

*DOMESTIC AND INTERNATIONAL  
INFORMATION RESOURCES POLICY*

Congressional Testimony  
of  
Anthony G. Oettinger  
and  
John C. LeGates

1976-77

Working Paper **I**-78-1

Harvard University  
Program on Information Resources Policy



HARVARD UNIVERSITY - PROGRAM ON INFORMATION RESOURCES POLICY

CORE PROGRAM SUPPORT

|   |   |
|---|---|
| American Can Company                        | Iran Communications & Development Institute |
| American District Telegraph Company         | Lee Enterprises                             |
| American Newspaper Publishers Assoc.        | Litton Industries                           |
| American Telephone and Telegraph            | Lockheed Missiles and Space Company         |
| Arthur D. Little Foundation                 | John and Mary R. Markle Foundation          |
| Bell Canada                                 | McGraw-Hill, Inc.                           |
| Beneficial Management Corporation           | Mead Corporation                            |
| The Boston Globe                            | Minneapolis Star and Tribune Company        |
| Canadian Post Office                        | National Telephone Cooperative Assoc.       |
| Codex Corporation                           | New York Times Company                      |
| Communications Workers of America           | Nippon Electric Company                     |
| Computer and Communications Industry Assoc. | Norfolk & Western Railway Company           |
| Consolidated Edison Company of New York     | Payment Systems, Inc.                       |
| Des Moines Register and Tribune             | Pitney Bowes, Inc.                          |
| Donaldson, Lufkin & Jenrette                | Polaroid Foundation, Inc.                   |
| Encyclopaedia Britannica                    | Reader's Digest, Inc.                       |
| Executive Office of the President           | Reuters, Ltd.                               |
| Office of Telecommunications Policy         | Salomon Brothers                            |
| L. M. Ericsson (Sweden)                     | Seiden & De Cuevas, Inc.                    |
| Federal Communications Commission           | Southern Pacific Communications             |
| Federal Reserve Bank of Boston              | Stromberg-Carlson Corporation               |
| First National Bank of Boston               | Systems Applications, Inc.                  |
| First National Bank of Chicago              | Time Incorporated                           |
| General Telephone & Electronics             | Times Mirror                                |
| Hallmark Cards, Inc.                        | Transamerica Corporation                    |
| Harte-Hanks Communications, Inc.            | United Telecommunications                   |
| Honeywell, Inc.                             | U.S. Department of Commerce:                |
| IBM Corporation                             | National Technical Information Services     |
| International Data Corporation              | Office of Telecommunications                |
| International Paper Company                 | United States Postal Service                |
| International Resources Development, Inc.   | Western Union International, Inc.           |
| Interpublic Group of Companies, Inc.        | Xerox Corporation                           |
| International Telephone and Telegraph Corp. |   |

SPECIAL PROJECTS

|  |                                       |
|--|---------------------------------------|
| National Association of Broadcasters                     | National Science Foundation           |
| National Commission on Libraries and Information Science | United States Congress:               |
|  | Office of Technology Assessment       |
|  | Senate Committee on Foreign Relations |

*Act as men of thought  
Think as men of action.*  
- Henri Bergson

Harvard University

Program on Information Resources Policy

Executive Committee - 1977-1978

CHRIS ARGYRIS  
Schools of Education and  
Business Administration  
Professor of Education and  
Organizational Behavior

ARTHUR R. MILLER  
Law School  
Professor of Law

HARVEY BROOKS  
Faculty of Arts and Sciences  
Benjamin Peirce Professor of  
Technology and Public Policy

JONATHAN MOORE  
Director, Institute of  
Politics

JOHN C. LEGATES  
Director, Program on Information  
Resources Policy and Research  
Fellow in Information Resources  
Policy

ANTHONY G. OETTINGER  
Chairman, Program on Information  
Resources Policy  
Professor of Applied Mathematics  
and of Information Resources Policy

PAUL C. MARTIN  
Faculty of Arts and Sciences  
Professor of Physics and Dean,  
Division of Applied Sciences

RICHARD S. ROSENBLOOM  
School of Business Administration  
David Sarnoff Professor of Business  
Administration and Associate Dean  
for Research and Course Development

JOHN R. MEYER  
School of Business Administration  
1907 Professor in Transportation,  
Logistics and Distribution

RAYMOND VERNON  
School of Business Administration  
Herbert F. Johnson Professor of  
International Business Management

## TABLE OF CONTENTS

|   | <u>Page</u> |
|---|-------------|
| COMPETITION IN THE TELECOMMUNICATIONS INDUSTRY  | 1           |
| Statement of Anthony G. Oettinger before the<br>Subcommittee on Communications of the Com-<br>mittee on Interstate and Foreign Commerce,<br>House of Representatives<br>September 28, 29 and 30, 1976 |             |
| DOMESTIC TELECOMMUNICATIONS COMMON CARRIER POLICIES   | 42          |
| Statement of Anthony G. Oettinger before the<br>Subcommittee on Communications of the Committee<br>on Commerce, Science and Transportation,<br>U. S. Senate<br>March 23 and 28, 1977                  |             |
| INTERNATIONAL COMMUNICATIONS AND INFORMATION  | 52          |
| Statement of Anthony G. Oettinger and John C.<br>LeGates before the Subcommittee on International<br>Operations of the Committee on Foreign Relations,<br>U. S. Senate<br>June 8, 9 and 10, 1977      |             |
| PUBLIC DIPLOMACY AND THE FUTURE   | 85          |
| Statement of John C. LeGates before the<br>Subcommittee on International Operations of<br>the Committee on International Relations,<br>House of Representatives<br>June 8, 13-16, 21-23 and 24, 1977  |             |



# COMPETITION IN THE TELECOMMUNICATIONS INDUSTRY

---

HEARINGS  
BEFORE THE  
SUBCOMMITTEE ON COMMUNICATIONS  
OF THE  
COMMITTEE ON  
INTERSTATE AND FOREIGN COMMERCE  
HOUSE OF REPRESENTATIVES  
NINETY-FOURTH CONGRESS  
SECOND SESSION  
ON  
EXPLORING THE SUBJECT OF COMPETITION IN THE  
DOMESTIC COMMUNICATIONS COMMON CARRIER  
INDUSTRY

---

SEPTEMBER 28, 29, AND 30, 1976

---

Serial No. 94-129

---

Printed for the use of the Committee on Interstate and Foreign Commerce



U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1977

80-086 O

Mr. VAN DEERLIN. Our next witness will be Harvard professor Anthony G. Oettinger, who directs the Program on Information Resources Policy at Harvard.

And, if I am not mistaken, you are accompanied by a familiar face to this committee, Kurt Borchardt, who honors us every time he returns.



Mr. BORCHARDT. Thank you, Mr. Chairman. My pleasure.

Mr. VAN DEERLIN. He never had such a good tan when he was working for the committee, I can tell you that.

Mr. OETTINGER. I guess we treat him more kindly.

Mr. VAN DEERLIN. That's undoubtedly true.

**STATEMENT OF ANTHONY G. OETTINGER, PH. D., DIRECTOR, PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD UNIVERSITY, ACCOMPANIED BY KURT BORCHARDT, RESEARCH FELLOW, PROGRAM ON INFORMATION RESOURCES POLICY; AND JOHN LeGATES, EXECUTIVE DIRECTOR, PROGRAM ON INFORMATION RESOURCES POLICY**

Mr. OETTINGER. Mr. Chairman, thank you for the opportunity to comment here. As you said, I am a professor at Harvard University where I direct the program on information resources policy. Appended for the record a list of other affiliations [see p. 1134].

As you recognize, Mr. Borchardt, who is here with me, is now a research fellow with our program, and also with me here today is Mr. John LeGates, the executive director of our program.

We think that there is both good news and bad news about competition in the domestic telecommunications common carrier industry.

The good news is that for the first time since the passage of the Communications Act of 1934, the introduction of the Consumer Communications Reform Act of 1976 has served to focus responsibility for making basic communications policy where that responsibility rests; namely, in the Congress of the United States. Lots of other folks have been playing at this over the last 40 years, but I think it is most timely for that responsibility to be exercised once again by the people of the United States through their Congress.

I think that in exercising this responsibility, the appropriate committees will soon come to realize that their legislative jurisdiction is no longer coextensive with one of the key problems with which they will have to deal, and I refer to the disappearance of the borderlines between communications facilities and services on the one hand and information handling facilities and services on the other hand. The disappearance of these borderlines has led to the emerging of what we call communication industries.

I am not going to tell you the details of why there is, in our view, a serious jurisdictional question. We have submitted for the record [see p. 1135] a memorandum entitled "Congressional Committees: Jurisdiction over Communications." I would be happy to answer questions on that, but I will not take your time by reading it.

But while you have heard a good deal in the last couple of days and today about competition related to so-called specialized common carriers, competition related to terminal equipment, you have heard less, although you have heard some, about what we feel is really the major underlying development, namely, that an industry in which A.T. & T. plays a major role and another industry in which IBM plays a major role, are now confronting one another in a new arena. This is a new ball game, and there was nothing like that envisaged in the Communications Act of 1934.

I might say, parenthetically, that we have had a law student looking at the legislative history of the intent of the act of 1934, and of the language in section 1 about communication by wire \* \* \* to all the people of the United States, and so forth. A superficial look does not reveal much of any kind of history. The language sort of appeared. There may be something buried there someplace, but a cursory look does not reveal it. I would hope that if Mr. Baker's staff at the Justice Department dig deep they will find it for us, it will save us a lot of trouble and I would love to see their report when it is made available for the record.

Now, once the legislative jurisdictions have been broadened, I think that congressional committees can then ask where the Congress might place good fences between neighboring suppliers of facilities and/or services so as best to serve the public.

I think this distinction between facilities and services is crucial, although in the past there has been very little call for distinguishing between the two. The facility, the physical equipment with which you provided the service, and the service, itself, were pretty much indistinguishable, but today, what is a facility and what kind of services are provided over it are two increasingly distinct questions, and I think it is important to keep that in mind.

Now, the bad news. The bad news in our opinion is that the proposed legislation has further beclouded an already foggy picture. Far from offering a clear view of the future and suggesting how section 1<sup>1</sup> of the act of 1934, that is the section stating the purpose, might be updated to take account of new technological developments, of new demands for new services, and of increasing interdependence among nations, it apparently suggests preventing all change by restoring the past without even recognizing the present, let alone the future. And furthermore, the proposed legislation continues to pose as the principal issue, as seems to be the case with almost everybody in these hearings, seems to pose as the principal issue, a polar alternative of monopoly versus competition where the graduated and appropriate questions should be:

In the first instance, what, if any, new performance objectives for the communications industries should Congress spell out in an updated section 1 of a new Communications Act? That question I think is the central one here, and needs to be addressed.

The second question, once the Congress has exercised its responsibility to set national objectives, is to ask questions about what are the means by which to pursue those stated objectives. These questions are spelled out in greater detail in the statement, "Performance, Politics and Policy in Computer/Communications: A Policy Agenda," submitted for the record [see p. 1139] to supplement this oral presentation.

So far, the public debate over this act has amply demonstrated the extent of the confusion on the part of both the supporters of the legislation and its opponents. At times it has seemed as if this debate were carried on because of the unwillingness and perhaps the inability of both sides to face the real issues which are, what are to be the proper

<sup>1</sup> 47 U.S.C. § 151. "For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, and for the purpose of securing a more effective executive of this policy . . ."

objectives, what is to be the proper balance among these objectives if they are—as they necessarily will be—in competition or even in conflict with one another. And then, what are to be the preferred means for achieving these objectives, when even now those means that are used are much wider ranging than is evident from polarized catchwords about the structure of an industry?

The whole debate seems to assume that structural questions like monopoly versus competition are the only ways in which Government either intervenes in or fails to intervene in the performance of an industry or industries, and nothing could be further from the truth, even now. So that posing the question in those narrow terms simply fails to portray the real world as I see it.

This whole question of relating objectives with means to attain them is very crucial, because you then start looking for shadings among means even in the narrow realm of competition. Competition in specialized carrier facilities is a very different thing from competition in terminal facilities; it is a very different thing from competition in services. So even if you take that limited view of competition versus monopoly as being the issue, there is a lot of difference in terms of the nature of the facilities, in terms of the nature of the services, depending on which of these arenas you are talking about.

And so, in asking "What are the major unresolved issues associated with the [FCC's] introduction of competition," the subcommittee staff poses the question to us I think much too narrowly. The major unresolved issues are not only associated with the introduction of some measure of competition by the FCC; they are associated with the emergence of the communication industries, with a changing world order, and with the opportunities for increasingly diverse and abundant services which new technologies and new types of facilities make possible.

So that before making any decision, the subcommittee should start up, in our opinion, a public debate on the two basic questions: What objectives for the midterm future should Congress express in lieu of section 1 of the Communications Act; and second, what are the means, and industry structure is only one of them, for achieving those objectives?

In framing the terms of that debate, the subcommittee should also remind everyone that communications facilities and services are the nerve system of our interdependent world, and the debate can effectively address ends and means only in international as well as in domestic terms. Framing this whole set of issues as if they were a purely domestic matter again threatens to fail to address what are the real issues.

Now, we were asked what kind of additional information might be necessary. Well, addressing these ends and these means requires a wealth of knowledge derived from law, from economics—economics, by the way, does not have a monopoly on knowledge in this area, pardon me, not a natural monopoly—in fact, a most unnatural monopoly. I would say, from social, political and management sciences, and from natural sciences and technology.

But we would argue that something much better is called for than just having a bunch of blindfolded experts pin a load of information on the donkey of fragmented and circumscribed regulatory proceed-

ings. One of the prize examples of that game is the contradictory and conflicting stories about costs and cost accounting and costing principles which are nothing more than expediency masking in scientism and expertise. The point simply is this, that once you decide what direction you want to go in you can find an economist or a cost accountant to justify as doctrine and accepted principle damn near anything you want.

In a situation where such a large proportion of the costs are joint and common costs, that are allocated or contributed or whatever, among services in what can only be an arbitrary fashion, to talk about improving accounting systems when the fundamental issue is what are the costs that you are looking at and who defines them, and for what purpose, is just piling expertise on—

Mr. VAN DEERLIN. Would you be kind enough to excuse us for about 10 minutes? We will be right back.

[Brief recess.]

Mr. VAN DEERLIN. Will you proceed, Mr. Oettinger.

Mr. OETTINGER. Well, I was pointing out that while I was all for additional information in dealing with this complicated mess, something better was called for than having blindfolded experts pin a load of information on the donkey of fragmented and circumscribed regulatory proceedings. I believe that this knowledge, however acquired, must be usable as input to inherently political judgments arrived at by the traditional methods of politics: namely, argument, persuasion, negotiations, and ultimately, accommodation and compromise, and these are concepts to which the quasi-judicial adjudicatory kind of setting, it doesn't lend itself well. It lends itself mainly to polarized, argumentative brief-style language that doesn't clear up the issues, even if it succeeds in presenting the position of a particular party on a particular issue. I might say, Mr. Chairman, if justice is blind, then quasi-judicial proceedings are quasi-blind and in the land of the blind, the one-eyed man is king.

As you know, even the courts are asking for congressional guidance, and I think it is time for you gentlemen to grasp this nettle.

Now, reaching these political judgments will not be easy. There are reasons quite apart from the great number of players involved and the complexity of the issues. Partly, the executive branch has not perceived any real urgency in proposing policies regarding the future workings of the communication industries. And partly, the communication and computer industries have failed to face up, at least publicly as far as one can tell, to the problems which they will have to confront.

Under these circumstances, it may well be incumbent upon the appropriate committees of the Congress to prod the executive branch and the private sector to create an effective interface between the private and public sectors to analyze the advantages and the disadvantages from the public's point of view of alternative placements of fences between interrelated facilities and services.

There are precedents for such an approach in other industries which serve functions that are essential to our national security, to our civilian economy, and to other aspects of our common welfare. Neither the public sector nor the private sector alone seem capable of dealing effectively with the problems presented by such industries when these

problems are approached as they are now, only blindfolded and at arm's length.

Thank you, Mr. Chairman.

[Testimony resumes on p. 1163.]

[Attachments to Mr. Oettinger's prepared statement follows:]

## MR. OETTINGER'S AFFILIATIONS

ANTHONY G. OETTINGER, director of the Harvard Program on Information Resources Policy, is Professor of Information Resources Policy, a member of the Faculty of Public Administration and Gordon McKay Professor of Applied Mathematics at Harvard University.

He is chairman of the CATV Commission of the Commonwealth of Massachusetts and a consultant to the National Security Council, Executive Office of the President of the United States. He is a member of the Research Advisory Board of the Committee for Economic Development and was an advisor to the CED subcommittee that prepared the report *Broadcasting and Cable Television: Policies for Diversity and Change*, issued by CED in April 1975. Since 1956, he has served as a consultant to Arthur D. Little, Inc., on the uses of information technologies in many industries; he served as a principal consultant to the team that prepared *The Consequences of Electronic Funds Transfer -- A Technology Assessment of Movement Toward a Less Cash/Less Check Society*, a report for the National Science Foundation published by the Government Printing Office in June 1975.

He has been president of the Association for Computing Machinery (1966-68) and a consultant to the Office of Science and Technology, Executive Office of the President of the United States (1961-73). He is a Fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science and the Institute of Electrical and Electronics Engineers.

As chairman of the Computer Science and Engineering Board of the National Academy of Sciences (1967-73), he led the preparation of NAS reports on *A Technical Analysis of the Common Carrier/User Interconnections Area* (Lewis S. Billig, Project Director), *Databanks in a Free Society: Computers, Record Keeping and Privacy* (Alan F. Westin, Project Director) and on *Libraries and Information Technology--A National System Challenge* (Ronald L. Wigginton, Project Director). He is the author of *Automatic Language Translation: Lexical and Technical Aspects*, of *Run, Computer, Run: The Mythology of Educational Innovation* and of numerous papers on the uses of information technologies, including, most recently, *Foreign Policy Choices for the 1970s and 1980s: Information Resources: Strategic Strengths - Strategic Weaknesses*, a report of the Program prepared, with William Read, at the request of the U.S. Senate Foreign Relations Committee.

## Supplement to Statement of September 30, 1976

Congressional Committees: Jurisdiction over "Communications"

What should be the policy-making role of the Congress when two technologies -- the telecommunications and the computer technologies -- merge to the point where two heretofore complementary industries -- the communications and the computer industries -- become a single one -- the communications industry?

How should the legislative and oversight jurisdictions of Congressional committees be adjusted so that Congress' policy-making role can be discharged effectively with regard to the technology-mediated industrial restructuring process?

These are the two questions which this Exhibit addresses.

The handling of information involves the use of several technologies. Several industries do the handling. Handling means doing various functions like transferring information over distances, storing, selecting, retrieving, duplicating or transforming it in various ways. The information may be in oral, written, pictorial or other symbolic forms.

In the past, technologies, industries, functions and types of information were fenced into distinct, fairly stable enclaves. For example, the telephone companies used telecommunications technology to transmit oral information over distances. These enclaves are now breaking down.

In particular, the merger of telecommunications and computer technologies has progressed to the point where we speak of communications technologies. The advent of communications technologies has proved to be all the more unsettling to both the private and public sectors because telecommunication facilities and services have been offered by private companies subject to public utility-type regulation while the offering of computer equipment and services has been left largely to the market place.

The merger of these technologies has resulted in persistent demands for changing the established fences which have separated industrial neighbors from one another, and equally persistent demands that the traditional fences be maintained.

Communications technologies have begun to impact not only on electronic information transfer facilities and services (telephone, telegraph, telex, etc.) and on data processing facilities and services, but also on other information facilities, services, and institutions such as newspapers, magazines, and book publishing; library and other information storage and distribution services; school and university instruction; insurance operations; money, banking and securities operations; and health care; to name only a few outstanding examples.

Emerging communications technologies, therefore, have widespread and deep impacts on numerous and diverse groups and individuals both in the private and public sectors. Such groups and individuals either feel threatened or see golden opportunities whether they be producers, operators or users; managers or employees; financiers or regulators in relation to the emerging communication facilities, services or institutions.

How can our minds grasp what is happening? A picture is said to be worth a thousand words. We might visualize a spider's web with nodes at the numerous points where the individual strands intersect. Interested groups and individuals are tugging at different strands in an effort to shape some segment of the web to suit their objectives. In so doing, however, they are likely to affect the shape or functioning of the entire web or even break some strands with resulting side-effects on other segments or the entire web.



Given the complexities of such a web situation, what should be the role of the Congress, and how should Congress attempt to discharge whatever role it might decide to play?

Should Congress' role be purely reactive with regard to events both in the private and public sectors, and should it play such role on an ad hoc basis, or should Congress attempt to give policy guidance to the anticipated industrial restructuring process and to governmental efforts aimed at influencing or controlling that process?

If Congress opts for the former role, the question of committee jurisdiction is not nearly as important as it would be if Congress should opt for the latter role.

If Congress should desire to give policy guidance to the industrial restructuring process, several alternatives regarding committee jurisdiction might be considered:

(1) Congress might assign jurisdiction over the segmentation and operation of the entire web to new super-committees or a single joint super-committee on the grounds that all segments of the web must be dealt with on an integrated basis.

(2) Congress might direct committees recommending specific courses of action regarding their particular segment, to attempt to assess to the best of their ability what the impact of their recommendations might be on other segments.

(3) Congress might broaden the jurisdiction of those committees which have jurisdiction over a segment of the web which is in the process of being merged with another segment by reason of an ongoing merger of technologies.

For reasons of practicality, the second alternative is preferable to the first. The whole web is so complex that dealing with it as a totality

- 4 -

is likely to exceed human intellectual and organizational capabilities. Therefore, even if Members of Congress assigned to some super-committee or committees should give their principal attention and devote most of their energies to that committee or those committees, and even if an outstandingly capable staff should be assembled, it would be very questionable whether such a committee's or committees' recommendations for dealing with particular problems would be superior to recommendations by separate committees if each of them made a bona fide effort to assess possible side-effects which their recommendations might entail.

The second alternative is applicable to relationships between the communications (or communications) segment and the postal segment, since the latter has already been assigned to the Post Office and Civil Service Committees in both houses. It also applies to relationships among the broadcast TV, cable TV, and telecommunications segments, since all these fall under the Interstate and Foreign Commerce Committees.

The third alternative would serve to complement the second alternative, especially in situations where the broadening of the jurisdiction would not constitute an invasion of the jurisdiction of another committee because no committee has been assigned jurisdiction over the segment in question which is in the process of being merged with a jurisdictionally assigned segment.

Specifically, the third alternative is applicable to the data-processing segment which is in the process of being merged with the communication segment. The latter segment having been assigned traditionally to the Commerce Committees in both houses, it would seem appropriate to broaden the jurisdiction of these committees by assigning to them legislative and oversight jurisdiction regarding the newly merged communications segment, where the FCC now acts without benefit of congressional guidance.

Program on  
Information Technologies  
and Public Policy

**working paper**

*PERFORMANCE, POLITICS AND POLICY*

*IN*

*COMPUTER/COMMUNICATIONS:*

*A POLICY AGENDA*

Anthony G. Oettinger

June 1976

Working Paper W-76-7

---

Harvard University  
Cambridge, Massachusetts 02138



EXECUTIVE SUMMARY

*PERFORMANCE, POLITICS AND POLICY IN COMPUTER/COMMUNICATIONS:*

*A POLICY AGENDA*

Anthony G. Oettinger

Looking beyond polarized arguments over competition vs. monopoly in the computer/communications arena, this paper notes the massive social and technological changes that have occurred since the enactment of the Communications Act of 1934.

Given the major strategic burdens, economic as well as military, now shouldered by computer/communications ("communications"), the paper suggests that examining the validity of the mission set forth in the Act of 1934 is the first order of public business.

Specific agenda items address "What are the ends and who says so?" and "What are the means?"

