

# An integrative approach to information policy research

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The decentralized nature of the evolution of information policy in the USA has resulted in a fragmented approach to both policy development and analysis. A significant problem for information policy research is therefore to provide an integrative outlook for policy analysis. Three models are used to construct a research framework which provides this integrative element. This article presents an example of this framework in a research agenda to examine privacy, software protection and transborder data flow.

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The emergence of information processing as a significant force in US society has been accompanied by the development of public policy which has attempted to monitor and shape its effects. There are those who would argue that the USA has no information policy. This view assumes a definition of information policy as a *comprehensive* policy. An alternative view is that information policy can be defined as the set of activities currently in existence, which aim to achieve certain goals in the realm of information processing and communication.<sup>1</sup> The goals may be either implicit or explicit. An advantage of using this definition of information policy is that it permits seemingly disparate policy initiatives and activities to be drawn together according to one unified theme.

Unlike in other nations which have established policies in conjunction with the evolution of their information infrastructures, US policy has evolved in a decentralized fashion. The resulting national policy is implicit in nature, consisting of a collection of laws, precedents, expectations, and societal norms which are generally autonomous and have emanated from diverse sources. Because of this sectoral nature of policy development, US information policy is fragmented and appears to come about in the absence of an overall perspective on information processing.

The problem for research follows from this fragmentation. Because of the sectoral nature of policy evolution, integrative research has been limited. Using the definition of information policy proposed above, this article presents a research framework which is directed at just such integration. The primary advantage of using this approach is that it takes into account the unique features of the process of information policy formation in the USA.

## Background

The development of information policy has historically been tied directly to particular kinds of information processing technology. The laws, court decisions and so on have, in a sense, been fixed in time by the types of technology which served to collect, process or communicate

<sup>1</sup>Eileen M. Trauth, *An Adaptive Model of Information Policy*, University Microfilms, Ann Arbor, Mi, 1979.

the information when the particular policy was established. Copyright and publishing law is one example; communication law and existing uses of the broadcast spectrum is another. As new technologies and new uses of existing technologies have emerged, maintaining consistency across regulations has been a growing problem for policy makers. In some cases attempts have been made to broaden the interpretation of existing law. Changes were made to the Radio Act of 1928 through the Communications Act of 1934 in response to the appearance of television. Further interpretation of the law was then required when cable television became available.

One problem with this approach to policy development is that new technologies have characteristics which often call the assumptions underlying existing policy into question. Such was the case with cable television. The assumption of scarcity of the medium (the broadcast spectrum) which heavily influenced communication law was not valid for cable TV where an unlimited number of dissemination channels is technologically possible. A similar situation exists with intellectual property policy. Laws which were established based upon the technology existing at the time of enactment were able to keep a clear separation between the protection of an expression of an idea (copyright) and the protection of a device (patent). With the invention of the computer, the protection of software has posed problems.

As regulation has been directly tied to specific technologies, the analysis of such regulation has fallen into the domain of whichever information profession was concerned with the particular technology involved. That is, as information policy development has been technology-driven, policy research has been discipline-bounded. As a result, there is a fragmentation of policy research as well. Policy studies tend to be limited in scope by the technology of concern to the particular profession. For example, since librarianship has evolved along with the technology of printing, copyright and censorship have also been information policy areas of concern. Since concern about privacy and security has arisen to a large extent because of automated record-keeping practices, the computer science and data processing professions have been involved in this area of public policy. Since transborder data flow involves communication technology, the mass communication profession has concentrated on this arena. While it may be appropriate for some purposes to narrow the scope of analysis, this general fragmentation of public policy research has contributed to less than optimum results.

Two phenomena suggest that a change is needed in the current approach to policy analysis. One is the convergence of technologies. As a single technology serves a variety of information needs and a single need can be satisfied by a variety of technologies, the justification for the traditional approach is undercut. The second phenomenon is the growing dependence upon information in our society. In light of the recognition of information as a valued societal resource, policy governing its use and distribution takes on even greater importance. Thus, the need to understand better the nature and interactions among the component parts of information policy is of increasing importance for those concerned: private sector information managers; public policy makers; the research community; and society in general. The following framework is offered as an approach to research based upon an interdisciplinary perspective.

## Developing an integrative approach

There are a number of methodological issues to be addressed in moving from a technology-driven or disciplinary-bounded outlook in the conduct of research to one which is interdisciplinary. The first is to identify the set of activities comprising our information policy. What comes immediately to mind is the set of existing laws. However, information practices are influenced by other forces as well: economic, societal and international. In addition to establishing the component parts, the interactions among them must also be examined. Further, it is by extrapolating from specific policy contexts that we can make general observations about US policy. Thus, this research needs to examine the component interactions not only within but between policy contexts. In doing so, similarities, differences and inconsistencies can be noted. In deciding how to go about studying a subset of information policy contexts from an interdisciplinary perspective, another methodological question is: how should these policy contexts be segmented for detailed study? As noted above, this has typically been decided by the technology currently in use in that context. Given the problems inherent in the technology-driven approach, a new paradigm appears to be in order. Finally, if the intent of US information policy is to achieve certain goals, then policy research should make note of the philosophies underlying such policy and the extent to which they are consistently being reflected.

While the purpose of some information policy research is to make recommendations for what US policy *should be*, the research framework described in this article is directed towards a better understanding of what the policy *is*. It is, in effect, an approach towards studying US information 'policy-in-use'.

