THE EMERGING TECHNOLOGIES AND THF NATION'S DEMOGRAPHICS:
Telecommunications Programming Opportunities

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Introduction

There is, today, a remarkable confluence of emerging human needs for information and communication and the technologies to meet these needs. Whether society will benefit from this unusual occurrence depends on the existence of institutional structures that facilitate the converqence of the information provider's objectives, the needs of the target audiences, and the appropriate distribution modes. This paper examines the origins of the demand, the distribution technologies on the scene or soon to be available, and the parameters of institutions that hold promise for taking full advantage of the possibilities.

This nation is becoming increasingly diverse

The national demographics point to a society becoming increasingly fragmented. No longer do we glorify the national melting pot, rather we exalt ethnic, cultural, national, and even educational differences. Changing lifestyles, and emerging new lifestyles are clearly the wave of the future. There is a growing demand for these lifestyles and their values, to be reflected in the media.

In 1985, the population of the United States will approach 235 million, representing a population growth of less than one percent per year. Households, however, will expand at twice that rate because there will be more single person households, especially those with single men. Persons per household will decrease from about 2.92 persons at the present time to 2.64 in 1985. The median age will increase from 28.8 today to over 31 in 1985 and there will be a significant decline in the total number of teenagers. Sixty percent of all television viewers will be over 25 years of age and 50% of a11 women will be in the workforce. Educational levels will increase, we shall become an increasingly affluent society, suburban and non-metropolitan populations wilt increase while central cities decline. Much of the population increase wilt take place in the Sun Belt, variously defined as from Oregon and California through the Southwest to the South Eastern seaboard and up into Virginia.

There are tensions in our society that arise from the different values that define lifestyles. Traditional patterns of culture are being challenged, long ingrained beliefs reflected in our economic values, indeed, our devotion to capitalism, the free-enterprise system, individualism, are being brought into question. Religions are shaped not so much through links with the past as with attempts to adapt to the present and prepare for what is yet to come. Daniel Bell refers to these developments as the disjunction of realms.

> "...one can discern the structural sources of tension in the society: between a social structure (primarily techno-economic) which is bureaucratic and hierarchical; and a polity which believes, formally, in equality and participation; between a social structure that is orqanized fundamentally in terms of roles and specialization, and a culture which is concerned with the enhancement and fulfillment of the self and the 'whole' person. In these contradictions, one perceives many of the latent social conflicts that have been expressed ideologically as alienation, depersonalization, the attack on authority, and the like."
> (The Cultural Contradictions of Capitalism. Basic Books, Inc. N.Y., 1978)

The emerging post-industrial society is an information-based society

The balance of employment in the United States has shifted very dramatically in favor of the service industries. The service sector's share of the nation's total employment has grown from about 40% in 1929 to well over 60%

today. The shift from industrial to service employment in the United States, often characterized as the first indication of a post-industrial society, is dramatically dependent on the advancement of knowledge and the availability of information, broadly and equitably. Service industries are information industries; publishing, health care, welfare wervices, education, banking, government, transportation, communications, insurance, etc. etc. Economists have long struggled with a useful construct for dealing with information as a commodity with economic value. As yet their efforts have not borne significant fruit. But today, there are jobs, people, and industries buying and selling and trading information. There are businesses which, without equitable access to information would soon he unable to compete and would fall by the ways.ide. To an increasing degree, economic competition will depend on access to information.

These inescapable facts point to an information based society dependent upon equitable access to many channels of communications.

Available and emerging broadcast and non-broadcast distribution technologies are converting a climate of communications scarcity to one of plenty.

Advances in electronic technologies, the phenomenal qrowth of large scale and very large scale integration processing methods, the convergence of the computer and communications technologies have all created communications channels where heretofore it had been assumed there was a severe spectrum scarcity. Satellites leap-distances at costs tower than is possible with ground based wires or microwave links. And improved broadcast technologies and designs have opened new broadcast channels. A well known cable technology has been transformed into an information delivery system that competes with both broadcasting and the telephone but with the important and attractive feature of being capable of transmitting video information. Video-tape and video-disc systems.are changing the old bycycling networks into national networks facilitated by the mails and potentially widespread tape and disc national sales organizations. More recently, innovative and imaginative use of auxilliary television signals have shown the extent to which the broadcast spectrum and the television receiver can be used for information retrieval system in electronic publishing.

There are, reportedly, over 500 receive-only earth stations scattered throughout the nation. The Public Broadcast Service with all of its public television and radio stations now equipped with earth stations provides the capability to establish broadcast networks as desired.

The PBS Satellite system can be viewed as a means for the creation of networks.

While there are, at the present time only 5 transmit earth stations in the PBS system. Western Union operates or plans to operate up-links in all major cities of the country. Conceivably, a Public Television Station could originate a signal for transmission via common carrier microwave or wire links to an available up-link for distribution via an ad hoc network it has established with other stations in the system who have subscribed to that particular network service.