## Harvard University

## PROGRAM ON INFORMATION TECHNOLOGIES AND PUBLIC POLICY

Core Program Support

## AFFILIATES

|                                     |  |
|-------------------------------------|--|
| American Can Company                | Minneapolis Star and Tribune Co.       |
| American Telephone and Telegraph    | New York Times Company                 |
| Arthur D. Little Foundation         | Nippon Electric Company                |
| Booth Newspapers                    | Norfolk & Western Railway Company      |
| Bunker Ramo Corporation             | Pitney Bowes, Inc.                     |
| Codex Corporation                   | PRC Information Sciences Company       |
| Computer Industry Association       | RCA Global Communications              |
| Data Transmission Company           | Rockefeller Brothers Fund              |
| Donaldson, Lufkin & Jenrette        | Rockwell International                 |
| L. M. Ericsson (Sweden)             | Salomon Brothers                       |
| Federal Reserve Bank of Boston      | Seiden & De Cuevas, Inc.               |
| First National Bank of Boston       | Systems Applications, Inc.             |
| General Electric Company            | Time Incorporated                      |
| Harte-Hanks Newspapers              | Transamerica Corporation               |
| IBM Corporation                     | United Telecommunications, Inc.        |
| International Paper Company         | U.S. Department of Commerce:           |
| Lee Enterprises                     | National Technical Information Service |
| Lockheed Missiles and Space Company | Office of Telecommunications           |
| John & Mary R. Markle Foundation    | Western Union Corporation              |
| Mead Corporation                    | Zenith Radio Corporation               |

STUDENT ASSISTANTSHIPS

|                            |                                |
|----------------------------|--------------------------------|
| Arthur D. Little, Inc.     | Equifax Corporation            |
| Bank of America            | First National Bank of Chicago |
| William Bingham Foundation |                                |

*Act as men of thought  
Think as men of action.*  
- Henri Bergson

Harvard University

PROGRAM ON INFORMATION TECHNOLOGIES AND PUBLIC POLICY

Executive Committee - 1975-1976

CHRIS ARGYRIS  
Schools of Education and  
Business Administration  
Professor of Education and  
Organizational Behavior

JOHN C. LEGATES  
Executive Director, Program  
on Information Technologies  
and Public Policy; Research  
Fellow in Information  
Resources Policy

HARVEY BROOKS  
Faculty of Arts and Sciences  
Benjamin Peirce Professor of  
Technology and Public Policy

JOHN R. MEYER  
School of Business Administration  
1907 Professor in Transportation,  
Logistics and Distribution

WILLIAM M. CAPRON  
J. F. Kennedy School of Government  
Lecturer on Political Economy  
and Associate Dean

ARTHUR R. MILLER  
Law School  
Professor of Law

ROBERT M. HAYES  
School of Business Administration  
Professor of Business Administration

JOSEPH S. NYE  
Faculty of Public Administration  
Professor of Government

ANTHONY G. OETTINGER  
Director of Program on Information  
Technologies and Public Policy  
Professor of Applied Mathematics  
and of Information Resources Policy

## TABLE OF CONTENTS

|                                     | <u>Page</u> |
|-------------------------------------|-------------|
| Ends and Means: Myths and Realities | 1           |
| A Policy Agenda:                    |             |
| What are the Ends and Who Says So?  | 5           |
| What are the Means?                 | 7           |

*ENDS AND MEANS: MYTHS AND REALITIES*

Competition vs. monopoly. In the American ethos, this stark contrast implies the preferred industrial structure hence argues for policies that support it. But for neither extreme is the case as clear cut as advocates would have it. New entrants tend to favor open competition while entering and protection from further entrants once in. Nor are these polar forms of industry structure as self-evidently desirable ends to everyone in the United States or abroad as they are to latter-day Adam Smiths and to postal, telephone or telegraph managements.

Modern economic theory recognizes that various performance goals -- such as profit maximization or various shapes of income and wealth distribution -- and various conditions of production -- such as the extent of economies of scale -- are best accommodated by various shadings of the extreme structures.

In the United States, both regulators and the regulated telecommunications monopolies have espoused the goal of "service to all". In the name of that goal, they have justified monopoly and concomitant pricing policies, such as value-of-service pricing and cost-averaging. But despite all the talk, service to all did not, in fact, come at all close to materializing without both the post-World War II economic boom and the explicit government subsidies provided through the Rural Electrification Administration and the Rural Telephone Bank.

Throughout the early seventies the White House Office of Telecommunications Policy was for competition in the name of efficiencies it attributed to the "invisible hand" as contrasted to the inefficiencies it ascribed to hidden subsidies. But even it conceded that economic support for certain classes of telephone users is not necessarily bad policy.



-2-

Finally, as suggested by Figure 1, policy on industry structure is only one means of government influence on performance ends. Starkly contrasting monopoly to competition thus masks broad political differences over important ends with narrow arguments over the polar forms of only one kind of means.

What are the ends? "To make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide and world-wide wire and radio communication service with adequate facilities at reasonable charges"<sup>1</sup> is the overarching purpose Congress laid on the Federal Communications Commission and receptive regulated carriers by the Communications Act of 1934.

At that time, only 31 percent of households had telephones and only 6 million business telephones were in service. By 1974, there were telephones in 94 percent of households and close to 39 million business telephones were in service.

As for means, in 1934 the leaps in electronics and electronics industries stimulated by World War II still lay ahead. There were neither the undersea telephone cables nor the satellites that now make worldwide service a real possibility as well as hopeful rhetoric. A service was then virtually indistinguishable from the technologies, the facilities and the institutions for providing it. One such combination was clearly distinct from the others. There were no electronic computers, hence neither "communications" -- the merged technology of computers and communications -- nor the bitter border brawls this merger has kindled among neighboring consumers and providers.

-3-

- Laissez-faire
- Taxes
- Tax write-offs
- Regulation of price, quality and entry
- Standards
- Research and development
- Prohibitions; financial and criminal sanctions
- Subsidies
- Rewards for innovation and invention
- Incentives, e.g., matching funds
- Model legislation
- Import/export trade management
- Information exchange
- Establishing or supporting an industrial base by government purchase
- Establishing new institutions
- Government control or monopoly
- Building civil works
- Propaganda
- Fear

Figure 1: Policy Means

The means whereby governments may or may not influence industry performance include but are not limited to economic regulation and control over industry structure. (Listing adapted from Joseph F. Coates, Structural Failure: The Case of Local Government, an unpublished paper.)

-4-

In 1934 there was scarcity and specialization of seamless combinations of communications facilities and services. Today there is abundance and versatility of communications facilities clearly distinguishable from communications services. Communications shoulders major strategic burdens, economic as well as military.

*WHAT ARE THE ENDS AND WHO SAYS SO?*

The first order of public business is therefore to examine the validity of the mission set forth in the Act of 1934 by asking:

1. What will be our policy aims for the 1980s and beyond?

The bill for a Consumer Communications Reform Act introduced early in 1976 suggests one answer: that future aims be precisely what they were in an already distant past. Most telecommunications is still from mouths to ears -- albeit many more mouths and ears than in 1934 -- and the Act of 1934 addresses primarily this type of telecommunications. The evidence, however, tells us that enough of other types of telecommunications is already here, growing, and of enough interest to enough publics -- the general public among them -- to deserve better than plans to fight the last war over again.

At the very least, what is to be made available to whom (some or all of the people of the United States) and who is to pay for it need to be defined in keeping with the times. Hence the question:

2. What is to be the scope of policy for the 1980s and beyond?

Traditional institutional and technological distinctions are inadequate to deal with this question when AT&T and IBM, to name only the biggest traditional communications and computer companies, play on the same turf with the identical toys of communications science and technology, and when the framework of the Act of 1934 has already been stretched by the FCC at the computer/communications border and also by the FCC and the Supreme Court wrestling to fit cable television in the crack between Title II, governing common carriers, and Title III, governing broadcasters.

-6-

If "wire and radio communication service" is too narrow, and all of information facilities and services is too broad a reach, suitable intermediate settings must be considered. But

3. Who is to decide what the aims and scope of policy should be?

Although recently the FCC has strained mightily at the boundaries of its organic act,<sup>2</sup> there are fences even it has chosen not to climb and paths which the courts have barred to it. Hence, even assuming it were a desirable agent of change -- and this is far from obvious -- it is one of limited jurisdiction. And, as an agency in the Executive Office of the President, the Office of Telecommunications Policy will reflect at most the policy preferences of a given Administration.

Broad public debate and Congressional action are thus both timely and essential not only to define the aims and the scope of policy for the 1980s and beyond but also to shape appropriate instruments to carry out the chosen policy.

*WHAT ARE THE MEANS?*4. What are the limitations of present policy tools?

Given that present policies involve sharing of federal and state authority over common carriers, cloudy authority over cable television, sole federal authority over radio and television broadcasting, and limited authority assertions at the computer/communications border, how consistent is this jurisdictional pattern with aims for the future? If any economic subsidies provided by urban telephone users to their rural counterparts are an artifact of older patterns of legislative representation, how consistent are they with shifts induced by the Supreme Court's decisions in the political reapportionment cases?<sup>3</sup> How consistent with trends in tax policy? If granted that past processes have favored some suppliers over others and some consumers over others, how consistent are the results with aims for the future? If they prove to be inconsistent, how might any losers be fairly compensated for contributing to the greater general future good?

Regulatory agencies, long favored instruments of policy in diverse fields, are under renewed and widespread attacks. The lessons that John Dunlop drew from a stint as Secretary of Labor are instructive. The regulatory approach, says Dunlop, leads to the following problems:

"First, it encourages simplistic thinking about complicated issues.

"Second, oftentimes policies that appear straightforward will have unintended consequences which can create problems as severe as those with which the regulations were intended to deal.

"Third, the rulemaking and adjudicatory procedures of regulatory agencies tend to be very slow, creating conflicts between the different groups involved, and leading to weak and ineffective remedies for the people the programs aimed to help.

-8-

"Fourth, the rulemaking and adjudicatory procedures do not include a mechanism for the development of mutual accommodation among the conflicting interests.

"Fifth, a further problem is what is called 'regulatory overlap,' where a number of different regulatory agencies share some of the same responsibilities.

"Sixth, regulatory efforts are rarely abandoned even after their purpose has been served."<sup>4</sup>

There are masses of hopeful recipes for regulatory reform (Figure 2). There are also gloomier views of the reform of American administrative law, such as Richard Stewart's conclusion that "given", in Hegel's words, "the undefined foreboding of something unknown", we can know only that we must spurn superficial analysis and simplistic remedies, girding ourselves to shoulder for the indefinite future, the intellectual and social burdens of a dense complexity."<sup>5</sup>

But all these writings address themselves to the same generic instrument, and fail to ask, as suggested by Figure 1:

5. What policy tools -- institutions and processes -- might best serve our aims for the 1980's and beyond?

Contrasting competition to monopoly on economic -- or ideological -- grounds addresses only one criterion for choosing among alternative industry structures. It wholly neglects other kinds of policy tools.

Neglecting managerial, organizational and engineering criteria when trying to determine policy aimed at industry structure exposes policy to serious risks.

Granted -- and this is not universally accepted today -- that technological innovation is of continuing high importance, do the pressures generated by local, state and federal regulation and cost allocations

| Proposals to Reform the FCC* |   |
|------------------------------|---|
| 1930                         | American Bar Association Committee on Administrative Law<br>-abolish independent regulatory commissions and shift all but their specifically judicial work to Executive Branch bureaus<br>-place judicial functions in an administrative court  |
| 1936                         | E. Pendleton Herring, Federal Commissions<br>-appoint more people to Commission with industry experience  |
| 1937                         | President Roosevelt's Committee on Administrative Management<br>-define FCC decision-making standards more clearly<br>-shift administrative tasks of commissions to Executive Branch departments and make these departments responsible to a bureau headed by one person  |
| 1941                         | Attorney General's Committee on Administrative Procedure<br>-clearly delegate functions and authority within each agency<br>-establish a separate unit of hearing officers within each commission and provide for appeals of their decisions to the commission chairman (this report provided the basis for the Administrative Procedure Act of 1946)                               |
| 1941                         | Robert Cushman, Independent Regulatory Commissions<br>-separate executive from judicial functions in commissions, assigning executive work to Executive Branch departments and judicial work to an administrative court.  |
| 1949                         | The First Hoover Commission<br>-design executive functions that are not specifically "regulatory" to the Cabinet<br>-FCC staff should be organized along functional (broadcasting, common carrier, etc.) rather than professional (legal, technical, accounting, etc.) lines (a 1958 amendment to the Communications Act reorganized part of the FCC staff into functional bureaus) |
| 1951                         | President Truman's Communication Policy Board<br>-make the Commission's policy standards more specific<br>-establish a long-range planning capacity at the FCC  |
| 1955                         | The Second Hoover Commission<br>-remove judicial functions from commissions and place these functions within courts of general jurisdiction and special administrative courts   |
| 1959                         | Ronald Coase, "The Federal Communications Commission"<br>-Congress should direct the FCC to auction off broadcasting licenses to the highest bidder   |
| 1959                         | Bernard Schwartz, The Professor and the Commissions<br>-insulate the FCC from Executive Branch control by allowing the FCC to submit its budget directly to Congress (rather than through the Bureau of the Budget, now the Office of Management and Budget) and prohibit the President from removing an FCC Chairman   |
| 1960                         | Lands Committee Report to President-Elect Kennedy<br>-extend FCC Commissioner tenure to ten years<br>-authorize White House staff members to oversee regulatory agencies<br>-create an administrative court for commissions   |
| 1962                         | Henry Friendly, The Federal Administrative Agencies<br>-each decade an appropriate Congressional Subcommittee should review all laws applying to a particular commission<br>-create more specific standards for the FCC than those contained in the Communications Act  |
| 1962                         | Boss, Allen, and Hamilton, Organization and Management of the FCC<br>-the FCC needs more money and staff, but most importantly a better definition of standards   |
| 1964                         | Newton Minow, Equal Time<br>-assign judicial functions of the FCC to an administrative court<br>-assign executive functions of the FCC to a single administrator appointed by the President   |
| 1969                         | President Johnson's Task Force on Telecommunications<br>-create an Executive Branch agency and assign it general responsibility for allocating the radio spectrum<br>-the FCC should continue to license operators within spectrum areas assigned by this Executive agency  |
| 1970                         | Nicholas Johnson, How to Talk Back to Your Television Set<br>-strengthen the organization of consumer interests by establishing a Citizen's Commission on Communications with the authority to appear as an advocate for the public interest before the FCC   |
| 1971                         | Walter Emery, Broadcasting and Governance<br>-lengthen the tenure of FCC Commissioners to ten or twelve years<br>-increase the FCC's information-gathering capacity   |

\*Included are proposals that apply to all independent commissions as well as to the FCC.

Figure 2: Proposals for Regulatory Reforms

Since the FCC was established by the Communications Act of 1934, numerous proposals have been made to reform it and other regulatory bodies.

Source: Mosco, Vincent. Reforming Regulation: The FCC and Innovations in the Broadcasting Market. Program on Information Technologies and Public Policy, Harvard University, Cambridge, Mass., Publication No. 76-2, Figure 1, p. 2-3.



|      |  |
|------|--|
| 1971 | President Nixon's Advisory Council on Executive Organization   |
|      | -reduce the size of the FCC from seven to five Commissioners   |
|      | -the FCC is the only independent commission that should retain the collegial structure to insure broad-based deliberation and a non-partisan environment                     |
| 1971 | Brookings Institution Report on Reforming Regulation   |
|      | -possible options reported in this work:   |
|      | -independence with Presidential oversight  |
|      | -authorize the President to make general rules and policies for commissions through the use of executive orders  |
|      | -a regulatory czar   |
|      | -adopt Raskford Tugwell's New Deal proposal to create a second Vice President responsible for government regulation  |
|      | -legislative reform  |
|      | -eliminate the formal procedural requirements of the Administrative Procedure Act  |
|      | -constituent representative  |
|      | -assign each position on a regulatory commission to a representative of a particular interest  |
| 1972 | Sidney M. Head, <u>Broadcasting in America</u>   |
|      | -the FCC should develop better standards, particularly for station licensing and renewal   |
| 1972 | Erwin G. Krasnow and Harry M. Shoshpan, "Congressional Oversight"  |
|      | -increase the Congressional oversight capacity by providing more staff and funding to the committees responsible for reviewing the FCC's work                                |
|      | -increase the staff and funding of the FCC   |
|      | -development by Congress of more meaningful standards and guidelines for agency performance  |
| 1973 | Roger E. Noll, Merton J. Peck, and John J. McGowan, <u>Economic Aspects of Television Regulation</u>   |
|      | -the FCC needs a new legislative mandate specifying the following:   |
|      | -broadcasters should be given the same first amendment freedoms regarding program content and quality as the print media   |
|      | -competition should replace localism as the primary broadcasting standard  |
|      | -the FCC's broadcast licensing concerns should be limited to engineering and other technical aspects of spectrum management  |
| 1973 | Bolla E. Park (ed.), <u>The Role of Analysis in Regulatory Decisionmaking</u>  |
|      | -the FCC needs to increase its analysis and planning capability  |
| 1974 | Henry Gelliar, "A Modest Proposal to Reform the Federal Communications Commission."  |
|      | -decrease the number of FCC Commissioners to five  |
|      | -extend Commissioners' tenure to fifteen years and bar reappointment   |
|      | -do not allow Commissioners to work for the Communications industry until ten years after their tenure with the FCC is completed   |
|      | -increase the quality of FCC Commissioners   |
|      | -eliminate hearing procedures when facts are undisputed and use written submissions  |
|      | -as suggested by former FCC Chairman Dean Burch:   |
|      | -create two divisions at the FCC along these lines:  |
|      | -broadcast/cable   |
|      | -common carrier/safety and special services  |
|      | -assign each division to half of the Commission  |
|      | -the Chair would be responsible for convening the entire Commission on issues that overlap the divisions   |
| 1975 | Committee for Economic Development, <u>Broadcasting and Cable Television</u>   |
|      | -transfer FCC adjudicatory functions to a new communications court following the pattern of the U. S. Tax Court when it was part of the Executive Branch                     |
|      | -the President should appoint judges for twelve year terms with Senate approval  |
|      | -Congress and the FCC should strengthen the Office of Plans and Policy particularly by staffing the Office with more economists, engineers, attorneys, and social scientists |
| 1975 | Congressman Torbert Macdonald's Bill to Reform the FCC   |
|      | -reduce the Commission size from seven to five   |
|      | -increase the tenure of Commissioners from seven to ten years  |
|      | -double the amount of staff assistance for each Commissioner   |
|      | -require Commissioners to keep a record of contacts with lobbying groups   |
|      | -make all meetings public unless it is determined by a majority vote of the Commission that a public meeting would be contrary to the public interest                        |
|      | -have the FCC go directly to Congress for appropriations rather than through the Office of Management and Budget   |
|      | -make the President's designation of a Chairman subject to Senate approval   |
|      | -have the FCC provide Congress with immediate access to documents and publish a quarterly rather than an annual report   |

Figure 2 cont.

-11-

adequately guide management decisions as to how much is spent for the development and implementation of which new communications technologies by Bell Laboratories and others? Would more overt political control, such as exercised by the National Aeronautics and Space Administration in its realm, provide better response to public demands? Or would replacing corporate and administrative decisions by overt political control make basic research and development suffer at the expense of some short term social goal or program perceived to be more important by the fashion of the moment? Would greater market competition stimulate innovation or so fragment the means as to stifle it?

Granted a vital interest in an effective nationwide telecommunications system, is it safe to continue entrusting it, even if narrowly defined, mainly to one leading organization, the Bell System, that conceivably might, some day, jump, fall or be pushed the way of the Penn Central Railroad? On the other hand, could this system be reliably and economically operated if fragmented, managed by competing organizations, staffed by competing unions, with competing suppliers and competing repairmen all pointing the finger at one another as the cause of any trouble?

Good fences make good neighbors. But what's a good fence? Granted that a narrow definition of computers or communications is inapposite when what is on the inside and what is on the outside of communications facilities is increasingly hard to tell. Granted that the relationship between plants or facilities and the services they render is increasingly arbitrary and complex. And granted that a consolidated ATT IBM ITT GE RCA Xerox worldwide communications facilities and service system would likely be unmanageable -- even if it were ideologically acceptable. Under these conditions,

-12-

what would an optimal industry structure look like? Or even just a workable one? Or a catastrophic one to be shunned?

By what yardsticks are policy ends and operational means to be matched up and evaluated? What are the most significant concrete yardsticks, such as equity, cost, responsiveness, reliability, accessibility, confidentiality and many others by which the quality of performance both should and could be measured? Would the present court-and commission sanctioned placement of the computer/communications boundary, or of the "interconnect" and "specialized carrier" competition be among the optimal cuts? the workable ones? the catastrophic ones? Could it lead toward any of them? In sum:

6. How best to match up the means of industry structure with performance ends?

In a world of increasing interdependence, domestic and international affairs are more tightly meshed than ever before. With global interdependence, of which communications is the very nerve system, control over these facilities and services through government policies is a powerful lever on domestic and international affairs alike. And so,

7. How best to harmonize domestic and foreign policy tools?

NOTES

1. 47 U.S.C. § 151, Creation of the Federal Communications Commission.
2. Berman, Paul J., "Computer or Communications? Allocation of Functions and the Role of the Federal Communications Commission", Federal Communications Bar Journal, Vol. 27, No. 2, 1974, pp. 161-230.
3. Baker v. Carr, 369 U.S. 186 (1962).
4. Dunlop, John T., "The Limits of Legal Compulsion," November 12, 1975, unpublished paper, pp. 1-2.
5. Stewart, Richard B., "The Reformation of American Administrative Law", Harvard Law Review, Vol. 88, No. 8, June 1975, p. 1813.

A MORE DETAILED TREATMENT OF THE SUBJECT OF THIS PAPER IS GIVEN IN:

Berman, Paul J. and Anthony G. Oettinger, "The Medium and the Telephone: The Politics of Information Resources", Harvard Program on Information Technologies and Public Policy, Publication P-76-5, June 1976.

Read, William H., "Foreign Policy: The High and Low Politics of Telecommunications," Harvard Program on Information Technologies and Public Policy, Publication P-76-3, February 1976.



HARVARD UNIVERSITY  
PROGRAM ON INFORMATION RESOURCES POLICY

ANTHONY G. GETTINGER  
*Director*  
GORDY C. LUGAYES  
*Executive Director*

WHY AN INSTITUTE FOR ANALYZING  
THE INFORMATION INFRASTRUCTURE?

(017) 495-2034

by  
Kurt Borchardt

Modern industrial and post-industrial societies are based on three infrastructures providing energy, transportation and information. In societies which distinguish between the public and private sectors, shaping these infrastructures involves complex interactions among public and private organizations and public and private decision-making.

As new technologies are developed and, concurrently, new demands arise for increasingly diverse services, existing infrastructures are challenged. These challenges are perceived either as threats by existing organizations or as golden opportunities by new entrants. The demands for new and increasingly diverse services arise both in the public and the private sectors and, in the public sector, national security demands may be paramount.

Under these circumstances, traditional decision-making processes both in the public and private sectors have increasingly confronted questions relating to the restructuring of the information infrastructure rather than questions as to how the existing infrastructure should operate with regard to traditional tasks which that structure was expected to perform. In the public sector, questions of restructuring are before Executive Departments, including the Executive Office of the President (OTP), the FCC, Congress and the courts. In the private sector, they confront individual corporations and industry associations.

200 AIKEN COMPUTATION LABORATORY • CAMBRIDGE, MASSACHUSETTS 02138

-2-

Decisions relating to structure are made unilaterally by individual corporations, collectively by agreement among several corporations, by public policies adopted by regulatory agencies or agencies procuring information services for governmental use, by Congress or by the courts, particularly in connection with antitrust cases.

One of the major problems confronting the United States in connection with evolving changes in the information infrastructure is the circumstance that interested corporations are restrained (or, at least feel restrained) by government from pursuing unilaterally or collectively opportunities for rendering increasingly diverse information services, coupled with the additional circumstance that government either perceives no real urgency in adopting policies which would determine which corporations may pursue what opportunities or else adopts them in fragmented and constrained administrative proceedings.

What is needed, under these circumstances, is an effective interface between the private and public sectors to analyze for various parties, including the general public, the advantages and disadvantages of alternative allocations of tasks and opportunities within the information infrastructure. Such an interface might assist both sectors in their complex decision-making.

#### WHY ARE DECISIONS AFFECTING THE INFORMATION INFRASTRUCTURE SO COMPLEX?

Decisions affecting the information infrastructure are so complex, first of all, because both the public and the private sectors are divided into numerous organizations with conflicting objectives: national and international governmental organizations, organizations concerned primarily

-3-

with national security objectives and organizations concerned with domestic economic and social objectives, hardware and software providers, information consumers and academic spokesmen representing various disciplines deemed relevant for determining the advantages and disadvantages of alternative information infrastructures.

