Understanding the geocyberspace : a major task for geographers and planners in the next decade

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Abstract.— *In this paper, we will introduce the concept of geocyberspace as a result of the work of the IGU 96-C04 Commission on Networks.*

Key words.— *Cyberspace, geography, geographers, geocyberspace*

Résumé.— *Cet article introduit le concept de géocyberespace qui s'est imposé dans le contexte des travaux de la commission UGI 96-C04.*

Mots clés.— *Cyberespace, Géographie, Géographes, Géocyberespace*

The study on telephone has long been ignored in university textbooks and courses on geography. However, telecommunications can show the relationship and hierarchies between geographic spaces. Even more, they have impacts on the spatial organization of transportation, industry, and cities. Economic geography, like regional development, is thus especially affected, especially in developed countries.

Is it still necessary to distinguish between utopias and dreams and the reality of present or predictable spatial relationships? At the end of the 19th century, the communication of information was seen in the university as falling within the framework of the "geography of circulation" (Verkher in German) and of geopolitics. But the growth of geographic research on transportation reduced the attention given to telecommunications, in France as elsewhere. Despite individual attempts it was necessary to wait until the middle of the 1960s, and especially after 1970, for studies to become more numerous.

It is recognized today that telecommunications is an integral part of geographical research. The geography of telecommunications isn't a separate field beside a

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number of other geographic subfields (rural, urban, industrial, transportation, etc.). It is rather a generalist theme that plays a role in all human and economic geography. This is not surprising given the distribution of the usage of new information and communication technologies in both professional and domestic settings. Nowadays, how can one treat the geography of transportation without considering the fundamental role of telecommunications networks (the reservation of places, the management of deliveries, the organization of time and space)? How can one treat urban geography without considering the role of telecommunications (international functions, zones of advanced telecommunications capabilities, the circulation of information that allows the function of diverse infrastructures, etc.)? How can one treat industrial geography without taking up the logistics of firms and of telecommunications networks (public and private) that support the requirements of a new organization of production ("tight flows", "zero stock")?

The Commission's task since 1988 (and since 1984 as a Study Group[2]) was to examine the spatial processes, patterns, and impacts of global change[3]. The underlying theme of its current work, was to draw attention to the critical crossroads the world's information system has reached and to point out the alternative international, inter-regional, and inter-city industrial scenarios. We have noted the unprecedented increase in the rate, scale, and type of simultaneous changes (i.e. global, urban, industrial, commercial. All these changes are dramatically altering the structure of the global geographic and economic system and causing profound and complex socio-economic changes at the sub-urban, urban, regional, and also national levels. The use of telecommunications networks to transfer employment between the developing and industrialized countries is an indication of the kind of changes underway. The forces of change in the information and business environments are now non-spatial (economists write now about the net-economy). Yet, their spatial expression has been and is continuing to be intensified because together these forces have led to an enormous increase in spatial interdependence over great distances. They have also permit a strong development of new relations all over the world with the e-commerce, e-finance, e-mail and internet web sites, for example)[4].

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2. Chaired by Christian VERLAQUE with Dr BAKIS as Executive Secretary (1984-1992). Study Group 84S9; Commission 88C18 followed by the Commission 92C03 and 96C04 Chaired by Henry BAKIS. Since 1995 Aharon KELLERMAN was coopted as Vice-Chair.

3. The IGU commissions 92.C03 and 96 C04 has continued and enlarge the work of the 88.C18 Commision.

4. As noted in 1979 by F.E.I. Hamilton: "The past and continuing passenger-and-freight transport revolution and the telecommunications-information revolution are bringing about unprecedented scales and intensities of interdependence of place (town, region, nation) upon place across international and intercontinental divides": F.E. Ian Hamilton, «The IGU Commission and the Changing World Industrial System,» Meeting of the IGU Commission on Industrial Systems, Rotterdam, 1979, 17 pages.

