

Incidental Paper:

**Congressional Testimonies
March 1980 - March 1982**

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Program on Information Resources Policy

Harvard University

Center for Information
Policy Research

Cambridge, Massachusetts

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Benjamin M. Compaine, Oswald H. Ganley, John C. LeGates, John F.
McLaughlin and Anthony G. Oettinger
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MEDIA CONCENTRATION (PART 2)

HEARINGS
BEFORE THE
SUBCOMMITTEE ON GENERAL OVERSIGHT
AND MINORITY ENTERPRISE
OF THE
COMMITTEE ON SMALL BUSINESS
HOUSE OF REPRESENTATIVES
NINETY-SIXTH CONGRESS
SECOND SESSION

WASHINGTON, D.C., MARCH 3 AND 4, 1980

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(III)

Mr. Compaine, executive director of Harvard University's program for information resources policy, is our next witness.

Mr. Compaine?

**TESTIMONY OF BENJAMIN M. COMPAINE, EXECUTIVE DIRECTOR,
MEDIA AND ALLIED ARENAS PROGRAM ON INFORMATION RE-
SOURCE POLICY, HARVARD UNIVERSITY**

MR. COMPAINE. Mr. Chairman, my name is Benjamin M. Compaine. I am the executive director of the media and allied arenas program on information resources policy at Harvard University. I am also the editor and coauthor of a recently published book, "Who Owns the Media? Concentration of Ownership in the Mass Communications Industry."

Although my testimony today is drawn from that book and other work I have done at Harvard, I speak here only for myself, not for my publisher nor any institution with which I am affiliated nor for any of the nearly 100 diverse private firms and Government agencies that support the Harvard program's work. A more complete biographical statement is attached to my testimony.

MR. LAFALCE. Without objection, your testimony will be included in the record at this point.

[Mr. Compaine's prepared statement with attachments follows:]

**PREPARED STATEMENT OF DR. BENJAMIN M. COMPAINE, EXECUTIVE DIRECTOR, MEDIA
AND ALLIED ARENAS PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD
UNIVERSITY**

Mr. Chairman, my name is Benjamin M. Compaine. I am executive director of the media and allied arenas of the Program on Information Resources Policy at Harvard University. I am also the editor and co-author of a recently published book, *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry*.¹

Although my testimony today is drawn from that book and other work I have done at Harvard, I speak here only for myself, not for my publisher nor any institution with which I am affiliated nor for any of the newly 100 diverse private firms and government agencies that support the Harvard Program's work (list attached). A more complete biographical statement is appended.

¹ White Plains, N.Y., Knowledge Industry Publications, Inc., 1979.

The mass media have evolved into big businesses, just as other small industries have changed and expanded with the technology of the Industrial Revolution, the enormous population growth of the nation, and the complexity of dealing in a massive economy. And yet the total revenue of all media business, including the television networks, the publishing giants and motion picture moguls, is less than that of such individual firms as Exxon and General Motors.

But as we enter the decade of the 1980s, there is concern in some quarters that the modern media are becoming increasingly concentrated in the hands of a small group of corporate executives who have the potential to control what and how information is gathered and distributed.

There are two explicit issues and two underlying assumptions involved in the area of media ownership. The overt issues are:

(1) The degree of concentration within industry segments, especially on the local level. This is seen in the issue of one-newspaper communities.

(2) The degree of conglomeration and cross media ownership. Conglomeration refers to the tendency for large corporations with diversified non-media holdings to buy into the media industry as well. Westinghouse, RCA, Times Mirror and Gulf & Western are examples of these types of firms. Cross media ownership is part of the conglomeration issue. It is the ownership of media in more than one segment of the mass communications industry by a single firm and is perhaps the most potent issue. CBS, Time Inc., Newhouse and Hearst are among the many firms with holdings across media segments.

Implicit in the discussion of concentration are other concepts reflecting American political traditions:

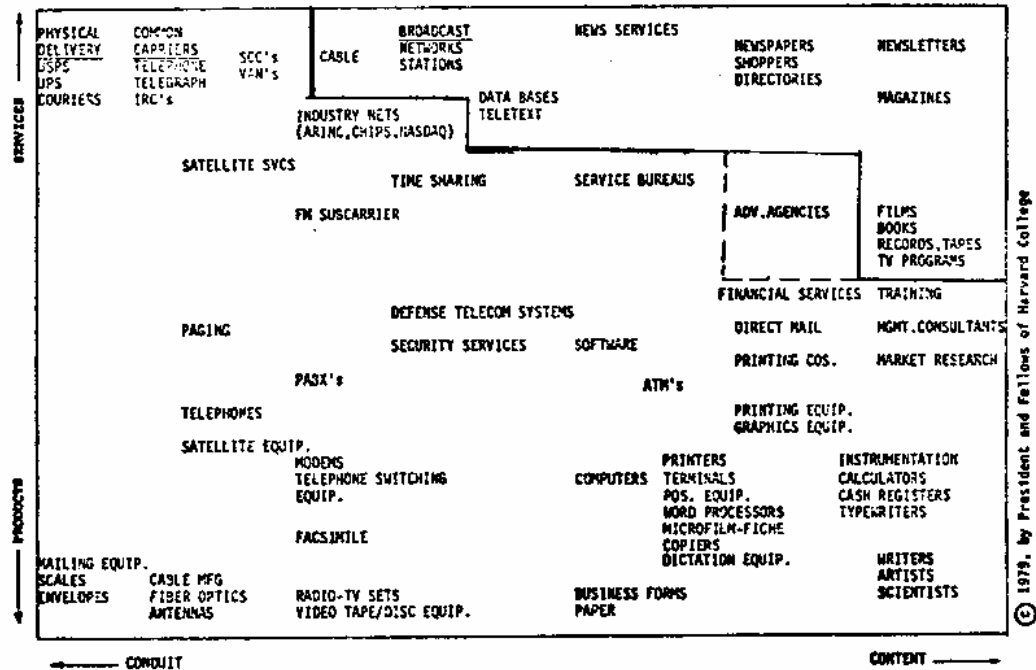
(1) Bigness is bad. This applies also to concentration of ownership in industries other than the mass media. There is a sense, in part supported by some economists, that after reaching a certain size which brings optimal efficiencies or production, further growth of firms in an industry provides no further economic advantages to society. The key question which can rarely be answered definitively is, how can we tell when the optimal point has been reached?

(2) Localism is desirable; control of information, news and ideas should be spread around as much as possible. Locally owned newspapers and broadcast stations, many book publishers, scores of independent film producers and distributors would supposedly provide greater access to diverse opinions than fewer owners controlling an identical number of media outlets.

I feel that I can be most useful in your investigation by contributing to your perspective of the media industry beyond the economic considerations in individual segments of newspapers, magazines, television, etc. My evaluation of the evidence suggests that technology in creating, processing, distributing, and displaying information is eliminating the clear-cut distinctions that are perceived to have prevailed in the media industries until recently. Thus, my objective today, Mr. Chairman, is to show why individual media segments cannot be discussed in a vacuum, but must be addressed in the context of the total media arena that encompasses competing formats we have called television, radio, movies, newspapers, books, magazines, cable, etc.

While this approach may result in glossing over some short term problems of concentration within specific segments or geographical markets, I believe this committee would wish to investigate what factors may be important for five or ten years down the road. I have also included the "map" in figure 1 to position the media within the broader information business as seen by the Program on Information Resources Policy.

FIGURE 1.—A map of media industry within the information business



Determining the degree of "concentration" in the media arena is like judging how "full" is a glass of water—it depends on the criteria used. We know that a negativist may see half a glass of water and term it half empty, while a positivist will term the identical vehicle half full. But, at the risk of drowning in this analogy, perhaps as important a factor is to describe the size of the glass—for the total volume of water is as much a factor as is the proportion of liquid in the vessel.

Thus, it is crucial to define what we mean by concentration in the media. If we look at each industry segment we might draw one type of conclusion. If we are considering the entire spectrum of largely competing delivery vehicles for information, we have a different standard of measurement. My testimony today and the written portion for the record deals with the case for taking the broad view.

By the conventional standards used in economics, no segment of the media industry can be judged to be "concentrated" for antitrust purposes, save perhaps theatrical film distribution. As seen in Table 1, concentration ratios within the major media segments of newspapers, magazines, book publishing are far lower than many other industries. According to Kaysen and Turner, concentration for an industry of a type I variety is reached when the eight largest firms have a 50 percent share of sales and the largest 20 firms at least a 75 percent share.² From an antitrust viewpoint, firms in an industry that reaches this stage gain an ability to charge prices and make profits above competitive levels and to misallocate resources.

² Carl Kaysen and Donald F. Turner, *Anti-Trust Policy; An Economic and Legal Analysis* (Cambridge, Mass.: Harvard University Press, 1959) as cited by Richard E. Caves, *American Industry: Structure, Contrast and Performance*, 4th ed. (Englewood Cliffs, N.J.: Prentice-Hall, 1977).

TABLE 1.—SHARE OF TOTAL DOLLAR SHIPMENTS BY LARGEST FIRMS IN PUBLISHING INDUSTRIES, 1947-72

Year	Newspapers	Periodicals	Book publishing	Median for large industrial firms
1947:				
4 largest companies.....	21	34	18	-----
8 largest.....	26	43	29	-----
50 largest.....	(1)	(1)	(1)	-----
1958:				
4 largest companies.....	17	31	16	-----
8 largest.....	24	41	29	-----
50 largest.....	51	69	69	-----
1963:				
4 largest companies.....	5	28	20	-----
8 largest.....	22	42	33	-----
50 largest.....	52	73	76	-----
1967:				
4 largest companies.....	16	24	20	-----
8 largest.....	25	37	32	-----
50 largest.....	56	72	77	-----
1972:				
4 largest companies.....	17	26	19	38
8 largest.....	28	38	31	53
50 largest.....	60	69	77	86

Not available.

Source: U.S. Bureau of Census, Census of Manufactures.

Recently, the antitrust division of the Justice Department investigated the merger between newspaper giant Gannett and Combined Communications, with its extensive broadcast holdings. However, a top Justice Department official admitted:

The antitrust laws do not flatly prohibit media conglomerates any more than they prohibit other kinds of conglomerates. Under present law, some measurable impact on competition in some market must be proven before a merger or acquisition will be held to violate the antitrust laws. Indeed, the courts have been generally reluctant to condemn conglomerate mergers where such an impact has not been shown regardless of the social or other objections that have been asserted.³

Those concerned with concentration in the media, however, have seldom advanced the antitrust side of the argument. Rather, most of the concern, as voiced at the Federal Trade Commission Symposium in December 1978 and in the trade and popular press, is with the lessening of the number of persons who control the flow of information: the number of gatekeepers. Concentration has not been reached in economic terms, but some feel it may be arriving in the ability of a relatively few corporations to manipulate the flow of ideas reaching the public.

When we discuss "the media," we are in fact talking about three discrete elements: information content itself, the process by which information is gathered, stored and transmitted, and the format in which information appears to the user. Firms directly involved in the media business tend to be in the content business, the process business and sometimes both. The format, be it ink on paper, images on a video tube, sound from a speaker, etc. may not be the factor that defines the medium. Let me explain.

The media, in their various formats, provide news, entertainment, all types of information, including advice, instruction, advertisements, statistical data, etc.

Content, then, is the information that is provided by the supplier and received by the user. Certain media formats tend to specialize in offering specific types of content, but most media have some of each. Newspapers, for example, along with their hard news, provide personality profiles as features, crossword puzzles for entertainment, a list of polling places as notices. Televised programming is largely entertainment, but there is an important news and informational content as well.

Process refers to both the handling and transmitting of the information. Among the processing functions are gathering, creating, and storing information. This would include a newspaper reported researching and writing an

³ I. William Hill, Justice Department Probes Gannett-Combined Merger, Editor & Publisher, Mar. 24, 1979, p. 11. Quotes John H. Shenefield, Assistant Attorney General for Antitrust.

article, storing it in computer memory for editing, hyphenation and justification by a computer for typesetting and make-up. Process further encompasses the transmission conduits for information, such as broadcasting, coaxial cable, mail and private parcel delivery, microwave, telephone, etc.

Format, as used in this schema, refers to the form in which the content is made available to the user. This may be as hard copy, such as printed words or pictures on paper. It may be an electronic-visual representation, such as that created on a video display tube, in which case it could be words as well as pictures. It may be a mechanical-visual representation, such as that from motion picture projection or micro-materials. It may also be aural, such as sounds created by a vibrating speaker cone. In many cases, several formats are combined.

I have led you through this exercise for a reason I will now make clear. Traditionally, the "media" have been defined primarily by their format. That is, a newspaper is a manufactured product consisting of ink on newsprint. A book is ink on better quality paper and bound between discernable covers, etc. But more recently, we have been accepting process names to denote the medium: cable and video cassette, for example. Thus we have apples and oranges. Neither video cassettes nor cable are media in the same sense as newspaper, magazine or book. The former are merely alternative means of delivering content in a video/aural format. They are still "television," though they are not broadcasting, which itself is a transmitting option. The process, therefore, should not be confused with format in defining the medium. The producer of what are termed "feature films" for theatrical release, for instance, looks at the video display format for an increasingly large source of revenue. Whether that product is delivered to views in a movie theater, to the home by cassette or disc, broadcast or cable is a matter of economics and efficiency, but of itself does not usually affect the content of the movie.

Similarly, newspaper publishers may find in the near future that some of what they now put onto paper as part of the traditionally printed product may be more efficiently delivered to the video display tube (or television sets) of only those subscribers requesting such information from the publisher's computer (like classified ads or stock prices). The newspaper, therefore, may become a service using in part ink on newsprint paper and in part video via telephone lines or cable. The end product, nevertheless, is still "a newspaper," though in several formats.

This distinction between format and process is necessary if we are to understand what the boundaries are of the industry in which we are investigating concentration. By using the content/process/format manner of describing the media industry, we can avoid the trap of using, as one example, "magazine" to mean the type of information content that is normally associated with the ink of glossy paper periodical that is actually only one of several formats available to a potential producer of a certain type of information. Thus, for instance, a publisher may wish to convey certain information about 35mm cameras to an audience of photographers. Advertisers wish to reach the same audience. One option is to print words and pictures. But another may be to convey the information visually for distribution to audiences via a special interest cable network or for sale directly on a video cassette or disc. (This is not to say that this is economically viable in all cases today, but we are moving in this direction.)

The blurring of these arbitrary format distinctions can already be seen when Westinghouse Broadcasting syndicates its "Evening Magazine" for television stations and the "60 Minutes" concept of CBS as a video magazine. Time Inc. tried to translate its successful People magazine into a video presentation.

Even in the absence of this explicit formulation, the importance of this content/process/format concept rather than television/cable/newspaper, etc. has not been lost on planners in and around the media industry. Some newspapers are experimenting with providing news services for cable channels or interactive viewdata systems. Several broadcasters have announced plans to repackage existing news reports for video cassette or disc sales. Many reference book publishers have themselves converted their data to on-line data banks or have licensed others to do so. These are just a few of the many possibilities for creative uses of content/process/format to enhance markets, reduce costs, increase profitability, etc. It is focus on this new "media menu" that provides the real opportunity for continued diversity of control of media content in the future.

Over the years, changing information technologies have been providing us with new formats: the printing press lead to mass produced books, newspapers and magazines. The wireless lead to radio and television. Other discoveries brought about motion pictures, disk and tape recordings. These have expanded the variety of ways in which information—content—can be received by users. New formats and processes have greatly expanded accessibility to information and opportunities for those who wished to be involved in the supply of information and entertainment. Film enlarged the audience for vaudeville and theater, and television expanded it even further. Radio and television news broadcasts are essentially a presentation of the information traditionally published by newspapers and before that by personal letter or word of mouth. The form of presentation is changed, but not the type of information.

The media arena today is a product of the continuation of this process, with additional conduits and new technology, such as computers, providing an even greater array of formats and hence access to more information (such as being able to share the moon landing as it occurred via television).

Businesses currently engaged in media activities or those that may be interested in using their existing resources to enter the media business, as well as public policy-makers, all have a vital stake in understanding the nuances of the changing nature of media boundaries. For firms, it is a matter of strategic decisions in areas for expansion or even survival as newer technology changes the basis on which their existing enterprise is built. For example, a newspaper publishing company that persists in restricting itself to printing its product in the conventional method and distributing it over traditional conduits may find both advertising and readership being eroded by competition from other firms providing similar services but utilizing a more efficient or consumer-acceptable technology, such as cable, TV, viewdata or some hybrid.

In essence, what is happening in the media arena is that the previously discrete and readily identifiable segments are coming closer together into a more fluid industry, leading to dissolution of old groupings and crystallizing of new. Increasingly, they are using the computer for information storage and retrieval. They are using telephone lines, cable and satellites for transmitting information, either to the end user (as in the case of broadcasters) or as part of the manufacturing process (as with some newspapers). All types of publishers have VDTs in the editorial and/or composing rooms. Broadcasters, such as ABC, are packaging programs for other forms of distribution while publishers, such as Playboy Enterprises, are moving toward a similar end. In the middle, the common carriers, such as General Telephone and Electronics (GTE) and American Telephone and Telegraph (AT&T) are looking increasingly like information providers, either in the form of viewdata services or by providing information directly (such as the weather, stock market information, sports calls over a special telephone number). Thus, as all types of firms that provide information service are increasingly using the same technology, there will be a lessening of the distinctive differentiation among the traditional media forms in the minds of information consumers.

Through understanding and exploiting the fluid nature of the content/process/format mix, businesses and entrepreneurs of all sizes have the opportunity to break out their traditional mold and broaden their businesses. This can only benefit the information and entertainment seeking consumers. Information providers can re-evaluate their customers not as newspaper readers or magazine subscribers, etc., but as information consumers, whose interest is in the unique utility of the content. These customers should prove decreasingly loyal to any particular format or process, given the greater choices and the strengths of different formats and processes to optimize the utility of a specific type of information (e.g., an interactive video display via telephone lines and computers for classified advertising, pay cable process for an opera, a printed book format for a description of macroeconomic theory).

Government policy makers are faced with a similar challenge to longstanding practices. Decisions on how direct satellite to home television transmission might be regulated, or whether an electronically transmitted newspaper to a video screen in the home should be treated under the existing print newspaper interpretation of the First Amendment or the more regulated broadcast models, will depend in part on how well they understand the distinctions among information creation, processing, dissemination and format.

Thus, it is perhaps a misuse of effort in the longer run to focus on the concentration of media ownership using conventional understanding of newspapers, television, magazines, etc. What we must be concerned with is promotion of diversity of conduits for information and knowledge and the opportunities for individuals and small businesses to participate in providing such information. We must take perspective that, for example, the three major newsweekly magazines have direct competition from all newspapers as well as local and national televised news programs and all-news radio stations. Motion picture distributors clearly compete with television producers, but also with book publishers and certain periodicals. Special interest magazines, already knocking heads in price with mass market paperback books, may increasingly find themselves covering the same topics and even competing for advertiser dollars with video disc recordings and programs distributed by cable operators.

Perhaps no event serves to illustrate more the increased real intermedia competitiveness than the effects of extended newspaper shut-downs caused by strikes in New York, Philadelphia, St. Louis and other cities in recent years. Before there was radio, no newspaper meant no mass circulated news or advertising outlets. Now, when a city like New York lost its daily papers for three months (August to November 1978), the information vacuum was quickly assumed by other formats. Advertisers turned to television, radio, local magazines and zoned editions of national magazines. Consumers made use of all-news and extended news shows on radio and television, as well as national news magazines. Retailers reported little measurable impact on sales. This is not to say that people did not miss the unique qualities that newspapers provide, but with the wide array of media available, information kept flowing. It should be pointed out that, in some cities, entrepreneurs have moved in with "strike" newspapers to help fill the gap. The new technology available in producing the printed newspapers has furthered their ability to do this with a minimum of investment.

If we go back and examine content, process and format components of the media, we can see the opportunities for entry vary by segment. The process area, which includes the means of distribution of content, appears to provide the least opportunity for large numbers of competitors and has the largest economic barriers to entry. For example, the capital expense in wiring a community with cable has encouraged the granting of exclusive franchises by communities, under much of the same logic that has resulted in the regulated monopoly status of telephone companies. The scarcity of television channels has put a high price on a license to hold one, while the far greater number of radio frequencies has made these licenses more affordable to smaller businesses.

The major area of opportunity for entry into the media has long been and will continue to be in the content end. One reason why there is a continued proliferation of book and magazine titles (Table 2) is that entry cost is relatively low. Publishers do not have to invest in printing machinery. Although the cost of rather sophisticated typesetting equipment has come down so dramatically that almost any publisher can afford it, even this investment is not necessary. Not only can a weekly newspaper exist without its own production shop, but there are even relatively large daily newspapers, such as the 100,000 circulation Philadelphia Journal, that can publish using the typesetting and printing facilities of other commercial operations.

TABLE 2.—NUMBER OF PERIODICALS, NEWSPAPERS AND BOOK TITLES, 1950-79

	Number of periodicals	Number of book and editions	Number of newspapers
1950.....	6,960	11,022	12,115
1955.....	7,648	12,589	11,415
1960.....	8,422	15,012	11,315
1965.....	8,990	28,595	11,383
1970.....	9,573	36,071	11,383
1975.....	9,657	39,372	11,400
1978.....	9,582	41,216	10,538
1979.....	9,719	¹ 37,222	9,827
Percent change, 1950-79.....	39.6	273.9	-18.9

¹ Preliminary.

Source: Periodicals and Newspapers: Ayer Directory of Publications, annual. Book titles: R. R. Bowker Co. Bowker Annual of Library and Book Trade Information, except 1978 and 1979: Publisher's Weekly, Feb. 22, 1980.

The barrier to entry for many of the purveyors of content is in the transmission—or distribution—of their product, as well as other factors external to the structure of the media industry per se. For example, one of the more concentrated segments of book publishing is in the mass market paperbacks, where eight firms have about 84 percent of sales. The difficulties in entering this segment of the market include the cost of large print runs required by the mass distribution needed, as well as getting access to the handful of national distributors that push these books through the system and the willingness of local wholesalers—usually having exclusive distribution rights in a geographical area—to handle more books in an already overloaded system. At the other extreme, entering the professional and reference book segment of publishing is relatively easy, since such books are often sold by direct mail to well defined audiences. Publishers can purchase mailing lists of such potential customers and reach them on their own at a modest cost. Similarly, publishers of special interest magazines and business periodicals can reach readers through the mail and do not have to rely on private distributors.

The newer technologies hold similar opportunities and barriers. As noted, building a cable system may be prohibitively expensive for small businesses. Even multi-billion dollar Warner Communications deemed it necessary to join its cable operation with American Express Co. to ensure a sufficient supply of capital needed to wire large markets. The cost of its newly acquired Pittsburgh franchise will be \$40-\$50 million for a 700 mile system passing 180,000 homes.⁴

That same system will have 78 channels available for programming—and other systems have a minimum of 12—a vacuum which is only now starting to be addressed with programming that goes beyond retransmitting the four commercial and public networks. Television has always had a voracious appetite for programming. The opportunities have been limited to mass audience fare. With the many channels opened by cable, operators—and advertisers—may find television of the 1980s becoming more like radio, with room for much special interest programming designed to reach relatively small audiences. This phenomenon will be aided by satellite transmission availability as well as additional markets for such video productions via video disc or cassette sales. Already, with the few Magnavox video disc machines sold, one dealer is reporting surprisingly good sales of special interest programs. The production of such programs for the video market may well follow the pattern established in the print media. Smaller businesses will be the source for much of it, especially that which is designated for special consumer or business audiences. Distribution, however, may well be handled by larger firms with the technical and personnel resources required to reach a large national market. Program designed for a local market or appropriate for mail order to special markets (via cassettes or discs) may also be handled by smaller firms. And, if this print model of content and process holds, successful small firms may be purchased by larger firms, providing further opportunity for entry of new firms in the content and creation side of the media industry.

TABLE 3.—PERCENTAGE OF CONSUMER SPENDING ON PRINT AND AUDIO-VISUAL MEDIA,
SELECTED YEARS, 1929-77

[In percent]

	Media expendi- tures as percent of personal consump- tion expendi- tures	News- papers, magazines, sheet music	Books and maps	Total print	Radio, TV receivers, records, instru- ments	Radio and TV repairs	Movie admis- sions	Total audio- visual media ¹
1929	3.37	20.65	11.86	32.51	38.85	1.00	27.64	67.49
1933	2.76	33.20	12.04	45.24	15.45	1.11	38.19	54.75
1940	2.94	28.26	11.23	39.43	23.70	1.53	35.27	60.50
1945	2.82	28.66	15.44	44.10	10.22	2.61	43.07	55.90
1950	3.27	23.92	10.79	34.71	38.74	4.53	22.02	65.29
1955	2.93	25.10	11.64	36.74	38.53	6.97	17.81	63.31
1960	2.47	26.93	14.17	41.10	37.37	9.63	11.90	58.90
1965	2.64	23.45	14.52	37.97	44.41	8.22	9.40	62.03
1970	2.87	21.98	13.28	35.36	50.08	6.08	8.57	64.74
1975	3.05	25.25	12.06	37.31	49.64	4.56	8.49	62.69
1976	3.01	24.83	11.28	36.11	50.22	4.56	9.11	63.89
1977	3.08	24.30	11.66	35.96	48.41	4.68	10.96	64.04

¹ Total may not add to 100 percent due to rounding.

Source: U.S. Bureau of Economic Analysis, The National Income and Products Accounts of the United States, 1929-74 and Survey of Current Business, July 1977 and 1978.

⁴ Video Week, Feb. 4, 1980, p. 8.

There is some evidence that consumers and advertisers view the traditional media segments of newspapers, radio, etc. as being somewhat substitutable. This is the conclusion that may be drawn from Tables 3 and 4, which together may be termed the Constancy Hypothesis, first advanced by Charles Scripps.⁵ Since 1933, the amount of money that consumers have spent on all media, in the form of purchases of newspapers, magazines, books; television and radio sets and repairs; and on movie admissions has remained quite level as a percentage of personal consumption expenditures, despite the introduction of new formats in the form of first radio and then television. As Table 3 shows, however, the composition of those expenditures has shifted as these newer formats came along. Similarly, on the advertising side, expenditures have tended to remain at a constant proportion of Gross National Product, with the electronic media drawing down the share of the print media.

Given the fixed proportion of consumer and advertising expenditures that appear to be devoted to media over an extended period, regardless of the number of mass media formats, it may be reasonably assumed that this relationship will continue to hold, even as additional mechanisms become available in the form of video discs, on-line information systems, etc. With this history and its implications for the future, it should not be surprising that owners and managers of businesses in the media arena would want to maintain market shares by getting involved in the newer media. This only continues a tradition of multimedia ownership that dates back in this country to Ben Franklin's newspapers and magazines (He was also a printer and Postmaster, not coincidentally). This gives rise to the question of whether existing media firms should be expected or even obliged to ignore developing—and competing—media processes and formats. Is a financially healthy media industry at odds with those who see greater diversity and broader access fostered by small enterprises, locally owned and controlled?

TABLE 4.—SHARE OF ADVERTISING IN MAJOR PRINT AND BROADCAST MEDIA, SELECTED YEARS, 1935-79

	Advertising expenditures (billions)	Percent of GNP	Percent broadcasting	Percent newspaper and magazine
1935.....	\$1,690	2.34	6.7	53.1
1940.....	2,088	2.09	10.3	48.5
1945.....	2,875	1.36	14.7	44.7
1950.....	5,710	2.00	13.6	45.4
1955.....	9,194	2.30	17.1	37.9
1960.....	11,932	2.36	19.1	38.9
1965.....	15,250	2.22	22.5	36.6
1970.....	19,550	2.00	25.1	35.8
1975.....	28,230	1.86	25.6	35.1
1976.....	33,720	1.99	26.8	34.7
1977.....	38,120	2.02	26.9	34.9
1978.....	43,970	2.07	27.4	34.8
1979 ¹	49,830	2.10	27.3	35.1

¹ Preliminary.

Sources: 1935-60—Historical Statistics of the United States, Colonial Times to 1970, series T444-471. 1965-79—Advertising Age, as prepared by McCann-Erickson, Inc., New York, for advertising; U.S. Bureau of Economic Analysis for GNP.

The activity of existing media firms broadening their operations into new media areas is consistent with a marketing philosophy popularized by Theodore Levitt's concept of "marketing myopia." This demands that a firm carefully determine its field of operations. Is a newspaper publisher in the business of manufacturing and selling newspapers, or in the business of gathering and disseminating information? Given that choice, the latter would be the logical response. Thus, it would be natural to seek other ways of disseminating the vast quantities of information a newspaper staff can gather; news services, radio and television outlets are several. Similarly, an expertise in assembling and publishing specialized information makes it reasonable to assume that a book publisher would find a natural kinship with magazine publishing or more recently programming for video cassette, disc or cable distribution. The producer of theatrical films finds it a short and necessary jump into production of television shows.

In essence, the recognition of a mass communications industry, as opposed to simply a newspaper, broadcast, magazine, book or film industry lends itself to what has been termed conglomeration.

⁵ Maxwell E. McCombs, "Mass Media in the Marketplace," Journalism Monographs, No. 24 (Lexington, Ky.: Association for Education in Journalism, 1972), pp. 5-6.

OWNERSHIP CONCENTRATION IN MASS COMMUNICATIONS

Given the expanded nature of the available media and the apparent inter-media competition for consumer and advertiser expenditures, then the relevant market for measuring the diversity of ownership must be the broad mass communications industry. There are a total of 35,000-40,000 outlets for the mass communications media. Clearly, not each outlet has equal weight in its ability to influence thought or present ideas, with *Time* magazine or a popular prime time television show at a different level than a scholarly journal or a local cable presented show. Granted this, however, there is an impressive array of diverse media voices. Nor does a media outlet need a large audience to be influential. An article in the *New England Journal of Medicine* may be as noticed by its audience as any national television show with a wider viewership.

To what extent is the mass communications industry dominated by giant conglomerates? Table 5 identifies those companies that were cited in the *Who Owns the Media?* book as being one of the dominant firms in any of the six segments examined. Thus, it includes broadcast chains with the largest audiences, magazine and newspaper groups with the greatest circulations, book publishers with the highest revenues, cable operators with the most subscribers and the major film distributors. In all, the table identifies 57 firms. Of these, 11 are dominant in newspapers, 16 in broadcasting, 16 in magazines, 14 in book publishing, 9 in cable and 10 in motion picture distribution.

* "Dominant" is used here to mean pre-eminent or a leading participant. It should not be construed as used in the antitrust terminology of "being so powerful that smaller companies hesitate to take independent action in trade policy."

TABLE 5.—COMPANIES DOMINANT IN 1 OR MORE MASS MEDIA SEGMENTS, WITH OTHER MEDIA HOLDINGS
FEBRUARY 1980

[Key: + Area of dominance. ○ Area of other holdings.]

	News- paper	Broad- casting	Maga- zines	Books	Cable/ pay TV	Film ¹
Dominant in 4 media: Times Mirror Co.	+	○	+	+	+	
Dominant in 3 media:						
CBS Inc.		+	+	+		
Cox Enterprises ²	+	+	+	+	+	
Time Inc.	○	○	+	+	+	
Dominant in 2 media:						
Hearst	+	○	+	○		
McGraw-Hill		○	+	+		
Newhouse	+		+	○	○	
New York Times Co.	+	○	+	○		
Reader's Digest Association			+	+		
E.W. Scripps	+	+				
Tribune Co.	+	+			○	
Warner Communications				○	+	+
Washington Post Co.	○	+	+	○		
Dominant in 1 medium:						
American Broadcasting Cos.		+	○	○		
Cablecom-General		+	○		+	
Capital Cities Communications	○	+	○			
Charter Co.		○	+			
Columbia Pictures Industries		○				+
Doubleday		○		+	○	
Dow Jones	+		○	+		
Encyclopaedia Britannica				+		
Field Enterprises	○	+				
Gannett	+	○				
Gaylord Broadcasting Co.	○	+				
General Cinema					○	+
Grolier				+		
Gulf+Western				○		+
Harcourt Brace Jovanovich			○	+		
Harper & Row			○	+		
Knight-Ridder	+	○				
McCall's			+			
Macmillan				+		
MCA Inc.		○	○	○		+
Meredith	○		+	○		
Metro Goldwyn Mayer						+
Metromedia		+		○		
Playboy			+	○		○
Prentice-Hall				+		
RCA		+		○		

TABLE 5.—COMPANIES DOMINANT IN 1 OR MORE MASS MEDIA SEGMENTS, WITH OTHER MEDIA HOLDINGS, FEBRUARY 1980—Continued

[Key: + Area of dominance. ○ Area of other holdings.]

	News- paper	Broad- casting	Maga- zines	Books	Cable/ pay TV	Film ¹
Dominant in 1 medium—Continued						
RKO		+			○	
Sammons Communications Corp.		○		○	+	
Scholastic Magazines			+			
Scott & Fetzer				+		
Scott, Foresman				+		
Storer Broadcasting Co.		+				
Taft Broadcasting Co.		+				
Tele-Communications Inc.					+	○
Teleprompter Co.					+	○
Thomson Newspapers Ltd.	+					+
Transamerica Corp.		○				+
Triangle Publishing			+			
20th Century Fox		○				+
United Artist Theatres Circuit ²					+	+
Viacom International		○			+	○
Walt Disney Productions					+	+
Westinghouse		+			○	
Ziff-Davis		○	+			

¹ Production or distribution.² Includes all Cox holdings in separate companies. Sale of broadcast holding to General Electric pending.³ Has 28 percent ownership of UA-Columbia Cablevision, Inc.

Source: Benjamin M. Compaine, ed., *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry*, (White Plains, N.Y.: Knowledge Industry Publications, Inc., 1979). Copyright 1979 Knowledge Industry Publications, Inc.

Many of these firms participated in only one area of the industry. Most have holdings in several areas, making them media conglomerates.

When looked at in terms of being able to dominate across media segments, only one firm has a major position in as many as four segments of the industry—Times Mirror Co., with significant holdings in newspapers, magazines, cable and book publishing, and a minor interest in broadcasting. Three firms have dominant positions in three different media: Cox Enterprises (which had its sale of broadcast and cable properties to General Electric pending in 1980), CBS Inc. and Time Inc. Nine more firms had substantial positions in two areas. The other 44 companies had a major stake in only one medium, including such well-known names as RCA, Harcourt Brace Jovanovich, Gulf + Western, Transamerica Corp., and Gannett.

CONCERNS AND LIMITATIONS OF THE GOVERNMENT

There are, to be sure, legitimate concerns on the part of society, as represented by the government, about the preservation of diversity of ownership of the media, not just on economic grounds but because of the special place the mass media hold in the political process and their special place under the First Amendment. To date, action in this area has been limited to traditional antitrust suits, primarily in the film business with just a few forays into newspapers. The Federal Communications Commission places limits on broadcast holdings and cross media ownership. The Federal Trade Commission has been increasingly interested, as has this Committee and others in the Congress.

The experience of the government in regulating the media has been primarily through Federal Communications Commission jurisdiction over broadcast licenses. The traditional rationale for controls in this area was the scarcity of broadcast outlets, as defined by spectrum space. However, momentum appears to be growing for at least some amount of deregulation in the broadcast field. Deregulation has become possible because satellite transmission and cable television have enhanced the opportunity of a diversity of viewpoints via the electronic media, thus eliminating the rationale for federal intervention. Although some curbs would remain on television broadcasters, such as the "fairness doctrine," almost all regulations for radio, other than some technical requirements, might be lifted.

It would be ironic if new rules constraining mass communications firms were promulgated as the most regulated segment was being given back over to the marketplace. Indeed, former FCC Commissioner Margita E. White was warned of bringing newspapers "under the same kind of 'raised eyebrows' regulations as the FCC applies to broadcasters. If we have learned anything from the evolution

of broadcast regulation over the past half century, it is when the government regulates the media, it also regulates the message."⁷

As various government agencies explore the need for structural changes in the mass communications industry, they should consider the broad implications of proposed "remedies" as well as the assumptions they hold in making them. These would include:

Does increased diversity and access imply greater quality? What happened when the FCC took 30 minutes of prime time programming from the three networks and forced this time on the individual stations? The prohibitive costs of single market productions has resulted in few quality shows and opened up the market to syndicators of low cost game shows of little substance.

Who should be the arbiter of what type of programming or content is most desirable for society? Much of the criticism of the networks center on the supposedly mindless grade of the programming. However, when given a choice, the viewing public has "voted" by where it turns the dial. Excellent programs, such as *60 Minutes* and *Roots*, have received viewer support. But many of the top-rated shows have outperformed presentations of supposedly higher intellectual content. By the same reasoning, newspaper publishers, even those with no direct local competition, must still offer a content that entices consumers to buy the product each day. Thus, publishers, like programmers, must show some response to the needs of the audience. Government regulators must refrain from imposing their view of what is socially beneficial content into their rationale for any type of regulation.

How much control by any firm or group of firms must be manifest before we are threatened with perceivable restraints on true access to a broad spectrum of opinion and information? Most crucially, how can this be measured? On the one hand, there is a point at which some combinations may have to be limited. On the other hand, there can be no credence given to the argument advanced by some that every opinion or creative idea has a right to be heard through the mass media (although anyone with a few dollars can make up a pick sign or hand out leaflets at City Hall. Often, such viewpoints get aired by becoming news). There is a limit to the time available to broadcasters and the space for newspapers and magazine publishers. For-profit book publishers must be guided by commercial considerations in selecting titles, or else they would eventually go out of business.⁸ Even not-for-profit university or other subsidized presses must employ some criteria of value to a specific market in determining which offerings to publish. Can concentration of ownership be measured by the total number of media properties? By the number of households reached by the media owned by a given firm? By the geographical concentration of the firm's properties?

Besides the mass media companies themselves, are there other participants in the mass communications industry that play important roles in determining the ultimate nature of the range of diversity available? Among those that might be considered:

(1) State and federal regulations affecting common carriers, especially those for telephone and satellite transmission, play a role in the mass media. The number of earth satellites, the number of circuits available, regulations concerning earth receiving stations, the tariff schedules may all affect the available, regulations concerning earth receiving stations, the tariff schedules, may all affect the availability of information transmission. The ability of syndicators to set up simultaneous-feed networks to cable operators will depend on the access they have to satellite transponders, which are already in short supply. What are the ownership relationships between the satellite firms and the mass media firms?

(2) The policies of the U.S. Postal Service are being increasingly questioned in light of the rapidly escalating second class postal rates. Even if these do not force some smaller publications out of business, they may affect the entry of some new publications and have certainly contributed to higher subscription prices. This in turn can affect the number of periodicals to which consumers will choose to subscribe, indirectly reducing exposure to some sources of information.

(3) Almost all newspapers rely on two full-service news services for the bulk of their state, national and international news. Therefore, would a reduction in chain ownership of newspapers result in any change in the access of

⁷ I. William Hill EX-FCC Commissioner Says Government Will Try to Regulate Newspaper, Editor & Publisher, Mar. 31, 1979, p. 10.

⁸ This does not mean that every book must be a best-seller, just as every magazine title does not have to sell 1 million copies per issue to be profitable. Many book publishers make a good living publishing titles with sales of 1000 copies and less.

communities to such news sources? Even adding a newspaper to a community, providing real competition, would not necessarily provide a radically different mix of news content. Large syndicators and supplementary news services also provide much of the feature material for newspapers, regardless of the extent of local competition or ownership type.

(4) To what extent does the distribution system for mass market paperback books influence the number of publishers that could realistically operate in this segment of the market? About 250 wholesalers nationwide account for the bulk of paperback book distribution to newsstands, chain stores and the 80,000 other non-bookstore outlets for these books. In each geographic market, one wholesaler has a virtually exclusive franchise to deliver books and magazines, not so much out of conspiracy but due to the economics of supplying thousands of small outlets on a continuing basis. The volume of new books has been such that many mass market books already have the shelf life of a monthly magazine. What opportunity does this leave for additional entries into this mass market segment of publishing?

(5) Most of the mass media are totally or largely advertiser supported. Cable, which today derives its support primarily from subscribers, is expected to become an advertising outlet as its penetration increases. There is a limit to the number of media outlets that can expect to get a share of the advertising dollar. One reason for the demise of competing newspapers in many cities is the efficiency a single newspaper provides local merchants. Starting a new paper requires the support of advertisers, who do not necessarily see any benefit for themselves. New media will spread advertising dollars even thinner.

(6) Finally, if we are to be concerned with a limited number of gatekeepers, perhaps we should pay more heed to the observation of Ben Stein, author of *The View from Sunset Boulevard*.

In investigating television content, Stein found that a relative handful of scriptwriters and producers create the entertainment message that are broadcast every day. He found that almost all of these people live in Los Angeles. "Television is not necessarily a mirror of anything besides what those few people think. The whole entertainment component of television is dominated by men and women who have a unified idiosyncratic view of life." * Stein's work points once again to the complexity of the media ownership question.

What I have attempted in my testimony today was to indicate the complexity of the issue of concentration as well as some of the many variables that must enter into any policy-making decisions. First, we must decide on the critical definition of concentration. This involves not only the differentiation between the traditional antitrust standard and a broader social-economic-political concept, but an agreement on what the relevant market should be: each media segment or the mass communications industry. If, in fact, our concern is with diversity of media voices—that is the social-economic-political concept for defining concentration—then by the same reasoning we must support the broader mass communications industry as the proper designation of the market. This conclusion can only be bolstered by the trends in advertiser and personal consumption expenditures on the media. Both constituencies spend their dollars interchangeably on the media, but at a constant relative rate, despite the addition of new media into the mix of alternatives.

Given the vast array of separate entities with holdings in the mass communications industry, policy makers must avoid accepting at face value some assumed myths, such as that greater diversity yields higher quality. They must also discipline themselves not to impose their own values of what is good for society in the form of moves to encourage the development of media with one kind of content over another. Finally, policy and law makers are faced with incorporating the effects of many non-media variables that affect the performance of the media: postal regulations, common carrier policies, limited number of syndicators, news services, distribution networks and program creators.

Much of the mass media is run by big business. There are greedy media company owners just as there are greedy individuals in other areas. There are also those who will use their position to dictate content to promote their own interests (this can include a night city editor as well as the chairman of a television network). While their ability to cause harm is real, there are existing laws and regulations, such as those for libel or the fairness doctrine, that can overcome some of the worst actions. There is also the weight of pub-

* Ben Stein, "The View From Sunset Boulevard" (New York: Basic Book, 1979, p. xiii).

lic opinion, which can respond to frauds and tyrants in the private sector. By the same token, there are politicians, bureaucrats and lawmakers who are empire building and have self interests that could be served by a weakened mass media. While not above the law, they are of the law, which carries authority. Neither are typical of their species. But for all the good intentions of those who would like to encourage specific regulations aimed at the mass media, even in the absence of any empirically substantiated threat to reasonable access and diversity of expression, the weight of existing data must go against any precipitous action affecting the status of the media. Ironically, media ownership has come under attack just as the opportunity for a vast number of additional voices has become a reality through new technologies.

There are forces converging on the media as we enter the 1980s that could endanger the First Amendment. Those who propose regulation seem guided by the myth that it can be accomplished without trampling on the content. And that is not likely.

The danger is not that any single action in the name of promoting wider press ownership will cause harm: individual actions, for cause, may be necessary, such as the *Associated Press* case in 1945. Yet at the same time, we should keep in mind the warning of Lord Develin:

"If freedom of the press perishes, it will not be by sudden death. . . . It will be a long time dying from a debilitating disease caused by a series of erosive measures, each of which, if examined singly, would have a good deal to be said for it."

The point is that public policy concerning media ownership and concentration must first be rooted in a realistic assessment of the existing data. Second, it must be oriented not to some ideal good but to a pragmatic good. It may be, for instance, that relatively large corporations with strong capital underpinnings will better serve the public's need for diversity, risk taking and depth of information than would more numerous but smaller firms with weaker capitalization and less willingness to take on major projects that include risk.

At the same time, smaller firms have always found new niches, provided innovation and then, when successful, been acquired by larger firms, thereby establishing an incentive for more new firms to follow a similar path. This cycle is particularly evident in the magazine and book publishing businesses. There appears to be no dearth of entrepreneurs, as the numbers of new book, magazine, weekly newspaper publishers and even film producers make clear.

Public policy makers can take several approaches to the issue of media ownership. Lawmakers can tamper with the structure or business behavior of media companies but not the product—news, information, ideas. There is, for example, no question that government has the power to deal with flagrant abuses of the press freedom, e.g., libel or true restraint of trade collusion. These governmental powers, however, deal with the *potential* for abuse, rather than an accusation that the media owners as a group have already committed such abuses.

Among them the following strategies are available:

(1) A positive policy with implementing legislation which encourages the formation of new media businesses; tax incentives on investments; waiving selected wage, environmental or similar rules that inhibit small businesses and capital formation; modified inheritance levies that today encourage divestiture; postal and telecommunications tariff and service that put the smaller user in a status comparable to bulk users. This sort of encouragement would still be far less than the direct subsidies other western democracies provide their fledgling movie makers and publishers. But it is also far less of a direct government involvement in the media than in France, Canada, West Germany or Great Britain.

(2) A negative policy of prohibition by size limitations in the absence of evidence of conscious anticompetitive behavior. This might be aimed at banning firms with media holdings of a certain size from acquiring additional properties in their main area of dominance.

(3) Combining the first strategy with some sanctions discouraging growth by merger of dominant media firms, while at the same time allowing firms of all sizes and holdings to grow through start-ups. Thus, once a newspaper reaches a size in circulation or number of papers where further acquisitions might be undesirable, it may still be permitted to grow by starting additional newspapers in communities that do not have any. Or, if policy-makers are convinced that a two or three newspaper town is better than one, incentives may be offered that encourage start-ups in such situations.

Thank you for inviting me here today and for your attention.