## Review of information policy studies

In order to place the proposed framework within the context of existing methodology, it is useful to examine a sampling of policy research already conducted. For a number of reasons, increased attention has been given to information policy since the 1970s, initiatives which have been accompanied by policy studies. One factor motivating policy development is the pace of technological innovation. An example of the influence of new technology on information policy development is the establishment of two Computer Inquiries by the US Federal Communication Commission (FCC).<sup>2</sup> Acknowledging the convergence of computing and communicating, these policy makers sought to adjust current policy. This effort ultimately led to the present, less regulated status of the telecommunications industry.

Another factor which served to focus greater attention on information policy was the volume of information-related legislation enacted in the 1970s. As part of the activist movement in the USA at that time, legislation such as the Fair Credit Reporting Act (1970), the Privacy Act (1974), the Copyright Act revisions (1976), the Freedom of Information Act amendments (1974), and the Educational Rights and Privacy Act (1974) were enacted. In many cases these laws included the establishment of commissions to probe further certain aspects of information policy. For example, the Commission on New Technological Uses of Copyrighted Works (CONTU) was established through the Copyright Act to explore the intellectual property issues associated with new

228 FCC 2d 267, 1971; and 77 FCC 2d 384, 1980.

<sup>3</sup>Privacy Protection Study Commission, *Personal Privacy in an Information Society*, US Government Printing Office, Washington, DC, 1977.

"Domestic Council Committee on the Right of Privacy, *National Information Policy: Report to the President of the United States*, National Commission on Libraries and Information Science, Washington, DC, 1976.

<sup>5</sup>Conference Board, *Information Technology: Initiatives for Today - Decisions that Cannot Wait*, The Conference Board, Inc, New York, 1972; Conference Board, *Information Technology: Some Critical Implications for Decision Makers*, The Conference Board, Inc, New York, 1972; and Marc Uri Porat, *The Information Economy: Definition and Measurement*, US Department of Commerce, Office of Telecommunications, US Government Printing Office, 1977.

<sup>6</sup>American Library Association, *Towards a Conceptual Foundation for a National Information Policy*, 1977; and National Commission on Libraries and Information Science, *Towards a National Program for Library and Information Services: Goals for Action*, Washington, DC, 1975.

<sup>7</sup>Privacy Protection Study Commission, *op cit*, Ref 3.

<sup>8</sup>Commission on Federal Paperwork, *Report of the Commission on Federal Paperwork: Final Summary Report*, US Government Printing Office, Washington, DC, 1977.

<sup>9</sup>Per Ongstad, *Information Resources Policy Viewed by an Outsider*, Harvard University Program on Information Resources Policy, Cambridge, MA, 1981; and Eileen M. Trauth, Denise M. Trauth and John L. Huffman, 'The policy implications of the use of cable television for data transmission', *Proceedings of the 43rd ASIS Annual Meeting*, 1980, pp 106-108.

<sup>10</sup>Glen O. Robinson, ed, *Communications for Tomorrow: Policy Perspectives for the 1980s*, Praeger, New York, 1978; Benjamin M. Compaine, *A New Framework for the Media Arena: Content, Process and Format*, Harvard University Program on Information Resources Policy, Cambridge, MA, 1980; and Eileen M. Trauth, Denise M. Trauth and John L. Huffman, 'Impact of deregulation on marketplace diversity in the USA', *Telecommunications Policy*, Vol 7, No 2, June 1983, pp 111-120.

<sup>11</sup>American Society for Information Science, *Eight Key Issues for the White House Conference on Library and Information Services*, John Wiley, New York, 1978; and Frederick Burkhardt, *National Library Planning in the United States*, National Commission on Libraries and Information Science, Washington, DC, 1974.

information technology. A particular emphasis was on the issue of software copyright. The commission's efforts resulted in the Computer Software Protection Act (1980). The Privacy Act of 1974 established the Privacy Protection Study Commission whose charge was to study the implementation of the Privacy Act and to make recommendations about the possible extension of this Act to the private sector. The final report<sup>3</sup> included several recommendations for privacy policy. In addition to studies focused on specific areas of information policy, other policy studies took a broader perspective. The Domestic Council Committee on the Right of Privacy,<sup>4</sup> for example, undertook a project which addressed a wide range of policy issues, some of which went beyond the scope of privacy concerns.

A third factor which brought attention to national information policy was a growing societal awareness about the importance of access to information and the dangers of abuse. Concern about the latter was a factor in the passage of privacy and 'sunshine' laws; concern about the former was, in part, responsible for the establishment of a White House Conference on Libraries and Information Services in 1979.

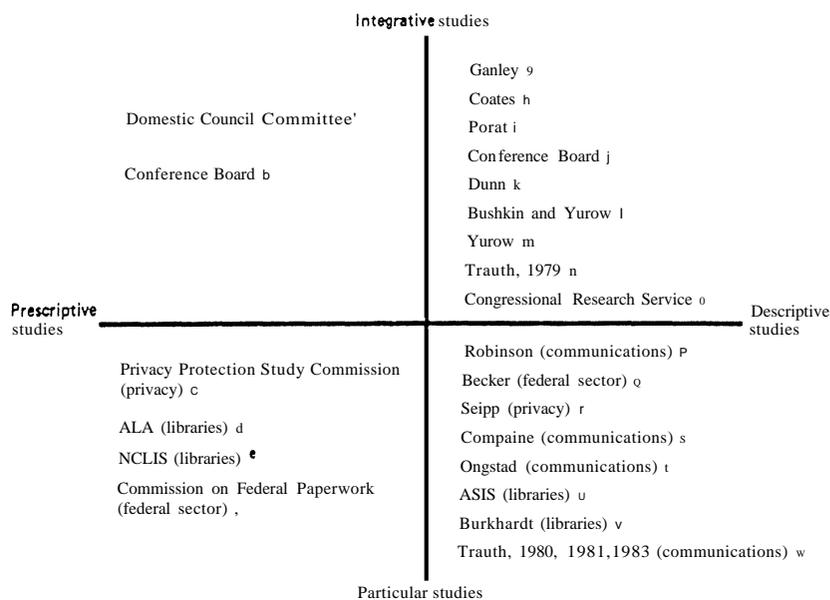
It is important to keep in mind that information policy studies, like the policies themselves, emerged in a decentralized fashion. Some were conducted to support the efforts of policy-making agencies, such as the National Telecommunications and Information Administration (NTIA). Others were carried out by specific information disciplines such as library science or communications. Still other studies focused on a specific policy issue (such as privacy) or sector of society (such as banking). Finally, some studies represent the contribution of industry observers.<sup>5</sup>

