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Telecommunications policy and the pleasure principle

Carolyn Marvin

Most serious discussion of telecommunications policy is governed by a utilitarian framework in which the success of communications networks is measured by some criterion of productivity. This exclusive emphasis creates undesirable rigidities in large communications systems upon which industrialized societies are so dependent. An analysis of productivity constraints on the social flexibility of existing networks is offered in support of an argument for deliberately building playfulness, in line with certain modest proposals, into the organization of emerging networks of communication.

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Although it is an acquired fetish, the study of telecommunications policy has certain well-known seductions. The prospect of sharing inside secrets, of understanding significant trends and events not generally understood, of observing at close range the transfer of big money and big power, of presiding over the emergence into daylight reality of extravagantly spun technological fantasies, are part of what stirs the blood of policy conservatives, liberals, and radicals, and induces them to become researchers, consultants, and occasionally policy makers. The communications policy research game is not officially cast as a glamorous research enterprise, however, since the thirst for glamour is styled as a weakness only to be expected of policy makers. Within the research community the policy game is represented as a tangled contest of special and public interests urgently requiring the even-handed analysis of experts. Little thought is given by policy analysts to other kinds of games that might be played with the same communications technologies. It may be well to consider from time to time, therefore, what usually is not considered.

Modern systems of telecommunications are organized almost entirely around the values of productivity, values that are almost as unchallenged in our culture as they are unacknowledged – at least in areas like telecommunications where the possibilities of other frameworks have rarely been discussed. In Western social science, productivity is a measure of efficiency in the use of resources based on a comparison of ratios of outputs to specified inputs of labour and capital. The narrow range within which such inputs are usually defined makes this measure a problematic one, and reflects a history of attitudes about economic rationality that Max Weber introduced into sociological discussion as ‘the spirit of capitalism’. Stripped now of its religious moorings, this spirit is hostile to playfulness for its own sake, to the possibility of wasted time, to any evasion of the relentless responsibility to rationalize all activity to pecuniary profit. Its manifestations have been as crude as early industrial psychological efforts to discipline the labourer’s every muscular movement to maximally efficient production, as varied as claims that music can be transformed into an acoustic stimulus curve called muzak to increase worker output, as subtle as the logic by which vast technological systems of social communication are organized.

There are alternative frameworks for constellating social communications. This article considers the present framework from the perspective of what a playful one might look like. It argues that playfulness ought to be systematically incorporated into communications networks emerging from new technologies on behalf of significant social interests. Though playfulness is irrational by conventional productivity criteria, it has always been valued in original or face-to-face communication. Anthropologists, psychologists, and others have considered it a necessary condition for symbolic communication and for creativity; that is, for the very exercise of adaptive intelligence. But first, since it is customary to set up an argument for policy change with tables, graphs, and other objective correlatives of the present era, we will set up this argument with a story.

Among the Yoruba of Nigeria there is the tradition of a great rainbow serpent that circles the world. Aido-Hwedo carried Mawu the Creator in his mouth as she went about making and furnishing the earth. The world curves, winds, has high places and low places because of the movement of the serpent Aido-Hwedo carrying the Creator. But when the creation was finished, the earth had too much weight from too many things: too many trees, too many mountains, elephants, everything. It was necessary for the earth to rest on something. So Aido-Hwedo coiled himself round and rested underneath the earth to hold it up.¹

At our own great remove from Yoruba tradition, the rainbow serpent that circles the earth could be a whimsical metaphor for the multilayered ether that supports the world by carrying around it the messages by which it functions. The ether is a carrying pad stout enough to permit the world to become heavier and heavier with messages and denser with the connections among them. Thus it is that the multilayered ether, like Aido-Hwedo, has helped create and furnish the modern world with its great quantities of objects, sounds and images. We do not usually explain ourselves by appealing to the mythic fantasy of Aido-Hwedo because we no longer see the world we live in that way. With the assistance of the same rainbow ether, we have cast aside a world rich in symbolic ambiguity and power for the single-minded pursuit of explicit consciousness stretched to capacity like a fully extended rubber band. Our ideal collective consciousness would be a Laplacean communications network connecting everyone and every message to everyone else and every other message through every point in time. In this network nothing would be implicit or hidden. In its imaginative power, however, the set of fully specifiable relationships that constitutes such a concept of a communications network is sadly impoverished in comparison to a uroboric rainbow. Anyone who thinks otherwise should ponder Dr Johnson's modern, which is to say, mechanistic definition of a network as whatever is 'reticulated or decussated, with interstices between the intersections'.

