

# Geographical Inequalities: The Spatial Bias of the New Communications Technologies

by Andrew Gillespie and Kevin Robins

***Contrary to popular predictions of their decentralizing impact, digital communications contribute to new and more complex forms of corporate integration, reinforcing center-periphery problems on a global scale.***

The new technologies of communication are inherently spatial (13, 37, 38). By this, we mean not only that they change the relational distances between places and, in so doing, help construct new economic and social geographies and new forms of spatial division and integration. We mean further that geography is a constitutive element of communications networks, which are spatial systems in their own right (1, 24, 34). New communications technologies do not just impact upon places; places and the social processes and social relationships they embody also affect how such technological systems are designed, implemented, and used.

Advanced communications networks are being developed and introduced within an existing economic and social context that displays stark geographical inequalities: between, for example, rich and poor nations, central and peripheral regions, cities and rural areas. We contend that the "distance-shrinking" characteristics of the new communications technologies, far from overcoming and rendering insignificant the geographical expressions of centralized economic and political power, in fact constitute new and enhanced forms of inequality and uneven development.

The view that advances in the technologies of communication will finally and irrevocably overcome the "tyranny of geography" and reduce spatial inequalities needs to be seen as part of a broader historical interpretation of the impact of technology on society. In this familiar rhetoric (25, 26), technological progress is unproblematically equated with economic growth and human improvement; it is an unquestioned article of faith that "progress always result[s] from improved machines" and that "progress [is] the handmaiden of democracy" (14, p. 15). What James Carey (9) describes as a "Whig interpretation of communications history" is "the story of the expansion of the powers of human knowledge, the steady democratization of culture, the enlargement of

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freedom, and the erosion of monopolies of knowledge through more democratic sharing" (p. 78).

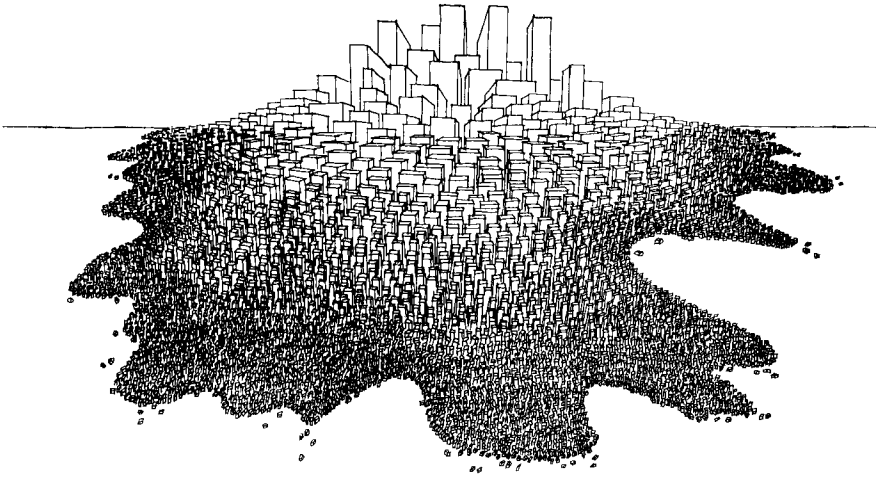
Within the discourse of futurology, developments in the technologies of communication are seen to herald a post-industrial era in which information, "the raw material of truth, beauty, creativity, innovation, productivity, competitiveness and freedom" (32, p. 31), becomes equally and plentifully available to all, thereby dissolving forever the source of social inequality. In the vision of Wilson Dizard, a "global knowledge grid," made possible by "a universal electronic information network, capable of reaching everyone everywhere" (11), will result in an unimpeded free flow of information.

In this scenario, the "tyranny of geography" that is created by the friction of distance becomes electronically transcended. So too do the nodal spatial structures that have developed to minimize the problems of societal organization caused by this friction of distance. If, as Schaeffer and Sclar baldly put it, "to avoid transportation. . . mankind invented the city" (41, p. 8), then what does the future hold for the city once communication potential and information resources shake themselves free of the constraints of space, time, and place? Should we expect "an inherent decentralising effect" of the new technologies "to eventually result in the disappearance of the city and its concentrations of power, people, pollution and economic activity" (33, p. 65)? Are we, as the post-industrial futurologists would have us believe, heading toward a new era of electronic decentralization and rural utopia?