APPENDIX A

HARVARD UNIVERSITY—PROGRAM ON INFORMATION RESOURCES POLICY (IN COOPERATION WITH THE CENTER FOR INFORMATION POLICY RESEARCH)

CONTRIBUTORS

Abt Associates, Inc.	Lockheed Missiles and Space Company, Inc.
Action for Children's Television	MCI Telecommunications, Inc.
American Broadcasting Companies, Inc.	McGraw-Hill, Inc.
American Can Company	Mead Data Central
American District Telegraph Company	Minneapolis Star and Tribune Company
American Telephone & Telegraph Co.	Motorola, Inc.
Arthur D. Little Foundation	National Association of Letter Carriers
Auerbach Publishers Inc.	National Cash Register
Bell Canada (Canada)	National Telephone Cooperative Assoc.
Beneficial Management Corporation	New York Times Company
Boston Broadcasters, Inc.	Nippon Electric Company (Japan)
The Boston Globe	Norfolk & Western Railway Company
Booz-Allen Hamilton	Payment Systems, Inc.
Burroughs Corporation	J. C. Penney Co., Inc.
Canada Post (Canada)	Pergamon Press Ltd. (United Kingdom)
CBS, Inc.	Pitney Bowes, Inc.
Central Telephone & Utilities Corp.	Public Agenda Foundation
Citibank	Readers Digest Association, Inc.
Codex Corporation	Salomon Brothers
Communications Workers of America	Satellite Business Systems
Computer & Communications Industry Assoc.	Scott & Fetzer Company
Consolidated Edison Company of New York, Inc.	Seiden & de Cuevas, Inc.
Continental Telephone Corporation	Siemens (Federal Republic of Germany)
Des Moines Register and Tribune Company	Southern Pacific Communications Company
Donaldson, Lufkin & Jenrette	Standard Shares
Dow Jones & Co., Inc.	St. Regis Paper Company
Economics and Technology, Inc.	Stromberg-Carlson Corporation
Elsevier Science Publishers	Time Incorporated
Encyclopaedia Britannica	Times Mirror
L. M. Ericsson (Sweden)	Transamerica Corporation
Exxon Enterprises, Inc.	United Parcel Service
Federal Reserve Bank of Boston	United States Government:
First National Bank of Boston	Central Intelligence Agency
First National Bank of Chicago	Department of Commerce:
Frost & Sullivan	National Technical Information Service
General Electric Company	National Telecommunications and Information Administration
General Telephone & Electronics	Department of Defense:
Hallmark Cards, Inc.	Defense Documentation Center
Harte-Hanks Communications, Inc.	Federal Communications Commission
Hazel Associates	National Aeronautics and Space Admin.
Honeywell, Inc.	United States Postal Rate Commission
Hughes Communication Services, Inc.	United States Postal Service
IBM Corporation	United Telecommunications
Information Gatekeepers, Inc.	Viewdata Corporation of America
International Data Corporation	The Washington Post Company
International Paper Company	Western Union International, Inc.
International Resources Development, Inc.	Xerox Corporation
International Telephone & Telegraph Corp.	
Knowledge Industry Publications	
Lee Enterprises, Inc.	

APPENDIX B

Benjamin M. Compaine is Executive Director/Media and Allied Arenas for the Program on Information Resources Policy at Harvard University. He joined the Program from Knowledge Industry Publications, Inc., where he directed and edited projects in library automation and technology, as well as economic and marketing studies of mass media industries. Previously he had taught marketing, management and journalism and was a consultant for firms such as IBM, William C. Brown Co., Publishers and W. B. Saunders Co. He has published his own weekly newspaper and was general manager of Philadelphia's oldest alternative newspaper. As a freelance journalist, he has contributed to newspapers, magazines and annuals.

Among his books, studies and publications are *The Newspaper Industry in the 1980s: An Assessment of Economics and Technology* (1980), *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry* (co-author and editor, 1979), *Consumer Magazines in the 1980s* (1979), *The Book Industry in Transition: An Economic Analysis of Book Distribution and Marketing* (1978), and *"Economic Realities of the Media Mix"* (1976).

Dr. Compaine has a degree in political science from Dickinson College, as well as an M.B.A. from Harvard Business School and Ph.D. in mass communication from Temple University.

Mr. COMPAINE. I feel that I can be most useful in your investigation by contributing to your perspective of the media industry beyond the economic considerations in individual segments of newspapers, magazines, television, et cetera. My evaluation of the evidence suggests that technology in creating, processing, distributing, and displaying information is eliminating the clearcut distinctions that are perceived to have prevailed in the media industries until recently. Thus, my objective today, Mr. Chairman, is to show why individual media segments cannot be discussed in a vacuum but must be addressed in the context of the total media arena that encompasses competing formats we have called television, radio, movies, newspapers, books, magazines, cable, et cetera.

By the conventional standards used in economics, no segment of the media industry can be judged to be "concentrated" for antitrust purposes, save perhaps theatrical film distribution. As seen in table 1 of my testimony, concentration ratios within the major media segments of newspapers, magazines, and book publishing are far lower than many other industries.

Those concerned with concentration in the media, however, have seldom advanced the antitrust side of the argument. Rather, most of the concern, as voiced at the Federal Trade Commission symposium in December 1978 and in the trade and popular press, is with the lessening of the number of persons who control the flow of information: the number of gatekeepers. Concentration has not been reached in economic terms, but some feel it may be arriving in the ability of a relatively few corporations to manipulate the flow of ideas reaching the public.

When we discuss the media, we are in fact talking about three discrete elements: information content itself; the process by which information is gathered, stored, and transmitted; and the format in which information appears to the user. Firms directly involved in the media business tend to be in the content business, the process business, and sometimes both. The format, be it ink on paper, images on a video tube, sound from a speaker, et cetera, may not be the factor that defines the medium. Let me explain:

The media, in their various formats, provide news, entertainment, all types of information, including advice, instruction, advertisements, statistical data, et cetera.

Content, then, is the information that is provided by the supplier and received by the user. Certain media formats tend to specialize in offering specific types of content, but most media have some of each. Newspapers, for example, along with their hard news, provide personality profiles as features, crossword puzzles for entertainment, and a list of polling places as notices. Televised programming is largely entertainment, but there is an important news and information content as well.

Process refers to both the handling and transmitting of the information. Among the processing functions are gathering, creating, and storing information. This would include a newspaper reporter researching and writing an article, storing it in computer memory for editing, hyphenation, and justification by a computer for typesetting and makeup. Process further encompasses the transmission conduits for information, such as broadcasting, coaxial cable, mail and private parcel delivery, microwave, telephone, et cetera.

Format, as used in this scheme, refers to the form in which the content is made available to the user. This may be as hard copy, such as printed words or pictures on paper. It may be an electronic-visual representation, such as that created on a video display tube, in which case it could be words as well as pictures. It may be a mechanical-visual representation, such as that from motion picture projection or micro-materials. It may also be aural, such as sounds created by a vibrating speaker cone. In many cases, several formats are combined.

This distinction between format and process is necessary if we are to understand what the boundaries are of the industry in which we are investigating concentration. By using the content/process/format manner of describing the media industry, we can avoid the trap of using, as one example, "magazine" to mean the type of information content that is normally associated with the ink of glossy paper periodical that is actually only one of several formats available to a potential producer of a certain type of information. Thus, for instance, a publisher may wish to convey certain information about 35-millimeter cameras to an audience of photographers. Advertisers wish to reach the same audience. One option is to print words and pictures. But another may be to convey the information visually for distribution to audiences via a special interest cable network or for sale directly on a video cassette or disk.

The blurring of these arbitrary format distinctions can already be seen when Westinghouse Broadcasting syndicates its "Evening Magazine" for television stations and by the "60 Minutes" concept of CBS as a video magazine.

Over the years, changing information technologies have been providing us with new formats: the printing press lead to mass produced books, newspapers, and magazines. The wireless lead to radio and television. Other discoveries brought about motion pictures, disk, and tape recordings. These have expanded the variety of ways in which information content can be received by users. New formats and processes have greatly expanded accessibility to information and opportunities

for those who wished to be involved in the supply of information and entertainment. Film enlarged the audience for vaudeville and theater, and television expanded it even further. Radio and television news broadcasts are essentially a presentation of the information traditionally published by newspapers and before that by personal letter or word of mouth. The form of presentation is changed but not the type of information.

In essence, what is happening in the media arena is that the previously discrete and readily identifiable segments are coming closer together into a more fluid industry, leading to dissolution of old groupings and crystallizing of new. Increasingly, they are using the computer for information storage and retrieval. They are using telephone lines, cable, and satellites for transmitting information, either to the end user, as in the case of broadcasters, or as part of the manufacturing process, as with some newspapers.

All types of publishers have video display tubes in the editorial and/or composing rooms. Broadcasters, such as ABC, are packaging programs for other forms of distribution, while publishers, such as Playboy Enterprises, are moving toward a similar end. In the middle, the common carriers, such as General Telephone & Electronics and American Telephone & Telegraph, are looking increasingly like information providers, either in the form of viewdata services or by providing information directly, such as the weather, stock market information, and sports calls over a special telephone number. Thus, as all types of firms that provide information service are increasingly using the same technology, there will be a lessening of the distinctive differentiation among the traditional media forms in the minds of information consumers.

Through understanding and exploiting the fluid nature of the content/process/format mix, businesses and entrepreneurs of all sizes have the opportunity to break out of their traditional mold and broaden their businesses. This can only benefit the information and entertainment seeking consumers. Information providers can reevaluate the customers not as newspaper readers or magazine subscribers, etc., but as information consumers whose interest is in the unique utility of the content. These customers should prove decreasingly loyal to any particular format or process, given the greater choices and the strengths of different formats and processes to optimize the utility of a specific type of information, that is, an interactive video display via telephone lines and computers for classified advertising, pay cable process for an opera, or a printed book format for a description of macroeconomic theory.

Thus, it is perhaps a misuse of effort in the longer run to focus on the concentration of media ownership using conventional understanding of newspapers, television, magazines, et cetera. What we must be concerned with is promotion of diversity of conduits for information and knowledge and the opportunities for individuals and small businesses to participate in providing such information.

If we go back and examine content, process, and format components of the media, we can see the opportunities for entry vary by segment. The process area, which includes the means of distribution of content, appears to provide the least opportunity for large numbers of competitors and has the largest economic barriers to entry. For example,

the capital expense in wiring a community with cable has encouraged the granting of exclusive franchises by communities, under much of the same logic that has resulted in the regulated monopoly status of telephone companies. The scarcity of television channels has put a high price on a license to hold one, while the far greater number of radio frequencies has made these licenses more affordable to smaller businesses.

The major area of opportunity for entry into the media has long been and will continue to be in the content end. One reason why there is a continued proliferation of book and magazine titles is that entry cost is relatively low. Not only can a weekly newspaper exist without its production shop, but there are even relatively large daily newspapers, such as the 100,000 circulation Philadelphia Journal, that can publish using the typesetting and printing facilities of other commercial operations.

The barrier to entry for many of the purveyors of content is in the transmission, or distribution, of their product as well as other factors external to the structure of the media industry, per se. For example, one of the more concentrated segments of book publishing is in the mass market paperbacks, where 8 firms have about 84 percent of sales. The difficulties in entering this segment of the market include the cost of large print runs required by the mass distribution needed as well as getting access to the handful of national distributors that push these books through the system and the willingness of local wholesalers, usually having exclusive distribution rights in a geographical area, to handle more books in an already overloaded system.

At the other extreme, entering the professional and reference book segment of publishing is relatively easy since such books are often sold by direct mail to well-defined audiences. Similarly, publishers of special interest magazines and business periodicals can reach readers through the mail and do not have to rely on private distributors.

The newer technologies hold similar opportunities and barriers. As noted, building a cable system may be prohibitively expensive for small businesses. Even multibillion-dollar Warner Communications deemed it necessary to join its cable operation with American Express Co. to insure a sufficient supply of capital needed to wire large markets. The cost of its newly acquired Pittsburgh franchise will be \$40 to \$50 million for a 700-mile system passing 180,000 homes.

Television has always had a voracious appetite for programing. The opportunities have been limited to mass audience fare. With the many channels opened by cable, operators and advertisers may find television of the 1980's becoming more like radio, with room for much special interest programing designed to reach relatively small audiences. This phenomenon will be aided by satellite transmission availability as well as additional markets for such video productions via video disc or cassette sales. The production of such programs for the video market may well follow the pattern established in the print media. Smaller businesses will be the source for much of it, especially that which is designated for special consumer or business audiences. Distribution, however, may well be handled by larger firms with the technical and personnel resources required to reach a large national market. Programs designed for a local market or appropriate for mail

order to special markets, via cassettes or disks, may also be handled by smaller firms.

The point is that public policy concerning media ownership and concentration must first be rooted in a realistic assessment of the existing data. Second, it must be oriented not to some ideal good but to a pragmatic good. It may be, for instance, that relatively large corporations with strong capital underpinnings will better serve the public's need for diversity, risk taking, and depth of information than would more numerous but smaller firms with weaker capitalization and less willingness to take on major projects that include risk.

At the same time, smaller firms have always found new niches, provided innovation, and then, when successful, been acquired by larger firms, thereby establishing an incentive for more new firms to follow a similar path. This cycle is particularly evident in the magazine and book publishing businesses. There appears to be no dearth of entrepreneurs, as the numbers of new book, magazine, weekly newspaper publishers, and even film producers make clear.

Thank you for inviting me here today and for your attention.

Mr. LAFALCE. Thank you.

Mr. MITCHELL. I would appreciate it if all three of you gentlemen would share your thoughts and suggestions on this. It has been a long, long struggle for us, Mr. Chairman, to try to break that open, and now that we have done so, we may run smack against a stone wall.

Mr. COMPAINE. I think there is going to be a great change that can solve much of the problem you are mentioning, but it is without necessarily having to own a broadcast station. That is through the great volume of information that can go through cable networks.

Most cable systems today have room for 20, 30, 70, or 80 channels. The new ones are going up to 70 or 80 channels. The cable operators are hungry for content to put on those channels. As a result, we are getting a phenomenal increase in the number of entrepreneurs who are putting together networks of these cable operators to give them programming, which is really what you are interested in, getting programming.

There is already a black entertainment network that has been announced, that you may be familiar with. There is a Spanish-Language network. There is an all-news network. Ted Turner's network is about to start up. But that really just scrapes the tip of the iceberg.

One way that I think you might direct your interest and your funding is in encouraging formation of companies that will develop content and be able to market that to the cable operators via satellite or just putting them on video cassettes and putting them in the mail to them.

Today, about 20 percent of TV homes have cable, but that is growing at such a phenomenal rate that it is going to be very widespread over the next 5 or 10 years. To me, that is the most fruitful avenue for making sure that more people can provide a greater diversity of information to the television tube.

Mr. STERLING. Let me add to that, if I may, that there is still a good chance for a minority ownership of cable systems if you hang on that figure of 20 percent penetration of America's homes at the moment; there are television sets in 98 or 99 percent of the homes. The problem is funding. Maybe we are back to the SBA again. But the chance is still there. In no way is cable filled up; even in major markets, in fact, there is still a great chance for expansion, but it does take a tremendous level of funding.

There are two concerns. One is content; one is ownership of the system and means of delivery, a distinction that Ben Compaine makes. I think both are important, and both areas need to be looked into.

The readier one to work into is programming—providing programming channels on delivery systems, be it broadcasting or cable, that are owned by others. But I suspect that is not going to satisfy much of the criticism. So, I think the ownership question of trying to expand existing opportunities within broadcasting or within cable—and in cable it is somewhat easier I think—is still a very important one.

Mr. DEROUZOS. I have a couple of comments I would like to make: First, with respect to the absence of any conclusion over whether conglomeration is good or bad, I would say that, all things being equal, diversity is a good thing. In the absence of any strong reason for permitting concentration, that would be reason enough not to permit it. That is one point I would like to make.

The other is this. It is the nature of the mass media, with a significant fixed cost element of creating the content of the product, which

makes it rather hard for any minority interest, not only an identifiable population segment but any identifiable interest in the community to be represented. That is, that first cost element in producing content has made it, in the past, rather difficult for any media outlet to provide for that minority group, given the fact that once you have produced something it is much less expensive to distribute it to many, many people than it is to create something which is of interest only to a small community group. That, in the past, has been the main block toward getting minority interests represented. After all, that is the purpose of wanting minority ownership—to make sure that the public with minority interests will receive a certain content.

In the past that has been true, but it seems to me that, as has been said before, the development of cable TV makes a great deal of difference. The fact that you no longer have to appeal to advertising for support in terms of revenue the content that you put on the air, the fact that finally people are going to be able to pay for what they really want, and, in essence, by paying, vote for the types of programs that appeal to them. I think cable does create the opportunity to segment markets in terms of virtually any population subgroup that you have. I think the future, particularly cable TV, bodes well for minority programming and really should be the area of most concern.

Mr. MITCHELL. Thank you very much, gentlemen.

Thank you, Mr. Chairman, for letting me ask these questions.

Mr. LaFALCE. Let us pursue the issue of cable television a little because I think there is a common thread of thought running throughout your remarks. That is, if there is a problem with concentration of ownership in the media within its broadest context, perhaps the emergence of new technology, and particularly the growth of the cable TV market, might help to cope with those problems. Is that a correct assessment?

Mr. COMPAINE. I think that is the essence of what we all agree on. We are interested in the number of voices.

Mr. LaFALCE. Looking to the future—the next 5 to 10 years—a number of questions come into my mind. First, what do we project as the probable market penetration of cable television? It is about 20 percent now. Do we have estimates for the next 5 years, 10 years, or whatever?

Mr. STERLING. It depends on whom you talk to, Congressman. The ones I have read typically run 30 or 35 percent, sometimes a bit better.

I might just note that we are in an interesting period right now with projections on cable.

Mr. LaFALCE. Over what period of time would that 30 or 35 percent run?

Mr. STERLING. Over, to use your term, the next 5 years. We would reach that; that would not be in addition to the 20 percent we have now.

Mr. LaFALCE. We are not projecting 100 percent?

Mr. STERLING. No; no one is projecting 100 percent.

Mr. LaFALCE. Close to it?

Mr. STERLING. No; not even close to it. Some of the blue sky adherents are projecting figures that might push 40 percent, but I have not read any figures pushing higher than that over the next 5 years.

Mr. LaFALCE. Is that because of the fact that one must pay for one's cable TV?

Mr. COMPAINE. Mostly because of the huge cost and the long lead-time in granting the franchises, especially in the big cities and in putting the system in. You can see what has been happening in New York City lately; there is a very long leadtime.

Mr. STERLING. It is hard to make projections for a couple of reasons. Cable was held up heavily, let us say, from 1972 to 1978 or so, for both economic and legal reasons—the so-called “three tier system of regulation” or Federal, State, and local.

Much of the regulatory question has been cleared up—in point of fact, been swept away. I will not say we are in a neat economic situation, but pay cable has made it more possible for a cable system to develop a good production capability over and above what it would carry otherwise. Indeed, again, I think it is pay cable that is pushing the growth of cable systems now. But the figures we are talking about by 1984 and 1985 are probably 35 percent, maybe a little better, but that is probably optimistic.

Mr. LaFALCE. This is still almost double, so it is considerable.

Is there that much additional product—ideas or information—that you are presently able to get from cable TV, or is cable TV right now primarily another means of getting what you would get through VHF or UHF?

Mr. STERLING. I think that is essentially the answer. There will be more material on cable, but it will not be more different material. Looking at today's patterns and today's ownership of the hardware and the software, it will be more of the same—more choice but from a similarly limited menu.

Mr. COMPAINE. I disagree somewhat. I think the pattern in television will be very much as we have seen in radio in the past 30 or 40 years. As television has taken over the mass entertainment function, radio has become much more segmented. If you turn down the dial, you have the rock stations, the soft music stations, the talk stations, the all-news radio stations, and the foreign language stations. I think that pattern is going to be repeated on cable. There will still be some of the mass audience stuff that the networks will carry; it will be transmitted on cable; but you will also see greater attention to the smaller interest markets where a potential audience of 2 or 3 million, which today broadcast television cannot even talk about, you can get on a national basis through a cable network; and there will be much more special interest programming. Advertisers might even support that because they are reaching a very well defined audience and are willing to support that.

Mr. STERLING. I would still suggest that I think the specialization will be over a fairly narrow spectrum of material. I think there will be more specialization; we are seeing it in broadcast television with, say mininetworks; but I think the spectrum of what will be offered will be fairly limited. But, again, as Ben Compaine and I are suggesting here now, there is a great deal of disagreement on the degree of this.

Mr. LaFALCE. Is the issue of who owns the cable television stations very important, or is it primarily who is producing the content that will be on the cable TV the crucial question?

Mr. COMPAINE. My contention is that it is the content that is important. The cable operators get their money from putting the cable into people's homes. They have 50 or 60 channels they would like to fill up, and the way they sell cable is by offering people this choice.

Initially, cable was just retransmitting the broadcast stations for people who could not get good reception. But today the way they are going to get subscribers to pay \$8 a month, plus perhaps another \$8 for the pay service, is by offering them something that is worth paying for, and that is, the more they can put on those cable channels the happier subscribers are going to be and the easier it will be for cable operators to sell their services.

Mr. STERLING. Inherent in what Ben Compaine is saying is that the owner makes the choice; therefore, ownership is important.

Mr. LAFALCE. The owner will make the choice, he will be the gatekeeper.

Mr. STERLING. Exactly.

Mr. DERTOUZOS. Currently, program supply is very, very competitive. Entry is rather free. Therefore, the critical choice is made by the person who determines who has access to that outlet.

Mr. MITCHELL. Would you yield for just a moment?

Mr. LAFALCE. Certainly.

Mr. MITCHELL. I hear what you are saying, but ultimately the consuming public is going to make the determination. If that owner puts on some stuff that no one wants to hear, they are not going to pay for it. So, I am not at all certain that I would come down so heavily on ownership as being so crucial.

Mr. COMPAINE. I would tend to agree with you. The owners of the media—this includes today newspapers and magazines—want to sell their product, and they want to sell advertisers an audience. So, they have to respond pretty much to what the audience wants.

In the case of even a newspaper in a one-newspaper town today, where there is no direct competition, the publisher cannot completely ignore the interests of its constituency because the advertisers may say that they do not want to be associated with the paper because readers get turned off by it and advertisers will find some other means of fulfilling their needs.

Mr. LAFALCE. There are presently limits on the number of TV stations and radio stations that one may own and the areas in which one may own them. Are there any limits presently for cable television?

Mr. STERLING. Not for number of systems or number of homes, no.

Mr. LAFALCE. Do you think there should be any limitations that should be imposed in the future in order to prevent a concentration of ownership within cable television, as had developed in other media areas?

Mr. STERLING. Speaking not as an economist, I would suggest that some kind of a limitation for both media based on the number of homes served might be the best way to go. If we talk about the number of cable systems or number of broadcast stations, we are ignoring the size of the market they are in or the number of people reached, and I think that is the crucial thing.

I would suggest that, certainly for cable, we are at the point where we seriously need to consider an ownership limitation on the number of homes served, which could be defined in a variety of ways: percentage of the total number of homes in the country or in a given area. There is both a national, and there is a regional concentration question. But I think that is the way to go, as opposed to the number of systems, which does not mean much; it is an artificial measure.

Mr. LAFALCE. Would the others care to comment on that?

Mr. DERTOUZOS. To an extent, I agree. One problem I have always thought existed with respect to the ruling on the number of broadcast stations that you could own involves the fact that the limitations are on the number of stations rather than the audiences. For example, the networks currently each own five major stations, and each of those stations are located in the largest markets. Therefore, the networks—those five O & O's—totally dominate any of the other groups, and, in some sense, that kind of ruling probably gives the networks an advantage that is quite significant.

With respect to cable, I guess I would caution against the same type of ruling related to systems. As an economist, however, I do recognize that it is possible to create distortions in the markets by imposing limits on the basis of audience. You may affect incentives to grow, and that is very tricky. It deserves careful examination.

Mr. COMPAINE. I do think we should recognize, though, that cable franchises are given out by either States or municipalities. For the most part, there are already written into their articles of franchise certain requirements on what they have to carry, the extent to which they have to provide public access channels, or whatever. So, given the limitation that is already built in, I am not quite so sure that we need anything other than adherence to already existing antitrust guidelines within either concentrated markets or, say in TV broadcast cable, cross-ownership within a local market.

Mr. LAFALCE. Dr. Compaine, you, of course, when you addressed the issue of media use it with the broadest sense, and did not like to distinguish too much between newspapers, TV, radio, and books. You like to talk more in terms of content of process and format, as I recall.

Because of the potential blending of format via cable television, do you believe that we should develop some rules regarding cross-ownership with respect to cable television?

Mr. COMPAINE. The only area of real conflict I see would be especially in a small market where the broadcaster also owns the local cable system.

Mr. LAFALCE. What about a newspaper owning the local cable?

Mr. COMPAINE. I do not see that as much of a problem. In fact, if you are a newspaper owner and you are looking at the media future, and you are seeing all these new things coming down the line, and you are seeing that your newspaper circulation has been declining and there is no growth in it, you are interested in creating and disseminating information, and it just a natural thing for you to say, "Well, we are losing our newspaper franchise slowly, in effect; we have to find another way of staying in the information business." It is what marketing people would call a natural movement for them. I am not quite as concerned about that.

Mr. LAFALCE. Mr. Sterling?

Mr. STERLING. I just want to reiterate that there are now rules on the FCC books banning local television station ownership of a cable system within the same coverage area, banning local telephone company ownership of the cable system in the same area, and banning the three major networks from owning cable anywhere. Those are the existing rules. So, there is some cross ownership control right now.

Mr. DERTOUZOS. I disagree, to a limited extent, I suppose. I would view crossownership of a newspaper and cable system in the same

market as detrimental, especially because I suspect that cable will have an impact in supplying the needs of the local community.

I agree with approaching the mass media in a general way; you cannot really differentiate between industries. That is mostly because the products of the different industries do have characteristics which overlap. However, there are certain submarkets which are definitely distinct. And, to that extent, although you cannot be very positive about the measure of concentration you use, there are still disturbing tendencies.

For example, I once decided to look at what percentages of local advertising dollars were sold by newspapers as opposed to the other broadcast media. It turned out that, in many cases, the local newspaper often dominates in terms of local advertising dollars—something like 60 to 70 percent. To the extent that cable television may supply an outlet for local advertising, I would view crossownership in a given market as a bad thing, given the impact on local advertising markets which of course, is very important.

Mr. LaFALCE. You have touched upon the dominant role of the networks and the providing of the content. Do we have a similar concern for cable television in the future regarding an emerging dominance of content providers?

Mr. STERLING. In the pay cable area, yes we do. Home Box Office, a subsidiary of Time Inc., has always been the major supplier, although in fact its percentage of the total market now is lower than it was; the two big ones are HBO and Showtime. As I suggested earlier, there is no ownership limitation whatever there.

I do not think the problem is as crucial at the moment as it is with television networks because the technology allows, particularly with satellites, far more content input than the traditional commercial networks which are based on more limited land line availability. So, I think technology is ruling, and I do not think the problem is as crucial. It may get there fairly quickly.

Mr. COMPAINE. The reason the three commercial networks have dominated is, for the most part, the bigger cities only have three local stations. It has been very hard to get a large network with a fourth channel in many parts of the country. With cable it will be much easier. Almost anyone can put together either a permanent network or an ad hoc network for a given show and get access to a satellite—which may be an area you would want to talk about to the extent to which transponders will be available on satellites. It will be much easier to have another pay network or nonpay network. It eliminates the economic and technical reasons that there are only three commercial broadcast network today.

Mr. STERLING. The satellite point is a very interesting thing, looking at networks. The networks control, to a great extent, not only the system of distribution, but they control the programming. They do not produce it all, but they buy it and supply it. With satellites, of course, we are dealing with common carriers, one series of firms owning the means of distribution with others supplying the programming over those transponders. That split is an important idea that may bear future fruit.

Mr. LaFALCE. What do you mean?

Mr. STERLING. I think the notion of dividing the two kinds of control helps to diversify ownership automatically. The satellite owners—the common carriers—that lease out the transponders are interested in leasing transponders and not all concerned about content. The content people are usually concerned about a given transponder, which translates essentially into one channel of TV information. That is diversification of control. We do not have one central large firm, such as a broadcast network, with feet in both camps, controlling both the distribution and the content of the information. It is easier, I think, for other parties to move in on both sides.

Mr. LAFALCE. When people talk about communication via satellite, exactly what is it that they are talking about? How is that going to differ from VHF, UHF, and cable television?

Mr. STERLING. By the number of channels primarily to the number of channels that can be communicated. The whole satellite thing is just breaking open now. Indeed, it is now technically possible to have what is called a DBS—a direct broadcasting satellite—that can broadcast a program directly into someone's home. I say technically possible; there are legal and economic problems; we would each have a little receiving dish in our homes, and it would cost at the moment, several thousand dollars; though the cost is coming down. That option would mean that we could have as many channels of information going directly into homes as there were available transponders, and we are building satellites with more and more transponders in each satellite, so that the possibility of a large number of channels of information, in that sense diversity, is very great.

But I come back to the point I made earlier. In many cases, I think the menu that is being offered will not be that great. The menu being offered in the satellite today is not substantially different than the menu being offered by broadcasters and by networks of 5 or 8 years ago. There are a few exceptions to that, but not many—different faces, different programs, much the same kind of thing.

Mr. LAFALCE. I believe it was you, Mr. Dertouzos, who indicated that it was not so much economies of scale which caused concentration of ownership with the written media but more, in your judgment, tax laws. Is that correct?

Mr. DERTOUZOS. This is with respect to chain ownership. I believe the economies of scale played a large role in the structure of local communities but not with respect to the chain ownership which has really been escalating recently.

Mr. LAFALCE. I should have refined my remarks a bit more.

Would the other gentlemen concur in that statement or have any comments they would like to make?

Mr. COMPAINE. I support that very much in the sense of why newspaper publishers and magazine publishers and so forth sell out to the inheritance tax laws as well as the fact that, especially in the case of newspapers—and the chains are willing to give phenomenal prices for them.

Mr. LAFALCE. There are two questions here: why does one sell, and why does one buy? One sells, I would imagine, for a number of reasons. You have talked about the estate tax laws. And I would imagine one could buy other than chains now for purposes of economies of scale. Is that correct?

Mr. DERTOUZOS. I have really seen no evidence that that is the fact. As I said, there exist sources of information that are totally external to the chain that take advantage of those economies of scale, and I do not believe that chain ownership confers any advantage in any way whatsoever. This is not a consensus of all researchers; it is more my personal belief from the economic evidence that I have been able to perceive.

Mr. LAFALCE. What is the underlying rationale for the Newspaper Preservation Act? Was it not economies of scale?

Mr. DERTOUZOS. That is right. Economies of scale do exist. As long as you are attempting to sell a newspaper to a given audience, it is always to produce one newspaper which achieves a larger circulation than it is to have two newspapers which split that circulation. It is because of that first copy element; once you put those editorials in, you do not have to reproduce the writing of those editorials and the type-setting, et cetera, which go into reproducing that newspaper.

So, in the long run, it is very hard for two newspapers to compete for the same audience.

When you are talking about chains, though, you are talking about newspapers in Wisconsin and New York State.

Mr. LAFALCE. You are suggesting that economies of scale might be a legitimate reason within the same media market.

Mr. DERTOUZOS. That is right.

Mr. LAFALCE. But once you cross media markets, as chains do—

Mr. DERTOUZOS. That is right. You cannot reproduce that initial content and expect people to buy it in different markets.

Mr. COMPAINE. There are some economies across markets, such as through having a common news service—a Gannett News service or a State bureau that represents a few newspapers or in buying newsprint. There are a few, but I think we would agree that it is not on as large a scale or within a single market.

Mr. STERLING. I would add to that purchase of programming by television group owners as well. I think there are some economies of scale there.

Mr. LAFALCE. OK.

Are the three of you economists?

Mr. COMPAINE. You have to define economists.

Mr. LAFALCE. In any event, let us go to the tax question. You stated that chains usually have as their incentive not economies of scale but tax laws because of the taxation upon accumulated earnings, and in order to avoid that they would therefore use those earnings for the purchase of another newspaper or some other media. Do you think the tax laws should be changed? Have you studied any possible changes in the tax laws that would redress that?

Mr. DERTOUZOS. The capital gains tax is meant to encourage investment for the purpose of promoting real growth in the economy. Unfortunately, the capital gains taxes do not really differentiate between growth which is achieved through internal investment and growth which is achieved through buying up other properties. In an economic sense and an aggregate sense, that is not real economic growth. To that extent, I think the law should distinguish between different types of growth. I do not believe that capital gains through merger should be given that tax advantage, given the fact that there is no net economic growth associated with that.

I really do not think the laws are currently justified, and I do not think that chains ought to be encouraged by a tax law which really, as far as I can see, has no strong rationale implicit in the way it is written.

Mr. LAFALCE. Would anyone else care to comment on that?

Mr. COMPAINE. I would just like to comment on the other side—the reason people sell. The inheritance tax laws—I am not sure how much research has been done, but certainly if you ask a lot of owners of small papers, particularly family-owned papers, why they sell, they can show you the figures of what they have come up with in cash to settle the estate, and they sell. I think that is an area you can pursue.

Mr. LAFALCE. Dr. Compaine, on page 10, you stated that among the strategies that are available are, two, a negative policy of prohibition by size limitation in the absence of evidence of conscious anticompetitive behavior. You say that is available. Are you suggesting it?

Mr. COMPAINE. No. I am just presenting policy options. Based on other research in the book that I did not have time to get to, I do not think there is any consensus that there is any sense of collusion or anticompetitive behavior on any general scale in an antitrust sense. For that matter, even the research and the literature show that many chains improve the quality of the newspaper content, that chains do not necessarily provide any better or worse service for their markets. We cannot say categorically that chains have harmed the editorial product or the accessibility or the prices to advertisers on any general basis.

Mr. LAFALCE. Could I ask you gentlemen to try to summarize for me the public policy issues that you think I and other elected public officials should be concerned about as we view the phenomenon that has taken place in the concentration of ownership and cross ownership and chain ownership developed within the media, and, as we look to the future, to the new emergency technologies? What are the questions we should be asking? What are the issues that we should be debating? What are the laws that we should be considering of either a positive or negative nature?

Mr. DERTOUZOS. I would say that, looking over the historical record, I think that Government has really failed in a number of important instances to act in time; with respect to newspaper chains, it is almost too late. For that reason, I think that the emergence of new technologies should be a key area where one has to look now before the emerging patterns of concentration in ownership get out of hand. I am not predicting that, indeed, they will, but certainly we do not want to look back after 20 years and realize that something has happened in terms of concentration or ownership which has not been to the public interest and then be put in the position of having "grandfathered" existing arrangements. The time to do something is probably before the structure becomes so imbedded in the economy that nothing can be done about it.

I still think there is plenty that can be done with respect to chains, and I believe that the current inquiry into the role and impact of the networks is probably a good idea. I am very optimistic that they are doing a very good job with that.

But, most critically, one has to be very cautious about the new technologies and make sure that Government laws and perhaps tax incentives do not make it such that we will find ourselves in the situation where we are now with respect to some of the other media.

Mr. LAFALCE. Do you have any specifics that you would like to recommend for Congress or regulatory agencies to consider, to insure that the emerging technologies do not befall the fate of newspapers, for example?

Mr. DERTOUZOS. To begin with, I believe that local cross ownership of any kind is not justified, and so that would be of prime importance. You need a competitive local environment. That is the most effective safeguard that one could have.

Second, with respect to cable, some sort of ownership structure rule should be imposed. The exact nature of that is unclear and demands further study. But ultimately something similar to what is done with respect to broadcast station ownership should be imposed on cable.

To the extent that there is any time left at all, the chain question is still, I think, rather critical.

Mr. LAFALCE. With respect to chains, you do not think it is too late? You think that something could still be done?

Mr. DERTOUZOS. On the basis of what I know, I believe the tax laws can be changed. To the extent that chain growth is encouraged by the tax laws, and perhaps tax laws are the only cause of them, those laws should be changed as soon as possible.

With respect to the current structure, I am not sure that anything could be done from a political standpoint. It certainly bears looking into.

Mr. LAFALCE. What would happen if General Motors made a tender offer for Gannett?

Mr. DERTOUZOS. That is a very important question. Actually, we have been talking about conglomerate ownership. We have been talking about media conglomerates and the fact that major corporations and business interests all over the place own major media outlets. That raises a whole slew of important questions that, as an economist, at this stage I am not really prepared to answer.

Mr. LAFALCE. I am really more concerned about issues such as that than anything else, to be quite candid with you. I am concerned about the power of the media in American society. We have not really gone into that.

Mr. DERTOUZOS. I do not think economists have any strong view as to what advantage a media outlet has when it is part of a larger conglomerate. You find hand-waving and some argument with respect to capital market advantages, but no one is really sure how important those capital market advantages are and whether or not they really exist. To the extent that they do not, from my point of view, that type of conglomerate ownership is not in the public interest.

Mr. STERLING. Let me insert a noneconomic point. Thirteen years ago, when I.T. & T. tried to take over ABC, the major issue that was raised at that point, in addition to a number of economic issues, was, to what degree would ABC News be affected by I.T. & T.'s other holdings? The same question was raised during the Vietnam war by RCA's military contracts, and how that would affect how NBC reported issues.

Again, the amount of solid research on that is very, very limited, but the question is an important one and not an economic one in a direct sense.

Mr. LAFALCE. Just to continue with you before we turn to the other two, you also in your answer to my very broad question mentioned that you were concerned about the role and impact of networks and were pleased that an inquiry was being made by the FCC into this. Would you care to elaborate a bit more about your concern because of network predominance?

Mr. DERTOUZOS. We have talked a lot about numbers of media outlets, but the fact of the matter is that the three networks, and perhaps the wire services, really do, in terms of news which is of importance to the American community, dominate totally. So, we do have the gatekeeper impact, and it is nice to have a diversity of outlets to have some discretion over what actually gets to the American public, but basically, from my point of view, there are five organizations which have a large say in what actually gets produced from the point of view, not necessarily of entertainment, but, for example, national news.

Mr. LAFALCE. What should we possibly do about that?

Mr. DERTOUZOS. I am not sure. One way is to insure that the local markets are competitive enough so that the individual gatekeepers have an incentive to get at the truth or get at what they consider to be important; that is one way to insure it. The other is to examine the reasons for allowing such a limited number of corporations with that much control. You really cannot suggest a public policy unless you understand the causes of that structure.

Again, I have a strong feeling that it is an economic argument involving the fixed cost element—it is much cheaper to distribute an initial content to a lot of consumers. If you had several corporations attempting to gather the same news, it would be very inefficient, and it would not be very effective. So, you have to sit down and figure out what exactly is the optimum number from a viable, economic point of view. After all, given the first amendment, we cannot actually regulate the collection of news; it has to be an economic market which fulfills the task. But it is really important to understand what the key elements of that economic market are.

Mr. LAFALCE. Dr. Compaine?

Mr. COMPAINE. Just to follow up on Jim Dertouzos statement, you can see some of the difficulties in dealing with this. Right now, as he brought up, there are two major news services, AP and UPI, that provide the bulk of the international news for most newspapers. So, even if you had several newspapers in some of these one-newspaper cities, people would still get much of their news from these two news services. Because of the complexity of covering the world today and the great cost, even UPI is having financial difficulties. So, the thought of finding greater sources of information pales when you realize that one of the two competing major news services is having trouble staying afloat.

So, we can say it would be nice to have more, but the economics do not always support it.

To get to your question, in general terms, some of the things that you have to be concerned with, first of all, are the future of localism. To what extent are the locally owned media important? What does that really provide? It sounds good, but is it doing what we really want it to do? How important is it?

The second question we might ask is this. Is big necessarily bad? And what do we mean by "big?" How big? Certainly, there are some economies of scale, and beyond that point there is no social or economic benefit to growing any larger. But what is that point? I think you will find an awful lot of disagreement. That, in a nutshell, may be your major problem.

More specifically, I think you want to look at the ability of independent information providers to have access to distribution of information. The difference between the commercial broadcast networks and the cable networks highlight that. Today, a provider of information—whether it is Ted Turner or black entertainment—today can get access via satellite to cable systems all over the country. I think it would be in the interest of the country to maintain that situation where the distribution channels are kept open as much as possible to allow programmers to gain access to it.

One important thing would be to keep the Postal Service very healthy. We have a situation where many magazine publishers—and I lose no sleep over the financial condition of magazine publishers needing a subsidy—and many direct mailers going to alternative delivery sources. If that undermines the Postal Service and service deteriorates, that is going to make it more difficult for smaller businesses particularly who rely on the postal services to reach all over the country in an effective manner. So, it is very important that we maintain a strong Postal Service as part of this distribution network.

Another thing I think you have to look at are the less obvious sources of competition. Banks, telephone companies, mail order catalog firms, and many companies that we have never viewed as being information providers now have the ability to be independent of the media in offering their services or using the same telephone video-tube network to provide information, whether it is a sale on a product or offering services. So, there are some less obvious competitors.

Finally, I think one way you could be of benefit would be to provide tax incentives for formation of new media firms. Rather than sanctions against acquisition, find a way of encouraging a company to start a new newspaper to start a magazine, to start producing video programming on their own. That would encourage startups rather than going after the people who are already in there.

Mr. STERLING. Naturally, when you are at the end of a series of proposals, like this, you agree with everything that has been said, and then you attempt to add something to that. Let me break my suggested list into two parts: first of all, studies; and, second of all, specific options for action.

I think a number of studies are still necessary. I think we need to study—and this comes from Ben Compaine's last point—the effects of the types of ownership on the diversity of content, the effect of the owner on the content that is provided. We have talked a lot about it this morning. Others have studied a great deal about it. We need more of a coalescing and, quite possibly, some further research into this question.

Second, there is clearly a need for further research on the effective technological chances and changes within existing services. I am talking about the expansion of the AM and television bands as an example.

Minority ownership has got to be looked into more carefully. I think it is a major chance—perhaps the fundamental chance—for ownership, not just content ownership but ownership of units of communication, voices, as far as minority groups are concerned.

Third, in the notion of studies, I think we need to fund the development of some good, solid, statistical indicators in this area. We have a fair number of numbers floating around to try to give us a sense of where we stand on ownership in all of the various media. They are not terribly refined, and their quality varies widely. It is partly based on source, partly based on methods to develop them. We do not have indicators for media ownership the way we have indicators that tell us the economy is not in the greatest health. I think that is something that could be pursued. As for support, obviously, we could go to NSF to direct something like this. They have done studies like this before. Indeed, we could go to the Office of Technology Assessment which has a couple of major media-related studies that are due out this year.

I have two specific recommendations as far as policy is concerned, and both of them fall in the negative line.

One, I think serious consideration should be given on an ownership limit for cable MSO's—multiple system operators—that would deal with a percent of population served rather than the number of systems owned. It is possible, boiling out of that, that ownership limitations in broadcasting should be adjusted to become parallel, but that raises questions of divestiture.

Finally, I think the possible divestiture of network owned and operated stations should be examined quite seriously. I think it is being examined by the current study going on in the FCC, and I think it should be looked at in a very serious way partly, again, to divide the production of content from the distribution of same.

Mr. LaFALCE. With that, gentlemen, the bells have rung. I want to thank all of you for having come to provide us with, I think, a very interesting presentation. Thank you very much.

The subcommittee stands adjourned.

[Whereupon, at 11:45 a.m., the subcommittee adjourned, to reconvene subject to call of the Chair.]

ELECTRONIC MESSAGE SERVICE SYSTEMS

HEARINGS
BEFORE THE
SUBCOMMITTEE ON
POSTAL PERSONNEL AND MODERNIZATION
OF THE
COMMITTEE ON
POST OFFICE AND CIVIL SERVICE
HOUSE OF REPRESENTATIVES
NINETY-SIXTH CONGRESS
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Mr. CLAY. Our next witness is Mr. John McLaughlin, executive director, postal and allied arenas, Harvard University.

**STATEMENT OF JOHN F. McLAUGHLIN, EXECUTIVE DIRECTOR
OF POSTAL AND ALLIED ARENAS AT HARVARD UNIVERSITY'S
PROGRAM ON INFORMATION RESOURCES POLICY**

Mr. McLAUGHLIN. Thank you. I hope the fact that we have been asked to testify on April 1 is not a comment on the expected quality of our testimony.

My name is John McLaughlin. I am executive director of postal and allied arenas at Harvard University's program on information resources policy. We conduct a policy research program supported by 90 some organizations who have diverse and conflicting stakes in information policy. Our affiliates include the Postal Service, the Postal Rate Commission, the National Telecommunications and Information Administration, the Computer and Communications Industry Association, A.T. & T., IBM, Southern Pacific, the Communications Workers, the Letter Carriers and a host of others having a strong interest in electronic message services.

Between 1964 and 1977, I was an employee of the U.S. Postal Service. For the last 5 years of that time, I served as Director of the Office of Strategic Planning. I am testifying today in a personal capacity, not as a representative of Harvard, our program, or any of its supporters.

Last May, I had the privilege of testifying before the Senate Subcommittee on Communications during its hearings on the role of the U.S. Postal Service in the telecommunications field. At that time, I stated that there were good reasons for the Postal Service to develop an electronic message service and some legitimate reasons to worry about USPS entry into this field. I suggested that there was a middle ground which would combine the USPS delivery mechanism with the existing transmission and marketing capabilities of private telecommunications companies.

I believe that the recommended decision of the Postal Rate Commission in the E-COM proceeding reflected a reasonable effort to find a solution in this middle ground. The recommended decision would let USPS get into the electronic message field with a minimum of regulatory hassle and the attendant delays.

I know that the members of this subcommittee have heard extensive testimony on the pros and cons of the PRC's recommended decision. While I will be happy to discuss that subject, I would prefer to focus on some long-term issues. To the degree that the PRC's recommended decision allows USPS to get into the EMS business and start to get some operating and marketing experience, I think it is an opportunity to be exploited. Starting now, even on a limited basis, is better than starting 2 or 3 years from now with a broader charter.

Let me turn now to what I described as some of the long-term issues.

First, I believe that the Postal Service should continue to pursue the possibilities for offering its own end-to-end electronic message service, even if this requires obtaining FCC approval as a regulated common carrier. I view such a step to be in the nature of reasonable contingency planning. Quite possibly the Graphnet's, the Xerox's, the Western Union's, the A.T. & T.'s and other private companies will go out and aggressively and successfully market E-COM-type services. If the interconnected service proves successful during the year or two that USPS would need to clarify its legal position and to field its own end-to-end service, then USPS could and probably should shelve its own plans.

It is equally conceivable that private vendors of telecommunications services will not be successful in marketing E-COM service. One reason for the possible failure to market such services may be confusion. A recent study by International Resources Development, Inc., concluded that the executives responsible for the electronic mail activities of the Fortune top 1,000 corporations felt puzzled, skeptical, and confused about the multitude of new electronic message services being offered to them.

It seems to me that if communications executives of these top corporations are confused and puzzled by present offerings, they and managers of smaller companies will be confounded further by the E-COM system envisioned by the PRC. Potential users might well be discouraged by the need to deal with USPS and multiple telecommunications companies in order to simply transmit their mail. Thus USPS management and the dissenting PRC Commissioners might be right in their contention that the lack of a single end-to-end EMS service, or a lack of commitment to the E-COM concept on the part of private telecommunications carriers, might make the proposed interconnected E-COM offering unworkable. If that proves to be the case, the Postal Service should be prepared to offer its own end-to-end service.

