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## Symposium: Flows and Filters: The Politics of ICT Regions in a Global Economy

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## SYMPOSIUM

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# Flows and Filters: The Politics of ICT Regions in a Global Economy

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and MATTHEW A. ZOOK

Since the 1980s, the world economy has been transformed into a global economy that operates in real time as a single unit on a planetary scale (Castells, 1997). This global economy is characterized by an increasing flow of goods, services, capital, ideas, and to a more limited extent, labour, facilitated by information and communications technologies (ICTs). At the same time, ICTs have also accounted for growing shares of world trade, investment and consumption (Freeman and Louca, 2002). In the 1990s, trade in ICTs grew at almost twice the rate of total trade, which itself almost doubled over that period, and technological standards became increasingly globally integrated (OECD, 2002). If the 1990s was the era of the 'globalization project' (McMichael, 1996), then ICT was the 'project team leader', with a freewheeling, market-led image of 'Silicon Valley' becoming the symbol of a 'new' economy (Kelly, 1998).

Even if the exuberance about a 'new' economy is historically and analytically not justified (Varian and Shapiro, 1998), in spatial terms, the 'new' economy is new to the extent that it has witnessed the emergence of certain regions, hitherto considered a part of the global 'periphery', as key nodes of production. At the same time, informational capitalism is not different from earlier forms of capitalism. It too is characterized by uneven geographies, where select nodes are tied into a global network for the production of goods and services. However, while an abstract rationale of capitalist accumulation can be offered for the integration of these nodes into the global economy, the norms and forms of production in these nodes are hardly identical, as the global flows are filtered in specific ways in different locations by differing institutional structures. Or, more concretely, as Sassen (2001: 190, 192) argues, any analysis of cross-border processes that is limited to international trade and investment will produce a 'rather empirically and theoretically "thin" account' of the ways in which 'the global economy needs to be implemented, reproduced, serviced, financed'.

In other words, an analytically nuanced account of the changes to the world economy must not only acknowledge the new 'techno-economic paradigm', or the constellation of technological innovations and institutional structures that provide the basis for new global processes of capital accumulation, it must also acknowledge that there is considerable variation in institutional structures, i.e. global regions are a 'glocal' project (Brenner, 1998). It is this project that is the focus of this symposium. Drawing on three empirically diverse cases (Silicon Valley, Ireland and Bangalore, India), the authors (Matthew Zook, Sean Ó Riain and Balaji Parthasarathy, respectively) present two key ideas.

## **ICT producing regions are characterized by multiple external connections that evolve and shape the potential of regional development**

Existing studies of ICT regions as ‘industrial districts’ conceptualize them as distinctive social and territorial spaces whose decentralized institutional structures and networks of local social relations enable the elements of the local industrial system to disaggregate and recombine quickly to meet the challenges of demand uncertainty and technological change (Saxenian, 1994; Storper, 1997; Scott, 1998). However, studies of industrial districts analyse the global economy as the context within which these regions compete, not as a complex set of external connections that can powerfully shape how regions develop. Although the literature may recognize that these global connections exist, it rarely analyses the evolution of these global connections and how they shape, and are shaped by, the characteristics of the local industrial system.

The three cases, while accepting the territorialization of social relations in regional agglomerations as an important aspect of adapting to demand uncertainty and technological change, also consider how the character of the major connections between each region and the global economy affect the regional industrial system. Thus, the cases are a study of the development of the local from within global connections — rather than a study of local systems of innovation that then go global by selling in global markets.

Each region started from a set of global connections, in part luck and in part policy, which shaped future development. Silicon Valley has remained within the ‘core’ (hub) of the international ICT industry but has shifted from a position of dominance in international markets to a position at the centre of a global system of innovation, organized through an international network of regions. This has happened in at least two ways: (1) the industry’s locally available tacit knowledge, that is not easily transferred across time and space, and access to fluid capital markets, has given the venture capital (VC) community the ability to draw talent and ideas from the world over to the Valley and nurture them there; (2) the Valley draws on the capabilities of regions in countries such as Ireland and India for various aspects of software development as part of a global technology-driven commodity chain.

Ireland and India built an initial set of connections to the US, and particularly Silicon Valley, to enter the international division of labour in the ICT industry. But as the initial connections were built upon to foster newer connections, their position in the division of labour has changed. Ireland began by relying on investment by multinational corporations (MNCs) in the 1960s. But, in the 1980s, it also decided to encourage the now vibrant indigenous sector by attracting its skilled expatriates and by drawing on financial support from the European Union. The indigenous sector, besides being relatively independent of the foreign sector, also works in new technology and product areas. India’s initial connections to Silicon Valley in the 1980s were through labour contracting relationships established by indigenous firms. In the 1990s, with the provision of the necessary data communications infrastructure, India laid the basis for an offshore industry centred on Bangalore. Offshore software development was driven not only by domestic firms, but also by a large number of MNCs and by expatriates, mostly from the US. As a result, the Indian industry upgraded its position in the international division of labour from a mere supplier of skilled bodies to a provider of systems integration and product development services, to emerge as the largest non-OECD exporter of software by the turn of the millennium.