Beyond the multiplicity and diversity of interested organizations, there are additional reasons why the decision-making concerning the information infrastructure is so complex, requiring some outside assistance.

(1) "Macro-politics" has become involved increasingly in deciding structural questions rather than lower level political processes; for example, the filing of the proposed "Consumer Communications Reform Act" has escalated questions of the future information infrastructure from the FCC to the Congress, the Executive Branch and the national community. An analytical interface is needed by macro-political decision-makers for purposes of supplementing polarized alternatives advanced by contending parties with intermediate alternatives.

(2) Specialized government agencies such as the FCC and the Antitrust Division of the Department of Justice are inclined to deal separately with interrelated problems. For example, the Antitrust Division has brought two separate suits against AT&T and IBM and these are prosecuted separately disregarding interrelated problems between which infrastructure-wide trade-offs might be developed. Developing such trade-offs might generate alternative solutions which are not readily apparent as long as infrastructure-wide problems are dealt with segmentally. An analytical interface might aid in developing such trade-offs and alternative solutions on an infrastructure-wide basis.

-4-

(3) Traditionally, lower level political processes such as those conducted by the FCC are limited by law to more formal proceedings which generate polarized alternatives rather than less formal negotiating and consulting type proceedings which are permissible on the "macro-political" level. An analytical interface can be useful not only by generating alternative solutions over and beyond polarized alternatives but by conciliating and arbitrating thus bringing about resolutions of conflicts which otherwise might prevent any effective decision-making.

(4) Information problems have a relatively low priority on the macro-political level in comparison with other urgent infrastructure problems in the fields of energy and transportation. Therefore highly skilled manpower is not assigned in sufficient strength to perform the needed analytical tasks dealing with the information infrastructure and its performance. An adequately staffed interface therefore may perform some of these tasks instead of a macro-level governmental capability either in the White House or elsewhere in the Federal government.

#### WHAT KIND OF ANALYTICAL INTERFACE?

The functions which an analytical interface would be expected to serve would be discharged best by an interface staff which is accountable to representatives from the public and private sectors, including the executive and legislative branches of government, industry and labor as well consumers plus academe and the general public. The interface could be established as an independent organization or -- primarily for house-keeping purposes -- within an existing organization.



The analytical interface would be staffed in such a way that it can analyze effectively conflicting reasoned arguments advanced by various intellectual disciplines to accomplish rational task and opportunity distribution within the information infrastructure. Such staff would include technicians as well as management experts, economists, lawyers, political and social scientists who are expected to work cooperatively.

The interface would not act as spokesman for any segment of the information infrastructure but would be charged with developing responsible views on alternative solutions to problems involving the assignment of tasks and opportunities within the infrastructure. The interface would be concerned with changing information technologies not primarily because of the engineering and scientific problems which such technologies present, but because of the implications which they have for the assignment of tasks and opportunities within the infrastructure.

Advantages as well as disadvantages of alternative assignments would be stressed and disagreements over alternative assignments would be surfaced candidly.

In order to finance the operation of the interface, different classes of organizational and individual memberships would be established, and care would be taken that no particular corporate or governmental member would pay too large a share of the total annual operating budget.

Analyses would be made under the supervision of committees, subcommittees or working groups consisting of representatives from the public and private sectors plus academe and the general public. Every effort would be made to secure representation from various segments of the infrastructure. Interface staff members would be assigned to work with such committees, subcommittees or working groups.

## HOW MIGHT AN INTERFACE COME INTO EXISTENCE?

The establishment of any organization requires organizers. Since the interface is to function between the public and private sectors, its establishment requires at least two individuals with leadership qualities: one from the public and the other from the private sector. Both must be convinced that neither sector can go it alone if changes in the information infrastructure are to come about in a constructive manner. Public policy decisions require an adequate information base and industry must be enabled -- instead of acting defensively -- to provide candid inputs regarding what individual companies believe they can live with when it comes to reaching a consensual settlement of structural issues.

In addition to the two individuals representing the public and private sectors, one or more experts in the fields of public administration and law who are familiar with problems (including antitrust problems) encountered in cooperative intercompany and industry-government relations can be exceedingly helpful in assisting the first two individuals in selecting specific organizational and procedural features of the planned interface.

In other words, leadership qualities coupled with expertise are indispensable in this as well as other organizational tasks.

Mr. VAN DEERLIN. Thank you, Dr. Oettinger.

Where might we look for guideposts in this prodding that we are going to do of the executive branch?

Mr. OETTINGER. Well, I think there is a good deal more thoughtful insight out in the private sector, in the industries, in the universities and government bureaus than has been brought forth in adjudicatory proceedings where reasoned argument is not the name of the game but simply a brief that maximizes your own chances of coming out where you want to in a particular proceeding.

So I think that the mere opening of the discussion within the Congress will have a salutary effect on that score.

I think that instructing or requesting the executive branch to give greater priority and more considered effort to providing you with this kind of advice and information is important, and I think it may be that, in addition, some new kinds of institutions to provide an interface capability will have to be created, and I would be happy to submit some thoughts on that for the record, if it is agreeable to the Chair.

Mr. VAN DEERLIN. It might help formalize our approach in the matter.

Mr. OETTINGER. Well, we would be happy to submit some thoughts on that for the record, Mr. Chairman.

Mr. VAN DEERLIN. Thank you.

[The information requested was not available to the subcommittee at the time of printing.]

Mr. VAN DEERLIN. Mr. Frey?

Mr. FREY. Thank you, Mr. Chairman, and welcome back. We enjoyed your testimony last time you were here.

You, I assume, despite all the press releases we had passed out in the back and along the line, you have heard the question I have been trying to get at in trying to find just what people think about in terms of the public policy questions of where we are going, the questions of technology, the growth of it, the impact on the facilities and everything along the line, and just from your standpoint, what public policies we should pursue.

Quite frankly, I obviously am interested in the legislative history of the 1934 act, but it looks to me that that is just that, it is interesting, and we have got to figure out what to do from here on. That is really what I am interested in, and if maybe just seeing that you have heard the questions that I have been trying to get at, maybe you can give me your thought on what you think the public policy should be. I think a lot of what we are talking about, the guts of the problem, comes into just some of this kind of a question because that is where the real dollars are, that is where the real meat of the problem is, that is where the real investment is, and that is really where the competition, in terms of having a tremendous impact down the line is.

Mr. OETTINGER. I think it is not only changes in technology that face us, it is changes in the kinds of information services that the public is beginning to demand, will continue to demand and that are no longer limited, and will be less and less limited to what everyone seems to be arguing about right now; namely, traditional voice services.

Mr. FREY. Do you think I'm a dreamer? I am referring to the day when possibly we have enough satellites up where you maybe go down to your hardware store or your local radio and TV store and buy a terminal. You've been involved in the cable issues.

Mr. OETTINGER. I think, Mr. Frey, that I am reluctant to pin hopes on any one technology, whether it is satellites or coaxial cables or optical fibers or wave guides.

Mr. FREY. Something we have never heard of, even.

Mr. OETTINGER. I think the fact is over the last decade—and we can fully expect it to continue over the next decade or two—a tremendous range of technologies are becoming available, and it is by no means clear whether we should put all of our eggs in this basket or that basket or in what mix of baskets. Therefore, what the communications plants should look like 10, 20 years from now is by no means clear. But the decisions we are making today will be felt then.

This is an industry, a set of industries with a long leadtime. Even in the computer industry where things seem to be somewhat faster moving than in communications, the leadtimes have gotten longer than they were in the heyday, 10, 20 years ago. So many folks, not only the manufacturers, but the people who use computers have had to make sizable investments, not only in the hardware, but in the software with which they run their systems, so that if one fails to think ahead now, of the various shapes that might emerge, we are likely to just lock ourselves into the past.

Mr. FREY. On the other hand, you could turn around and you could argue—I have been on both sides of this—but you could argue that while that may be true, that public policy has required this tremendous investment, and you just have to along the line protect it or phase it out or do something with it. You cannot have allowed—I suppose if I was arguing the other side of it, I would argue you can't allow just competition and technology to run wild if there is going to be an impact on the tremendous investment that has gone on. A great deal, of course, has been as a result of whatever public policy Congress has had.

Mr. OETTINGER. Well, I think, Mr. Frey, the investment public or private, monopoly or not-monopoly is so large that the odds of running wild are rather slim, simply because I don't think anybody, either as individuals through disposable income, or through the Congress and taxes or subsidies, is going to be willing to foot the bill for reconstructing overnight or, you know, within a year, the national computer/communications infrastructure.

Mr. FREY. Then you are saying that some of the testimony we have heard about what is going to happen—that rates will double and triple—you don't necessarily agree with.

Mr. OETTINGER. It may head in that direction, but it is not going to happen overnight. Rather than with some of the nightmares painted by either side of that argument, I am much more concerned with the fact that the failure to look at the computer industry and the communications industry as a joint thing will come to haunt us 5, 10 years from now as a great failure in forward planning.

Mr. FREY. I read into what you are saying on the competitive question that you have got the giants in these industries headed down the line with a means of getting the information, not just to businesses but to the average residents, and that is what you are talking about, where there is going to be competition in that sense?

Mr. OETTINGER. There may well be competition. There may fail to be the right kind of competition. You see, I think the facilities, the communication facilities that are necessary in an increasingly digital world where what you transmit is not necessarily just voice, are very different from what the present telephone plant is designed to do.

Now, the question of how we are going to head down, not, you know, toward minuscule competition but toward diverse voice and facilities data and services is a very serious question. I don't have any answers for you on that score. But I think that there are very fundamental questions as to how we are going to go down what tracks.

Mr. FREY. Some people have argued, too, that of course one of the real problems is holding back technology. Bell says that we developed the transistor, we have got some of the best labs in the world, which I happen to believe is true, which is doing things, and other people argue, OK, that is true, but you know, even if you get them, new technology doesn't come in fast enough. You get this, as I guess it was argued about television being held back to a certain extent, to protect radio, whatever.

What is your feeling in this area, on these arguments?

Mr. OETTINGER. Well, there is a little bit on both sides on these.

I think, as an outside observer, that the adrenaline level in the phone company has gone up visibly since greater competition has come about—

Mr. FREY. I would say no judging from the number of cosponsors on the bill.

Mr. OETTINGER [continuing]. Since the introduction of competition back with the *Carterfone* case, and the MCI and other decisions—so that the notion that from time to time it is in the public interest to prod any sleeping giant, whether it be on the private sector, à la A.T. & T., or on the public sector, like the U.S. Postal Service, is not a bad idea.

The question of whether the means are entirely appropriate is really what is at issue, and toward what ends. This is why I urged you earlier to be careful about distinguishing between facilities and services. Here I am going to make some rough judgments which may turn out to be wrong in the end, but my present judgment would be that competition, for example, in long distance carriage facilities, à la specialized common carriers, may not be the best place to have competition. Take the failure of Datran. It remains to find out factually whether they jumped, fell, or were pushed, but they did fail, and my reading of it would be that it is difficult to keep that kind of competition alive unless it is a matter of very urgent policy, because of the fact that inherently the technical arguments for route diversity, for economies of scale over long distances have serious merit.

Now, when you start getting to the matter of attachments of terminals, the case for competition gets a good deal stronger, but there are compelling reasons for looking at national standardization. One way anticompetitive service games are going to be played there—and one sees this particularly already in the cable television area, which I had occasion to discuss with you earlier—is through the question of whether folks at home are going to be faced with multiple terminals that multiple people are going to try to sell them, none of which can talk to one

another within the home, let alone with terminals in somebody else's home or office. That is a serious issue.

But competition there is possible in principle. It may well be that some form of national standardization will be essential to make it happen in practice. The questions that the Bell people raise about the integrity of the network and its freedom from technical harm are not mere fantasies of a diseased imagination. Eight years ago we had a study that I set up for the National Academy of Sciences on that question, and it was crystal clear that the questions of technical harm were real questions, but that there was also a much wider range of solutions than the extreme notion of the only way you are going to interconnect is by something that only Bell supplies or, at the other extreme, don't bother us, there is no problem, we will stick anything on the phone wires. There has been relatively little serious discussion of this issue since then, although the FCC has had some proceedings, but again, of the adversary and mudslinging and "I'll make my case and you be damned" kind.

At the other end of the spectrum, this whole matter of services, as exemplified by docket 20097 on the joint use and resale and so on of physical facilities, there the case for competition in a wide variety of services may be the most compelling, and that is perhaps one of the least explored arenas.

Mr. FREY. Well, with the Chairman's permission I would just like to ask one last question and see what your comments on it are. It is interesting legislatively to just even contemplate attempting to write or rewrite the 1934 act, which I happen to think we should do. Just even to listen to the background on it before and in these days of hearings where you are trying to define, I guess, or you are going to look at areas where there should be competition or shouldn't, where there should be monopoly or shouldn't, and the continuing and I guess dramatic changes that happen along the line, trying to figure out how you are ever going to, if you ever get there, how you are ever going to articulate it makes you sometimes want to just throw up your hands before you start. Of course, that is not the answer, but I really appreciate your testimony and the many things that you have raised, because a lot of this is a question of degree.

Mr. OETTINGER. That's true.

Mr. FREY. You know, it is great we can all agree in the broad generalities and we have got no problem at that, but then it comes down trying to do something about them.

Kurt?

Mr. BORCHARDT. Mr. Frey, may I supplement what Mr. Oettinger has said.

You have asked him questions as to what policy he would recommend. I would say before you can address questions of policy, you have to get ready jurisdictionally to handle whatever policy questions will come up. Professor Oettinger pointed out that you may be faced with a question of providing for both voice and data communications. The committee at the present time does not have adequate jurisdiction to address that question, and it is up to you, the chairman, and the chairman of the full committee to see to it that the next Congress gives this committee and this subcommittee the kind of jurisdiction that is necessary to address these questions.

Mr. FREY. I agree with you wholeheartedly about the whole thing. I think we have got a better chance of rewriting the 1934 act than we do that.

Mr. VAN DEERLIN. I concur. I thank you so much, all of you.





# **DOMESTIC TELECOMMUNICATIONS COMMON CARRIER POLICIES**

---

**HEARINGS**  
BEFORE THE  
SUBCOMMITTEE ON COMMUNICATIONS  
OF THE  
COMMITTEE ON COMMERCE, SCIENCE,  
AND TRANSPORTATION  
UNITED STATES SENATE  
NINETY-FIFTH CONGRESS  
FIRST SESSION  
ON  
OVERSIGHT HEARINGS ON DOMESTIC TELECOMMUNICATIONS  
COMMON CARRIER POLICIES

---

MARCH 23 AND 28, 1977

---

PART 2

---

Serial No. 95-42



Printed for the use of the  
Committee on Commerce, Science, and Transportation

U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1977

62-940 O

# DOMESTIC TELECOMMUNICATIONS COMMON CARRIER POLICIES

WEDNESDAY, MARCH 23, 1977

U.S. SENATE,  
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION.  
SUBCOMMITTEE ON COMMUNICATIONS.  
*Washington, D.C.*

The subcommittee was reconvened, pursuant to adjournment, at 9:37 a.m., in room 235 of the Russell Senate Office Building: Hon. Ernest F. Hollings presiding.

Senator HOLLINGS. The committee will please come to order.

We are pleased to resume our hearings this morning.

Professor Oettinger of Harvard University is with us today. We will be glad to hear from you now.

## STATEMENT OF ANTHONY G. OETTINGER, DIRECTOR, PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD UNIVERSITY; ACCOMPANIED BY JOHN C. LEGATES, EXECUTIVE DIRECTOR; AND KURT BORCHARDT, PROGRAM CONSULTANT

Mr. OETTINGER. Thank you very much.

My name is Anthony Oettinger. I am a professor at Harvard University where I am director of the program on information resources policy.

Here with me are John Legates, executive director of the program and Kurt Borchardt, a consultant to our program.

As we understand it, you have heard the concerns of regulators and regulated in the telecommunications industry. You have also heard about the golden promises and the leader threats that advances in computer and communications technologies portend for various interested parties.

Your staff suggested we address the questions: What does it all mean and where does it fit?

Those questions about information resources are what the Harvard program on information resources policy has geared itself up to addressing in its 4 years of existence.

We would like to append the list of affiliates and associates that support our work. They include competitors, competing industries, as well as Government agencies.

What we have learned in our program we are pleased to pass on to distinguished undergraduates, businessmen, Senators, and other members of the public.

(821)

Maps of the information resources arenas and descriptions of the scope of the program's work and how it operates are given in the appended Annual Report 1973-76 Information Resources Policy: Volume One, Arenas, Players and Stakes, and Volume Two, Program Projects.

There are four points which I believe will be useful to you in understanding the testimony which confronts you.

The first is that the information industries, which were separate and distinct as recently as a decade ago, are now tightly intertwined and in turmoil.

The second is that the demands and stakes of individual consumers are undergoing significant changes.

The third is that there are great economic and high political stakes in the information world.

Finally, the stance of the U.S. Government, in general, and of that committee in particular, is marginally adequate, at best, to cope with the turmoil.

I have time only to outline the salient points without presenting much, if any, by the way of supporting evidence or argument. I will be happy to respond to your questions now or later. Some details are in the appended "Performance, Politics and Policy in Computer/Communications: A Policy Agenda."

#### THE INTERTWINED INFORMATION INDUSTRIES

About the first point, that the information industries are intertwined, the science and technology of computers and of communications are now indistinguishable.

Because we get tired of having to say "computer and communications," we have coined the term "communications."

The commonality appears in basic components like integrated circuits. It is present in basic principles like the digital encoding that has been the hallmark of computer technology since World War II and that is increasingly used in telephone networks to transmit both voice and data.

Computers and communications have merged not only in terms of hardware components or techniques, but also in terms of services or, more broadly, in terms of functions.

Whether we talk about transmission or storage or manipulation of information, we can no longer tell communications functions apart from computer functions.

To add to the confusion, communications extends into other industries which perform these functions as well. These are being actively drawn into the competition. Let me name a few.

Banks are in the money business, but their production line is information processing. Electronic funds transfer systems expedite this processing.

As soon as more than one bank is involved, several familiar questions pop up:

Is EFTS a service or a facility?

Must it become a common carrier and take on all comers?

Who shall own the lines?

Who controls the service offerings?

Who gets the profits from operations?

Who sets the standards?

Department stores have traditionally offered credit. How does this differ from bank credit? Who can be kept out of where by what jurisdiction, or enter into a new market by whose say so?

EFTS is a major threat to the chief nonelectronic funds transfer system. Over half of the first-class mail—the most profitable kind of mail—is financial—bills and payments.

What will happen to the U.S. Postal Service if these vanish into wires?

Who will subsidize the remaining money-losing services?

Should the post office fight back with reduced rates for utilities?

Should it fight back by forbidding EFTS as a violation of the private express statutes?

Should it levy a surcharge on these transactions, just as it does on private courier services?

A more general question: Should the post office offer a competitive service over wires? If so, should it compete as well with electronic transfer of other traditional postal business such as messages?

How do we distinguish between such an effort and an operation already in existence, known to the world as the telephone system?

The existence of computer data banks draws in another set of industries. Data banks supply information. Newspapers, books, and broadcast stations supply information.

We can show you cases where each of these industries is competing in a big way with each of the others.

They are using all the traditional weapons, including lawsuits, lobbying, and pushing special interest legislation.

The media, including newspapers and magazines, depending on the regulated postal rates and services and on communication rates and services, and are increasingly competing with electronic media.

The regulated TV and radio broadcasting industries are the most familiar electronic media.

In the cloudy arena between broadcasting and communications stands cable television, which is regulated by the FCC but not explicitly covered by Federal statute.

The doctrines governing CATV are unsettled and, since cable television competes with movie theaters and with both broadcasting and communications industries, its ultimate fate is far from clear.

Then there is the so-called war between A.T. & T. and IBM.

We believe that this will break out on many fronts in addition to the ones now visible, such as the Dataspeed 40 conflict and the appearance of satellite business systems.

There are many vigorous, successful organizations from diverse traditional industries who now find themselves in the same market for communications facilities or services.

#### CHANGING CONSUMERS AND CONSTITUENTS

What may be the most significant phenomenon now becoming manifest in the information resources arena is the growing importance and diversity of the individual consumer market for communications.

Until now, computers were largely an industrial product made for the corporate market.

The telephone system, though geared to individual consumers, has supplied them mainly with a single homogeneous service: namely, connecting up plain old telephones.

The seeds of change are already sprouting. I need only mention the hand-held calculator which, in versions costing less than \$10 a piece, has become cheaper than hard-cover books.

It is rapidly finding its way into the hand of every businessman and every student in the country and conditioning them to use these electronic tools in isolation or as terminals linked up to more powerful distant facilities.

What was strange 10 or 15 years ago is now becoming a commonplace daily tool.

CB radio is a significant example, not because radios have not been widespread before, but because, unlike previous radio and television, CB enables an active exchange where the listener talks back.

In hand-held calculators and CB radios we have, for the first time, computers and broadcasting as tools under the control of masses of private individuals, rather than as industrial or passive devices.

The Touchtone® dials and the ping-pong games attached to television sets may be forerunners of a wider variety of home terminals.

The computer kits costing a few hundred dollars that hobbyists all over the country are building for themselves, the ubiquitous Xerox machines, and soon the microprocessor: that is, the small computer-on-a-chip embedded in everything from cars to stoves to telephones, or other terminals, may open up opportunities for the public of individual consumers to use a hitherto undreamt of variety of information devices, many of them intercommunicating with others.

Where the general public will see its future interests as consumers and as constituents is thus a large and open question.

All we can say for sure is that it is not the same folks out there now who were out there 10 years ago.

#### THE STAKES—ECONOMIC

There are major economic stakes in the future of communications.

Only recently have observers begun to break the communications—often called information—functions out of their various industries and look at them together.

The findings are staggering.

Over 50 percent of the work force appear to be doing it, regardless of where they stand in the standard industrial code. Their activity accounts for at least 20 percent of the GNP, closer to 50 percent by some reckonings.

Without communications, organized activity grinds to a halt.

The power to communicate is a strategic strength of an individual, a company, or a nation. Its absence is a strategic weakness.

This is the meaning of our program's title words, "Information Resources."

It looks to us as if several very different industries are poised over this pie and ready to start carving. These include the telephone, computer, electronics, and postal industries as the strongest.

In it as well, and probably willing to make unprecedented alliances, are broadcasters, newspapers, magazines, data banks, advertisers, book publishers, and maybe even airlines, railroads, and banks.

The boundaries among them are unlikely to be settled by anything so short term as the efforts of the present commissions on EFTS and the Postal Service.

#### THE STAKES—HIGH POLITICS

Aside from the questions of changing markets and boundaries around industry turfs, the world's increasing dependence on communications technologies gives rise to a number of strategic concerns.

Within the last year or so there have been reports of Soviet eavesdropping on the telephone conversations of Americans at home and of Soviet testing of antisatellite systems.

In a speech last June Nelson Rockefeller warned people that, and I quote, "It is tragic to think . . . that we have already reached the stage where the slogan should be 'If you don't want it known, don't use the phone.'"

Satellites are important as national means of verification of arms agreements. They are vital links in the chains of command and control not only of military forces but, increasingly, of the corporate world, especially of the banking world.

This underscores the vital stakes in the international field of information.

The upcoming 1979 World Administrative Radio Conference will determine who gets how much of the limited natural resource called the frequency spectrum.

The satellite picture could become vastly more complex in the decade ahead if the Soviet Union were to develop its Stationsatellite system to compete with Intelsat.

One can only speculate about where this might lead. But if the Kremlin decided to engage in a price war with Intelsat and offered access to its satellite system through neutral countries, a number of multinational companies with heavy communications traffic might be tempted to cut costs by using the Soviet system.

The day may well come when Washington will have to decide whether the United States should allow a vital industry like banking to become dependent on a Soviet-controlled satellite system.

In summary, the foreign policy implications of communications—strategic, economic, and political—must be dealt with in conjunction with the domestic questions of industry structure, which seem to dominate attention.

#### ORGANIZATION OF THE U.S. GOVERNMENT

We believe that your committee, like others in the Congress, will find that its traditional legislative jurisdiction no longer coincides with many of the key issues with which you will have to deal.