The PRC's recommended decision appears to give USPS sufficient latitude to pursue development of an integrated E-COM service in the event that this option appears to be necessary and desirable.

I should add a cautionary footnote at this point. It is conceivable that a failure of the E-COM service as recommended by the PRC might not be the result of a split offering. It is very, very possible that there simply is not a market for E-COM-type services at the prices presently being discussed. If E-COM does not fly as a two-party service, USPS should consider the possibility that the market is not there for such a service in any form. This committee's familiarity with the national bulk mail system should be adequate warning of the dangers of trying to find engineering solutions for marketing problems.

My second long-term suggestion evolves from the first. If this subcommittee or any other group expect the Postal Service to go out and market successfully a new service based upon new technologies while not abusing its monopoly powers or its governmental powers, you must give them the management capabilities to do so. If you want USPS to play in the same game as SBS, Xerox, West-

ern Union, Southern Pacific, A.T. & T., and so forth, the Postal Service needs the ability to acquire technological, marketing, and general management personnel with big-league talent. That, I suggest emphatically, is unlikely under the present statutory limitation on executive salaries at USPS. Given the seething competition for good management people in the computer and communications fields, and given executive pay levels in the private sector, a new and broader charter for USPS in the telecommunications area only invites future problems, unless you are going to give USPS the flexibility to get top-notch people.

Finally, let me mention one other point. E-COM and other generation II services might well be desirable and justifiable given the current economic and technological environment. In the long run, however, the need for postal services as we have known them traditionally will continue to change.

Back in 1975, I authored a USPS staff study called, "The Necessity for Change" which was published by the House Post Office and Civil Service Committee. On pages 30 and 31 of the committee print of that report, is a section entitled "The Long-Term Problem" which discusses the issue of eventually scaling down USPS in an era when the demand for traditional postal services is in decline.

Given my background in postal management, Mr. Sombrotto, Mr. Andrews, Mr. LaPenta, and I disagree on numerous issues, but I believe that all of us could agree upon the desirability of, and necessity for, exploring the options for eventually down-sizing USPS in a manner which would be economically efficient, but sensitive to the needs of postal employees. Since this is the Subcommittee on Postal Personnel and Modernization, I would encourage you in future sessions to give further consideration to this issue, even if the likely consequences will not be seen for another 10 or 20 years.

Thank you, Mr. Chairman, for this opportunity to present my views. I will be happy to discuss any of these points in detail as your schedule allows.

Mr. CLAY. Thank you. Have you had an opportunity to read the testimony of the other witnesses today?

Mr. McLAUGHLIN. No, I have not, Mr. Chairman.

Mr. CLAY. Did you read the testimony of any of the prior witnesses?

Mr. McLAUGHLIN. I have a few of them, not all of them.

Mr. CLAY. Any in particular you would like to comment on, agree or disagree with?

Mr. McLAUGHLIN. No, I would like to comment in reference to Mr. Sombrotto's earlier comments in reference to universality of service. This gets a little bit out of the postal arena per se, but one of the things that we have been looking at over time is the fact that the Federal Government and the users have subsidized two universal communications systems over the past century, or past half-century certainly. The Postal Service, per se, and also the telephone service in terms of the Rural Electrification Administration. Not just in direct subsidies, but also according to most sources at least, cross-subsidies within the system to underwrite service to rural areas.

Now at the point when these technologies continue to evolve and perhaps merge, as the functions begin to look more and more alike, at some point or another, one has to question how much the Government of the United States wants to put into subsidizing two universal systems as opposed to perhaps some kind of single universal system that provides both functions.

Mr. CLAY. Do you think that perhaps the reason for subsidizing the rural telephone users is because the private sector would not provide the service to those people in the small communities?

Mr. McLAUGHLIN. Well, we can get into significant debate on that. I think that is obviously the historical source. I say we could debate it because of the fact that the telephone companies of the country contend, at least, that particularly through the separations and settlements process, that there is considerable cross-subsidy within the private telephone system going to subsidize less developed areas. But obviously REA has played its role as well.

Mr. CLAY. Do you think that without REA that Ma Bell would provide the efficient service to the rural communities and cheap services?

Mr. McLAUGHLIN. Well, let me put it this way. I think it's a fact that Bell in their early days chose their territories to serve before everyone else was on the map for all intents and purposes, and that they wound up serving roughly 80 percent of the population in 20 percent of the land mass of the United States. It suggests that they were not anxious to get out into boondocks and provide universal telephone service to the ends of the Earth.

Mr. CLAY. They still are not anxious, is that correct?

Mr. McLAUGHLIN. Well, again, the problem here is how much they are actually doing today. If we go over to the communications hearings and listen to the discussions of the proposed 1934 Communications Act rewrite, it is very hard to tell how much is actually going on today in terms of interstate long distance calls subsidizing intrastate and local services. I have certainly heard Mr. DeButts when he was chairman of A.T. & T. tell of their problems of extending lines to houses in Louisiana where it costs them \$3,000 on the average to put a telephone line into a single house; obviously an investment that they would never expect to recover on a single house. But how common that is compared to multikey sets in New York City offices is subject to considerable debate.

Mr. CLAY. But does not that support the argument that the private sector would just skim the cream when you speak of Bell getting 80 percent of the population with only 20 percent of the land mass. Does not that indicate that that is what the private sector is interested in?

Mr. McLAUGHLIN. Well, I think that is a very likely conclusion, but let me caution against going to the other extreme. My information may be wrong for I am guestimating at the figures right now, but it is my impression that REA provides for something like less than 1 or 2 percent of the telephone lines, or telephones served in the United States. Obviously, private companies, the United Telephones, the General Telephones, the Continental Telephones, filled in that gap between Bell's 80 percent and REA's 1 or 2 percent. So that would not automatically make me rush to the conclusion, as it

did Postmaster General Burleson in 1918, that the post office, for example, shall serve the whole country in telephone.

Mr. CLAY. Or to what?

Mr. McLAUGHLIN. That the post office or the Federal Government should leap into the gap to take over 100 percent in order to provide service to the last 1 or 2 percent.

Mr. CLAY. Well, of course one of the argument of the private entrepreneurs is their efficiency. Now, would you care to compare the efficiency of the Continental Telephone and the other private telephone companies serving the rural areas?

Mr. McLAUGHLIN. Compared to REA?

Mr. CLAY. Yes.

Mr. McLAUGHLIN. Well, I have never lived on an REA line, so my only testimony is hearsay. I have never known anyone who has lived on an REA line who was not happy to be converted to a Continental or General company. But that is hearsay from a small sample of personal friends.

Mr. CLAY. In your testimony, you speak of the USPS offering end-to-end electronic message services. Is that the position of USPS?

Mr. McLAUGHLIN. I am speaking of end-to-end marketing and end-to-end generation II service. That is what we describe the original USPS E-COM service as representing.

Mr. CLAY. Did you have the opportunity to look at the GTE Telenex proposal of last week involving phase 1 and phase 2 of the USPS into the electronic message systems?

Mr. McLAUGHLIN. No, Mr. Chairman, I have not.

Mr. CLAY. On page 2 of your testimony, you speak of the regulatory hassle and the attendant delays. In your opinion, how long do you think a court battle over who has jurisdiction will take and what will be the effect of such delay?

Mr. McLAUGHLIN. Well, first of all I will say I am not an attorney and not in regulatory practice, so it is an amateur's guess. But having watched similar proceedings in recent years, I would not be surprised if resolution of this issue took 2 or 3 years easily, just judging by other cases. Now the effect of that is to keep the Postal Service from getting out there and getting their feet wet in this business.

Mr. CLAY. Mr. Johnson.

Mr. JOHNSON. Thank you, Mr. Chairman. Mr. McLaughlin, while you were not here last week, we did have several witnesses who testified that they were concerned about the entry of Postal Service into the electronic message service systems out of a concern that the Postal Service might use the private express statutes to exercise control over electronic mail. Is it not true, however, that the private express statutes only apply to hard copy, and that the Postal Service is already moving towards providing some exemptions for time-sensitive services which could not be provided otherwise by the Postal Service. Would you want to comment on that issue? It seems to be a pretty pervasive one.

Mr. McLAUGHLIN. I would be delighted to. If I were any private company envisioning some form of competition with the Postal Service, I would obviously be concerned about the private express statutes, including the administration of the statutes as well as

their meaning per se, or on paper. Now I think that one gets into debate as to whether or not the Postal Service at various points has tried to stretch these too far. Obviously, we are in a period right now where the Postal Service has made some exceptions in terms of time-sensitive material. But I think this illustrates part of the problem, and that is that administratively speaking, the Postal Service does the interpretation of the statutes, which is let us say analogous to having A.T. & T. decide how far their telephone monopoly runs. I think that is quite an analogy.

So as I say, I can see private carriers being very much concerned with Postal Service because we have seen enough points in the past, historically, where the Postal Service, when they felt heat in a given sector, reacted by trying to apply the private express statutes. You can see that sort of thing, for example, in the case of the Associated Third-Class Mail Users, trying selective delivery of third-class mail which the Postal Service largely ignored for a long time, but it started to look like it might be important, so it was worth challenging.

Again, it is a problem. I think Postmaster General Bolger is a delightful fellow and very competent man who tends to be very fair in these things. But we are talking about a system where next year there may be another PMG who does not react the same way to these same things. The way the law is written now, there is an awful lot of room for abuse there.

Mr. JOHNSON. Would you care to make any proposals to this subcommittee for the members to consider in order to address that concern that many private sector carriers have?

Mr. McLAUGHLIN. Yes, I think one thing—

Mr. JOHNSON. Excuse me. I should modify that and say do you have any suggestions to make for the Congress, because some of the things you may suggest may not be within the subcommittee's jurisdiction.

Mr. McLAUGHLIN. For one thing, I think it is worth addressing the general problem as opposed to the specific one of USPS and electronic message services. I think at some point or another when there is significant postal legislation, there should be serious consideration given to taking the interpretation and administration of the private express statutes out of the Postal Service and putting them into a supposedly impartial body. The likely candidate at this point would be the Postal Rate Commission. But like I say, that is subject to debate.

I do not think the Postal Service should be in the position of deciding who is violating the private express statutes after having decided what the private express statutes mean. It just invites, screams for abuse.

Mr. JOHNSON. Thank you very much.

Mr. CLAY. Mr. Dannemeyer.

Mr. DANNEMEYER. Yes, thank you, Mr. Chairman. Would you describe for us your duties and responsibilities as Director of the Postal Services Office of Strategic Planning?

Mr. McLAUGHLIN. Yes, sir. Among other things, we, as most such offices, were in the position of developing projections of the future of the institution, trying to identify what we saw as upcoming threats to the existence of the Service.

Mr. DANNEMEYER. While in that capacity, were you involved with the consideration of electronic mail?

Mr. McLAUGHLIN. Yes, sir; continually for a goodly number of years.

Mr. DANNEMEYER. And in your capacity, in consideration of that topic, did you recommend to your superiors at the U.S. Postal Service that they take action in a certain direction with respect to the issue of electronic mail while you were in charge of the Office of Strategic Planning?

Mr. McLAUGHLIN. Yes, sir; I did.

Mr. DANNEMEYER. What was that recommendation?

Mr. McLAUGHLIN. Well, the recommendation, and again this has been 3 years since I have left, but throughout the 1970's was, first of all, to develop a position. You know, one of the roles of a planner is, in talking with the top management, I do not always necessarily care which way you decide, but some of these things have to be decided, and this electronic mail one is one that will be hanging over you for a long time to come. Our recommendation, our program, was to pursue the technical developments to find out, and this included among other things the RCA feasibility study for electronic message service systems, EMSS.

Another was to pursue the smaller hardware components which have been pursued in terms we had identified for us early on. Things like printing and enveloping were the key technological problems that private industry was not working on that would meet our requirements and time frame if we decided to go into this. So there were studies initiated to try to catch up that portion of the technology to fit with some kind of overall system design.

The third area where we recommended action on this was in terms of conducting the necessary market studies to try to determine whether or not there was a demand for this kind of service or what other kinds of electronic message services. So that is where our recommendations were.

Mr. DANNEMEYER. Thank you. Are you recommending at the bottom of page 2 of your testimony complementary electronic message service offered by USPS and private firms and directed at different markets?

Mr. McLAUGHLIN. I am not sure I followed you on that. I am recommending in my testimony here, and Lord only knows what the next ping-pong result will be between the PRC and the Postal Service, but I would highly recommend that the Postal Service take the authority that they got from PRC and run with it. Get out there and try to develop the system or try to market the system in conjunction with the private carriers, and hopefully, that will work. Hopefully it will be successful for both the Postal Service and the private carriers while meeting a need of mail users or message users as the case may be.

In the meantime, let the Postal Service do that. Like I say, maybe it will work, maybe it will not work. In the meantime, they can be exploring the possibilities, they can be fighting the regulatory and legal battles about providing their own transmission services. If that is needed later, fine, let them fight that battle then.

Mr. DANNEMEYER. I notice on page 4, you talk about the necessity of recommending or raising salaries in the USPS to attract big

league talent. One line of view could be to just pass a law saying that nobody working anyplace in the country can earn in excess of say \$25,000, \$30,000. Would that not accomplish it?

Mr. McLAUGHLIN. Well, I frequently hear proposals like that.

Mr. DANNEMEYER. If it is the function of Government to take from the producers to distribute to the nonproducers what is wrong with the philosophical concept of the Government passing a law that nobody is able to earn more than \$25,000 a year, including Congressmen, and we would thereby have the talent needed to run this new measure of activity and ingenuity in the USPS.

Mr. CLAY. I doubt if you will have the votes.

Mr. McLAUGHLIN. Not to mention, of course, an underground economy growing faster than it is today.

Mr. DANNEMEYER. We can adjust the \$25,000 for inflation.

Mr. McLAUGHLIN. I would like to pursue that point for a moment, though, because it is something I not infrequently mention.

Mr. DANNEMEYER. Would your colleague, Mr. Gailbrith, be inclined to support such a concept?

Mr. McLAUGHLIN. Well, I think that I would just as soon not have the Congressman selecting my colleagues for me.

Mr. DANNEMEYER. Why should anyone have the privilege of spending discretionary income if they really do not need it? You can go on, sir. You do not have to answer that.

Mr. McLAUGHLIN. I think the pay thing is just incredibly serious and we are just kidding ourselves.

Mr. DANNEMEYER. What level do you think we would have to offer to get good talent to develop this intelligently in the USPS? Do you have a figure?

Mr. McLAUGHLIN. Let me say I think you have to start by putting it in context. In 1975, there were 800 chief executive officers paid more than the Postmaster General is paid today. For the top 50 corporations, you are talking half-a-million or more in compensation, annually. Now, let me set the Postmaster General aside for a moment, because the PMG's pay is sort of part of the problem, that is the lid or whatever. The real problem is the limits for other executives. If you look at something like the research and development function in the Postal Service for the last 10 years or the past 15 years with which I have been familiar with it, you have absolutely no continuity. You are absolutely dependent upon outside vendors. There is no consistent direction. From my memory there have been five or six directors of research and development in the Postal Service during the 1970's. I may have missed somebody, and there were any number of vacancies during that period where you might go 6 months with no one running the show. None of these people, the five of six that I can think of, are in the postal hierarchy today. The problem is not that they have been promoted upwards, for example.

I am also not commenting on the individual personal abilities of these people. I have known them all. I have high regard for a couple of them. But the problem is they are very good and you cannot keep them or they are bad enough that you have to get rid of them, and the result is, either way, that you do not have the kind of direction and continuity that you require. I think we could

talk about marketing and financial functions and all other kinds of things there. I think we are kidding ourselves if we are talking about projecting or propelling the Postal Service into the new electronic age with refitted postal employees.

Mr. DANNEMEYER. On page 5 of your statement, you use the term down-sizing. What steps would you recommend to take if that became necessary to pursue as an objective?

Mr. McLAUGHLIN. Well, they are all bitter pills. We talked about all those grand traditional things like fewer days of delivery, lower standards for delivery, fewer post offices. There is no avoiding it. They are the things that cost the money. Some day we are going to decide we do not need 40,000 post offices. I know that is unpopular. It is bitter. For the post office itself, there is no capital, no political gain in advancing that position. The White House will not do it. Based on experience, I do not foresee anyone in Congress advocating that, but it is going to happen. It will happen later and more painfully instead of perhaps spaced out and planned over time.

Mr. DANNEMEYER. Thank you. Thank you, Mr. Chairman.

Mr. CLAY. Thank you, and we certainly want to thank you for your testimony.

Mr. McLAUGHLIN. Thank you, sir.

**TELECOMMUNICATIONS AND INFORMATION PROD-
UCTS AND SERVICES IN INTERNATIONAL TRADE**

HEARINGS
BEFORE THE
**SUBCOMMITTEE ON TELECOMMUNICATIONS,
CONSUMER PROTECTION, AND FINANCE**
OF THE
COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES
NINETY-SEVENTH CONGRESS
FIRST SESSION

APRIL 29, AND JULY 22, 1981

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(III)

Dr. Ganley, who has come down from Cambridge. Thank you very much, sir. Why don't you start? Your statements will be submitted in full in the record. That will be that, plus any additional data you might want to add that will be submitted. You can read your statement, or if you think it is more appropriate, as it generally is, you might want to summarize the key points and then we can get discussion going with the members of the subcommittee and amongst yourselves to react back and forth on the issue that

we are looking at, which is what is happening overseas right now in examination and moving in on these markets.

Dr. Ganley.

STATEMENTS OF DR. OSWALD H. GANLEY, CAMBRIDGE, MASS.; JANE BORTNICK, ANALYST IN INFORMATION SCIENCE AND TECHNOLOGY, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS; DR. WILLIAM F. FINAN, VICE PRESIDENT, TECHNECON ANALYTIC RESEARCH, INC.; AND DR. NORMAN C. LERNER, TRANSCOMM, INC.

Dr. GANLEY. Thank you very much, Mr. Chairman. It is a great pleasure to be here to testify at this important hearing.

I am testifying in my personal capacity and not in the name of either the Program on Information Resources Policy or Harvard University or anyone else.

With some troublesome exceptions, U.S. communication and information relationships with Canada are closely intertwined, constructive and befitting two great democratic nations with a 3,000 plus mile common border and with important common national security and trade interests.

Areas of actual or potential disagreement relate to the development of broadcasting issues, to some questions regarding transborder data flow—especially some provisions of the 1980 Banking Act—to complaints by Canada of inundation by U.S. media products, to the upcoming question of sharing transborder satellite traffic, as well as to the level of research and development performed in Canada by subsidiaries of U.S. companies.

Rather than dwelling on specific present or potential conflicts I would like to put some things in a bit of perspective. The Canadian Government views communications and information resources as being very important to its economy, and the influx of non-Canadian—mostly American—content in publishing, broadcasting, and film products is seen as a serious threat to a unified sense of Canadian identity. More than any other country, Canada is moving increasingly toward a comprehensive communications and information resources policy to guide its domestic and international affairs. This policy includes a trend toward restrictions on free trade, primarily aimed at its main trading partner, the United States. These potential restrictions take a variety of both overt and covert forms, and consist of both actual legislation and of subtle pressures.

I don't want to belabor the obvious, but nevertheless, it is sometimes important to state a fact that is frequently ignored by American audiences. And that is that our northern neighbor is an independent sovereign state with its own culture and its own aspirations for its people. It has its own place in the world, its own ethnic and economic problems, a great deal of pride and the will, reaffirmed throughout its history, to be Canadian rather than American.

The Canadian Government and many private parties see Canadian communications and information as a unifying force and, in some ways, outside communications and information as destructive. The concept of national sovereignty nurtured by native communications and information is a recurring theme in both Canadian literature and official Government pronouncements. In short, it

is a political concept which says that Canadians have the right and especially have the means to determine the direction of their own cultural and economic development, free from external interference. National sovereignty thus updated by the Canadians to encompass modern communications and information makes Americans uncomfortable, and tends to be dismissed as just another statement to justify protectionist measures.

While protectionist sentiments are never far from the surface, and while Americans should examine Canadian statements critically, we can dismiss this expression of political will and this frustration over American dominance only at our peril. For the term "national sovereignty" is fast gaining global acceptance, especially in the less developed countries.

Let me just say a few words about transborder data flow. This is something that this committee has had hearings on in the past and it is a subject which has been with us for the past 4 or 5 years. The OECD in 1980 adopted so-called voluntary guidelines to minimize restrictions on the free flow of information while protecting the legitimate rights of individuals to their privacy.

While having played a constructive and creative role during the negotiations of the guidelines, Canada regrettably has not yet signed this important instrument, which balances the right of the individual with the need for free trade in information. This, from the point of view of both U.S. business and Government is especially disconcerting, since Canada sees transborder data flow primarily as an economic matter, translated into jobs, balance of trade, development of a domestic data processing industry, and the question of the locale of management decision-making—that is, whether it is to be in the United States or in Canada. It is the first country to attempt to statistically project loss of jobs and balance of trade losses in this area. Thus, it would appear that Canada is not holding out for fear of jeopardizing the privacy of individuals, but mainly for economic reasons.

Of special concern to the United States is the 1980 so-called Banks and Banking Law Revision Act. While a final interpretation is not yet in, this act seems to state that all data processing of individual and corporate banking accounts must be carried out in Canada.

A 1979 report by a Canadian Government panel, the so-called Clyne report, recommended this type of provision be extended to the insurance and loan industries. Previous draft legislation in Canada had similar provisions, for instance in their Combines Investigation Act, which was an act very similar to our antitrust legislation. This act failed to pass, but these attempts at legislation show that the maintenance of free transborder data flow with Canada is endangered. More important than the present dollars and cents is that any unfavorable precedent set with a country like Canada could have worldwide implications.

To say a few words about transborder satellite traffic: At the present time, A.T. & T., U.S. Bell and Bell Canada and associated telephone companies have a very advanced and mutually satisfactory network essentially based on domestic rather than international principles.

The Canadians are now concerned that with increasing use of satellites, this relationship may be harmed. They are particularly concerned about things like the SBS petition now before the FCC which requests permission to provide premise-to-premise services for its U.S. corporate clients with their branches or subsidiaries in Canada.

Whether in addition to FCC approval there is a need for government-to-government agreements here will have to be seen. But undoubtedly, the Canadians will seek some sort of revenue-sharing arrangement, arrangements assuring the viability of the Canadian communications satellite system, and some arrangement which permits that country to stay in the forefront of space technology development.

Finally, Canada is across the board the most important trading partner the United States has, with trade amounting to something like \$77 billion annually. U.S. exports are valued at about \$41.5 billion and imports about \$35.4 billion a year. This compares with Japan, our second most important trading partner, where the figures are \$30.7 billion and \$20.8 respectively.

As President Reagan has pointed out, this Canadian trade means three-quarters of a million jobs for Americans. Meanwhile, the Canadians feel it is extremely important to build up their electronics industry and to have capabilities in this area. Some details of this are discussed in my written statement.

Thank you, Mr. Chairman.

[Testimony resumes on p. 20.]

[Dr. Ganley's prepared statement and attachments follow:]

Hearings before the
 Subcommittee on Telecommunications,
 Consumer Protection, and Finance
 House Committee on Energy and Commerce
 April 29, 1981

Statement of Oswald H. Ganley
 Executive Director, International and Allied Arenas
 Program on Information Resources Policy
 Harvard University

My name is Oswald H. Ganley. I am Executive Director of International and Allied Arenas at Harvard's Program on Information Resources Policy, and I teach at the John F. Kennedy School of Government. Our policy research program is supported by about 100 organizations, which have diverse and conflicting stakes in communications and information policy. (A list of these Program Affiliates is attached.) I am a former career Foreign Service Officer, and most recently served as Deputy Assistant Secretary of State for Science and Technology. I have conducted several studies on U.S.-Canadian communications and information relationships. My wife, Gladys D. Ganley, who is a professional writer, and I have just completed a book entitled, International Implications of United States Communications and Information Resources. I am testifying today in my personal capacity, and not as a representative of Harvard University, our Program, or any of its supporters.

With some troublesome exceptions U.S. communications and information relationships with Canada are closely intertwined, constructive and befitting two great democratic nations with a 3,000 plus mile common border and with important common national

security and trade interests.

Areas of actual or potential disagreement relate to the well known border broadcasting issues, to some questions regarding transborder data flow, especially some provisions of the 1980 Banking Act, to complaints by Canada of inundation by U.S. media products, to the upcoming question of sharing transborder satellite traffic, and to the level of research and development performed in Canada by subsidiaries of United States companies.

Rather than dwelling on specific present or potential conflict areas in detail, something I am sure future witnesses from the business community will be glad to do, I shall try to place U.S. and Canadian communications and information relationships in perspective. I shall further explore how United States communications and information policy development might benefit from the Canadian experience.

Canada is exceptional in being the first country to recognize the full range of connections among the various communications and information resources. It has been the first country to see and extensively study the importance of communications and information to its political and economic processes and to its cultural and legal thinking. Canada has also been among the first to use the newest of these resources specifically to establish strong communications links with its remote areas, and more broadly, to stay in the forefront of the newest technological developments in computers, communications and information dispersal.

Canada is a highly developed country, with all of the characteristics and problems of other OECD nations. On the other hand,

its large areas of difficult terrain, the varied needs of its ethnic groups, and the high level of foreign ownership of its industries make Canada's difficulties in some ways relatable to those which developing countries must face.

The Canadian government views communications and information resources as being very important to its economy, and the influx of non-Canadian (mostly American) content in publishing, broadcasting, and film products is seen as a serious threat to a unified sense of Canadian identity. More than any other country, Canada is moving increasingly towards a comprehensive communications and information resources policy to guide its domestic and international affairs. This policy includes a trend toward restrictions on free trade, primarily aimed at its main trading partner, the United States. These potential restrictions take a variety of both overt and covert forms, consisting of actual legislation or of subtle pressures.

A fundamental and obvious fact, which is frequently ignored by Americans, is that our northern neighbor is an independent, sovereign state, with its own culture and its own aspirations for its people. It has its own place in the world, its own ethnic and economic problems, a great deal of pride, and the will, reaffirmed throughout its history, to be Canadian rather than American.

Canada now faces difficult decisions as constitutional disagreements and attempts at varying degrees of independence by the provinces shake the very foundations of the Canadian federation. Nothing less than its national unity is at stake. The Canadian

government and many private parties see Canadian communications and information as a unifying force and, in some ways, outside communications and information as destructive. The concept of national sovereignty nurtured by native communications and information is a recurring theme in both Canadian literature and official government pronouncements. In short, it is a political concept which says that Canadians have the right and should have the means to determine the direction of their own cultural and economic development, free from external interference (read USA). National sovereignty thus updated by the Canadians to encompass modern communications and information makes Americans uncomfortable, and tends to be dismissed as just another statement to justify protectionist measures.

While protectionist sentiments are never far from the surface, and while Americans should examine Canadian statements critically, we can dismiss this expression of political will and this frustration over American dominance only at our peril. For the term "national sovereignty" is fast gaining global acceptance, especially in the less developed world.

Over the past four or five years, we have heard a lot about transborder data flow. This subcommittee has held hearings on the subject, and I have had the pleasure of appearing as a witness. Concerns have been expressed by a number of countries regarding the protection of the privacy of natural persons. In 1980, the Organization for Economic Cooperation and Development (OECD) adopted voluntary guidelines to permit international commerce in informa-

tion, and to minimize restrictions on free flow of information while protecting the legitimate rights of individuals to their privacy. The United States and most of the other OECD member countries are signatories to these guidelines.

Canada, while having played a constructive and creative role during the negotiations of the guidelines, regrettably has not yet signed this important instrument which balances the right of the individual with the need for free trade in information. This, from the point of view of both U.S. business and government is especially disconcerting, since Canada sees transborder data flow primarily as an economic matter, translated into jobs, balance of trade, the development of a domestic data processing industry, and the question of the locale of management decision making (in the U.S. or Canada). It is the first country to attempt to statistically project loss of jobs and balance of trade losses in this area. Thus, it would appear that Canada is not holding out for fear of jeopardizing the privacy of individuals, but mainly for economic reasons.

There is a good reason why American businesses want to keep their computer communications services headquartered at home, and why Canadian businesses often want to buy theirs abroad: Canadian tariffs, a 12 percent federal sales tax on equipment, and higher Canadian than U.S. salaries make computer services 20 to 25 percent more expensive in Canada than in the U.S. Economies of scale present in the U.S. but absent in Canada, also operate to make U.S. services less expensive.

Of special concern to the American business community is Paragraph 157(4) of the Banks and Banking Law Revision Act, 1980.

The offending passage reads as follows:

... and shall maintain and process in Canada any information or data relating to the preparation and maintenance of such records. ...

While definitive interpretation of this clause is still lacking, it appears to require data processing of all individual and corporate banking accounts (primary records) in Canada. In a recent conversation with Mr. W. A. Kennett, the Canadian Inspector General of Banks, I was told that this Act does not constitute an interruption of transborder data flow, since duplicate records and information may flow freely, as long as they are originally processed in Canada. Mr. Kennett also said that this is simply a measure to permit him to carry out the inspection function mandated by law in the modern age of computers. Mr. Kennett has made similar statements in Canadian Senate hearings on this piece of legislation.

The Clyne Report of 1979* recommended that this type of provision be extended to the insurance and loan industries. Previous draft legislation on competition (Combines Investigation Act) which failed to pass, had similar data-processing-in-Canada provisions.

Among the most significant commercial and political stakes for the United States with Canada in the computer communications area are those which involve the maintenance of free transborder data flow. The efficiency of the U.S. corporate operations and the protection of U.S. export markets are involved here, as is the

* Canada, Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty, Telecommunications and Canada, (Clyne Report), Ottawa, March 1979.

principle of free flow of information. More important than the present dollars and cents is that any unfavorable precedent set with a friendly country like Canada could have worldwide implications.

The United States and Canada have a very satisfactory cooperative relationship in the area of satellites. A number of problems are already present, however, and can be anticipated to increase as this area expands.

There are presently four rather well-defined communications satellite issues between the U.S. and Canada.

- ... There is a cultural conflict for Canada in its desire for domestic direct broadcasting satellite transmission (DBS-TV), since this raises the specter of the importation of even more U.S. content.
- ... There is a matter of who will get the profits -- the U.S. or Canada -- and under what conditions, for the types of communications which have until now been handled in a mutually satisfactory way between the Canadian telephone systems (Bell Canada-TCTS) and U.S. Bell, but which in the future may either go to or be affected by satellite transmissions.
- ... Canada, having launched the third of its Anik series of communications satellites, all made by U.S. prime contractors, is now turning to Canadian prime contractors. But economically, Canada cannot afford to plan beyond a fourth Anik series, and even for Anik D, cannot divorce itself entirely from U.S. technological help.
- ... Canada, having successfully experimented with the U.S. on the Hermes (CTS) satellite, now wishes to move to an operational direct broadcasting system for its nation. But this requires U.S.-Canadian and ITU agreement on a frequency for which the U.S. and Canada have conflicting needs.

For the sake of brevity I shall discuss only the matter of transborder satellite traffic. U.S. and Canadian telephone companies now enjoy a mutually highly satisfactory relationship with integrated

terrestrial telephone systems and transborder revenues totalling about \$500 million a year.

Bell Canada and other Canadian telephone companies are alarmed at the possibility of excess capacity on U.S. communications satellites by the early 1980's. The projected new U.S. satellite carriers, they say, could possibly sell lower cost surplus capacity service into Canada, further eroding the already small Canadian market for long distance satellite communications. To effectively serve its remote and far northern regions, Canada depends for support on traffic generated from business services in the rest of the country. U.S. satellite carriers might skim the cream of Canadian business traffic, the Canadians say.

Bell Canada is also concerned that both international and intra-Canadian traffic could be routed via private earth stations and American satellites. Indeed, SBS now has a petition before the FCC to provide premise-to-premise services for its corporate clients in the U.S. with their branches (subsidiaries) in Canada. In addition to FCC approval, agreement may have to be reached between our two governments to effect such a service. Canada will most likely seek some sort of revenue sharing arrangement as well as an arrangement assuring the viability of a Canadian communications satellite system so necessary to serve the needs of its northern populations. It may also seek an arrangement which permits it to stay in the forefront of space technology developments. Canada has been in the vanguard of applications in communications satellites since their inception. So far, both the U.S. and Canada,

especially their private sectors, seem to be approaching this new range of problems in a constructive fashion. Appended is a resolution which was passed at a meeting of the U.S.-Canadian Committee of the U.S.-Canadian Chamber of Commerce in April 1981, giving some insights into the thinking of the business community on both sides.

The dispute involving U.S. border TV stations is among the best known of the various communications and information issues between Canada and the United States. This subject has received extensive treatment by the U.S. Trade Representative and the Congress has repeatedly debated the matter. In August, 1980, the President asked the Congress to deny U.S. tax deductions for advertising expenses of American companies who buy advertising on Canadian television in retaliation for the 1976 Canadian restrictions. Although it is an important problem and is an acute irritant in U.S.-Canadian general relations, I do not believe it is necessary to take the time of the committee to discuss it today.

Canada's general economy, and U.S.-Canadian economic interaction play an important role in the U.S.-Canadian communications and information relationships. According to a former Canadian Minister of External Affairs:

... not only is the U.S. our neighbor in a geographic sense ... it is also the major customer of our products and ... the most important country in terms of whether our economy will move forward or not. I believe ... that the maintenance and enhancement of our relations with the U.S. must take a primary priority and is therefore the centerpiece, as it were, of our foreign policy.

About 16 percent of America's total world trade is conducted with Canada. Joint U.S.-Canadian trade amounts to about \$77 billion

annually. More than 25 percent of total U.S. world exports go to Canada, and 70 percent of Canadian world exports go to the United States. Canada is the most important trading partner the U.S. has, with 1980 U.S. exports to that country valued at \$41.5 billion, and imports from Canada valued at \$35.4 billion. For comparative purposes, it is interesting to note that the U.S. exported to Japan, our next biggest trading partner, goods and services valued at \$30.7 billion in 1980, and imported \$20.8 billion worth from that country.

During the March 1981 visit of President Reagan to Canada, he made the telling point that this export trade to Canada means jobs for three quarters of a million Americans.

The electronics manufacturing industry is the largest industrial employer of technical and scientific manpower in Canada. It is also responsible for about 25 percent of all Canadian industrial spending on research and development. Expenditures on research and development in the electronics industry average between four and five percent of sales, as compared to about one percent for other Canadian industries. Bell Northern Research has the largest industrial research establishment in Canada, employing more than 1400 scientific and technical staff members, and spending more than \$80 million a year. But Canada has a negative trade balance in this sector as a whole.

Except for Northern Telecom, which is owned and managed by Canadians, the Canadian electronics manufacturing industry is dominated by foreign interests. Of the 100 largest firms, 72 are foreign-owned. Altogether, there are more than 140 foreign-owned

firms, accounting for total sales of about \$1.4 billion. The greater part of this foreign ownership is American. Canada would like these foreign-owned companies to spend more on research and development in Canada. But the American answer is that Canada should provide the necessary incentives. Otherwise, it is often cheaper and more efficient to keep research and development activities in the United States. This argument is reminiscent of similar disputes between multinational corporations and other governments.

In conclusion, Canada is an important country for the United States to watch and especially to interact with at political levels in the communications and information field.

1. Canada has a more advanced overall communications and information policy than the United States. Its goals are reasonably clearly stated, and the government attempts to guide their execution in close cooperation with the private sector. (This does not mean there is internal Canadian agreement on everything, or that there are no contradictions, or that there is a perpetual Canadian government honeymoon with the private sector.)

2. U.S. business and government have large economic, political and security stakes in Canada.

3. Canada's influence in the counsels of the world far exceeds that of many other countries with similar sized populations. What Canada does in this new and dynamic area will be carefully scrutinized by others and is likely to be emulated, especially by the less developed countries.

4. Canada's restrictions on the media, transborder data flow, trade, and ownership are all parts of its overall policy regarding that government's acute concerns with the larger problems of national unity, cultural identity and economic viability.

Appendix

At the 97th meeting of the Canada-United States Advisory Committee (Committee on Canada-United States Relations), members reviewed the current status of transborder satellite communications between the two countries, and adopted the following resolution:

Whereas the current agreement between Canada and the United States, adopted in 1972, governing the use of satellites in transborder communications does not reflect the technological advances in this field in recent years, and

Whereas there is a pressing need for early resolution of problems arising from the increasing traffic in transborder satellite communications, and

Whereas there is a recognized need by the communications industry and governments in both countries for updated bilateral arrangements with respect to transborder satellite communications,

Therefore be it resolved that both Sections request their respective organizations to urge their governments to develop a policy agreement with respect to transborder satellite communications providing for a fair and reasonable division of Canada-United States traffic between the satellite systems of each country while placing no limitation on service to customers.

PROGRAM ON INFORMATION RESOURCES POLICY

4/8/81

Harvard University

Center for Information Policy Research

Contributors

Action for Children's Television
 American Broadcasting Companies, Inc.
 American District Telegraph Company
 American Telephone & Telegraph Co.
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 Knowledge Industry Publications, Inc.
 Lee Enterprises, Inc.
 Lockheed Missiles and Space Company, Inc.
 MCI Telecommunications, Inc.
 McGraw-Hill, Inc.
 Mead Data Central
 Minneapolis Star and Tribune Company
 MITRE Corporation
 Motorola, Inc.
 National Association of Letter Carriers
 NCR Corporation
 National Telephone Cooperative Assoc.
 New York Times Company
 Nippon Electric Company (Japan)
 Norfolk & Western Railway Company
 Pergamon Press Ltd. (United Kingdom)
 Pitney Bowes, Inc.
 Public Agenda Foundation
 Reader's Digest Association, Inc.
 Reuters Limited (United Kingdom)
 Salomon Brothers
 Satellite Business Systems
 Scott & Fetzer Company
 Seiden & de Cuevas, Inc.
 Source Telecomputing Corporation
 Southern Pacific Communications Company
 Standard Shares
 St. Regis Paper Company
 Swedish Television (Sweden)
 Telemation Management Group, Inc.
 Telesat Canada
 Times Mirror Co.
 Transamerica Corporation
 The Toronto Star (Canada)
 The Tribune Company
 United Parcel Service
 United States Government:
 Central Intelligence Agency
 Department of Commerce:
 National Technical Information Service
 National Telecommunications and
 Information Administration
 Department of Defense:
 Defense Technical Information Center
 Department of Energy
 Federal Communications Commission
 National Aeronautics and Space Admin.
 National Security Agency
 United States Postal Rate Commission
 United States Postal Service
 United Telecommunications
 The Washington Post Company
 Western Union
 Xerox Corporation

Mr. SCHEUER. May I add one subquestion to that?

Mr. WIRTH. This is very informal, so I would hope you would feel free to jump in and out.

Mr. SCHEUER. I would simply add to the list of questions that the chairman has asked whether they permit cooperation between individual private sector companies that would be prohibited under our antitrust laws, and is that joint effort in research and development, if it is taking place, something that gives those countries a competitive edge over us? Does it raise questions about our antitrust laws?

Maybe all of you could react in whatever way you would like to the very broad set of questions.

Dr. GANLEY. It is a very broad question, Mr. Chairman, and I think perhaps one might start out with a fairly fundamental point. The fundamental point I think you raised in your introductory remarks, and that is that we at the moment are the winners in the telecommunications, and in the communications area, and the attitudes and policies of other countries reflect that very fact. Namely, they wish to catch up.

What may be different in the communications and information area from some other trade areas is that many countries of the world, especially the advanced OECD countries, consider the total communications and information area vital to their economic system, to their very existence as nation states and to their national security. If one accepts this analysis as being correct, then some of the actions taken by other countries start to make a little bit more sense.

It becomes a question of how one reduces dependency on the United States for the materials and the services which are considered very important or vital to existence. Some governments, such as the Japanese, the French and the Canadians are trying to do this by stimulating this particular sector of their economy. This is done in a variety of ways. Canada gives certain amounts of money to the electronics industry and tries to stimulate their efforts. I am not sure that there is any real evidence that they actually at this time do any preferential government procurement in the electronics sector.

The amounts of money involved in Canada for stimulation of industry are relatively small: something like \$50 million for the electronics industry. Compared to what is being spent in this country by the private sector and even by the Government in this particular field, it is not very much. Last November the Canadians gave an additional \$12.5 million of such money to the so-called office-of-the-future type of industry.

To address Mr. Scheuer's specific question, I really cannot directly answer it, sir. I would have to check country by country. I don't know the situation specifically for Canada, or for that matter for other countries. But one has certainly the feeling, and let me stress feeling, that other countries are not quite as concerned about some of these things as we are under our antitrust laws.

Mr. WIRTH. Before I go, Mr. Finan, into your response, let me hold this a little.

At the end of your statement, Mr. Ganley, you said that Canada has a more advanced overall communications and information policy than the United States. That would seem to be perhaps a bit contradictory, since you're also saying there were a number of national interests in which they felt we had the lead, and certain national efforts were intended to allow them to catch up. It would seem to be contradictory with your final statement of them having a more advanced overall communications and information policy. Is policy different from system and infrastructure? How do you reconcile those two?

Dr. GANLEY. I am not sure where the contradiction lies, Mr. Chairman. I do think the Canadians have an overall policy, and by overall policy I mean that they do not just see, let's say the electronics industry, as one segment and deal with that. But they also see a connection with what is going on in the publishing industry or the newspaper industry or in satellite communications. In other words, they see a relationship between different fragments of the overall picture of communications and information and are trying to move, to the extent that they are capable, in a single direction to assure Canadian participation in this very dynamic sector of the economy. That was more or less what I meant.

Mr. WIRTH. Then it seems to me that the assumption is that they view it in a more comprehensive fashion than we do in this country. And if we are into something of a primer on comparative economics here, or comparative economic policy, what do we learn from that about what the United States should be doing, how we should be organizing ourselves?

Perhaps we should jump to Mr. Finan on that as a way of better honing this, in looking at this as better economic policy for the 1980's.

Dr. FINAN. Before I do refine my answer, let me state on the broad spectrum of things, the point that was made with regard to telecommunications is particularly true with respect to semiconductor technology. The Japanese Government for a number of years felt they had to overtake the U.S. lead, and they structured their policies very much in a catchup fashion. In certain areas today that is no longer the case. That is, they have done an excellent job of overtaking the U.S. lead. And depending upon who

national policy? If you were tsar, what would you change immediately?

Dr. FINAN. Are you directing that to me first, Mr. Chairman?

Mr. WIRTH. If you would like to start. If you were not playing tsar, if you were playing congressman, what would you be doing?

Dr. FINAN. With a question like that I guess I will field it in the broadest way. The strongest area, the area where in previous years we have shown the greatest strength, and the one where I think the Congress and the Executive can be most responsive is research and development. I also think we are going to have to confront increasing market pressures from the LDC's from our major trading partners. There is going to be, undoubtedly, increased tendencies among the Europeans to close their markets. But we are going to have to, I believe, maintain a fundamental position of trying to maintain access, continually fighting for access. One way to achieve that is stay ahead in the technology.

At the same time, I believe, support to the greatest degree possible either the universities or through some sort of tax provisions an increased level of research and development to maintain our technological lead.

Mr. WIRTH. That would be the No. 1 recommendation?

Dr. FINAN. That would be your No. 1 priority, yes.

Mr. WIRTH. Dr. Ganley, how would you respond?

Dr. GANLEY. I am no longer on the Federal payroll, so I may answer as I please! I would say we should do three things. First, we should seek a better understanding that there is a problem and that other countries in the world are not standing still. And that our unchallenged position in the world markets is in some areas rather quickly and in other areas more slowly eroding. Holding hearings on such issues, Mr. Chairman, is very useful in this respect.

Second, there is a need for some kind of coordination in the foreign policy establishment of the U.S. Government to deal with these questions and to pull together the various fragments.

Third, before we get too enamored with this coordination on the part of the Federal Government or anybody else, let us remember that the real strength of the United States, and why we have been the winners so far, lies in private enterprise which innovates and which has moved things along. So, let us be very careful how we interpose the Government in any of these things.

Those are my major points, Mr. Chairman.

Mr. WIRTH. Ms. Bortnick?

Ms. BORTNICK. While I can't make any recommendations in my nonadvocacy role as an employee of the Congressional Research Service, let me say it is a thorny question and I don't think there are any easy answers. What is important, certainly, is to be able to view all of the pieces of the puzzle as Dr. Ganley has indicated. It is not strictly economics, it is not strictly politics, it is a number of factors all interwoven. There is a need to understand all of the elements of the question so that the United States can decide how it wants to proceed and how to address what is the appropriate role of Government when operating in an international marketplace which is distinctly different from our domestic one.

Mr. WIRTH. Thank you.

Dr. LERNER. Thank you, Mr. Chairman. I would say that there are two major areas that could stand some review and analysis, both domestically and internationally, I might add.

The first is, as I think we can see, at least certainly from the French point of view, here in the United States the development of some integrated policy planning and some objectives, and I underscore the word "integrated", would serve us well.

In the second case, I would suggest that we reexamine our domestic and international regulatory aspects to the extent that A, it creates artificial market structures; B, it inhibits innovation, and C, it provides incorrect pricing constraints.

Mr. WIRTH. Could you expand just a bit? When you say "integrated" that was the theme Mr. Ganley was talking about earlier, too. You touched upon the notion of a more integrated policy in Canada than we have here, if I am reading the same things.

What do you mean by that?

Dr. LERNER. I guess to continue the example we were talking about a little bit earlier, we have a tendency to deal with our problems and solutions on a piecemeal basis. For example, we are concerned with cross ownership and its ramifications in terms of antitrust in the United States. But the extent to which other benefits could or should be included in an evaluation of whether we do in fact want to inhibit or foster the development of cross ownership are factors that have to be examined. There is a lot of evidence lacking that such type of comprehensive considerations have been evaluated.

Mr. WIRTH. Would any of you like to make any closing comments or contributions?

Mr. Finan, perhaps we might be able to get from you the study you referred to in which the Japanese analyzed the U.S. R. & D. Might we get that from you?

Dr. FINAN. Yes.

Mr. WIRTH. I would like to leave the record open for the inclusion of that. Also, we would like to hear back from you as you all think about this in this very large and complicated issue we are into.

As I hear you, in summary, Mr. Finan, talking about research and development mentioned first, and I think we are seeing the opposite trend in terms of the Federal Government's investment in the National Science Foundation and university research and development and NASA and so on. We are headed in the opposite direction with all of this talk about productivity.

Mr. Ganley talks about seeking a better understanding if there is a problem. That is what we are all about. That is part of what we are trying to do here. The more of that the better I think to get people thinking about it. People are very interested and will be more so as we were suggesting earlier.

All of you talked about, I think, the need for coordination of U.S. Government policy with the caveats that you very appropriately threw in, which we are very sensitive to as well. That is an issue we have to deal with in a lot of complicated ways. We feel very frustrated, at least I do, watching our Government attempt to negotiate with the French PTT or negotiate with Canada. Who does it? Is it the FCC, NTIA, the State Department?

