Chapter 5
The Structure of Information Policy

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Introduction to Information Law and Regulation

Current policies governing information systems are a composite of many specific regulations and laws, which are based on three main factors:

1. The areas affected or the regulatory concerns (privacy, freedom of information, etc.).
2. The affected sector of society (banking, education, Government, etc.).
3. The lawmakers and/or rulemakers (Congress, the Federal Communications Commission, State legislatures, etc.)

In the course of this study, OTA identified 14 areas of law and regulation that affect information systems or are affected by them. The classification shown in table 4 illustrates the breadth of legal and regulatory involvement and the range of participants, but does not reflect the variety of information systems users (e.g., banking, insurance, Government, or education). The applicable laws and regulations vary according to the particular sector involved.

Such a diversity of concerns cannot be encompassed by any single simple policy formulation. Computer users face a confusing array of laws and regulations unless consideration is given to their overall pattern—their overlaps, their contradictions, and their deficiencies. Continuation of the present situation could inhibit many socially desirable applications of information systems or could create even more intractable policy problems in the future.

The term "information policy" as it has been used to describe the Federal Government's involvement in this area is somewhat misleading. First, it is too broadly applied in reference to a miscellany of issues that include, for example, the regulation of files of personal data, Federal support of the Nation's libraries, first amendment rights for newspapers, and property rights associated with information products such as programs and data bases.

Second, the term appears to suggest that there is or should be a single uniform policy governing all the uses of information systems both in the public and private sectors.

Table 4.—Principal Areas of Law and Regulation Regarding Information Systems

Area of concern	State	Federal	Regulatory	Court[a]	International
Privacy	x	x		x	x
Freedom of information	x	x		x	x
First amendment		x	x	x	
Fourth amendment		x		x	
Due process	x	x	x	x	
Communications regulations	x	x	x	x	x
Computer crime	x	x		x	
Proprietary rights		x		x	
Evidence	x	x	x	x	
Liability	x	x		x	
Antitrust		x	x	x	
Taxation	x	x			x
Government provision of information	x	x			x
Government procurement of Information systems	x	x			

[a] ***Involvement that*** creates new law or interpretation

SOURCE OTA working paper on The Legal Regulatory Environment of Information Systems, June 1980

In fact, no such policy exists, nor does one appear to be likely.

The analysis made by OTA has led to these findings:

- There appears to be neither a strong trend nor sentiment at present among policymakers in favor of a uniform Federal information policy that would encompass all the problems that could arise from the many possible uses of data systems. *
- There are numerous laws and regulations, some overlapping and some potentially or actually conflicting, that directly and indirectly affect the users of information systems, the consumers of information services, and the subjects of personal information data banks.
- There is a lack of congressional focus on information policy as such, and consequently the emerging issues are not being directly addressed. *

*some recently proposed legislation would establish a comprehensive approach to certain specific problem areas, e.g., privacy and freedom of information. See H.R. 2465, 96th Cong., "Omnibus Right to Privacy Act of 1979. " Also, the National Telecommunications and Information Administration (NTIA) of the Department of Commerce has made an effort to formulate–or at least develop a framework for–national information policies. See Arthur A. Bushkin and Jane H. Yurow, *The Foundations of United States Information Policy,* (Washington, D. C., NTIA, June 1980) and Jane H. Yurow, et al., *Issues in Information Policy,* Helen A. Shaw (cd.), NTIA, February, 1981.

*The "paperwork Reduction Act of 1980" (Public Law 96-51 1) enacted by the 96th Congress does set out a more comprehensive policy and management approach for Federal Government information systems. The Act establishes within the Office of Management and Budget an Office of Information and Regulatory Affairs and assigns to that Office a broad range of authorities and required actions.

Structure of Policy Issues

Few attempts have been made at integrating the whole range of policy issues covered by the term "information." The subject area relating to computers and public policy, however, is being increasingly analyzed. A wide range of intellectual approaches are being taken, from narrow quantitative studies of the impacts of information systems on corporate decisionmaking and the problems associated with implementation,l to broad philosophical and historical examinations of the long-term social effects of automating information systems.' [3]4

Several studies have been carried out and commissions formed to examine various aspects and issues related to information policy. In the field of privacy alone, for example, there have been a study project by the National Academy of Sciences,[5] an advisory committee to the Secretary of Health, Education, and Welfare, a Privacy Protection Study Commission, and a number of studies and hearings conducted by congressional committees. Of the more than 1,500 legislative proposals submitted to either the House or the Senate during the 95th Congress, 74 new public laws emerged dealing with some aspect of information law or policy. Of these, 26 dealt with privacy, disclosure of information, confidentiality or controls on data, and transactions using computers.[6]

'Henry Lucas, *Why Information Systems Fail (New* York: Columbia University Press, 1975).