Recently an official of RCA suggested the possibility of providing every television station in the nation with a receive only terminal at a total cost of less than $20 million. With the addition of several transmit stations capable of reaching the RCA satellite yet another network building system is available. Clearly the prospects for ad hoc arrangements capable of distributing information to receiving stations who have subscribed for a particular

service are considerable. The next several years will see additional satellites in orbit, with the proliferation of earth stations developing additional prospects for networks that meet the specific objectives of information providers and their audiences.

The most effective use of satellite distribution systems require multiple local distribution channels.

Enhancing local distribution options through the development of additional broadcast as well as non-broadcast channels not only broadens the options for national program selection at the local broadcast or telecommunications facility but also offers additional distribution options for local programming. During the last ten or so years, improved broadcast equipment design as well as some innovative public policy decisions at the FCC have increased the number of television and radio channels available to a community. Recent rulings will shortly allow for a significant number of additional radio stations and 61 VHP "drop-ins" have been suggested to the FCC in order to increase the number of television stations available. Improved UHF standards as well as lower cost equipment may lead to the utilization of the almost 30% of the UHF licenses not now being held.

Instructional Television Fixed Services (ITFS), Multi-point Distribution Systems (MDS) and leased common carrier microwave or interconnect services are available for adding to the local distribution services. Cable Television has, it seems, broken the 20% saturation barrier with many formally marginal systems now doing well financially because of Pay-TV and the super-stations and can be expected to reach 35% saturation by the mid-80's. Finally, video-tape and video-disc systems have and will shortly reach the market, offering abundant terminals for both local and national "copy" telecommunications networks.

The distribution opportunities for the information providers-television makers or electronic publishers-are extensive and are growing.

There are many pipes that need titling. Research has shown that individuals seek information and media fulfillment via different distribution modes. To some extent, socio-economic status and ethnicity determine the channels accessed for the messages sought. This seems to imply that information providers may very well specialize in one or more distribution means depending on the audiences they seek to reach and the messages they wish to transfer. The technology is available to deal with information dissemination in that manner. Given the proper institutional structure, the costs could be reasonable and the access open.

However, research and experience has shown that the availability of distribution channels does not necessarily lead to diversity.

There is, however, one grand exception and that is the common carrier telephone system, the most interactive, ubiquitous and open network invented by our society and one that has probably had the most pervasive influence on our lives and very likely is most responsible for our continued respect for the First Amendment and the increasing demand for access to alt of our media and telecommunications channels. White there is no "hard" evidence available, one observes that countries embarking on extensive investments in telephone expansion are experiencing increasing pressures for more access to radio and television. "Pirate" radio and television stations are, reportedly, springing up in France where major investments in their telephone infrastructure are being made.

The essential missing link is a structure that allows for freedom of access, unencumbered by prejudgments of audience reaction or critical response.

This structure must be prepared to deal with the concept of a common carrier information space, a common carrier approach to satellite transponders as well as local distribution links. If broadcasting-and, indeed, all forms of electronic information dissemination have access to numerous and essentially competing modes of distribution, is there any reason why the rules of print publishing cannot apply? Clearly without a fully switched system such as the telephone there will be an excess of demand over distribution supply and some form of time and space management protocol that will ensure access and the distribution to att voices must be developed. However, there are those who argue, with some justification, that in the not too distant future the broadband video system will be a switched system, thus paralleling the telephone infrastructure. If this is the direction in which technology is moving and if the demand for access to information continues to grow as it must in an information knowtedged based society, it is, perhaps, not too early to experiment with the open access possibilities of common carrier policy for broadcasting. Curiously, this is reminiscent of AT&T's entrance into broadcasting. WEAF began broadcasting from the Long Lines building on Walker Street in New York City on July 25, 1922 with a plan to rent program time to anyone who wanted to use the facilities at $40 or S50 per fifteen minutes.

Conclusions

We have a unique opportunity to reexamine the institutional structure that has shaped our information environment. The demands for information via broadcast, narrowcast, via computer networks, indeed via a11 forms of electronic dissemination is exploding. Fortunately the technologies to meet these demands are also evtoving. And there are strong indications that public telecommunications policy recognizes this significant moment in our history and is offering the opportunity for this reexamination and, possibly, restructuring.

There are numerous legal issues that must be addressed. The enormous investments that have been made in communications must be fairly dealt with, and the public must be heard. Up for grabs is the fundamental question not of who is in charge but whether anyone need be in charge other than to manage the facilities so that everything "works".

Here is an opportunity for a fresh look at just what it is we want from our telecommunications technologies. We need not be driven by them. Rather we should take charge and mold them to just what it is we want.

References

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