These information policy studies can be arranged for consideration according to two dimensions: intent and scope. Some are prescriptive - their goals were to make recommendations about policy formation. The majority, however, were undertaken either to describe the current status of some policy or to highlight issues that should be addressed in implementing or altering it. These are labelled descriptive studies. Scope refers to the amount of interdisciplinarity reflected in the study. Many are concerned with a singular context, discipline<sup>6</sup> or societal sector. Some, however, are integrative and look at issues which go beyond the bounds of a single context or discipline. These two dimensions, then, provide a method of categorizing policy studies according to purpose and degree of interdisciplinarity. This framework has been applied in the following review of information policy studies. Each has been placed in one of four quadrants reflecting its scope and intent, as depicted in Figure 1.

Moving from the most specific (prescriptive, particular) to the more general (descriptive, integrative), prescriptive studies focusing on a particular aspect of information policy have been directed towards certain disciplines,<sup>7</sup> certain uses of information,<sup>8</sup> and certain sectors of society.<sup>9</sup> There have been more policy studies conducted with the intent not so much of recommending specific actions but of analysing a given context for the purpose of highlighting issues of current or potential interest to information policy makers. A number of studies have been done which relate to communications policy. Some of these have probed the policy implications of particular media.<sup>10</sup> Others have addressed broader issues of communications policy.<sup>11</sup> Library science is another information discipline which has produced descriptive policy studies.<sup>11</sup>

**Figure 1.** Information policy studies, according to scope and intent.

- aSee Ref 4.
- bSee Ref 5 (*Initiative*).
- cSee Ref 3.
- dSee Ref 6.
- eSee Ref 6.
- 'See Ref 8.
- gSee Ref 14.
- hSee Ref 17.
- iSee Ref 5.
- jSee Ref 5 (*Critical Implications*).
- kSee Ref 16.
- 'See Ref 19.
- mSee Ref 18.
- nSee Ref 1.
- oSee Ref 19.
- PSee Ref 10.
- QSee Ref 13.
- rSee Ref 12.
- sSee Ref 10.
- tSee Ref 9.
- uSee Ref 11.
- vSee Ref 11.
- wSee Refs 20, 10 and 9



An example of a policy study relating to a specific context is Seipp's overview of the evolution of privacy policy.<sup>12</sup> Finally, research in support of policy activities within the federal sector was conducted by Becker.<sup>13</sup>

All of the preceding studies have in common the fact that they are narrow in scope. For certain purposes, this may be necessary. However, this approach alone does not satisfy the policy analysis needs relating to information processing in the USA. In order to support discussions of policy issues which cut across a number of technologies and disciplines or move between the public and the private sectors, studies which step back and take a more integrated, holistic perspective are also needed. Two such studies which examined a wide range of issues and resulted in recommendations for action were produced by the Domestic Council Committee on the Right of Privacy!<sup>14</sup> and the Conference Board.<sup>15</sup> As was the case for the narrower studies, much more integrative work has been focused on consideration of the issues than on making specific recommendations. In some cases the integrative examination was conducted for purposes of producing conceptual frameworks for understanding the current status of policy and to aid in the conduct of future research.<sup>16</sup> Other policy studies have argued for the need for an integrative perspective in order to be better able to anticipate and plan for the impact which emerging information technology is having on society.<sup>17</sup> Recently, information policy studies of an integrative fashion have been commissioned by federal agencies in order to support policy endeavours both in the USA<sup>18</sup> and abroad.<sup>19</sup>

A common theme in these policy studies, especially those with an integrative perspective, is that a better understanding of US information policy is needed. A better understanding of what currently exists is necessary so that future changes can be incorporated consistently. The problem with integrative studies, however, is that they tend to be conducted on a very large scale. Such studies are, therefore, beyond the resources of most researchers. A new research framework must therefore address the question: how can the integrative perspective be retained when conducting information policy research on a smaller

<sup>12</sup>David J. Seipp, *The Right to Privacy in American History*, Harvard University Program on Information Resources Policy, Cambridge, MA, 1981.

<sup>13</sup>Louise Becker, *Federal Information Management Policy: Critical Directions*, Congressional Research Service, Washington, DC, 1980.

<sup>14</sup>*op cit*, Ref 16.

<sup>15</sup>*Information Technology, Initiatives for Today*, *op cit*, Ref 5.

<sup>16</sup>Donald A. Dunn, 'Developing information policy', *Telecommunications Policy*, Vol 6, No 1, March 1982, pp 21-38; Oswald H. Ganley, *The International Communications and Information Arena: A Research Plan*, Harvard University Program on Information Resources Policy, Cambridge, MA, 1981; Porat, *op cit*, Ref 5; and Trauth, *op cit*, Ref 1.