'James Rule, *Private Lives and Public Surveillance: Social Control in the Computer Age* (New York: Schocken Books, 1974).

[3]K. Laudon, *Computers and Bureaucratic Reform (New* York: Wiley -Interscience, 1974).

'Abby Mowshowitz, *The Conquest of Will: Information Processing in Human Affairs* (Reading, Mass.: Addison-Wesley, 1976).

'Alan Westin and Michael A. Baker, *Databanks in a Free* Society (New York: Quadrangle Books, 1972).

'U.S. House of Representatives, Committee on House Administration, *Information Policy: Public Laws From the 95th Congress,* Jan. 31, 1979.

Another indication of the extent of activity is the *Congressional Research Service Listing of New and Completed Projects.* It covers ongoing work and projects completed within the last 6 months that have been carried out by the Congressional Research Service, the General Accounting Office, the Office of Technology Assessment, and the Congressional Budget Office. The most recent listing available to this study, published on August 25, 1980, described nearly 100 projects concerned with computer and telecommunication policy. The issues addressed by all of these activities can be classified under one or more of the categories shown in table 5.

System Issues

The policy issues related to information systems per se focus on their design, implementation, and operation. They generally are concerned with whether the system performs the tasks expected of it with reliability, with appropriate security, and in an efficient and timely manner. These objectives mainly are of interest to the organization operating the system, and place major constraints on the system designer.

Other system issues include the proper role of users in system design, the need for user education, and how to deal with potential system impacts on the organizations, work groups, and individuals involved. While skilled technically, system designers may not fully appreciate the implications for users. On the other hand, users frequently do not understand enough about the system itself.

Technical, operational, and reliability factors all can have broader societal significance even though they originate in the operational goals of the system itself. In recent years, for example, public attention has been focused on areas such as:

- the safety and reliability of the air traffic control system;
- the reliability, security, and controllability of military command and control systems, existing and proposed;
- the security of large-scale electronic funds transfer systems; and
- the reliability, accuracy, and responsiveness of the social security information systems.

There is a strong societal interest in the proper and reliable technical operation of

Table 5.—Structure of Information Policy Issues

Level of issues	Character of issues	Example issues
System level	Relate to the design, implementation, and operation of particular information systems	Government procurement policy. Efficiency and economy of operation. Security of information systems.
Information level	Relate to the handling of **data:** collection, storage, use, and dissemination	'Privacy (recordkeeping). Freedom of Information regulations. Copyright and patents as related to computer programs.
Secondary policy impacts	Exist Independent of the particular information systems, but are changed in magnitude or character by use of technology.	Privacy (surveillance). First amendment rights. Fourth amendment rights. Social vulnerability. Federal-State relations.
Long-term societal effects	Long-range societal impacts that are not currently reflected in specific policy problems, but which may ultimately affect the nature of U.S. society.	Privacy social attitudes). Psychological self-image of humans. Education needs. Social-political effects. Cultural Impacts.

SOURCE: Office of Technology Assessment

each of the systems cited above, and potentially high costs to society if they fail. The public policy issues that arise are those associated with the formulation of a framework within which to develop the systems, to establish accountability for their design and operation, to assign responsibility for correcting their defects, and to mitigate the impacts of system failures.

Information Issues

Various laws and regulations affect the use of information, independent of the particular technology employed in handling it. As we become more and more an "information society," these legalities have a correspondingly greater impact on the activities of individuals and organizations. Since the laws and regulations arise from many sources and thus do not reflect a single coherent view of the role of information in society, they tend to conflict and to have unintended effects on the operation of information systems. Consequently, they can create unanticipated secondary effects.

