

Beyond Territoriality: Economics
and Politics in Telesociety

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1. Introduction

Imagine a future world where communications are powerful, cheap, mobile and ubiquitous.

What would such a world look like?

The general view seems to be that it would be a world where everybody would be connected to everybody, integrated by fiber and radio links, and full of knowledge, health, and peaceful interaction. In contrast, a minority view holds that nothing at all will change, that something in its fundamentals is impervious to the pinpricks of digital technology. I disagree with both positions. The upgrade of communications media will have a major impact, but not necessarily in a positive way. It will do good, but it will also be a tool of social and political fragmentation, and destructive of community and politics as we know them.

To understand this one has to understand what networks are, how they mirror society, and how they affect it. In the past, the single and unified nation-state, the main unit of governance around the globe, was matched and served by its national monopoly communications network, usually owned and operated by the state as a public service, like the road system. About twenty years ago this system started to break up around the world. The question is whether this change is merely an adjustment to technology, or whether it is both a reflection and the precursor of more fundamental transformation. Is the newly fragmented network system a mirror of a fragmented future state and society?

2. The Concept of a Network

Networks are a key concept in the communications field. But not just there. Networks abound as physical facilities or as relational systems (such as those of "old boys" or political supporters).

The term "network" goes a long way back; it is already used, in Exodus by the Supreme Regulator: "And God spoke unto Moses, saying..... You shall also make it a grating, a network of brass..." XXVII, V. 4.¹

The term is used by most academic disciplines, and with a variety of meanings. Chemists apply it to arrangements of molecules.² Biologists to cell structures.³ Mathematicians to topology.⁴ Electrical engineers to distribution systems (for high voltage), or for circuit configurations of components (for weak voltage).⁵

Operations researchers use a network terminology to solve shortest path problems, maximum flow models, and optimal routing.⁶ Computer scientists apply the term for

¹ In Hebrew, the word is "reshet," (net) used today for telecommunications networks

² Zacharisen, W. M., "The Atomic Arrangement in Glass," October 5, 1932, Journal of the American Chemical Society, Vol. 54, No. 10, p. 38-42, Washington, D.C.

³ Knox, Robert, 1830, Elements of General Anatomy (translated from Inst. edition of "Beclard's Anatomy" by D. A. Beclard, (Edinburgh, Scotland: Maclachlan & Stewart), p. 214.

⁴ Klingman, David J. and Mulvey, J. eds., Network Models and Associated Applications, Amsterdam and New York: Elsevier North, Holland, 1981.

⁵ Karni, Shlomo, 1986, An Analysis of Electrical Networks, New York: Wiley, pp. 1-4.

⁶ Elmaghraby, Salah E., 1970, Some Network Models in Management Science, New York: Springer, pp. 1-3.

computer interconnections in hardware, and to implementation algorithms in software.⁷

In the social sciences, political scientists use the concept of networks to discuss hierarchies, interactions, gatekeepers, and policy communities.⁸ Sociologists and social anthropologists⁹ dyads interpersonal linkage between persons in which each is indebted to the other.

Among economists public choice theorists have analyzed networks as ways of resource sharing and group formation.¹⁰

It is hard to draw a general conclusions from such multi-disciplinary attention to network arrangements, except that one must not look at a network merely as a technical facility. Networks are a reflection of underlying interaction. Technical facilities exist in order to serve such interaction and to facilitate new forms of interaction. Being a reflection of society, networks are subject to the same conflicting forces of integration and centrifugalism common to many social processes. Wherever one looks, people break up all kinds of social networks of interaction and form new ones: For example, in the United States, public education, mass transit, public safety, stock exchanges, department stores, or

⁷ Klingman, David J. and Mulvey, J. eds., Network Models and Associated Applications, Amsterdam and New York: Elsevier North, Holland, 1981.

⁸ Richardson, Jeremy John, Gunnel, Gustafson and Art Jordan, as cited in Rhodes, R.A.W., Power Dependence, Policy Communities and Intergovernmental Networks, Colchester, Essex; Department of Government, University of Essex, Wivenhoe Park, 1985, pp. 6-8.