I think what we are seeing is some of the themes that hopefully we will tease out of this.

I thank you for joining us. We greatly appreciate it and will look forward to working with you as the weeks and months go along. Thank you very much.

Our next panel is Mr. Charles Lecht, president, Advanced Computer Techniques, Inc. Mr. Lecht's firm provides computing services in both the United States and Canada. He has had first-hand experience with Canada's policies affecting the provision of telecommunications products and services. Mr. John Sodolski, vice president of the Electronic Industry Association. Mr. Sodolski will address some of the problems that his industry association has encountered when competing overseas. Mr. Geza Feketekuty, Assistant U.S. Trade Representative working on the problems of assisting U.S. companies in foreign trade. I understand there is a good deal of research background to the work you all have done. And Mr. Donald Lehrman, the president of General Datacom Industries, which manufacture computer coupling devices and has been involved in a good deal of export activity.

Gentlemen, thank you very much for being with us. Perhaps we should start from your right to our left.

STATUS OF COMPETITION AND DEREGULATION IN THE TELECOMMUNICATIONS INDUSTRY

HEARINGS BEFORE THE SUBCOMMITTEE ON TELECOMMUNICATIONS, CONSUMER PROTECTION, AND FINANCE OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES NINETY-SEVENTH CONGRESS FIRST SESSION

MAY 20, 27, AND 28, 1981

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Mr. WIRTH. Thank you very much, Mr. Schmidt.
Mr. Compaine.

STATEMENT OF BENJAMIN M. COMPAINE

Mr. COMPAINE. Thank you, Mr. Chairman.

We frequently speak about merging technologies such as communications and videotext, and new conflicts among traditional industries, such as is electronic mail something that belongs to the U.S. Postal Service, the electronics industry, telecommunications, common carriers or someone else. Is it regulated by the FCC, the Postal Rate Commission, both or neither?

Defining the nature and scope of the information industry, a field marked by fuzziness and turmoil, has been a continuing problem for our program, for policymakers, and the information industries themselves. In effect, we could not tell the players without a scorecard and there was no scorecard.

Over the next 15 minutes, I would like to acquaint you with an approach that we have found useful for reviewing the evolving structure of the information business.

Information comes in many forms. It includes news, historical statistics, reference materials, advertising, entertainment and so on. While different groups may define information differently, for our purposes we have chosen to define it in the broadest possible terms.

The companies—and government agencies—that constitute the information business are diverse, with information as their common denominator. Some may exist to acquire information, others to package, store, process, transmit or distribute it. Some information companies handle information as a service, while other companies produce and market products to allow companies or individuals to collect, process, and distribute their own information. Many companies are involved in a wide mix of these functions.

This first chart is our basic map of the information business. On it we have placed some 80 products and services. We think these products and services constitute or at least suggest what we have termed the information business.

I am going to go to a simplified version of this. The axes of the map are products and services—north and south—and conduit and content going east to west. The products and services axis was chosen largely because companies and economists traditionally have viewed industrial activity in this manner.

Displaying corporate activities along this axis helps highlight some facet of vertical integration. It also helps facilitate display of the fact that traditional notions of product and service may be blurring into some middle ground of systems whereby customers mix and match products and services in order to achieve a desired end. Progression along the axis from the product extreme to the service extreme may also be viewed as increasing customer dependence upon supplying institutions.

The content-conduit axis was chosen because it helps distinguish between those companies which traditionally have viewed themselves as producers of information, such as publishers, and those which provide means for recording and transmitting it. Progression

along this axis from conduit to the content extreme may be best visualized in terms of value added or, in McLuhanesque terms, from medium to message.

In the upper left-hand corner we have activities such as mail and parcel delivery that provide almost pure conduit services. The telecommunications common carriers are placed slightly to the right of mail and parcel services. Further to the right are broadcasters.

Broadcasters are high on the service axis because they have no physical products, and midway between content and conduit because of their role in providing both programming material and the system that distributes the programming material.

We have placed professional services in the upper right-hand corner. We have defined those broadly to include writers, artists, scientists and others who sell their services in generating the information.

The products of their efforts, which are called books, newspapers, TV programs, et cetera, are shown in the lower right-hand corner of the map. We have placed newspapers and shoppers to the left of books, newsletters, and magazines. This is based on the notion, perhaps arbitrary, that most newspapers traditionally have operated their own distribution system, that is their conduit, while the publishers of most newsletters and magazines have relied upon the U.S. Postal Service or other middlemen to distribute their product.

In the lower left-hand corner we have simple stand-alone, what we might call "dumb" products, such as typewriters, paper and filing cabinets. As information value is added to these products by adding intelligence or ability to communicate with other sources of information, they migrate rightward. Thus a blank piece of paper might be dumb, but the addition of lines and columns transforms it into a form that represents an addition of information which shapes the ultimate content.

Here we have used the mapping scheme to suggest the nature of information business in 1780. Some important institutions might be missing, but the overall impression is that information activities once occupied only the corners of the map.

It should be noted that some individuals or companies engaged in both vertical and horizontal integration of economic enterprises during this period. Benjamin Franklin worked as a writer, produced books, newspapers, and magazines, developed printing equipment and sold printing services while serving as Postmaster General of the Colonies.

The information business in 1880 shows the establishment of telegraphy, the arrival of telephone in here, and the evolution of newspapers and magazines, but few other changes.

By 1930 the information world looks more cluttered and more familiar, although rudimentary compared to 1981. The most significant changes in our map between 1880 and 1930 probably were caused by the growth of telephony and the arrival of wireless technology and the growing appreciation of and demand for information by increasingly sophisticated business and services.

This map displays the products and services that entered the information business in common use in the 1930 to 1980 period. None of these products and services occupy the corners of the map.

Each represents an attempt to provide a salable something which bridges the area between information content and conduit.

Moreover, practically all of these new products and services are dependent upon computing power and memory or the miniaturization and economics of the integrated circuit underlying computers.

Historically, many facets of the information business have been subject to government regulation or control. This figure uses our basic map to show the boundaries of Federal Government regulations specific to functions in the information business.

Thus the Postal Rate Commission oversees the U.S. Postal Service, the Interstate Commerce Commission regulates the United Parcel Service, and the CAB controls air courier services.

The Federal Communications Commission monitors telecommunications among carriers, broadcasting, cable, and a number of other products and services.

Depending upon the specific activity, financial services may be regulated by the Federal Reserve Board, the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Federal Home Loan Bank, the Federal Savings and Loan Insurance Corporation, the Securities and Exchange Commission, and a host of State government agencies.

As suggested here, these regulatory boundaries are neither fixed nor neat in practice. The Postal Rate Commission and the Federal Communications Commission have conflicting jurisdiction over the regulation of electronic mail. The Federal Reserve Board gets involved in information systems by operating the "Fed Wire" payment system and determining if the banks may offer data processing services. The FCC tells newspaper publishers they must divest themselves of radio and TV stations if broadcast and newspaper operations are located in the same community. The U.S. Postal Service as a regulator, the Federal Trade Commission and the FCC all exert some regulatory force over advertising services.

Some boundaries are unclear or changing over time. During the late 1970's, for example, efforts to deregulate some telecommunications products and services have made the FCC's regulatory boundaries less definitive in a number of areas.

The information business is subject to all types of regulation, including the Department of Justice, the FCC, the EEOC, OSHA, EPA, and a variety of other Federal and State bodies.

In recent years, for example, there have been major antitrust actions in the copier, computer, and telephone industries. Occasional antitrust forays into the mail and package area and speculation about concentration of ownership of media.

This figure combines the last two, and suggests the continuing complexities of regulation of the information business. While some of these regulatory complexities may be the product of political philosophy, others stem from the changes in technology of the information business.

By way of comparison and contrast, this shows the regulatory boundaries in 1940. The absence of hybrid products and services may have made the process of joined boundaries somewhat easier than relative to 1981.

Our map of the information business appears to be a useful tool for looking at the strategic positions of individual corporations.

Much of the current turmoil in the information business is attributable to the growth and changing nature of companies that traditionally provided electronically based information service systems. These include telephone companies, a variety of corporations involved in manufacturing and marketing computers, office equipment, and consumer products.

This figure shows A.T. & T.'s territory on the map, including such services as Dial-A-Joke, New York Today, Sportsline, and so-called information services. Phone power training and marketing seem to qualify as advertising services.

Government regulation has exercised a strong influence in shaping A.T. & T.'s business. This figure compares A.T. & T.'s business area to the regulatory boundary of the FCC shown earlier. The area of noncongruence reflects decades of legislative, regulatory, and judicial debate.

Efforts during the 1970's to redefine the regulation of telecommunications have resulted in widespread speculation as to A.T. & T.'s potential role in a deregulated world. This figure depicts the potential expansion of a deregulated A.T. & T. as described by some current policymakers and a variety of potential competitors.

Deregulation can be expected to have a similar effect upon the business activities of larger independent telephone companies like GTE.

The 1979 U.S. operations for IBM are illustrated here.

If we overlay the FCC's regulatory boundary over IBM's domestic operation, the resultant illustration shows how IBM has avoided direct entry into regulated sectors in the United States.

A different picture of IBM is shown here. This map includes products and services that IBM offers outside the United States, some of IBM's internal technological capabilities, and the company's joint ventures with Aetna and Comsat in SBS and with MCA as Discovision Associates.

In recent years, there has been speculation in the trade press about a face-off between IBM and A.T. & T. The speculation is understandable, given the picture of a deregulated A.T. & T., and IBM with its foreign operations and technological capabilities, and SBS and Discovision.

In the course of our work, we have mapped dozens of companies. Rather than bore you with a lot of similar ones, I would like to quickly show a few maps which illustrate different uses of the technique.

This figure illustrates RCA Corp. The X's represent information business from which RCA has exited since 1970.

The next figure shows Xerox, a little out of date now, in light of the latest announcement with our speculative placement as to the ventures in the Western Union International acquisition. The thing has changed too quickly.

This next figure shows how one particular corporation, Harris, has expanded its turf in the information business between 1957 and 1980.

If we focus only on electronics companies, however, we miss much of the political turmoil in the information business. Dun & Bradstreet has been an active participant in the information business for years, particularly in the publications area. On our map,

D. & B.'s acquisition of National CSS appears to be a part of a larger progression toward developing further capabilities and processing and distributing the information acquired in other portions of the company.

Yet another set of traditional players in the information business is the newspaper publishers.

Over the years, many of the larger newspapers have diversified into media or communications companies. The variety of diversification strategies is suggested by this figure.

The map represents the business activities of seven companies generally classified as newspaper publishers. We also have heard allusion to the face-off between newspapers and A.T. & T., and this slide overlays A.T. & T.'s potential total area and that of the newspaper industry.

I'll stop the slide show now. As I have noted, we have done dozens of these, and I could show you new entrants such as Exxon, or new roles for financial institutions such as Citibank or American Express.

We have used the map to look at such concepts as the office of the future in electronic publishing. At the moment we are developing a series of maps covering other nations and trends of national information policies.

I'll conclude with the observation that I do not envy those facing the task of trying to draw fixed or stable boundaries in this heavily shifting terrain.

Thank you, Mr. Chairman.

[Testimony resumes on p. 135.]

[Mr. McLaughlin's prepared statement follows:]

MAPPING THE INFORMATION BUSINESS

May 21, 1981

U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Telecommunications
Consumer Protection and Finance
Washington, D.C.

Statement of Mr. John F. McLaughlin

Mr. Chairman, my name is John McLaughlin. I am Vice President of the Center for Information Policy Research and Executive Director of Postal and Allied Arenas at Harvard University's Program on Information Resources Policy. Our program's research is supported by approximately one hundred companies, government agencies, labor unions and other organizations with interests in the field of information policy. (A list of Program Affiliates is attached).

I am testifying today in a personal capacity, not as a representative of Harvard, our Program or any of its supporters.

Since its inception in 1971, our Program has been monitoring and analyzing developments in a variety of field which we have described --admittedly loosely--as the "information industries." Many of the Program's research projects to date have focused upon developments within a specific traditional "information industry" (broadcasting, telephone, cable TV, etc.), yet we have continually emphasized the interactions among the different information technologies, markets and types of government intervention. We speak frequently, therefore, about merging technologies ("communications" and "videotext"), and new conflicts among traditional industries. (Is "electronic mail" something that "belongs" to the U.S.

Postal Service, the electronics industry, telecommunications common carriers, or someone else? It is regulated by the Federal Communications Commission, the Postal Rate Commission, both, or neither?)

Defining the nature and scope of the "information industries"--a field marked by fuzziness and turmoil--has been a continuing problem for our Program, policy makers and the "information industries" themselves. Over the next fifteen minutes I would like to acquaint you with an approach which we have found useful for viewing the evolving structure of the "information business."

1. THE INFORMATION BUSINESS MAP

"Information" comes in many forms. It includes news, historical statistics, financial transactions, reference materials, advertising, entertainment, corporate operating data, etc. While different groups may define "information" differently, for our purposes we have chosen to define it in the broadest sense.

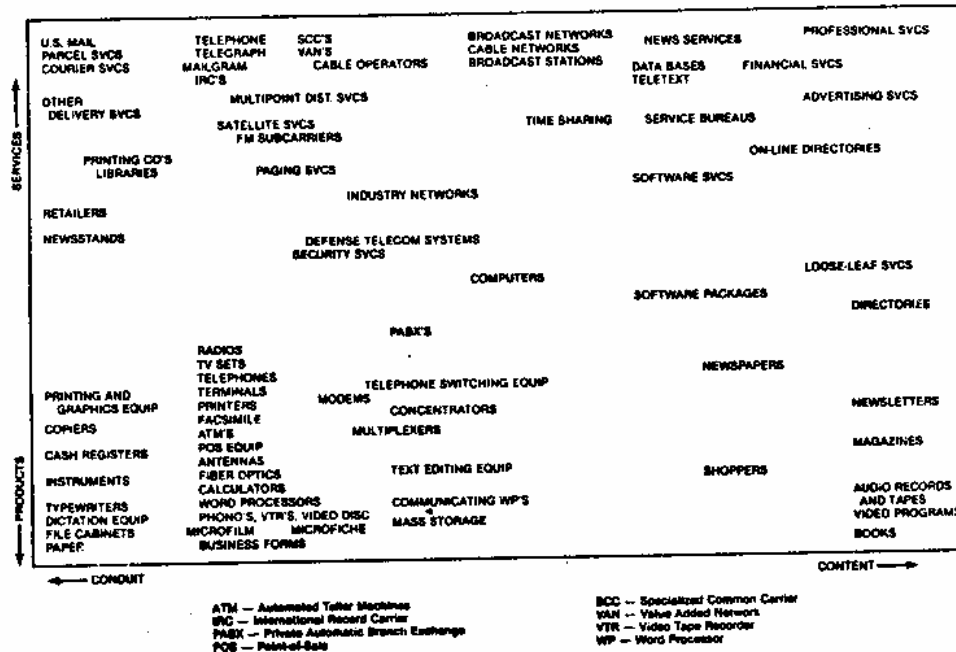
The companies (and government agencies) that constitute the "information business" are diverse, with "information" as their common denominator. Some may exist to acquire information, others to package, store, process, transmit, or distribute it. Some information companies handle information as a service, while other companies produce and market products to allow companies--or individuals--to collect, process or distribute their own information. Many companies are involved in a wide mix of these functions.

Figure 1 is our basic map of the information business. On it we have placed 80-some products and services. We think that these products and services constitute (or at least suggest) what we have termed the information business.

The axes of the map are Services and Products (north-south) and Content and Conduit (east-west). The Products-Services axis was chosen largely because companies and economists traditionally have viewed industrial activity in this manner. Displaying corporate activities along this axis helps highlight some facets of vertical integration. It also facilitates display of the fact that traditional notions of "product" and "service" may be blurring into a middle ground of "systems" whereby customers mix and match products and services in order to achieve a desired end. Progression along this axis from the product extreme to the service extreme

also may be viewed as increasing customer dependence upon supplying institutions.

Figure 1
THE "INFORMATION BUSINESS"



The Conduit-Content axis was chosen because it helps distinguish between those companies which traditionally have viewed themselves as producers of information (such as publishers), and those companies which provide means for recording information and transmitting it (recognizing, of course, the problem involved in trying to differentiate between "processing," "transmitting," etc.). Progression along this axis from the conduit extreme might best be visualized in terms of increasing "information value-added" or, in McLuhanesque terms, from medium to message.

In the upper left-hand corner we have activities such as mail and parcel delivery that provide almost pure conduit services. The telecommunications common carriers are placed slightly to the right of mail and parcel services. Because of the nature of the systems that telecommunications common carriers operate, the carriers may be more involved in the information "content" of the message, at least in terms of duration, entry protocols, urgency of transmission, etc. Further to the right are broadcasters, high on the service axis because they have no physical "products," and midway between content and conduit because of their role of providing both program material and the system that distributes the program material.

We have placed "professional services" in the upper right-hand corner of the map. We have defined this broadly to include writers, artists, scientists and others who sell their services in generating information. The "products" of their efforts--books, records, TV programs, etc.--are shown in the lower right-hand corner.

We have placed newspapers and shoppers to the left of books, newsletters and magazines. This is based on the notion--perhaps arbitrary--that most newspapers traditionally have operated their own distribution system ("conduit"), while the publishers of most newsletters and magazines have relied upon the U.S. Postal Service or other middlemen (jobbers, retailers, newsstands, etc.) to distribute their product.

In the lower left-hand corner we have simple stand-alone (or "dumb") products such as typewriters, paper and filing cabinets. As information value is added to these products, by adding either "intelligence" or the ability to communicate with other sources of information, they migrate rightward. Thus a blank piece of paper might be "dumb," but the addition of lines and column headings which transforms it to a business form represents an addition of information which shapes the ultimate content.

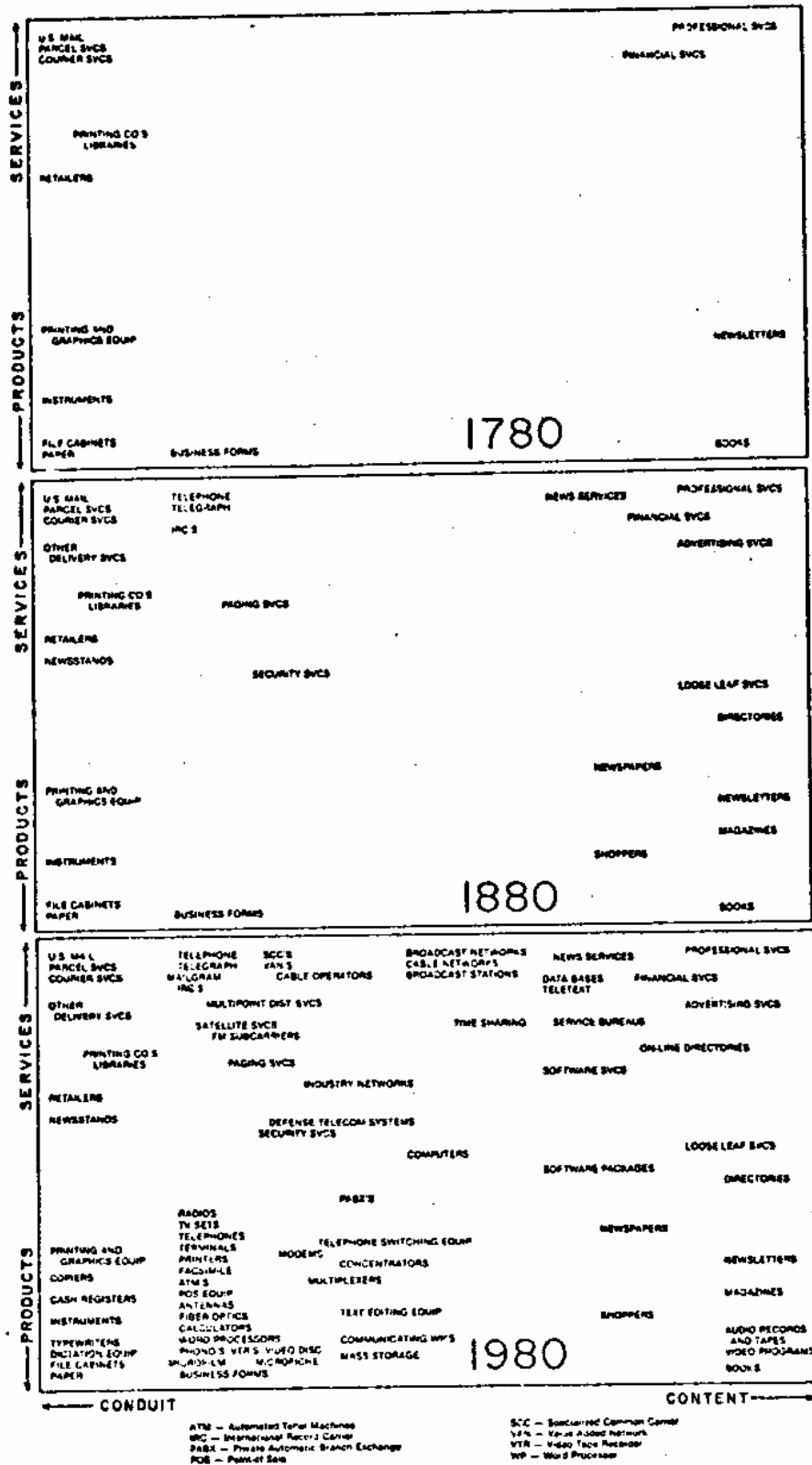
In Figure 2 we have used our mapping scheme to suggest the nature of the information business in 1780. Some important institutions might be missing from this version (the town crier, the coffee house or tavern), but the overall impression is that information activities once occupied the corners of our map. It should be noted that some individuals or companies engaged in both vertical and horizontal integration of economic enterprises during this period. Thus Benjamin Franklin worked as a writer, produced books, newspapers and magazines, developed printing equipment and sold printing services while serving as postmaster general of the colonies. Perhaps Franklin would have placed himself in the middle of our map and labeled himself "printer."

The information business in 1880, shows the establishment of telegraphy, the arrival of telephone and the evolution of newspapers and magazines, but few other changes.

By 1930, the information world looks more cluttered and more familiar, although rudimentary compared to 1981. The most significant changes in our map between 1880 and 1930 probably were caused by the growth of telephony, the arrival of "wireless" technology and the growing appreciation of and demand for information by increasingly sophisticated business and individuals.

Figure 3 displays the products and services that entered the information business (in common use) during the 1930-1980 period. None of these products and services occupy the corners of the maps. Each represents an attempt to provide a saleable "something" which bridges the area between information content and conduit. Moreover, as suggested by the overlay practically all of these new products and services are dependent upon the

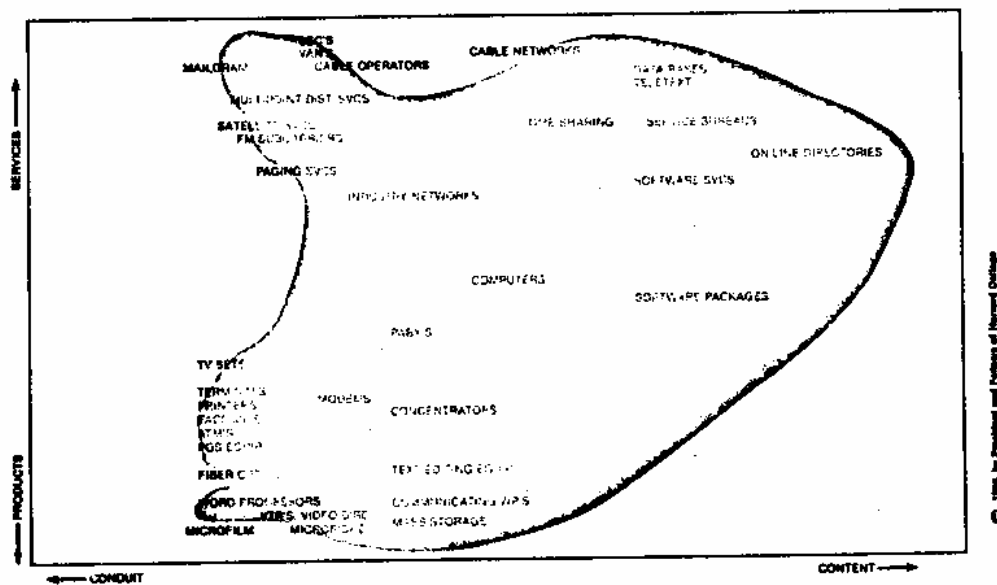
Figure 2



computing and memory power of computers or the miniaturization and economies of the integrated circuitry underlying computers as known in 1980.

Figure 3

NEW PRODUCTS AND SERVICES: 1930-1980 DEPENDENCE UPON COMPUTER TECHNOLOGY

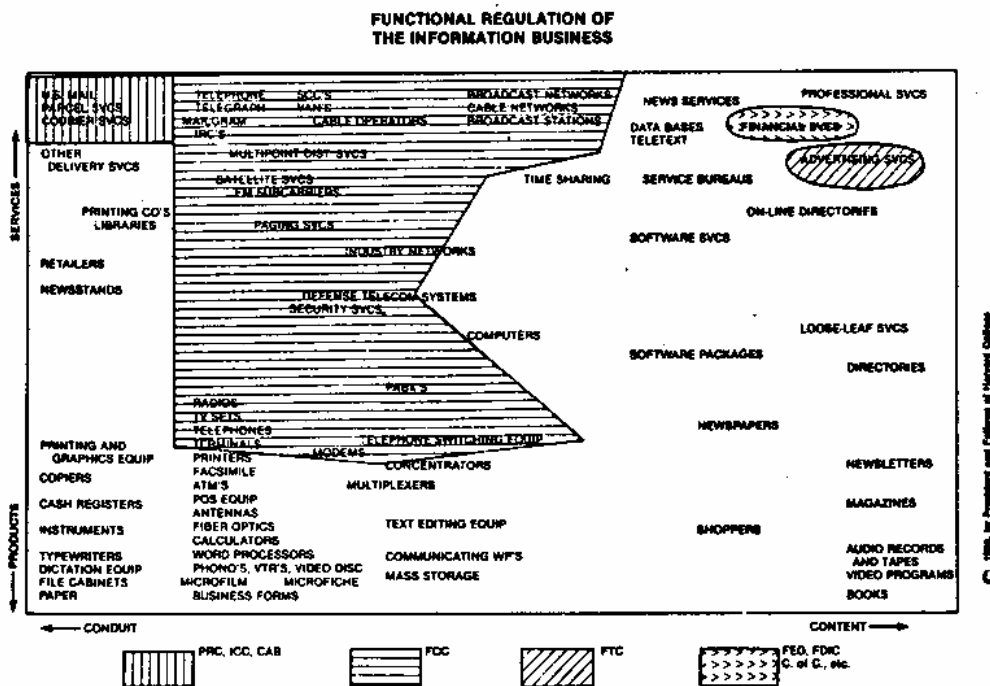


2. GOVERNMENT REGULATION OF THE INFORMATION BUSINESS

Historically, many facets of the information business have been subject to government regulation or control. In the United States, government attempts to regulate the information business have ranged from censorship of content to government ownership and control of the postal conduit.

Figure 4 uses our basic map to show the boundaries of federal government regulation specific to functions of the information business.

Figure 4



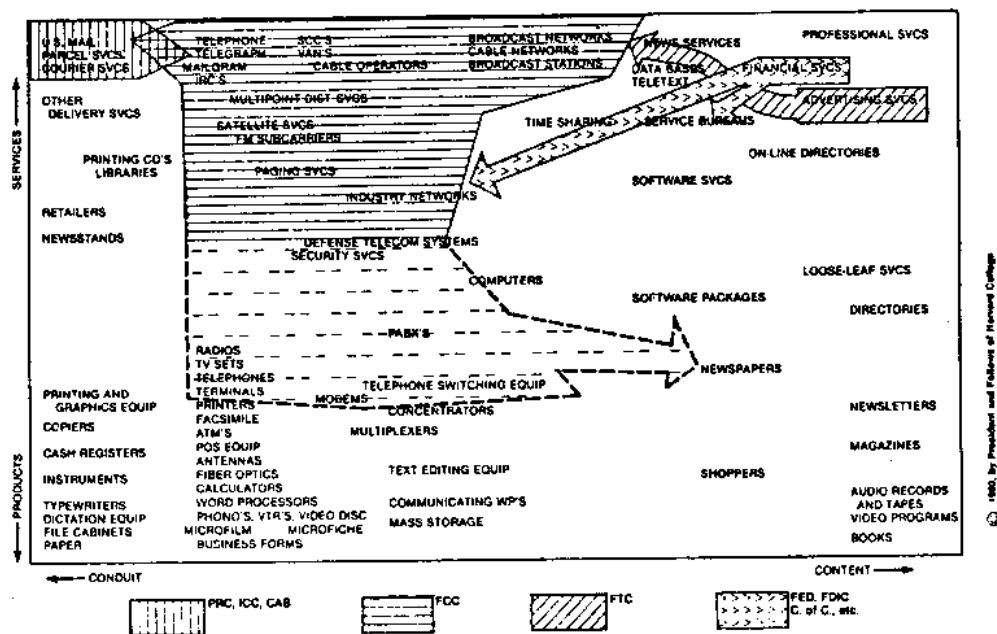
Thus the Postal Rate Commission (PRC) oversees the U.S. Postal Service, the Interstate Commerce Commission (ICC) regulates United Parcel Service, and the Civil Aeronautics Board (CAB) regulates air courier services. The Federal Communications Commission (FCC) monitors telecommunications common

carriers, broadcasting, cable, and a number of other products and services.

Depending upon the specific activity, financial services may be regulated by the Federal Reserve Board (Fed), the Comptroller of the Currency (C. of C.), the Federal Deposit Insurance Corporation (FDIC), the Federal Home Loan Bank Board, the Federal Savings and Loan Insurance Corporation (FSLIC), the Securities and Exchange Commission (SEC) and a host of state government agencies.

As suggested by Figure 5, these regulatory boundaries are neither fixed nor neat in practice. The Postal Rate Commission and the Federal Communications Commission have conflicting jurisdiction over the regulation of "electronic mail." The Federal Reserve Board gets involved in information systems by operating the "Fed Wire" payments system and determining if banks may offer

Figure 5
MOVEMENT AND CONFLICT
IN FUNCTIONAL REGULATION

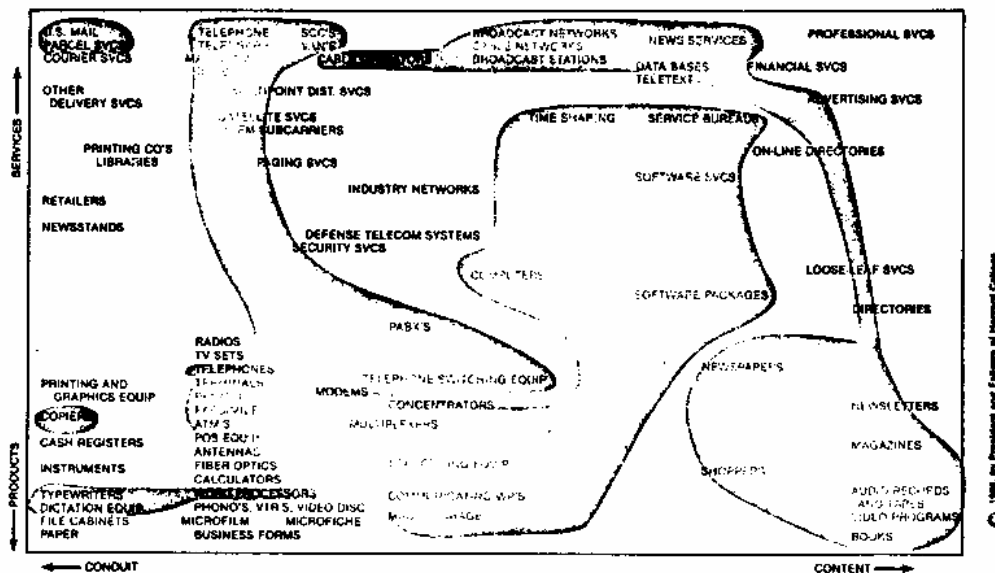


data processing services. The FCC tells newspaper publishers that they must divest themselves of radio and TV stations if broadcast and newspaper operations are located in the same community. The U.S. Postal Service (in its regulatory role), the Federal Trade Commission and the FCC all exert some regulatory force over advertising services.

Some boundaries are unclear or changing over time. During the late 1970's, for example, efforts to deregulate some telecommunications products and services have made FCC's regulatory boundaries less definitive in a number of areas.

Organizations in the information business, like all other companies, are subject to other types of regulation including that of the Department of

Figure 6
ANTITRUST ACTIVITIES



Justice, the Federal Trade Commission, the Equal Employment Opportunity Commission, the Occupational Safety and Health Administration, the Environmental Protection Agency, and a variety of other federal and state bodies. In recent years, for example, there have been major antitrust actions in the copier, computer, and telephone industries, occasional antitrust forays into the mail and parcel area and official speculation concerning concentration of ownership in the media (see Figure 6).

Figure 7 (which combines Figures 5 and 6) suggests the continuing complexities of regulation of the information business. While some of these regulatory complexities may be the product of political philosophy, others stem from the changes in the technologies of the information business.

Figure 7
FUNCTIONAL REGULATION AND
ANTITRUST ACTIVITIES

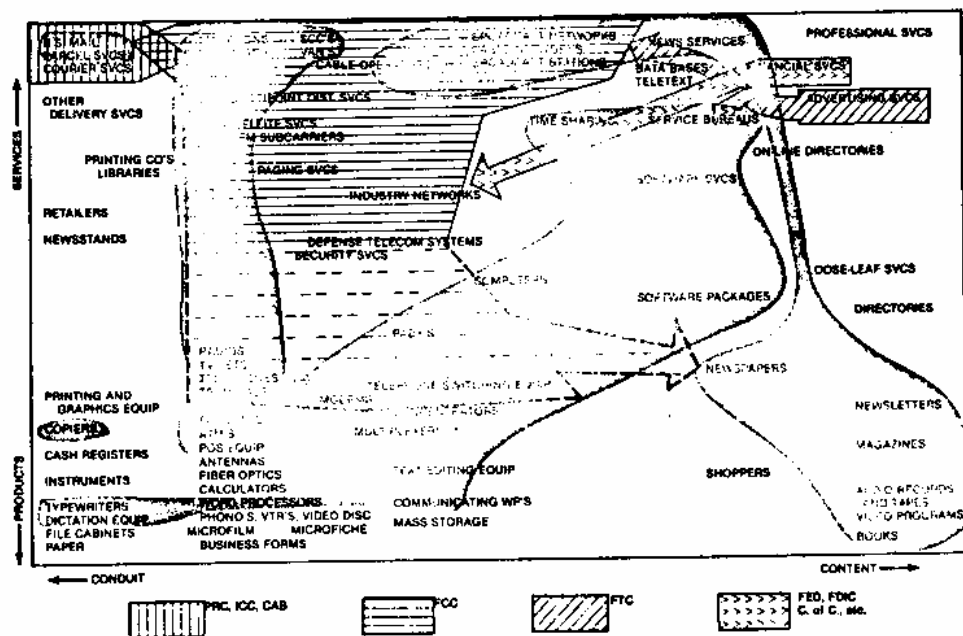
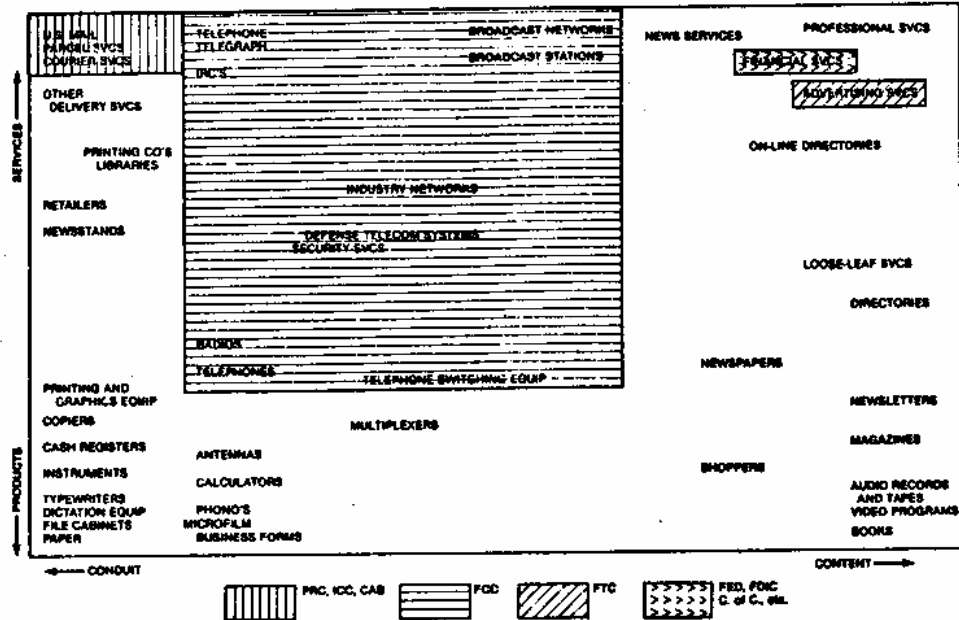


Figure 8 shows the regulatory boundaries of 1940. The absence of hybrid products and services may have made the process of drawing boundaries somewhat easier then--relative to 1980.

Figure 8
REGULATION IN 1940



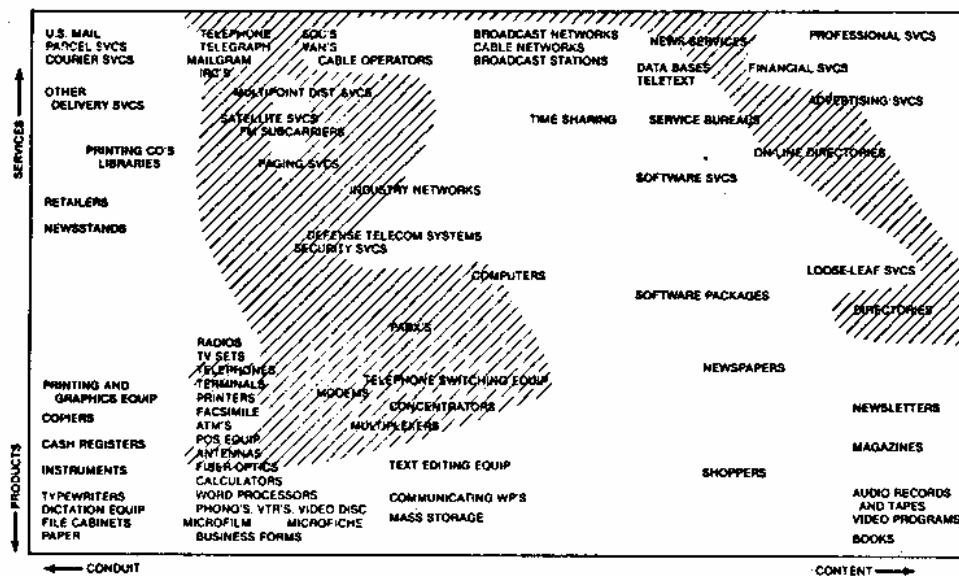
3. CORPORATE POSITIONING IN THE INFORMATION BUSINESS

Our map of the information business appears to be a useful tool for looking at the strategic positioning of individual corporations.

Much of the current turmoil in the information business is attributable to the growth and changing nature of companies that traditionally provided electronically-based information services and systems. These include telephone companies, and a variety of corporations involved in manufacturing and marketing computers, office equipment and consumer products.

Figure 9 shows American Telegraph & Telephone's (AT&T) "territory" on the map.

Figure 9
AT&T: 1978

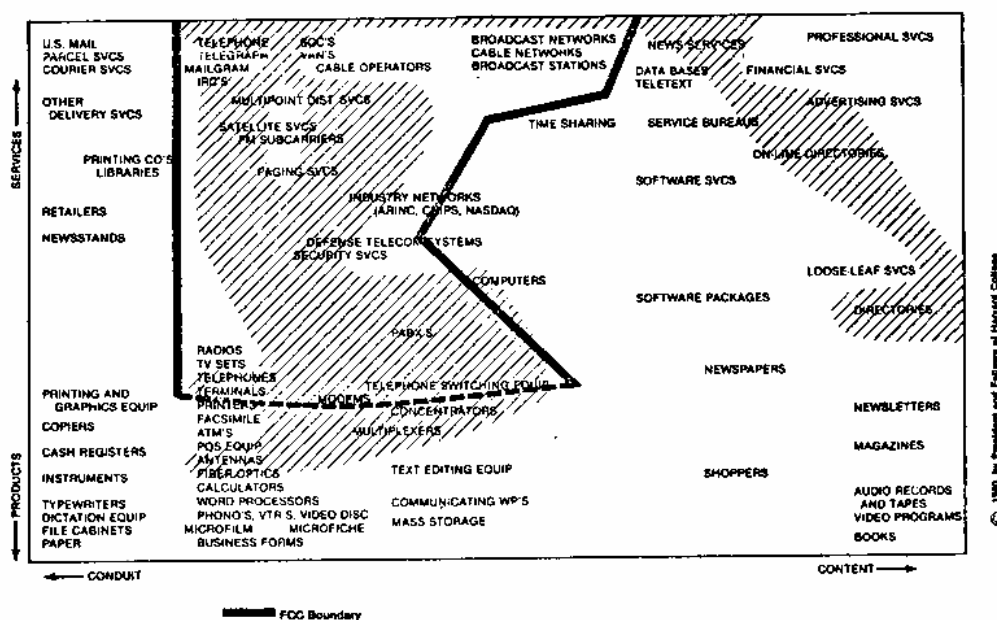


While most of the map seems self-evident, a few items merit explanation. "News Services" and "Data Bases" were included to reflect "content-oriented"

services such as "Dial-a-Joke," "New York Today," and "Sports-Line." "Phone-power" training and marketing seemed to qualify as "Advertising Services." On the other hand, we did not include "Professional Services" because Bell Laboratories' research normally is not marketed to others and American Bell International does not market its services in the U.S.

Government regulation has exercised a strong influence upon the shape of AT&T's business. Figure 10 compares AT&T's business area to the regulatory boundary of the FCC as shown earlier in Figure 4. The areas of non-congruence reflect decades of legislative, regulatory and judicial debate.

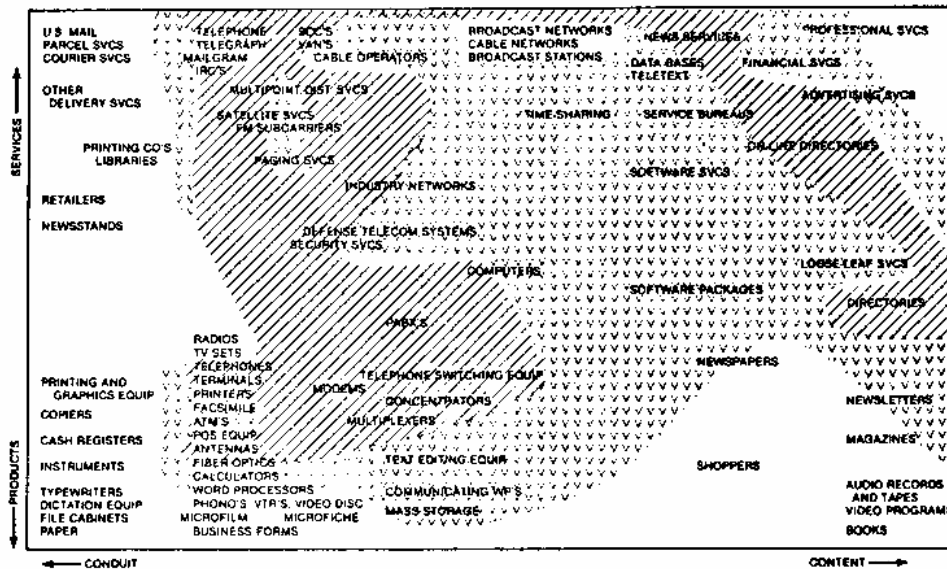
Figure 10
AT&T AND FCC REGULATION



Efforts during the 1970's to re-define the regulation of the telecommunications industry have resulted in wide spread speculation as to AT&T's potential role in a "deregulated" world. Figure 11 depicts the potential expansion of a deregulated AT&T as described by some current policy makers and a variety of potential competitors.

Deregulation can be expected to have some similar effects upon the business activities of the larger independent telephone companies. General Telephone and Electric, United Telecommunications and Continental Telephone have all acquired companies or launched new ventures aimed at winning a share of the market for enhanced telecommunications services.

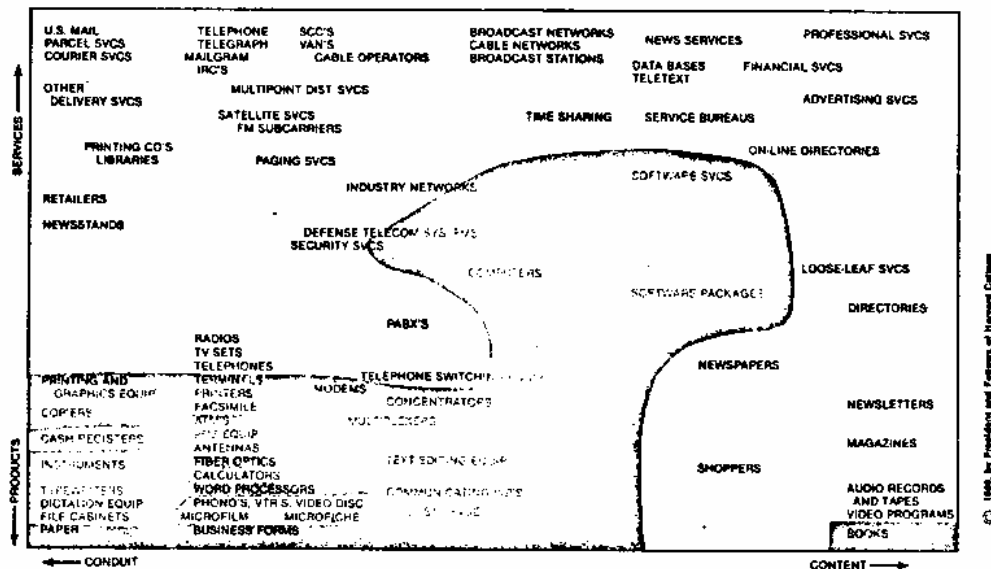
Figure 11
A DEREGULATED AT&T?



The 1979 U.S. operations of International Business Machines (IBM) are illustrated by Figure 12.

