to which significant portions of economies are now dematerialized and digitalized and hence can travel at great speeds through these networks. Also new is the growing use of digital networks by often poor neighborhood organizations to pursue a variety of both intra-urban and interurban political initiatives. All of this has raised the number of cities that are part of cross-border networks operating at often vast geographic scales. Under these conditions, much of what we experience and represent as the local turns out to be a micro-environment with global span.

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 of the city, whether this be understood in terms as diverse as those of a city's administrative boundaries or in the sense of the multiple public imaginaries that may be present in different sectors of a city's people.¹

Below I unpack some of the elements that condition this complex pivoting on cross-border networks and territorial localizations, focusing particularly on the urban economy and on the new types of place-centered politics of the global that we see emerging.

New interactions between capital fixity and hypermobility

Information technologies have not eliminated the importance of massive concentrations of material resources but have, rather, reconfigured the interaction of capital fixity and hypermobility. The complex management of this interaction has given some cities a new competitive advantage. The vast new economic topography that is being implemented through electronic space is one moment, one fragment, of an even vaster economic chain that is in good part embedded in non-electronic spaces. There is today no fully virtualized firm or economic sector. Even finance, the most digitalized, dematerialized and

* This article is based on the author's updated edition of *The global city* (2001b).

1 There is by now an enormous literature on the various aspects and implications of these and other new developments which it is impossible to cite in such a short piece. See, e.g., Corbridge *et al.* (1994), Castells (1996), Allen *et al.* (1999), Low (1999), Marcuse and van Kempen (2000), Yeung (2000).

globalized of all activities has a topography that weaves back and forth between actual and digital space.² 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 and so on.

Let me select the following three issues for discussion.

The importance of social connectivity and central functions

First, while the new telecommunications technologies do indeed facilitate geographic dispersal of economic activities without losing system integration, they have also had the effect of strengthening the importance of central coordination and control functions for firms and for markets. Major centers have massive concentrations of state-of-the-art resources that allow them to maximize the benefits of telecommunications and to govern the new conditions for operating globally. Even electronic markets rely on traders and banks which are located somewhere; for instance, Frankfurt's electronic futures market is actually embedded in a global network of financial centers, each of which concentrates resources that are necessary for Frankfurt's market to thrive.

One proposition I derive from this mix of variables is that organizational complexity is a key condition necessary for a firm or market to maximize the benefits it can derive from the new information technologies. It is not enough to have the infrastructure. It also takes a mix of other resources: state-of-the-art material and human resources, and the social networks that maximize connectivity. Much of the value added by these technologies for advanced service firms and advanced markets represents a new type of urbanization economy insofar as it depends on conditions external to the firms and markets themselves and to the technologies as such.

A second fact that is emerging with greater clarity concerns the meaning of 'information'. There are two types of information that matter to advanced services firms. One is the datum, which may be complex but comes in the form of standardized information easily available to these firms: e.g. the details of a privatization in a particular country. The second type of information is far more difficult to obtain because it is not standardized. It requires interpretation/evaluation/judgment. It entails negotiating a series of data and a series of interpretations of a mix of data in the hope of producing a higher order type of information. Access to the first kind of information is now global and immediate thanks to the digital revolution. But it is the second type of information that requires a complicated mixture of elements, not only technical but also social — what we could think of as the social infrastructure for global connectivity. It is this type of social infrastructure which gives major financial centers a strategic role. In principle, the technical infrastructure for connectivity can be reproduced anywhere, but not the social connectivity.

When the more complex forms of information needed to execute major international deals cannot be obtained from existing data bases, no matter what one can pay, then one needs the social information loop and the associated de facto interpretations and inferences that come with bouncing off information among talented, informed people.³ The process of making inferences/interpretations into 'information' takes quite a mix of talents and resources.⁴

2 Another angle into these issues came out of the annual Aspen Roundtable on Electronic Commerce (1998), that brings together the CEOs of the main software and hardware firms as well as the key venture capitalists in the sector; the overall sense of these insiders was one of considerable limits to the medium and that it will not simply replace other types of markets but rather produce new kinds of complementarities.

3 It is the importance for firms and markets of this complex type of 'information' that has given a whole new importance to credit-rating agencies, for instance. Part of the rating has to do with interpreting and inferring. When this interpreting becomes 'authoritative', it becomes 'information' available to all.

4 Risk management, for example, which has become crucial with globalization due to the growing complexity and uncertainty that comes with operating in multiple countries and markets, requires enormous fine tuning

In brief, urban centers provide the mix of resources and the social connectivity which allow a firm or market to maximize the benefits of its technical connectivity.