⁹ Barnes, J.A., 1954, "Class and Committees in a Norwegian Island Parish," Human Relations, Vol. 7, Lazarsfeld, Paul and Merton, Robert, 1954. Bott, E., 1957, Family and Social Network, London, 2nd Ed., 1971. Boissevain, J., 1979, "Network Analysis: A Reappraisal," Current Anthropology, Vol. 20.

¹⁰ Heal, Geoffrey, "The Economics of Networks," CITI Washington Paper, 1989. Economidis, Nicholas, "Desirability of Compatibility in the Absence of Network Externalities," American Economic Review, Vol. 79, No. 5, pp. 1165-1181, (Dec. 1989).

universities and telecommunications.

3. Why Networks Break Up

In telecommunications, forces of change are transforming the traditional system of monopoly. A number of explanations have been offered for its demise. Some are technological ("More powerful technology leads to diversity, convergence, and breakdown of traditional barriers"). Others are economic ("Monopoly's inefficiency leads to competitive entry.")

In contrast, I would like to advance a somewhat different view, that of the dynamics of group formation: The emergence of new networks is not simply a matter of technology, economics, or political maneuvering, but of the dynamics of group formation. As a shared network expands, political dynamics lead to redistribution and to an averaging of services. This provides increasing incentives for some users to exit from a sharing coalition, and to an eventual 'tipping' of the network from a stable single entity to a system of separate sub-coalitions.¹¹

Perhaps the best way to look at a network is as a cost sharing arrangement between several users. Fixed costs are high, marginal costs low, and a new participant C helps the incumbents A and B to lower their cost. If there is a decision mechanism that permits the majority of network users to exercise control over pricing, they will impose higher cost shares on the minority. As a process of expansion takes place, the minority is growing, too, and its size can increase beyond critical mass. The minority can find itself better off

¹¹ Noam, Eli, "A Theory for the Instability of Public Telecommunications Systems," in Cristiano Antonelli, ed., The Economics of Information Networks. Elsevier, 1992, pp. 107-128.

associating in a new network, and abandon the old one if it can do so legally. Barriers to exit become lower with the increasing size of the users who exit and with the lower unit cost of technology.

A pluralistic multi-network system emerges.

This process, already group sharing, is accelerated by the emergence of "systems integrators" who offer users customized networks¹² by assembling packages of various types of services, equipment, etc. Today, systems integration already exist for large customers. But tomorrow systems integrators will put together networks for group use.

As these integrator-provided networks develop, they access and interconnect into each other and form a complex interconnected whole sprawling across carriers, service providers, and national frontiers. In the process, the telecommunications environment evolves from a *network of networks*, in which carriers interconnect--and which superseded the earlier *unified monopoly network*--to a *system of systems*, in which systems integrators link up with each other. The Internet is an early example.

As this process continues, the networks will cease to be territorially organized. Territoriality was based on the need for a network architecture that primarily minimized cost by minimized transmission distance. It led to the creation of the 'German network,' or the 'New York network.' This technological and economic territoriality suited governments everywhere just fine, because their jurisdiction, too, was based on territoriality of, and they could thus conveniently exercise control and even ownership over "their" network. But with networks increasingly becoming pluralistic, and with groups breaking off their

¹² Noam, Eli, The Future Structure of Telecommunications: From the Network of Networks to the System of Systems, CITI Working Paper Series, 1992.

communications needs from the public network and aggregating them in their own associations, territoriality becomes secondary. Many of the communities of interest transcend national frontiers. Their interests are continental and global, and so are their networks.

4. The Social Implications of Group Networks

The discussion of the previous section aimed at demonstrating the dynamic of disaggregation in networks. If one gives individuals the freedom of association, they will form new types of interlinkages which we call networks. What are the consequences?

Most observers focused on the redistributive aspects of change, even though this is one of the easiest problems to fix.¹³ To identify with the more fundamental change, I would like to propose a basic principle: anytime one enhances some informational flow, one reduces (relatively) another informational flow. Of course, this is no formal zero sum game, but there are tradeoffs, given a limited personal and organizational processive capability of information. When the ratio of the cost and convenience of having a distant personal and professional relationship to having a close one changes, the result will be changes in the pattern of economic and social interaction. If one develops new routes of communication, old ones atrophy. In baseball, the Pacific Coast League prospered before the 1950's. When faster planes speeded up intercontinental travel, major leagues could relocate. The Pacific Coast league declined, and Brooklyn lost the Dodgers. It would be naive to believe that powerful telecommunications would not cause drastic change in established patterns of

¹³ Noam, Eli, NetTrans Accounts: Reforming the Financial Support System for Universal Service in Telecommunications, CITI Working Paper Series, 1993.

interaction.