The three differing fundamental values of information—commercial, private, and public-discussed in chapter 4 motivate the laws and regulations affecting information. Individual regulations or laws usually address only one aspect of information. Policy issues, then, arise from the inherent tensions between the particular values reflected in different laws. Congress is called on to establish equitable balances. For example:

- Freedom of information laws (reflecting public value) can conflict with individual or proprietary concerns (reflecting private values). For example, in serving the public interest, Government collects an extraordinary amount of information about citizens, businesses, and other types of organizations. Some of this information that theoretically has been available to the public by law for a long time has been protected, in fact, by the amount of effort required to retrieve it from manual recordkeeping systems. Automated systems reduce the cost and time barriers to wider access to these public records, and thereby may accentuate the issue of the extent to which this information can and should be publicly available.
- As information becomes a more valuable commercial commodity, increasing tensions are arising between those who wish to sell it through new information services, and those who recommend that the Government take steps to prevent the social inequity that would possibly result from the increasing cost of access to information and the means to use it. For example, the conflict is likely to become heightened between the evolving role of the public libraries as seen by the librarians, and the new companies that wish to sell similar information services to the home. Related tensions stem from the competition between Government-collected data, made available through freedom of information laws, and commercial data services. In addition, commercially marketable information may invade privacy or proprietary rights.
- The controversy over the public v. the commercial value of information is exemplified by the present difficulty that the United States is having in formulating a consistent national position with respect to international negotiations concerning information transmission across borders. Laws have already been promulgated by several European nations restricting the flow of personal or corporate data across their borders.

  Some positions taken by the United States appear to advocate the free flow of information on the premise that information is a public good, and therefore should be allowed to flow freely between countries. The United States appears to emphasize the commodity-related aspects of information, maintaining that controls or restrictions are, in effect, restraint of trade. While this position would presumably allow U.S.

multinational firms to more freely deliver and sell information services across borders, it may have adverse implications for the international protection of individual privacy.

Secondary Policy Impacts

Computer-based information systems, by increasing the quantity of information collected, the efficiency of its collection and dissemination, its utility, and its ease of storage can cause qualitative changes in the behavior of Government, individuals, and organizations as well as in the nature of traditional conflicts. Thus, the use of automated information systems can have secondary effects on policy problems that have existed for years, and which in many ways are independent of the technology. Because much more information can be obtained, handled, processed, and distributed so much faster, old problems are not merely exacerbated, but new ones are created.

For example, the increased scale and presumed efficiency of automated criminal justice recordkeeping intensifies the tension society has always experienced between the needs of law enforcement and the individual rights of citizens. Similarly, the tendency of the technology to encourage centralized record systems creates problems of Federal/State relationships, a particularly touchy issue in law enforcement. Some experts believe this centralization trend could reverse through the use of smaller computers with distributed data bases. The OTA study of the National Crime Information Center Computerized Criminal History system, being conducted in parallel with this study, examines this set of issues and relationships in detail.

Electronic mail will once more raise issues of the inviolability of the mail. The rules governing access are different for letters and for telegrams. Which will take precedence in the new environment? Will the first amendment rights enjoyed by the printed news media or the tradition of the Federal Communications Commission's regulation of content be the pattern for protecting the new electronic information media?

Ongoing issues such as privacy, security, and social equity are still not resolved. Electronic funds transfer (EFT), by changing the scale and nature of information collection and storage in an environment of accelerating institutional changes in the industry, may be forcing the reconsideration of such issues in a totally new technological context. The OTA study of EFT, being conducted in parallel, examines these issues in greater detail.

Computers may not only cause policy problems but may also be useful in solving them, and information systems may have policy impacts that mitigate or enhance the resolution of other policy conflicts. For example, it has been suggested that a central computer file containing information about citizens and employable aliens would be useful in verifying employability while avoiding the complicated problems created by a national I.D. card. (This suggestion is not intended to be an endorsement of such a system.) Transmitting electronic mail in a coded form (encryption) could help resolve social concerns over wiretapping or mail tampering. Services available through EFT, such as check authorization/guarantee and debit cards, can facilitate payment by other means than cash and thereby provide an additional convenience to customers.

Long-Term Societal Effects

Social scientists engaged in futures studies have suggested that the information revolution, spurred both by advances in computers and communication and by the changing role of information in U.S. society, will have profound long-term effects as dramatic as those caused by the invention of the printing press.