Some adjustment of your own jurisdictional borders and close relationships with overlapping committee strike us as essential if the Congress is to play the role it must play in making good neighbors out of neighboring suppliers of facilities and services by placing good fences between them.

There are no natural fences on the range anymore, and yet the whole is too big for any one organization to handle.

Can you imagine a single combined A.T. & T., IBM, RCA, Xerox, ITT combine running communications services? It is staggering.

There have to be arbitrary fences put in someplace and somebody is going to have to put them in. But they are not necessarily today's fences.

Within the FCC, telecommunications matters and broadcasting matters are still treated by two separate bureaus under two distinct sections of the law, as if they existed in entirely different worlds.

Cable television and the cable bureau are in yet another world.

As a State regulator of cable television, I think the FCC is in never-never land in that area.

The executive branch has not taken the lead in proposing policies regarding the future workings either of the communications industries at home or of communications policies abroad.

It has responded to crises in a way as fragmented as the crises themselves. And, the communication and computer industries have taken a narrow and self-interested view, at least publicly, of the problems which they confront.

Under these circumstances, it may well be incumbent on your committee to get ready for a long war among powerful, diverse, and shifting factions.

We suggest that you examine the ways in which the industries you cover are competing with industries under other jurisdiction, such as banks, the Postal Service, and newspapers.

Finally, we urge you to prod the executive branch and the private sector to create effective interfaces between the private and public sectors to analyze the advantages and disadvantages from the public's point of view of alternative placements of fences between interrelated facilities and services, and of alternative responses to challenges and opportunities from friends and adversaries abroad.

Thank you very much, Mr. Chairman.

Senator HOLLINGS. You said as a State regulator the FCC is in never-never land.

Can you elaborate, please?

Mr. OETTINGER. I think the FCC regulation of cable television has been one of the most Byzantine and unworkable bits of interventionism that we have seen in a long time.

Having restricted the turf of the cable folks in order to protect the broadcasting industry, the FCC has then proceeded to protect that limited turf from competition by anybody else by writing rules that make it impossible for anybody to lease a channel on a cable television system, in spite of a lot of pious words.

Anyhow, cable may turn out not to be viable at all.

Senator HOLLINGS. What would you do about it?

Mr. OETTINGER. Deregulate them.

Senator HOLLINGS. What would occur then? They could take the signals at will, the programs.

How would it work out?

Mr. OETTINGER. The only ground for Federal intervention might be the regulation of over-the-air signals. Beyond that, it seems to me that price regulation, or regulation of the nature of other services and so on best be left alone.

We are going at a gnat with a sledgehammer.

Mr. HOLLINGS. What about the matter of framework of—regulatory framework for the national government. You have a problem for every solution in this statement, and I think you are probably very right when you say we are marginally adequate. It is good to start off the day being told we are marginally adequate.

What do you do about it?

From all the experience you have—suppose you were the Senator, what would you do about it?

Mr. OETTINGER. First thing is that you dig in for the long haul. I don't think there are quickies here. I don't think that one piece of legislation, one rewrite of this or that will solve these problems.

I think the second thing, as we have suggested, is that you prod the executive branch to get its act better organized.

As far as we can tell, there is no focus for anything over there. You can't even find anybody to make the statement that incoherence is the policy and the best policy, which it might be.

I'm not suggesting that we necessarily want to opt for a centralized, gargantuan—"big brother" or something or other. But I don't think anybody has consciously made a decision to be unconscious.

I think that is a high priority.

Senator HOLLINGS. We are trying our best with zeal to cut down on the size of the executive and everything else.

We have difficulty holding the Office of Telecommunications Policy within the White House. We can't get those folks to attend this series of hearings.

What can we do—I can understand the reality of jurisdiction with banking, postal affairs and communications. We have seen this come down the line, and the economics. Economics touches every agency and department. We get a Joint Economic Committee. We will now have an Energy Committee.

It could be that this could graduate into a full communications committee because it touches every facet of society.

Barring just that, because we do have unconsciously the confidence in Congress and this subcommittee—not lacking there—perhaps we might be lacking in the appropriate first step or first two or three steps.

Do you think, for example, a rewrite of the Intercommunications Act of 1934 is in order?

Mr. OETTINGER. Under what time scale? I respectfully submit it took 15 years to get consensus on the rewrite of the Copyright Act. My guess is when the new Copyright Act goes into effect in January 1978,



that the first evidence of its existence will be new lawsuits and there will be calls for further revision.

I don't think rewriting legislation by itself will solve any of the problems.

I'm not suggesting that legislative action—to put a bandaid here or there; staunch the blood while more thought is being given—is a bad idea. I think you will find it necessary to do that all along. But the notion that a fundamental rewrite of the Communications Act is a quick and dirty short-term action, is unrealistic. That is the main reason for calling to your attention all of the diverse parties with stakes in this game.

Part of what drew out the copyright revision for so long was that each time Senator McClellan thought they had a compromise among the parties, new folks would come out of the woodwork and blow it up again.

This is very much the situation here.

Things are changing so rapidly that even when parties seem to be in agreement, there will be another party coming along and there will be new problems.

Senator HOLLINGS. Is there any immediate emergency on the horizon that should be dealt with this year, for example, because of the failure of Congress to act? There are other entities of the Government, FCC, circuit court of appeals. Is there anything we should do immediately to make certain that if something happens we can handle it?

Mr. OETTINGER. I think you should consider the strategic questions raised in my testimony. If Mr. Rockefeller is right, there are present dangers that we are ill-equipped to handle in the usual fragmented way, both in executive branch and legislative branch.

Senator HOLLINGS. The right of privacy.

Mr. OETTINGER. Yes, sir.

Senator HOLLINGS. Any other facet that we should work on?

Mr. BORCHARDT. I should think you would want to prod the industries and other interested parties to establish what Professor Oettinger referred to as interfaces. Other new industries had to do it. There is no reason why the communications industry should not follow suit.

When the Atomic Energy Commission was developed, the Atomic Industrial Forum was developed and that was a way of communicating among the competing groups, including manufacturers, et cetera.

It can't be done by the executive branch, legislative branch, courts. Industry will also have to contribute considerably.

Mr. LEGATES. I believe I heard you say two things. One is "what should we do next?" and the other is "which are the crises we should handle this year?"

My suggestion would be that you recognize these as two distinct and possibly unrelated questions, and you can answer the first one better than I can. And you need to be able to adequately handle the crises as they come.

Senator HOLLINGS. You mentioned in your main statement Professor Oettinger, the war between A.T. & T. and IBM—should the Congress settle that war or, as you say, dig in for a long haul.

Mr. OETTINGER. It is not clear what there is to settle. The situation is changing.

Senator HOLLINGS. A.T. & T. would feel it were settled if we passed their bill.

Mr. OETTINGER. If you passed that bill you would be settling things in a manner admirable for 1940, but not very useful for 1970 or 1980.

Senator HOLLINGS. Why not?

Mr. OETTINGER. The bill, or at least the versions that I have seen, seem to have a view of the industry that was admirable at the time the Communications Act was written and the main service to be provided and the only service was plain old telephone service to all of the folks out there in the boonies and cities.

It is a different world now. It is not at all clear that that world would be served by turning the clock back, which is what I think in its most extreme form the telephone industry legislation would propose to do.

Senator HOLLINGS. You don't feel that the sky is falling like Chicken Little?

Mr. OETTINGER. No. I don't think the sky is falling. It is just the FCC making noise. I think folks pay too much attention to them.

Mr. BORCHARDT. If you want to follow the war between A.T. & T. and IBM, first of all you have to broaden the jurisdiction of this committee. The committee's jurisdiction is limited at the present time to communication. You would want to have jurisdiction over other aspects of their information handling. Communication is one of them. Information handling and processing is an indispensable part of the entire picture.

If you want to follow the war and prepare for keeping informed, the committee needs the mandate that information handling other than specific subjects assigned to other committees should be the jurisdiction of this committee.

Senator HOLLINGS. What other committee has information handling?

Mr. BORCHARDT. For example, Post Office and Civil Service.

Senator HOLLINGS. They have hidden that.

Mr. BORCHARDT. I understand.

Senator HOLLINGS. There is an interesting thing.

You have this Congress going pellmell down the road for sunset legislation. We have to oversee, look, and over here we are spending \$2 billion a year for the Post Office and interminably we refuse to oversee or overlook. Out of sight, out of mind. We abolished the Post Office Committee. When we assigned it to the Government Operations Committee the gentleman to whom it was assigned bucked and it is now under Space and Federal Services. You can't find the words "Post Office." Don't worry about that. We can run it from this end and we will act like we have the jurisdiction until someone stops us.

Mr. BORCHARDT. That is a good answer.

Senator HOLLINGS. Thank you very much for your appearance this morning.

# INTERNATIONAL COMMUNICATIONS AND INFORMATION

---

HEARINGS  
BEFORE THE  
SUBCOMMITTEE ON  
INTERNATIONAL OPERATIONS  
OF THE  
COMMITTEE ON FOREIGN RELATIONS  
UNITED STATES SENATE  
NINETY-FIFTH CONGRESS  
FIRST SESSION  
ON  
THE IMPLICATIONS OF INTERNATIONAL COMMUNICATIONS  
AND INFORMATION

---

JUNE 8, 9, AND 10, 1977



Printed for the use of the Committee on Foreign Relations

U.S. GOVERNMENT PRINTING OFFICE

99-147

WASHINGTON : 1977

---

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Washington, D.C. 20402

Our final witness is Mr. Anthony Oettinger, who is accompanied by Mr. John LeGates.

Mr. Oettinger is with Harvard University and is chairman of the program on information resources policy, and Mr. LeGates is the Director of that program.

Gentlemen, we welcome you.

[Mr. Oettinger's biography follows:]

#### BIOGRAPHY OF ANTHONY G. OETTINGER

Anthony G. Oettinger, chairman of the Harvard Program on Information Resources Policy, is Professor of Information Resources Policy, a member of the Faculty of Public Administration and Gordon McKay Professor of Applied Mathematics at Harvard University.

He is chairman of the CATV Commission of the Commonwealth of Massachusetts and a consultant to the National Security Council, Executive Office of the President of the United States. He is a member of the Research Advisory Board of the Committee for Economic Development and was an advisor to the CED subcommittee that prepared the report *Broadcasting and Cable Television: Policies for Diversity and Change*, issued by CED in April 1975. Since 1956, he has served as a consultant to Arthur D. Little, Inc., on the uses of information technologies in many industries; he served as a principal consultant to the team that prepared *The Consequences of Electronic Funds Transfer—A Technology Assessment of Movement Toward a Less Cash/Less Check Society*, a report for the National Science Foundation published by the Government Printing Office in June 1975.

He has been president of the Association for Computing Machinery (1966-68) and a consultant to the Office of Science and Technology, Executive Office of the President of the United States (1961-73). He is a Fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science and the Institute of Electrical and Electronics Engineers.

As chairman of the Computer Science and Engineering Board of the National Academy of Sciences (1967-73), he led the preparation of NAS reports on *A Technical Analysis of the Common Carrier/User Interconnections Area* (Lewis S. Billig, Project Director), *Databanks in a Free Society: Computers, Record Keeping and Privacy* (Alan F. Westin, Project Director) and on *Libraries and Information Technology—A National System Challenge* (Ronald L. Wigington, Project Director). He is the author of *Automatic Language Translation: Lexical and Technical Aspects*, of *Run, Computer, Run: The Mythology of Educational Innovation* and of numerous papers on the uses of information technologies, including, most recently, *Foreign Policy Choices for the 1970s and 1980s: Information Resources: Strategic Strengths—Strategic Weaknesses*, a report of the Program prepared, with William Read, at the request of the U.S. Senate Foreign Relations Committee.

[Mr. LeGates' biography follows:]

#### BIOGRAPHY OF JOHN C. LEGATES

John C. LeGates is Director of the Program and lecturer in Information Resources Policy. His experience prior to joining the Program has been in the business community, developing and managing computer and communications systems.

At Educom, he was the executive director of the Educational Information Network (EIN) and the author of several articles on computing networking. Earlier, as Vice President of Cambridge Information Systems, Inc., he was director of the technical staff, and responsible for the company's nationwide marketing efforts. He also directed the development of the Massachusetts General Hospital Integrated Information System.

At Computer Advisory Services to Education Inc., Mr. LeGates was vice president and director. At Bolt, Beranek and Newman, Inc., he was responsible for exploring the potential of the Telcomp language in education.

His studies were in mathematics (Harvard) and philosophy (Yale).

**STATEMENT OF PROF. ANTHONY G. OETTINGER, CHAIRMAN, PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD UNIVERSITY, CAMBRIDGE, MASS.; ACCOMPANIED BY JOHN C. LeGATES, DIRECTOR, PROGRAM ON INFORMATION RESOURCES POLICY**

Mr. OETTINGER. Thank you, Mr. Chairman.

As you have stated, I am a professor at Harvard University, where I am also chairman of the program on information resources policy. Mr. LeGates, who is here with me, is the director of that program.

Quietly and, for most people, imperceptibly, the world has entered into what some call an "information age."

**CONCEPT OF INFORMATION AS A RESOURCE**

Once upon a time, this was a purely academic concept. Several years ago, my colleague, Daniel Bell, noted that just as steam and electrical energy have enabled agricultural societies to industrialize, so today information is the transforming resource of a new age.

Indeed, even that erstwhile academic, Zbigniew Brzezinski, some years ago wrote a book entitled, "Between Two Ages," and subtitled, "America's Role in the Technetronic Era," in which the theme of information as a driving force played a major role.

As you stated in your opening remarks, that notion is no longer purely academic; the concept is now echoed in advertisements by IBM and discussed in banking trade journals.

I think, Mr. Chairman, that the concept of information as a resource is the key to finding what in your opening remarks you hope to be a pattern that shows the interrelationships of many issues that so far have been discussed as if they existed solely in rather isolated compartments. I think that the theme of information as a resource provides a unifying concept, and my testimony will explore what it means.

**MEANING OF "INFORMATION AGE" TO FOREIGN POLICY**

In particular, what does being in the information age mean to our foreign policy?

The witnesses who have preceded us today and those who will follow us are expressing concerns about information stemming from their experience in government and in business. Some of them are concerned with what I call traditional information products, like American magazines and TV shows which circulate abroad, or else with the roles of news gatherers, like AP and UPI, and others.

Some of the other witnesses that you will hear tomorrow and the next day are concerned with information hardware in terms of problems of import and export of telephone, computer, television and other electronic equipment. Still others are concerned with computerized information networks which have now become a key to global operations, most notably for multinational banking, but also for every other kind of transnational enterprise.

Distilling from such experiences, we've come to see that in the in-

formation age the world is beginning to rely on information as a basic resource. Like energy and materials, information is a fundamental resource on which is based the well-being of every individual in every nation. And so, the Third World concern over control of that resource is, I think, quite understandable.

#### ROLE OF INFORMATION AS IT RELATES TO INTERDEPENDENCE

Let me illustrate the role of information as it relates to that condition of international affairs known as interdependence.

Just 20 years ago, very little information flowed between the United States and Europe by telephone. The reason is simple. It was not until 1956 that the first transatlantic telephone cable came into service, replacing the unreliable and costly radiophone. That first cable had about 50 circuits. It was kind of an eye of a needle through which telephone communications had to pass.

The newest transatlantic cable, which came into service in 1976, has 4,000 voice-grade circuits, a multiple of over 100. In all, we now have six transatlantic telephone cables, and they, together with satellites, can provide up to 18,000 circuits between this country and Europe.

In the short span of 20 years, we have gone from scarcity to abundance in telecommunications across the Atlantic.

Now what is significant about that rapid rise is not the technological gee wizardry that underlies it. The fact is that those thousands of circuits have enabled the flow of information between Europe and America by telephone alone to change from a trickle to a torrent, from less than half a million calls both ways in 1956, to over 7 million calls in 1970, and over 24 million calls in 1975.

The financial data of multinational banks, among others, flow through those circuits. The technical information for operating nuclear powerplants built by American firms abroad flows through those circuits. The command and control instructions of the oil companies flow through those circuits. And, in sum, the interdependence of America and Europe is fostered by the flow of information through those circuits.

While there is what I call the traditional concerns of free flow, say, of news, which some of the preceding witnesses have stressed, I want to make the point that this flow of command and control, of commercial information, and so on, is a new and growing concern and one that is of major strategic importance to this country and, indeed, to the rest of the world.

What we see in examples like this, then, is a growing dependence on information resources. What that dependence means domestically and internationally is the question that our program on information resources policy has geared itself up to address since it was established 4 years ago.

Last year we had the pleasure of sharing some of our findings with your parent committee, which commissioned us to prepare a report entitled, "Foreign Policy Choices for the 1970's and 1980's" and subtitled, "Information Resources, Strategic Strengths—Strategic Weaknesses."

Two months ago, we described the domestic significance of information resources at the request of the Subcommittee on Communications of your Chamber's Committee on Commerce, Science and Transportation. With your permission, Mr. Chairman, I would like to submit that testimony for your record since some of our points will be that domestic and foreign affairs in information resources are closely linked.

Senator McGOVERN. Without objection, that will be made a part of the hearing record.

[The information referred to follows:]

PREPARED STATEMENT OF ANTHONY G. OETTINGER AND JOHN C. LEGATES

Mr. Chairman, my name is Anthony G. Oettinger. I am a professor at Harvard University, where I am the Director of the Program on Information Resources Policy. Here with me is Mr. John LeGates, Executive Director of the Program.<sup>1</sup>

As we understand it, you have heard the concerns of regulators and regulated in the telecommunications industry. You have also heard about the golden promises and the leaden threats that advances in computer and communications technologies portend for various interested parties.

Your staff suggested we address the questions "what does it all mean?" and "where does it all fit?" Those questions about information resources are what the Harvard Program on Information Resources Policy has geared itself up to addressing in the four years of its existence.<sup>2</sup> What we learn we are pleased to pass on to distinguished undergraduates, businessmen, senators and other member of the public.<sup>3</sup>

There are four points which I believe will be useful to you in understanding the testimony which confronts you.

The first is that the information industries, which were separate and distinct as recently as a decade ago, are now tightly intertwined and in turmoil. The second is that the demands and stakes of individual consumers are undergoing significant changes. The third is that there are great economic and high political stakes in the information world. Finally, the stance of the United States Government in general, and of this committee in particular, is marginally adequate, at best, to cope with the turmoil.

I have time only to outline salient points without presenting much, if any, by the way of supporting evidence or argument. I'll be happy to respond to your questions now or later.<sup>4</sup>

THE INTERTWINED INFORMATION INDUSTRIES

The science and technology of computers and of communications are now indistinguishable. Because we get tired of having to say "computer and communications", we have coined the term "compunciations".

The commonality appears in basic components like integrated circuits. It is present in basic principles like the digital encoding that has been the hallmark of computer technology since World War II and that is increasingly used in telephone networks to transmit both voice and data.

Computers and communications have merged not only in terms of hardware components or techniques, but also in terms of services or, more broadly, in terms of functions. Whether we talk about transmission or storage or manipulation of information, we can no longer tell communications functions apart from computer functions.

<sup>1</sup> Biographies are appended.

<sup>2</sup> A listing of the affiliates who support the Program's work is appended. They include competitors, competing industries and their customers, as well as government agencies.

<sup>3</sup> Maps of the information resources arenas and descriptions of the scope of the Program's work and how it operates are given in the appended *Annual Report 1975-76 Information Resources Policy: Volume One, Arenas, Players and Stakes*, and *Volume Two, Program Projects*.

<sup>4</sup> Some details are in the appended *Performance, Politics and Policy in Computer/Communications: A Policy Agenda*.

To add to the confusion, communications extends into other industries which perform these functions as well. These are being actively drawn into the competition. Let me name a few.

Banks are in the money business, but their production line is information processing. Electronic Funds Transfer systems expedite this processing. As soon as more than one bank is involved, several familiar questions pop up. Is EFTS a service or a facility? Must it become a common carrier and take on all comers? Who shall own the lines? Who controls the service offerings? Who gets the profits from operation? Who sets the standards?

Department stores have traditionally offered credit. How does this differ from bank credit? Who can be kept out of where by what jurisdiction?

EFTS is a major threat to the chief non-electronic funds transfer system. Over half of the first class mail—the most profitable kind of mail—is financial: bills and payments. What will happen to the United States Postal Service if these vanish into wires? Who will subsidize the remaining money-losing services? Should the Post Office fight back with reduced rates for utilities? Should it fight back by forbidding EFTS as a violation of the Private Express Statutes? Should it levy a surcharge on these transactions, just as it does on courier services?

A more general question: Should the Post Office offer a competitive service over wires? If so, should it compete as well with electronic transfer of other traditional postal business such as messages? How do we distinguish between such an effort and an operation already in existence, known to the world as the telephone system?

The existence of computer data banks draws in another set of industries. Data banks supply information. Newspapers, books and broadcast stations supply information. We can show you cases where each of these industries is competing in a big way with each of the others. They are using all the traditional weapons, including lawsuits, lobbying and pushing special interest legislation.

The media, including newspapers and magazines, depend on the regulated postal rates and services and on communication rates and services, and are increasingly competing with electronic media. The regulated TV and radio broadcasting industries are the most familiar electronic media. In the cloudy arena between broadcasting and communications stands cable television, which is regulated by the FCC but not explicitly covered by federal statute. The doctrines governing CATV are unsettled and, since cable television competes with movie theatres and with both broadcasting and communications industries, its ultimate fate is far from clear.

Then there is the so-called war between AT&T and IBM. We believe that this will break out on many fronts in addition to the ones now visible, such as the Dataspeed 40 conflict and the appearance of Satellite Business Systems. There are many vigorous, successful organizations from diverse traditional industries who now find themselves in the same market for communications facilities or services.

#### CHANGING CONSUMERS AND CONSTITUENTS

What may be the most significant phenomenon now becoming manifest in the information resources arena is the growing importance and diversity of the individual consumer market for communications.

Until now, computers were largely an industrial product made for the corporate market. The telephone system, though geared to individual consumers, has supplied them mainly with a single homogeneous service, namely connecting up plain old telephones.

The seeds of change are already sprouting. I need only mention the hand-held calculator which, in versions costing less than ten dollars apiece, has become cheaper than hard-cover books. It is rapidly finding its way into the hand of every business man and every student in the country and conditioning them to use these electronic tools in isolation or as terminals linked up to a more powerful distant facilities.

CB radio is a significant example, not because radios have not been widespread before, but because unlike previous radio and television, CB enables an active exchange where the listener talks back.

In hand-held calculators and CB radio we have, for the first time, computers and broadcasting as tools under the control of masses of private individuals, rather than as industrial or passive devices.

The Touchtone® dials and the ping-pong games attached to television sets may be forerunners of a wider variety of home terminals. The computer kits costing a



few hundred dollars that hobbyists all over the country are building for themselves, the ubiquitous Xerox machines and soon the microprocessor, i.e. the small computer-on-a-chip embedded in everything from cars to stores to telephones or other terminals, may open up opportunities for the public of individual consumers to use a hitherto undreamt of variety of information devices, many of them intercommunicating with others.

Where the general public will see its future interests as consumers and as constituents is thus a large and open question.

#### THE STAKES—ECONOMIC

Only recently have observers begun to break the communications (often called "information") functions out of their various industries and look at them together. The findings are staggering. Over 50 percent of the work force appear to be doing it, regardless of where they stand in the Standard Industrial Code. Their activity accounts for at least 20 percent of the GNP, closer to 50 percent by some reckonings. Without communications, organized activity grinds to a halt. The power to communicate is a strategic strength of an individual, a company or a nation. Its absence is a strategic weakness. This is the meaning of our Program's title words "Information Resources".

It looks to us as if several very different industries are poised over this pie and ready to start carving. These include the telephone, computer, electronics and postal industries as the strongest. In it as well, and probably willing to make unprecedented alliances are broadcasters, newspapers, magazines, databanks, advertisers, book publishers and maybe even airlines, railroads and banks. The boundaries among them are unlikely to be settled by anything so short term as the efforts of the present commissions on EFTS and the Postal Service.

#### THE STAKES—HIGH POLITICS

Aside from the questions of changing markets and boundaries around industry turfs, the world's increasing dependence on communications technologies gives rise to a number of strategic concerns.