Take mobile communications. We must stop thinking of it as a cordless phone. It is just as much a group medium, a broadcast medium, a mobile bulletin board. Telemarketer will use it to call hundreds of people at the same time, broadcast fashion, and targeted only to specific groups. Entertainment programs can't be far. And then adult programs. There will also be, no doubt, "personal broadcasting" where a person can address hundreds of often innocent tele-bystanders and transmit -- via voice, text, or video -- his views on any subject.

But if everyone talks, who will listen? It's like writing academic articles. So the inevitable outcomes of personal broadcasting will be an escalation of the "heat" of presentations, and specialization into micro-casting, where people talk to highly specialized audiences. The result is a loss of common messages, what used to be called the common denominators, and a de-massification of the public.

5. The New Electronic Neighborhoods

Network grouping emerge of people who are in regular contact with each other through shared interests, whether social or professional. There is no need for these groups to be of people who are physically close to each other. They could be all over the country, and, with automated translation all over the world. They form "telecommunities"¹⁴ that become an entirely new social environment. But they are not just the electronic equivalents of

¹⁴ Reingold, Howard, The Virtual Community, Boston: Addison-Wesley, 1993.

physical communities. By their nature, the tele-communities tend to be specialized and stratified, generating narrow and specialized groups of people who share interests and views. There is less of the averaging that takes place in the physical world.

A few years ago, it became fashionable to speak of communications creating the "global village". There was something inspiring in this image, communal and peaceful. But there is nothing village-like in the unfolding reality. Instead, groups with shared economic interests are extending national group pluralism through the opportunity to create global interconnection with each other into the international sphere. Indeed, communications make international pluralism easier because it is easier to reach critical mass for subnetworks if one aggregates across several countries.

The new group network do not create a global village, they create instead the world as a series of electronic neighborhoods. In the past, neighborhoods had economic and social functions. In New York for example, there are Chinatown, the Garment District, Wall Street, Madison Ave., or the Theater District. Elsewhere, there are regions with specialized production. Solingen and Sheffield for cutlery; Lyons for silk; Hollywood for films; Silicon Valley and Route 128 for microelectronics.¹⁵ Production clusters create economies of aggregation that substitute for the economies of scale and scope of the giant multi-product firm. Physical proximity was a key. But now, group networks can serve many of the functions of physical proximity. They interconnect specialized producers, suppliers, buyers, experts, and markets. They create new ways of clustering, spread around the world.

¹⁵ Piore, Michael & Charles Sabel. The Second Industrial Divide: Possibilities for Prosperity. New York: Basic Books, 1984.

Some of these electronic neighborhoods will be nicer than others. They will perform better, faster, and often even cheaper. In developing countries, the networks of those transacting with the world are already becoming better than those of local people. In places like China or Egypt, a two-tier communications systems has in effect emerged.

Networks will also be stratified along socio-demographic dimensions. Already, some long-distance resellers in the U.S. offer bonuses to churches or unions if they sign up their members. Such marketing efforts will lead over time to group networks of particular ethnic, religious, political, or professional groups.

In some cases, one could imagine groups electronically "seceding" from others, or by restrictive information flows from certain other tele-communities. And as this happens, territorial conformity declines. Commonality of experience declines. Grass roots are substituted by fiber roots.

Historically, the nation state was at tension with cross-border allegiances--whether proletarian international solidarity, rebellious youth culture, international financial capital, or ethnic minorities. The new network environment weakens national cohesion. It strengthens particularism and internationalizes it. It is difficult for a state to extend its powers beyond traditional frontiers, but it is easy for the new networks to do so.