What is the historical consequence of transforming a world in which power was stored in the magic of symbolic ambiguity into a world of fully articulated, demythologized experience modelled on the machines we so admire, and dedicated to their increase? In the conventional account of the transformation, the loss of symbolic power is rarely even a topic of speculation. Technological Whiggism sees only improvement of life and society in a world of multiplying things, crowding and pushing out imaginative activity previously devoted to the invention, elaboration, and cultivation of powerful fantasy.

In the historical tug-of-war between utility and fantasy, the trend has

¹This account is taken from Melville J. and Frances S. Herskovits, *Dahomean Narrative: A Cross-cultural Analysis*, Northwestern University Press, Evanston, IL, 1958, pp 135-56.

been for useful information to colonize ever larger portions of mental territory at the expense of playfulness of mind. We have chipped gradually away at imagination to make our minds more efficient tools of production. The purposes to which ever larger portions of our lives have been committed are largely instrumental. At the very moment, for example, that knowledge becomes 'information', a utilitarian commodity like other goods and services, at that moment we deny the contribution of imaginative fantasy to socially valuable thought. This state of affairs has often been expressed as an artificial distinction between serious important thought devoted to productive ends, and frivolous trivial thought that is not. There have been many conceptual efforts to keep play safely at a distance from the weightier concerns of civilization. The ethnologist Karl Groos argued that play was preparation and practice for adult endeavour, especially warfare. G. Stanley Hall saw it as a biological repetition compulsion recapitulating the history of the race. Piaget regarded it as an index of, but not a formative element in the intellectual development of children. Even Johan Huizinga, for whom play was the centre of human experience and the foundation of culture, insisted that it was always clearly marked off from real life by means of special procedures and special places.²

Contemporary theorists have been more impressed with the range of playful activities and with the playful aspects of all activities, especially work. Gregory Bateson has argued that play among higher animals is the metacommunicative discrimination and manipulation of logical levels and categories of abstraction, an experiment in the elaboration of possible orders. Play illustrates the thinking process and is not its peripheral product.³ Theorists of interpretation like Jacques Derrida have argued that play never stays entirely within the structures assigned to it in even its most rule-bound expressions, but creates new structure wherever it is found.⁴ James Hans has observed that the social status of work in our culture is judged not only in terms of lucrativeness, but also by whether or not it is playful.⁵ The greater the apparent playfulness of work, the higher its status.

Although it is good rhetoric to deplore the familiar polar division of work and play, these are not merely rhetorical categories. Our entire institutional system of social communication, the structure of who may speak with whom about what, and over which instruments, is freighted with appeals to productive function and with suspicion of other alternatives. To handle financial transactions, to keep the periphery in touch with the centre, and to collect, assemble, and disseminate an accurate picture of the changing relationships within the global community is the work of a complex, capital-intensive network of electronic links by telephone, computer, and satellite.

These links give existence to a community grown far beyond a size controlled by personal interaction, which was the effective social size of most human communities until the coming of the railroad and the telegraph just over a century ago. Technologies originally intended to enhance personal interaction now dictate its domain with increasing niggardliness, since personal interaction is of little use for maintaining social, economic, or political units grown far beyond the very possibility of its exercise. Because our communities are more and more technological constructs than constructs of immediate experience, to have access to powerful technologies of communication has become a condition for admission to the mainstream of social life. The denial of access is likewise

²Classic texts in the literature of play include Karl Groos, *The Play of Animals*, Chapman and Hall, London, 1898, and *The Play of Man*, D. Appleton, New York, 1896; G. Stanley Hall, *Adolescence*, Vol 1, D. Appleton, New York, 1904; Jean Piaget, *Play, Dreams and Imitation in Childhood*, W.W. Norton, New York, 1962; and Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, Beacon, Boston, 1955. One of the best overviews of theory and research on play is Helen B. Schwartzman, *Transformations: The Anthropology of Children's Play*, Plenum, New York, 1978.

³See Gregory Bateson, *Steps to an Ecology of Mind*, Ballantine Books, New York, 1972, especially pp 177-193.

⁴Jacques Derrida, *Writing and Difference*, University of Chicago Press, Chicago, 1978, pp 278-293.