<sup>17</sup>Joseph Coates, 'Aspects of innovation: public policy issues in telecommunications development', *Telecommunications Policy*, Vol 1, No 3, June 1977, pp 196-206; and Conference Board, *Information Technology: Some Critical Implications for Decision Makers*, *op cit*, Ref 5.

<sup>18</sup>Jane H. Yurow, *Issues in Information Policy*, US Department of Commerce, National Telecommunications and Information Administration, US Government Printing Office, Washington, DC, 1981.

<sup>19</sup>Arthur A. Bushkin and Jane H. Yurow, 'Developing national information policies I', *Library Journal*, Vol 104, 15 September 1979; and Congressional Research Service, *International Telecommunications and Information Policy: Selected Issues for the 1980s*, US Government Printing Office, Washington, DC, 1983.

scale? The answer lies in the criteria used for choosing a subset of policy contexts for study.

## A research framework

The case has been argued for the rejection of a technology-driven approach to segmenting the policy arena. Before outlining an alternative approach, a restatement of the main reasons is in order. First, policy research conducted in this manner is not as robust as it could be. Consider the area of communications. Historically, communication policy research would study radio and broadcast regulation but not that relating to data transmission. The reason is that (digitally represented) data are linked to a different technology (the computer) and, hence, fall under the purview of another discipline and different policy research. However, while it may be possible clearly to distinguish telecasts from data transmission, other aspects of communication fall clearly in the middle. Electronic mail and cable television are examples of recent information services which challenge a technology-driven research framework. Electronic mail is generally associated with data processing (hence, computer technology) while cable television is associated with broadcasting and that research domain.

Both, however, are capable of providing the same kinds of services, covering the spectrum from mass dissemination (broadcast) to one-to-one communication (narrowcast), usually associated with common carrier type services. The example shows that policy research which does not step back from the constraints imposed by the existing uses of technology has a narrowness which detracts from the level of effectiveness possible. In addition, some of the most important information policy issues of today derive from applications such as electronic mail and cable television which fall 'between the cracks' of the existing policy framework.<sup>F</sup> A research orientation which is too narrow in scope will miss these important policy issues.

The other reason why a different paradigm for information policy research is needed derives from the convergence of information processing technologies. The difficulties of the Federal Communications Commission in attempting to depict the regulated domain of communications (in Computer Inquiries I and II), and the resulting changes in telecommunications policy have demonstrated the need to focus on the content - the information - rather than on the conduit - the technology - in the analysis and development of policy.<sup>G</sup>

An alternative way of segmenting the policy arena utilizes the systems approach.<sup>F</sup> reflecting an *information-driven* method. By using the INPUT-PROCESS-OUTPUT (I-P-O) model as a basis for organizing policy contexts, the orientation shifts to the view that information policy governs a *process* (such as the storage or transmission of information) rather than a *thing* (such as technology). Just as the I-P-O model can be used to describe how data are transformed into information, it can be used to provide a meaningful grouping of policy contexts. Thus, rather than addressing policy issues relating to a specific technology no matter what its function with regard to information processing, those issues relating to a specific function, no matter what technology is employed, can be examined.

Policy research relating to the output function (communication policy) is an example of employing this model. But, as indicated above,

<sup>20</sup>Eileen M. Trauth, 'Data transmission via cable - regulatory problems', *Proceedings of the National Online Meeting*, 1981, pp 463-468; and Trauth *et al*, *op cit*, Ref 9.

<sup>21</sup>Trauth *et ai*, *op cit*, Ret 10.

<sup>22</sup>C. West Churchman, *The Systems Approach*, Dell, New York, 1968.

the tendency still exists to limit research based upon the technology employed. Policy issues relating to the input function would be associated with methods for data collection and surveillance, for example. Policy issues relating to the process function concern the storage and retrieval of the data, methods of manipulating the data (specifically through software), and the transmission of information within the system. By utilizing this framework, then, it becomes possible to narrow the domain of study while achieving the robustness of an integrative perspective.

The I-P-O model responds to the methodological issue of limiting the policy arena for detailed study. What remains is to identify the components which constitute policy in the chosen areas. Having done this, the interactions of these components can be studied for the purpose of evaluating the consistency of philosophies which they reflect.

The model proposed for accomplishing this is based upon the fact that information policy in the USA is an extremely decentralized phenomenon. Motivation for policy development and change comes from all sectors of society. As a consequence, the components of information policy can be viewed as consisting of statutory law, societal norms and common law, administrative actions, marketplace forces, and international pressures.

*Statutory law.* The past ten years have seen a significant increase in the number of federal laws relating to information. Privacy and copyright legislation are two examples. Continuing effort has also been underway during this time for passage of a revision of the Communications Act of 1934. In addition, many states are active in enacting laws related to computer crime and privacy.

In the absence of relevant or updated statutes, the courts have been influential in the development of policy. The recent settlement of the AT&T antitrust case exemplifies the role of the judiciary in interpreting or extending policy where new circumstances call existing practices into question. Before the passage of specific laws, the guarantee of the right to privacy derived from judicial interpretation of the Constitution.<sup>P</sup>

*Societal norms and common law.* Prior to the enactment of laws and the judicial interpretation of the Constitution, various information handling practices have been protected and governed through the use of common law. Both copyright and privacy laws have their origins here.