Naturally the workplace would be transformed, too. In the past, jobs and work arranged in a way that assures physical access to the physical object of work, and of physical teamwork. People worked close to each other and to the object of their physical labor. Later, with the rapid growth in informational occupations, reachability and access to the information flows and to its rapid processing became key. Within an organization that meant

substantial clustering and stationariness.

But through network arrangements, the need for physical presence declines, given the cost of commuting and office space. This is much more than telecommuting. Being continuously electronically tethered to an organization means continuous participation in group work, information-sharing, accessing documents, etc. The office becomes virtual rather than physical. The company itself becomes a virtual organization, a network relationship. Since one will often work for multiple virtual organizations simultaneously, the classic employer-employee relationship is superseded by freelance type arrangements, in which the organization bids for particular skills it needs at that moment.

Not working physically at any particular place means that traditional separation of workplace and home, of worktime and free time, of public and of private, becomes vague. The electronic community intrudes into the physical community. In theory, to escape continuous availability, one can disconnect. In practice, one is expected to be reachable.

6. Networks become Jurisdictions

The network groups possess and acquire powers of their own. They link powerful entities or aggregate many small ones and can bring their combined powers to bear. Once groups are in constant touch on some issues, they may as well get organized on other issues, too. The communications network becomes the political network.

Politics, too, will be transformed. For example, mobile communications will permit powerful techniques of political mobilization. This is positive in terms of political

participation, but it also may be a case of too much of a good thing. Political groups can become continuously connected to each other, sometimes cult-like, over great distances. The term "political network" becomes one of telecommunications reality. With the voice of the leader in the followers' ear, giving instructions and exhortations, people could be mobilized to respond to an event, to march, to protest, to raise their electronic voice by contacting their representatives, who in turn register public response in real time. Political stability requires a certain inertia. Instant and constant communications thus reduces stability.

The network associations are likely to become quasi-jurisdictions. They have to mediate the conflicting interests of their members. They have to establish cost shares, sometimes creating their own de-facto taxing mechanism as well as redistribution. They have to determine major investments, to set standards, to decide whom to admit and whom to expel. As a network becomes more important and complex, control over its management becomes fought over. Elections may take place. Constitutions, bylaws and regulations are passed. Arbitration mechanisms are set up. Financial assessment of members takes place.

In other cases, networks can become jurisdictions because the traditional territorial arrangements break down. Take the present drawing of electoral districts. In order to achieve the representation of ethnic minorities in a territorially-based electoral system of contiguous districts, the shape of these districts has become physically bizarre and legally contested. The logic of the "majority-minority" policy leads, first, to electoral district archipelagos, and then to districts that are, in effect, virtual and based on group identification--networks rather than territories.

Thus, we may be witnessing the creation of new and often extraterritorial forms of

new quasi-jurisdictions that are often not clearly subordinated to others. In response, governments might create forms of domestic and international regulatory mechanisms for specified sets of problems, possibly based on global networks themselves that continuously collect and exchange information, track activities, and coordinate enforcement. The optimal size of jurisdictions was always dependent on communications. French departments were based on the distance that a horseback rider could cover in a day. Empires broke up for lack of rapid communications. Transportation and communications technology changes the optimal size. It is hard to imagine a European integration without telecommunications.

7. Networks Will Exercise Power Toward Their Members

A network group can dominate its own members. The power of the network becomes most obvious when it is operated by a dominant entity. But in group networks, too, the majority can restrict the minority.

- The network of a university such as Columbia limits terminal equipment, restricts access to certain outside services, charges monopolistic prices, and could legally refuse to serve political activist groups.

- The major U.S. videotex service, Prodigy, prevents user groups from discussing politics on the system as well as discussing the Prodigy system itself. When Prodigy, which provides extensive messaging service, announced that it would raise the rates for such messages, a group of subscribers posted notices in a "public area" of the system encouraging other subscribers to protest. When Prodigy removed these messages, the protesters turned to

the private message feature, and sought help from advertisers. Thereupon, Prodigy cancelled the subscriptions of the protesters.¹⁶

- The National Science Foundation urged NSF sites to remove from computers networks scanned image files of arguably pornographic but legal images.¹⁷

- In 1987 a debate raged at Stanford University over a joke file on the University's computer system. Because it contained jokes offensive to some groups, the university was widely pressed to impose restrictions on content, which it could have done legally.