⁵James S. Hans, *The Play of the World*, University of Massachusetts Press, Amherst, MA, 1981, p 15.

a tool for excluding and disenfranchising those whose concerns are thought to be inappropriately directed. The higher in the technologically organized hierarchy of power one moves, the more productively justifiable his or her connection into its web of communications must be.

The possibilities for connectedness range from the periphery, where passive exposure to the marketing message of television requires no productive certification at all, to the centre, where active control of privileged information about trade, politics, and national security requires the highest certification. Close to the centre, large bureaucracies must be erected to designate and monitor entitled communicators and to set parameters for their interaction. But even the most determined and thorough effort to rationalize and efficiently narrow communication for productive ends will never entirely prevent people from discovering ways to outwit rules and structures that interfere with more comfortable modes of social discourse. Communication among people who know one another will always be subversive of externally engineered procedures for interaction.

Restrictions on electronic mail

The fetish of utility nevertheless shapes certain aspects of US communications policy and has contributed to certain tensions in communications practice. Consider the ARPANET, the Defense Department's Advanced Research Projects Agency network, the giant computer communications system to which users are attached by becoming certified members of the defence research community, a sober-sounding club indeed. ARPANET communication is often official and staid, but just as frequently it is social, playful, informal, and idiosyncratic. For a sizeable number of users the ARPANET is a large and powerful network for personal interaction. Although, strictly speaking, the certification of a significant number of users as defence researchers may be of doubtful legitimacy, these users form a community united by their achievement in foiling the system. The Defense Department does not publicly acknowledge the extraprocedural character of much ARPANET message traffic since the ARPANET is not a legal common carrier, and the kinds of messages it may carry are formally restricted.

The utility criterion likewise governs even deliberate efforts to make technologically organized communications more humane. A programme to bring the paperless electronic office painlessly to middle managers at Continental Illinois National Bank and Trust Company, a firm considered a leader in enlightened employee relations, offers a telling example. Continental employees, whose motives for talking to one another do not always conform to a system of productivity-oriented communication, recently reacted to the introduction of the new system in an unanticipated way.⁶

To send a message by interoffice electronic mail at Continental, a user keys the message text onto a video display screen. He or she then narrows a sequence of options offered by the computer for forwarding the message, distributing copies, and so on. Mail once sent cannot be retrieved. Since the message is not placed by hand into a separately addressed envelope, since no physical transportation of letter to mailbox is involved, and since instructions to the computer involve only a few keys, the risk of sending mail to unintended receivers is greater than with familiar paper and typewriter technology, especially for inexperienced

⁶Louis H. Mertes, remarks during 'Managing the Information Age', a panel discussion April 2, 1981, for *Communications in the Twenty-first Century*, sponsored by Philip Morris Manufacturing Center, Richmond, VA.

users. Recently, love letters written by a couple of Continental's employees to each other were accidentally forwarded to their bosses. At first Louis H. Mertes, vice president and general manager of Systems at Continental, the man responsible for overseeing the programme's success, was not pleased that Continental employees had used a business-message network for such personal communication. Then it occurred to him that 'at least they were learning to use the equipment'. With his company's good reputation for employee relations in mind, perhaps Mr Mertes convinced himself that the purpose of business had after all been served in this only apparently non-productive way. What is unclear is whether employees who need no further practice in learning to use the mail programme would be as easily pardoned.

Radio for fun

Past policy efforts to establish flexible multipurpose communications systems have also rarely looked beyond the work ethic for justification. The dramatic post-war largesse of spectrum space created by the invention of radar, for example, gave the Federal Communications Commission a real if short-lived opportunity to allocate portions of the radio spectrum directly to citizen use, instead of to services operated solely in their name. Despite its declared intent to establish a highly versatile radio service, the FCC's early vision of Citizens Radio, the ancestor of Citizens Band Radio, was safely utilitarian. Planning documents discussed the use of radio for truck dispatching, for coordinating work on farms and in factories, on harbour and river craft, and wherever the productive efficiency of small business might be improved.