Some of the recent changes in information policy are the result of citizen and advocacy group pressures. Fears about confidentiality of personal information have influenced the passage of privacy legislation. The desire for greater public knowledge of governmental actions contributed to the passage of the Freedom of Information Act of 1974. Where specific laws do not exist, public expectations have influenced governmental and private sector policies relating to data collection, use and dissemination.

*Administrative actions.* In addition to legislative and judicial contributions to public policy governing information, the executive branch has played an influential role. Through appointments to permanent bodies such as the Justice Department, the Federal Communications Commission, the National Commission on Library and Information Sciences, and the National Telecommunications and Information Administration,

<sup>23</sup>Samuel D. Warren and Louis D. Brandeis, 'The right to privacy', *Harvard Law Review*, Vol 4, 15 December 1890, pp 195-220.

policy has been shaped. Appointments to temporary bodies such as the Privacy Protection Study Commission, the White House Conference on Libraries and Information Services and the Domestic Council Committee on the Right to Privacy have reflected executive branch priorities with regard to policy development.

*International pressures.* A variety of issues of international concern have resulted in recommendations for new legislation or for a reexamination of existing policy. The recent enactment of data protection laws in other countries has challenged existing US policy. In order for multinational corporations to engage in the processing of data residing in those countries they must guarantee that they will be protected in accordance with the laws of the home countries. This has resulted in pressure on the USA to enact and enforce a set of 'fair information practices' which would be consistent with those of other countries. In another vein, concern about the USA losing its technological advantage has resulted in calls for a broadening of the scope of national security restrictions governing technology transfers.

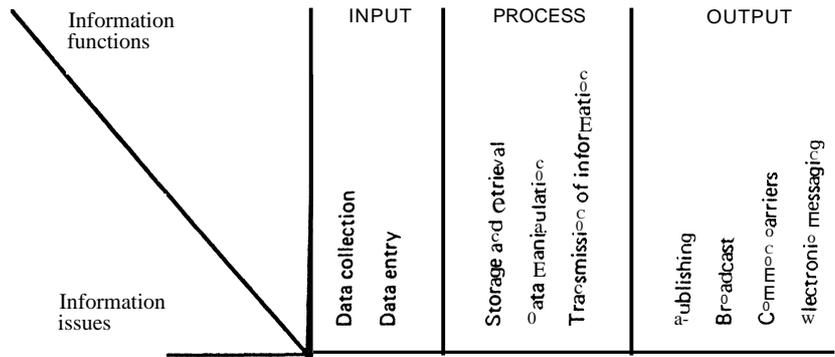
*Marketplace forces.* Changes in the information infrastructure brought about through technological advances have contributed to the reinterpretation of existing information policy. The availability of new telecommunication and information processing services has been accompanied by an expanded set of entrepreneurs. They provide access to communicating and processing facilities and, in some cases, 'value-added' or 'enhanced' services. The growth in this market is in part responsible for the change in policy towards deregulation of telecommunications or 'marketplace control'. With a larger number of players the control mechanism, originally established during circumstances of monopoly, was seen to be in need of revision. Today, competitive factors serve to influence the evolution of information processing technology and practices.

### **An application of the research framework**

As an example of the application of this framework the following research agenda may be sketched. The domain of this research is some policy concerns associated with the *process* part of the I-P-O model. Privacy relates to the data storage and retrieval function, software protection relates to the data manipulation function and transborder data flow relates to the data transmission function. The I-P-O model is thus used to narrow the scope of study.

US policy in each of these areas is an amalgam of: specific legislation (for example, the Software Protection Act); marketplace forces (such as competition and technological innovation); international pressures (such as foreign privacy laws to which US multinational corporations must conform); societal norms (the expectation of confidentiality of personal information); and administrative actions (appointments to federal commissions). Together, they comprise the components of US information policy for the scope defined above.

Having narrowed the scope of study and identified the relevant components, the interaction of these components within and between each of the three contexts could be critically examined. At this point, one may wonder about the rationale for choosing the three policy



INPUT	PROCESS	OUTPUT
Surveillance		Copyright
Work monitoring		Censorship
	Freedom of information	Crossownership
	Privacy *	Fairness doctrine
	Equality of access	Monopolies
	Software protection *	Technology transfer
	Computer crime	
	Transborder data flow *	
	Electronic funds transfer	

Figure 2. Information policy issues arranged according to an information-driven framework.

contexts for study. The purpose comes from the ultimate goal of policy studies: to evaluate the extent to which the philosophies which are claimed to be underlying US information policy are consistently reflected. In this case the philosophy is the *free flow of information*. According to Yurow:

The basic presumption underlying US information policy is open availability of and ease of access to information which is of interest to or concerns the welfare of American citizens."

Thus, this line of research would be directed at examining these three contexts to determine the extent to which the free flow of information is enhanced or restricted by current policy in each context.

Figure 2 places this research agenda within the context of the totality of information policy issues arranged according to the I-P-O model.

### Conclusion

This research framework attempts to achieve the following goals. It provides for an integrative analysis through the examination of more

24Yurow, *op cit*, Ref 18, p 1.

than one policy context. These contexts are chosen by virtue of the I-P-O model rather than existing uses of technology, offering an alternative to the technology-driven method. It helps to bring into clearer focus the actual components of US information policy. The examination of these components will highlight similarities and inconsistencies which are an artefact of the implicit nature of US policy development. In this way, patterns can be noted. The end result is an approach to conducting research which parallels the true nature of information policy development in the USA.