Networks and Telecommunication Geographers have published a great deal of papers and book chapters in the past few years, notably in the journal *Netcom* since 1987, and in numerous publications : special issues of other Reviews (Bakis, 1995 ; Hottes, 1999, etc.), books edited by the Commission (Bakis, 1988, 1990, 1993 ; Bakis, Abler & Roche, 1993 ; Roche & Bakis, 1997) or in other contexts (Newcastle Center ; E*SPACE project ; etc.). Additionally some other collective books include chapters from members of the IGU Commission (Brunn & Leinbach, 1991, etc.). Most of these papers and chapters were generally read and discussed first as lectures in previous Commission Conferences and annual reports were done notably in the *IGU Bulletin*[5].

The present Kwangju, meeting in Korea is a special moment in the geographical work of this IGU Commission. It comes after a series of other meetings focusing at questions related to information technologies and telecommunications networks seen from the geographical point of view. Around twenty papers or reports will be given in Kwangju. Asia, Europe, Africa and America are represented in numerous cases studies. After these papers, focusing successively on Regional Development, Networks, Flows, IT, Telecommunication Policies and Interactions in the Cyberspace, we are invited to examine and discuss the "geocyberspace" concept in the light of the Kwangju lectures. I have advanced and prepared this tentative concept before the Palma Commission Conference in 1997.

The science of geography is far from exhausted and is not concerned only with physical phenomena : it has begun to explore the geographical space of the XXIst Century : i.e. the "geocyberspace" (Bakis, 1997). Multiple factors give different values to the diverse areas of geographic space. In this context, the flow of information, the availability of equipment and the access to infrastructures and networks all influence the outcome. Qualitative differences (reliability, maintenance) in equipment, services and networks also play a part. Communications, far from eliminating space, tend to increase the differentiation between its various points and areas. Using the prefix 'geo' before 'cyberspace' will stress the continual importance of contiguous territories and will help the researcher to avoid surrendering completely to utopians views (Koch, 1999 ; Wilhelm, 1999).

Between what is called 'geospace' (i.e. contiguous territories) and "cyberspace" new relations are appearing. Geospace and cyberspace seem to be involved in an emerging process of fusion, a growing combination of both. This new geographic reality can be called 'geocyberspace' : this term stresses the new consequences for geographical space of the new services permitted on global networks and infrastructure (Bakis & Roche, 1997). The nature of cyberspace has its origins in the shrinking of distance permitted by the use of telecommunications (mainly data processing and worldwide TV channels but more generally the integrated

5. See the *Bulletin* 2000 (1) for example.

transmission of multimedia sound, text, data and image), the consequence of world e-mail and Internet networks (WWW); and the introduction of videoconferencing and other multimedia services over the Internet.

The notion of cyberspace refers to a society where the technical interface is ever-present. The communication process may be very efficient between two users, one from Europe and the second from California, but the process is necessarily a time-interfaced communication.

With reliable and high-speed network, the entire globe becomes immediately accessible. The advent of quasi-instant transmission means we are no longer witnessing a mere evolution of communication characterized by increased speed (e.g. rail and air transport). Cyberspace, on the contrary, is a kind of space where a state of 'effective discontinuity' characterizes the spatio-temporal scales of increasingly convergent information, telecommunication, computer and image transmission technologies. But along with time, the notion of space is changing as well. It becomes unimportant for the users. With the web, it is the nature of the problem-solving process that is important and not the place from where the needed information is obtained. The time factor becomes strategic in the search for competitiveness, given the globalization of markets and the new emerging relationships between markets and systems of production (e.g. logistic chains, just-in-time). A key parameter in productivity gains is the control of time through geographic space which becomes an indispensable condition of global functioning. After the conquest of geographic space (the 1492 Great discoveries, the development of mass transit, development of telecommunications, and exploration of the Cosmos and the oceans), the control of time through distance now permits a new functional integration in production and logistics (Paché, 1988 & 1990; Paché *et al.,* 1993).