Within the last year or so, there have been reports of Soviet eavesdropping on the telephone conversations of Americans at home and of Soviet testing of anti-satellite systems. In a speech last June, Nelson Rockefeller warned people that, and I quote, "It is tragic to think . . . that we have already reached the stage where the slogan should be 'if you don't want it known, don't use the phone'." Satellites are important as national means of verification of arms agreements. They are vital links in the chains of command and control not only of military forces but, increasingly, of the corporate world, especially of the banking world. This underscores the vital stakes in the international field of information. The upcoming 1979 World Administrative Radio Conference will determine who gets how much of the limited natural resource called the frequency spectrum.

The satellite picture could become vastly more complex in the decade ahead if the Soviet Union were to develop its Stationar satellite system to compete with Intelsat. One can only speculate about where this might lead. But if the Kremlin decided to engage in a price war with Intelsat and offered access to its satellite system through neutral countries, a number of multinational companies with heavy communications traffic might be tempted to cut costs by using the Soviet system. The day may well come when Washington will have to decide whether the U.S. should allow a vital industry like banking to become dependent on a Soviet-controlled satellite system.

The foreign policy implications of communications—strategic, economic and political—must be dealt with in conjunction with the domestic questions of industry structure, which seem to dominate attention.

#### ORGANIZATION OF THE U.S. GOVERNMENT

We believe that your committee, like others in the Congress, will find that its traditional legislative jurisdiction no longer coincides with many of the key issues with which you will have to deal. Some adjustment of your own jurisdictional borders and close relationships with overlapping committees strike us as essential if the Congress is to play the role it must play in making good neighbors out of neighboring suppliers of facilities and services by placing good fences between them.

Within the Federal Communications Commission, telecommunications matters and broadcasting matters are still treated by two separate bureaus under two distinct sections of the law, as if they existed in entirely different worlds. Cable television and the cable bureau are in yet another world.

The Executive branch has not taken the lead in proposing policies regarding the future workings either of the communications industries at home or of communications policies abroad. It has responded to crises in a way as fragmented as the crises themselves. And, the communication and computer industries have taken a narrow and self-interested view, at least publicly, of the problems which they confront.

Under these circumstances, it may well be incumbent on your Committee to get ready for a long war among powerful, diverse and shifting factions. We suggest that you examine the ways in which the industries you cover are competing with industries under other jurisdiction, such as banks, the Postal Service and newspapers. Finally we urge you to prod the Executive branch and the private sector to create effective interfaces between the private and public sectors to analyze the advantages and disadvantages, from the public's point of view, of alternative placements of fences between interrelated facilities and services, and of alternative responses to challenges and opportunities from friends and adversaries abroad.

Attachments.

#### Attachment

#### HARVARD UNIVERSITY PROGRAM ON INFORMATION RESOURCES POLICY—CORE PROGRAM SUPPORT

##### AFFILIATES

|   |  |
|---|--|
| American Can Company  | Lockheed Missiles and Space Company    |
| American District Telegraph Company                                   | John & Mary R. Markle Foundation       |
| American Telephone and Telegraph                                      | McGraw Hill, Inc.                      |
| Arthur D. Little Foundation   | Mead Corporation                       |
| Bell Canada   | Minneapolis Star and Tribune Company   |
| Codex Corporation   | New York Times Company                 |
| Communications Workers of America                                     | Nippon Electric Company                |
| Computer and Communications Industry Association                      | Norfolk & Western Railway Company      |
| Donaldson, Lufkin & Jenrette  | Payment Systems, Inc.                  |
| Executive Office of the President Office of Telecommunications Policy | Pitney Bowes, Inc.                     |
| L. M. Ericsson (Sweden)   | Rockefeller Brothers Fund              |
| Federal Communications Commission                                     | Rockwell International                 |
| Federal Reserve Bank of Boston  | Salomon Brothers                       |
| First National Bank of Boston   | Seiden & De Cuevas, Inc.               |
| First National Bank of Chicago  | Stromberg-Carlson Corporation          |
| General Electric Company  | Systems Applications, Inc.             |
| General Telephone & Electronics                                       | The Boston Globe                       |
| Harte-Hanks Newspapers  | Time Incorporated                      |
| Honeywell, Inc.   | Transamerica Corporation               |
| IBM Corporation   | United Telecommunications, Inc.        |
| International Data Corporation  | U.S. Department of Commerce:           |
| International Paper Company   | National Technical Information Service |
| International Resources Development, Inc.                             | Office of Telecommunications           |
| Interpublic Group of Companies, Inc.                                  | United States Postal Service           |
| Lee Enterprises   | Western Union Corporation              |
| Litton Industries   | Western Union International, Inc.      |

##### STUDENT ASSISTANTSHIPS

|                          |                            |
|--------------------------|----------------------------|
| American Express Company | Chase Manhattan Bank       |
| Bank of America          | William Bingham Foundation |

##### SPECIAL PROJECTS

|  |                                       |
|--|---------------------------------------|
| National Association of Broadcasters                     | United States Congress:               |
| National Commission on Libraries and Information Science | Office of Technology Assessment       |
|  | Senate Committee on Foreign Relations |

Mr. OETTINGER. With that testimony in the record, it will help anchor today's comments to the domestic realities that bound foreign policy concerns.

As we see it, these concerns, as you have heard them expressed today and as you will hear more in the next 2 days, are over issues which our Nation—and all others—must address if we are not to slip into crisis management. The following agenda headings, which were developed by our colleague, William Read, help organize these issues so that they might be addressed.

#### "COMMUNICATIONS POLICY: AN AGENDA"

The first heading is "Telecommunications": the development and control of international telecommunications for individuals, for organizations, for rich nations, for poor. These are themes which Mr. Marks and Mr. Harley, in particular, addressed.

The second agenda heading, to which Mr. Colby referred, is "National Security": the use of information resources for military, for arms control, for intelligence, and for counterintelligence purposes.

Then there are those traditional information issues, which Messrs. Marks, Harley, and Colby referred to, that is, media industry structure, free flow of news, and the free flow and the privacy of business and personal information. I might add, in connection with the question of privacy of business and personal information, that repeated newspaper accounts over the last few years of Soviet intercepts of U.S. telephone conversations underscore the point of vulnerability that Mr. Colby made. Last year, in a print of the Senate's Select Committee on Intelligence Activities, a report by Dr. Richard Garwin underscored the fact that even domestic satellite communications are vulnerable to intercept not only within the United States, but abroad, including, for example, in Cuba.

The next agenda heading is what we call intermestic issues, that is, issues that straddle the international and the domestic. These are issues whose resolution in an interdependent world impact domestic issues as well as foreign. Among these are the flow of knowledge, as related, for example, to strategic export controls and to unemployment.

While the speakers who have preceded me today have stressed the importance of free flow and the need, for example, to assure that, say, American students may travel and study more widely in the Soviet Union—I believe Mr. Marks made that point—last year, the Defense Science Board issued a report here in the United States cautioning against that kind of access by foreign students to our American universities and industrial organizations as a vehicle for the transfer of critical technology. So, these questions of balancing free flow and secrecy are present, whether one looks at domestic or foreign concerns. We are not free in the United States from pressures toward restricting the flow of information.

The final agenda heading is "Organization of the United States Government," a point which Mr. Marks dwelt on: namely, how should government organize itself to formulate and to implement information resources policies.

Time does not permit my spelling out here and now all of these issues in concrete detail. With your permission, Mr. Chairman, I would like

to submit for the record Mr. Read's paper, which is entitled "Communications Policy: An Agenda." This gives some of the details as he sees them.

Senator McGOVERN. Without objection, that will be made a part of the record.

[The information referred to follows:]

**HARVARD UNIVERSITY—PROGRAM ON INFORMATION RESOURCES POLICY CORE  
PROGRAM SUPPORT**

|   |                                   |
|---|-----------------------------------|
| American Can Company                      | John & Mary R. Markle Foundation  |
| American District Telegraph Company       | McGraw Hill, Inc.                 |
| American Telephone and Telegraph          | Mead Corporation                  |
| Arthur D. Little Foundation               | Minneapolis Star and Tribune Com- |
| Bell Canada                               | pany                              |
| Codex Corporation                         | New York Times Company            |
| Communications Workers of America         | Nippon Electric Company           |
| Computer and Communications Indus-        | Norfolk & Western Railway Company |
| try Assoc.                                | Payment Systems, Inc.             |
| Donaldson, Lufkin & Jenrette              | Pitney Bowes, Inc.                |
| Executive Office of the President, Office | Polaroid Foundation, Inc.         |
| of Telecommunications Policy              | Reuters, Ltd.                     |
| L. M. Ericsson (Sweden)                   | Rockefeller Brothers Fund         |
| Federal Communications Commission         | Rockwell International            |
| Federal Reserve Bank of Boston            | Salomon Brothers                  |
| First National Bank of Boston             | Seiden & De Cuevas, Inc.          |
| First National Bank of Chicago            | Southern Pacific Communications   |
| General Electric Company                  | Stomberg-Carlson Corporation      |
| General Telephone & Electronics           | Systems Applications, Inc.        |
| Harper & Row                              | The Boston Globe                  |
| Harte-Hanks Newspapers                    | Time Incorporated                 |
| Honeywell, Inc.                           | Transamerica Corporation          |
| IBM Corporation                           | United Telecommunications         |
| International Data Corporation            | U.S. Department of Commerce:      |
| International Paper Company               | National Technical Information    |
| International Resources Development,      | Services                          |
| Inc.                                      | Office of Telecommunications      |
| Interpublic Group of Companies, Inc.      | United States Postal Service      |
| Lee Enterprises                           | Western Union Corporation         |
| Litton Industries                         | Western Union International, Inc. |
| Lockheed Missiles and Space Company       | Xerox Corporation                 |

**STUDENT ASSISTANTSHIPS**

|                          |                            |
|--------------------------|----------------------------|
| American Express Company | Chase Manhattan Bank       |
| Bank of America          | William Bingham Foundation |

**SPECIAL PROJECTS**

|                                      |                                 |
|--------------------------------------|---------------------------------|
| National Association of Broadcasters | United States Congress:         |
| National Commission on Libraries and | Office of Technology Assessment |
| Information Science                  | Senate Committee on Foreign Re- |
| National Science Foundation          | lations                         |

**HARVARD UNIVERSITY PROGRAM ON INFORMATION RESOURCES POLICY**

**EXECUTIVE COMMITTEE—1976-77**

Chris Argyris, Schools of Education and Business Administration, Professor of Education and Organizational Behavior.  
 Harvey Brooks, Faculty of Arts and Sciences, Benjamin Peirce Professor of Technology and Public Policy.  
 William M. Capron, J. F. Kennedy School of Government, Lecturer on Political Economy and Associate Dean.

Robert H. Hayes, School of Business Administration, Professor of Business Administration.  
 John C. Legates, Executive Director, Program on Information Resources Policy, Research Fellow in Information Resources Policy.  
 John R. Meyer, School of Business Administration, 1907 Professor in Transportation, Logistics and Distribution.  
 Arthur R. Miller, Law School, Professor of Law.  
 Anthony G. Oettinger, Director, Program on Information Resources Policy, Professor of Applied Mathematics and of Information Resources Policy.

#### COMMUNICATIONS POLICY: AN AGENDA

(By William H. Read)

Forty three years ago the U.S. Congress enacted legislation that still stands as the nation's basic statement of communications policy. In the Spring of 1977 both the House and the Senate Subcommittees on Communications inquired whether the Communications Act of 1934 ought to be updated.

An initiative for rewriting the law came from the American telephone industry. AT&T and the country's 1600 other phone companies have opposed the recent arrival of rivals who entered the market as a result of decisions by the Federal Communications Commission. Since the Courts generally have found that the procompetition rulings of the FCC were within the scope of existing, if dated, law, the telephone industry has sought to have Congress change the law.

Whether competition or monopoly in the telephone business better serves the national interest is a question not easily answered. Preliminary hearings were held in the Fall of 1976 by the House Subcommittee. After two days of testimony, Representative Louis Frey Jr. said, "We know we have a good [telephone] system and nobody wants to destroy it. After that, nobody agrees on anything."

At the heart of this disagreement is the fact that we've begun to live in a new world of communications.

Computers connected by telephone lines have suddenly, or so it seems, become commonplace. And applications are worldwide. Satellite and undersea circuits enable major U.S. banks to operate globally, with their computer-communication networks stretching from the haven of "freeports" like Nassau to virtually every financial center in the world. The same combination of technology is being used by *The Wall Street Journal* to publish an Asian edition in Hong Kong.

What appears to have moved us out of the old world of basic black telephones is an interplay between the rise of electronic technology on the one hand, and the information needs of society on the other. New computer and communications tools like "on-line" data banks have proliferated because the technology was available and because credit card companies, among others, required systems to instantly store and retrieve customer information.

For policymakers one of the great difficulties of the new communications world is the speed with which changes keep occurring. During the first five days of 1977 the FCC received more applications for licenses to operate citizen band radios than that government unit had received in all of 1973.

The CB boom follows in the footsteps of television, computers, Xerox machines and satellites—all of which appeared suddenly and all of which came into widespread use in the short span of years since Congress wrote the Communications Act of 1934. By comparison, more than three hundred years elapsed between the invention of the printing press and the next breakthrough in communications technology, the electrical telegraph.

A consequence of this continuing high rate of communications change is that before either social and economic impacts are fully understood or before sensible public policies are formed, the quality of our lives is affected.

One of the best examples was given by Nelson Rockefeller. While investigating the CIA he learned that foreign agents had acquired and now are using high communications technologies to invade the privacy of Americans. "It is tragic to think", remarked the former Vice President in a speech before he left office, "that we have already reached the stage where . . . if you don't want it known, don't use the phone."

The message from all this is clear: The new communications world is here and along with its benefits for some also may come losses for others.

What is less clear, however, are answers to several questions. By what rules will we live in this new world. Who will make those rules? And, above all, what will be the agenda of issues that rulemakers will have to address?

The purpose of this short paper is to identify and briefly comment on those communications policy issues that are now at hand. Taken together with the issue of competition versus monopoly in Telecommunications, they comprise a national communications policy agenda for the United States.

This agenda is politically, and bureaucratically, and institutionally "messy". Issues tend to cross jurisdictional lines. Often an issue is neither purely domestic nor purely international, but it fits into a category that may be called "intermestic", to borrow a word from Bayless Manning.<sup>1</sup>

To draw further on Manning's thought, what we may be facing with respect to the items on the communications policy agenda is the same situation that has confronted Washington with respect to food, monetary, and energy policy. It is the all too familiar pattern of a single issue making a "headline" appearance. Next the overall complexity of interrelated issues is rather painstakingly revealed. Then the government discovers that it is inadequately organized to formulate and implement policy in a coherent fashion.

This kind of mismatch has yet to occur in communications with the force of, say, energy. At the moment, communications policy issues are at the pre-crisis, if not altogether at the pre-headline, stage. So government has some lead time.

How should that time be used?

The trick, of course, is for government to perceive early enough just what the country's stakes are in communications policy (and then to act with prudence, not panic). Doing that is not terribly easy. Due to the natural tendency of Washington to view policy (communications or otherwise) from established perspectives, it too often is learned too late that conditions have changed. When such a situation develops traditional perspectives suddenly appear to be inadequate, or worse, outmoded. The now discarded, but once well established, energy perspectives of "cheap" and "abundant" are but two examples.

In an attempt to illuminate more clearly just what is at stake for the U.S. in communications policy, this paper presents an agenda with little reference either to established perspectives or to the institutions that embody them. The list therefore may appear disjointed or disorderly to some. Yet the items on the list have a conceptual coherence. They are bound together in much the same way that beneath the word "energy" exists a diverse assortment of issues that once seemed unrelated too.

Some are what might be called "ripening" issues like two disturbing activities of the Soviet Union—Soviet eavesdropping on telephone conversations of Americans at home and Soviet testing of "killer" satellites.

Some are "traditional" issues like the structure of the American television industry, or the place of the U.S. postal service in the scheme of national communications.

Some issues appear rooted in "new technologies" like electronic funds transfer systems and the use of communications satellites to aid the economic and social development of poor countries.

Finally, comes an issue as old as politics itself, for this is the difficult question about how government should organize itself to formulate and implement sensible communications policies.

Together these issues form a communications policy agenda now before the country.

#### TELECOMMUNICATIONS

Debate over the telephone companies' proposed "Consumer Communications Reform Act" has served to amply reveal how critical telecommunications policy is to that \$35 billion a year American industry.<sup>2</sup> And the debate, in turn, has focused at times on the relationship between telecommunications and overall economic affairs at home. The stakes the United States has in international telecommunications are high, too.

<sup>1</sup> See Bayless Manning, "The Congress, the Executive and Intermestic Affairs", *Foreign Affairs*, January 1977, Vol. 53, No. 2, pp. 306-324.

<sup>2</sup> See Milton R. Benjamin and William H. Read, "Ma Bell Fights for her Monopoly", *The New York Times Magazine*, November 28, 1976, p. 33.

The travel industry's needs for reliable international telecommunications are evident: modern airline, hotel and automobile rental chains could not exist in their present form without a worldwide reservation system. But other American businesses have a more subtle—but even more critical—dependence on information flows via telecommunications. One of the best illustrations of the U.S. economic stakes in the international flow of information is the case of America's multinational banks.

During the past decade, international banking has expanded rapidly. American banks, which had about 130 branches overseas in 1960, have more than 700 branch offices around the world today. International banking, moreover, has become an increasingly important part of many American banks' total operations. The foreign assets of the 20 U.S. banks most heavily engaged in multinational banking account for one-third of their total assets. But despite the growth of international banking, Andrew F. Brimmer noted in testimony before the House Banking Committee in December 1975 that "the basic regulatory framework governing the foreign activities of American banks has remained essentially unchanged since 1919."

But while the body of law remained unchanged, the banking business itself was changing dramatically. No longer was it satisfactory for the bulk of the international payments transaction traffic of banks to be handled by mail. Money now could be expressed as an information symbol, and transferred from one bank's computer to another bank's computer by leased wire.<sup>1</sup>

In 1973, sixty-eight American and European banks formed the Society for Worldwide Financial Telecommunications (SWIFT) to improve their method of transmitting international payments messages. At a series of crucial meetings, these banks decided to set up a computer/communications network that by 1978 was expected to be processing some 300,000 financial transactions each day.

Even as the Swift network was being organized, the U.S. bank most heavily involved in foreign banking, Citibank, was setting up a new communications network of its own. With 50.9 percent of its total assets held in foreign branches, the very nature of Citibank's business requires that it be able to transmit data from one area of the world to another quickly. Hence, it put into operation GlobeCom—which links Citibank's branches in 79 cities by teleprinter, 24 hours a day, over leased private lines that pass through computer switches in London, Bahrain, Hong Kong, and New York. This new system, says Citicorp Vice President Barry Young, "can make the difference between getting a decision or completing a transaction today, rather than tomorrow—or Monday." And that capability, he adds, "can make the difference between profit or loss."

As American banks become increasingly dependent on this computerized flow of information across international borders, a key foreign policy consideration for the United States becomes the safeguarding of its banks' lifelines. "Swift is a vital step in the process of international electronic funds transfer," says Laurence E. Wadman Jr., Second Vice President of Chase Manhattan Bank. But Swift also is a source of vulnerability. Computer switching centers constitute another squeeze point. Recognizing this, Swift opted for twin switching centers situated in two different countries—Belgium and the Netherlands. Both are presently considered politically stable, but the implications for America's banks if a foreign government decided to interfere with its information lifeline is a subject that merits U.S. government consideration.

Nor is banking's concern over its information lifelines limited to protecting leased wires and switching centers. With Citibank considering experimenting with direct communication via satellite between its New York headquarters and its London branch, the availability of frequencies for satellites also looms as a key issue. Yet even as international banking by satellite appears technically feasible, the United States faces a round of worrisome negotiations on allocations of frequencies at the forthcoming World Administrative Radio Conference. The meeting, to be held in Geneva in 1979, will be under the auspices of the International Telecommunications Union—another U.N. forum passing out of Western control.<sup>2</sup>

<sup>1</sup> For a fascinating look at multinational banking, see a two-part series in *The New York Times*, "Growing U.S. Bank Role in Bahamas Causing Concern", March 3, 1977, p. 1, and "Citibank Found to Lead in Shift to Tax Havens", March 4, 1977, p. 1.

<sup>2</sup> See William H. Reac, "Coming: A Law of Communications Conference", Working Paper W-77-2, Program on Information Resources Policy, Harvard University, Cambridge, Mass., April 1977.

The communications satellite question, moreover, opens up a whole new range of issues with foreign-policy ramifications. The satellite picture could become vastly more complex in the decade ahead if the Soviet Union were to create a global telecommunications satellite system to compete with Intelsat. One can only speculate about where this might lead. If the Kremlin decided to engage in a price war with Intelsat and offered access to the Russian Stationar satellite system through neutral countries, a number of multinational companies with heavy communications traffic might be tempted to cut costs by using the Soviet system. The day may well come when Washington will have to decide whether the U.S. should allow a vital industry like banking to become dependent on a Soviet-controlled communications satellite system.

That day, of course, is not yet here. But to assume that non-technical questions of telecommunications policy can be neglected much longer is a mistake. The potential foreign-policy implications—strategic, economic, political—are too great.

#### NATIONAL SECURITY

Recent investigations of the U.S. intelligence community have led to a series of revelations about the impact of advanced communications technologies on national security. In its final report on intelligence activities a special Congressional committee chaired by Senator Frank Church reported that "the SALT negotiations and treaties have been made possible because technological advances made it possible to accurately monitor arms limitations, but the very technology which permits such precise weapons monitoring also enables the user to intrude on the private conversations and activities of citizens."<sup>5</sup>

One such use of such technology is by agents of the Soviet Union who eavesdrop on telephone conversations of Americans here at home. KGB monitoring of telephone conversations within the U.S. itself was publicly disclosed by a Chicago newspaper. A "Facts on File" summary of the disclosure reads as follows:

The *Chicago Tribune* reported June 22 [1976] that the Soviet Union had put into effect a massive operation to monitor, record and identify private phone calls within the U.S. The Soviets had long possessed the technology necessary to intercept microwaves, which were used in the U.S. to transmit 70% of all long distance telephone calls, but had only recently developed the computer technology required to separate the conversations and identify the calls, the *Tribune* said.

The disclosure, according to the *Tribune*, had prompted investigations by the White House and congressional committees to determine how much information was being gathered, how it was used and what if anything, was being done by U.S. intelligence agencies to stop the monitoring the KGB, the Soviet security police.

The newspaper indicated that the information had been disclosed in testimony to the Rockefeller commission during its probe of domestic U.S. intelligence, but that the testimony had been heavily censored from the commission's final report for reasons of national security.

Although the Rockefeller commission apparently decided against releasing details about KGB monitoring, the former Vice President did however discuss the issue on June 9, 1976, in a speech to a group of broadcasters. Rockefeller's words were these:<sup>6</sup>

"As the CIA Commission I headed for the President reported, Communist countries have developed electronic collection of intelligence to an extraordinary degree of technology and sophistication. 'Americans have a right to be uneasy if not seriously disturbed at the real possibility that their personal and business activities which they discuss freely over the telephone could be recorded and analyzed by agents of foreign powers', the Commission noted.

"The Commission's findings pertain not only to national security and other vital governmental information, therefore, but also electronic intrusion in the business and private lives of American citizens. This is not only possible, but it is being done. Microwave transmissions are wholly susceptible. Information so

<sup>5</sup> U.S. Congress, Senate Select Committee to Study Governmental Operations with respect to Intelligence Activities, *Final Report*, Book I: Foreign and Military Intelligence, Report No. 94-755, April 26, 1976. (Washington: U.S. Government Printing Office), 1976, p. 10.

<sup>6</sup> Excerpted from "Remarks of the Vice President at the National Broadcast Editorial Association Annual Meeting, Mayflower Hotel, Washington, D.C., June 9, 1976", news release from the Office of the Vice President, June 9, 1976.



recorded can be stored and analyzed through computer technology for myriads of usages all deeply disturbing.

"This technology, of course, is not limited in its availability to foreign agents or governments. It is obtainable here at home by elements who have little or no respect for the law and American legal protections for individuals.

"Obviously, such devices and equipment can involve wholesale invasion of privacy, in the hands of organized crime, of those who seek to steal information from their competitors, or those who seek to get information for purposes of blackmail, hijacking or terrorist activities. The President is deeply concerned about this problem and is taking steps to reduce the vulnerability of our telecommunications system.