## **Integrating the global and the local is constituted as an ongoing 'place making project', necessitating attention to the institutions and the politics shaping ICT-based regional development**

A critical element in regional 'upgrading' within the international division of labour is the fostering of local, territorialized dynamics of production, innovation and growth as social-economic and political projects around multiple external connections. Local and global actors are mobilized together into a regional system of production and innovation. But even as global actors and resources are drawn, whether through migration, transnational technical communities, interfirm relationships, foreign investment or other means, into regional projects, local actors too become integrated into international alliances. Such alliances are likely to lead local actors to define their interests increasingly in terms independent of the fortunes of the region. The more successful the region becomes, and the more deeply integrated it becomes into an international network of regions, integrating local and global actors into a regional system of production and innovation can give rise to many problems. The problems range from ensuring social reproduction, by providing physical infrastructure and sustaining labour supply, amidst volatile capital flows, to managing conflicts arising from growing occupational and interregional inequality. These problems present a dilemma: while they are politically too sensitive to be ignored, they must be addressed in a manner that does not isolate the region in the global economy. The region is therefore not a fixed entity that can be implemented as a policy measure, but a project that is continuously under construction and subject to transformation.

Although the literature points to the initial impact of various public and quasi-public institutions on the early development of ICT regions, the cases demonstrate that the institutional framework of the region — its associations, educational institutions, support industries and state agencies — continuously shape local strategies of social and organizational integration of the local and the global, i.e. that politics are much more pervasive than simply as a catalyst for assisting the regions to gain entry into the international division of labour.

In Silicon Valley, VCs play a critical coordinating role in integrating international connections into a distinctive regional culture and distributing resources to firms to shape the trajectories of economic development. They select promising technologies and industries, find and evaluate firms, and assist portfolio firms. But even in this supposedly freewheeling, market-driven region (although the state plays a significant, if low-profile, role by, for instance, providing the legal infrastructure for VCs or building the physical infrastructure such as the internet), what determines regional innovation is the politics of 'know-who': it really matters who the VCs know, thus posing a challenge for those who are socially not connected to these networks of tacit knowledge to find backers for their technology, however good it may be.

The Irish and the Indian cases demonstrate that far from receding into insignificance after playing a crucial role in facilitating entry into the international division of labour, states and their roles change with time to filter the global connections in specific ways locally. The Irish state initially courted foreign investors by providing them with a range of incentives through the Industrial Development Authority (IDA). This led to the growth of a MNC-led software localization industry with a supplier network to support it and, later, a software services industry. Subsequently, in the 1980s, following a recession and public pressure, the state initiated efforts that have created an innovative, thriving domestic industry. Since these efforts included upgrading telecommunications, expanding engineering education and creating a range of centres of innovation, providing R&D funding and stimulating VC investment, the links between the indigenous industry and the state are distinct from those that link the MNCs to the IDA. The challenge for Ireland's commitment to the global project, which goes beyond watching out for lower-cost competitors, is retaining its indigenous industry, as the technologies and products developed by it are widely sought after.

The Indian case illustrates the tensions accompanying globalization even more acutely. Changes to the character of the Indian state allowed it to encourage an indigenous software industry by removing many of the regulations that characterized the autarkic, import substitution-led industrialization regime until the mid-1980s. The early efforts expanded to a more proactive role in the 1990s as the state provided crucial data communications infrastructure and other fiscal and regulatory incentives, including greater openness to trade and foreign investment, for the software industry. This reflected the greater embeddedness between the state and private capital. The embeddedness is circumscribed, however, by challenges to the state from other sections of society, where the benefits of software exports are far from visible and poverty and illiteracy prevail. Challenges have been mounted against further regulatory changes, limiting the economy-wide institutional changes that will demand the deployment of productivity enhancing ICTs. This not only stifles the domestic market but also the learning opportunities that it can provide software exporters.

## Conclusion: rethinking the ICT region

This symposium integrates existing theories of how ICT-based regional development is shaped by the interaction of global networks of capital and labour, institutional structures in a territorialized industrial system, and politics and public policy. The dynamic and negotiated relationship between these elements is revealed through detailed and original empirical studies of some of the leading regions within the international ICT industry. Taken together, these empirical and theoretical contributions mean that the symposium focuses our attention on the politics of ICT-based development, and more generally, on the ways in which place and politics shape regional development within a global informational economy.

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