This is certainly the view developed by Alvin Toffler in *The Third Wave* (45). Centralized power and center-periphery relations, he suggests, characterize the "second wave" past; the present is shaped by "anti-centralist tendencies" that are decentralizing and ruralizing production and economic activity. His envisioned "third wave" society is one of decentralized communities and equal, interdependent "sub-economies," with the fundamental social unit being the electronic cottage. The new technologies of communication will permit an ever-increasing number of social activities to be undertaken in the home, irrespective of its geographical location.

From this perspective, then, technological progress will facilitate the transcendence not only of inequalities between regions but of those between urban and rural areas. The constraints of space and time and the particularities of place diminish and disappear in this vision of a harmonious and egalitarian post-industrial society in which will be found "all information in all places at all times" (22): a utopia in the literal sense of "no place." Such views are at once influential, wishful, misleading, and irresponsible, because they conceptualize technology and technological change outside of any social, economic, political, or cultural context. They are technologically determinist because, on the basis of what changes new technologies might possibly effect, they extrapolate about what will necessarily and inevitably occur.

Although we reject the premise that communications technologies will be only progressive and liberating in their social implications, at the same time we recognize the enormous importance of technological advances to the nature and organization—including the spatial organization—of society. Technology



From an exhibit of German cartoons on "The City"

has an inherent "bias," for it can never be neutral or independent of society's broader social and political biases. At the same time, however, its potency makes it invariably the site and stake of struggle, the outcome of which is never preordained.

**It is in the work of Harold Innis that the inherent biases of communications media and their significance for societal spatial organization have been most fully and adequately developed.** Innis (28) recognized that

*a medium of communication has an important influence on the dissemination of knowledge over space and time. . . . According to its characteristics it may be better suited to the dissemination of knowledge over time than over space, particularly if the medium is heavy and durable and not suited to transportation, or to the dissemination of knowledge over space than over time, particularly if the medium is light and easily transported. The relative emphasis on time or space will imply a bias of significance to the culture in which it is embedded* (p. 33).

He recognized further that communications media containing a spatial bias would tend, contrary to the superficially appealing logic of the post-industrial futurists cited above, to encourage the *centralization* of power and control over space rather than its decentralization. This realization was at the heart of Innis's concern for the "problem of empire" (27) and reflects the fact that he began from the perspective of the periphery.<sup>1</sup>

<sup>1</sup> We might observe in passing that our own perspective is invariably influenced by our geographical and cultural location, just to the north of Hadrian's Wall and hence in a part of the United Kingdom that was never part of the Roman Empire but that has become increasingly and regrettably part of London's.

For Innis, empire "was simply the institutionalization of a system of power" (40, p. 195); it encompassed hierarchical structures, whether geographical or organizational, as well as more generalized systems of power and domination, such as capitalism. Thus "monopoly and empire could be seen as two perspectives on the same phenomenon. If empire was the institutionalization of power, monopoly represented the nature and means of control exerted" (40, pp. 195–196). Empires always have sought to maintain and extend their power by controlling channels of communication and the media upon which they depend.

Innis saw the significance of communications technology, dialectically, to lie in its use both to geographically extend existing monopolies and to pose challenges to these monopolies. Thus, to take one historical example of the latter, "the monopoly of London strengthened by the railway was destroyed by the invention of the telegraph which encouraged provincial competition after 1868" (28, p. 59). Similarly, in the United States the telegraph initially strengthened the local and regional press until that too was undercut by the power of wire services and chain papers.

Innis recognized this potentially double-edged characteristic of spatially biased communications media in the way hinterlands struggled both to resist and to embrace metropolitan dominance. James Carey (9) has noted Innis's attempt to show how the resistance of localities and regions to the spread of communication

*was only decided by struggle over a protracted series of conflicts: the spread of standard time, of the mail order house, parcel post and rural free delivery, of the department store and regionalized corporation. . . . That is, the spread of a spatially biased system of communication was not even and uniform but resulted in a complicated interplay of resistance and acceptance (p. 83).*

By facilitating the remote control of peripheral regions under a centralized authority, Innis contended, space-transcending technologies would be instrumental in creating new spatial monopolies.