## BACKGROUND

Intellectual property is a subtle and esoteric area of the law that evolves in response to technological change." Advances in technology particularly affect the operation and effectiveness of copyright law. Changes in technology generate new industries and new methods for reproduction and dissemination of works of authorship, which may present new opportunities for authors, but also create additional challenges. Copyright law has had to respond to those challenges, from Gutenberg's moveable type printing press to digital audio recorders and everything in between -- photocopiers, radio, television, videocassette recorders cable television and satellites."

Uses of computer technology -- such as digitization -- and communications technology -- such as fiber optic cable -- have had an enormous impact on the creation reproduction and dissemination of copyrighted works. The merger of computer and communications technology into an integrated information technology has made possible the development of the National Information Infrastructure which will generate both unprecedented challenges and important opportunities for the copyright marketplace.

An information infrastructure already exists, but it is not integrated into a whole. Telephones, televisions, radios computers and fax machines are used every day to receive store, process, perform, display and transmit data, text voice, sound and images in homes and businesses throughout the country. Fiber optics, wires, cables

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<sup>16</sup> Supreme Court Justice Story found that copyright and patent cases come "nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law where the distinctions are, or at least may be, very subtle [sic] and refined, and, sometimes, almost evanescent." See *Folsom v. Marsh*, 9 F. Cas. 342, 344 (C.C.D. Mass. 1841) (No. 4,901).

<sup>17</sup> The original copyright law upon which our system was based (England's Statute of Anne) was a reaction to the invention of the printing press.

switches, routers, microwave networks, satellites and other communications technologies currently connect telephones, computers and fax machines. The NII of tomorrow, however, will be much more than these separate communications networks; it will integrate them into an advanced high-speed, interactive, broadband, digital communications system. Computers, telephones, televisions, radios, fax machines and more will be linked by the NIT, and users will be able to communicate and interact with other computers, telephones, televisions, radios, fax machines and more -- all in digital form."

The NII has tremendous potential to improve and enhance our lives. It can increase access to a greater amount and variety of information and entertainment resources that can be delivered quickly and economically from and to virtually anywhere in the world in the blink of an eye. For instance, hundreds of channels of "television" programming, thousands of musical recordings, and literally millions of "magazines" and "books" can be made available to homes and businesses across the United States and around the world.<sup>19</sup>

The NIT can provide access to rich cultural resources around the world, transforming and expanding the scope and reach of the arts and humanities. It will provide opportunities for the development of new markets for cultural products. It can broaden our cultural experiences through diversity of content, and increase our understanding of other societies.

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<sup>18</sup> These devices will be linked not only to each other (computer, to computer, for example) but will also be cross-linked (computer to television set).

<sup>19</sup> The United States and other countries are working toward the development of an advanced Global Information Infrastructure (GII) that "will allow us to share information, to connect, and to communicate as a global community." And as that information moves through international channels, "[p]rotecting intellectual property is absolutely essential." See Remarks Prepared for Delivery by Vice President Al Gore at the International Telecommunications Union in Buenos Aires, Argentina (March 21, 1994).

The NII can support our education systems by, for example, linking students and educators in remote locations around the world. It can also improve the nation's health care systems by increasing public awareness of health issues, providing continuing education of health care professionals, and allowing patients to take a more active role in their own health care.

The NII can dramatically increase the opportunity for democratic participation in government. The Task Force has shown some of the potential in its work. For instance, the IITF Bulletin Board makes available copies of Task Force reports, testimony, speeches, meeting schedules and minutes, hearing notices, transcripts, and other documents related to the work of the Administration and opportunities for public participation." The Task Force has also accepted comments from the public through the Internet and has conducted an on-line public conference.<sup>20</sup>

Individuals and entities that heretofore have been predominately consumers of works can now become authors and providers through the NII. It can put easier, more sophisticated communication and publishing tools in the hands of the public, increasing the ability to communicate with, and disseminate works of authorship to, others.

The NII can boost the ability of U.S. firms to compete and succeed in the global economy, thereby generating

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<sup>20</sup> The IITF Bulletin Board can be accessed through the Internet or by use of a personal computer and modem. See *supra* note.11.

<sup>21</sup> Comments on the Green Paper were accepted at an Internet address. See Notice of Hearings and Request for Comments on Preliminary Draft of the Report of the Working Group on Intellectual Property Rights, 59 Fed. Reg. 42,819 (Aug. 19, 1994); Extension of Deadline for Comments on Preliminary Draft of the Report of the Working Group on Intellectual Property Rights, 59 Fed. Reg. 50,222 (Oct. 3, 1994). The IITF Universal Service Working Group and the Commerce Department's National Telecommunication and Information Administration hosted a "Virtual Public Conference" in November 1994 utilizing a series of electronic mail discussion groups. See 59 Fed. Reg. 55,081 (Nov. 3, 1994).

more jobs for Americans. It can spur economic growth. More than half of the U.S. work force is in information-based jobs, and the telecommunications and information sector is growing faster than any other sector of the U.S. economy. New job opportunities can be created in the processing, organizing, packaging and dissemination of the information and entertainment products flowing through the NII.

The NII can provide benefits to authors and consumers by reducing the time between creation and dissemination. It will open additional markets for authors. If authors choose to enter those new markets, it will provide a wider variety and greater number of choices for consumers, which should increase competition and reduce prices. The availability of these benefits is by no means assured, however. Authors are wary of entering this market because doing so exposes their works to a higher risk of piracy and other unauthorized uses than any of the traditional, current modes of dissemination. Therefore, authors may withhold their works from this environment. Further, even if authors choose not to expose their works to this more risky environment, the risk is not eliminated. Just one unauthorized uploading of a work onto a bulletin board, for instance -- unlike, perhaps, most single reproductions and distributions in the analog or print environment -- could have devastating effects on the market for the work.