- Employers frequently block the ability of their employees to reach certain numbers. While this is based on protections against running up telephone bills generated by dial-it services, the principle could be extended to an exclusion of messages of a type undesirable to employers, such as those of labor unions.

- In so-called intelligent buildings, landlords provide communications to occupants. These "shared-tenant services" are largely under the control of the building owners, whose interconnection decisions determine which networks tenants can reach.

What are the constitutional rights for members of such groups? The scope of these rights is undefined. Constitutional protections do not appear to exist where no state action exists. Regulatory impositions of such obligations are possible, but are limited by the rights of groups to substantially define their membership and the rules under which they operate, especially where a major purpose of the groups is communication, and thus the exercise of a fundamental right itself, i.e., of speech. In other contexts, the exercise of rights can be

¹⁶ Professor Henry Niman, per Marc Rotenberg, communication

¹⁷ M. Rotenberg, communication.

stymied by access problems, especially to the workplace or to the shopping malls that take today the role of public gathering spaces. By analogy, networks could be considered private spaces too.

But wouldn't one always have the "public" network to fall back on? The answer is no. As I have argued elsewhere,¹⁸ the institution of common carriage, historically the foundation of openness in public networks, will not survive the emergence of "private" group networks.

A private carrier will be economically more profitable than a common carrier, essentially because it has more flexibility in setting pricing, service conditions, and choice of customer. It can be shown that it will not be economically possible for traditional common carriage to prevail in head-to-head competition with private carriage. In consequence, we are likely to witness a gradual erosion of the common carriage principle in public networks.

In theory, a user could always pick another network. In practice, the need for systems to access each other and for information to travel over interconnected carriers means that the restrictiveness of any one of the participants might require others to institute content and usage tests before it hands over traffic, or to conform to the most restrictive principles.

8. Conclusion

The principle of user control has the powerful potential to expand, and in doing so it collides with individual choice. Group formation always had a double-edged aspect. On the

¹⁸ Noam, Eli, The Impending Doom of Common Carriage, CITI Working Paper Series, 1993.

one hand, they were an extension of individual rights. De Tocqueville noted that the "right of association . . . almost is unalienable in its nature as the rights of personal liberty." On the other hand, freedom of association led to situations inimical to individual as well as to a more general public interest. While many are agreed with the significance of pluralism,¹⁹ others note the negatives.²⁰

In communications, the exercise of freedom of association lead to group formation that are inevitably restrictive of speech, political exercise, and membership.

Communications technology connect people in new and often exciting ways, but it also disconnects people, in often problematic ways, from traditional community patterns.

This scenario is very different from the happy hype of harmony and health in the global village, the wired city, or the national information infrastructure. And this should not be surprising. Let us recall how the Federal Interstate Highway system, the parental inspiration to Vice-President Gore's Information Superhighway, has changed America. It transformed the way we live, work, shop, and socialize. It radically changed the cityscape, providing the middle class with avenues of departure. In the 19th century, the railroads similarly remade American social geography. Shouldn't the electronic superhighways have

¹⁹ See, for example, Dahl, Robert A. Who Governs? Democracy and Power in an American City, New Haven: Yale University Press, 1961; Lasky, C. Foundations of Sovereignty, 1921; Lindblom, Charles E. The Intelligence of Democracy: Decision Making through Mutual Adjustment, New York: Free Press, 1965; Truman, David B. The Governmental Process: Political Interests and Public Opinions, New York City: Knopf, 1951.

²⁰ Nisbet, Robert A. The Quest for Community: A Study in the Ethics of Order and Freedom, New York: Oxford University Press, 1953; Lowi, Theodore J. The End of Liberalism: The Second Republic of the U.S., 2nd ed. New York: Norton, 1979; Kariel, Henry S. The Decline of American Pluralism, Stanford, Calif: Stanford University Press, 1961.

similar far reaching-effects?

Communications define communities, and communities define politics. Thus, the breakdown of the coherent national communications system reflects and accelerates a fundamental centrifugalism that will reshape, in time, the country in many ways. We are barely at the beginning of this evolution. But if we don't know where we are going, we will end up there.

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