"But all Americans, whether private individuals, public officials, professionals, businessmen, citizens in all walks of life, should be aware of their vulnerability to the recording of their telephone conversations or transmissions of secret defense plans by teletype, or even the recording of microwave intercommunication of computer data. It is going to be extremely difficult to devise methods to protect the privacy of these communications.

"It is tragic to think, as someone has suggested, that we have already reached the stage where the slogan should be: 'If you don't want it known, don't use the phone.'"

Following Rockefeller's speech no further discussion of this matter appeared in the public record, so far as is known, until after the change of Administrations occurred in Washington. Then in April 1977, an Atlanta newspaper reported that "President Carter has approved a top-secret project to determine what action the government should take to prevent Soviet spies from gaining access to American industrial secrets and sensitive trade information . . . [by] eavesdropping on long-distance telephone conversations within the United States."<sup>7</sup>

Besides what to do about Soviet electronic eavesdropping, there is another leading security issue—the survivability of U.S. military satellite systems.

The U.S. armed forces have been in the vanguard in applying advanced communications technologies. In particular, the military view is that communications satellites provide excellent platforms for surveillance sensors, for communications relay, and for navigation signals. For a host of reasons, not the least of which is that satellites are relatively inexpensive, the Pentagon has become enamored of this technology. Indeed, it may be argued that the military is becoming dangerously dependent on communications satellites.

The danger became apparent during 1976 when the Soviet Union resumed testing antisatellite devices, known as "hunter" or "killer" satellites. Shortly after the third test was conducted, Dr. Malcolm R. Currie, who then directed the Office of Defense Research and Engineering, issued a blunt warning: "They have started down a dangerous road. Restraint on their part will be matched by our own restraint, but we should not permit them to develop an asymmetry in space."<sup>8</sup> In fact, absolute restraint was not shown by either side. Before the year had ended the Russians conducted yet another test of a satellite interceptor. The test followed disclosure that the U.S. had taken tentative steps both to develop a satellite destruction program of its own and also to experiment with ways of "hardening" military satellites to a level sufficient to withstand anything but a "dedicated" attack.<sup>9</sup>

While space warfare has long been a fond topic of science fiction writers, it is deadly serious business for the United States now. Present and future SALT agreements rely on "national technical means of verification" that are not interfered with by the opposing sides. Yet, despite mutual pledges of noninterference, a familiar action-reaction syndrome may have begun with respect to communications satellites.

Perhaps in recognition of this, President Carter has suggested to the Soviet Union that both sides "forego the opportunity to arm satellite bodies and also to forego the opportunities to destroy observation satellites." In his news confer-

<sup>7</sup> *Atlanta Constitution*, "Wired Spies—Top-Secret Plan Hopes to Halt Soviet Access to Private Calls" by Charles Osolin, April 3, 1977, p. 1.

<sup>8</sup> The warning, in a speech at an Air Force Association symposium in Los Angeles, was reported in *Aviation Week and Space Technology*, Aug. 2, 1976, p. 24.

<sup>9</sup> The Soviet test was reported by the Associated Press in a dispatch based on "U.S. Intelligence Sources," Dec. 30, 1976. For a background report, see Lawrence Freeman, "The Soviet Union and 'Anti-Space Defense'," *Survival*, January/February 1977, pp. 7-F—12-F.

ence of March 9, 1977, Carter indicated he was awaiting a response from Moscow on this issue.

#### TRADITIONAL ISSUES

The previous discussions of *telecommunications* and *national security* were about relatively recent additions to the nation's communications policy agenda. There are some more traditional concerns.

For network television the time for asking policy questions may again be at hand. The latest—and potentially one of the most serious—challenges to ABC, CBS, and NBC has come from the U.S. Department of Justice. In November 1976 the Department's anti-trust division called for the first comprehensive examination of network television in more than 20 years. In support of a petition by the Westinghouse Broadcasting Company, the Justice Department urged the Federal Communications Commission to conduct a "broad investigation into network structure, power and affiliate relationships."

For print media policy questions are just as real, although the policy focus is not as sharp since the affairs of these media are not aired in a single forum like the FCC.

Since the mid-1960's the print industry has been characterized by technical change, mergers and acquisitions, and rising costs. Each gives rise to policy questions. The provision of advanced telecommunications technologies involves government regulation; mergers raise the spectre of antitrust action; and rising costs prompt consideration of subsidies (e.g., postal subsidies).

No issue, however, is more important than the debate over the role of newspapers in American society. This debate often revolves around the question of whether the United States needs a national press council. What underlies the issue are concerns about the responsibilities of the press, and these are coupled with discussion over journalistic trends—"advocacy", "alternative", "underground" and the revival of investigative reporting. At another level is the traditional First Amendment issue over press freedom. Above all, is the question of eroding public trust. Citizens expect their newspapers to cover both sides of a controversy in a fairly balanced manner, yet few people believe that newspapers do so. Mounting distrust is revealed in an ongoing survey by the Roper organization. It found that between 1959 and 1972 one-third fewer people selected newspapers as the medium most people would be inclined to believe. And recent Gallup surveys indicated a basic distrust in newspapers by half the people questioned.<sup>10</sup> From this situation has come the debate over whether the United States needs a national press council.

While that issue brews in some quarters, policy questions of another sort that could affect the future of American publishers arise elsewhere.

In the province of those who make national postal policies is the matter of electronic funds transfer, or EFT systems. These systems, it would seem, have the potential to directly affect the post office and, in turn, to indirectly affect publishers and broadcasters too.

What EFT systems do is to facilitate the transfer of money by allowing computers to exchange financial data over telephone circuits. Big banks contend that they must find more cost effective ways to handle a massive number of checks that flow through the mail. A technical solution is EFT. The potential for these systems is great since financial transactions, like the monthly payment of utility bills by heads of households across America, account for an estimated one-half of all first class mail. Already some six million monthly payments by such government check writing agencies as the social security administration are made by EFT instead of being sent by mail.<sup>11</sup> But what may seem to be a good technological opportunity for some check writers may not necessarily be good for others.

Assume for a moment that EFT systems proliferated and thereby precipitated a sharp decline in first class postal revenues. Would that decline adversely impact other postal rates? If so, who—as a matter of public policy—should bear the loss? Print media like *The Wall Street Journal* and *Time* who now benefit by using preferential second class postal rates? Or should government policymakers allocate the loss to advertisers who now enjoy the relatively low rates of

<sup>10</sup> See "Note on the Newspaper Industry," Harvard Business School, 4-376-082, Cambridge, Mass., 1975, pp. 20-21.

<sup>11</sup> See "Postal Service and Electronic Transfer," *The New York Times*, March 10, 1976, p. 48.

third class postage? And, however the loss is distributed, will a secondary effect be a shift of even more advertising dollars into broadcasting, thus creating additional pressures for a fourth network? And what impact would a fourth network have on the structure and the performance of the American television industry?

The point is that an incipient condition of "intertwining" among communications industries is forcing new kinds of issues onto the nation's traditional communications policy agenda.

#### INTERMESTIC

The concept of an "interdependent" world brings with so-called "intermestic"<sup>12</sup> issues and the agenda of an interdependent world contains issues whose resolution can have a profound impact upon domestic interests in the United States. No exception is made for the area of communications policy. One clear illustration lies in the U.S. government's effort to safeguard its strategic capability through export controls. A Defense Department Task Force has warned that the CoCom restraints on the export of goods no longer really get at the heart of the problem. "Design and manufacturing know-how", the report concluded, "are the key elements for control of a strategic technology".<sup>13</sup>

Controlling the export of knowledge, however, would appear to open a Pandora's Box of communications policy-making problems. The Pentagon Task Force, for its part, recommended setting up new mechanisms for "monitoring and controlling" strategic information flows. But examining just a few of its proposals, one is left with a welter of moral, political, not to mention practical, questions:

How would the U.S. monitor and control "the use of U.S. citizens as consultants for key technologies by Communist countries?"

How would the U.S. monitor and control "the participation of U.S. citizens as principals in firms established outside the U.S., and engaged in transferring embargoed technology and products to Communist nations?"

How would the U.S. monitor and control "the training of citizens from Communist countries at the more significant laboratories of U.S. technical institutes and universities?"

Sharpening the focus of this dilemma, should the United States be rethinking the entire concept of its exchange-student program? Foreign students studying at U.S. universities are certainly acquiring knowledge that will be invaluable in the Third World and Fourth World Manhattan Projects of the late 20th Century. Should the U.S. attempt to shut off this flow of information? To all countries? To which countries?

To some, the flow of knowledge may not seem to be a communications policy issue. Yet it is. Conceptually, the issue is the same as the recently revived question of whether Western news media should be allowed to freely move their news and other information across international border. Both are issues that spring from the content of communications. These issues may be contrasted with those on the other side of the communications coin, namely conduit issues like whether rich countries of the world should fund telecommunications development programs for poor countries.

#### ORGANIZING

Taken together, the foregoing issues suggest a final question: How should government organize itself to formulate and implement communications policy? Clearly the present policy process is inadequate.

On major domestic issues before it, the Federal Communications Commission has become a waystation to the Federal Courts (and the courts, in turn, became a waystation to the Congress for the telephone industry).

On major international issues, the Department of State plays a titular role: the FCC, a domestically oriented regulatory agency, has the greatest amount of real authority on international telecommunications; the Defense Department and the intelligence community are the leading actors on security communications issues, and issues like know-how transfers and free flow of news have been in limbo.

<sup>12</sup> Manning, op. cit.

<sup>13</sup> See "An Analysis of Export Control of U.S. Technology—A DOD Perspective". A Report of the Defense Science Board Task Force on Exports of U.S. Technology, U.S. Department of Defense (DDR&E), Washington, February 4, 1970.

Of course, there have been efforts aimed at improving the policy process. These include creation of the Office of Telecommunications Policy and the formation of special study groups like President Johnson's Task Force on Communications Policy and the more recent Report on Information Policy by the Domestic Council's Privacy Committee. The overall record, however, suggests that the issue of how the federal government should organize itself to make effective communications policy remains unresolved.

Perhaps this issue should be placed at the top of America's communication policy agenda.

#### QUESTION OF GOVERNMENT ORGANIZATION

Mr. OETTINGER. I will limit myself now to the last item, the question of Government organization, and will perhaps amplify on some of the concerns that Mr. Marks expressed.

If the testimony of the other witnesses today and in the forthcoming days of these hearings persuades you of the seriousness and the importance of the substantive issues, then we think that you will find that the Government is poorly equipped to address these substantive issues.

A principal reason for this is that within each of the agenda headings that I have listed, and across them, the issues are so intertwined as to cross the traditional boundaries between not only domestic and international but between public and private, or between civilian and military issues or, for example, between the jurisdictions of the Senate's Commerce Committee and that of your own Committee on Foreign Relations.

I think that Mr. Colby illustrated that point in talking not only about the Government's own tasks, the traditional responsibilities of the Government, but also the Government's responsibility to represent, protect, and promote private use of information resources, and in his point that national security is no longer narrowly a military or diplomatic matter, but is also very broadly political, economic and social.

This fact, and the crossing of traditional jurisdictional and agency boundaries, traditional divisions such as domestic and international, and so on, is what I think lend the difficulty to this problem of finding an organization within the Government to come to grips with the issues that have been described here today.

Let me try to illustrate that concretely with one specific example mentioned earlier, one of the important civilian multinational uses of telecommunications facilities and other information facilities as well.

Banks are in the money business, but their production line is information processing. When you walk into any bank, whether it has clerks or computers, what they are mainly doing is processing information. Electronic funds transfer systems expedite this processing. As soon as more than one bank is involved, a whole host of familiar questions pop up. Is electronic funds transfer a service or is it a facility? Must it become a common carrier and take on all comers? Who shall own the lines? Who controls the service offerings? Who gets the profits from operation? Who sets the standards? Which national bodies? Which bilateral or multilateral agreements? Which international organizations?

These are not speculative questions, any more than these questions about Third World news agencies or access to news in Third World

countries are. To the contrary, these are questions already being faced today by the free world's banking community as it moves to establish international electronic banking networks.

#### ELECTRONIC FUNDS TRANSFER SYSTEMS

EFTS [electronic funds transfer systems] is also a major threat to the chief nonelectronic funds transfer system: namely, the postal services both in the United States and abroad. Here in the United States, over half of the first-class mail, which happens to be the most profitable kind of mail, deals with financial matters such as bills and payments. What will happen to the U.S. Postal Service if these kinds of mailings vanish into wires? Who will subsidize the remaining money-losing services? Should the Post Office fight back with reduced rates for major billing industries? Should it fight back by forbidding EFTS as a violation of the private express statutes? Should it levy a surcharge on these transactions, just as it does now on courier services?

A more general question is, should the Post Office offer a competitive service over wires? If so, should it compete as well with electronic transfer of other traditional postal business, such as ordinary messages? How do we distinguish between such an effort and an operation already in existence, known to the world as the telephone system?

How will these issues be handled by the Government monopolies that run the post, telegraph, and telephone services abroad? Will their way of handling them be compatible with ours? Will there be compatibility across borders? On whose terms will compatibility and flow be established? For whose trade or military advantage?

Domestically alone, these matters cut across the jurisdictions of multiple Federal and State banking regulators, the Federal Communications Commission, the telecommunications regulators in 50 States, and the U.S. Postal Service and the U.S. Postal Rate Commission. Multiple private interests have stakes in them. Internationally, the mixed public-private supplier-consumer interests in the United States are finding it increasingly difficult to work among themselves and through the Department of State to develop a "U.S. position" in bilateral or multilateral negotiations with other countries or in such international bodies as the International Telecommunications Union. This is a point that Leonard Marks has already underscored.

All I've said about postal and telephone services touches on only one example in only one industry, the banking industry. There are many other examples in nearly every other sphere of civilian commercial, economic, and social activity affecting organizations and individuals and there are examples in every part of the U.S. Government—military, intelligence, foreign trade, et cetera.

#### U.S. GOVERNMENT ACTIONS

How should the U.S. Government act in these circumstances? I have a set of questions about that. Like Mr. Marks, I am afraid that I have no answers to offer at this time. But here are some of the questions.

Can the U.S. Government create the organizational instruments to identify issues, to develop policy alternatives, and to take appropriate action on the long-term opportunities and dangers inherent in the

rapid changes in information industries? You have heard about some of those this morning, and you will hear more in the next 2 days.

Can the U.S. Government deal with the complex issues involved by considering inputs from diverse interests? I stress that because this is not a matter that one agency, or for that matter one committee of the Congress, can handle when in the United States alone the interests, public and private, involved, are simply too diverse. But can this be done? Can these diverse interests be accommodated without developing a rigid bureaucratic structure?

Finally, can the Government actively establish an international information resources policy before it must react to a global information resources crisis like the energy problem?

I suggest, sir, that a first step in addressing these questions is to examine how the Government is now organized to establish and execute policies in this area. We have heard this morning that there are some 40 agencies involved in this. The number may turn out to be 20, it may turn out to be 60, but it is likely to be a large number. For example, what are the roles today of the Defense and the State Departments in this area? How do these organizations interact? Where do regulatory bodies, such as the FCC, fit into this organizational pattern? Where, also, do international organizations, such as ITU and Intelsat, fit?

#### GOVERNMENT'S ABILITY TO ACT

Second, this organizational pattern must be analyzed to assess the Government's ability to act on a rapidly changing communications environment. I stress "rapidly changing" because it is this dynamic character which is another aspect of what makes the problem so difficult. Working out solutions to yesterday's problems will simply be of no help. The situation is changing too rapidly, and what was true yesterday will simply not be true tomorrow. But today, in what areas is the Government especially responsive or especially weak? Why is this so? For example, what are the organizational bases of the Government's characteristic response patterns? What is the impact, for example, of the State Department's stress on geographical rather than functional organization for its attentiveness to the strategic significance of global information resources? What are the structural problems that confront Government information agencies? What are the areas in which overlapping mandates create jurisdictional conflicts of the type that Mr. Marks has illustrated in his testimony?

#### ALTERNATIVES TO ALLEVIATE EXISTING PROBLEMS

The final step, I think, in addressing these questions is to propose alternatives to the current situation that might alleviate existing problems. How can agency structures and/or processes be modified to facilitate monitoring a changing information resources environment? I stress monitoring because we have seen, certainly on the domestic scene, a great deal of premature regulation without much understanding of what it was that was being regulated. It seems to me that it is exceedingly important for the Government to develop a mechanism for monitoring, keeping itself informed, keeping an eye on development, and being prepared to act, though not necessarily acting prema-

turally and restrictively. The cable television area is one with which I am particularly familiar, not only as a scholar, but as a regulator. In Massachusetts, as Chairman of that State's Cable Television Commission, I am charged with enforcing a law that was written at a time when nobody understood what the industry was that was being regulated, an industry which had the misfortune of being regulated before it even was born. It seems to me that there is a danger in premature Government regulatory or directing kind of intervention, as much as there is at the other pole in the kind of not-so-benign neglect that this area of information resources finds itself under today.

In seeking ways to monitor and stay on top of this situation, and being prepared to act when necessary, how can structures and/or processes be modified to encompass the kind of complexity that we have outlined here of the interests that comprise the information resources environment, and yet still allow for rapid and effective decision-making when it is indeed required?

What organizational alternatives exist to prevent decision-making on global information resources from deteriorating into crisis management?

These, Mr. Chairman, we believe are the critical questions for your agenda.

[Mr. Oettinger's prepared statement follows:]

PREPARED STATEMENT OF ANTHONY G. OETTINGER AND JOHN C. LEGATES

Mr. Chairman, my name is Anthony Oettinger. I am a professor at Harvard University, where I am also Chairman of the Program on Information Resources Policy. Here with me is Mr. John LeGates, Director of the Program.<sup>1</sup>

Quietly and, for most people, imperceptibly, the world has entered what some call an "Information Age." Once this was purely an academic concept. Several years ago, my colleague Daniel Bell noted that just as steam and electrical energy have enabled agrarian societies to industrialize, information today is the transforming resource of a new age. No longer purely academic, this concept is now echoed in advertisements by IBM and discussed in banking trade journals.

What does being in the "Information Age" mean to our foreign policy? The witnesses who've preceded us today and those who will follow are expressing concerns about information stemming from their experiences in government and business. Some are concerned with traditional information products like American magazines which circulate abroad. Others are concerned with information hardware in terms of import and export of telephone, computer, television and other electronic equipment. Still others are concerned with computerized information networks which are a key to global operations, most notably for multinational banking but also for every other kind of transnational enterprise.

Distilling from such experiences, we've come to see that in the "Information Age" the world is beginning to rely on information as a basic resource. Like energy and materials, information is a fundamental resource on which is based the well-being of every individual in every nation.

Let me illustrate the role of information as it relates to that condition of international affairs known as "interdependence."

Just twenty years ago, very little information flowed between the United States and Europe by telephone. The reason is simple: it was not until 1956 that the first transatlantic telephone cable came into service, replacing the unreliable and costly radiotelephone. That first cable had about fifty circuits. The newest transatlantic cable, which came into service in 1976, has 4,000 voice-grade circuits. In all, we now have six transatlantic telephone cables, and they, together with satellites, can provide up to 18,000 circuits between this country and Europe. In the short span of twenty years, we went from scarcity

<sup>1</sup> Biographies appended.

to abundance in telecommunications across the Atlantic. What is significant about that rapid rise is not merely the technological achievement; the fact is that those thousands of circuits have enabled the flow of information between Europe and America by telephone alone to change from a trickle to a torrent, from calls both ways in 1958 to 7,100,000 calls in 1970, and 24,500,000 in 1975. The financial data of multinational banks flow through those circuits. The technical information for operating nuclear power plants built by American firms abroad flows through those circuits. The command and control instructions of the oil companies flow through those circuits. In sum, the interdependence of America and Europe is fostered by the flow of information through those circuits.

What we see in examples like this is a growing dependence on "information resources." What that dependence means—domestically, internationally—is the question that the Harvard Program on Information Resources Policy has geared itself up to address since it was established four years ago.<sup>2</sup>

Last year, we had the pleasure of sharing some of our findings with your parent committee, which commissioned us to prepare a report entitled *Foreign Policy Choices for the 1970's and 1980's: Information Resources, Strategic Strengths—Strategic Weaknesses*.<sup>3</sup> Two months ago, we described the domestic significance of information resources at the request of the Subcommittee on Communications of your chamber's Committee on Commerce, Science and Transportation. With your permission, Mr. Chairman, we'd like to submit that testimony for your record. Since one of our points will be that domestic and foreign affairs in information resources are closely linked, that prior testimony will help anchor today's comments to the domestic realities that bound foreign policy concerns.

As we see it, these concerns—as you have heard them expressed today and as you will hear more in the next two days—are over issues which our nation—and all others—must address if we are not to slip into crisis management. The following agenda headings, developed by our colleague William Read, help organize these issues so that they might be addressed:

*Telecommunications.*—Development and control of international telecommunications for individuals, for organizations, for rich nations, for poor:

*National Security.*—The use of information resources for military, for arms control, for intelligence, and for counterintelligence purposes:

*Traditional Information Issues.*—Media industry structure, free flow of news, free flow and privacy of business and personal information:

*"Intermedia" Issues.*—Issues whose resolution, in an interdependent world, impacts domestic interests. Among these, the flow of knowledge as related to strategic export controls and to unemployment:

*Organization of the U.S. Government.*—How should government organize itself to formulate and implement information resources policies?

Time does not permit our spelling out here and now all of these issues in concrete detail. With your permission, Mr. Chairman, may we submit for the record M. Read's paper *Communications Policy: An Agenda*,<sup>4</sup> which gives the details as he sees them. We will limit ourselves here to the question of government organization.

If the testimony of the other witnesses in these hearings persuade you of the seriousness and importance of the substantive issues, we think you will then find that the government is poorly equipped to address them. A principal reason for this is that within each agenda heading and across them, the issues are so intertwined as to cross the traditional boundaries between domestic and international, public and private, or civilian and military issues or, for example, between the jurisdictions of the Senate's Commerce Committee and that of your own committee over Foreign Relations.

May we illustrate that with one specific example:

Banks are in the money business, but their production line is information processing. Electronic Funds Transfer systems expedite this processing. As soon

<sup>2</sup> A listing of the affiliates who support the Program's work is appended. They include competitors, competing industries and their customers, as well as government agencies.

<sup>3</sup> LeGates, John C., Anthony G. Oettinger, William H. Read and Carol L. Weinhaus, *Foreign Policy Choices for the 1970's and 1980's: Information Resources, Strategic Strengths—Strategic Weaknesses*, Harvard University, Program on Information Resources Policy, Publication P-76-6, October 1976.

<sup>4</sup> Read, William H., *Communications Policy: An Agenda*, Harvard University, Program on Information Resources Policy, Working Paper W-77-4, May 1977.



as more than one bank is involved, several familiar questions pop up. Is EFTS a service or a facility? Must it become a common carrier and take on all comers? Who shall own the lines? Who controls the service offerings? Who gets the profits from operation? Who sets the standards? Which national bodies? Which bilateral or multilateral agreements? Which international organizations?

These are not speculative questions. To the contrary, these are questions already being faced by the free world's banking community as it moves to establish international electronic banking networks.

EFTS is a major threat to the chief non-electronic funds transfer system. Over half of the first class mail—the most profitable kind of mail—is financial: bills and payments. What will happen to the United States Postal Service if these vanish into wires? Who will subsidize the remaining money-losing services? Should the Post Office fight back with reduced rates for major billing industries? Should it fight back by forbidding EFTS as a violation of the Private Express Statutes? Should it levy a surcharge on these transactions, just as it does on courier services?

A more general question: Should the Post Office offer a competitive service over wires? If so, should it compete as well with electronic transfer of other traditional postal business such as messages? How do we distinguish between such an effort and an operation already in existence, known to the world as the telephone system? How will these issues be handled by the government monopolies that run the Postal, Telegraph and Telephone services abroad? Will this be compatible across borders? On whose terms? For whose trade or military advantage?

Domestically alone, these matters cut across the jurisdictions of multiple federal and state banking regulators, the Federal Communications Commission, the telecommunications regulators in fifty states and the U.S. Postal Service and Postal Rate Commission. Multiple private interests have stakes in them. Internationally, the mixed public/private, supplier/consumer interests in the U.S. are finding it increasingly difficult to work among themselves and through the Department of State to develop a "U.S. position" in bilateral or multilateral negotiations with other countries or in such international bodies as the International Telecommunications Union. And all this touches on only one example.