Figure 12

IBM: U.S. OPERATIONS: 1979

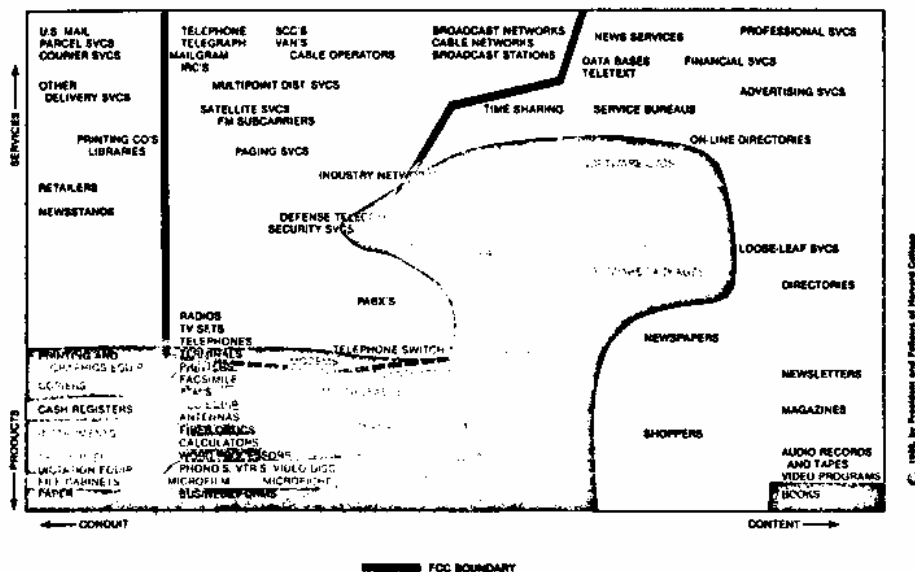


If we overlay the FCC's regulatory boundary (from Figure 4) on the map of IBM's domestic operations, the resultant illustration suggests that

IBM has avoided direct entry into regulated sectors in the U.S. (Figure 13).

Figure 13

IBM, US OPERATIONS, 1979 AND FCC REGULATION

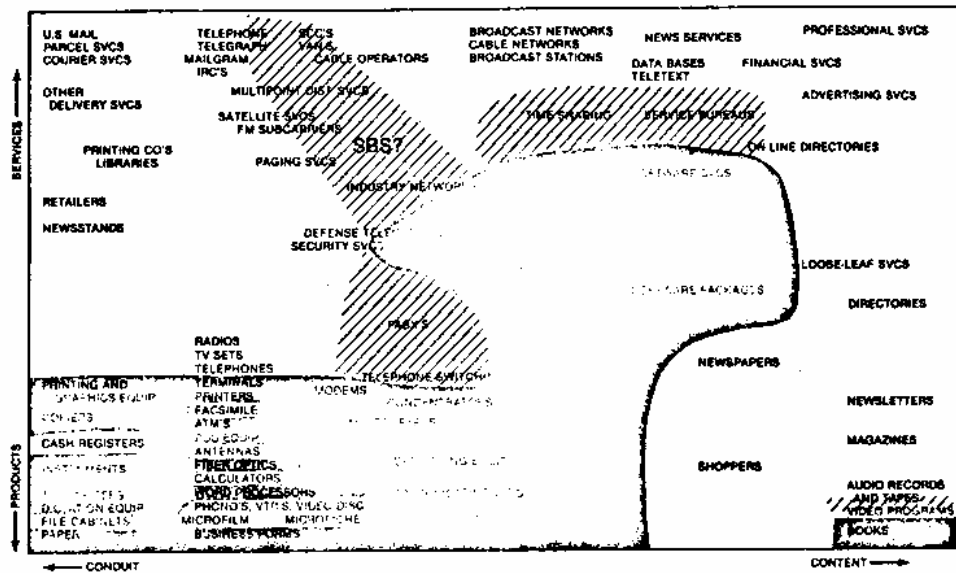


A different picture of IBM is shown in Figure 14. This map includes products and services that IBM offers outside the U.S. (PABX's, time sharing, and service bureaus), some of IBM's internal technological capabilities, and the company's joint ventures with Aetna and Comsat (Satellite Business Systems [SBS]) and with MCA (Discovision Associates).

In recent years there has been much speculation in the trade press about a face-off between IBM and AT&T. The speculation is understandable, given the picture of a deregulated AT&T and of IBM with its foreign operations, its technological capabilities, SBS and Discovision in Figure 15.

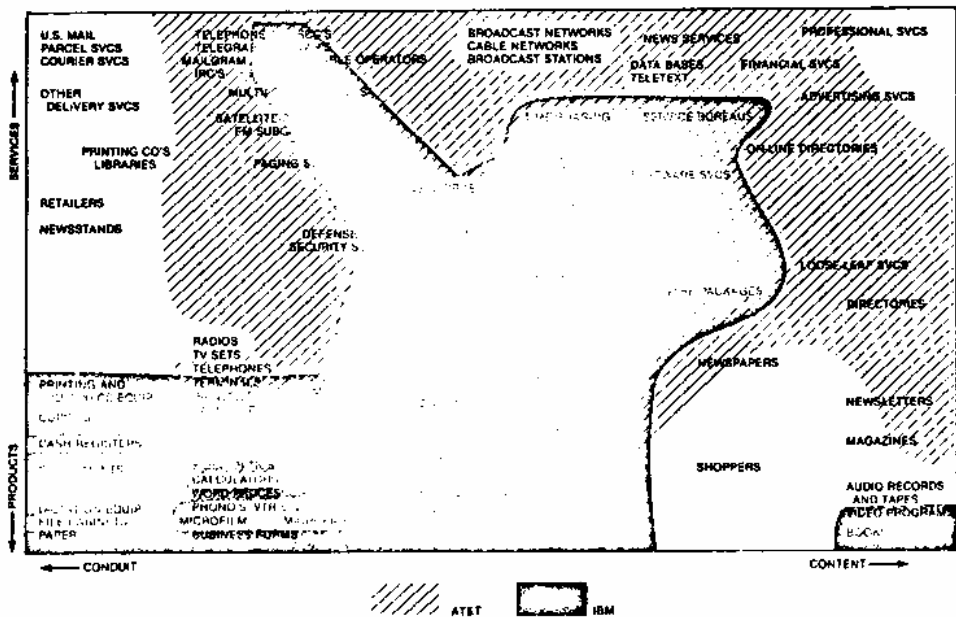
Figure 14

IBM: FOREIGN AND DOMESTIC OPERATIONS, TECHNOLOGICAL CAPABILITIES AND JOINT VENTURES



© 1988, by President and Fellows of Harvard College

Figure 15
A DEREGULATED AT&T AND IBM



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In the course of our work we have "mapped" dozens of companies. Rather than bore you with a lot of similar ones, I would like to quickly show a few maps which illustrate different uses of technique.

Figure 16 illustrates RCA Corporation. The "x's" represent information businesses from which RCA has exited since 1970.

Figure 17 shows Xerox with our speculative placement as to the XTEN and Ethernet ventures and the Western Union International acquisition.

Figure 18 shows how one particular company, Harris Corporation has expanded its turf in the information business between 1957 and 1980.

Figure 18

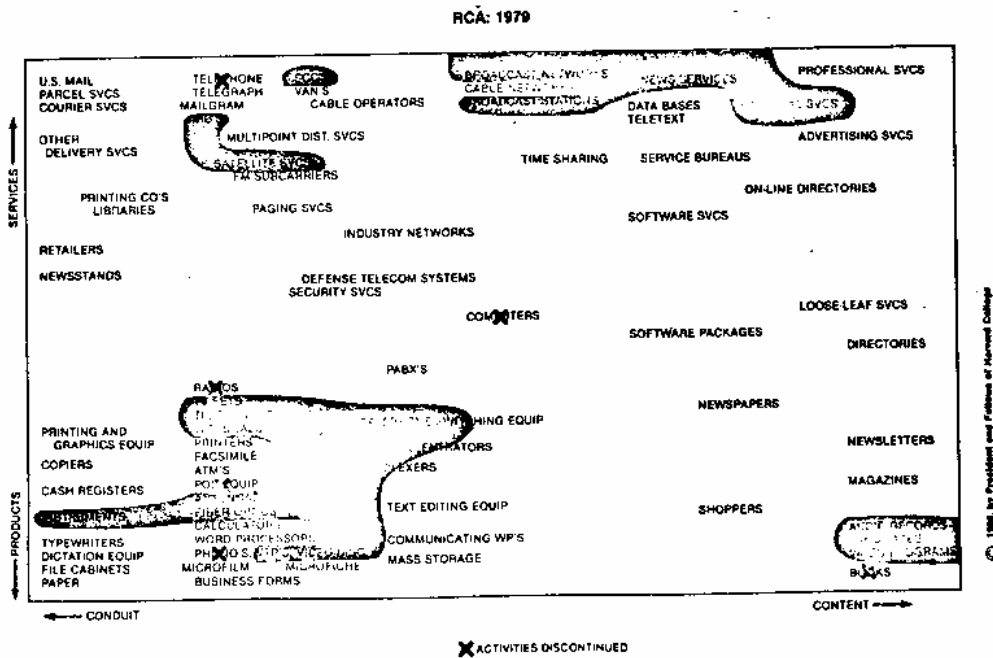


Figure 19

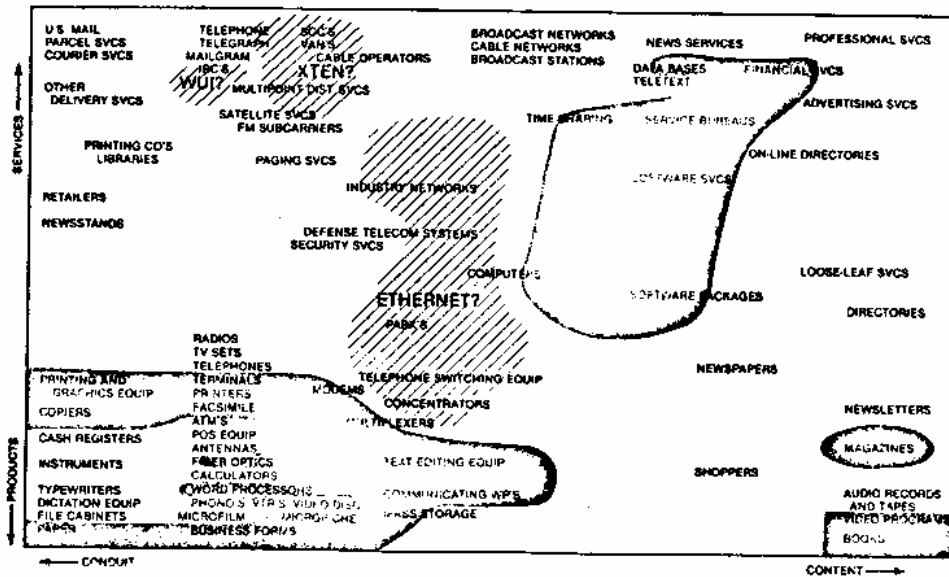
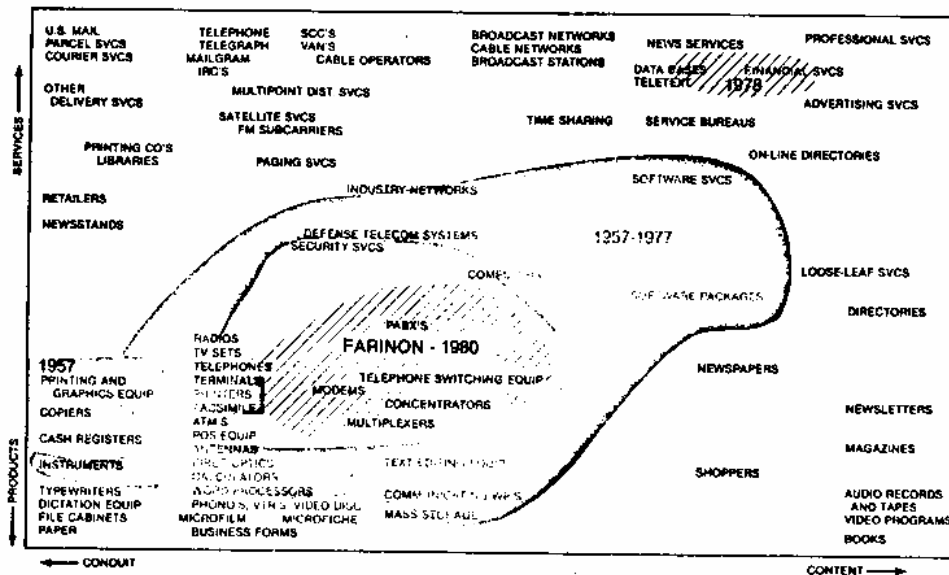
XEROX WITH WESTERN UNION INTERNATIONAL,
XTEN AND ETHERNET

Figure 20

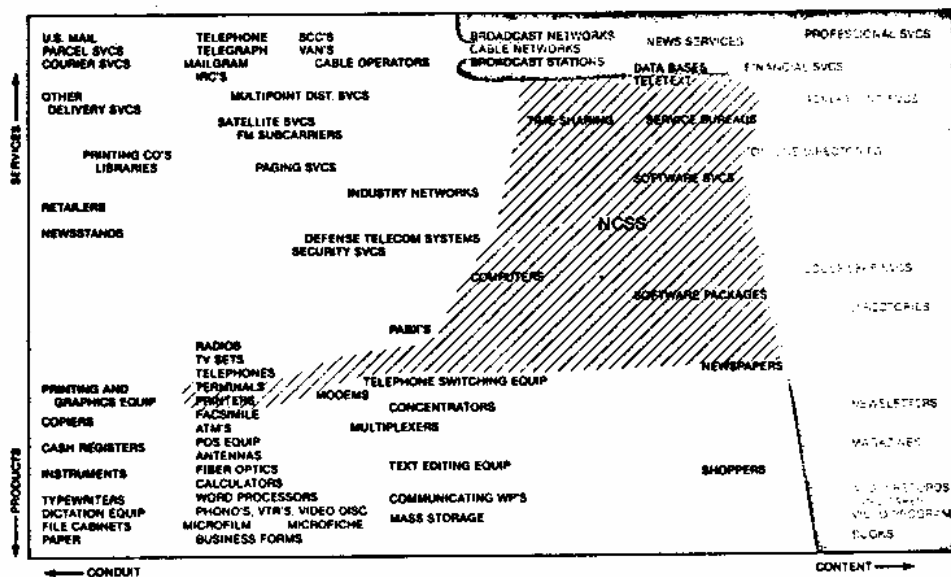
HARRIS CORPORATION



If we focus only upon electronics companies, however, we miss much of the political turmoil in the information business.

Dun and Bradstreet (Figure 28) has been an active participant in the information business for years, primarily in the publications area. On our map, D & B's acquisition of National CSS appears to be part of a logical progression toward developing further capabilities in processing and distributing the information acquired in other portions of the company.

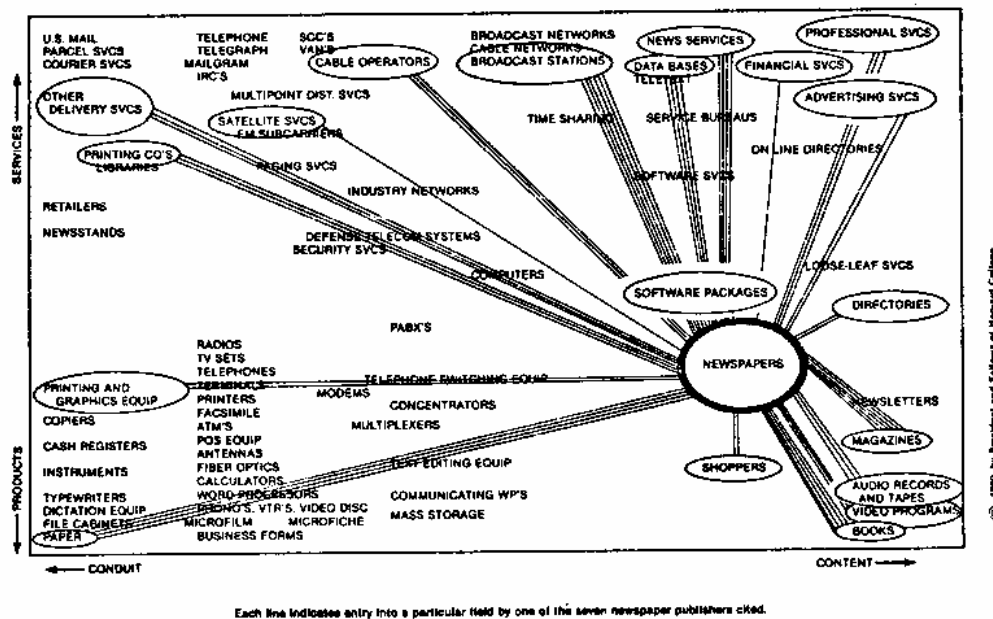
Figure 21
DUN AND BRADSTREET WITH NATIONAL CSS



Another set of traditional players in the information business are newspaper publishers. Over the years many of the larger newspapers have diversified to become "media" or "communications" companies.

The variety of diversification strategies is suggested by Figure 22. This map represents the business activities of seven companies generally classified as newspaper publishers.

Figure 22
NEWSPAPER DIVERSIFICATION



Dow Jones & Co., Gannett Co., Harte-Hanks Communications, Lee Enterprises, New York Times Co., The Times Mirror Co. and The Washington Post Co.

I will stop the slide-show now. As I noted we have done dozens of these and I could show you new entrants such as Exxon, or new roles for financial institutions such as Citibank or American Express. We have used the map to look at concepts such as the "office of the future" and "electronic publishing". At the moment we are developing a series of maps covering other nation's and transnational information policies.

I will conclude with observation that I do not envy those facing the task of trying to draw fixed or stable regulatory boundaries on this heaving, shifting terrain.

Thank you, Mr. Chairman, for this opportunity to describe some of our work.

ATTACHMENT
PROGRAM ON INFORMATION RESOURCES POLICY

4/23/81

Harvard University

Center for Information Policy Research

Contributors

Action for Children's Television	Knowledge Industry Publications, Inc.
American Broadcasting Companies, Inc.	Lee Enterprises, Inc.
American District Telegraph Company	Lockheed Missiles and Space Company, Inc.
American Telephone & Telegraph Co.	MCI Telecommunications, Inc.
Arthur D. Little Foundation	McGraw-Hill, Inc.
Auerbach Publishers Inc.	Mead Data Central
Automated Marketing Systems	Minneapolis Star and Tribune Company
Bell Canada (Canada)	MITRE Corporation
A.M. Belo Corporation	Motorola, Inc.
Beneficial Management Corporation	National Association of Letter Carriers
Boston Broadcasters, Inc.	NCR Corporation
The Boston Globe	National Telephone Cooperative Assoc.
Booz-Allen Hamilton	New York Times Company
Cable and Wireless, Inc.	Nippon Electric Company (Japan)
Canada Post (Canada)	Norfolk & Western Railway Company
CBS Inc.	Pitney Bowes, Inc.
Central Telephone & Utilities Corp.	Public Agenda Foundation
Citibank N.A.	Reader's Digest Association, Inc.
Codex Corporation	Reuters Limited (United Kingdom)
Communications Workers of America	Salomon Brothers
Computer & Communications Industry Assoc.	Satellite Business Systems
Continental Cablevision, Inc.	Scott & Petzer Company
Continental Telephone Corporation	Seiden & de Cuevas, Inc.
Des Moines Register and Tribune Company	Source Telecomputing Corporation
Direction Générale des Telecommunications (France)	Southern Pacific Communications Company
Doubleday, Inc.	Standard Shares
Dow Jones & Co., Inc.	St. Regis Paper Company
Dun & Bradstreet	Swedish Television (Sweden)
Economics and Technology, Inc.	Telemation Management Group, Inc.
Elsevier Science Publishers (Netherlands)	Telesat Canada (Canada)
Exxon Enterprises, Inc.	Times Mirror Co.
Federal Reserve Bank of Boston	Transamerica Corporation
First National Bank of Boston	The Toronto Star (Canada)
First National Bank of Chicago	The Tribune Company
France Telecom (France)	United Parcel Service
Frost & Sullivan	United States Government:
Gannett Co., Inc.	Central Intelligence Agency
General Electric Company	Department of Commerce:
General Telephone & Electronics	National Technical Information Service
Hallmark Cards, Inc.	National Telecommunications and
Hambrecht & Quist	Information Administration
Harte-Hanks Communications, Inc.	Department of Defense:
Hazel Associates	Defense Technical Information Center
Honeywell, Inc.	Department of Energy
Hughes Communication Services, Inc.	Federal Communications Commission
IBM Corporation	National Aeronautics and Space Admin.
Information Gatekeepers, Inc.	National Security Agency
International Data Corporation	United States Postal Rate Commission
International Paper Company	United States Postal Service
International Resource Development, Inc.	United Telecommunications, Inc.
International Telephone & Telegraph Corp.	The Washington Post Company
Italtel (Italy)	Western Union
Knight-Ridder Newspapers, Inc.	Xerox Corporation

Mr. WIRTH. Thank you very much, Mr. Compaine.

STATEMENT OF LARRY DARBY

Mr. Darby?

Mr. DARBY. Thank you, Mr. Chairman, and Mr. Tauke.

I am grateful for this opportunity to appear here this afternoon. I felt earlier in the afternoon a little like a juggler waiting to get on the Johnny Carson show when he was talking to Bo Derek, Woody Allen, and Don Rickles. So I'm truly grateful for the time you have left.

Your understanding of the current status of the communications market structure and the resultant competition—

Mr. WIRTH. Here's Larry.

Mr. DARBY [continuing]. Thank you—is a fundamental prerequisite for a decent appreciation of the impact of any legislatively mandated change.

Ben has shown you a very, very broad picture, a wide angle snapshot of these markets. It's sort of like seeing the industries from the space shuttles, seeing the Earth from a space shuttle.

In the next few minutes I want to explore in particular some of the underlying economic forces and market relationships that do not show up on the Harvard map. Then I want to look at what implications these forces and relationships might have to the subcommittee's inquiry and deliberations and for the future development of the industry.

The companies on the map can be usefully likened to clans. In fact, when Tony Ottinger gives his presentation, he likens his map to a jungle. All the players don't have perfect reference, so I'll leave the jungle analogy and talk about clans.

These clans are bound not so much by blood and marriage and conventional clans, but they are united by a strong community of territorial, financial, and economic interests.

The Bell clan is larger than any of the others taken together, and its members sit on councils of elders in other clans. Changes in technology and Federal rules have permitted the birth and growth of several new clans that threaten some of the Bell wealth and territory. Specialized common carriers, domestic satellite carriers, resellers, foreign equipment suppliers, and a large number of others which appeared on the map.

I did have some comments about broadcasting, but I'll leave those aside and talk a little bit about the fact that some of these clans have coexisted more or less peacefully in the last few years, but are now undergoing a substantial amount of new tension. Technology permits the Bell clan to threaten some sanctuaries long securely held by the U.S. Post Office, the equipment clan, the magazine clan, the newspaper clan, the radio clan, and lots of others.

There is, of course, a reciprocal threat to Bell from these carriers, but I believe they are of a significantly lesser magnitude.

Some recent technological and regulatory forces have merely intensified old hostilities between the clans. For example, the Western Union clan and the IRC clan.

As a footnote, I feel obliged to mention the importance of overseas clans in these scenarios which are organized around State

[The following statement was received for the record:]

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Center for Information Policy Research

Testimony of John C. LeGates before the
Subcommittee on Telecommunications,
Consumer Protection, and Finance

House Committee on Energy and Commerce

May 21, 1981

INTRODUCTION

My name is John LeGates. I am Director of the Program on Information Resources Policy at Harvard University and President of the Center for Information Policy Research, a not-for-profit Massachusetts corporation. The Program is a research organization supported by approximately 100 diverse organizations involved in the information industries. A list of our supporters is attached as Exhibit A. However, this testimony does not represent the official positions of any of our supporting organizations.

It is my intention to describe three areas of communications and information policy. These will be: long distance message carriage, local message carriage, and customer premise equipment. Although my testimony will stand by itself, it augments and is augmented by testimonies presented by my colleagues, John McLaughlin and Benjamin Compaine.

We will find that the present complexity in each of these areas goes well beyond their traditional structures. Nonetheless, the basic questions are few in number and are common to these and other subjects. We can offer a framework which, if it will not answer these questions, will at least help us think about them. A partial listing of carrier markets, sizes, and regulatory environments is provided as Exhibit B. A summary of questions and findings is provided.

The three areas under consideration have certain features in common.

First, each of them has experienced major growth since the second World War.

Second, by and large, this growth has been connected with the exploitation of new technology and has witnessed decreasing unit cost, dramatic in many cases.

Third, each area has seen new market entrants coming from different traditions than those already in the market. In many cases, these new market entrants come from a different regulatory background than the earlier ones.

Fourth, there are important definitional problems involved in trying to understand markets and market segments. Many products elude clear-cut classification or can be classified into multiple categories or ambiguous categories. In order to understand the market size and structure, we must frequently ask the question, "What is the nature of the product or the market?"

Finally, in each of these areas, data can be hard to come by. The old SIC (Standard Industrial Codes) do not fit very well. In many cases, companies lump their products into different clusters in earnings reports. This makes it difficult to identify the size of the entry in a particular market segment. In addition to this, much of the relevant data is proprietary and not regularly made available in the public record.

LONG DISTANCE CARRIAGE OF INFORMATION

The long distance message market has two traditional players: telephone and telegraph. The latter of these has dwindled to relative insignificance in the last 30 years. New entries, however, have sprung up. The six major firms in the "specialized common carrier" market reported 1979 earnings of \$249 million (and growing). The four largest "value-added carriers" (there are hundreds of smaller firms) reported earnings of \$800 million in 1980. This compares to approximately 25 billion dollars of gross revenues from toll calls for the telephone companies.

Important questions can be raised about what is long distance and what is local. If long distance is judged to be between local service areas (sometimes called "interexchange"), then the actual distance traversed can be considerably less than within some local areas. The Atlanta area, for example, is approximately as large as the state of Rhode Island. Atlanta and many other local areas are larger than the distance covered by many interexchange intrastate toll calls, and even interstate toll calls.

In addition, revenue generated by a toll call varies significantly from state to state in terms of the charge per message per mile. The discrepancy between the most expensive and the least expensive states for an intrastate toll call varies by a factor of three. A 100-mile, 3-minute call in Mississippi is \$1.58--in Idaho, 60 cents. Thus revenue and message volume do not necessarily correlate. Neither do distance and revenue. In measuring the size of the market, one must choose the measurement categories.

The situation is further complicated by intracompany data and voice networks. These usually, though not always, involve leased lines for which we know the lease value. However, utilization and traffic figures

are usually proprietary and not available to us.

Electronic and non-electronic media can also substitute for one another. Our research indicates that within the last decade there has been a drop in the percentage of messages carried by the U.S. Postal Service from over 90% to under 75%. The national magazines or newspapers can be considered a form of long distance carriage of information: one that might be amenable to electronic carriage. Today, the Wall Street Journal is carried to the region of its final destination by satellite, and then printed and distributed by traditional means. Several newspapers are experimenting with electronic delivery to the home.

Television is distributed by local broadcasting towers. Network TV, however, can also be considered a form of long distance carriage. Programs originating live in New York, California--or in some cases around the world--are transmitted by terrestrial conduits and satellite to the local distributor.

What is the size of this market? Clearly it depends on what you consider to be in and what you consider to be out. Reasonable decisions as to what is in and what is out should depend on why you want to know. Attempts to define these markets or sub-markets may become devious as has been illustrated in several anti-trust cases.

The traditional areas of conflict in this market center around competition between the telephone companies and other entrants. Other entrants, in order to reach their customers, have needed connection to local service, traditionally provided by the telcos. Charges have been levelled against the telcos that this service was provided poorly, expensively, or not at all. From this acrimonious tradition, general agreement has emerged that interconnection should be provided. The remaining questions, however, concern the price of the interconnection and the price of the competing services.

As the independent common carriers came on the scene, they found a world in which local and long distance services were provided by a club of organizations. These organizations worked closely together, and did not consider themselves to be in competition. The joint and common costs associated with these services were very substantial--over 50 percent. It was possible to know what the overall return had been on the sum of the services. Finding the return on a particular service, however, depended on the allocation of costs.

Over time, the various regulatory agencies have assigned an ever-increasing percentage of the joint and common costs to long distance traffic or plant. The telephone companies have argued that an artificially high price has been maintained on long distance traffic in order to support otherwise unprofitable local, household and rural telephone installations. This has allowed the telephone companies to fill the mandate of universal service perceived in the Communications Act of 1934. It has allowed the telephone companies to become the provider of a socially desirable, uneconomic service and therefore act as a form of welfare agent. Telephone companies argue that the independent carriers have come in under an artificial price umbrella and skimmed the cream of the most profitable market--without assuming the burden of the unprofitable markets, thus threatening the ability of the network to provide service to all.

The non-telco carriers, in common with other competitors of the telephone companies, see it differently. They perceive the telephone companies as maintaining a hold in a monopoly market, namely the local market. From this the telephone companies are able to subsidize their entries into competitive markets. They also view themselves as being the victims of inconsistent regulatory treatment. As they have no joint

and common costs which can be politically reallocated, they cannot take advantage of the same pricing flexibility. Although the percentage of the joint and common costs assigned to long distance is over 50 percent, there is no proof that this is an accurate reflection of costs. It is the nature of such costs that they cannot be allocated according to strict accounting principles.

The major questions in the area we have been describing seem to be:

- What is the most efficient method of allocating resources in this market?
- How can prices be determined which are cost related or otherwise judged fair?
- How can services be provided to socially desirable but uneconomic markets?
- How can we assure ongoing technological innovation?

Some of these questions involve problems. By a "problem" we mean a question which is difficult to answer. Some of them also involve issues. By "issue" we mean a question on which parties stand on opposing sides.

Joint and common costs mean different things when viewed from different angles. Their presence implies and is caused by the presence of joint and common plant. The only way to get rid of joint and common costs is to create separate plant for each service. Carried to its extreme, this could mean separate plant for long distance calls and local calls, for business calls and private calls, for daytime calls and nighttime calls--the list goes on virtually forever. This solution settles the questions of fairness. It is fair to the new entrant. But is it economic? In its extreme form, it is clearly not. It creates diseconomies of both scale and scope which destroy the very purpose of competition which was efficient allocation of resources.

Retention of joint plant insures the continuation of joint and common costs, and their allocation problem. Questions of fairness of cost allocation cannot be settled by accounting methods alone. They must be settled by political methods. By this we mean agreement by all parties that the allocation is acceptable to them.

Achievement of such agreement would involve bringing organizations who currently speak only through their lawyers into a position of negotiation. Such negotiation might provoke anti-trust action. Cost allocation is not only a problem but an issue because stakeholders stand clearly on both sides.

Technological innovation has frequently appeared as another issue in these debates. It is widely assumed to underlie gains in cost reduction, provision of new services, and the strong American position in world trade. The telco school maintains that substantial ongoing investment without immediate prospect of return is essential to major breakthroughs, such as the transistor. Cost-related pricing can prevent accumulation of the resources for this. Competitors claim that the incentive to succeed in a market drives the innovation process. Good evidence can be mustered by both sides.

A practical problem confronting the Congress is to create political machinery that will allocate joint and common costs so as to satisfy the contending opposing stakeholders in the long distance electronic message market.

LOCAL CARRIAGE OF INFORMATION

The shape of the market for local carriage of information depends very strongly on what part of the market we are looking at. There are actually several submarkets which lie along a density continuum. On one end we have the markets characterized by high density, urban location, or a heavy concentration of business and institutional customers. At the other end, we have the residential, rural, and similar low-density markets. The various markets in between shade into one another.

At the low-density, rural and residential end, we find that there is nearly 100% telephone penetration. In 1978, 97.1% of all households had telephones nationally. It varies from 100% or over in six states--the highest is New Hampshire at 104%, to under 90% in seven states--the lowest being Mississippi at 83%.

The only distribution medium with higher penetration is the U.S. Postal Service with 100% of the households nationwide. This vehicle should not be disregarded in considering electronic carriage, as it is capable of delivering recordings, videotapes, audiocassettes and the like which can to some extent, substitute for electronic media, (so may be much of what is in first class mail.)

Cable television is the next most widely available electronic connection. Cable passes more than 50% of the households in the country and connects to approximately 25%. It is an industry with gross revenues in 1980 of 2 billion dollars, compared to approximately \$25 billion in revenues of the telephone companies' local services and the \$20 billion budget of the postal service.

Whereas the telephone network offers a basic service with various additions in certain localities, the cable business varies widely from location to

location. In some areas it has as few as six available channels with fewer occupied, and in some areas over 50. In a few areas it is interactive to one degree or another, but in most areas it is not. It is regulated by 11 states and unregulated at the state level in 39. It is regulated by only some municipalities. The federal history of cable regulation is checkered, beginning with outright prohibition in major markets and moving in the direction of less federal involvement. In some areas cable performs a number of common carrier functions such as distribution of information from branch banks to bank headquarters. In some areas cable originates programming, but in other areas is merely a retransmitter. Cable systems like broadcast networks are partially coordinated. Some channels offer selections nationwide or nearly nationwide. It is clear that many information services can be provided by either telephone or cable and in many cases these two compete head-to-head, as for burglar alarm service. Cable is technologically able of carrying telephone signals provided that there is addition of switching capability. Telephone is capable of carrying video signals with the installation of better multiplexing and amplifying equipment and with switching to allow so-called "mass distribution." Turning one into the other is largely a question of capital.

Cable was originally regulated as a direct competitor to broadcasting, and the latter should be considered as a form of local electronic carriage also. Although radio and television are broadcast locally, they receive some of their signals from networks and can be considered a distant or national distribution medium. For the moment, they are only one-way. They are regulated by the Federal Communications Commission for spectrum allocation and also for some aspects of their content. There is no state or local regulation of broadcasting. The entire broadcast industry has gross revenues of about 12 billion dollars making it significantly smaller than the telcos or the U.S. Postal Service.

Citizens' band radio can also provide some of the functions of this market. This has only licensing and standards regulation.

At the high-density, urban or business end of the spectrum, we have all of the players already discussed plus a few more. Local communications services are provided to certain high-density customers by independent carriers. Techniques include line-of-sight microwave, infrared and laser radiation, cellular mobile radio, and FM sideband. There are MDS, digital radio, and Satellite-to-rooftop services. The size of this market is not readily determined because in some cases it is lumped with the long distance services or plant provided by the same suppliers.

In addition, there is a market of organizations supplying communications to themselves. These include local communications networks operated via the above technologies. The extent of this investment and also of the traffic it carries is not publically available. Some of this reticence may be due to fear of regulation or of prosecution under the private express statutes for carriage of electronic mail. We suspect, however, that this is a very large market. By contrast with the other local distributors, this market is completely unregulated except for assignment of frequencies.

Regulation varies enormously from system to system. Cable systems may be regulated municipally or by the state, or fall only under federal oversight. Telephone systems are regulated by state PUC's or their equivalent, and by the FCC. It is important to note that approximately 70% of the joint and common costs we have discussed above are under state jurisdictions. Unless the federal-state jurisdictional boundary is moved, it may be difficult for the Federal Communications Commission to address most of the serious issues. If it is moved, then the federal government will assume responsibility for an immensely complex burden of local detail. Local nets offered by independent

carriers may also be regulated by the state PUC or by the FCC. Internal networks are not regulated at all. In many cases, these compete directly on a head-on basis for the same markets.

The introduction of competition in this area is generally seen as a boon by the larger users, and the new entrants. These are, by and large, business customers who can purchase in bulk or use an independent carrier.

On the other hand, local, rural and residential customers may stand to lose by the present trend. Between the so-called cream-skimming in the long distance markets and the disappearance of the high paying business customer in local markets, there will be increasing pressure on residential and rural rates to go up. The residential householders do not constitute an aware and organized group. There are large numbers of people involved, however, and they could exert considerable political force if motivated.

There is, however, a well-organized large customer with large rural stakes. This is the Department of Defense. Most large defense installations are in remote areas of the country. In addition, the large defense networks such as AUTODIN are made up of large numbers of local links. Both of these are threatened by the price rise. DOD has already requested that the Department of Justice call off its anti-trust suit against AT&T. This would serve DOD well in two capacities. The first is maintenance of unified control over the network, which is amenable to pressure from DOD. The second is maintenance of low rates through subsidy from the high-density routes.

Some of the major questions in the area are of low visibility.

The flowering of competitors under different kinds of regulation is an interesting problem. It poses the possibility that a regulatory agent, while regulating one of the pieces of this market for some purpose, may render it uncompetitive with something outside the control of the regulatory body. It could thereby lose both the competitor and the regulatory control. Reg-

ulatory bodies are, in many cases, deprived of their ability to protect organizations they oversee.

These nagging concerns, caused by the proliferation of markets, probably lead to the increasing frequency with which we see proposals for an information czar, for centralization of control under state or federal organizations and the like. However, it is not yet proven whether or not the question of multiple market entrants and multiple types of regulation actually poses a problem. It poses an intellectual problem. It may not, however, pose a regulatory problem about serving markets. It appears to merit ongoing attention lest a problem arise.

An already evident question is the one about anticipated increases in local rates. It is important to note what we mean by this. Many local users can choose among competitors and are protected against some of these price rises. There remains, however, a kind of "customer of last resort" who will continue to be served only by the telephone company (and perhaps by a cable company which may or may not be free to offer two-way communication services and which will almost certainly not have access to the telephone network). This is the customer who may see himself as deserving protection. It is not clear who is in a position to protect him. At the moment, the state regulatory bodies are positioned best as they have oversight over most of the joint and common costs. They may be unable, however, to insure long distance revenue which currently provides them the means to keep local rates down.

It is worthy of note, however, that local rates also vary from location to location by a factor of three. The obvious implication is that the rates in the lower areas could triple without a significant effect on the penetration or usage of telephones. We have no data to indicate how much political pressure will be brought by residential customers in case of an increase even if only from the lower current rates to the higher current rates.

Another question concerns network integrity and interconnection. There was an era when two or three telephones were required in order to reach everyone you might wish to reach. We are already seeing the appearance of providers who do not interconnect with one another or with AT&T. On certain business desks, once again the number of phones is proliferating, as well as the number of terminals. To what extent this is a problem and to what extent it requires intervention by the government is not yet clear.

CUSTOMER PREMISE EQUIPMENT (CPE)

The CPE market has witnessed a well-organized orderly retreat by the telephone companies under heavy fire in recent years.

Up until the mid-1960's, all customer premise equipment was owned by the telephone company if it was to be connected to the telephone network. The telcos have been forced to retreat from owning all station equipment to the "primary instrument concept" to the internal wiring. They are still very active in these markets although they are no longer able to exclude other entrants.

Customer premise equipment may be as simple as the telephone set or as complex as an internal network operated with or without a PABX. All of the questions we have discussed in other areas also apply here.

Does the regulatory boundary extend all the way to CPE? Non-telco gear is unregulated equipment competing with regulated equipment. The usual charges of cross-subsidy apply here and the usual questions arise about fairness of competition and what techniques are available to insure it. The "installed base migration" strategy is an example. Telcos are accused of raising the price on older installed equipment in order to move customers to newer "flagship" equipment before competitors are ready. Interestingly, state PUC's, when they disapprove of these price increases, are taking a stand for lower prices against technological innovation.

A sidelight of CPE is the question of location of intelligence. In many cases, the intelligence can be provided either at the terminal end, the central switch end or somewhere in between. It was interest in providing the intelligence that lead terminal manufacturers to oppose AT&T's Advanced Communication Service (ACS). Such functions as location identification, redialing, data messaging and packaging, line quality testing, and burglar alarm functions can reside in the terminal. They can also reside in the central switch. There are already cases where a three-way competition for provision of intelligence functions is shaping up: the central switch in an urban area provided by AT&T;

the local switch in a suburban area provided by an independent telephone company; and the terminal equipment gear itself, owned by the user and supplied by an independent manufacturer. Again the familiar issues are raised about competition between a monopoly and other organizations, a large organization such as AT&T and smaller organizations, and a regulated entity vs. unregulated entities.

In the household another kind of customer premise equipment has always been unregulated: the television set. Insofar as broadcasting is seen as part of the same market as telephony (and it does compete in several ways), then this too is a relevant piece of equipment. In Britain where videotext systems are further advanced than they are in the United States, Prestel is provided via a connecting device to the ordinary television set. In this country, there would be major questions about the ownership of the connecting device and its control.

The television set is already the terminal device for cable television systems including the interactive ones. Experiments are being conducted with the interactive cable systems as mediums for banking, burglar alarms, health care and data base services. As these come into growing competition with the telephone systems, we have a tradition of the customer owning a major piece of terminal equipment.

In our own office, we subscribe to more than one of the data services currently available over telephone lines. For each of them we have a different terminal. Although there is no evidence of the use of standards on the part of a dominant supplier to curtail competition, this is a problem for which one must be alert.

SUMMARYFindings From The Present

- There appear to be plenty of competitors for most market segments. This is not surprising, as information in all its aspects has become recognized as a high-growth area. In many cases competitors come from differing backgrounds, and function under different regulatory status.
- For better or worse, the telcos maintain a major presence in many markets, including some that are monopolies. They have a large joint and common plant, and over 50% of their costs are joint and common costs. They link these markets to each other.
- Benefits claimed for the traditional monopoly market structure include subsidy of socially desirable services and major research breakthroughs, economies of scope and scale, long equipment service life, and strong network integration, command, and control.
- Benefits claimed for competition include efficient allocation of resources, cost-related pricing, rapid adoption of new technology, innovation, and system diversity.
- In the present political climate, the die is cast for greater entry into markets where possible. A mix of competitive and monopolistic structures is the only possibility for the near future.
- The presence of monopolistic and competitive structures in the same market are claimed to pose a threat to the benefits of each other.
- A desirable goal would be to mix the approaches so that the benefits of each are maximized, and the harm they can do to one another is minimized.
- Some specific questions concerning implementation of this goal seem to be common to many markets and submarkets. These questions, in turn, generate problems and issues.

Questions for the Future

- How broadly do we need to look before we can understand the market? I would argue that we need to understand the alternate ways to fill the same function. This carries each market segment well beyond its traditional boundaries.
- Can a single multi-product carrier organization providing services in a number of markets do the job better and/or cheaper than a number of smaller competing organizations, some of them active in only one market?

- With more entry in many markets, can fair, cost-related pricing be determined for a multi-product organization which maintains a major monopoly somewhere?
- Competitors are coming from different traditions and are subject to varying regulatory oversight. Does this convey unfair handicaps or advantages on some of the suppliers? Does it eliminate the powers of the regulatory bodies and render them useless?
- Is there harm to the public through the possibility of fragmentation of the network? When does one detect the presence of such harm and what does one do about it?
- Opening of market entry creates a trend towards cost-related pricing. Will this cause certain socially desirable services or products to become so expensive, the marketplace will not provide them? What techniques are available to solve this problem should it arise?
- What are the implications of network fragmentation for national defense? Is there possible harm to command and control of the network -- to its security, and to its survivability?
- Does a competitive market allow for accumulation of the capital required for major, expensive technological breakthroughs and innovations or is another mechanism, such as maintenance of a large, ongoing research organization like Bell Telephone Laboratories necessary?

In each of the three areas we have discussed, these common questions seem to apply. This is not surprising as the different markets are deeply interconnected, and/or competitive, both logically and institutionally. Where the participants perceive common stakes in these questions, a participatory decision-making method is probably possible. Where they perceive opposing stakes, political accommodations will be necessary.

EXHIBIT A:

4/23/81

PROGRAM ON INFORMATION RESOURCES POLICY

Harvard University

Center for Information Policy Research

Contributors

Action for Children's Television
 American Broadcasting Companies, Inc.
 American District Telegraph Company
 American Telephone & Telegraph Co.
 Arthur D. Little Foundation
 Auerbach Publishers Inc.
 Automated Marketing Systems
 Bell Canada (Canada)
 A.M. Belo Corporation
 Beneficial Management Corporation
 Boston Broadcasters, Inc.
 The Boston Globe
 Booz-Allen Hamilton
 Cable and Wireless, Inc.
 Canada Post (Canada)
 CBS Inc.
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 Hughes Communication Services, Inc.
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 Information Gatekeepers, Inc.
 International Data Corporation
 International Paper Company
 International Resource Development, Inc.
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 Mead Data Central
 Minneapolis Star and Tribune Company
 MITRE Corporation
 Motorola, Inc.
 National Association of Letter Carriers
 NCR Corporation
 National Telephone Cooperative Assoc.
 New York Times Company
 Nippon Electric Company (Japan)
 Norfolk & Western Railway Company
 Pitney Bowes, Inc.
 Public Agenda Foundation
 Reader's Digest Association, Inc.
 Reuters Limited (United Kingdom)
 Salomon Brothers
 Satellite Business Systems
 Scott & Fetzer Company
 Seiden & de Cuevas, Inc.
 Source Telecomputing Corporation
 Southern Pacific Communications Company
 Standard Shares
 St. Regis Paper Company
 Swedish Television (Sweden)
 Telemation Management Group, Inc.
 Telesat Canada (Canada)
 Times Mirror Co.
 Transamerica Corporation
 The Toronto Star (Canada)
 The Tribune Company
 United Parcel Service
 United States Government:
 Central Intelligence Agency
 Department of Commerce:
 National Technical Information Service
 National Telecommunications and
 Information Administration
 Department of Defense:
 Defense Technical Information Center
 Department of Energy
 Federal Communications Commission
 National Aeronautics and Space Admin.
 National Security Agency
 United States Postal Rate Commission
 United States Postal Service
 United Telecommunications, Inc.
 The Washington Post Company
 Western Union
 Xerox Corporation

EXHIBIT BPARTIAL SCHEDULE OF OVERLAPPING CARRIER SERVICES

The consumer of telecommunications services has an increasingly large menu from which to choose. Business, residential, rural and city users of electronic carrier services will, in the mid-1980's, select among transmission systems and information services which provide similar and often substitutable carrier alternatives in matching purchases, investments and needs. The regulatory mechanisms at the federal and local levels do not have rules which are transparent to the substitutable combination of telecommunications and information services. Regulatory tools and precedent today segregate transmission and programming standards, directing investors and users toward uniform applications.

Technological change has dimmed the jurisdictional lines between broadcast, common carrier, private radio, and cable regulation. There is a drawing together and overlapping of traditional areas of regulation where technical opportunities and institutional responses have begun to blur reallocation of spectrum and service regulatory responsibilities. The new dimensions of spectrum and capacity are being formed by alternative methods of transmission traditionally regarded as indigenous to service definitional boundaries (e.g., where spectrum and technology fit Commission rules). Economic, political, and technological factors are changing the nature of the pipeline for information transfer systems.