The spatialities of the center

The combination of the new capabilities for mobility along with patterns of concentration and operational features of the cutting-edge sectors of advanced economies suggests that spatial concentration remains a key feature of these sectors. But it is not simply a continuation of older patterns of spatial concentration. Today there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, or the central business district (CBD). In the past, and up to quite recently in fact, centrality was synonymous with the downtown or the CBD. The new technologies and organizational forms have altered the spatial correlates of centrality.⁵

Information technologies have had a sharp effect on the spatial organization of economic activity. But this effect is not uniform: the locational options of firms vary considerably. It is not simply a matter of reducing the weight of place. The scattered evidence for the last decade, which saw the widespread use of information technologies by firms in a broad range of sectors, allows us to identify three types of firms in terms of their locational patterns. First, firms with highly standardized products/services see an increase in their locational options insofar as they can maintain system integration no matter where they are located. This might also hold for firms with specialized products/services that do not require elaborate contracting and subcontracting or suppliers networks, all conditions which tend to make an urban location more efficient. Data entry and simple manufacturing work can be moved to wherever labor and other costs might be lowest. Headquarters can move out of large cities and to suburban locations or small towns.

A second locational pattern is that represented by firms which are deeply involved in the global economy and hence have increasingly complex headquarters' functions. Perhaps ironically, the complexity of headquarters' functions is such that they get outsourced to highly specialized service firms. This frees up the headquarters to locate anywhere so long as they can access a highly specialized networked service sector somewhere, most likely in a city. The third locational pattern is that evident in highly specialized networked service sectors. It is these sectors, rather than the headquarters, that benefit from spatial agglomeration at the point of production. These firms are embedded in intense transactions with other such firms in kindred specializations and are subject to time pressures and the constraints of imperfect information discussed in the preceding section. Along with some of the features contributing to agglomeration advantages in financial services firms, this has the effect of rendering the network of specialized service firms more place-bound than the hypermobility of their products and of their professionals would indicate.

Given the differential impacts of the capabilities of the new information technologies on specific types of firms and of sectors of the economy, the spatial correlates of the 'center' can assume several geographic forms, likely to be operating simultaneously at the macro-level. Thus, the center can be the CBD, as it still largely is for some of the leading

of central operations. We now know that many, if not most, major trading losses unrelated to financial crises over the last decade have involved human error or fraud. The quality of risk management will depend heavily on the top people in a firm rather than simply on technical conditions, such as electronic surveillance. Consolidating risk management operations in one site, usually a central one for the firm, is now seen generally as more effective. We have seen this in the case of several major banks: Chase and Morgan Stanley DeanWitter in the US, Deutsche Bank and Credit Suisse in Europe.

5 Several of the organizing hypotheses in the global-city model concern the conditions for the continuity of centrality in advanced economic systems in the face of major new organizational forms and technologies that maximize the possibility for geographic dispersal (see the introduction in Sassen, 2001b; for a variety of perspectives see, e.g., Salomon, 1996; Moulaert and Scott, 1997; Landrieu *et al.*, 1998).

sectors, notably finance, or an alternative form of CBD, such as Silicon Valley. Yet even as the CBD in major international business centers remains a strategic site for the leading industries, it is one profoundly reconfigured by technological and economic change (Ciccolella and Mignaqui, 2001; Fainstein, 2001; Schiffer Ramos, 2001). Further, there are often sharp differences in the patterns assumed by this reconfiguring of the central city in different parts of the world, notably as between the United States and western Europe (e.g. Kunzmann, 1994; Hitz *et al.*, 1995; Veltz, 1996).

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, in fact, 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 digital networks, they represent a new geographic correlate of the most advanced type of 'center'. This is a partly deterritorialized space of centrality.⁶

Third, we are seeing the formation of a transterritorial 'center' constituted via intense economic transactions in the network of global cities. These transactions take place partly in digital space and partly through conventional transport and travel. The result is a multiplication of often highly specialized circuits connecting sets of cities. These networks of major international business centers constitute new geographies of centrality. The most powerful of these new geographies of centrality at the global 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 Bangkok, Seoul, Taipei, Sao Paulo, Mexico City. In the case of a complex landscape such as Europe's, we see, in fact, several geographies of centrality, one global, others continental and regional.⁷

Fourth, new forms of centrality are being constituted in electronically generated spaces. For instance, strategic components of the financial industry operate in such spaces. The relation between digital and actual space is complex and varies among different types of economic sectors (see Sassen, 2001a; Graham, 2001).