Thus, the full potential of the NII will not be realized if the education, information and entertainment products protected by intellectual property laws are not protected effectively when disseminated via the NII. Creators and other owners of intellectual property rights will not be willing to put their interests at risk if appropriate systems -- both in the U.S. and internationally -- are not in place to permit them to set and enforce the terms and conditions under which their works are made available in the NII environment. Likewise, the public will not use the services available on the NII and generate the market necessary for

its success unless a wide variety of works are available under equitable and reasonable terms and conditions, and the integrity of those works is assured. All the computers, telephones, fax machines, scanners, cameras, keyboards, televisions, monitors, printers, switches, routers, wires, cables, networks and satellites in the world will not create a successful NII, if there is no *content*. What will drive the NII is the content moving through it.

Ensuring consumer access to and enjoyment of both copyrighted works and new technologies is an attainable goal, and recent experience has confirmed this." For example, the introduction of digital audio tape recorders recently posed significant problems for copyright owners. Congress responded to the increased threat of rampant unauthorized use with legislation that incorporated both technological and legal measures to protect the interests of both consumers and copyright owners.<sup>23</sup>

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<sup>22</sup> See, e.g., *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 430-31 nn. 11-12 (1984) (hereinafter *Sony*) (discussing significance of changes in technology and their effect on copyright law); *Final Report of the National Commission on New Technological Uses of Copyrighted Works* (hereinafter *CONTU Final Report*) at 3 (reporting about the issues raised by photocopiers and computers back in 1978, in language that is equally applicable today) (citations omitted):

The ownership and control of information and the means of disseminating it are emerging as national and international policy issues. Concerns about the impact on individual freedom posed by the control of the flow of information are at the forefront of public debate. The adequacy of the legal structure to cope with the pace and rate of technological change frequently has been called into question.

<sup>23</sup> Congress enacted the Audio Home Recording Act of 1992, which combined legal and technological protection for sound recordings. See 17 U.S.C. § 1001 *et seq.* (Supp. V 1993). The Audio Home Recording Act requires a serial copy management system in all digital audio recording devices and digital audio interface devices imported, manufactured or distributed in the United States. Such a system allows unlimited first generation digital copying of sound recordings, but prevents the making of digital copies from copies. The Act prohibits the importation, manufacture or distribution of any device, or the offering or performance of any service, the primary purpose of which is to circumvent any program or circuit which implements a serial copy management

Advances in digital technology and the rapid development of electronic networks and other communications technologies raise the stakes considerably. Any two-dimensional work can readily be "digitized" -- *i.e.*, translated into a digital code (usually a series of zeros and ones). The work can then be stored and used in that digital form. This dramatically increases: the ease and speed with which a work can be reproduced; the quality of the copies (both the first and the hundredth "generation" are virtually identical); the ability to manipulate and change the work; and the speed with which copies (authorized and unauthorized) can be "delivered" to the public. Works also can be combined easily with other works into a single medium, such as a CD-ROM, which contributes to a blurring of the lines that typically divide types of works and the rights and limitations applicable thereto.

The establishment of high-speed, high-capacity electronic information systems makes it possible for one individual, with a few key strokes, to deliver perfect copies of digitized works to scores of other individuals -- or to upload a copy to a bulletin board or other service where thousands of individuals can download it or print unlimited "hard" copies. The emergence of integrated information technology is dramatically changing, and will continue to change, how people and businesses deal in and with information and entertainment products and services, and how works are created, reproduced, distributed, adapted, displayed, performed, owned, licensed, managed, presented, organized, sold, accessed, used and stored. This leads, understandably, to a call for adaptation of -- or change in -- the law.

system. The Act also establishes a royalty system through which importers and manufacturers of digital audio recording devices and digital audio recording media make royalty payments on each device or medium they distribute. Such payments are collected by the Copyright Office and distributed annually to record companies, performers, music publishers and songwriters.

Thomas Jefferson stated:

I am not an advocate for frequent changes in laws and constitutions. But laws and institutions must go hand and hand with the progress of the human mind. AS that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy ....<sup>24</sup>

Our task is to determine whether the coat still fits in this new information age. An effective intellectual property regime must (1) ensure that users have access to the broadest feasible variety of works by (2) recognizing the legitimate rights and commercial expectations of persons and entities whose works are used in the NII environment.

For more than two centuries, copyright law, with periodic amendment, has provided protection for an increasing variety of works of authorship. The most recent complete revision of the law -- The Copyright Act of 1976<sup>25</sup> -- was enacted in response to "significant changes in technology [that had] affected the operation of the copyright law."<sup>26</sup> The legislative history of the 1976 Act

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<sup>24</sup> See Inscription at the Jefferson Memorial, Washington, D.C. As Secretary of State, Thomas Jefferson was the first head of the U.S. Patent Office.

<sup>25</sup> The Copyright Act of 1976, as amended, is codified at 17 U.S.C. § 101 *tt seq.* (1988 & SUPPa V 1993). Hereinafter, the Act is cited as "17 U.S.C. § \_."

<sup>26</sup> See H.R. REP. No. 1476, 94th Cong., 2d Sess. 47 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659 (hereinafter HOUSE REPORT) ("During the past half century a wide range of new techniques for capturing and communicating printed matter, visual images, and recorded sounds have come into use, and the increasing use of information storage and retrieval devices, communications satellites, and laser technology promises even greater changes in the near

notes that those changes had "generated new industries and new methods for the reproduction and dissemination of copyrighted works, and the business relations between authors and users [had] evolved new patterns."<sup>27</sup>

We are once again faced with significant changes in technology that upset the balance that currently exists under the Copyright Act. Our goal is to maintain the existing balance.