In presenting a menu of overlapping carrier services the following outline necessarily omits substitutes for telecommunication services which extend beyond the purview of regulation.

This schedule has been abstracted from research in progress of Laurence Povich, an FCC employee currently in residence at Harvard.

The categories displayed in this schedule are those currently used by the FCC to classify services. The extent to which they are substitutable for one another depends on the particular needs of the user as well as flexibility in traditional areas of regulation. But the presence of overlaps is quite clear.

This listing does not include all services on the market. Those which do not reach the FCC--such as the U.S. Postal Service, some intracompany communications, video disks and audio tapes--are absent.

Multi-Point Distribution Service

Multi-Point Distribution Service (MDS) provides an omnidirectional radio service that operates locally using the microwave spectrum. MDS is generally a one-way service, although it can be used in conjunction with other methods of transmission, such as telephone lines, to provide two-way communications. These regulated common carriers create "pipelines" to connect "local" as well as interexchange areas for services such as subscription television, financial and market information and various business and educational applications. As common carriers, they do not carry the content review limitations applicable to broadcast.

TABLE 1 - Number and Regulation of
Multi-Point Distribution Services

<u>Channel</u>	<u># of MDS Providers*</u>	<u>Regulatory Agency</u>	<u>Type of Regulation</u>
1st	393	FCC regulates as common carrier	Spectrum Allocation
2nd	195		
2A	163		

* Estimate includes mutually exclusive and other pending applications in 100 largest standard metropolitan statistical areas.
Source: Federal Communications Commission

Subscription Television

Subscription Television (STV) is regulated as a broadcast service under the rules for radio and television transmission intended for public reception. Its regulatory standard is the "public interest." Broadcast regulation authorizes broadcast stations and imposes financial, programming, legal and technical requirements on licensees. Regulation requires the STV broadcasters to provide some "non-pay" public service programming.

UHF Low Power Television

The Broadcast Bureau is processing thousands of low power TV station license applications. These limited range TV stations are designed to encourage the growth of TV programming in smaller markets and segments of major markets. Its goal is furthering media diversity. Low power TV applications were closed by the Commission after receiving approximately 5,000.

AM and FM Broadcast Subcarrier

Communications Subsidiary Authorizations (CSA), if authorized by the FCC, will provide services in utility load management, paging, traffic light control, and business data or leased services without degrading the primary broadcast signals. These services will be available both during and following the regular broadcast program.

Direct Broadcast Satellites

Direct Broadcast Satellite (DBS) systems provide broadcast transmission and program services directly to users via earth-circling communications satellites.

Comsat's application for a broadcast content/transmission system has been accepted by the FCC. The Commission anticipates two or three additional applications.

Satellite-to-Rooftop with Cable and Microwave Delivery Options

Several common carrier applications to provide domestic fixed satellite commercial private network systems include:

- ATT/GSAT COMSTAR private line end to end service;
- Domestic fixed satellite transmission in 1983 and 1984 (DOMSAT) from Hughes, RCA, Western Union, and Southern Pacific Communications;
- Satellite-to-rooftop data transmission from Satellite Business Systems (SBS);
- Digital radio services (approximately 30 applicants anticipated for 7 frequencies). Xerox has made application to the Common Carrier Bureau.

Domestic Public Land Mobile Radio Services

Cellular mobile services are anticipated to be comparable in quality to landline message telephone services.

The first applications will be accepted by the FCC in December 1981. Services will be approved for wireline carriers and non-wire carriers on frequencies compatible throughout the country. Single cell offerings will also be considered.

TABLE 2 - Land Mobile Radio
and Telephone (Mobile Carriers)

<u>Service</u>	<u># of Providers</u>	<u>1979 Revenue (millions)</u>	<u>Regulator</u>
Radio Common Carriers	737	\$ 228	FCC Common Carrier Bureau
Telephone (mobile)	442	N.A.	FCC Common Carrier Bureau
Private Radio Services	a	N.A.	FCC Private Radio Bureau ^b

- a. 779,000 stations have been authorized. There are an estimated 33,000 additional applications pending.
- b. The private radio bureau has regulatory responsibility over two-way communications by individuals and private industry and non-federal and local government. This includes police, fire, aviation, ham and CB radio. Also included are private land mobile radio systems, which are two-way systems that may be connected to the wireline telephone network.
- N.A. not available.

Source: Federal Communications Commission

Cable Television

Regulations, although greatly reduced, continue to require "must carry" local signals. Signals are distributed via cables which are physically connected to subscribers' locations. There were approximately 4,400 systems at the end of 1980, owned by about 50 major firms, producing revenue of about \$1.9 billion. Regulation is primarily at the local level.

Telephone and Record Service

Common carriers provide services upon "reasonable" request and at reasonable rates, terms and conditions, without discrimination. Regulatory practice implements the Communications Act mandated through control of market entry and exit, licensing, and rate regulation.

TABLE 3
Telephone and Related Common Carrier Services

<u>Service</u>	<u># of Providers</u>	<u>1980 Revenue (millions)</u>	<u>Regulator</u>
Basic Telephone AT&T	25 ^a	\$ 51,900	50 State Public Utility Commissions, FCC, Common Carrier Bureau
Other telephone companies	1,483	10,300	
Value-Added Carriers	4	800 (est.)	FCC, Common Carrier Bureau
Misc. Microwave Carriers	48 (est.)	31.5	FCC, Common Carrier Bureau
Specialized Common Carriers	6 ^d	246.9 (est.)	FCC, Common Carrier Bureau

a AT&T operating companies.

b Packet switch/domestic record carries. Exclusive of resellers who own or lease facilities. The four providers are Tymnet, Western Union, Graphnet, and GTE/Telenet.

c For example, satellite and terrestrial carriers of CATV signals.

d MCI, Western Union Metro, Southern Pacific Communications, USTS, Western Telecom, ITT Citycall.

[Whereupon, at 5:15 p.m., the hearing was adjourned, subject to the call of the Chair.]

STATUS OF COMPETITION AND DEREGULATION IN THE TELECOMMUNICATIONS INDUSTRY

WEDNESDAY, MAY 27, 1981

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TELECOMMUNICATIONS,
CONSUMER PROTECTION, AND FINANCE,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 2322, Rayburn House Office Building, Hon. Timothy E. Wirth (chairman) presiding.

Mr. WIRTH. The subcommittee will come to order.

Today is the second day of our subcommittee's inquiry into the status of competition and deregulation in the telecommunications industry.

Last week, the subcommittee took a general look at the reasons for regulation, and the yardsticks to use to determine when deregulation is appropriate.

This week, our witnesses will define more specifically the markets within which various telecommunications products and services compete.

Our goal today—and throughout these hearings—is to lay a foundation of facts for legislation to be introduced in September or October.

Our inquiry into various telecommunications markets and the status of competition in each will enable the subcommittee to draft legislation that deregulates the industry in cases where deregulation is appropriate, but retains regulation in those instances where market forces have not yet matured.

Witnesses this morning and tomorrow will appear on panels that correspond to rough divisions of the telecommunications industry—information, including video, text, data bases, and data processing; local distribution facilities and services; customer premises equipment, including telephone handsets, computer terminals and telephone switching equipment; and long distance transmission facilities and services.

Today's panels will examine the information and local distribution chunks of the telecommunication's industry and break them down into markets. Within the information segment of the industry, for instance, which products and services compete against each other? Where will new products and services fit in? Can we talk about a video market as distinct from a text market?

Witnesses will also explore the varying regulatory treatment accorded to similar products or services.

(171)

Thus, major change casts a long shadow before it, allowing those who have followed the process with some attentiveness to make appropriate adaptive responses.

Thank you for the opportunity to appear today.

[Testimony resumes on p. 253.]

[Mr. Compaine's prepared statement and attachments follow:]

Testimony of Benjamin M. Compaine before the
Subcommittee on Telecommunications,
Consumer Protection and Finance

House Committee on Energy and Commerce

May 27, 1981

INTRODUCTION

My name is Benjamin M. Compaine. I am Executive Director, Media and Allied Arenas, of the Program on Information Resources Policy at Harvard University. I hold a similar position with the Center on Information Policy Research, (biography attached as Appendix A). The Program is a research organization supported by about 100 diverse organizations involved in the information industry (list of supporters is attached as Appendix B). We do no proprietary consulting and all of our work is available to the public. My testimony today does not necessarily reflect the position of any of our supporting organizations.

My objective in this testimony is to describe the content side of the telecommunications business. I will focus on the traditional information providers and how technology is playing havoc with the traditional boundaries that served to separate the media from one another and from apparently unrelated businesses. My remarks should be viewed in the context of previous testimony submitted by my colleagues, John LeGates and John McLaughlin.

As in the traditional telecommunications industry, the world of the information supplier is rapidly changing. The so-called media businesses--newspapers, magazines, television, radio, etc.--are discovering a convergence with one another and with other information carrying processes, including cable, satellites and the computer/telecommunications network.

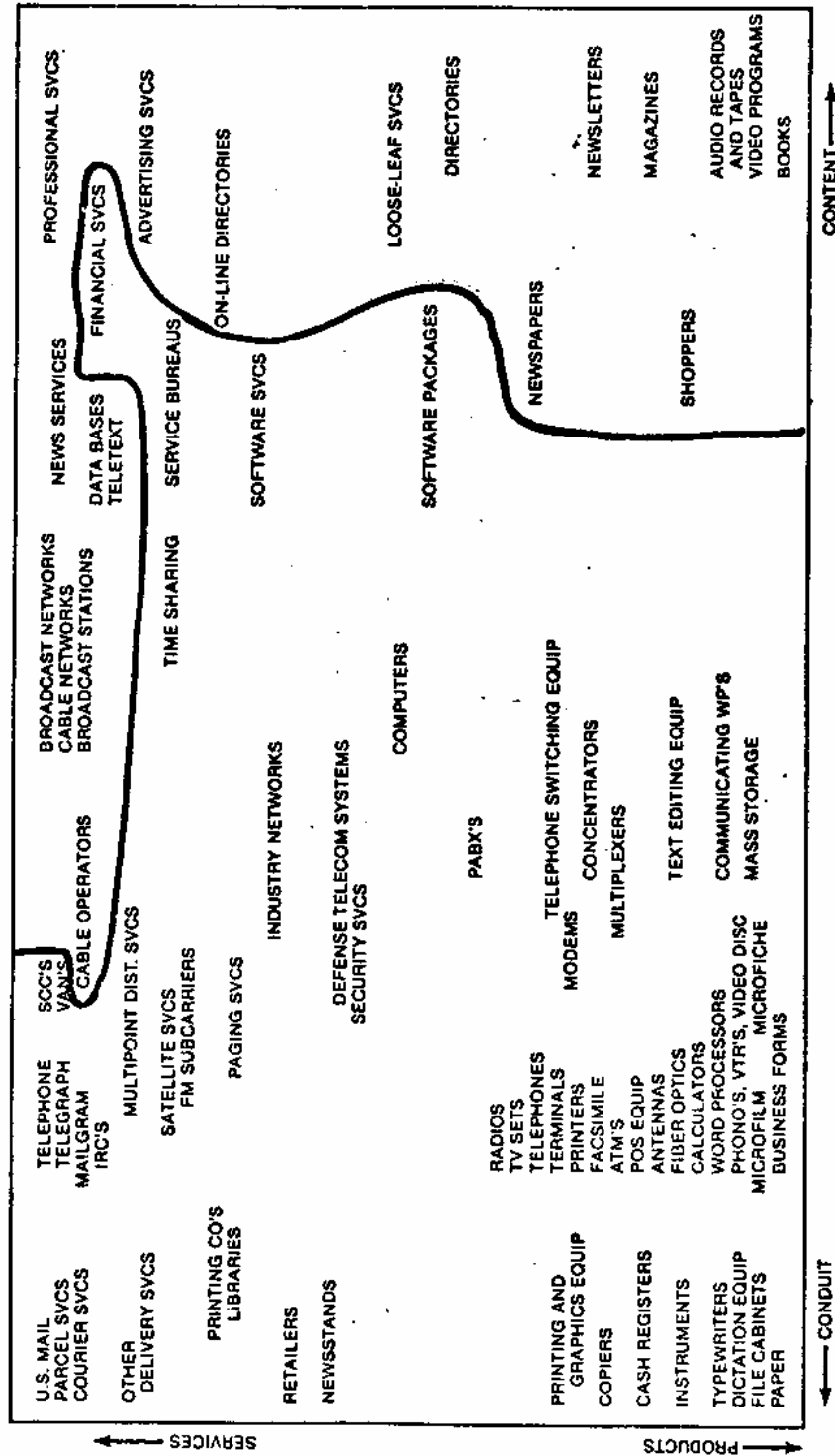
SIZE AND SCOPE OF THE TRADITIONAL MEDIA BUSINESS

As sketched on our information business map (Figure 1), the businesses I am describing occupy roughly the extreme right quadrant along the conduit/content axis and vertically spans the range of both products and services. The media include the virtually pure service function of the news wire services used by publishers as well as the pure products called books or magazines. But they also stretch two-thirds of the way towards the conduit limit in the services, reflecting the broad range of transmission vehicles that are becoming available for distribution conduits. To the extent that information services are using the telephone network to transmit computer-based content, the line could be extended further West. Indeed, given the substantial reliance of magazine and book publishers on the Postal Service and private delivery services, one could argue that the media extend completely along the East-West axis as well. Our demarcation criteria in 1981 are based on the extent to which the conduit operator has responsibility for content. Cable and broadcast operators do make content decisions, whereas today the telephone companies and Postal Service are common carriers and thus exercise no substantial content decisions.

Compared to the telecommunications business, the entire media and entertainment business is relatively small. As derived from Table 1, the mass media businesses--encompassing newspapers, broadcasting, cable, motion pictures, magazines, books and advertising together--were about the size of the telephone industry alone--\$50.6 billion in 1979. Expressed another way, all the Time Inc.s, CBS's, Times Mirror Cos. and Telepromoters combined had revenue roughly equal to that of the American Telephone & Telegraph Co., which accounts for 85 percent of telephone industry revenue.

Traditionally, we have tended to divide the media industry into two segments: the print media and the electronic media. The latter covered television and radio

Figure 1
THE MEDIA BUSINESSES, 1981



(4)

Table 1

Revenues and Expenditures on the Information Industry, 1970-79
(See explanatory notes, Appendix D)

INDUSTRY OR INSTITUTION	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	(in billions)									
Communications										
Computer Software and Service Suppliers	\$ 1.6	\$ 1.8	\$ 2.1	\$ 2.6	\$ 3.2	\$ 3.8	\$ 4.5	\$ 5.3	\$ 6.3	\$ 7.5
Computer Systems Manufacturers	b	b	12.2*	14.4*	16.6*	18.8*	21.2*	23.8*	28.0*	31.2*
Electronic Components and Accessories	7.3	7.3	8.8	10.8	11.3	10.1*	12.4*	15.2*	17.6*	20.3*
Mobile Radio Systems	1.9*	2.2*	2.4*	2.6*	2.9*	3.2*	3.5*	4.2*	5.0*	a
Satellite Carriers	0.0*	0.0*	0.1*	0.1*	0.1*	0.2*	0.2*	0.2*	0.2*	0.3*
Telegraph	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Telephone	18.2	20.0	22.6	25.5	28.3	31.3	35.6	40.1	45.2	50.6
Terrestrial Common Carriers	0.0	0.0	0.0	0.0	0.0	0.0	0.1*	0.1	0.2	0.3
Media and Entertainment										
• Advertising	1.4	1.4	1.6	1.7	2.0	2.1	2.5	2.8	3.5	4.0*
• Broadcasting										
Radio	1.1	1.3	1.4	1.5	1.6	1.7	2.0	2.3	2.6	2.8*
TV	2.8	2.8	3.2	3.5	3.8	4.1	5.2	5.9	6.9	7.9*
• Book Publishing	2.4	2.7	2.9	3.1	3.3	3.5	4.0	4.9	5.5*	6.0*
• Cable TV	0.3	0.3	0.4	0.5	0.6	0.9	1.0	1.2	1.5	1.5*
• News Wire Services	0.1*	0.1*	0.1*	0.1*	0.1*	0.1*	0.2*	0.2*	0.2*	0.2*
• Motion Picture Distribution and Exhibition	1.2*	1.2*	1.4*	1.8	2.3	2.5	2.4	2.7	3.4*	3.6*
• Newspaper Publishing	7.0	7.4	8.3	8.9	9.6	10.4	11.7	13.0	14.5*	16.1*
• Organized Sports, Arenas	1.1	1.2	1.2	1.2	1.4	1.4	1.6	1.7	1.8	2.1
• Periodical Publishing	3.2	3.2	3.5	3.9	4.1	4.4	5.0	6.1	7.3*	8.2*
• Printing, Book and Commercial	8.8	9.1	10.0	11.0	12.0	12.9	14.9	16.5	18.4*	20.3*
• Radio and TV Communications Equipment	9.3*	8.7*	9.1	9.7*	10.6*	11.9*	13.2*	14.5	a	a
• Theaters	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Postal										
Postal Service	6.3	6.7	7.9	8.3	9.0	10.0	11.2	13.0	14.1	16.1
Private Information Delivery	0.8*	1.1*	1.3*	1.5*	1.7*	2.1*	2.3*	3.0*	3.5*	4.3*
Financial and Legal										
Banking and Credit	61.1*	68.9*	77.6	101.3	136.2	132.7	144.7	a	a	a
Brokerage Industries	40.6*	47.4*	55.3	61.0	64.1	69.1	80.6	a	a	a
Insurance	92.6*	103.5*	113.8	123.6	133.2	148.8	173.1	a	a	a
Legal Services	8.5	9.6	10.5	12.2	13.7	14.8	16.2	a	a	a
Miscellaneous Manufacturing										
Paper and Allied Products	9.5	9.8	11.0	12.9	17.0	16.2	18.9	20.2	23.4*	25.6*
Photographic Equipment and Supplies	4.4	4.7	5.6	6.4	7.5	7.6	8.8	9.9	12.0*	13.3*
Miscellaneous Services										
Business Consulting Services	0.9*	1.1*	1.1*	1.5	1.7	1.8	2.2	2.7*	3.2*	a
Business Information Services	0.8*	0.9*	1.0*	1.1*	1.1*	b	b	b	2.1*	b
Marketing Research Services	b	b	b	b	b	0.3*	0.4*	0.4*	0.5*	0.6*
Total Revenue	\$ 293.7	\$ 324.9	\$ 376.9	\$ 433.3	\$ 499.6	\$ 527.3	\$ 600.1	\$ 710.7	\$ 727.7	\$ 843.7
Government Expenditures										
Census Bureau	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
County Agents, Government	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6*
Libraries	2.1	b	b	b	b	b	b	b	5.4*	b
National Intelligence Community	5.6*	5.4*	5.4*	5.7*	5.9*	6.3*	6.7*	7.4*	7.8*	8.3*
National Technical Information Service	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Research and Development	25.9	26.6	28.8	30.6	32.8	35.3	39.0	43.0	48.3	51.3*
Schooling	70.4	76.3	83.3	89.7	98.0	111.1	121.8	131.0	140.4	151.5
Social Security Administration	1.0	1.2	1.3	1.4	1.8	2.2	2.6	2.7	3.0	3.2
Total Expenditures	\$ 104.5	\$ 109.9	\$ 119.3	\$ 127.9	\$ 139.0	\$ 155.4	\$ 170.7	\$ 184.7	\$ 205.6	\$ 218.1

*Included in media industry

Source: Program on Information Resources Policy, Harvard University.
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be reproduced without permission.

(5)

broadcasting. These distinctions were formed on the basis of the process used to deliver the content to end users. Thus, an Associated Press story received by a newspaper was set in type and printed on paper. A version of the same event received by a radio station would be read over the air--usually in a more condensed fashion. Though the content of both media could be the same, the process for distributing it to the end user differed (although the process of getting to the publisher or broadcaster--"the wire" was identical). And the format in which it was ultimately displayed to the user differed: ink on paper in the case of the newspaper, sound produced by a vibrating speaker cone in the case of the radio broadcast. Table 2 summarizes the major forms of distribution for traditional media.

(6)

TABLE 2

PRIMARY FORMS OF DISTRIBUTION OF TRADITIONAL MEDIA

<u>Traditional Medium</u>	<u>End-Product Format</u>	<u>Primary Distribution Mechanisms</u>
Newspapers	ink-on-paper	Press to paper to: Trucks to carriers for home delivery and newsstands.
Magazines and Newsletters	ink-on-paper	Press to paper to: 1. Postal Service to addressee 2. Trucks/train/plane to private carrier to addressee 3. Trucks/train, etc. to wholesalers to retailers to buyer
Books	ink-on-paper	Press to paper to: 1. Trucks/train, etc. to wholesaler (sometimes) to retailer to buyer 2. Postal Service to addressee 3. Private carrier to addressee
Television/Radio	video/audio	Telephone company or alternative circuits to: local broadcast transmitter to user receivers
Messages 1. written 2. oral	ink-on-paper audio	Postal Service to addressee Telephone lines, switched to recipient
Motion Pictures	visual projection of light through film, with optical audio soundtrack	Common carrier trucks or Postal Service to theatres.

Source: Program on Information Resources Policy
Harvard University, Cambridge, MA 02138.

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NEW DISTINCTIONS AND OLD SIMILARITIES

As we know, these distinctions are less useful today. Using the Mead Data Central's Nexis Service or CompuServe's MicroNet, we can use a TV-like box to read the text of The Washington Post, among other "print" media. In fact, the bulk of a newspaper's internal operations today use electronic processes. Stories are composed using keyboards with video display of text. Copy may be composed on terminals away from the main office and transmitted via telephone lines. The stories and advertising copy are stored in computers and transmitted in-house to the terminals of editors who work on the stories. Only at the end of the production flow is the electronic process married to the traditional mechanical one for printing and distribution.

In the area of more conventional television programming, it is no longer possible today for an observer to be sure how the picture on the television screen got there. Many homes today have the option of seeing programming from off-the-air transmission, via cable transmission, via a video cassette or a video disc. The over-the-air transmission may be via VHF, UHF, low power UHF, or microwave. Similarly, the user of a data service, such as CompuServe, can be tied to the VDT using the switched telephone lines or by cable.

Table 3 provides a sampling of services being offered or proposed using some form of electronic delivery or display. A glossary of some of these and other services is provided in Appendix C.

In summarizing the shift in the print portion of the traditional media, we can look at what print looks like using our information maps. The publishing process in the mid-20th century could be sketched as in Figure 2. Here, content creators, such as writers, artists, etc. (1), relied on mechanical devices and paper (2) to turn the content into a product, such as a book, newsletter, etc. (3), which was then physically distributed by the Postal Service, truckers and others to retailers or end users. Notice that the

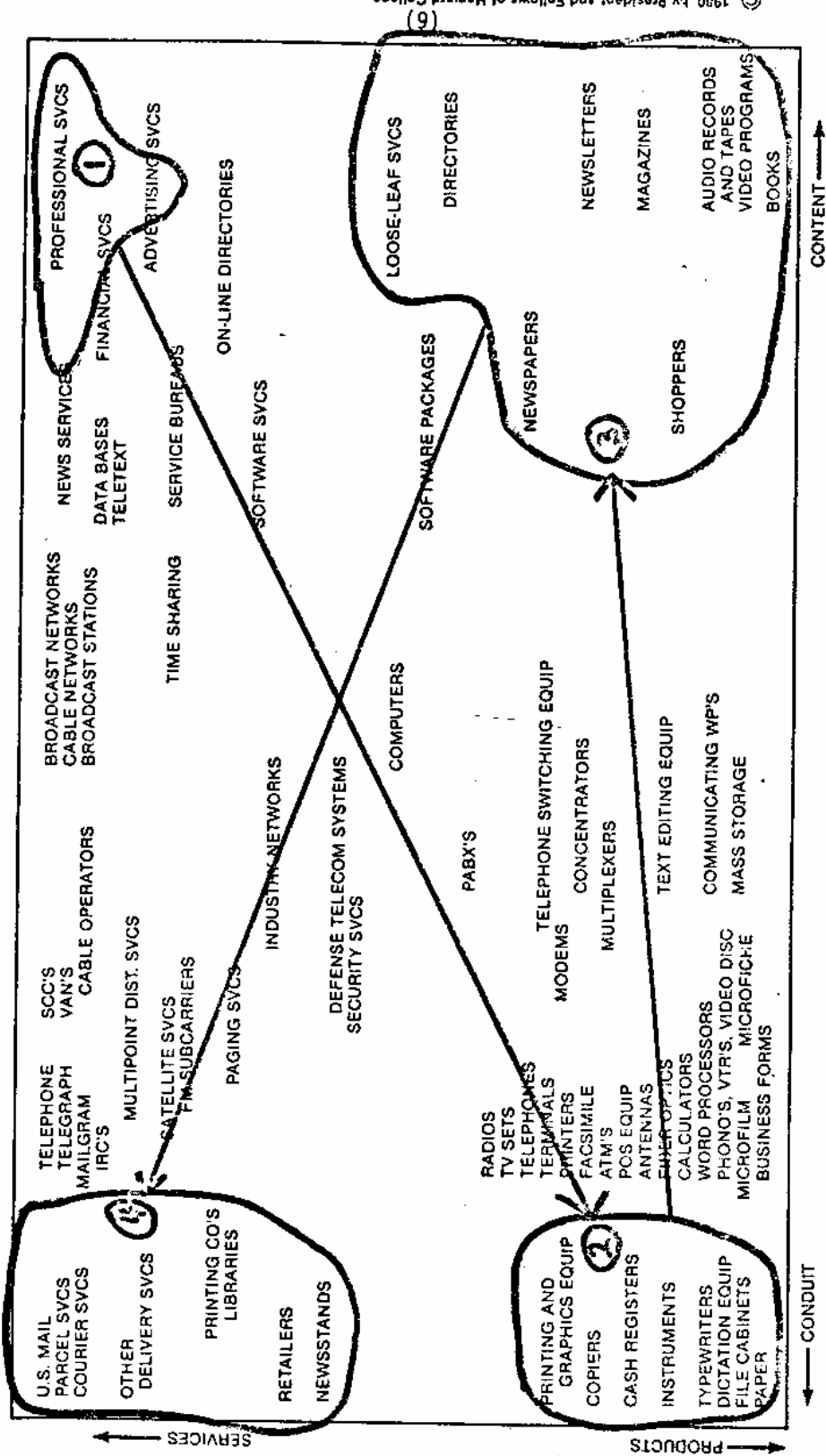
(8)

TABLE 3

EXAMPLES OF SERVICES OFFERED VIA ELECTRONIC CONDUITS

	<u>ONE WAY</u>	<u>INTERACTIVE</u>
	<u>BASIC</u>	<u>BASIC</u>
CABLE	<ul style="list-style-type: none"> -retransmission of broadcast signal -new networks <ul style="list-style-type: none"> - sports - demographic - special interest <ul style="list-style-type: none"> - news, sports, - shopping (telephone order) -text 	<ul style="list-style-type: none"> -as one way -referenda -shopping, on-line ordering -classified ads
	<u>PREMIUM</u> - Flat rate	<u>PREMIUM</u> - Pay per view
	<ul style="list-style-type: none"> -feature films -high culture -special sports and entertainment 	<ul style="list-style-type: none"> -as in one way -games -information services -security services
B'CAST	Traditional commercial and public TV & radio Direct b'cast satellite to homes, apts. - premium cable offerings Teletext	Ability to capture and hold desired frame.
OFF-LINE	Video discs <ul style="list-style-type: none"> -theatrical films -special interest programming Video cassettes <ul style="list-style-type: none"> -films -special interest -off air recording -home movies 	Discs <ul style="list-style-type: none"> -programmed learning -random access reference -sales: catalogs Cassettes? Home computer
TELEPHONY	Recorded information services <ul style="list-style-type: none"> -weather -sports scores -stock reports -time -dial-a-joke -etc. 	Traditional voice Viewdata/data base access <ul style="list-style-type: none"> -tree structure -full keyboard <ul style="list-style-type: none"> •reference •news and information •shopping Financial transactions (EFT) Home security Electronic mail
Source:	Program on Information Resources Policy Harvard University	

Figure 2
THE TRADITIONAL PUBLISHING PROCESS



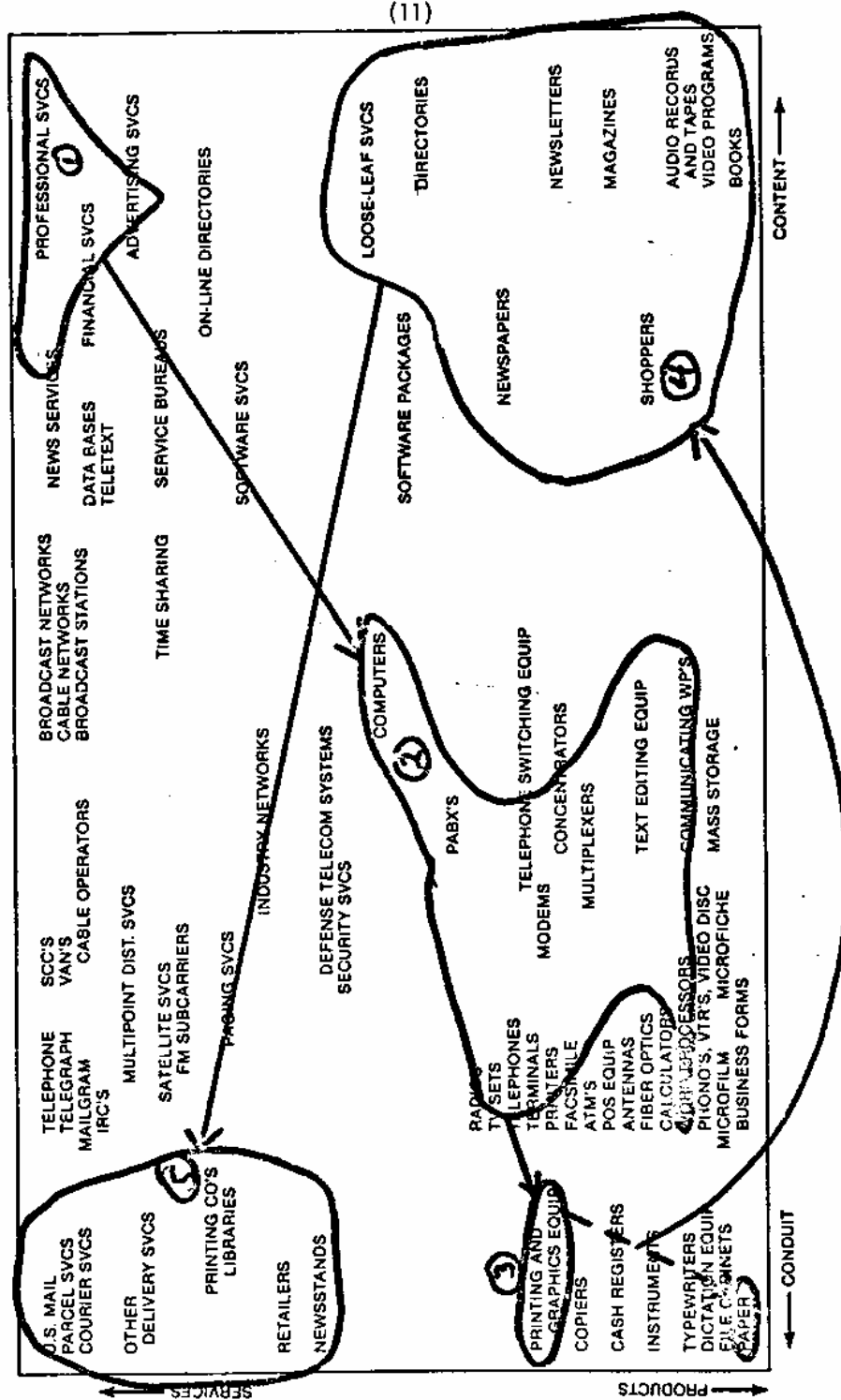
(10)

process relied on products and services in the corner of the maps. It is the same process that Gutenberg might relate to and certainly was familiar to Ben Franklin.

Today, many publishers are using a process only partly modified. Figure 3 shows that the content creation portion is the same (1). But a new group of machines with some intelligence, including computers, telephones and editing terminals, are used to input the content (2). Yet, presses and paper are still relied on (3) to produce a product (4). Distribution is still by physical delivery (5).

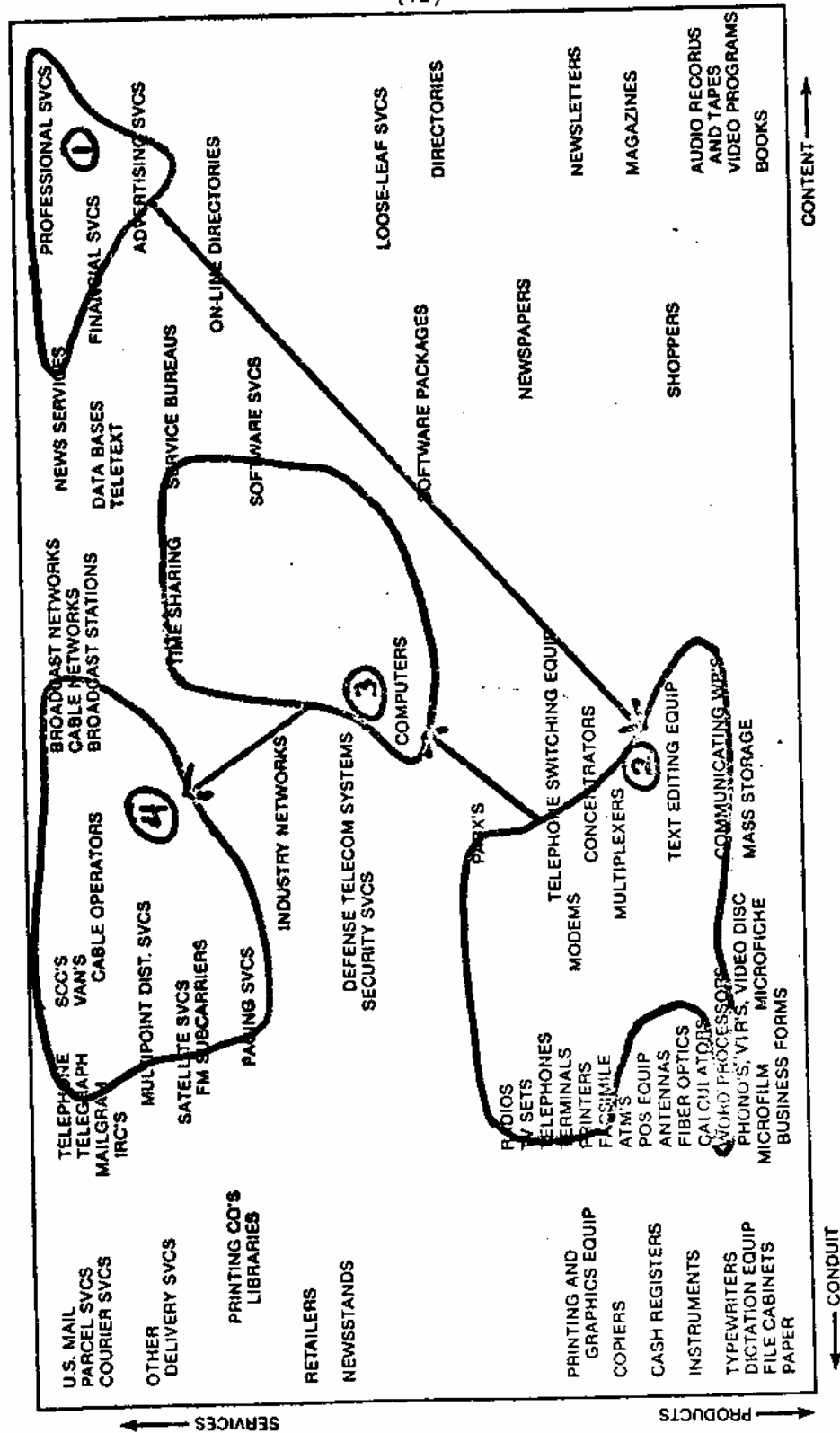
Figure 4 diagrams the evolving process for certain types of content previously published on paper. Again, content creation stays constant (1). The automated, computer-based equipment being implemented today is used for input, storage and editing (2). But by storing the finished product digitally (3) and making it available to users via one or more telecommunications links (4), the process for the first time bypasses those corner activities that have proven to be capital, labor, or energy intensive. In their place are the services and products of businesses that have become technological feasible mostly in the past 50 years and economically feasible for these tasks only in the past three or four years.

Figure 3
HYBRID PUBLISHING PROCESS



(12)

Figure 4
ELECTRONIC PUBLISHING



BASIC ECONOMICS OF THE MEDIA

The information and entertainment provided by the media industry is paid for by two sources. Much of it is financed by advertisers, who buy time or space. Indeed, many claim that the real product of the advertising-supported media is the audience they "deliver" for the advertiser's message. The second revenue stream comes from the users of the information products or services themselves. These include the subscription and circulation revenues paid for newspapers and magazines and the price paid for books and scholarly journals. A general summary of sources is seen in Table 4.

Traditional commercial broadcast television and radio, at one extreme, is financed completely by advertising revenue. Other than the price and maintenance of a television or radio receiver, the cost to the user is simply the electricity. Some magazines derive all revenue from advertising.

At the other extreme, books, some scholarly publications and many newsletters have been supported totally by their users. In fact, one way that a book may be distinguished from a magazine is by the former's lack of advertising. Actually, many journals have received some non-user support in the form of subsidies from sponsoring associations. Book publishers have historically benefited from an indirect subsidy in the form of special postal rates, but this is gradually being eliminated. In a few cases, some successful trade books have earned revenue by sales of movie rights, but this cannot be considered an integral part of industry economics.

In the middle ground, newspapers and magazines have received revenue from both subscribers and advertisers. Although averages by definition overlook the extreme, in general, consumer magazines derive between 55 percent and 75 percent of revenue from advertising, with the percentage highest for the largest circulation general interest magazines and lowest for small circulation literary or poli-

(14)

TABLE 4

Typical Sources of Revenue for the Traditional and New Media, 1981

	<u>% Advertising</u>	<u>% Circulation/Sales</u>
Daily Newspapers	65-80%	20-35%
Consumer Magazines	55-75	25-45
Trade/Professional Magazines	50-100	0-50
Newsletters	0	100
Books	0	100
Commercial Broadcasting	100	0
Cable Operations	5	95
Cable Programs	0-100	0-100
On-Line Data Base Publishing	0	100

Source: Benjamin M. Compaine. Program on Information Resources Policy, Harvard University.

(15)

tical magazines. Newspapers get 65 percent to 80 percent of revenue from advertising. Again, the larger metropolitan papers are at the high end.

In the case of newspapers in particular, the mix of advertising is germane for certain policy decisions. Most newspapers are a local medium. By contrast, television is a mostly national medium. As a result, the percentage of newspaper-advertising revenue derived from local accounts has increased as television moved into the media scene.* In 1950, 75% of newspaper advertising was local, the rest being from national accounts. By 1980, the local portion had climbed to 85 percent.

Among the emerging media, the method of revenue production is still evolving. Up to 1980, cable derived nearly all of its revenue from user fees. In 1980, it has been estimated that advertising provided perhaps 5 percent of total revenue for cable operators. Some distributors of cable programming, however, are looking increasingly to advertiser support for their ventures. Both ABC and CBS, for example, have announced plans for advertising-supported programming that will be distributed via cable. Movement in the cable arena seems to be in the direction of more of the original programming being advertising-supported in the traditional mold. But it appears that consumers will have the option to buy other pay services that will be user financed.

To date, most video cassettes and the handful of video discs have been user supported. Some trade press articles have speculated about advertiser-subsidized discs or cassettes, but it apparently has not yet been attempted. Neither audio records nor cassettes have found a niche in the subsidized category.

In the electronic publishing area, it is presumed by many that a truly mass market service cannot develop unless a way is found for advertisers to fill a role

*Local accounts include department stores, food markets, local automobile dealers, regionally based chain stores and national chain stores that make advertising decisions locally, and classified advertising. National ads are those from cigarette firms, liquor, wines and beer producers, automobile manufacturers, etc.

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similar to that provided currently for newspapers and magazines. Today, subscribers to CompuServe's system can have access to several newspapers, but at a cost substantially higher than purchasing the entire print version. For example, after 6 p.m., the cost to access The Columbus Dispatch is \$5.00 per hour, or \$.083 per minute of connect time. The entire paper costs \$.15 in 1980.

In England, part of the Prestel data bank is provided free by advertisers or publishers. An airline may provide data on its flight schedule. A newspaper provides pages of news. It is still too early to determine whether such services have long term viability for the suppliers.

In the business/institutional sector, users are paying relatively stiff fees to have access to information services provided by Dow Jones, Mead Data Central and others. But in this case, it is often cost-effective for users, based on the alternative labor costs in acquiring the sought-after information by conventional means. Moreover, many newsletters and reference services have long charged what to residential consumers would seem like high prices for specialized information geared to a narrow market.

REGULATORY CONFUSION AND PARADOXES

A reason for the blurring of the lines of distinction among the media is the developing technological systems that are increasingly transparent to content. For example, a digitized bit looks the same to a computer, a satellite transponder or a CRT's electron gun whether it is part of what will eventually become a Wall Street Journal facsimile page or of a Cable News Network transmission. Thus, it is somewhat misleading today to think in terms of markets for specific products, such as a newspaper or a television show. The more crucial distinction is among processes rather than formats.

However, we are still basing our decisions on regulation, market share, and antitrust on the rapidly fading industry definitions. The result yields some strange outcomes. For example, a broadcaster, for many historical reasons of technology and politics, must adhere to a "public interest" standard in judging the content of his or her programming. Broadcasters are licensed by the FCC. A newspaper has no such restrictions or obligations, other than those self-imposed by the ethics of the profession. The justification for these discrepancies in the context of the First Amendment has been in the scarcity of spectrum and public ownership of the airwaves compared to lack of such limits in print. The irony here is that most communities are served by only one newspaper while they may have more diversity in television stations. Recent movements to reduce regulations on radio are in part a recognition of this anomaly.

Similar paradoxes are developing elsewhere. Cable, which is generally regulated at the municipal level, has evolved into de facto exclusive franchises for each area. Thus, despite the 24 or 56 or more channels in a system, they are almost all under the complete control of the system's owners. Any non-broadcast signal provided by the cable operator has no fairness doctrine requirement. Cable today is thus much closer to the print model regarding content than to its seem-

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ingly closer cousin, broadcast television. Among other results, cable systems may thus show movies into the same homes, over the same receivers, that could not receive such programming in the past because a broadcaster would be in danger of losing his or her license under current regulations.

Furthermore, it is widely held that the best-selling prerecorded video cassettes have been for pornographic movies. But beyond this, should video disc machines become mass market items, the potential exists for video publishers to provide a wide range of programming for the home or institutional television set that bears none of the regulation affixed to broadcast television. Those few programmers using common carrier multipoint distribution services similarly may find that they march to a drummer other than do their broadcast regulated brethren. It is unclear at this time whether those planning to provide satellite-to-home transmission will have any content requirements.

The user, of course, is oblivious to many of these distinctions. The home viewer turns a dial or pushes a button on his or her cable unit and gets a variety of programming. What confusion will result when some political candidate tries to get equal time on a cable originated show or some special interest group finds that the programming of some religious, cultural or other cablecaster does not reflect fairness doctrine balance?

Similar confusion may reign on the "print" side. Several experiments around the country--in Los Angeles, Salt Lake City, Chicago and here in Washington--are planning on using a conventional video broadcast signal to transmit textual information. There is already some debate as to who controls the vertical blanking interval, which is one way of sending such teletext data to users with decoders attached to their conventional television sets. If The Chicago Sun-Times generates the information, does it or should it be held to broadcast content standards? Should the FCC provide separate authorization for use of the vertical blanking intervals?

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One of the battles on the print side involves the newspapers and the telecommunications industry, particularly AT&T. Among the issues this committee will have to resolve--and I don't envy your task--is the extent to which AT&T will be able to get into the content business. This encompasses not only electronically-stored and-transmitted news, weather, sports, consumer information, etc., but advertising that looks rather similar to Yellow Pages listings to Bell people and classified ads to the newspaper publishers.

Stakes

The stakes in this arena are considerable. Revenues for Yellow Pages advertising was about \$2.3 billion in 1979. Although a small piece of total Bell revenue, it is nonetheless a very profitable piece. For the newspapers, it is a major part of their revenue stream. At a large city newspaper, classified advertising, most of it from commercial accounts, provides about one-third of advertising revenue and as much as 25 percent of total revenue. On a per page basis, it is generally significantly more profitable than display advertising.

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UNKNOWN: CONSUMER PREFERENCES

While the technology has been the driving force in the shifting information industry boundaries, a major unknown is how consumers will actually react to the new offerings. How much will they pay to access information electronically that they now get as part of an inexpensive newspaper or magazine package? How much will the hardware cost them? The business/institution market is somewhat different. Here there is considerable precedent for acquiring subscriptions and hardware that are essential to the performance of the institutions' task or to increase its productivity.

But at the consumer level, behavior research has found that media use is not simply a function of a need to know or be entertained. Media are used in the context of situational and interpersonal needs, as well as the more obvious economic and demographic determinants.

What this means is that predicting what new media will be used to serve what function is not a very reliable exercise today. I am extremely skeptical of those who project the market for viewdata services or of the direct broadcast satellite business, etc. to be so many billion dollars by 1990 or whatever. As Confucius may have said, "Forecasting is a hazardous occupation, especially when it deals with the future." Indeed, even predicting the size of the market for existing commodities, such as newsprint, has met with embarrassing error to some over the past decade.