Innis's recognition has considerable relevance for understanding the contemporary impact of the new communications technologies. Only if we consider that technologies necessarily mediate and express prevailing social and power relations within society can we confront the biases that modern information and communications technologies are likely to impose on the so-called information societies of the future.<sup>2</sup>

The insights of Innis are more pertinent and a safer guide than those of his futurological disciple. In spite of professing to adopt, like Innis, a method of inquiry that was historically informed, Marshall McLuhan argued that Innis

*was misled by the ordinary consensus of his time. Electric light and power, like all electric media, are profoundly decentralising and separatist in their psychic*

<sup>2</sup> This is not to argue that all advanced communications technologies necessarily have the same inherent bias, nor that the bias of any particular technological system necessarily translates into a particular outcome. Nonetheless, without conscious resistance we can expect to see the exacerbation of inequalities, the deepening of relations of power and subordination between centers and peripheries.

*and social consequences. Had he not been hypnotized by his respect for the pervasive conventional view on this question, Innis could have worked out the new electric pattern of culture quite easily. . . . Electric technology is instant and omnipresent and creates multiple centres-without-margins* (31, pp. xii, xiii).

Twenty-five years later, the “pervasive conventional view” that threatens to hypnotize us is much more akin to McLuhan’s: that electronic communications technologies contain an inherently *decentralizing* bias and that the friction of distance and the inequalities between centers and peripheries, which depend on such friction, will soon be abolished. We beg to differ and prefer to begin where Innis left off—with the premise that, in real rather than wishfully imagined social, economic, and political contexts, advanced communications technologies have, because of their space-binding characteristics, an inherent centralizing bias.

**In considering the extent to which the new communications technologies challenge or reinforce existing monopolies of information, and the associated spatial hierarchies and interdependencies, we need to ascertain in whose interests they are developed and whose interests they subsequently best serve.** Digital telecommunications networks are centrally implicated in what might reasonably be described as a revolution in the control and coordination of complex organizations and their external relationships. Although in one sense only the continuation of a “control revolution” (6) that has characterized the modern era, digital communications networks are today being brought to the center stage of corporate awareness and strategic decision making by a number of economic and organizational innovations.

We have developed these arguments elsewhere (17, 18, 19, 20). In summary, we contend that the reason for the much-enhanced significance of telecommunications lies only partly in the conventionally rehearsed explanations concerning technological advances and regulatory changes. Technological advances in telecommunications, particularly the convergence with computing technologies to create the hybrid of “telematics,” have undoubtedly opened up an array of innovatory possibilities that are being realized in the form of new products, commercial distribution systems, production processes, transaction processing systems, and management control and decision-making tools (19). Of perhaps greater significance, however, is the association of digital communications with new and more complex forms of corporate and organizational integration and with new competitive strategies of intervention in both global and local markets.<sup>3</sup> From this perspective, telematics can be interpreted as providing the basis for inflecting or perhaps even overcoming the Fordist system of mass production, which had become increasingly concentrated and centralized in order to exploit economies of scale. The objective is to develop forms of

<sup>3</sup> Some commentators have argued (3) that these constitute a new or at least significantly restructured regime of accumulation in advanced capitalism.

corporate structure able to respond more flexibly to changing conditions of production and to new market conditions and requirements. If such corporate structures are to be maintained on a global scale, telecommunications networks become fundamental to their cohesion and flexibility.

Given the strategic importance of advanced communications technologies in this process, it is not surprising to find global corporations exerting a major influence upon the types of networks and services developed and upon the subsequent pattern of use. That transnational organizations are the major shapers of new communications channels is, of course, well and long established. In the current period of rapid technological change, regulatory turbulence, and international economic restructuring, the need for large market-driven organizations to shape the new communications infrastructures in their own image, and the scope of that shaping, are without parallel. As Dan Schiller (42) has documented for international integrated services digital networks, "at every level. . .from initial planning and technical design to actual implementation, ISDN incarnates only the private interests of the transnational corporations that will engineer, supply, install and make use of the emerging global grid" (p. 106).