How should the U.S. government act in these circumstances?

Can it create the organizational instruments to identify issues, develop policy alternatives and take appropriate action on the long-term opportunities and dangers inherent in the rapid changes in information industries?

Can it deal with the complex issues involved by considering inputs from diverse interests without developing a rigid bureaucratic structure?

Can the government actively establish an international information resources policy before it must react to a global information resources crisis like the energy problem?

A first step in addressing these questions is to examine how the government is now organized to establish and execute policies in this area. For example, what are the roles of the Defense and State Departments in this area? How do these organizations interact? Where do regulatory bodies such as the FCC fit into this organizational pattern? Where also do international organizations such as ITU and Intelsat fit?

Second, this organizational pattern must be analyzed to assess the government's ability to act on a changing communications environment. In what areas is it especially responsive? especially weak? Why is this so, i.e., what are the organizational bases of its characteristic response patterns? For example, what is the impact of the State Department's stress on geographical rather than functional organization for its attentiveness to the strategic significance of global information resources? What are the structural problems that confront government information agencies? What are the areas in which overlapping mandates create jurisdictional conflicts?

The final step is to propose alternatives to the current map that might alleviate existing problems. How can agency structures and/or processes be modified to facilitate monitoring a changing information resources environment? How can structures and/or processes be modified to encompass the complexity of the interests comprising such an environment and still allow for rapid and effective decision-making? What organizational alternatives exist to prevent decision-making on global information resources from deteriorating into crisis management?

These are, we believe, the critical questions for your agenda.

**HARVARD UNIVERSITY—PROGRAM ON INFORMATION RESOURCES POLICY CORE  
PROGRAM SUPPORT**

|   |   |
|---|---|
| American Can Company                        | First National Bank of Chicago            |
| American District Telegraph Company         | General Electric Company                  |
| American Telephone and Telegraph            | General Telephone & Electronics           |
| Arthur D. Little Foundation                 | Harper & Row                              |
| Bell Canada                                 | Harte-Hanks Newspapers                    |
| Codex Corporation                           | Honeywell, Inc.                           |
| Communications Workers of America           | IBM Corporation                           |
| Computer and Communications Industry Assoc. | International Data Corporation            |
| Donaldson, Lufkin & Jenrette                | International Paper Company               |
| Executive Office of the President           | International Resources Development, Inc. |
| Office of Telecommunications Policy         | Interpublic Group of Companies, Inc.      |
| L. M. Ericsson (Sweden)                     | Lee Enterprises                           |
| Federal Communications Commission           | Litton Industries                         |
| Federal Reserve Bank of Boston              | Lockheed Missiles and Space Company       |
| First National Bank of Boston               |   |

**STUDENT ASSISTANTSHIPS**

|                                      |   |
|--------------------------------------|---|
| American Express Company             | Salomon Brothers                        |
| Bank of America                      | Seiden & De Cuevas, Inc.                |
| Chase Manhattan Bank                 | Southern Pacific Communications         |
| William Bingham Foundation           | Stromberg-Carlson Corporation           |
| John & Mary R. Markle Foundation     | Systems Applications, Inc.              |
| McGraw Hill, Inc.                    | The Boston Globe                        |
| Mead Corporation                     | Time Incorporated                       |
| Minneapolis Star and Tribune Company | Transamerica Corporation                |
| New York Times Company               | United Telecommunications               |
| Nippon Electric Company              | U.S. Department of Commerce:            |
| Norfolk & Western Railway Company    | National Technical Information Services |
| Payment Systems, Inc.                | Office of Telecommunications            |
| Pitney Bowes, Inc.                   | United States Postal Service            |
| Polaroid Foundation, Inc.            | Western Union Corporation               |
| Reuters, Ltd.                        | Western Union International, Inc.       |
| Rockefeller Brothers Fund            | Xerox Corporation                       |
| Rockwell International               |   |

**SPECIAL PROJECTS**

|  |                                       |
|--|---------------------------------------|
| National Association of Broadcasters                     | United States Congress:               |
| National Commission on Libraries and Information Science | Office of Technology Assessment       |
| National Science Foundation                              | Senate Committee on Foreign Relations |

Senator McGovern. Thank you, Professor Oettinger. I think you and your fellow witnesses have given us an excellent overview of the subject matter about which we are concerned here today.

**CRISIS COMMUNICATIONS ISSUES**

I assume that all of us who live in a free society agree that maximizing the flow of information between countries is a desirable goal, that there is no one who has any basic reservation about the free flow of communications.

If that is the case, I wonder if it would not be a useful thing, partly by way of summary, but also in order to point up the issues a little more sharply, if beginning with Mr. Marks, each of you could just take a couple of minutes to identify what you regard as the most urgent problems that we are confronting in this field. In other words,

what are the problems most likely to come to a crisis stage in the near future?

Obviously, there are a lot of questions to which we do not have all the answers, but one of the purposes of a hearing such as this is to try to identify these issues before they break on us at a crisis stage.

I would ask each one of you to address himself to the question of what you see as the most urgent, or perhaps the two or three most urgent problems, that are liable to break on us that we ought to be getting ready for now?

Mr. MARKS. Mr. Chairman, let me try to answer your question by repeating a cliché—that information is power. It is equally a cliché to say that our perception of what is happening in the world governs our reaction. Frequently, reality and perception are different.

I am alarmed because, as I look around at the developing countries, I find a tendency to want to control what is going on, what information comes out of the country, so that the perception to the outside world will be that which those rulers want the world to know, rather than the facts. If we in the field of international relations are going to guide our activities or determine our actions by perceptions rather than realities, we are frequently going to make mistakes. Border wars have occurred frequently because of misunderstandings; had the facts been known, the realities might have prevented the clashes.

Today, as in the reference made to the statement of Roger Tartarian, less than 20 percent of the world operates with a free press. Our access to information around the world is diminishing. What can we do about it?

I think that the only thing we can do about it is to be very vocal in international fora. I think it is essential that we defend not only the principle that we enforce compliance with the principles of article 19, and we should do it by those measures with which we have had some experience. We must say to nations, just as we have in the trade field, that unless you comply with human rights, unless you comply with the rights of free expression and access to information, then certain economic consequences will flow.

#### BELGRADE AGENDA

Senator McGOVERN. How important do you think these communications are in terms of the agenda that we are going to be pursuing in Belgrade next week—I believe that is when the conference gets underway?

Is it your understanding that our delegation is going there with a keen appreciation of the importance of pressing on the kind of concerns you have expressed here today?

Mr. MARKS. Yes, I believe so. I had the privilege of testifying before the Commission created by Congress on the Conference on Security and Cooperation in Europe. I have met informally with some of the State Department people and the staff of CSCE who will be present at the Belgrade meeting.

I believe the testimony and the evidence which they have received demonstrates what I have just tried to tell you, Mr. Chairman, and that they are aware of it. I am confident that this will be the principal

item on the agenda. Whether we can secure the aid of the Western European powers to bring about some measure of compliance remains to be seen. I hope that we can.

If the United States and Western Europe stick together on this, then I think you will see a change in attitude on the part of Eastern Europe.

Senator McGOVERN. Certainly the concept of the free flow of information and knowledge between and among nations is a very important part of the Helsinki accords; is it not?

Mr. MARKS. Yes, indeed. It is one of the most significant.

Senator McGOVERN. Mr. Colby, did you have anything to add on this?

Mr. COLBY. Mr. Chairman, I am not so concerned about our being able to learn about the rest of the world. I think that our intelligence capabilities, both the technical and the human sources that we are able to direct, can indeed tell us what is happening in the rest of the world. I think that if we change our attitude toward that information and make it available to our citizens to a higher degree, that our citizens can be better informed about the rest of the world.

I find the danger really more in the growing bipolarity, you might say, of the world in its approach toward information, government, and all the rest; that the Third World looks at us with an increasing feeling of antagonism, jealousy of our affluence, and upset about the prominent role that the United States plays. They can be led into a hostile position, and freedom of information, even of democracy, can become an endangered species in large parts of the world. This can be exploited by larger developed nations and adversaries, such as the Soviet Union. But my fear is more of the misunderstandings, particularly that the Third World countries can develop, about our country, our attitude, and their own ability to hold back the tide of modern information. My fear is that they will engage in a futile exercise of trying to control this kind of information. It will lead to hostility; it will lead to antagonism with us. I think that the answer to that must be found in an attempt to convince them that it is in their interest to open up the channels of communication, because they cannot stop us from learning about it, they cannot stop us from informing our people, and they can benefit by a more cooperative attitude by which they can gain the ability to handle modern information and increase the pace of their own development, instead of frustratingly being annoyed with us while sitting back in pockets of poverty and misery.

#### PREOCCUPATION WITH SECRECY, WITHHOLDING OF INFORMATION

Senator McGOVERN. Mr. Colby, based on your experience in government, do you think there is a tendency even on our side of the equation to be a little too preoccupied with secrecy and the withholding of information? Do you think we are a strong enough society to be a little more open with our own people as well as the way we deal with others?

Mr. COLBY. Well, we are the most open society in the world, of course.

Senator McGOVERN. Traditionally there is an attitude among parts of the Government, of course, to retain information and not to make it

public. In part this has been justified in the past by national security; in part it is justified by the political advantage of having information in the struggle that takes place here in Washington, the political conflicts taking place.

So, there is a natural tendency for some people to hold back the information.

But, I think that in the last few years we have crossed a great barrier with the increasing availability of information and with the increasing concept that information must be shared with our people so that they can participate in the judgments. If they don't know such things as the true situation in Vietnam, shall we say, if they don't know the true situation of the Soviet military buildup, then they will make decisions which will be contrary to those who are trying to run our Government in a certain way. It is only by sharing information that the Government is able to make decisions. I think, consequently, that our society is certainly strong enough to share the information. I think we have the job to share more of it. As for the problem that the underdeveloped countries complain about, our people should get the items of information in the real framework in which they exist and not be myopically fixed on particular sensational facts. Rather, they must see the whole picture.

I think that is a problem, but I think it can be solved, and I think we are in the process of doing so.

Senator McGOVERN. I think you are right. We have a more open society and are dealing more frankly with our people than is true in most places around the world.

I watched the film shown the other night designed to show the dimensions of Soviet power. Any person seeing that film, if that was the only thing he or she had to go on, would think that we were a puny second-rate power that was being overwhelmed by the power of the Soviet Union. This, of course, does not square with the facts, as I understand them.

Mr. COLBY. Of course that is only one film. You have the right to look at any number of other films and lots of other information sources.

Senator McGOVERN. Right.

Mr. COLBY. Mr. Chairman, we can make this information freely available and still keep secret the sources from which it comes. Our journalists have successfully kept "Deep Throat's" identity secret, and yet we have shared the information he provided. [General laughter.]

Mr. COLBY. I think that that is the kind of sharing of information that is possible, with respect to knowledge about the rest of the world as well.

Senator McGOVERN. Mr. Harley, do you have a comment?

Mr. HARLEY. Yes, Mr. Chairman.

#### COMMUNICATIONS BALANCE

We have indicated here today that communication is indeed a most valuable resource, but is so badly out of balance in the international scene that it constitutes a very unhealthy situation for the world. I think that it is our responsibility to do what we can to redress this

admittedly enormous imbalance of media transmission, and to do it by providing practical assistance, by lending our expertise and know-how to help these countries increase their capacities to take a fuller role in the communications process.

Now we have to be careful not to confuse a good deal of rhetoric with reality. Ultimately, the Third World is going to have to come to the West for help. We have the expertise, the ability to finance, to assist, to give them direction, and so ultimately they have to work with us in a cooperative fashion if they are going to build up their own infrastructures and their own capacities for communications.

So what we need is not more expressions of outrage, but more understanding; not more confrontation, but more cooperation. We need to encourage free flow and a more balanced communications system for the entire world. The best way, it seems to me, to reverse the ominous trend of the Third World countries toward closing themselves off as an antidote for the inequities of the communications systems of the world is to just give them greater opportunities and capacity to participate more fully in the communications process of the world.

Senator McGovern. Thank you.  
Professor Oettinger?

#### BALANCING FREEDOM OF INFORMATION AND PRIVACY

Mr. Oettinger. There are two points that I would like to make. The first is to underscore what I believe to be an important balance between, on the one hand, the notion of freedom of information, which we have all strongly stressed. The other side of the coin is the question of privacy.

I think it is as true on the international scene, as evidenced by some of the concerns of the Third World, for example, as it is on the domestic scene, that one man's freedom of information may be another man's violation of privacy. Over the last decade or so we have gone through some rather wild gyrations domestically, for example, in terms of the rather uncoordinated Freedom of Information Act on the one hand and the Privacy Act of 1974 on the other. Both types of legislation are in the name of good ideas, but these ideas happen to be in conflict, and this seems to me to some extent unavoidable. So, the notion of simply saying that freedom of information is good without recognizing that privacy is also good ignores the very hard problem of striking a balance between the two goods. To this must be added the fact—and domestically this has certainly been the case—that the most vociferous advocates of privacy occasionally are those who have things to hide—government agencies, individuals, or organized crime—and the most vociferous advocates of freedom of information are those who hope to get access to matters which are none of their business, such as, for example, private information about the health records, criminal records, or whatever, of their fellow citizens. Without casting aspersions on either side, I do want to point out that both can be perverted or turned around.

Therefore, in my mind, it is exceedingly important never to speak

of freedom of information without speaking also of privacy and vice versa, so that these two good but conflicting things may be balanced. I think the real issue is finding an appropriate balance and not going whole hog for one principle or the other.

#### SATELLITE VULNERABILITY

My second point is somewhat more speculative. In his testimony, Mr. Colby spoke about vulnerability of satellites. This kind of physical vulnerability is certainly one possibility of the kind of thing that the Government can be, should be, and indeed is alert to. There are more subtle effects, and this more speculative one that I will mention is covered in a recent print that came out this month from your subcommittee on the role of "International Communications and Information." I refer to a scenario about competition in global satellite telecommunications, which is a speculative kind of view. These events have not happened; they may never happen; but they could, and they illustrate that the issues in this information arena are more subtle and more complicated than the more traditional military-national security views.

The satellite picture could become a great deal more complex in the decade ahead; for example—and I repeat that this is speculation—if the Soviet Union were to develop its Statsionar satellite system, say to compete with Intelsat, one can only speculate about where this might lead. But if, for example, the Kremlin decided to engage in a price war with Intelsat and offered access to its satellite system through neutral countries, a number of multinational companies with heavy communications traffic might be tempted to cut costs by using the Soviet system. So, the day might well come when Washington will have to decide whether the United States should allow a vital industry, such as banking, to become dependent on a Soviet-controlled satellite system.

One can engage in that sort of speculation and in all sorts of other speculations. My point is not to conjure up the "sky-is-falling" phantoms, nor on the other hand to rest on our present complacency, but to urge that developing mechanisms for monitoring these kinds of developments that fall outside of the traditional sphere of open communication in the sense of free flow of news and so on, is an increasing and rather ignored responsibility of the U.S. Government.

Senator McGOVERN. Mr. Marks?

Mr. MARKS. I would just like to add one thing, Mr. Chairman.

Time is important here. In my testimony I offered two suggestions on how coordination might be achieved.

#### OFFICE OF TELECOMMUNICATIONS POLICY

I would like to say that the Office of Telecommunications Policy, created by Executive order, could be a proper vehicle. It has had some unfortunate experience in the past and, as a result, it may have lost considerable ground. But in view of the urgency of time, I would urge your committee to consider possible changes in that Executive order to carry out some of the purposes which we have outlined here today.

## SUGGESTIONS FOR CONGRESSIONAL ACTION

Senator McGOVERN. I was going to ask each one of you in view of the limited time here if you had any suggestions as to what Congress can specifically do, not just on this question of a telecommunications office but any other things that you think are on a priority basis that the Congress ought to be moving on in the next year.

Mr. MARKS. My answer would be that some mechanism be developed as soon as possible where these problems can be resolved. The Congress in its operations cannot attempt to legislate on each and every one, nor are there agencies today authorized to coordinate. Therefore, to me the single most important suggestion that I can make is to provide for some organization of Government that will bring together the various governmental agencies, that will cooperate with private organizations, that will provide a forum for discussion, and with the authority to make decisions of policy.

Senator McGOVERN. Are there any other comments on this?

Mr. HARLEY?

Mr. HARLEY. I would associate myself with Mr. Oettinger's and Mr. Marks' comments, that there is indeed a need for some locus for policy decisionmaking within our Government in the communications area. Perhaps it might be a reorganization of the White House Office of Telecommunications. If that were to be done, I would suggest that consideration be given to broadening its scope beyond just telecommunications, because the communications process is much broader than that. It ought to include, for example, the print media. So perhaps it ought to be some kind of White House Office of Information which would range over the whole communications process issues, which include everything from duties on imports of newsprint, to assignment of radio frequencies for the nations of the world, to concerns about public radio and public television—the whole range of communications issues. This is much more comprehensive than the area which is now in the purview of the OTP.

## LAW OF COMMUNICATIONS CONFERENCE

Senator McGOVERN. As you know, there is an ongoing Law of the Sea Conference which recognizes the complexities of that issue and the need to involve that discussion in an international forum. Do you think that possibly a Law of Communications Conference on the same format would be in order in this field?

Mr. MARKS. The questions involved in such a conference should be debated before the International Telecommunications Union. It consists of every nation of the world. It has a competent technical proficiency.

Unfortunately it does not have the authority to engage in that.

I would think the forthcoming World Administrative Conference in 1979 would be the equivalent of the Law of the Sea Conference if the nations that comprise the World Administrative Conference would enlarge the agenda to these philosophic issues.

The answer to your question is yes, there is a need for such. But, in my opinion, the forum should be the ITU with a broadened charter.

Senator McGOVERN. Professor Oettinger?

Mr. OETTINGER. Mr. Chairman, my concern is how well the United States would be prepared to act in such a forum. If there is a crisis,



the Congress and the executive branch will meet it as best they can. I certainly agree with Mr. Marks and Mr. Harley that the critical thing is to organize ourselves so that we can meet any forthcoming crisis better than anything we are equipped to do right now.

I think Mr. Harley's point is that whatever kind of agency or mechanism is devised, it should address itself to information resources in the broad sense, not with a narrow view of telecommunications, which does not cover the kinds of concerns that you have heard from all of us here this morning. I also want to underscore two points that Mr. Marks has made. One is the need for a forum.

Senator McGOVERN. Do you mean a domestic forum here in the United States?

Mr. OETTINGER. Yes, because without a domestic forum, in my opinion, there is no way that we can develop a coherent and consistent U.S. viewpoint to present at any international meeting.

I want to stress his other point, too, that such a forum, whatever its organizational details, must provide for inputs from the private sector as well as the Government, because this is a matter which, in the United States, is fraught with such heavy private participation, while most of our partners and adversaries abroad handle it in a much more monolithic fashion. Unless our mechanism provides for bringing private and public interests together in something more rational and coherent than the shouting matches before the FCC, where adversaries hurl mountains of meaningless testimony at each other and none of the staff ever has the time to plow through it to figure out what the hell it really means, we will fail in whatever attempt we make.

Senator McGOVERN. Mr. Colby.

Mr. COLBY. Mr. Chairman, I would merely make one rather simple and small suggestion in contrast to these, with which I fully agree.

I think that the problem today is that we face almost a united Third World on these problems, that really one of the first things that could be done is to begin the process of international assistance to some of these Third World nations to move them to a new approach toward international information and their relationship with the United States.

Now that might mean some foreign aid appropriations by the Congress, which is not the most popular thing to suggest in these particular halls. But I think that this is an area specifically in which Congress could act. It could stir the administration, the government, to act to develop a new cooperative program with at least some of the Third World countries who are sympathetic and would be amenable to moving ahead to improving their use of information in a cooperative arrangement with the United States.

A good example of an area that is close to us, that has all of the problems that you can imagine that we can deal with, is the Caribbean and Central America. We should start on that and at least begin to reverse the developing difference between ourselves and this large group of the human population.

Senator McGOVERN. Mr. Harley?

#### U.S. RESPONSIVENESS TO THIRD WORLD CONCERNS

Mr. HARLEY. I would like to associate myself with those comments, of course. I suggest one thing that the Congress should be concerned

with, and on which we have made promises at various conferences, including Nairobi, is that the United States would be responsible to these concerns of the Third World and undertake to do something, possibly in concert with other countries with advanced communications capacities, to help the Third World countries improve and strengthen their own communications capacities.

Now at Nairobi, the United States strongly supported what was called the Tunisian resolution. This was a modest proposal to provide studies, research, and other activities aimed at helping the developing countries strengthen their communications systems.

I would suggest that, for the next general conference of UNESCO, the United States take the initiative and come forward with a much more massive proposal which would undertake to have UNESCO provide a much larger dimension of assistance to Third World countries. The Tunisian resolution appropriated about \$130,000, which of course is a mere drop in the bucket. It is enormously important that we not only make these promises and are seen to be not insensitive, but that we are sympathetic, that we do hear, that we are listening, that we intend to help, and then that we follow through on these promises. It is only when the Third World perceives that we have listened and that we are moving to do something about it that there will be any diminution in this confrontation and this rather ugly situation that is growing on the world scene.

Senator McGOVERN. Professor Oettinger?

Mr. OETTINGER. I don't wish to disagree with the principle that Messrs. Colby and Harley propose here, but I think that it is a good deal more complicated than it may seem.

I think the previous administration found itself trapped in Nairobi in making promises to deliver things that it was not too sure even what they were and whether it could indeed deliver them. Let me be a bit more explicit about that.

It is one of the dangers of looking at information narrowly in the terms of "news" or "entertainment" or other classical terms. Much of what the Third World is interested in is not merely the classical kind of information, but also things related to trade, technology, scientific and commercial developments, and these, I think, one hardly needs to point out—but perhaps in the light of the events of Nairobi it does need to be pointed out—are not necessarily for the U.S. Government to dispose of. These are private, proprietary matters, and it is silly or disingenuous for the U.S. Government to stand up in Nairobi or in any other international conference and say yes, we will give you stuff, it cannot deliver if the stuff is owned by American industry.

So, these whole questions of what is to be given, who owns it, how does it reflect in patterns of trade and patterns of relative standings in high technology or in other kinds of goods and services, are questions I would urge you to explore with some of the witnesses on the third day of these hearings. They should be better equipped than any of us here today to address these questions of what it means in terms of trade, in terms of employment, if one talks about exchanges of information in the broadest sense—including commercial and technological information—with Third World or any other countries. It is not purely a matter for the Government to dispose of. It is very heavily a private matter.

Mr. COLBY. But I think our Government can play a part in helping a small country develop the capability to explore the problem, and, by a cooperative effort to explore the problem, we can achieve the objective, which is to end the hostility in a feeling that we are trying to solve the problem together.

Senator McGOVERN. Mr. LeGates?

Mr. LEGATES. There is just one more small caveat. The only study we have done on international communications development projects in Third World countries indicates that there is another danger as well, and that is that the technology be appropriated by the ruling class or group in power and put to work as another tool to serve their ends, possibly against the populace. So we have to guard against that as well.

Mr. OETTINGER. To put it bluntly, Mr. Chairman, the AID—Agency for International Development—folks don't talk much about that. It is very hard to get evidence or to find support for research that is looking into what has actually happened. We have done a couple of case studies, one on Algeria, one on El Salvador, that suggest that the consequences of our aid are not necessarily in the direction of furthering human rights in those countries.

Senator McGOVERN. Very good.

Mr. Marks, did you have something to add?

Mr. MARKS. Yes, Mr. Chairman. Before you conclude, I want to thank the committee for this opportunity. I had a prepared statement from which I did not quote in its entirety. I would ask that it be incorporated into the record of this hearing, if I may.

Senator McGOVERN. That, of course, will be done. I would also like to tell all of you that if you have additional documents, articles, or statements which you would like to have included in the record, this hearing record will be open for some time. Send that material to us with a request that it be included in the hearing record, and we will see that it is printed.

Gentlemen, we thank you all very much for attending this hearing. You have provided us with some very invaluable information.

Thank you all.

This committee is recessed until tomorrow at 10 a.m.

[Whereupon at 12:06 p.m., the subcommittee recessed, to reconvene on Thursday, June 9, 1977, at 10 a.m.]