What does contextuality mean in this setting?

These networked sub-economies operating partly in actual space and partly in globe-spanning digital space cannot easily be contextualized in terms of their surroundings. Nor can the individual firms and markets. The orientation of this type of sub-economy is simultaneously towards itself and towards the global. The intensity of internal transactions in such a sub-economy (whether global finance or cutting edge high-tech sectors) is such that it overrides all considerations of the broader locality or urban area within which it exists.

On another, larger scale, in my research on global cities I found rather clearly that

6 This regional grid of nodes represents, in my analysis, a reconstitution of the concept of region. Further, it should not be confused with the suburbanization of economic activity. I conceive of it as a space of centrality partly located in older socioeconomic geographies, such as that of the suburb or the larger metropolitan region, yet distinct precisely because it is a space of centrality. Far from neutralizing geography, the regional grid is likely to be embedded in conventional forms of communication 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. For an exception, see Peraldi and Perrin (1996), Landrieu *et al.* (1998) and Scott *et al.* (2001).

7 Methodologically, I find it useful to unpack these intercity transactions into the specific, often highly specialized circuits that connect particular sets of cities. For instance, when examining futures markets, the set of cities includes Sao Paulo and Kuala Lumpur. These two cities fall out of the picture when examining the gold market; this market, on the other hand, includes Johannesburg and Sydney.

these sub-economies 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 and 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 national scalings of economic processes. Today, the ascendance of digitalized, globalized, dematerialized sectors such as finance has diluted that articulation with the larger national economy and the immediate hinterland and created world-market oriented sub-economies.

The articulation of these sub-economies with other zones and sectors in their immediate sociospatial surroundings are of a special sort. There are the various highly priced services that cater to the workforce, from up-scale restaurants and hotels to luxury shops and cultural institutions, typically part of the sociospatial order of these new sub-economies. But there are also various low-priced services that cater to the firms and to the households of the workers and which rarely 'look' like they are part of the advanced corporate economy. The demand by firms and households for these services actually links two worlds that we think of as radically distinct. It is particularly a third instance that concerns me here, the large portions of the urban surrounding that have little connection to these world-market oriented sub-economies, even though physically proximate. It is these that engender a question about context and its meaning when it comes to these sub-economies.

What then is the 'context', the local, here? The new networked sub-economy occupies a strategic geography, partly deterritorialized, that cuts across borders and connects a variety of points on the globe. It occupies only a fraction of its 'local' setting; its boundaries are not those of the city where it is partly located, nor those of the 'neighborhood'. This sub-economy functions as an intermediary institutional order between the vast concentration of very material resources it needs when it hits the ground and the fact of its global span or cross-border geography. Its interlocutor is not the surrounding, the context, but the fact of the global.

I am not sure what this tearing away of the context and its replacement with the fact of the global could mean for urban practice and theory. The strategic operation is not the search for a connection with the 'surroundings', the context. It is, rather, installation in a strategic cross-border geography constituted through multiple 'locals'. In the case of the economy, I see a re-scaling: old hierarchies — local, regional, national, global — do not hold. Going to the next scale in terms of size is no longer how integration is achieved. The local now transacts directly with the global — the global installs itself in locals and the global is itself constituted through a multiplicity of locals.

A politics of places on global circuits

Digital networks are also contributing to the production of counter-geographies of globalization. As is the case with global corporate firms, these counter-geographies can be constituted at multiple scales. Digital networks can be used by political activists for global or non-local transactions and they can be used for strengthening local communications and transactions inside a city. Recovering how the new digital technology can serve to support local initiatives and alliances across a city's neighborhoods (see, e.g., Eade, 1996; Lovink and Riemens, 2001) is extremely important in an age where the notion of the local is often seen as losing ground to global dynamics and actors.

I conceptualize these 'alternative' networks as counter-geographies of globalization because they are deeply imbricated with some of the major dynamics constitutive of globalization yet are not part of the formal apparatus or of the objectives of this apparatus:

the formation of global markets, the intensifying of transnational and translocal networks, the development of communication technologies which easily escape conventional surveillance practices. The strengthening and, in some of these cases, the formation of new global circuits are embedded or made possible by the existence of a global economic system and its associated development of various institutional supports for cross-border money flows and markets.⁸ These counter-geographies are dynamic and changing in their locational features. And they include a very broad range of activities, including a proliferation of criminal activities.