The FCC also sought to establish legitimate (which is to say, non-recreational) 'personal use' of Citizens Radio. Many of its rule-making examples depicted doctors, lawyers, and other high status professionals using personal radio for leisure time activities like flying, hunting, mountain climbing and boating – pastimes frequently beyond the financial reach of the general citizenry. Although FCC rules forbade using Citizens Radio as a medium for sociable communication (in its rule-making examples, personal radio was limited to facilitating the conduct of leisure time activities and promoting their safety), its early policies in effect countenanced recreational use of personal radio by certain groups with high status in productive society. The FCC's conservative vision did not include the factory worker using Citizens Radio to coordinate a labour strike, or to alert his wife as he stepped on the bus that he would soon be home for dinner, though both activities were within the FCC's non-recreational definition of 'personal use'.⁷

From its inception in 1949, the Citizens Radio Service was a popular medium for informal social communication among blue collar workers in the small businesses that did use it. The FCC primly and unsuccessfully resisted this violation of its rules. Apparently hoping to clear out hobby use, the agency cancelled the old Citizens Radio Service in 1958 and opened a new band of Citizens Radio frequencies. The new band absorbed a steadily growing number of friendly communicators until the oil embargo of 1973 catapulted it to the attention of a mass public and wrested it from even the pretence of FCC control. Mass CB radio destroyed many small user communities operating for fun and practising informal, socially flexible self-regulation.

Massification replaced these communities with hit-and-run broad-

⁷See Carolyn Marvin and Quentin Schultze, 'The first thirty years: CB in perspective', *Journal of Communication*, Vol 27, Summer 1977, pp 104–117.

casters who had no particular restraining group identities or loyalties, and whose notion of using the radio was to blast everyone else within range off the air. An opportunity to establish friendly radio communication within a manageable framework of mutual voluntary responsibility was not only missed, but actively discouraged.

In its attempts to restrict the Citizens Radio Service to business-like communication, the FCC repeatedly reminded the using public that electronic communication for fun did exist in the Amateur Radio Service. But amateurs were permitted to have 'fun' on the hobby band only after negotiating a series of increasingly difficult technical exams pegged to ascending privileges of use. Moreover, the ham radio band is the Indian reservation of the spectrum, eking out an existence at its spottiest fringes. In the sole radio service whose object is the sheer delight of conversation, FCC policy makes eligibility difficult for more than a tiny fraction of the population to achieve. In every feature of its structure ham radio carries the familiar Puritan feel of unrelenting seriousness of purpose.

Entertainment for profit

Over the telephone, the only widely accessible electronic medium for informal interactive communication we have, the social encounter is considerably trimmed down. Vocal cues alone are present, and only two persons may conveniently interact at once. The telephone's major historical experiment with group communication was the party line, early stigmatized as a primitive technological stage on the way to a higher level of complete privacy and convenience. The perfected telephone, at least the one most families can afford, organizes the experience shared over it as surely as if a powerful authority had forbidden the citizenry to gather in groups of more than two except on special holidays like Christmas, Thanksgiving and Mother's Day, when the telephone is passed from hand to hand at each end of the wire.

The recent settlement of the Justice Department's antitrust suit against AT&T is unlikely to improve things. Expected dramatic rises in the price of local telephone service are part of a long-term trend towards precision billing which has accompanied the political transformation of flat-rate universal telephone service performing a relatively narrow range of functions into an expensive *smorgasbord* of specialized services for commercial users. Even for basic telephone service, consumer pricing is an increasingly exact function of time on the wire and message distance. Usage-sensitive rate structures do make possible an orderly transition to a more competitive system, but their greatest beneficiaries are telecommunications vendors and their largest-volume users. Precision billing serves efficiency and work, not play. The changing economics of small-consumer communications may also affect the sociability of telephone conversation by encouraging inflation-pressed families to cut back on communication for fun to allow communication for necessity. In any case, precision billing preoccupies telephone users with time. It is an enemy of the unselfconsciousness of time that is part of the true condition of playfulness.

There is a system of highly profitable, highly visible electronic communication for fun in the USA, but it is assiduously one-way. It is commercial broadcasting. While policy makers have always been reluctant to trust the scattershot spontaneity of individual citizens to entertain themselves with the advanced gadgetry of telecommunications.

billions of dollars have been invested in the highly-routinized, controlled entertainment medium of network programming. This is not play at all but communication carefully controlled to sell products to consumers.