What then of the geography of advanced communications? Will the new digital networks help to break down the old monopolies of information and the political and economic power structures dependent upon them—power structures that have produced such marked inequalities between centers and peripheries at a variety of spatial scales? Or will such networks instead serve only to strengthen the grip of empire, the power of centers over peripheries, further sharpening the divisions and asymmetries in their interrelationships?

**We need first to establish the limits to the conventional thinking that equates advances in telecommunication with earlier models concerning the impact of transportation improvements.** We must be wary of treating telecommunications too readily as the communications infrastructure for the information age, because of the crucial distinction we need to make between public and private networks. Most networks are private in that they are proprietary systems available only to an authorized group of end-users. The new "electronic highways" of the information society are not, therefore, public thoroughfares but are more akin to a myriad of private roads (17).

The recognition that advanced "telecommunications are not homogeneous, universally available 'public' goods" (5, p. 10), and that their "distance-shrinking" capabilities are in practice appropriated by some but not by others, clearly challenges the assumption that modern communications networks will make all information freely and ubiquitously available. Indeed, it can be reasonably argued that, to the contrary, telematics capabilities make possible the much greater commodification of information, shifting many information sources from public to private jurisdiction through the establishment of a global network marketplace. Digital communications networks are thus instrumental in creating new monopolies and empires, very much as Innis had anticipated in noting that modern media of communication, as well as exhibiting a spatial bias, also

(largely for commercial purposes) created an essentially private system of communication.

In spatial terms, the question of in whose interests the advanced information and communications networks are developed seems transparently clear. With respect to the Canadian situation, for example, Liora Salter (40) observes that "computer data transmission or television standards would be matched to the needs of the metropolitan area; the shape and problems in communication systems were generated in the demands of the metropolitan system" (p. 197). In the U.S. context, Mitchell Moss (36) has concluded that, "although most discussions of new communications technologies emphasize the opportunities presented for decentralisation, large cities are the hubs of new telecommunications systems in the U.S. and are the sites for the most advanced applications of technology." European evidence from countries as diverse as the United Kingdom (12, 21), Italy (4), Greece (44), the Federal Republic of Germany (23, 43), Norway (8), and Sweden (15) suggests that the more developed metropolitan regions have telematics equipment and services at levels markedly above national averages.

These findings reinforce the conclusions reached in two studies undertaken for the Commission of the European Communities that advanced communications technologies display a bias for core regions, both in the concentration of infrastructure within them and in the uptake and utilization of available networks and services (16, 29). These studies led to a major Community initiative, called the STAR Programme (Special Telecommunications Action for Regions), to speed up the diffusion of digital networks, and the applications based upon them, into Europe's so-called less favored regions. Without policy intervention, the studies suggested, the considerable economic benefits associated with advanced communications would be reaped primarily by the major metropolitan centers in the core regions of Europe. Far from helping to reduce existing regional disparities in economic development, the uneven geography of advanced communications could further polarize prosperous and less prosperous, dominant and subordinate, regions. Some aspects of the problems of peripheral, less favored regions—such as their remoteness from national and international markets and from sources of specialist technical and commercial information—would seem to demand a compensating *above*-average uptake of distance-shrinking technologies; the reality, however, is that such regions make the *least* use of telecommunications services, thereby accentuating and serving to perpetuate their remoteness from the centers of economic development and innovation (16).

It is not regions as such that use advanced communications networks, however, but private and governmental organizations. Although it is perfectly possible to envisage, and indeed to find examples of, organizations in peripheral regions that use digital networks to overcome their remoteness from markets and sources of specialist information, the "space-binding" bias of these networks tends more to favor the penetration of peripheral regions by centrally located organizations. In part, this penetration takes the form of the remote control of outposts of the central organization, for "intercommunications media

have great organising and co-ordinating power because of their inherently interactive natures" (2, p. 14). But this penetration also takes the form of a new geography of competition, with profound implications for interregional dependency relationships.

Thus, the existing balance of locational advantage will be radically altered by the potential global reach of telematics networks. A new system of interregional trade in information goods and services is emerging, with dominant regions the main exporters and weaker or economically peripheral regions relegated to the role of importers. The key actors in this network-based trading system are the transnational corporations, who are best placed to use advanced telecommunications infrastructures and networks to gain access to new targeted markets at national and international scales (17).