Through the Internet, local initiatives become part of a global network of activism without losing the focus on specific local struggles. It enables a new type of cross-border political activism, one centered in multiple localities yet intensely connected digitally. Activists can develop networks for circulating not only information (about environmental, housing, political issues etc.) but also political work and strategies. There are many examples of such a new type of cross-border political work. For instance, SPARC, started by and centered on women, began as an effort to organize slum dwellers in Bombay to get housing. Now it has a network of such groups throughout Asia, and some cities in Latin America and Africa. This is one of the key forms of critical politics that the Internet can make possible: a politics of the local with a big difference — these are localities that are connected with each other across a region, a country or the world. Because the network is global does not mean that it all has to happen at the global level.

Current uses of digital media in this new type of cross-border political activism suggest, very broadly, two types of digital activism: one that consists of actual city-centered — or rural-community centered, for that matter — activist groups who connect with other such groups around the world. The second type of digital network centered politics is one that does most of its work in the digital network and then may or may not converge on an actual terrain for activism, as was the case of Seattle with the WTO meeting. Much of the work and the political effort is centered on the transactions in the digital network. Organizing against the Multilateral Agreement on Investment was largely a digital event. But when these digital political actions hit the ground, they can do so very effectively, especially in the concentrated places that cities are.

The large city of today, especially the global city, emerges as a strategic site for these new types of operations. It is a strategic site for global corporate capital. But it is also one of the sites where the formation of new claims by informal (or as yet not formalized) political actors materializes and assumes concrete forms. The loss of power at the national level produces the possibility of new forms of power and politics at the subnational level. The national as container of social process and power is cracked (e.g. Taylor, 2000). This cracked casing opens up possibilities for a political geography that links subnational spaces and allows non-formal political actors to engage strategic components of global capital.

The cross-border network of global cities is a space where we are seeing the formation of new types of 'global' politics of place which contest corporate globalization. The demonstrations by the anti-globalization network have signaled the potential for developing a politics centered on places understood as locations in global networks. This is a place-specific politics with global span. It is a type of political work deeply embedded in people's actions and activities but made possible partly by the existence of global digital linkages. Further, it is a form of political and institution-building work centered in cities and networks of cities and in non-formal political actors. We see here the potential transformation of a whole range of 'local' conditions or institutional domains (such as the household, the community, the neighborhood, the local school and health-care entities) where women 'confined' to domestic roles, for instance, remain the key actors. From being lived or experienced as non-political, or domestic, these places are transformed into 'micro-environments with global span'.

8 I have argued this for the case of international labor migrations (e.g. Sassen, 1998: chapters 2, 3 and 4).

What I mean by this term is that technical connectivity will create a variety of links with other similar local entities in other neighborhoods in the same city, in other cities, in neighborhoods and cities in other countries. A community of practice can emerge that creates multiple lateral, horizontal communications, collaborations, solidarities, supports. This can enable local political or non-political actors to enter into cross-border politics.

The space of the city is a far more concrete space for politics than that of the nation (Isin, 2000; Sassen, 2000). It becomes a place where non-formal political actors can be part of the political scene in a way that is much more difficult at the national level. Nationally, politics needs to run through existing formal systems: whether the electoral political system or the judiciary (taking state agencies to court). Non-formal political actors are rendered invisible in the space of national politics. The space of the city accommodates a broad range of political activities — squatting, demonstrations against police brutality, fighting for the rights of immigrants and the homeless, the politics of culture and identity, gay and lesbian and queer politics. Much of this becomes visible on the street. Much of urban politics is concrete, enacted by people rather than dependent on massive media technologies. Street-level politics makes possible the formation of new types of political subjects that do not have to go through the formal political system.

It is in this sense that those who lack power, those who are disadvantaged, outsiders, discriminated minorities, can gain presence in global cities, presence vis-à-vis power and presence vis-à-vis each other (Sassen, 1998: Chapter 1). This signals, for me, the possibility of a new type of politics centered in new types of political actors. It is not simply a matter of having or not having power. These are new hybrid bases from which to act.

In this broader and richer context, the political uses of digital technologies can become embedded in the local. As a politics this is clearly partial, but could be an important building block of the mobilization for global justice and for demanding accountability from global corporate power. We are seeing the emergence of a denationalized politics centered on cities and operating in global networks of cities. This is a kind of politics of the global that does not need to go through some sort of world state or the supranational level. On the contrary, it runs through places yet engages the global. It would construct a counter-geography of globalization. We may be just at the beginning of this process.

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