With the emergence of new technologies of communication promising greatly increased channel capacity and interactivity, scarcity of the means for communicating is sometimes dismissed as a thing of the past. So far this promise is largely theoretical. The notion that new technologies will absorb the overflow of necessary message-making and will offer a wealth of extra channels for imaginative play and development is an idea whose time has come and gone before in the history of communications. The introduction of new technologies with orders of capacity, flexibility, and speed greater than whatever was previously available has never put an end to channel scarcity. The civilizations to which writing and printing first came learned to swallow the increased volume of messages those technologies made possible and to demand more. Channel scarcity has always depended more on social, political, and economic restrictions than on technological virtuosity.

The more communications we create, the more opportunity for purely imaginative communication there could be. But the rhetoric of productivity suggests play, like art, is distinctly subordinate to the paramount task of managing the world's ever more tightly wound economic machinery. On the contrary, as an activity with no explicit utilitarian aim, as the cultivation of fantasy for its own sake, play has a social function of the greatest significance. By exploring the unexpected and the surprising, play lays the groundwork for social and personal transformation in non-coercive ways. If play has a ritualistic and socially conservative character on many occasions in industrialized societies, genuine playfulness is still healthily subversive of mechanistic, routinized structures and procedures. It stretches the imagination by releasing it from bondage to a single task. It promotes transformation by encouraging the shock and delight of the unanticipated. Its compelling agent is not the exigency of coercion but the intellectual fascination of previously undiscovered possibilities. Play is a genuinely constructive instrument of social change.

The more constrained and specialized the productive roles imposed by society, the more important is the existence of an experimental margin within which more fragile and tentative aspects of personal and social development can flourish. A rigidly focused psychological mobilization that resists the plasticity of playfulness and denies the necessity for negotiation, flexibility and change in all areas of collective life, perhaps most especially productive life, can only polarize and fracture the very institutions to which change must sooner or later come. Because it departs from familiar categories of productive effort and common sense, play gives greater dimension to all experience. To play is implicitly to grant that reality is complex and multiform, a useful starting point for the world we actually live in.

Play is also built into the structure of symbolic thought. It is the dimension along which symbolic ambiguity operates to create metaphoric identifications and associations, and the missing ingredient in non-symbolic thinking (a strict impossibility, perhaps, but nevertheless the apparent goal of much productive organization), the mentality of narrowly explicit, task-oriented consciousness. Collective play makes possible a sense of mutual responsibility and moral accountability based on direct experience of other persons and negotiation from concrete social circumstances, a valuable counterweight to the remote, rule-bound

ordering of so much of our social experience. The more our lives are subject to the rationalizing appetite of machines, and the more directed they are to the maintenance and extension of a machine culture, the more socially essential true playfulness is. It may be the case that play can offer us imaginative worlds to cultivate that do not require the production and consumption of ever more goods for their maintenance in a world of diminishing resources, an alternative to the insatiable overconsumption that characterizes so many industrialized societies.

As saturated with the rhetoric of productivity as our cultural atmosphere is, it is revealing to observe how often discussions of the impact of new technologies describe a future of playing with powerful communications machines, in which these machines will make the workplace and working less like work, more like fun. Some claims on behalf of this ideal are quite modest; for example, that computer terminals at the office will eliminate many kinds of paperwork. (We are fast discovering, of course, that bureaucracy flourishes without paper, and that computers engender bulky new forms of paperwork.) Many of those with the greatest faith in the final solutions of technology hope to eliminate the office, a remnant of our factory heritage from the Industrial Revolution, and to relocate work in the more humanizing environment of the home. By encouraging flexible worktimes and by saving the time and cost of moving to and from urban workplaces, remote terminals are expected to bend the rigid tyranny of eight-hour days that have divided work from home life. Those who have not been part of the productive mainstream because of physical handicaps or responsibility for others, may now lead what we are pleased to call useful lives.

Meanwhile, office computer systems are being sold to managers who are mainly interested in whether or not those systems increase productivity, and who are not noticeably motivated by nostalgia for pre-industrial pastoralism. In 1980 the National Institute for Occupational Safety and Health estimated that more than five million office video display terminals were daily used by between five and seven million workers of different kinds, including bank tellers, secretaries, travel agents, journalists, stockbrokers, and higher and higher ranking managers.⁸ Office VDTs have generally been imposed by managers on subordinates, but in the true pattern of a revolutionizing technology too powerful for well-meaning but disorganized intentions to contain, the routine of the computer is just as inexorably climbing the management ladder as well.