On the other hand, we are not without some gross guidelines in dealing with the future of the media. Table 5 is an extension of Charles Scripps' Constancy Hypothesis, largely developed by Maxwell McCombs of Syracuse University. The hypothesis says that the proportion of personal consumption expenditures (PCE) allocated for the mass media remains quite constant, regardless of movements in overall personal consumption expenditures. This figure has remained

(21)

Table 5. Percentage of Consumer Spending on Print and Audio-Visual Media, Selected Years, 1929-1979

Total Media Expend. as % of Per. Cons. Exp.	Percentage of Total Media Expenditures on:						Total AV Media ^a
	Newspapers, Magazines, Sheet Music	Books & Maps	Total Print	Radio, TV Recv'rs, Records Instruments	Radio & TV Repairs	Movie Adms.	
1929	3.37%	11.86%	32.51%	38.85%	1.00%	27.64%	67.49%
1933	2.76	12.04	45.24	15.45	1.11	38.19	54.75
1940	2.94	11.23	39.43	23.70	1.53	35.27	60.50
1945	2.82	15.44	44.10	10.22	2.61	43.07	55.90
1950	3.25	10.78	34.70	38.74	4.53	22.02	65.29
1955	2.94	11.64	36.74	38.53	6.97	17.81	63.31
1960	2.67	15.06	40.38	39.39	9.25	10.98	59.62
1965	3.00	15.98	38.21	46.61	8.00	7.19	61.80
1970	2.97	18.75	41.08	45.38	7.20	6.33	58.91
1975	3.05	13.68	37.45	48.16	4.46	9.93	62.55
1976	3.01	11.28	35.96	50.38	4.56	9.11	64.05
1977	3.06	11.93	36.07	48.66	4.27	11.00	63.93
1978	3.02	13.26	37.67	47.71	4.18	10.43	62.32
1979	2.89	13.68	37.45	48.16	4.46	9.93	62.55

^aTotal may not add to 100.00% due to rounding

Source: U.S. Bureau of Economic Analysis. Compiled by Benjamin M. Compaine, Program on Information Resources Policy, Harvard University

(22)

remarkably consistent since the 1930's at about 3 percent of PCE. This is despite the fact that during this period new media entered the marketplace, especially radio and television. Thus, over the years, consumers have spread their media dollars over a broader spectrum of products and services by reducing relative expenditures in one area--particularly movie admissions--to make purchases in other areas--particularly radio and television receivers. Nonetheless, an expanding economy has still permitted total dollars to increase even in those areas with a decline in share.

As a corollary to the Constancy Hypothesis, we can find a similar pattern in advertising expenditures as a percentage of Gross National Product. This has been near two percent over a long period. Again, the total pie in absolute dollars has grown, with the economy, but despite new media, especially television, advertisers have continued to spend a constant proportion on the media mix.

Implications for Policy Makers

What does all this mean for Congress and other policy makers. Most importantly, it strongly suggests that high though the stakes may be, we cannot accurately predict what information services and products will win or lose in the next decade or two. For example, it is not a sure thing that viewdata or teletext will replace any existing medium. Indeed, if anything, history tells us that new media tend to complement or supplement older forms, not replace them. Television forced radio to change its programming, but radio has thrived. On at least three occasions, pundits have forecast the end to the consumer magazine, but today it too thrives. Magazines such as TV Guide, Video, or Channels have sprung up over the years as the result of broadcasting and now other types of television. Sports magazines and news sections have been made more popular as the result of broadcast coverage of sporting events. Paperback books based on successful theatrical films or television specials are another example of the symbiotic relationship among the media.

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The implication for Congress is the need to be wary of those sources who predict what will be the information sources of the future and who will provide them. Crucial is provision for flexibility so that older industries can participate along with new entrants in whatever systems appear worthy of implementation.

The Constancy Hypothesis and what we know about consumer media behavior also indicates, however, that we may well be playing a zero sum game. That is, given the implicit media budget of consumers and even institutions, new services and products will undoubtedly draw off market share from existing players and their output. Some may still survive if the economy continues to expand rapidly enough. On the other hand, those who are in the media business today should be expected to seek out new processes for transmitting their information. That is, newspapers can and should be expected to explore cable, telephone, broadcast teletext or other conduits for their information and advertising, rather than just paper. Telephone companies similarly will want to provide information that is now paper-based to customers via their telecommunications network.

CONCLUSION

More than the development of some technology is necessary for it to find application. For example, nearly 400 years elapsed between the Gutenberg printing press and the appearance of the mass circulation newspaper. What was missing was the rest of the infrastructure that would make possible an inexpensive product, such as technology to produce cheap paper from wood pulp, an increase in literacy to help produce a market, and a rise in disposable personal income, not only to provide the funds with which individuals could purchase the paper, but also to create the environment for commercial interests to find it worthwhile to advertise mass consumption products and services. Not the least significant was the coming together of the steam engine with a rotary press--the former a distinct technology, the latter an improvement on the basic press. Combined, they provided the crucial elements in being able to offer an efficient means for producing a mass newspaper. The spread of the railroads and the stringing of the telegraph lines also extended the potential audience and coverage for publishers.

Although dissemination of technology appears to be more rapid in the 20th century than in the past, it is still dependent on the same factors of demand on the one hand and integration of technology into a system on the other, to produce an infrastructure that is socially, economically and politically appropriate for the culture.

Indeed, it could be further argued that technological advances can be encouraged or impeded by the existence of institutions--either private or public--that are already entrenched or perform similar functions. For example, neither radio, computers nor calculators met strong institutional barriers, and their dissemination was relatively swift. In some cases, the new

can help the old, as television has helped create interest for certain types of magazines (e.g., Sports Illustrated) or theatrical films for paperback versions of the book. In contrast, telephones, which competed more directly with well-entrenched postal and telegraph services, took nearly 100 years to become truly universal in Western society, particularly in those European nations where the government postal authority also had control over telephone and telegraph. Even in the U.S., it was not until 1946 that 50 percent of residences had their own phones. Economic, social and cultural barriers may also prevent or delay implementation of technology.

Undoubtedly, more recent media vehicles will eventually have some impact on older forms, just as the development of radio cut substantially into the share of advertising expenditures that had been held by newspapers or the share of personal consumption expenditures devoted to theatrical film was affected by television. But to the extent that new media duplicate services of entrenched old media, it may be decades before the effects are major.

It is generally accepted that the economics of information storage and transmission have changed, lowering costs. This appears to result from:

- 1) technological advancements in computers and associated integrated circuits;
- 2) the addition of earth communications satellites that can be used instead of or in combination with traditional land lines and microwave transmission;
- 3) improvements in conventional telephone facilities, including such services as packet-switching and others tied to the application of computers through telecommunications; and

4) general advancement in electronics that has produced potentially economical information storage and playback devices such as video disks and cassettes.

Thus, it may be argued that the "new media" are not really so new. Components of words, pictures and sound are the same. The display of textual material, just because it may be "written" on a video tube rather than on paper, is not revolutionary for the user; nor is the production of moving images and accompanying sound on a television set a novelty. What is different is the new alternatives that information users may have in accessing information--much (or most) of which already exists in some format.

Table 6 identifies alternative distribution processes as perceived in 1981 by the Program, especially as they apply to the residential market. It is this group of conduits that is the subject of the greatest uncertainty--whether as threats or opportunities.

The questions and descriptions presented in this paper give rise to policy issues which must be addressed by both public and private policy makers. A non-exhaustive list of those which should be most salient to this decade includes:

- 1) To what extent is an organization currently in the information creation business vs. the information distribution business? In what areas does the organization wish to operate?
- 2) Which mix of conduits are most appropriate for disseminating various forms of content to existing markets?
- 3) Which conduits do users want or will they use to receive desired information? (Includes balancing cost/utility, ease of use/speed, etc.)

TABLE 6. SOME CHARACTERISTICS OF RESIDENTIAL AND SMALL BUSINESS ELECTRONIC OR VIDEO DISTRIBUTION CHANNELS, 1980

Distribution Channel	Technological	Economic/Financial	Market	Regulatory	Issues	Intelligence	Major Limitations	Primary Format
Cable Including Premium Service	• 2nd gen potential • Extended outboard return • Limited bandwidth • Amplified channels (12-70 mhz)	• Capital intensive • Large cash flow • High operating profits • Economically supported	• Urban/suburban • Business/retail TV • Set penetration • Non-traditional TV viewers • Special interests	• Aggregate • Restrictive • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Traditional TV Broadcast Stations (incl. 3TV)	• Broadband • Limited spectrum • Wavelength disparities • Capable of encoding	• High entry cost for • Selling receivables • High equipment costs • High sales margins • ROI • Low time cost to user • In receiver • High programming from • No parties	• Nearly universal • Business/retail TV • Set penetration • Non-cable areas	• FCC licenses • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Multi-point Distribution Service	• Broadband • Microwave • Frequency • Low power	• Low entry cost for • In/Out broadcast • Shared microwave units • No cable	• Urban TV households • Where there is • No cable	• FCC • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Direct Broadcast Satellite TV	• Broadband • Microwave • Frequency • Low power	• Low entry cost for • In/Out broadcast • Shared microwave units • No cable	• Urban TV households • Where there is • No cable	• FCC • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Video Disc	• Optical or Analog • Optical or • Self-contained • Relatively large • Storage per disc • Exp. in digital	• Low capital investment • For program • Supplier • Shared equipment • Customer purchased • Receivers • Large cash flow • Other supported	• Urban TV households • Where there is • No cable	• FCC • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Video Cassette	• Self-contained • Complex mechanics	• Low capital investment • For program • Supplier • Shared equipment • Customer purchased • Receivers • Large cash flow • Other supported	• Urban TV households • Where there is • No cable	• FCC • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video
Telephone Network	• Analog/Digital • Narrow band • Switched	• Low capital investment • For program • Supplier • Shared equipment • Customer purchased • Receivers • Large cash flow • Other supported	• Urban TV households • Where there is • No cable	• FCC • Regulated • State/local • Regulated • Limited and • Licensed federal • Content controlled by franchisees	• Friendly • 2-wr. investment • Privacy • FCC content	• Great capacity • Need for new programming • FCC content • Limited content • Cable from	• Limited • Regulatory/political • Barriers for entry • Capital needs • Where will programming come from?	• Video • Video

Source: Prepared on Information Resources Policy, Harvard University

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- 4) Who controls--or should control--the various conduits, under what set of rules?
- 5) Who has access to these conduits as senders or receivers and under what conditions?
- 6) What interpretation of the right of freedom of the press as it exists in each society should apply to various conduits, e.g., the broadcast model, the print model, some new model?
- 7) To what extent should social or economic changes that result from new processes and formats of information distribution be anticipated? By whom and to what end?
- 8) What are the transnational implications of technologies that recognize no geographical boundaries?

Although we cannot predict the eventual outcome of the changing information technology, we do know that change is inevitable. Likewise, it is not necessary to know which systems will win out and which will disappear to anticipate possible outcomes.

It may help us to keep in mind three basic points about technological change. First, the impact of new technology on society comes about through its adoption, not by the mere fact of its creation. Second, technological change takes place through a rather orderly and predictable series of steps. Finally, these steps take time. Thus, major change casts a long shadow before it, allowing those who have followed the process with some attentiveness to make appropriate adaptive responses.

Thank you for the opportunity to participate in these subcommittee proceedings.

APPENDIX A

BENJAMIN M. COMPAINE is Executive Director/Media and Allied Arenas for the Program on Information Resources Policy at Harvard University. He joined the Program from Knowledge Industry Publications, Inc., where he directed and edited projects in library automation and technology, as well as economic and marketing studies of mass media industries. Previously he had taught marketing, management and journalism and was a consultant for firms such as IBM, William C. Brown Co., Publishers and W. B. Saunders Co. He has been the publisher or general manager of several weekly newspapers. As a freelance journalist, he has contributed to newspapers, magazines and annuals.

Among his books, studies and publications are *The Newspaper Industry in the 1980's: An Assessment of Economics and Technology* (1980), *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry* (co-author and editor, 1979), *Consumer Magazines in the 1980s* (1979), *The Book Industry in Transition: An Economic Analysis of Book Distribution and Marketing* (1978), and *"Shifting Boundaries in the Information Marketplace"* (1980).

Dr. Compaine has a degree in political science from Dickinson College, as well as an M.B.A. from Harvard and Ph.D. in mass communication from Temple University.

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APPENDIX B
PROGRAM ON INFORMATION RESOURCES POLICY

4/23/81

Harvard University

Center for Information Policy Research

Contributors

Action for Children's Television	Knowledge Industry Publications, Inc.
American Broadcasting Companies, Inc.	Lee Enterprises, Inc.
American District Telegraph Company	Lockheed Missiles and Space Company, Inc.
American Telephone & Telegraph Co.	MCI Telecommunications, Inc.
Arthur D. Little Foundation	McGraw-Hill, Inc.
Auerbach Publishers Inc.	Mead Data Central
Automated Marketing Systems	Minneapolis Star and Tribune Company
Bell Canada (Canada)	MITRE Corporation
A.H. Belo Corporation	Motorola, Inc.
Beneficial Management Corporation	National Association of Letter Carriers
Boston Broadcasters, Inc.	NCR Corporation
The Boston Globe	National Telephone Cooperative Assoc.
Booz-Allen Hamilton	New York Times Company
Cable and Wireless, Inc.	Nippon Electric Company (Japan)
Canada Post (Canada)	Norfolk & Western Railway Company
CBS Inc.	Pitney Bowes, Inc.
Central Telephone & Utilities Corp.	Public Agenda Foundation
Citibank N.A.	Reader's Digest Association, Inc.
Codex Corporation	Reuters Limited (United Kingdom)
Communications Workers of America	Salomon Brothers
Computer & Communications Industry Assoc.	Satellite Business Systems
Continental Cablevision, Inc.	Scott & Fetzer Company
Continental Telephone Corporation	Seiden & de Cuevas, Inc.
Des Moines Register and Tribune Company	Source Telecomputing Corporation
Direction Générale des Télécommunications (France)	Southern Pacific Communications Company
Doubleday, Inc.	Standard Shares
Dow Jones & Co., Inc.	St. Regis Paper Company
Dun & Bradstreet	Swedish Television (Sweden)
Economics and Technology, Inc.	Telemation Management Group, Inc.
Elsevier Science Publishers (Netherlands)	Telesat Canada (Canada)
Exxon Enterprises, Inc.	Times Mirror Co.
Federal Reserve Bank of Boston	Transamerica Corporation
First National Bank of Boston	The Toronto Star (Canada)
First National Bank of Chicago	The Tribune Company
France Telecom (France)	United Parcel Service
Frost & Sullivan	United States Government:
Gannett Co., Inc.	Central Intelligence Agency
General Electric Company	Department of Commerce:
General Telephone & Electronics	National Technical Information Service
Hallmark Cards, Inc.	National Telecommunications and
Hambrecht & Quist	Information Administration
Harte-Hanks Communications, Inc.	Department of Defense:
Hazel Associates	Defense Technical Information Center
Honeywell, Inc.	Department of Energy
Hughes Communication Services, Inc.	Federal Communications Commission
IBM Corporation	National Aeronautics and Space Admin.
Information Gatekeepers, Inc.	National Security Agency
International Data Corporation	United States Postal Rate Commission
International Paper Company	United States Postal Service
International Resource Development, Inc.	United Telecommunications, Inc.
International Telephone & Telegraph Corp.	The Washington Post Company
Italtel (Italy)	Western Union
Knight-Ridder Newspapers, Inc.	Xerox Corporation

APPENDIX C
DEFINITION OF TERMS

In this paper, information is used in a broad sense, to include all types of media content, including segments commonly called news, advertising, entertainment, literature, propaganda, graphic design elements, data, bits, etc. It does not include such highly subjective and even controversial conduits like body language or similar interpretive symbols.

The mass media includes the traditional products and conduits such as newspapers, magazines, books, periodicals, broadcasting, cable, etc. These terms are used for convenience only and with some hesitation, since the point of much of the proposed research is to highlight the difference between, for example, the newspaper as a physical product and as a collection of information that can be distributed in formats other than ink on paper.

Content is the information provided by the supplier and received by the user. It is composed of words, paragraphs, photographs, graphics, etc. Process includes conduits--the highways over which information travels--as well as the gathering, creation, and storage of the information. Format is the form in which the information is handled as well as type of display of the content (e.g., on a video tube, on paper, as sound, etc.).*

Among the terms that have appeared in the popular or professional literature to describe some of the newer processes, videotext is a generic term for all the various processes that involve sending textual material for display on a video display screen--often the home television receiver. Viewdata is in

* See Compaine, "A New Framework for the Media Arena: Content, Process, Format," Program on Information Resources Policy, Harvard University, 1980.

turn a generic name for videotext that involves interaction between the user who requests specific information from a usually vast computer-stored data base, with transmission both ways generally coming over conventional voice-grade telephone lines through the switched telephone network. Some proprietary viewdata systems are Prestel in Great Britain, Viewtron, Knight-Ridder's U.S. version, Telidon in Canada. Teletext, on the other hand, is a videotext system that is transmitted in the vertical blanking interval within a conventional televised broadcast signal or possibly through a cable channel. In general, teletext offers less information capability than viewdata and tends to be one-way rather than interactive, although individual screenfuls of desired data can be "captured" when sent and stay on the screen as long as the user desires.

Electronic data base services include viewdata services. The latter tends to be used for services directed to residential users (although there is no reason that it must be so) and in many installations to date they rely on an operationally simple retrieval protocol involving a simple numeric keypad for the user and a tree-structure system that gets users to desired information by a process of elimination. More sophisticated services, used by institutions at first, allow the user to search data bases using key words typed on a full alpha-numeric keyboard. Firms such as Source Telecomputing Co. (subsidiary of Reader's Digest Association, Inc.), CompuServe (subsidiary of H. & R. Block), and Dow Jones are marketing this type of view-data service to residential as well as institutional customers.

Video cassette recorders (VCRs) or video tape recorders (VTRs) became a consumer item in 1975 with the introduction of 1/2-inch model from Sony. They can play prerecorded video tape through a conventional television set or record programs received by the set. Video disk players today can only play prerecorded disks over the television set, but the disks are generally less expensive than identical taped prerecorded programs.

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Cable refers to the use of coaxial cable to deliver broadband video programming to the television set. It can also be used for sending signals from the subscriber back to the origination point (called the "headend") of the cable operator. Initial cable installations carried 12 channels and mostly retransmitted broadcast signals. Newer systems are specifying as many as 108 channels and most carry special programming not available by broadcast. Basic cable service includes the channels subscribers get for the minimum monthly fee. Pay-tv refers to premium programming, often theatrical films, for which subscribers must pay an additional fee. Most systems charge a flat rate for premium service, but a few charge on a per-program watched basis. Qube is Warner-Amex Cable Co.'s proprietary name for a two-way cable service that enables subscribers to respond to questions or other "action information" on certain channels.

Subscription television (STV) is essentially pay-tv sent usually over-the-air via a normal UHF signal. It is encoded so that it comes out scrambled when it is tune in, except for subscribers who pay a monthly fee for a decoder.

Multi-point distribution services (MDS) is a low-power broadcast signal, using microwave frequencies. It is being used to a limited extent for pay-tv services. Here, the subscriber needs a special receiver.

The switched telephone network refers to the common telephone service that allows, through a series of switches (or equivalents using digital technology) for any telephone in the world to reach any other telephone.

Direct broadcast satellite (DBS) is a service that would permit individual homes (or apartment complexes, hotels, etc.), to receive broadcast signals directly from earth satellite orbiting 22,900 miles above the earth. Currently, these satellites are used to transmit signals from program originators to cable operators (or conceivably local broadcast stations), for retransmission to conventional antenna and receivers.

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APPENDIX D

Information Industry Revenues--Explanatory Notes

Computer Software and Service Suppliers--Revenues for services (remote and batch) and software (independent) from International Data Corporation, Waltham, Mass.

Computer Systems Manufacturers--Revenues for leading manufacturers from International Data Corporation, Waltham, Mass.

Electronic Components and Accessories--Value of shipments from U.S. Industrial Outlook, annual, based on government statistics.

Mobile Radio Systems--Revenues for common carrier and licensed mobile radio services are estimates based on data from the FCC Common Carrier Bureau.

Satellite Carriers--Total operating revenues for CONSAT from the FCC Common Carrier Bureau, and revenues from operational domestic satellite companies estimated by International Resources Development, Inc., Norwalk, Conn.

Terrestrial Common Carriers--Total revenues for terrestrial operations from FCC Common Carrier Bureau.

Telegraph--Total operating revenues for domestic telegraph from FCC Statistics of Common Carriers with added data from FCC Common Carrier Bureau, Statistics Division.

Telephone--Operating revenues from FCC Statistics of Communications Common Carriers with added data from the FCC Common Carrier Bureau, Statistics Division.

Advertising--Ad agency gross income from U.S. Industrial Outlook, annual.

Broadcast Radio--Commercial radio gross revenues (less commissions) from FCC News and U.S. Industrial Outlook (1979).

Broadcast TV--Gross advertising plus all other broadcast revenues (less commissions) from FCC News and U.S. Industrial Outlook, annual.

Book Publishing--Value of shipments from U.S. Industrial Outlook, annual.

Cable TV--Revenues from FCC Cable TV Bureau and U.S. Industrial Outlook (1979).

News Wire Services--Estimated gross annual revenues worldwide for Associated Press and United Press International, from New York Times, United Press International and Associated Press.

Motion Picture Distribution and Exhibition--Gross domestic box office receipts plus remittals from receipts of overseas film rentals from U.S. Industrial Outlook, annual, and Bureau of Industrial Economics.

Newspaper Publishing--Value of shipments (1970-71) or receipts (1972-79) from U.S. Industrial Outlook, annual.

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Organized Sports, Arenas--The market value of purchased admissions to spectator sports by individuals and non-profit institutions from U.S. Department of Commerce, Statistical Abstracts of the United States, annual, and Census Bureau.

Periodical Publishing--Value of shipments from U.S. Industrial Outlook, annual.

Printing, Book and Commercial--Value of shipments from U.S. Industrial Outlook, annual.

Radio and TV Communications Equipment--Value of shipments from the U.S. Department of Commerce, Census of Manufactures.

Theaters--Total box office receipts for Broadway and road theaters from Variety.

Postal Services--Operating revenues from the Annual Report of the Post Master General.

Private Information Delivery Services--Operating revenues are estimates based on figures reported by largest publicly owned firms.

Banking and Credit--Total receipts for partnerships and corporations and business receipts for sole proprietorships from Internal Revenue Service, Statistics Division.

Brokerage Industries--Total receipts for partnerships and corporations, plus business receipts for sole proprietorships for real estate brokers and security and commodity brokers, dealers, exchanges, and services, from Internal Revenue Service, Statistics Division.

Insurance--Total receipts for partnerships and corporations and business receipts for proprietorships from insurance agents and carriers, from Internal Revenue Service, Statistics Division.

Legal Services--Business receipts from sole proprietorships, partnerships, and corporations from Internal Revenue Service, Statistics Division.

Paper and Allied Products--Value of shipments from the U.S. Industrial Outlook, annual, based on government statistics.

Photographic Equipment and Supplies--Value of shipments from U.S. Industrial Outlook, annual, based on government statistics.

Business Consulting Services--Business receipts for sole proprietorships and partnerships from Internal Revenue Service, Statistics Division.

Business Information Services--Estimated revenues of specialized reporting services, credit information services, newsletters plus loose leaf services, and general business data bases (on-line) from Knowledge Industry Publications, Inc., White Plains, N.Y.

Marketing Research Services--Research revenues of the 10 largest companies from Advertising Age.

U.S. Census Bureau--Total of federal and trust fund outlays from U.S. Department of Commerce.

County Agents--Sum of federal, state, local, and non-taxable appropriations, from U.S. Department of Agriculture.

Libraries--Total budgets from Knowledge Industries Publications, Inc., White Plains, N.Y., based on U.S. Department of Education, National Center for Education Statistics figures.

National Intelligence Community--Budgeted expenditures for U.S. Defense, Military Intelligence and Communications; National Security Agency; Central Intelligence Agency; and Intelligence and Research, State Department, from Budget of the U.S. Government.

National Technical Information Service--Sum of appropriations and sales, from NTIS Budget Office.

Research and Development--Total outlays for basic research, applied research, and development from Statistical Abstract of the United States, annual, and U.S. Department of Commerce, Bureau of the Census.

Schooling--Expenditures by federal, state, and local public and nonpublic elementary and secondary schools and institutions of higher learning from Statistical Abstracts of the United States, annual, and U.S. Department of Commerce, Bureau of the Census.

Social Security Administration--Total administrative outlays, from the Social Security Administration.

- * estimated
- + lower bound
- a not available as of January 1981
- b not available
- c under \$50 million annually

TELECOMMUNICATIONS ACT OF 1982

(Part 3)

HEARINGS

BEFORE THE

SUBCOMMITTEE ON TELECOMMUNICATIONS, CONSUMER PROTECTION, AND FINANCE

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

SECOND SESSION

ON

H.R. 5158

**A BILL TO AMEND THE COMMUNICATIONS ACT OF 1934 TO RE-
VISE PROVISIONS OF THE ACT RELATING TO TELECOMMUNI-
CATIONS, AND FOR OTHER PURPOSES**

MARCH 4, 9, AND 10, 1982

Serial No. 97-121



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WASHINGTON : 1982

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Mr. WIRTH. Thank you very much.

Our final witnesses this afternoon are all very familiar to the subcommittee, bringing a great deal of expertise as usual to us. Professor Tony Oettinger, Chairman of the Program on Information Resources Policy at Harvard; Mr. Walter Hinchman, president of Walter Hinchman Associates; and Mr. Dale Hatfield, now I believe a private citizen and formerly with NTIA. And accompanying Mr. Oettinger is Mr. John LeGates, also with the Harvard program.

Gentlemen, thank you very much for being with us. Perhaps, Mr. Oettinger, we could start with you.

Mr. OETTINGER. If I may, Mr. Chairman, Mr. LeGates has a brief statement that he would like to make and then I have some pictures to go with it. Is that agreeable with you, Mr. Chairman?

Mr. WIRTH. Excellent.

Mr. LEGATES. And then pictures, all right.

STATEMENTS OF JOHN C. LeGATES, DIRECTOR, AND ANTHONY G. OTTINGER, CHAIRMAN, PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD UNIVERSITY; DALE N. HATFIELD, BOULDER, COLO.; AND WALTER R. HINCHMAN, PRESIDENT, WALTER HINCHMAN ASSOCIATES, INC.

Mr. LEGATES. Mr. Chairman, I will just touch on some of the highlights of my comments here, and with your permission, submit the entire copy to the record.

Mr. WIRTH. The entire statement will be included in the record.

Mr. LEGATES. We believe that there are important structural similarities among three of the groups of organizations which we are discussing. One is American Telephone & Telegraph Co. and its various competitors as they exist today. The others are the two components into which the antitrust modification proposed on January 8 would divide A.T. & T.; the corporate entity commonly known as the new A.T. & T. and the Bell operating companies, along with their respective competitors.

We think that the underlying issues behind the question of the viability of the Bell operating companies are these: we think that you are still confronted with the complex of problems which are variously referred to by names such as "cream skimming," "predatory pricing," "economic benefits of competition——"

Mr. WIRTH. Let me do this, if I might. The issue that we are due to address this afternoon is whether or not the long distance market is a competitive market. Isn't that where we are?

Mr. LEGATES. That was not the burden of my remarks.

Mr. WIRTH. OK.

Mr. LEGATES. I was going to speak about the Bell operating companies. However, many of Tony's pictures do address that question.

Mr. WIRTH. I did not know about that. I knew what Mr. Oettinger was here for and what Mr. Hatfield had been asked for and what Mr. Hinchman had been asked for. Maybe we could whip through your testimony and then keep in mind that one of the big issues that we are facing—and we heard that discussion before with Dr. Tanenbaum—is whether this is a competitive marketplace or is it not a competitive marketplace. And public policy has to adapt to the nature of that marketplace.

Mr. BROYHILL. Mr. Chairman, I have had a chance, while listening to the other witness, to look over these various remarks. It seems like the remarks are all over the lot. I do not know what instructions they were issued to testify, but—

Mr. WIRTH. Why don't we just go ahead then, Mr. LeGates?

Mr. LeGATES. Well, if you would prefer, we can—I can submit this and go on.

Mr. WIRTH. Why don't you go ahead.

Mr. LeGATES. All right. I will be very summary.

In any case, it is analogous backwards to the topic you wish to discuss because the point I am trying to make is that the structure of the questions that come up with the Bell operating companies is in many cases the same as the structure of the questions with the long distance market. Let me just touch on some of the major points, however, aimed at the Bell operating companies.

Subsidy, insofar as the term is applicable, is now done by allocation of costs by settlements and by pricing. A change to access charges will in itself only alter the mechanism but not necessarily the outcomes.

By any reasonable measure, one of the major pieces of the Bell operating companies' markets are at least paying their own freight already. By their own account, they are overcoming it. These are the business and commercial customers.

Prices of local service are not consistent nationwide. In fact, they vary by a spread of approximately three to one from the least expensive to the most expensive location. Our data indicate that this spread does not affect either telephone penetration or telephone usage to a significant degree.

We conclude that the rates could be raised for all of those who are paying less than the current highest amount. The services are probably viable at the highest present rate or possibly even higher.

The average household telephone bill for basic service is in the \$9 to \$10 range. This is a very small figure by comparison with the housing, energy, food or transportation bill of the household. Therefore, an increase in this bill will probably not bring great political pain or cause political upheavals.

Many customers, including residential customers, use both local and long distance service. If there are forces at work that will cause the local telephone bill to go up, then some of these same forces will almost certainly incline the long distance bill to go down. A change in the total bill will be less radical than the change in the local part, which could ameliorate the reaction on the part of many customers.

If there is widespread resistance on the part of State regulators to increases in local rates, then the BOC's may become less attractive to investors. This could cause an unhealthy spiral with the costs of raising capital for the companies causing the need for even greater rate increases.

And opportunities for flexible cost allocation and difficult definition of service category, and therefore, openings for cries of subsidy abound. A single but not simple example is that of information access and multiplexing.

I think that is a very quick summary of what I intended to say, and that we can go on.

[Mr. LeGates' prepared statement and attachment follow:]

U.S. House of Representatives
Subcommittee on Telecommunications,
Consumer Protection, and Finance of the
Committee on Energy and Commerce
Washington, D.C.

March 9, 1982

Statement of Mr. John C. LeGates

Director

Program on Information Resources Policy

Harvard University

Mr. Chairman, Members of the Committee, my name is John LeGates. I am Director of the Program on Information Resources Policy at Harvard University and President of the Center for Information Policy Research, an allied non-profit organization. We are supported by approximately 115 organizations, most of whom have stakes of one kind or another in the matters under consideration today. A list of these affiliates is attached. My testimony represents my own views and not those of any organization.

I would like to offer my views about the structure and viability of the Bell operating companies. My colleague, Anthony G. Oettinger, will also present some of our findings to you. His testimony will be more quantitative than mine, which will focus on some of the logical and structural issues before you today.

We believe that there are important structural similarities among three of the groups which we are discussing. One is American Telephone and Telegraph Company and its various competitors as they exist today. The others are the two components into which the antitrust modification proposed on January 8 would divide AT&T: the corporate entity commonly known as the new AT&T, and the Bell Operating Companies, along with their respective competitors.

These structural similarities include all of the following:

- 1) Each organization provides similar services to different customers at widely varying prices.
- 2) Each organization provides services to customers with widely varying presumed associated costs. Presumption is necessary because of the great difficulty of determining the exact associated costs of any service to any customer. It not only requires unearthing data which are not readily available, but making some hard choices about the assignment of costs; choices which cannot be made on economic or accounting principles alone.
- 3) There is a very high percentage of joint and common plant, hence also a high percentage of joint and common costs.

4) There are a large number of competitors and would-be competitors in a variety of the market segments served by these organizations.

5) Some of these competitors could benefit by access to all or part of the system.

These assertions about structure sound familiar and very old hat when applied to the old AT&T, and even to the new AT&T. What we would like to assert is that they are also true of the Bell Operating Companies and the markets in which they operate. You are still confronted with the complex of problems which are variously referred to by names such as "cream skimming", "predatory pricing", "economic benefits of competition", "danger of cross subsidy" and "how to provide service to the uneconomic customer".

In other words, the Bell Operating Companies and their markets are the next theater to which the familiar war will move.

We think that what follows are the underlying major factors.

1) Subsidy (insofar as the term is applicable) is now done by allocation of costs by settlements and by pricing. A change to access charges will in itself only alter the mechanism, but not necessarily the outcomes. By virtue of the difficulties in identifying the assignment of costs and hence the relationship of prices to costs no one can give precise figures as to how great subsidies, if any, might be.

- 2) By any reasonable measure one of the major pieces of the Bell operating companies' markets are at least paying their own freight already. By their own account, they are overpaying it. These are the business and commercial customers.
- 3) Prices of local service are not consistent nationwide. In fact, they vary by a spread of approximately 3 to 1, from the least expensive to the most expensive location. Our data indicate that this spread does not affect either telephone penetration or telephone usage to a significant degree. Our conclusion is that the rates could be raised for all of those who are paying less than the current highest amount. There might be some squawking as the rates went up, but it would appear that this service is viable at the higher rate. Considering that we live in an inflationary era, the services are probably viable at higher than the highest present rate.
- 4) The average household phone bill for basic service is about nine dollars. This is a very small figure by comparison with the average household or business bill for energy, housing, food or transportation. Were it to increase by a significant percentage, even double or triple, it would not bring much pain to the payer, and therefore probably not cause a major political uproar.

- 5) Many customers, including residential customers, are users of both local and long distance service. If indeed there are forces at work that will cause the local telephone bill to go up, then some of these same forces will almost certainly incline the long distance bill to go down. Those customers who use both services will see the increase in local rates at least partly offset by a decrease in long distance rates. A change in the total bill will be less radical than the change in the local part. This could tend to ameliorate the reaction on the part of many customers.
- 6) If there is widespread resistance on the part of state regulators to increases in local rates, then the BOC's may become less attractive to investors. This could cause an unhealthy spiral with the costs of raising capital for the companies causing the need for even greater rate increases.
- 7) Opportunities for flexible cost allocation and difficult definition of service category, and therefore openings for cries of "subsidy" abound. A single, but not simple example is that of information access and multiplexing.
- 8) Several sections of the proposed modification specifically permit multiplexing and information access services including billing. This would appear to do all of the following:

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- A) Allow the BOCs to enter into an area which has fuzzy boundaries with Customer Premises Equipment, which is otherwise off limits.
- B) Enter the high density access business, a piece of the business which could be interpreted as "cream", and amenable to competition, possibly unregulated.
- C) Do so with plant possibly jointly supplying other services and therefore posing subsidy ambiguities.
- D) Permit the BOC's to aggregate small customers into markets large enough to afford information services that would otherwise not be offered at all.
- E) Permit access to these customers by present and prospective suppliers of information services.

We're inclined, therefore, to think that the basic structural problems are the same for both the local operating market, the long distance market and the somewhat time honored, traditional AT&T.

In each of them there appear to be customers who are more desirable than others. In many cases these constitute a market that is cream and can be skimmed. Smaller or more scattered customers may be unable to pay for the services which they use. The possibility is there for cross subsidy, with its desirable effects, and its undesirable effects. The quality and cost of access in a variety of directions may determine the viability of the specific segments. Network integrity and coordination is also an area which should not be ignored.

A variety of tools have been developed in earlier debates about AT&T, which can be applied to the present situation. We have no new ones to offer in this testimony. The old ones include monopoly status, direct subsidy, regulation, access charges, reserved pools, joint planning groups (public or private), and a variety of other options.

My colleague, Professor Oettinger will describe in his testimony the ways in which we view some of these options.

Thank you for the opportunity to be here today.

Attachment: Program affiliates

PROGRAM ON INFORMATION RESOURCES POLICY

Harvard University

Center for Information Policy Research

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2/22/82

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 National Security Agency
 United States Postal Rate Commission
 United States Postal Service
 United Telecommunications, Inc.
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 Warner Amex Cable Communications Inc.
 The Washington Post Company
 Western Union

Mr. WIRTH. Thank you very much, Mr. LeGates. Mr. Oettinger.

STATEMENT OF ANTHONY G. OETTINGER

Mr. OETTINGER. Mr. Chairman, can you see the screen from where you are at?

Mr. MARKEY. No.

Mr. WIRTH. Oh, we cannot——

Mr. OETTINGER. I can shift a tad. I will try to be quick.

Mr. WIRTH. There we go.

Mr. OETTINGER. Figure 1 is, I believe, the only picture in captivity of the totality of the A.T. & T. and Bell operating companies' total annual costs equal revenue requirements equal revenues for 1980.

They add up to about \$54 billion; the total industry is about \$60 billion, and half of that is the toll figure, which is where that \$30 billion that was mentioned earlier comes from. The horizontal divisions are various kinds of equipment and their associated expenses, both rate of return and maintenance expenses and the like. They include wires coming out of the home and going to the exchange, in so-called subscriber outside plant, and all the various other categories of plant expenses and the commercial and traffic and other administrative expenses.

Cross-hatched is the portion of this total \$54 billion pool that is currently under Federal jurisdiction. The lowest horizontal band is the portion of those revenues that accrued to A.T. & T. Long Lines. All of the vertical part goes to the current Bell operating companies.

The totality of the interexchange toll revenue pool, that roughly \$30 billion that was referred to earlier, is stippled. The stippled but not crosshatched area is that portion currently reflected in intrastate interexchange services, leaving the white as that portion currently collected by the operating companies for exchange services.

I will show you in a moment what is the bearing of this on the question of competitiveness. We believe that under most conceivable interpretations of either the proposed consent decree modification of legislation now before the Congress or of Computer Inquiry II, one of the most sensitive determinants of competitiveness along with some of the structural details of who can compete with whom under what conditions, will be this question of how these costs are allocated. And nothing that we see in any of those three basketball courts, as somebody earlier referred to them, is likely to alter the continuing wars over how these costs are shared.

The cross-hatched portion (fig. 2) is that portion of this totality of revenues which currently flows into A.T. & T. Long Lines. All of the rest of it, the white area, currently flows into the Bell operating companies.

And that, regardless of whether it appears to be a pro-A.T. & T. or pro-somebody else statement, I think to the best of our knowledge with available data, that is the current picture of operating costs and revenues.

The \$30 billion refers to the big crosshatched area in figure 1, a sizable portion of which at the moment accrues to the Bell operating companies, as shown in figure 2.

Under the terms of the proposed consent decree modification as we understand them, the pattern of ownership would shift as follows (fig. 3): the cross-hatched band a third of the way down in figure 3 is customer premises equipment, which would go to A.T. & T. The diagonal line near the top and the jagged lines near the bottom are there because at this stage no one without a crystal ball can predict how much of that will be operating companies, how much will be A.T. & T. So that is kind of fluid, and leaves some uncertainty in the size of numbers.

Mr. WIRTH. Excuse me for laughing, Tony, I was just mentioning to Congressman Broyhill unfortunately, my father's family did not cross-subsidize me with the appropriate genes and I am color blind.

Mr. OETTINGER. LeGates, who is also color blind, warned me about that. We will provide for the record a black and white version, but please forgive me.

Mr. WIRTH. The legislation will not wait for my father's genes to get righted, Mr. Oettinger.

Mr. OETTINGER. This is my artwork, and it is much harder to sketch in black and white, but we will provide some intelligible black and white versions. You cannot distinguish blue and purple?

Mr. WIRTH. No.

Mr. OETTINGER. In figure 4, under the proposed restructuring if it goes through, the crosshatched portion remains A.T. & T. There is a big band a third of the way down, the customer provided equipment which is A.T. & T.'s. The white and stippled areas would go to the Bell operating companies. The white portion would be recovered by charges for exchange services. The stippled portion would be recovered by charges for exchange access. The boundary between white and stippled is jagged, because its precise location is yet to be determined.

Now, what under the present regime (fig. 1) is the boundary between the crosshatched region and the white region, a boundary determined by the separations and settlements process, would under prospective scenarios—(fig. 4) be the boundary between charges for access services and charges for the residual exchange services.

Now, the central point that we want to make is that this boundary remains a boundary of Federal and State jurisdictions, that the question of who is competing and how competitive they are will, among other things, remain determined, for example, by how high these access charges are set, that is, by the relative sizes of the white and stippled areas in figure 4. On the average, exchange charges could, in total, remain precisely as they are today. Any change is not a necessary consequence of the change in structure under the proposed consent decree modification.

Now, unless you go into a good deal more detail than is now visible in any of the proposed legislation, regulations and so on, as to who does what to whom as between the Feds and the States, we see that this boundary will remain for a considerable period the principal area of contention: the principal area where the details of who can compete effectively with whom will be determined.

For example, if access charges are set very high to A.T. & T., the separated new A.T. & T., and to its competitors uniformly without any of them being uncovered by access charges, then to a first ap-

proximation competition over interexchange services would not be significantly affected. It is just you would set up an enormous incentive for people to bootleg; that is, to bypass the carriers: A.T. & T., its present competitors, including MCI and Southern Pacific, by building their own, passing the boundary under some occult something or other, to avoid any kind of jurisdiction. And that, under present technology remains something rather uncontrollable.

It is a little bit like prohibiting booze in the thirties or like trying to prohibit Xeroxing, or what used to be called photocopying in the first 5 years when folks tried to get a Copyright Act revision passed. And then, in the last 5 years of the copyright war they discovered that photocopying was no longer something only big institutions did—anybody could do it down the hall, and therefore, by-passing copyright became awfully easy.

So the absolute size of access charges is important. If too large—and this might be done by large charges being imposed by State commissions wishing to retain exchange rates low or stable—all interexchange competitors would be equally handicapped (although one suspects that small competitors might be handicapped more by virtue of the fact that loading of these charges on their costs would be proportionately larger than the loading on folks with a larger pool) vis-a-vis bootleggers.

So that I would commend to your attention the need to look at that a good deal more closely than it has. If these access charges are small, then you set up a situation where the cost to be recovered from exchange services will indeed rise, but may or may not amount to a rise in residential bills depending on pricing policy. But it could increase pressures for competitive intralexchange by-passes—it will bypass, under certain pricing policies, offerings inside exchange areas where folks will try to get by the Bell operating companies, or anybody else, to build their own facilities inside local operating areas.

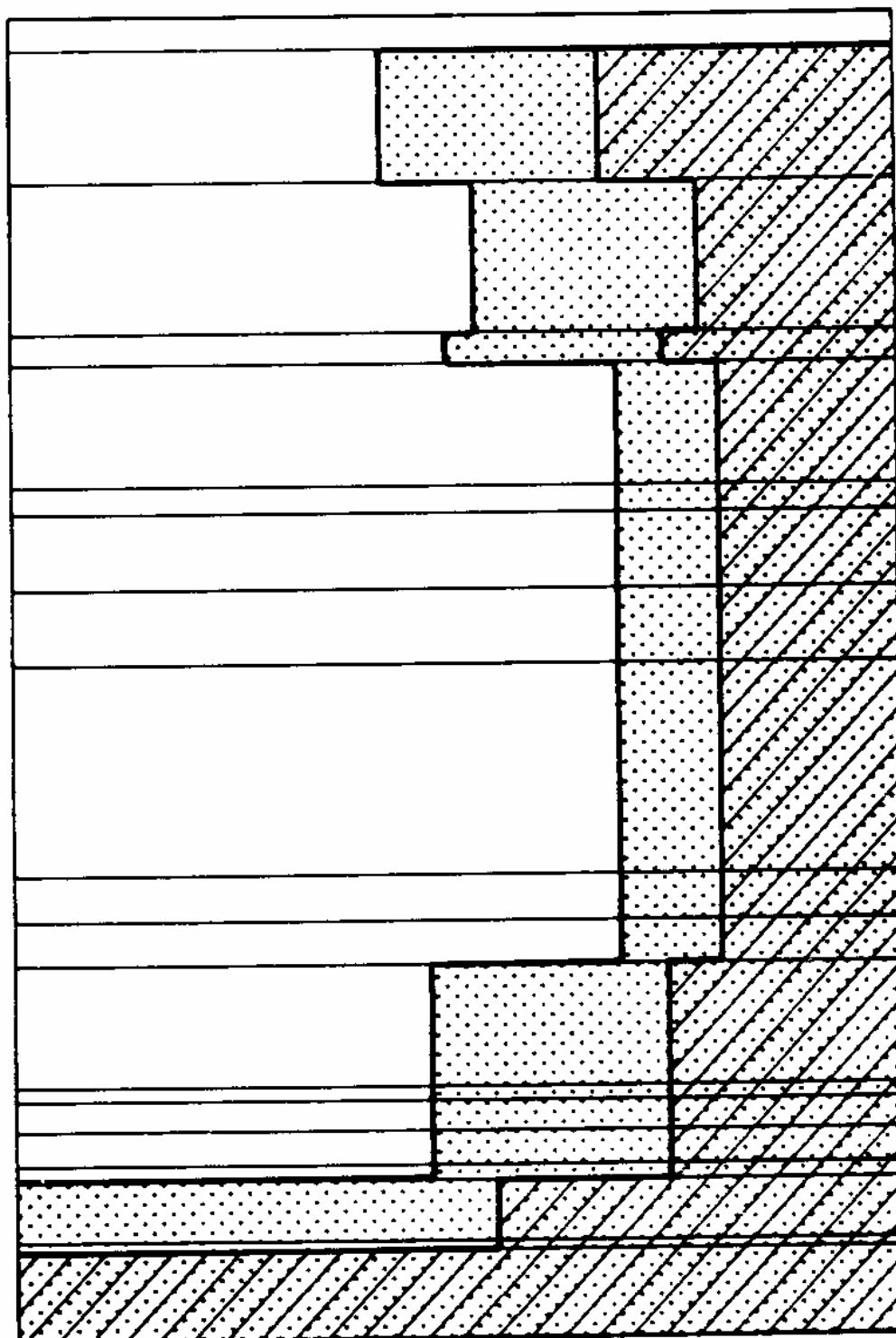
So that the balance between local access charges and local exchange charges is going to be one of the most critical determinants. It is being hotly fought. It is fought in 50 jurisdictions, and I submit that very little has been discussed here, at least today, that addresses that problem. And most of the fine tuning in terms of who lives or dies is going to be done on that particular battlefield.

But even if you determine the size of one of these pools by some kind of Federal and 50-State agreement, you still have the problem of setting prices inside one of these pools as defined by either access charges or the current separations processes. And the possibility for undercharging or overcharging for a particular service still remains.

In conclusion, the structural points that you have been debating today are part of the picture but, in our estimation, the dollars involved here are relatively independent of the details of structure and are more dependent on the adjudicatory mechanisms that will determine the equity and the relative loading of the costs and associated prices.

That continues to be in our mind the central determinant of who will benefit or not from competitive restructuring.