The instrumental role of advanced communications networks in opening up national, regional, and local economies to global forces of competition and control seems undeniable. These technologies have enlarged the scale of social organization beyond the nation-state to the regional federation of countries and have thereby helped to increasingly centralize political, economic, and cultural power (33).

**How might the centralizing bias of the new communications technologies be countered and deflected?** One possible approach is to attempt to speed the diffusion of these network-based technologies into the peripheral regions, an approach exemplified by the STAR Programme (10, 30). The rationale for STAR's network modernization and demand stimulation measures is that

*fuller integration of the least-favoured regions into telecommunications networks and appropriate use by them of advanced telecommunications services are necessary if they are to reduce the extent to which they lag behind in terms of economic development, since such services will reduce their isolation, will allow them to participate in the Community's technological breakthrough and will foster job creation* (10).

The integrated package of measures designed for each eligible region in the STAR Programme recognizes that providing telecommunications infrastructure is necessary but by no means sufficient for economic development. In focusing attention on the uses and applications of advanced telecommunications and their local and regional impacts, STAR represents a very real advance over existing regional and telecommunications policies that contain an element of infrastructure support.

However, in confronting the spatial bias of advanced communications networks by embracing them and by trying to speed up their penetration into peripheral and less developed regions, STAR might be regarded as constituting a relatively high-risk strategy. William Melody (35), for example, has suggested that STAR's good intentions may not help resolve the perceived development problem of the regions concerned. Ironically, indeed, the Programme might actually exacerbate the problem:



*Does the enhanced telecommunication system simply provide an advantage for external economic interest in the peripheral regions? It will provide these interests with easier access to the regions, and a competitive advantage over local and regional interests. It may provide an efficient system for sucking out the economic benefits and opportunities that otherwise would be generated in the region. . . . Can it be said that the enhanced telecom system is simply providing super-highways to the ports?*

The technologies, then, may actually work against the objectives they are designed to achieve. The problems of less favored and peripheral regions cannot simply and straightforwardly be solved by this kind of massive technological fix.

Behind the European Commission's commendable belief in the capacity of advanced information and communications networks to increase the cohesion of the European Community rather than widen existing gaps, there are quite problematic assumptions about the relationship between technology and society. The fundamental premise is that technological development is associated with a process of "modernization"—a process whereby the pervasive introduction of technological systems is the necessary panacea for social and economic inequalities. The unquestioned belief is that the tyranny of geography may be overcome through the "telecommunications highways" of the twenty-first century. As such, the Commission's strategy converges with the visions of post-industrial futurologists discussed at the beginning of this article.

A further assumption of both policy-makers and technological advocates is that the new technological systems are neutral instruments for overcoming and solving social and economic problems, for transcending social and geographical inequalities. Despite the fact that this promise has never been fulfilled and that stark disparities still persist, the belief in the potential of technological deliverance paradoxically remains undimmed.

Innis, in contrast, perceived that the bias of communication, and of technology more broadly, was not accidental or contingent upon any particular combination of circumstances. It was, rather, inherent in, and constitutive of, technologies and technological systems. The new information and communications technologies do not transcend uneven and unequal development; they introduce new spatial structures and relations with new forms of geographical differentiation and inequality. We are presently seeing new spatial systems being organized on an increasingly international scale, opening up new forms of global subordination and domination between cities and regions. This technological restructuring in fact reflects the broader processes of unequal and uneven economic development that have always characterized capitalist societies—processes that geographers have seen as necessary, in the stronger version of the argument, or, in the more qualified version, as inevitable to the historical transformation of this mode of production (7).

If we recognize that the new technologies are implicated in, rather than offer solutions to, uneven geographical development, then we confront a more serious problem. What is called for is not the utopian optimism of post-industrial

projections but a more mature political and policy approach that considers the full complexity of technological development and the implication of new information and communications technologies in relations of power and domination (39). Without such an awareness, center-periphery relations inevitably will remain endemic to the so-called information society, just as they have been throughout the history of capitalist development.

Innis's profound insights focus our attention on the enormous problems for communications policy and politics in the last decade of the twentieth century. How might the new technologies be used against monopoly and empire? What strategies of resistance are possible for the hinterlands and peripheries of the "information society"?

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