Corporations have entered in this geocyberspace for many years (Bakis, 1980, 1988; Hepworth, 1989; Roche, 1992; Roche & Bakis, 1997; Bakis & Roche, 2000). They have not always considered this fact in their strategic orientations. Yet, this may change the managerial drive of their business towards new perspectives.

Some studies demonstrate the apparition of changing conditions in the context of business communication and telework (for example: Alvstam & Jönsson, 2000; Garvi & Kullenberg, 2000; Molini, 1997; Rylander, 2000, Thulin & Vilhelmson, 2000). Work is becoming increasingly dematerialized. It becomes possible to work at any time (during the night, the weekends, the holidays) and any place. The telework can be done not only in offices but also in any place: when driving a car, eating in a restaurant, resting in one's home. Personal telephone services and e-mail follow us when we travel overseas. All we need is the access to the network, a password and funds to pay the network operators for their services.

It can be said that we are evolving towards a greater "spatio-temporal fluidity of work". Many of today's managers spend as much time on the telephone in their cars as they do in their offices. New generations of equipment accompany

this trend. They consist of devices that have the advantage of being portable, owing to miniaturization in electronics (e.g. portable microcomputers) and means of telecommunications. At first, in the mid-seventies, telecommunication systems were mainly concerned with remote access to a company computer for consulting or entering data only. Today, telecommunications systems with mobiles are increasing in numbers and are spreading. Examples include the radiotelephone, portable message systems, telephones in trains and airplanes.

After the net-economy euphoria, start-ups companies and other dot.coms have now become aware that the "end of geography" announced was an utopia. To-day, the virtual firms are modifiying their strategies, not only on the cyberspace, but also on the geospace. They are merging with other traditional companies in order to use their agencies. Many are also entering themselves into the geospace, openig their own agencies to make direct contact with their e-customers: we call that kind of companies "Click-and-mortar" (Helft, 1999; Rajpal, 2000). The emergence of these companies clearly demonstrates the relevancy of the concept of geocyberspace.

Communities (Corey, 1997), Cultures, and Cities too are entering in this geocyberspace (Corey, 1997; Wilson, 1997; Widmayer, 1998; Fistola & La Rocca, 1998). A lot of lectures in the Commission meetings and papers indicate this evolution (see recent volumes of *Netcom*).

It will be necessary for IGU and all human and economic geographers (from any speciality) to understand the new spatial dynamics of the information economy (space, places, flows, hardware and software disparities, spatio-cultural implications), and to improve the knowledge of the geocyberspace.

Understanding the geocyberspace appears to become a major task for geographers and planners in the next decade.

REFERENCES

ALVSTAM C.G. & JÖNSSON A. (2000), "On Promoting Regional Economic Growth in Industrial Peripheries, Hyper-Footloose Business Services – The case of Swedish teleworkers in Spain", *Netcom*, vol. 14, n° 1-2, p. 25-52.

ANTONELLI C., ed. (1988), *New Information Technology and Industrial Change: the Italian Case*, Dordrecht/Borston/London: Kluwer Academic Publishers.

BAKIS H. (1980), "The Communications of larger firms and their implications on the emergence of a new world industrial order. A case study: IBM's global data network, Contributing report". Meeting of the IGU Commission on Industrial Systems (26-30 August), Chuo University, Tokyo, 105 p.

BAKIS H. (1994), *Les Réseaux et leurs enjeux sociaux*, Paris: PUF, Que sais-je? n° 2801.

BAKIS H. (1997), "From geospace to geocyberspace: territories and teleinteraction" *in* ROCHE E.M. & BAKIS H., 1997, p. 15-49 (written in 1996).

Bakis H. (1999), "Un nouvel espace à explorer, parcourir et utiliser : l'espace des réseaux électroniques / Exploring, Touring and Using the Spaces of Electronic Networks", p. 1-8 *in* Bakis H., ed., "Exploring and Navigating Electronic Space -II - Explorer et naviguer sur l'espace électronique II", *Netcom*, vol. 13, n° 1-2.