[The illustrations referred to by Mr. Oettinger follow:]

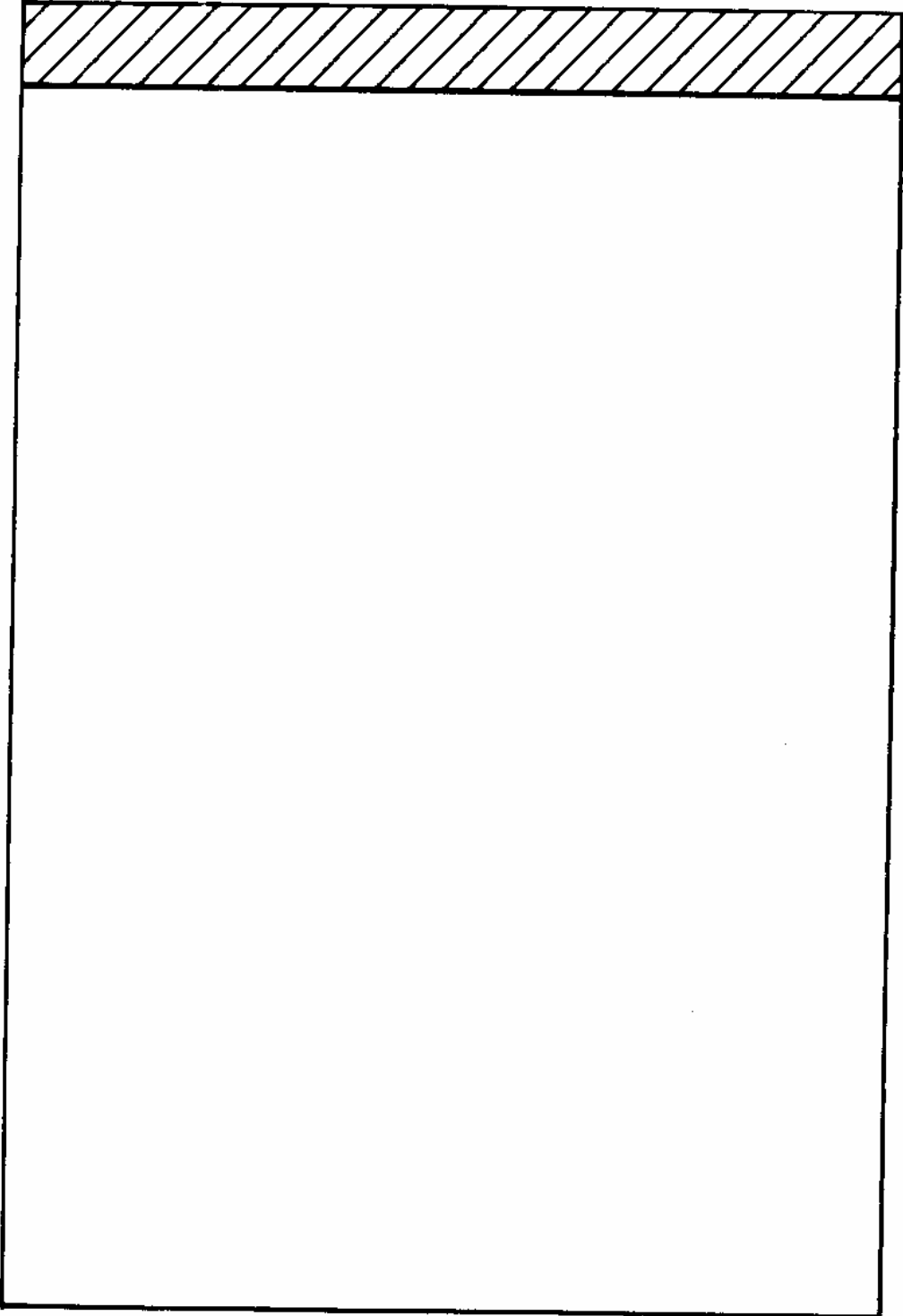


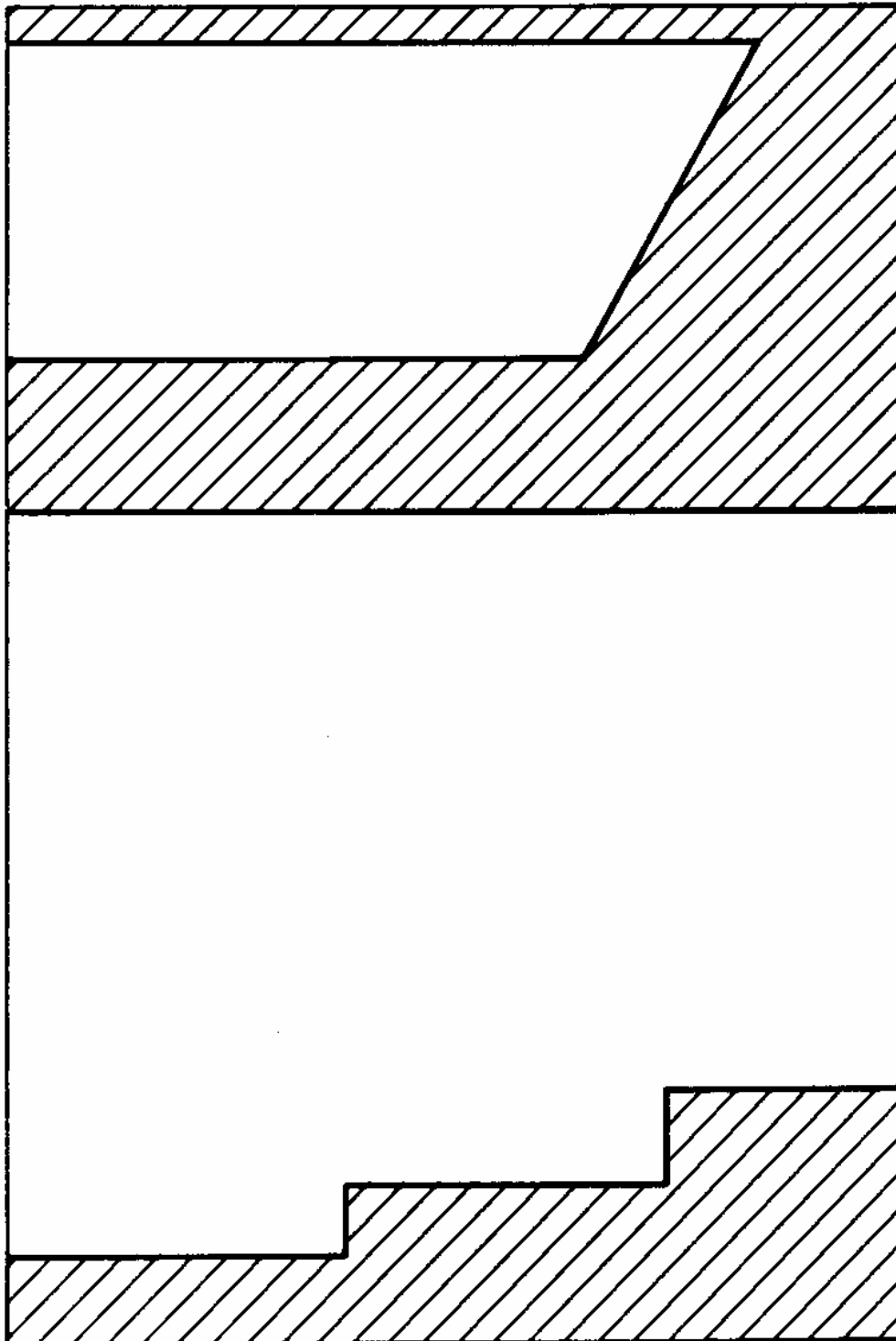
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Figure 1

Figure 2

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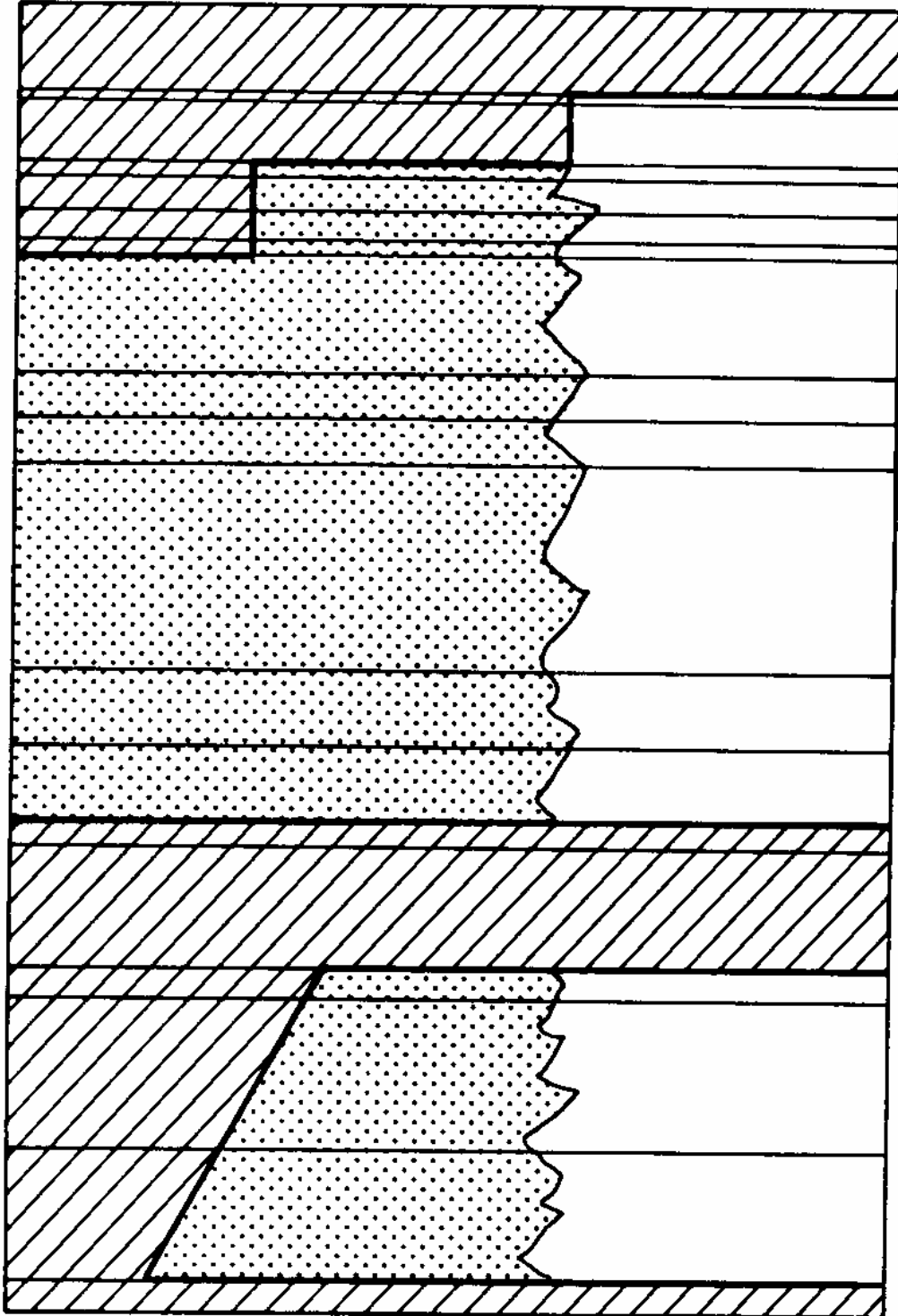


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Figure 3

Figure 4

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Mr. MARKEY. Thank you, Mr. Hinchman. Mr. Broyhill.

Mr. BROYHILL. Mr. Oettinger, I was interested in your observation with respect to the relative level of the access charge and what might happen at differing levels of that access charge. Has your group done any study with respect to what percentage of customers might go off of the system, assuming that the access charge would be set, quote, "too high"?

Mr. OETTINGER. No, that is—we do not have any numerical estimate. It is still crystal ball gazing.

The one thing I would point out to you is if you go back to figure 4, the white area is roughly comparable to what is now in the exchange revenues. So that if you let things alone—you could conceivably set that in a manner entirely consistent with the present scheme and therefore have essentially no noticeable effect on consumer prices. If you move it around, then the more you increase access charges and reduce things that are recovered from exchange fees, the more you increase the propensity to bypass, either by A.T. & T. itself or by MCI or by Southern Pacific or by anybody else who might want to get into that business legitimately or by bootlegging.

Mr. BROYHILL. But who are these people who would want to bypass the system? As I understand the way it would work, those who bypassed the system would have no access at all to the nationwide telephone system.

Mr. OETTINGER. I think there is the horns of your—

Mr. BROYHILL. There will be relatively few people, would there not, that would have need for that kind of communications service?

Mr. OETTINGER. I think that is at the heart of the dilemma; in one sense, you are right. But I do not believe that anybody in his right mind would buy a communications system that would not interconnect with everything they could interconnect to. Modern technology, present-day technology, enables that to happen very easily, very quietly in a bootleg fashion. And I think the problem is that interconnecting will happen on a large scale inside somebody's computer in the same way that Xeroxing now happens or dry copying—forgive me, I do not want to use proprietary names—happens down the hall. It is for that reason that I think ultimately access charges will find a level where they are reasonably low. Because, otherwise, nobody is going to be able to compete legitimately. They will all lose out to bootleggers and you will have a hell of a time trying to police that.

Now, if the access charges were to move low and the totality to be recovered from exchange rose, then you are back again at something which is, at the moment, principally still under state regulatory jurisdiction. And how the state regulators will behave in regulating prices within their pool and whether they will try to—well, if they gouge business customers, then those business customers will buy premises and local interconnection equipment and services from anybody who will sell them—Western Electric, IBM, you name it. Ultimately, I think that the prices for the remaining captives, whoever they might be, small businesses, residential, will ultimately rise if that happens.

Now, one thing that might mitigate such a rise is another provision which is in the proposed modification of the consent decree,

which enables the Bell operating companies to go into information access services, which is a whole new area where somebody could provide the kinds of facilities that banks, insurance companies, newspapers, et cetera, need to provide the billing, the customer identification, et cetera, that is necessary to make a whole bunch of businesses go, that now cannot go. And that might provide additional revenues which will then shift the balance again in intrasection pricing under State jurisdiction.

I am afraid, Mr. Broyhill, that this is, you know, a complicated set of balances. I would be happy to go into more details.

Mr. Broyhill. I wish we had time to discuss this because frankly, I think you have hit at the real heart of this bill—the major political issue I think that is in this bill. Others think it is the structure piece. But I do not hear Members discussing that. What they are concerned about is what is going to happen to the telephone rates of people in my home town or my congressional district. That is what they are talking about and I think that is what you are addressing here.

Mr. ORTENGREN. Yes. And I think in the short term, not much is likely to happen one way or the other, at least for structural reasons.

Mr. BROYHILL. What about the formula that is in the bill? That is the question I am really leading up to. Is this the correct one? This is essentially the same formula that we have been working with for the last 2 or 3 years, and I just would like to have your thinking as to whether this is the proper formula, or whether we need to crank in something else or to take another look at it.

Mr. ORTENGREN. If I interpret it correctly, I think the formula now in the bill, like all the previous formulas, essentially amounts to leaving things pretty much where they are—maybe up to 110 percent of where it is now, and that is likely to have, you know, no particular effects over the longer term if that stays fixed. And then the proportion of exchange costs that would have to be covered by intrasection billing will depend on what kind of new services will emerge inside the exchange and where will the operating companies' revenue come from and go to if they manage to get into new businesses. Then it is conceivable that consumer rates will stay put; otherwise, they might rise.

In any case, if you look at it—my sense is this is not a big problem. Mr. LeGates gives some details in his testimony. To the best of our estimate, I think the Bell System hoisted itself on its own petard here years ago by crying wolf and saying the residential customers' bill will double. Now they have to backpedal on that and say it will not. Our view was it was nonsense when it was said in the past and hence there is nothing to backpedal on. And now our sense is that in an inflationary period, this is almost a nonissue. You are talking about something like a \$9 bill going, in the worst analysis that we have seen, to maybe \$18. In conjunction with what has happened to my heating bill, my electric bill and everything else, it is not clear that is my or anybody else's greatest worry. Besides, I also subscribe to Southern Pacific's Sprint Service.

Mr. BROYHILL. As we go from one to the other, you are saying that is not going to have a major effect on the cost of the telephone service to the local subscriber?

Mr. OETTINGER. My sense is merely going from one to the other does not necessarily lead to anything without looking at the details to know how the pricing inside the exchange gets done. And that is at the moment up to the State commissions.

Some of them will want to protect the residential consumer and try to push the prices up on everything else in those areas. The by-passers will then have a field day. Others will like to see the prices rise moderately for residents and small business in those areas. Then the Bell operating companies may remain competitive in the areas that they have competition in, like—yes, other services, customer-provided equipment and so on.

Mr. BROYHILL. Well, I really should not be getting into this subject because it is very complex, as you pointed out. I think maybe we should revisit this with the intent of looking at the formula we have in the bill to see whether it is too restrictive as we go into the future, not providing the flexibility for the joint board to make adjustments.

Mr. OETTINGER. My sense, Mr. Broyhill, would be that none of us are smart enough to predict the future right now. It is a very, very volatile future, and I know it has become popular to express distrust in administrative agencies, but unless you folks want to stay with this another decade, you know, hearing after hearing and getting into the detailed case-by-case adjudicatory process yourself, my sense is that anything that provides for flexibility and for correction of abuses as they appear is likely to be better off in the long run because no matter even what some other principal ax-grinders claim their interests are today, they are going to shift this position tomorrow.

One of them talked to us—one of them talked to us at one of our seminars. He said "notice what has happened since January 8; we have all shifted sides." And that is going to happen over and over again. Both in terms of shifts in regulation and shifts in the technology. And I think none of us are smart enough to predict the future, and flexibility would be very helpful all around.

Mr. BROYHILL. You are saying that, in effect, we should make this decision soon? You are not wanting to do away with a small industry we have created here in town, are you? All the unemployment that would result.

Mr. OETTINGER. I think there are lots of other things we could be doing.

Mr. BROYHILL. Well, I appreciate your comments. I do not want the public out here to think I am really advocating any specific change. I just wonder whether or not we should revisit this and at least rethink it, especially if we go to the floor with it, so that we can give assurance to our colleagues who will be asking that question. That is the question I am getting more than any other from my constituents—what is this bill going to do with respect to telephone rates—not only next year but the year after, and so forth. So that is the only reason I asked that question.

Any other specific information you might want to provide I would certainly appreciate it, or any advice. I would like to, Mr.

Chairman, if I could, take just a moment to direct a question or two to Mr. Hatfield because he has hit upon something that I have expressed concern about in last week's hearings, and that is that H.R. 5158 could be more regulatory than is necessary. And I am—I noticed that he says this that is one objection he has with H.R. 5158, after expressing a number of areas of agreement with the bill.

Let me go into some details. You mentioned sections 212 and 213. Now, I assume what you are talking about here is the carriers who lease lines and then resell them to end subscribers. You are saying that that cannot be counted as competition under the bill. And I understand that you think that this is too stringent. Why?

Mr. HATFIELD. OK. I probably ought to make sure it is clear what I was saying. I agree that resale should be counted, but an even more important factor is the fact that in this business today, people can go out and lease transponder capacity on a satellite over a fairly short period of time, can go to a firm like Scientific Atlanta and order Earth stations and be in the long distance business fairly quickly.

If one only looks at market share, pure market share, say, it is 90 percent or whatever, that is not a total measure of market power. The person who has a 90-percent market share must be looking over their shoulder very carefully to see how easily other people can get in the business and take business away from them. The presence of resale prevents price discrimination and some other things. But probably even more importantly than that, the fact that other people can enter the business fairly readily now limits the power of the existing carriers.

And the bill, as it is written, does not include that. It says the facilities have to be available, and like I said in my testimony, that is too stringent. The Commission should also look at what the entry barrier are.

Mr. BROVHILL. Let me move on quickly to another area. As I understand it, those carriers who are deregulated carriers could, in fact, continue to be regulated in a number of ways under the bill. You refer to section 214 on page 3 of your statement. What you say is that they would have certain requirements that would be made upon them by the commission.

My concern is, that we are permitting the FCC to regulate all of the disputes that might involve interconnection, not only with regulated carriers but also with the unregulated carriers.

Mr. HATFIELD. Yes. My feeling is that it is a bit of a misnomer to call them deregulated and then have this long list of regulatory powers that they are subject to. Examples are the interconnection section 214(a) that I mentioned and section 211(f) which enables them to collect information. Also section 232(f) gives the States power to collect information from these deregulated carriers. And there is extensive notification requirements in section 221(e) for resale carriers.

You know, if we are going to believe in a competitive marketplace and deregulating here, let us deregulate, let us not leave a lot of residual power over there at the FCC. Let us instead redirect that, the regulatory resources, to where they are needed most, and that would be where you have dominant power or something like

that. But if we are going to deregulate, it seems to me that it should be deregulation.

Mr. BROYHILL. We have another section, 221 (c) and (d) which appears to require that the deregulated carriers get permission from the FCC before they can initiate any new deregulated services or before they can terminate services.

Mr. HATFIELD. Yes, that is another example. I went through the bill and picked the ones that jumped out at me, but as I recall there are those requirements as well.

Mr. BROYHILL. And then we have a section of the bill which gives any injured party the right not only to appeal to the FCC, but also to appeal simultaneously to the courts.

Do you have any comment on that? It seems that maybe we ought to look at that again to see whether we want parties to simultaneously pursue these remedies, both at the FCC and the courts, for the same alleged violation.

Mr. HATFIELD. Yes, I have concerns there as well, although I confess not to being near as expert or involved in some of the tariff matters in the past. Somebody like Walt Hinchman could give a lot better answer to whether those sort of things are proper or not.

Mr. BROYHILL. Well, I do not know. You have to have some sort of way to resolve these things. But you just want to figure out how to do it so that you do not have these things tied up in both the regulatory agency and simultaneously in courts for years and years.

In other words, how do you get a decision, a fair decision, on whatever alleged violation it is? Do you have any comment on that, Mr. Hinchman?

Mr. HINCHMAN. Mr. Broyhill, generally I find I tend to agree with Dale that the bill is very highly regulatory. I have a little different concern than he does. It seems to me that it really does not provide for very effective regulation in many areas where there may be dominance; that it provides for a lot of nuisance regulation in areas where there may not be dominance.

On the issue of the courts versus the commission, as you probably could tell from my statement, I am rather pessimistic about the Commission's ability or interest these days. So in that regard, I would opt for a direct avenue to the courts rather than many of the regulatory type of provisions built in the bill. I would rather see even a specialized court like a tax court or something that could deal with structural type issues or some of these tariff type issues, with some expertise but without a continuing regulatory type responsibility.

Mr. BROYHILL. You would not favor, then, as an alternative the agency making some decision with appeal of that decision in the courts?

Mr. HINCHMAN. I think again that is a very long process, and it involves the agency in lots of—bringing in lots of other issues, particularly under this proposed legislation, with lots of other handles and possibilities to get involved. I would rather see the issues presented a little more clearly, and at least have customers have the right to go directly to a court and get some prompt relief.

Mr. BROYHILL. Well, of course, these cases can be drawn out in the courts, too. So I do not know if it is in everybody's interest to

see that occur. Well, I do appreciate those comments, and either one of you, if you have any specific comments with respect to any concerns along this line, I would appreciate having them so that we can examine them before proceeding with markup on this bill. Thank you, Mr. Chairman.

Mr. MARKKY. Thank you, Mr. Broyhill.

Can we get back to the question of whether or not there is a monopoly in long lines? Do you believe there is a monopoly, Mr. Oettinger?

Mr. OETTINGER. Well, I think at the moment there is.

Mr. MARKKY. There is?

Mr. OETTINGER. But it is an eroding monopoly, and I think I would agree with Dale Hatfield that except for artificial barriers to entry in the interexchange area, it is awfully easy nowadays for somebody to get in.

Mr. MARKKY. At what point do you think we could actually say that there is effective competition in long distance?

Mr. OETTINGER. I would say at the point where you have minimal barriers to entry, Number One. I think that is the point that Mr. Hatfield made. But second, also, and this is something that is in the proposed consent decree, equal interconnection, and I think a combination of free entry and free interconnection is about all you need.

Mr. MARKKY. OK. All right. So you establish that construct, but then you have to have a period of time that transpires that people—entrants have been able to act upon those opportunities, and until they have had that time, and it has transpired, and there is indeed a significant shift of market share away from A.T. & T. over to long—over to the competitors, you clearly then still retain a de facto monopoly situation, although there is a potential that exists for that shift, but in fact the change in status does not occur until the shift does occur.

Mr. OETTINGER. Yes, but Mr. Markky, this is why we have reiterated our view that there is a confusion between competition and deregulation. We do not believe that you can have competition and instant deregulation, and the principal lever in providing these transitions, which is why our stress on these cost allocations, is that these are and will continue to be in the foreseeable future the handicapping tools, and that is where the details of who is going to be competitive or not so competitive are going to be settled.

Mr. MARKKY. Mr. Hinchman, monopoly or no monopoly?

Mr. HINCHMAN. I have to disagree, I guess, with both Dale and Tony. It seems to me that we look at this question of whether there is monopoly or at least market dominance in the interexchange services business from the wrong end of the telescope sometimes. The way to look at it, it seems to me, is not in terms of a percentage of market share or whether there is a feasible—whether there is at least the possibility for competitive entry, but to look at it from the point of view of customers. I do not know of a customer, large or small, that does not get currently the bulk of its communications service, interexchange service from A.T. & T., and intends to be doing that for the foreseeable future, for the next ten years, at least.

Anybody might be able to enter this market and provide some part of that service. I may use, as I do, MCI service for a limited part of my interexchange communication service for my office, but the bulk of that I do with A.T. & T., because A.T. & T. provides a universal service that I need to get everywhere that I can't get from MCI or anyone else. And I cannot get that from someone who goes into the satellite business tomorrow by buying a few earth stations from Scientific Atlanta, because no one can buy the hundreds of thousands of Earth stations or millions of Earth stations it would take to get to all the people I might at one point in time need to communicate with.

I think that is the way you have to look at the question of when does effective competition exist in this market, is when a significant number of customers can go out and procure a substantial part of their interstate interexchange communications services from any one of several carriers. That does not exist today.

Mr. MARKEY. So that goes to the question of the need for structural separation and the manner in which that should be constructed, and for however long this theoretical transition period lasts before effective competition does exist in the long distance service. How do we construct the separation then?

Mr. HINCHMAN. My construction of the separation is that you probably cannot separate within the interexchange services business competitive and monopoly activities. They are simply fungible services that are cross-elastic. I would not try to make any separation there between a basic communications service and any number of other kinds of communications service. I would try to separate out the equipment manufacturing part of A.T. & T. from all of its other operations, and then I would recognize there is a need to continue regulating the interexchange service business that remains for some period of time until you can see that there is effective competition.

Mr. MARKEY. Mr. Oettinger?

Mr. OETTINGER. I think this is where there are interactions between your proposed legislation and the proposed modification of the consent decree. Absent equal interconnection, I think the problems that Walt mentions are much more serious problems, precisely because otherwise it is difficult for an MCI or SPC or somebody to reach the end user. If you have indeed equal interconnection at reasonable rates, and free entry into the interexchange markets, then if and when that comes into place you have a very different ball game from what has been in the past. There remains a transition period, I agree with you. But whether that is best handled by setting in concrete some structural devices that will then have to be blasted out, or whether it is better to handle the transitional period through the more flexible mechanism of cost allocations—which has been used in one guise or another and will likely continue to be used—is something I would commend to your careful attention.

Mr. MARKEY. We have Bell's own consultant, Stanford Research Institute, who released a study showing that even in 1990, 10 years from now, 1992, A.T. & T. will still have 87 percent of long-distance market. That means that over a 20-year period A.T. & T. loses only 13 percent of its one-time 100-percent share of long distance. Now,

that is a pretty long time from now, and maybe we could come back and revisit it in the early 1990's, mid-1990's and decide if we want to make some alterations at that time, but in the interim period, that is a pretty long transition, and we used the figures given to us by Bell and their own research study. Is 87 percent still a monopoly?

Mr. OETTINGER. Mr. Markey, with all due respect, just because figures come from Bell or their consultants does not mean they are true. I have no idea what the assumptions are.

Mr. Markey. The assumptions were probably different when they gave us the study, but I mean—

Mr. OETTINGER. It is critical.

Mr. Markey. I know it is critical, but you tell us here that, you know, Bell for years said that, you know, there was a long-distance subsidy, and now they say there is no subsidy, and they presented this in testimony before courts, you know, so you are telling us basically that they presented knowingly erroneous testimony to the courts of this country for years, and now—but you are right, you as an individual were right, but a company with a million employees was wrong in terms of—

Mr. OETTINGER. No, no, no, Mr. Markey. That is too—I'd not think—well, I will not comment on who spoke truth or not. I think it is more complicated than that. What has happened perennially in these arguments before commissions, courts, and this Congress, is, if you want to prove one point, you look at the SLU to SPF thing, and you say that is a subsidy. If you want to prove a contrary point, you look at pricing and say, well, nonsense, it goes the other way.

Nobody, to the best of my knowledge, has yet succeeded in providing a credible netting out of who the hell subsidizes whom, and I distrust all of those figures, which is why I end up more where Hatfield seems to be, which is, that we're all better off if you let the thing be flexible under potentially very altered conditions. I think it is not a trivial thing for the proposed consent decree to provide equal interconnection. That has not been there before.

I do not know what the hell SRI's assumptions were, but if structural changes were not figured in there, I do not know what their figures mean now, assuming, of course, that the consent decree takes effect, which is something that is still up in the air.

Mr. Markey. OK. Mr. Hinchman.

Mr. Hinchman. We also have to assume in that that there really is equal interconnection, and the terms of the consent decree are still rather vague on what is really meant by equal interconnection, and the time frame in which that occurs, but once again, the issues the FCC investigated for about 20 years did not deal primarily with the question of equal access or interconnection or anything like that. They dealt with cross-subsidies within the interexchange services business, not cross-subsidies from local exchange operation or anything else.

A.T. & T. still has rather dominant power in several parts of the interexchange business, including short haul—short haul, long haul, if you will—the up to 40 mile type of long-distance communication. Everyone uses A.T. & T.'s facilities for those kinds of services. MCI, for example, does not have its own lines from Washington-

ton to Leesburg, to places like that. They serve those areas by leasing capacity from Bell. The prices for those services have been going up rather phenomenally in recent years, when other carriers came to depend on them. Until that kind of power is eroded away, it seems to me that you do not have effective competition in the interexchange business.

Mr. MARKEY. May I ask Mr. Oettinger, would you just leave the decision intact? Would you have any legislation?

Mr. OETTINGER. Oh, yes, I think you need some legislation, but I—you see, the premises that Walt is arguing from are false premises. By focusing on what he calls cross-subsidization within the interexchange area, he is acting precisely as we would expect a Federal regulator to act who by law and necessity is blind to how the costs that got allocated to his jurisdiction got there in the first place, and that is, you know, why in all good conscience you get these peculiar arguments once you accept that there is that pool which has on it loaded all of the SPF, et cetera, kind of stuff. Then, yes, you have inside that pool the pricing machinations which under the old regime lead to certain abuses.

Now, in order to understand what is going on, I thought the question before us is, what is the interaction between proposed legislation which might go into effect before or after implementation of a consent decree and under altered conditions where entry might be easier, where the sloshing into the interexchange pool is less feasible because there is more open entry with direct interconnection, et cetera, et cetera, and that is no longer sustainable, you have a very different ball game.

You know, I think, Walt, you are looking at the past.

Mr. MARKEY. Mr. Hinchman.

Mr. HINCHMAN. I have to disagree. The costs I am talking about, the DDS investigation, for example, of A.T. & T.'s DDS tariff, and whether or not that was cross-subsidized had almost nothing to do with the cost of local exchange operation that was attributed to DDS, because there was virtually none of those costs associated. It was the cost of interexchange transmission capacity, and whether that was properly allocated for DDS for its use as opposed to being allocated to the ordinary telephone user, and particularly the ordinary telephone user in remote areas that does not have any alternative where Bell can still extract monopoly revenues.

And that is the issue I am talking about, and that is not affected at all. It is not an old regulatory issue in that sense. It is an old regulatory issue that has never been resolved. And it is not resolved by this settlement.

Mr. MARKEY. Let's just shift off this for a second, if we could.

Mr. Hatfield, on the question of whether or not the new subsidiary ought to be able to construct duplicate facilities, that is present in the Computer II decision and in 5158, but not so clear that it will be present in the consent decree. How should Congress address the question of duplicate facilities and should we address it at all?

Mr. HATFIELD. OK. Let me state that once we have an effectively competitive interexchange market, then I think A.T. & T. should be allowed to construct whatever facilities it wants to or not construct facilities. The issue is one primarily of how do you get there. I agree with Walt in his comment about short haul, because that

usually falls under intrastate jurisdiction, and they still have a monopoly over that. So, as long as they have that monopoly power in the interexchange service, then I think that some structural restrictions of the type you are talking about might be needed.

What I am urging the Congress to do is eliminate that last barrier to entry, that which falls under intrastate jurisdiction. It includes a lot of the short haul that Walt was referring to. Then you have to be a lot less concerned because the market really is open to entry, and whether the person constructs or does not construct does not make an awful lot of difference.

Mr. MARKKY. Mr. Hinchman.

Mr. HINCHMAN. I agree with Dale that that distinction, that separation of jurisdiction should be eliminated, but again opening the market to entry does not result in a competitive market. I think that is one thing that the Commission has definitely learned over a number of years where it opened entry and the market is still not effectively competitive in terms of controlling prices or the availability of service.

So, I agree with Dale that when and as that evolves, and at the point that it reaches where you can say it is relatively easy for someone in practice to go out and install short-haul facilities and to be in competition with that and so that again a customer can look to several suppliers for those kinds of services and facilities, then I agree that it should be deregulated.

Mr. MARKKY. Mr. Oettinger.

Mr. OETTINGER. I cannot overemphasize one point of apparent agreement, which is the artificiality of the rates for short-haul services, and the agreement is in the necessity to move the jurisdictional boundary so that the Federal jurisdiction covers the entire interexchange area. I think that if that is not done, life will remain exceedingly complicated, but it seems to me the important thing is to look at all of these pieces as they fit together prospectively rather than retrospectively.

Mr. MARKKY. OK. This is one of the problems that I am having. I have Honeywell and Wang and Digital, and all the rest of these companies who are now afraid of the cross-subsidy that could run from Long Lines over to the unregulated manufacturing arm of A.T. & T. in their effort to get a third of the high tech industry business after a decade or so, and you know, on the other hand, now, I have A.T. & T. and MCI and others coming in, look, there was no subsidy in the first place from long lines. And I now have a whole new bunch of people coming in and telling me, look, there is this tremendous subsidy that is going to flow. What do I tell all these people from Digital, that there is no subsidy whatsoever that is going to flow from Long Lines and we do not have any danger at all that A.T. & T. is going to abuse it—I mean, A.T. & T. will take these Long Lines revenues, take the revenues from the relationship that exists with them in the procurements for the Bell operating companies and Long Lines and flow some of those revenues to Western Electric to help to subsidize and underprice their competitors in the high tech area?

Mr. OETTINGER. I think you have a very serious equity problem here that needs to be looked at with great care, because the allega-

tions, many of them, are true. All of them are true. It is just that they never get quite put together and get netted out.

On the one hand, yes, it is true—and this is a pro-A.T. & T. sounding statement—that so long as A.T. & T. through the SLU to SPF and other mechanisms—along with MCI and SPC and so on through the ENFIA mechanism—get loaded down with what they regard as a share of local costs that their potential competitors are not loaded with, they have a reasonable gripe.

But it is equally true, as Walter has pointed out, that even within that scheme it is possible to price a service or a selection of services under some cost as defined within that pool, lending credibility to the allegation of the other side that they are being wantonly, wilfully underpriced.

Now, how are you going to net this out? If you leave some carriers saddled with charges, so that they carry costs that are unfair, and others without those charges, you are going to continue to have A.T. & T. saying, we are being loaded unfairly compared to the others. As long as A.T. & T., or the operating companies, has the possibility, no matter how these costs are allocated in the large, to underprice selectively in some areas, then you have a real possibility of their competitors, like the Wangs and the Honeywells and so on, crying foul, and you do have the further possibility that to the extent that the latter folks subsidize some of their transmission services out of their revenues, out of some unregulated something or other, you will have A.T. & T., as it did today, crying foul on its own.

The point is, sir, that these are all reasonable allegations. I do not think that the Congress can stay with that argument forever, and that ultimately whether it is through an administrative agency, or an administrative agency and the courts, or the courts alone, that is where ultimately it is going to have to continue to be fought out. My sense is that the best you can do is to try to provide some measure of equity, providing also for, you know, transitional things that do not create cataclysms. That is the hard part of providing transitional schemes.

Mr. MARKEY. Transition could be 10 years.

Mr. OETTINGER. I will not hazard a guess, but I think that the transition can be accelerated or retarded in so many ways that unless you make a full inquiry into the details of accelerating and retarding mechanisms, including particularly cost allocations and pricing inside any organization, you will not get there from here.

Mr. MARKEY. But is it important for us to make that decision so that we do not wind up with a lot of high tech firms, the smaller companies especially, exercising their antitrust privileges or rights posthumously in trying to receive damages? What do we say to these companies if there is an abuse by Ma Bell in her use of these excess revenues to underprice their high tech competitors?

Mr. OETTINGER. It is a familiar dilemma. When I sat, you know, in a regulatory chair—

Mr. MARKEY. Could it happen? Can you tell me if it will happen?

Mr. OETTINGER. Of course it could happen.

Mr. MARKEY. Yes.

Mr. OETTINGER. Of course it could happen.

Mr. MARKKEY. And if they do have a goal to get 25 or 30 percent of the market in high tech, is it likely that there is—

Mr. OETTINGER. Your dilemma is one I cannot resolve for you. It is whether or not you try to anticipate damages that have not occurred, and incur the wrath of folks who say you are holding up the wheels of progress or whether you let go and then incur the wrath of those who fear they might have to invoke their rights posthumously, but I am afraid that is what you have been elected to do.

I have reached the limits of how far I can advise you on that.

Mr. MARKKEY. OK. Mr. Hinchman.

Mr. HINCHMAN. What is not clear to me in all this discussion is that there is any remaining synergy between the provision of inter-exchange communications services and the manufacture and supply of customer premises equipment, for example. That synergy I do not see. Given that there is a threat, I think a substantial threat of just the type of thing you are talking about, of continued cross-subsidization of what could be very competitive equipment manufacturing and provision for high tech kinds of equipment from the interexchange services or from equipment that is sold to the interexchange services supplier, which is also an integrated firm, it seems to me that the separation of those two activities is not a very onerous burden on the industry, and a very good prophylactic arrangement to prevent that type of thing from happening.

I do not see that you lose a lot in terms of the ability of Western Electric to compete effectively in providing all kinds of new high-tech equipment and maybe even enhanced types of services by divesting them from the long distance telecommunications—

Mr. MARKKEY. Mr. Legates, do we want to take that type of prophylactic action?

Mr. LEGATES. Will you summarize the prophylactic action so that it fits with a yes or no answer?

Mr. MARKKEY. That we have to afford some kind of structural separation that insures that there is not a cross-subsidy flowing from the interexchange or the procurement area into the manufacturing and marketing arm of A.T. & T. in its nonregulated form.

Mr. LEGATES. OK. Since you used the words "have to," I can only respond, no, you do not have to, and I am afraid my answer sounds suspiciously like Tony's, but you do have a real dilemma. There is the possibility of that subsidy. There is the possibility that if you take all possible measures to prevent it, you will stifle growth in other areas.

Mr. MARKKEY. So you are saying we should not? No, would we be advised to?

Mr. LEGATES. No. That would be acting in your role. I can—

Mr. MARKKEY. We are here taking advice so we can go yes or no, and you are here giving us your best judgment, and we try to get people with as many different judgments so we can weigh them rather than—we know the options. We do not know what the best people in the field think.

Mr. LEGATES. I will beg off on the grounds that judging is not our specialty. Telling you likely consequences and good options is.

Mr. MARKEY. OK. Mr. Hatfield? Let me ask Mr. Hatfield. We do not have "maybe" up on the chart up there. We are unfortunately limited in our conscience to two.

Mr. HATFIELD. Before I answer the yes or no question, we should keep in mind there are some pretty big firms involved here, Xerox, Exxon, IBM, and so forth. These are some very large firms. And we should also keep in mind that the consent decree would get rid of the basic monopoly source—the local exchange. You have taken care of that. So I think it greatly diminishes any need for the sort of separation between terminal equipment and long distance that was there before.

If you get rid of the final entry barrier, and that is the intrastate business that I have talked about ad nauseum, once you get rid of it, then I see no reason why the whole market is not competitive. Their ability to charge higher long distance rates in order to subsidize terminal equipment, for example, that ability is gone. I think that is what Mr. Baxter is saying, as I understand it, and I believe that is generally the case, if you get rid of that final barrier, and that final barrier is the intrastate toll.

Mr. MARKEY. OK. Do you have a transition problem, though? What do we do while we are waiting? I mean, what do those companies do? There are dozens of them out there that are not Digital and Xerox and others. I mean, they are a lot more vulnerable. They have a good chunk of the market. But they are clearly able to be pushed out if they are targeted by an industry—by a new company that is trying to look for the areas that are most profitable, and they can move in and underprice.

Mr. HATFIELD. I guess you have to look at the question, does Congress have to do something? Does the FCC have to do something? This is where Walt and I might have to disagree a little bit, but the Commission does have today the power to protect the regulated part of that business from cross-subsidizing the terminal equipment business. That is what the computer inquiry went to. We could argue whether it is sufficient or not, but it seems to me that the Commission does have the power to prevent those abuses.

Mr. MARKEY. OK. Mr. Oettinger.

Mr. OETTINGER. Let me try to help you out a little bit by being a bit more precise. This is why I set such store by correcting the record earlier with regard to what I believe to be an error in the estimation of A.T. & T.'s generating \$30 billion in revenues. One of the unanswered questions under the proposed consent decree is what the size of A.T. & T. will be. In this chart that I showed you earlier (fig. 4), there were some gray areas which are not yet settled.

Mr. MARKEY. Purple, actually.

Mr. OETTINGER. Thank you. You are not colorblind on that. Now, the answer to your question would depend a great deal on what the size of the residual A.T. & T. cum Western Electric is compared to some of the competitors that Dale has mentioned. If it is much larger, if the modified consent decree does not go into effect, then you have one ball game. If it is of comparable size, then I think you have a very different ball game and, in particular, the argument that dealing with A.T. & T. on a basis different from the way competitors of its own size are treated loses some of its force.

In the latter case your concern for small businesses does not lose its force, but it becomes a generic problem of small businesses vis-a-vis large businesses in general, and no longer directly relates to problems of telecommunications policy. That is why I think there is, at the moment, a rather difficult dilemma. You would act one way looking at a \$60 billion A.T. & T. cum operating companies. You would act a different way if—and this is still a blank—the residual A.T. & T. is of a size comparable to some of these other folks, where the problem of cross-subsidy arises across the board any time that you have a company that makes more than one product. Any of them can cross-subsidize one product at the expense of the others.

And whether you want then to take every company above a certain size and divest it into pieces each of which makes a single product, I think, you know, it begins to reach the absurd, which is why I think you have a hard problem.

Mr. MARKER. OK. Who are we talking about along Route 128, for example?

Mr. OETTINGER. You may have some small businesses who would suffer at the hands of every larger business in the country, but if A.T. & T. is cut down to a size, and this is still not known—that deck has not yet been dealt—to a size comparable to other organizations that are in the computer and communications business, you have a very different situation, and you know, why don't you fix up the Small Business Administration to help those folks or provide some other remedy, or—but I think you are then in a generic problem whereas until now without the consent decree going into effect you have a sui generis problem, and what I think the crucial element is in terms of the timing of your bill relative to the implementation of that consent decree is whether you deal retrospectively with a sui generis problem or prospectively with something which it is still not known whether it will remain sui generis or become generic. I do not know.

Mr. MARKER. Well, I think there is as much probability that it will be generic as it will be sui, and you have, I guess, a tough choice as a policymaker as to, you know, which risk you want to run, and some people would argue that 10 years from now, no matter how you structure A.T. & T., that it is going to have 25 percent of the high-tech market if it wants to go out there, it uses good marketing, management techniques, so that it is there, that under any scenario that is going to be a fact of life. You are just going to have to live with it, and all the competitors will, but the competitors also argue, let's at least make it a level playing field. Let's make sure that we do not have to compete with somebody that has this extra flow of revenues coming in, and in an attempt to provide that level playing field so that at least I know if I am beaten I am beaten by a company that I could not move as quickly as, could not get my product out, could not, you know, could not move as quickly, that I had a chance, that I knew he was a giant, I play against Xerox or IBM or Digital, but at least against those people I am using my skills against theirs, but it is not in a situation in which they are given unfair subsidies from ratepayers. That is a tougher question for us to answer, and it goes to a certain extent to the kinds of things that Mr. Hinchman was talking

about earlier, and whether we ought to address them or wait, you know, for kind of a Monday morning re-evaluation of how the game went, and then hand the awards, you know, and the knocks to those that did not perform as we thought they would.

Mr. OETTINGER. Let me try to come at it again with more specific help. So long as A.T. & T., Southern Pacific Communications, and the others remain with SPF-like costs to cover, they will have a handicap—in the aggregate—relative to organizations that do not have that kind of cost to cover. That does not mean, as Mr. Hinchman has pointed out quite correctly, that they cannot in some one product or cluster of products underprice the living hell out of those products at the expense of some others.

However, overall, there is some cost disadvantage there. Now, that does not preclude the possibility that if they are selective in underpricing they might clobber some folks, but it is a very delicate pinpoint kind of a problem, not one which you can address with a broad brush, which is why I am led, in spite of the imperfections of the administrative agency, to suggest that you leave some latitude to the administrative agency, because you will not have enough time to keep coming back yourselves as the Congress of the United States, adjudicating every complaint that is going to come out on one side or the other.

Mr. MARKEY. Mr. Hinchman.

Mr. HINCHMAN. In this debate—

Mr. MARKEY. Would we have to come back and constantly readjudicate all these questions—

Mr. HINCHMAN. Not under my scenario.

Mr. MARKEY [continuing]. Under your scenario? Would we have to do that?

Mr. HINCHMAN. I do not think so. You would have a separation between services and equipment manufacturing, and you would not have to come back and adjudicate that. In this debate, the terms Exxon, IBM, and other such names are constantly raised as the reason that Bell is now going to be subjected to effective competition. I know of no scenario that is likely that shows an IBM, an Exxon, or anyone else with a wire into every community in this country that most people are going to continue to be reliant on for their long-distance communications for the foreseeable future.

So, I am perfectly in agreement with the idea that a divested Western Electric would be subject to very substantial competition in the manufacturing business, and the supply of equipment by an IBM, by an Exxon, by someone like that. I do not see those firms being equal in any sense when it is A.T. & T. with the long-distance business still integrated with its manufacturing operations, and I do not know of any scenario that indicates that is going to change.

Mr. MARKEY. I am going to have to cut it off here. I might say that I hope that Mr. Broyhill is right, and the only question people ask us on the floor is if the local rates are going up and down, because I would like to answer the question yes or no, because if they ask us what is the difference between SPF and SLU or four or five, class four or class five switch, or any of the other questions that we have been discussing here today, I think it might be a little more complicated for us.