While such effects may, in fact, be socially significant in the long term, they are also the most difficult to predict and to relate direct-

ly to particular public policy choices. For example:

. The nature of societal values attached to privacy in the United States may change if larger and more ubiquitous information systems gradually remove the ability of individuals to hide their private activities. The permanency of data storage and ease of recall can limit a criminal's ability to start over with a clean slate. It has been pointed out that the possession by large organizations of personal data on individuals enhances the power, real or perceived, of the organization over the person.[7,8] These and similar effects may increase the suspicion some citizens have of large organizations –business, labor, or Government—and thus erode social cooperation and a personal sense of well-being.

- The self-image held by humans of their uniqueness, distinguished by their ability to think, may be threatened by the association with machines that increasingly demonstrate apparent characteristics of intelligence.[9] Computer scientists disagree about whether truly "intelligent" systems can ever be built. In the creation of social attitudes, however, the perception of machine omnipotence may be as important as reality. The best chess machines already can beat 99.5 percent of human players.

  One effect of such a perception may be to increase the uncritical reliance on computers.[10] The general public's unquestioning acceptance of computer output has concerned computer experts for many years, and may be a contributing factor in criminal acts that use computer-generated information to establish credibility.

- Just as the printing press, by stimulating literacy and speeding the flow of ideas, supported the Renaissance and the transition from medieval society to the age of enlightenment, so the new information systems could profoundly transform the social and political environment of U.S. and world society. Indeed television and sophisticated computer-based polling technology have already had observable effects on the political processes in the United States. Third World leaders calling in UNESCO for a "new world information order" express the belief that information technology will have a central influence on the social and economic development of their countries as well as on international relationships.
- The effects of information technology on culture have received little stud-y. Years ago, the noted Canadian economic historian Harold Adams Innes (and later his student, Marshall McLuhan) discussed the profound effects on cultural biases exerted by the forms in which information is communicated.[11,12]

  Scholarly opinions differ concerning the nature of these effects. Some see in broadcast television a lowering of social values and a reduction in literacy, a debasing of culture resulting from mass communication. However, a single television broadcast of a Metropolitan Opera performance reaches more viewers than have attended the Met in all its years of existence. Has "Sesame Street" improved the educational level of its viewers, or has it conditioned young children to a short attention span and to an orientation toward learning as entertainment, unsuitable for serious academic work?

This overview study has not attempted to address in detail these broader questions. The conflicts and problems are only identified here. Given the potential for significant social change, good or bad, research funded publicly, privately, or in some jointly

[7] Laudon, op. cit.
[8] Westin and Baker, op. cit.
[9] S. Turkle, "Computer as Rorschach," Society, vol. 17, No. 2, January/February 1980, pp. 15-24.
[10] J. Weizenbaum, *Computer Power and Human Reason* (San Francisco: W. H. Freeman& Co., 1976).
[11] House of Representatives, op. cit.
[12] Turkle, op. cit.

developed projects could provide valuable insights into the long-term societal effects of computer-based information systems and related public policy-choices.

The categories shown in table 5 are not independent of each other. Policies at various governmental and industrial levels interact with one another in areas such as the economy. In a similar way, there is a complex interaction between the categories. Procedures set for system operation may affect problems of information handling in response, for example, to privacy regulations. Rules for the handling of information may exacerbate or mitigate secondary policy impacts. On the other hand, they may also affect the way in which specific systems are designed and operated.

Various concerned parties view these issues from their particular perspectives. For example, an agency wishing to install a major new information system may be motivated by considerations of system utility: whether the system will do its intended job and be economical to run, and whether the procurement has been handled fairly. Congress, in addition to being interested in the system's effectiveness, also wants to know whether it satisfies a broader set of requirements, for example, whether it conforms to a number of information policy constraints such as protection of civil liberties, individual privacy, or freedom of information laws, and how the system might affect these as well as other less well-defined secondary policy issues.

Finally, as critics of information technologies and systems express concerns about the long-term social effects that may or may not occur, it has become apparent that these effects would be difficult, if not impossible, to address solely through a legislative approach. Congress can only seek to establish a legislative basis for creating a balance between the public/social values, the commercial/economic values, and the privacy/proprietary values associated with information. The stresses within that triad remain in a dynamic state. They are exacerbated or mitigated by many other social factors in addition to lawmaking and policy formulation. Society has not as yet learned how to predict the consequences of manipulating the numerous factors involved.