Some assert that copyright protection should be reduced in the NII environment. The public wants information to be free and unencumbered on the NII, it is argued, and the law should reflect the public interest. Without doubt, this is a valid concern. Information *per se* should not be protected by copyright law -- nor is it. Facts and ideas from any work of authorship may be freely copied and distributed; the Copyright Act expressly excludes such information from the scope of the protection it accords." The copyright law should also serve the public interest -- and it does. While, at first blush, it may appear to be in the public interest to reduce the protection granted works and to allow unfettered use by the public, such an analysis is incomplete. Protection of works of authorship provides the stimulus for creativity, thus leading to the availability of works of literature, culture, art and entertainment that the public desires and that form the backbone of our economy and political discourse. If these works are not protected, then the marketplace will not support their creation and dissemination, and the public will not receive the benefit of their existence or be able to have unrestricted use of the ideas and information they convey.

Others assert that technological advances justify reduced protection. Since computer networks now make

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future.<sup>tt)</sup>

<sup>27</sup> Set HOUSE REPORT at 47, reprinted in 1976 U.S.C.C.A.N. 5660.

<sup>28</sup> See 17 U.S.C. § 102(b) *see* also discussion *infra* pp. 32-34.

unauthorized reproduction, adaptation, distribution and other uses of protected works so incredibly easy, it is argued, the law should legitimize those uses or face widespread flouting. This argument is not valid. Technology makes many things possible. Computer networks can be and have been used to embezzle large sums of money and to commit other crimes. Yet, these acts are prohibited by law. Simply because a thing is possible does not mean that it should be condoned.

Finally, there are those who argue that intellectual property laws of any country are inapplicable to works on the NII or GII because all activity using these infrastructures takes place in "Cyberspace," a sovereignty unto itself that should be self-governed by its inhabitants, individuals who, it is suggested, will rely on their own ethics -- or "netiquette" -- to determine what uses of works, if any, are improper. First, this argument relies on the fantasy that users of the Internet, for instance, are somehow transported to "chat rooms" and other locations, such as virtual libraries. While such conceptualization helps to put in material terms what is considered rather abstract, activity on the Internet takes place neither in outer space nor in parallel, virtual locations. Satellite, broadcast, fax and telephone transmissions have not been thought to be outside the jurisdiction of the nations from which or to which they are sent. Computer network transmissions have no distinguishing characteristics warranting such other-world treatment. Further, such a legal free-for-all would transform the GII into a veritable copyright Dodge City. As enticing as this concept may seem to some users, it would hardly encourage creators to enter its confines.

Nonetheless, content providers are currently experimenting with a number of business models in the networked environment, and it is already clear that a wide variety of such models may coexist. Some content providers will choose not to enforce all -- or any -- of their rights; others may change their business practices. For instance, some newspaper publishers are selling individual articles

using electronic payment mechanisms, in addition to selling subscriptions and individual issues. Some software companies are making their "client" software freely available for individual use in an effort to increase the market share of their "server" software. Some hypermedia magazine publishers on the World Wide Web are choosing to give away their product but charge sponsors for advertising space. A number of information service providers are charging for the use of the search engines that add value to freely available public domain content.

Some content providers will not be motivated by any commercial considerations. For instance, certain scientific communities are working together to create archives of freely available electronic pre-prints on the Internet. The copyright law allows copyright owners to exercise the rights granted to them, to license their rights to others, or to give them away. Those creators who wish to dedicate their works to the public domain may, of course, do so notwithstanding the availability of protection under the Copyright Act. Nothing in the law prevents those who do not wish to claim copyright from waiving their rights and allowing unrestricted reproduction, distribution and other use of their works. Indeed, notices to that effect are not uncommon on the Internet.

The absence on the NII of copyrighted works for which authors do wish to exercise their rights -- fully or to some limited extent -- under the copyright law, of course, would not necessarily result in its demise. The Internet, for instance, could continue to serve as a communications tool and resource for Government, public domain and works of willing authors. However, unless the framework for legitimate commerce is preserved and adequate protection for copyrighted works is ensured, the vast communications network will not reach its full potential as a true, global marketplace. Copyright protection is not an obstacle in the way of the success of the NII; it is an essential component. Effective copyright protection is a fundamental way to promote the availability of works to the public.

Preserving the framework does not require, however, a dramatic increase in authors' rights, such as more limited or no further applicability of the fair use doctrine in the NII environment. Some have argued that because it may now be technically feasible to "meter" each use of a copyrighted work, and to charge a user a fee for the use, the concept of fair use has no place in the NII environment. They argue equally that other limitations on rights should be abolished or narrowed for similar reasons. The Working Group believes that weakening copyright owners' rights in the NII is not in the public interest; nor would a dramatic increase in their rights be justified.

With no more than minor clarification and limited amendment, the Copyright Act will provide the necessary balance of protection of rights -- and limitations on those rights -- to promote the progress of science and the useful arts." Existing copyright law needs only the fine tuning that technological advances necessitate, in order to maintain the balance of the law in the face of onrushing technology. There must be, however, effort in three disciplines -- law, technology and education -- to successfully address the intellectual property issues raised by the development and use of the NII.

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<sup>29</sup> The Working Group believes that no revision of the patent, trademark or trade secret law is warranted at this time. See discussion *infra* pp. 155-75, 236-38.