Bakis H. & Grasland L. (1997), "Les réseaux et l'intégration des territoires. Position de recherche", *Netcom*, vol. 11, n° 2, p. 421-430 et à l'adresse suivante : http://alor.univ-montp3.fr/netcom_labs/

Bakis H. & Lu Z. (2000), "The Change from the Geographical Space to Geocyberspace. Review on the Western Scholars on Regional Effects by Telecommunications", *Acta Geographica Sinica*, vol.55, n° 1, p. 104-111 (article en chinois, et une page de résumé en anglais).

Bakis H. & Roche E.M. (1997), "Cyberspace - The Emerging Nervous System of Global Society and its Spatial Functions", p. 1- 12, in Roche E. M. & Bakis H. eds., *Developments in telecommunications. Between global and local*, Aldershot UK : Avebury, 350 p.

Bakis H. & Roche E.M. (2000), "Geography, Technology and Organization", p. 125-152, refs. p. 299-333, *in* Roche E.M. & Blaine M.J., eds (2000), *Information Technology and Multinational Organizations*, Edward Elgar Publishing Ltd 333 p.

Bakis H., ed. (1988), *Information et organisation spatiale*, Caen : Paradigme, 236 p.

Bakis H., ed. (1990), *Communications et territoires*, Paris : La Documentation française, 404 p.

Bakis H., ed. (1993), numéro spécial du *Bulletin de l'Association de Géographes Français*, "Géographie des réseaux de communications", janv., p. 1-64.

Bakis H., ed. (1995), "Communication and Political Geography in a Changing World", numéro spécial de la *Revue internationale de science politique* (*International Political Science Review)*, vol. 16, n° 3, juillet, p. 219-311 - Elsevier Science Ltd, Oxford, UK (p. 221-224).

Bakis H., ed. (1998-1999), "Exploring and navigating on electronic space I & II", *Netcom*, vol. 12, n° 4 ; vol. 13, n° 1-2.

Bakis H., Abler R. & Roche E.M., eds (1993), *Corporates networks, international telecommunications and interdependance*, London : Belhaven, 232 p.

Bakis H. & Dupuy G., eds (1995), *Annales de Géographie*, Paris.

Bakis H., Hottes K. & Weber H.-U., eds (1995), "Telecommunications and emerging spatial and economic organisation", *Materialen zur Raumordnung*, Band 47, Bochum : Geographischen Institut der Ruhr-Universität Bochum, 131 p.

Bakis H. & Segui Pons J. M., eds (1998), "Geospace & cyberspace / Géoespace et cyberespace, Hommage au Recteur Christian Verlaque", *Netcom*, vol 12, n° 1-2-3, p. 1-375.

Brunn S.D. & Leinbach T.R., eds. (1991), *Collapsing Space and Time : Geographic Aspects of Communications and Information*, London, Harper Collins.

Bulletin de l'IDATE, n° 40. Dossier «Nouvelles techniques de communication et aménagement du territoire. Stratégie des acteurs locaux et rôle de l'Etat», 2e trim. 1990.

Capello R. & Nijkamp P. (1993), "Telecommunications as catalyst development strategy", *Netcom*, vol. 7-1, p. 1-68.

Corey K. (1998), "Electronic Space : Creating and Controlling Cyber Communities in Southeast Asia and the United States", E*Space meeting in Sophia Antipolis, France : *CyberChoices : Determining Sociotechnical Futures* May 25-29.

Corey K. & Wilson M. (1997), "Digital cities : public policies and the development of the intelligent metropolis", *Netcom*, vol. 11, n° 1, p. 3-31.

Dodge M. (1999), "Measuring and Mapping the geographies of Cyberspace : a research note", *Netcom*, vol. XIII, 1-2, p. 53-68.

Estabrooks M.F. & Lamarche R.H., eds. (1987), *Telecommunications : a strategic perspective on regional, economic and business development*, Moncton : Institut Canadien de recherche sur le développement régional.