The phenomenal capability of interactive electronic machines to rapidly process vast strings of messages over wide-flung areas is not likely to re-establish autonomous self-sufficient cottage industry. It is more likely to set up an ever widening, ever tightening web of dependence from the periphery to a controlling centre equipped to issue orders and monitor obedience with rigid efficiency. Work in the home will not confer independence upon many workers who do not already have it; it will permit the extension of corporate routine and control into the home, which ought instead to be a place to nourish imaginative freedom. Work and play may have been forced apart by the Industrial Revolution (to describe a complex historical shift somewhat too summarily), but electronic networks cannot put them back together again, any more than the 'global village', patched together by television out of the fragmented experience of the world, and served remotely up in living rooms can recreate the social character of pre-industrial communities.

At a time when concerns about declining industrial productivity are

⁸Gail Bronson, 'Video display units blamed for anxiety, pains and strains', *Wall Street Journal*, 16 June 1980.

making large claims for our attention, there are temptations to allow our anxieties to mate with new technologies to produce offspring with totalitarian potential. The most rational way to mobilize the total work force more and more of the time for productive labour (or for unifying propaganda that creates the necessary atmosphere for acceptance) is by an interactive communication system that extends the workplace, the police station, the income tax auditor, the bank, and no doubt the official agency created to supervise the transition, into private space. When the office reaches physically into workers' homes, then whether the weather is bad or there are traffic jams, whether there are holidays or weekends, whether they or their children are ill, whatever the circumstances may be, those workers are on full-time call. No aspect of their lives will thereafter be psychologically exempt from limitless productive responsibility.

Instead of permitting new communications technologies to narrow our lives by productively rationalizing greater areas of experience, we should strive to enlarge the domain and variety of humane interaction by building ample opportunities for playfulness into newly extended systems of communication. Just as we mandate and support playgrounds and parks in our cities and provide informal spaces for relaxation and association in our buildings, we need intellectual parks in our computer systems – dedicated blocks of computer time and memory framed by flexible, powerful programmes – in which many different people can mingle and amuse themselves in different ways, according to their desires.

Commercial video game arcades may appear to represent a certain progress in this direction, but they are surely no more adequate to the purpose outlined here than toy stores are adequate substitutes for playgrounds. Like television, commercial video games pre-empt rather than promote personal communication. Nor, in presenting a severely limited range of response options, do they give users much sense of the real intellectual power of computing. To date, one of the few visible applications of video game skills is to military service, since military organizations are coming to regard the arcades in which the games are housed as prime hunting grounds for potential recruits mesmerized by the fantasy of high-technology conquest.

Surely there are broader horizons for computing for fun. In a scheme of categories of play that has had enormous influence among researchers, Roger Caillois defined competitive play, or play against adversaries (*agon*), play against chance (*alea*), mimicry, and play directed toward disorientation, vertigo, or loss of the normal stability of perception (*ilinx*).⁹ Caillois also superimposed on these categories a dimension of ways of playing ranging on a continuum from spontaneous, anarchic improvisation to elaborate regulation. What is noteworthy for our purposes is that computing provides the instrumentality for all of these categories and ways of playing, including games that simulate the dizzying sensation of manoeuvring a speeding vehicle, games that challenge chance or other players, games that permit freedom for the wildest of fantasies, and games in which elaborate structures are created according to complex rules.

The construction of communications systems that take advantage of all these possibilities to encourage people to communicate playfully about the things that interest, attract, amuse, engage, and disturb them is not, however, something that will develop 'naturally' as computers come into their own, any more than improved computer missile guidance systems develop 'naturally'. Only specific commitments of funds and the

⁹Roger Caillois, *Man, Play and Games*, Schocken Books, New York, 1979, pp 11–36.

development of concrete proposals can make such multipurpose resources available. Neither step can be taken without clear public recognition of the importance of dedicating some portion of expanding communications capacities to the full range of concerns of potential users, either within a single existing system, or within a network of systems that can be extended to new user communities for just these purposes.

We are understandably proud of the world of objects, images, and sounds that large-scale technology has given us, but technology unrestrained by clear standards of human dignity will serve us ill.¹⁰ An essential component of human dignity is the free and playful exercise of human imagination within a broad arena of social interaction with the assistance of every means of communication at our disposal.

¹⁰See Manfred Stanley, *The Technological Conscience*, Free Press, New York, 1978, for a discussion of this issue in depth.