[The information referred to follows:]

HARVARD UNIVERSITY,  
PROGRAM ON INFORMATION RESOURCES POLICY,  
Cambridge, Mass., June 13, 1977.

Senator GEORGE McGOVERN,  
Dirksen Senate Office Building,  
Washington, D.C.

DEAR MR. McGOVERN: In response to your kind invitation at the June 8 hearing to submit additional materials for the record, here enclosed is a paper by John Clippinger entitled "Who gains by communications development? Studies of information technologies in developing countries".

The paper amplifies our comments about the use of information resources in underdeveloped countries that I made during the discussion period.

Sincerely yours,

ANTHONY G. OETTINGER,  
Chairman.

Enclosure.



# **PUBLIC DIPLOMACY AND THE FUTURE**

---

**HEARINGS**  
**BEFORE THE**  
**SUBCOMMITTEE ON**  
**INTERNATIONAL OPERATIONS**  
**OF THE**  
**COMMITTEE ON**  
**INTERNATIONAL RELATIONS**  
**HOUSE OF REPRESENTATIVES**  
**NINETY-FIFTH CONGRESS**  
**FIRST SESSION**

---

**JUNE 8, 13, 14, 15, 16, 21, 22, 23, AND 24, 1977**

---

**Printed for the use of the Committee on International Relations**



**U.S. GOVERNMENT PRINTING OFFICE**  
**WASHINGTON : 1977**

93-091

## PUBLIC DIPLOMACY AND THE FUTURE

Dr. LeGates is our first witness. Doctor, do you care to come right up? He is director of an important program at Harvard concerned with information resources and their potential usefulness for the United States. I see that he has collaborated in a great many studies, one of which is, "Foreign Policy Choices for the 1970's and 1980's: Information Resources, Strategic Strengths and Weaknesses, October 1976." Are you going to tell us about this, too?

**STATEMENT OF JOHN C. LeGATES, LECTURER AND DIRECTOR, PROGRAM ON INFORMATION RESOURCES POLICY, HARVARD UNIVERSITY**

Mr. LeGATES. Yes; I will.

(383)

Mr. FASCELL. Fine, thank you.

Mr. LEGATES. Mr. Chairman, my name is John LeGates. I am director of the Program on Information Resources Policy at Harvard University. We are a research program supported by about 60 organizations who have diverse and conflicting stakes in information policy.

We use the words "information policy" for two reasons. One is somewhat cosmetic. We feel that not much is left of the old assumptions about communications and information—

Mr. FASCELL. Good; you are going to puncture all the myths around which we struggled and lived with for all these years.

Mr. LEGATES. Well, we feel that is a necessary thing to do.

Mr. FASCELL. Absolutely.

Mr. LEGATES. I am not sure we have time to puncture them all this morning. I would like to start on some new explanations of what we feel information is about.

The reason we use the words "information policy" as new term is that we feel not much is left of the old assumptions and understandings on information and communications. More important, we feel information is becoming ever more crucial to the age that we live in.

Sociologist Daniel Bell and others have been using the words "information age and postindustrial society" to describe the world we are now moving into.

Mr. FASCELL. Communication explosion.

Mr. LEGATES. That is another one. Wells Fargo a few months ago published an ad. with the usual Pony Express design over it saying, "Wells Fargo; the Information Express." IBM recently published an advertisement with headlines, "Information: There's growing agreement that it is the name of the age we live in."

When these ideas start getting commercial advertising, we suspect the time has actually come.

We believe there are three reasons why the new information world is of concern to you. First, much of what you oversee can be regarded as an information operation. International broadcasting is clearly handling of information. Less obviously, the exchange of persons facilitates the exchange of information. Some individuals such as students and journalists travel principally to acquire or convey information, although the medium which transports them is an airplane, not a telegraph wire.

Many Peace Corps volunteers, though sent to perform a specific piece of work, are also intended to teach the methods and information for doing the work.

Second, much of what you oversee relies for its functions on an information infrastructure. Cultural exchange in the movement of U.S. Foreign Service officers around the world, for example, could not function without airlines, which in turn depend vitally on international communications systems for reservations, for billing, and for air traffic control.

The ability of VOA and RFE to broadcast depends on the availability of spectrum, technology, and programming. The expanding role of U.S. multinational banks and other transnational activities are reliant on the availability of circuits, undersea and satellite circuits on a scale far vaster than we had a decade ago.

Finally, there is expanding competition among information industries. It would be vain, for example, for any U.S. propagandist to try to control the image which America conveys to Europe. U.S. Government offerings are swamped by the availability of American publications, American banks, American corporations, American TV shows, Europeans who have been to America and of course Americans living and traveling in Europe.

Even in remoter or less friendly corners of the world, many citizens who want to learn something about America have several ways of going about it besides the official U.S. Government offerings on the subject.

Let me make some more general observations about the world of information and what I feel is happening to it.

As recently as a decade ago, the information industries were distinct and easily recognizable. It was fairly clear how each should be controlled or not controlled, and by whom. These included telephone, telegraph, radio, TV, newspapers, computers, and so forth, all clearly recognizable items.

Now these industries have become tightly intertwined and very much in turmoil. Brandnew activities have become very important. These include computer/communications networks for currency exchange and market information systems. It is not clear whether these are computers or whether they are communications.

There are banking networks, airlines reservations systems, and international computer utilities. Are these common carriers like A.T. & T.? Should they be? Should they be regulated as though they were? There are multinational magazines with tailored editions such as Newsweek. Are they American? Are they French? Or are they beyond boundaries? The answers are far from clear. The very concept itself, of computer utilities, common carriers, or even national boundaries may be obsolete and the scene is changing faster than our grasp of it.

Another truth about information is that it has grown explosively in the last few years, accompanied by a dramatic drop in cost.

Some numbers: Since 1955, the numbers of overseas calls per person per year has risen by 2,000 percent. Since 1965, the number of U.S. branch banks abroad has grown by 400 percent. In 1964, an international airline telecommunications network was formed. There are now 300 million messages a year traveling around the world through it at 5 cents a message. Private circuit telephone and telegraph since 1950 has grown from a \$2 million industry to over a \$100 million industry, with a much greater percentage growth in the amount of traffic carried, as the cost per call has gone down dramatically.

The largest user of the Post Office, besides the Government, in almost every industrial country is the Reader's Digest. In Japan, it is a larger postal user than the Government. Some compound growth rates since 1940: The gross national product has grown just over 3 percent; telephones 6.4 percent; checks written, 7.8; airline passengers, 18.4; passports issued, 24.3.

Depending on who you ask, the cost of computers and communications is dropping by a factor of 10 every 2 to 5 years. That figure, too, is compound. Dropping costs can mean dropping prices and better service. You can now dial London direct from New York at \$3.60



for 3 minutes. The old radio circuits had to be booked in advance, sometimes as much as a week, and cost \$75 for 3 minutes.

It is to be remembered that the movable-type press was invented in the 15th century but created a second printing revolution in the 19th century when steam and the rotary press vastly expanded its application and reduced the price of its products.

In information, we are seeing both revolutions at once. Some, as I have said, are calling the change so fundamental as to proclaim that we have entered the information age. Half of the work force and 20 percent of the GNP is now devoted to information.

Old ideas die hard, but we urge you to recognize that the old realities of information: That it came in recognizable, circumscribed, and controllable industries, with comprehensible effects on society, are already dead. The new realities are not clear. What is clear, however, is that the information user, be he government or citizen, company or spy, has an array of tools at his disposal for acquiring, using, and distributing information that is far vaster, far more complex, and far harder to control than was true a few years ago.

The dramatic growth of information has led to growth of the stakes in information. And when stakes get high enough, political issues arise.

In 1948, which we would call prehistory by information standards, the Universal Declaration of Human Rights was adopted by the United Nations General Assembly. Article 19 states, "Everyone has the right to freedom of thought, conscience, and religion; this right includes freedom to hold opinions without interference and \* \* \*"—now we come to the information part—"and to seek, receive, and impart information and ideas through any media and regardless of frontiers."

Today there are very few countries, much less frontiers, where this principle is observed. I don't think there ever were any, including the United States, and this declaration only got into print because of the low stakes at the time.

There have always been limits on information flow. The difference today is that we can no longer confine them to their once recognizable piece of the information spectrum and stop them from there.

Military secrets are the classic example. They were always protected. In the old days only a few people had them and they were transmitted by secret message and personal contact. This was how one country acquired an information advantage over another.

On June 8 of this year, William Colby, Director of the Central Intelligence from 1973 to 1976, made the following statement to the Senate Committee on Foreign Relations:

Information advantage today does not consist of a few quiet secrets, but of masses of data which must be distributed broadly throughout government staffs in order that they may make their contribution to the national policy.

I would argue, and he did too, that an information advantage also means distribution of widespread information and information-handling ability over the population. This will inevitably produce sharp political issues.

Consider the nuclear area. America's nuclear lead is no longer due to a few bright scientists working on the Manhattan project. It requires a mass of educated people working in diverse fields and locations, often competing, but able to communicate with one another.

Part of this structure is a good system of education. We openly sponsor this system and encourage the growth of knowledge, even internationally.

However, a "Nova" program, broadcast on nationwide television last year, revealed that a physics sophomore at MIT now has the knowhow to construct a nuclear bomb. There are many students at MIT from countries from whom the United States is withholding nuclear technology. This kind of knowledge growth is in contravention of U.S. policy. Yet it is the same activity we encourage for other reasons.

A task force of the Defense Science Board urges better control, not only of foreign students at the more significant laboratories of U.S. technical institutes and universities, but also better control of U.S. citizens who work as consultants on key technologies in Communist countries or who are principals in foreign firms that transfer embargoed technology.

Yet U.S. policy supports in principle the exportation of knowledge to the less developed countries and supports with money the export of technology. Financial exploitation of our lead in the information industries through competition of U.S. firms in the world market, including consulting firms selling knowledge, is U.S. policy.

Financial competition is another reason why the free flow of information doctrine is in trouble. Some nations make money by it and some lose. The latter oppose the doctrine. Our neighbor and friend, Canada, is trying to prevent American TV from spilling over from Buffalo stations into Toronto. There are now so-called content goals designed to limit the import of foreign, which means American, programs. A tax credit was recently repealed which caused Time Canada to fold up.

With Canada, the issues are money and what they call national identity. Less friendly nations issue rhetoric claiming American exploitation and cultural imperialism. There is currently a Third World news agency being formed in Yugoslavia to provide an alternative to American and European sources. Is this for profit, for independence, or for censorship? Probably all three.

Censorship is another political problem. Amnesty International reports a steady worldwide rise in the intimidation or murder of reporters. Censorship is an action taken against a particular piece of information. Murdering or detaining a reporter, however, is an attack on the information infrastructure itself. This kind is attack of growing and we feel will continue to grow.

When the AP Indian Bureau recently wrote an unfavorable article about Indira Gandhi's son, India didn't just censor the article, they pulled the plug on the AP Bureau and turned off their lights and telephone.

It is not entirely surprising then that a higher awareness has crept into political circles about information.

At the December 1976 UNESCO meeting in Nairobi, a major item on the agenda was article 12 which provided that, "States are responsible for the activities in the international sphere of all mass media under their jurisdiction."

Article 12 was neither killed nor passed but was postponed for 2 years.

I think we can reasonably assume that our complacency about no political barriers to information flow is also obsolete and these barriers will appear in many levels of information activity.

In summary, we think some of the traditional truths about information are no longer true. Information resources are intertwined—in many cases interchangeable—they are changing very fast and they are permeating human activity, even kinds of activity usually not thought of as information.

There is a growing awareness worldwide that there are stakes in information just as there are stakes in goods, services, and energy. There is a growing tendency for those stakes to be considered at a political level and for barriers to be erected to protect and further those stakes.

The United States, the last exponent of the free flow of information doctrine, is perhaps the least prepared nation in the world to recognize the need for such action and to organize itself.

I would suggest there are two consequences of this for yourselves as a committee. The first is that we recommend you to encourage a governmental awareness of the intertwining of information issues. Expand your own jurisdiction to encompass some subjects that now affect you. Build links with other congressional committees such as those overseeing communications, banking, the post office, and international commerce. Prod the executive branch to start looking at information as a whole and as having some importance.

Second, we recommend that you be alert to opposition from foreign governments to information flow. This may come in almost any form, from censorship to competition to tariffs. Some of this may be in opposition to critical U.S. interests.

Thank you very much for the opportunity to let us express our views to you this morning.

Mr. FASCELL. Thank you very much.

Mr. LEGATES. Are there any questions you would like for me to address?

Mr. FASCELL. Yes. I am kind of digesting all of that for a second before I get into some questions. I want to thank you for the recommendations. The problem we have with the first one is that I do not see any practical way, structurally to do what you are talking about. We have tried it in the Congress. As far as I am concerned, it is a miserable failure in terms of restructuring.

We tried a lot of devices. We are really not as hidebound as some people think we are. Joint committees, for example between the House and Senate, as far as I am concerned, are the most useful tool in the Congress. It worked for a while with atomic energy and it works with a couple other things. It is really not a very satisfactory device.

The ad hoc arrangement that we are working on now, by giving the Speaker authority to create an ad hoc legislative committee, by pulling people from various committees with various pieces of jurisdiction as with energy, might work. It hasn't worked yet but it might work.

Mr. LEGATES. Isn't it true that how well it works depends on how critical the issue is.

Mr. FASCELL. That is the way with everything. How critical is it and how committed are the people who want to make it work. Structure can help you but, of course, it takes people.

The function of the Congress is a little different perhaps. We have to raise that question. In a sense, we are ultimate judges of various interests which in our society ebb and flow, pursue, and what not.

Finally, in terms of what is ultimately going to be the guide for our conduct, we make a decision, right, wrong, good, or bad. We at least get it done. That is the function of the Congress.

Now to go beyond that is asking something of the Congress that it really cannot do, should not do, maybe.

We were discussing earlier the question of oversight, for example, over the Executive. Everybody likes to think of the Congress as having some capability and responsibility. Well, we have both, but it is neither effective, efficient, nor total, and anybody who thinks so is naive. We can't even begin to scratch the Department of Defense, much less oversight it. That is impossible, even with the whole GAO and the whole Congress looking at it day after day. So there is a limit to that capability.

I am still expanding on your first recommendation. Your recommendation is valid but there are limits to where you go.

This is what I am describing. We hardly have time, Mrs. Meyner and I, to attend our own committee meetings, much less educate somebody else. We will issue a report and hopefully a lot of Members of Congress will read it; but I doubt it, as we hardly have time to read it. But it is important to make the record and it is important to make the report.

Mr. LEGATES. May I offer a couple of thoughts?

Mr. FASCELL. Surely.

Mr. LEGATES. I used the expression "what governments know." With an individual you know what he knows. With a government it is obviously more different. In almost every foreign government there is a structure which has by nature a higher awareness of information than we do in the so-called PTT. We don't have one and almost everyone else does. This means that most of them are cranked up to represent their interests better than we are.

In many cases, particularly in the Third World, there is yet a higher level of awareness caused by the fact that many of them saw OPEC doing it with oil, and are wondering whether they can do it with things like satellite Earth station rights and control of the spectrum.

Our fear is that the 1979 World Administrative Radio Conference or some other forum will come along and everyone else will show up organized and prepared to take advantage of U.S. interests.

Mr. FASCELL. You are absolutely right. So that leads right into your second recommendation, and that is what we are all about, that is what we are up to. I can tell you right now it is not simply the question of VOA. We are definitely up to that, and we discussed that in our hearings here, and we may have some other ideas.

You are right on the button as far as I am concerned with your second recommendation.

Mr. LEGATES. The question is, will Congress respond to it in a reactive way when it happens, or will we be somewhat more organized in advance than the others are.

Mr. FASCELL. Who knows? The answer to that is, I don't know, and I doubt it. That leadership is going to have to come from the Executive.

The reason is—now, I am not being cynical—just a practical problem. All of us in the Congress operate in very small circles, about that big, and you can't ever break away from that circle. It is very difficult to do that.

Fifteen years I have been involved in hearings on the whole question of information, yet I find colleagues who serve on—I hate to say it—our own committee who still don't understand what it is that RFE, RL, and VOA are doing, much less the USIA. We have people in the other body who, for as long as I have been here, which is 22 years, still have no concept about what information is about or what USIA is doing, and could care less.

I don't know if you can ever break through that barrier at all. I really have no idea, but the Executive has the direct responsibility. Congress will follow it one way or another in terms of funding; sometimes even with structure, sometimes even taking the initiative with respect to structure or policy, but that depends. We can recommend and prod and push on a policy. If you have a receptive administration, as I think we do this time, we have a fair chance of making a breakthrough.

Mr. LeGATES. In our program we hear widespread complaints from industry that the administration is so disorganized that if I get a chance to talk to Congress, the first thing I should tell them is to poke the administration into getting their act together.

So I did convey that message.

Mr. FASCELL. It is true. The administration is a new administration; they have a new Congress. The whole country is engaged in a new concept of politics, which has overwhelmed the Congress. The old lines are gone. This Congress is not like the last one; nor is the last one like the one before it.

We are all involved in a tremendous transition, part of which, by the way, is the fault of information because we cannot keep up with the explosion in the Congress. Not only do we not have the tools, I don't think we are ever going to get them. We are still in the Congress, relatively speaking, at the quill stage.

Mrs. Meyner.

Mrs. MEYNER. Thank you, Mr. Chairman.

Mr. LeGates, do you feel the private sector in the Government should be in closer collaboration facing actual and potential information problems overseas?

Mr. LeGATES. Let me make a couple of general remarks about that.

Mrs. MEYNER. And also are you very aware of what VOA does and Radio Europe and Radio Liberty, the sort of tussle there?

Mr. LeGATES. Reasonably so, yes.

Mrs. MEYNER. Probably more than most of us.

Mr. LeGATES. There are general problems with government and industry working together which spill over into this area, just as they do in any other area. Industry is usually trying to get something from government, which means that some kind of arm's-length relationship has to be established. Usually this arm's-length relationship is through some kind of adversary procedure, even at hearings, where industry shows up with a lawyer rather than free to talk.

I do not know that there is a way around that one. Our program has relationships with some 60 or so outfits, of which 50 or so are industries

and half a dozen are government branches and the remainder are foundations. We attempt to work, keeping everyone at sufficient arm's length that this kind of conflict doesn't arise, but yet in dialog in such a way that we can synthesize their various points of view.

We would urge, as I have urged in other places, that attention be given to the creation of a forum in which constructive, rather than adversary, dialog can take place and that, I am sure, you will be much cleverer at than I.

The general point is that the adversary procedure which comes in many different forms is inadequate to communications planning. This, I think, is a very pervasive thing. It should be taken account of.

Mrs. MEYNER. We have been talking about this for a week. One of the big issues we are considering is looking at the Stanton report and whether the Voice of America should be brought out from under the control of USIA and become an independent agency.

Do you have a position on that?

Mr. LEGATES. No, I don't really. I said in the testimony, you would certainly want to be aware that there are people with stakes who will urge you to do it one way or the other.

I would encourage you to think that the people with stakes are much broader than the ones that usually show up. They are not just the other broadcasters; they include the carriers; the postal services, and even the banks who are mixed up with the private line networks. They all have a voice in the matter and they are in one way or another users. If they are not heard first, they will complain afterwards, as you well know.

Mrs. MEYNER. A good point. Thank you very much. I thought it was very informative and interesting testimony, a lot of good food for thought.

Mr. LEGATES. Thank you.

Mr. FASCELL. How do we cope with the information explosion at a governmental level?

Mr. LEGATES. I can only answer that one in general.

The explosion is not just a growth in numbers and amounts of information; it is an explosion in all kinds of new turf opening up, with new kinds of information industries. And the people who are in that turf are not only the old businesses but new businesses.

Mr. FASCELL. There is also another explosion, that is, the receivers.

Mr. LEGATES. The amount you have to assimilate and digest, you mean?

Mr. FASCELL. And the number of people who are able to receive and others who are required to digest.

Mr. LEGATES. That is right. On the first of those lists, the point is, that if a broadcasting arm cannot do a particular information job for you, you should recognize that maybe a news magazine, maybe a bank, maybe the growth in the general telephone service and possibly this 24.9 percent growth in the number of passports issued, doing it for you anyway.

Mr. FASCELL. I got your message. Let me turn it around another way. Maybe the Third World, maybe not even the Third World, let's just say other countries, other peoples, have a really legitimate complaint. What is wrong with the Latins who make the constant com-

plaint that in the news media of the United States you can't find out anything that is going on in Latin America unless you read the Miami Herald or the New York Times. Therefore, they want to get that information out to the world and they are just as anxious as we are to do it.

So they start up their own wire service.

The same thing in the other Third World countries.

We see that as an effort to censor the news and they see that as an effort to get their message out.

Mr. LeGATES. When you use the word "they" you are obviously lumping together a lot of different constituents.

Mr. FASCELL. Or individual countries.

Mr. LeGATES. I meant within a country; whether you are talking about the government, the populace or a sector of the populace. I would say that in the Third World more than in other countries the governments are likely to censor and limit the information where they can get ahold of the media and they are becoming wise to—

Mr. FASCELL. To grab it.

Mr. LeGATES. That control over the media is control over the content. They are doing it, and that leaves the obligation for getting competitive information, or different information on the First World countries—

Mr. FASCELL. We are in a different ball game, is what you are saying. I gather from what you are saying it is going to get worse before it gets better in terms of our own concept of a free flow of information.

Mr. LeGATES. I think so. From our point of view, competition in information is good. That is to say, our Miami Herald and their local press agency should both be reaching the individuals in the Third World countries. It is not so much a matter of our transmitter overpowering their jamming devices; we are trying to keep open not just our transmitter but also the news magazines, the telephones, the banks and the multinational corporations, because that is the way people are finding out what they want to find out.

Mr. FASCELL. We did a report in this committee about 10 years ago on the expansion of knowledge and the speed of communications as related to foreign policy formulation and implementation. We probably ought to update that with what you have said and some other things. Maybe you ought to take a look at that report and see if any of it is still valid today.

One thought occurs to me and that is whether or not you had the opportunity to participate in some kind of a multidiscipline study with respect to this whole problem. For example, and this is stated as a layman would state it, the guy in the undershirt with a beer can watching the tube is now exposed to more information than he can possibly handle and more crises than he ever dreamed of, certainly more than any individual had certainly 50 years ago or 100 years ago who ran his farm and dealt with his own problems.

Now the individual is confronted with worldwide problems that are beyond his scope, his knowledge, maybe, or his capability of handling. He recognizes that; so he just tunes out.

What impact is that going to have on us? In other words, all of this great flow just keeps going up; it goes past this guy down here.

Mr. LEGATES. It is not clear to me that is purely an information problem. In fact, it reflects the world having become more complex. There is a lot of literature on how society is now unmanageable just because it has gotten so big, and that, in turn, information is making it worse. It seems to me to be a task of the information industry which, I think, is not so ill-equipped to handle it, to include collection digestion, indexing and preparation of information for decisionmakers so that we are better able to cope with the world's complexity.

Mr. FASCELL. Do you agree with the thesis that public diplomacy, if you are going to define it, and sometimes it is very difficult to define it, ought to include the proposition that the great masses of people today, because of the explosion of knowledge, the speed of communications, really make the policy in terms of diplomacy or have such an impact on it that you can only ignore the mass at your own peril?

Mr. LEGATES. I would say that is true; yes.

Mr. FASCELL. And that it is time for any government, particularly our own, to recognize the fact you can no longer deal with the movers or the shapers or the elite or the intelligensia or those who have political power.

Mr. LEGATES. Yes; I would agree with that also.

Mr. FASCELL. How about this one: That military power, as a normal adjunct or tool of foreign policy implementation, is really a negative in today's world unless it is used because you either use it or you don't, and if you don't use it, it doesn't scare anybody.

Mr. LEGATES. I would argue that as recently, say, as 20, 30 years ago, but obviously a century ago, power meant military power, and today it doesn't any more, for several reasons. One is the ability to shape the thinking and action of states, including foreign countries, of multinational corporations. This has grown to the point where it may be critical. Also, the ability simply to communicate across borders and thereby influence another population, has grown to the point where that may be—

Mr. FASCELL. This is the point you have been making all through your presentation this morning.

Mr. LEGATES. That is right. Information is permeating human activity and replacing the roles of many other things that never even used to be related to information.

Mr. FASCELL. I want to thank you very much.