Eveno E. (1997), "Pour une géographie de la société de l'information. Proposition de création d'une nouvelle commission françaises du Comité de Géograhie" (CNFG), *Netcom*, vol. 11, n° 2.

Fistola R. & La Rocca R.A. (1998), "Cybercities : a new way of thinking about the town planning of the future – the case of Naples", *Netcom*, n° 1-2-3, p. 195-226.

Forsström Å. (1998), "The New Infrastructure and Space. ICT and the four transport systems shape different accessibility spaces", p. 19-34, *in* Bakis H. & Segui Pons J.M., eds, Geospace & Cyberspace, N*etcom*, vol. 12, n° 1-2-3.

Garvi M. & Kullenberg M. (2000), "ICT, an enabling Force- Service Location, Work Forms, and the Individual. A Case Study of Scandinavian Teleworkers in the Sun Belt", *Netcom*, vol. 14, n° 1-2, p. 53-76.

Gräf P., ed. (1999), "Telecommunications in Progress - Geography, Economy and Social Impacts. Research in Germany", *Netcom*, vol. 13, n° 3-4, p. 171-354.

Hall P., Newton P., Brotchie J., Batty M., eds. (1991), *Cities of the 21st Century : New Technologies and Spatial Systems*, New York : John Wiley & Sons.

Helft M. (1999), "Retailers, Net Firms Do The 'Click-And-Mortar' Two-Step", *The Industry Standard Magazine*, 16 Dec., www.thestandard.com/article/display/0,1151,8281,00.html.

Hepworth M.E. (1989), *Geography of the information economy*, London : Belhaven Press.

Hottes K., ed. (1997), *Revue géographique de l'Est*, "Télécommunications rhénanes", n° 4.

Kellermann A. (1993), *Telecommunications and Geography*, London : Belhaven, 230 p.

Koch A. (1999), "Geo-/Cyberspaces and their nonlinear dynamics comparisons, relationships and implications", *Netcom,* vol. 13, 1-2, p. 37-52.

Lorentzon S., ed. (2000), "The Use of ICT in a Geographical Context – Research at Göteborg University, Sweden", *Netcom*, vol. 14, n° 1-2, p. 1-198.

Molini F. (1997), "The migration of teleprofessionals to tourist areas : hypotheses and refutations", *Netcom*, vol. 11, n° 2, p. 403-416.

Nijkamp P., Maggi R., Masser I., Vleugel J.-M. (1992) "Missing Networks in Europe", *Netcom*, vol. 6, n° 1, p. 22-115.

Rajpal S. (2000), "Click & Mortar Is The New Survival Mantra", *The Hindustan Times* http://www.hindustantimes.com/nonfram/150800/HTC08.htm.

Roche E.M. & Bakis H., eds (1997), *Developments in telecommunications. Between global and local*, Aldershot UK : Avebury, env. 350 p.

RYLANDER D. (2000), "Cooperation Networks, Learning and Innovation Processes : Examples of Regional Development in Blekinge", *Netcom*, vol. 14, n° 1-2, p. 147-168.

SPRIANO G., ed. (1987), "Telecomunicazioni e territorio", Torino : Cooperativa di cultura Lorenzo Milani.

THULINE E. & VILHELMSON B. (2000), "ICT, work-related activities and travel", in LORENTZON S. ed., *Netcom*, vol. 14, n° 1-2, p. 5-24.

WIDMAYER P. (1998), "Putting Our Minds Together : The Digital Network Infrastructure and Metropolitan Chicago" *in* E*Space meeting in Sophia Antipolis, France : *CyberChoices : Determining Sociotechnical Futures* May 25-29, 1998.

WILHELM S. (1999), "The Geography behind the Internet Cloud - Peering, Transit and Access Issues", *Netcom*, vol. XIII, 3-4, p. 235-252.

WILSON M.I. (1997), "Global Service Production in Electronic Space", *Netcom*, vol. 11, n° 1, p. 32-59.