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THE INTERFACE OF LIVING SYSTEMS AND COMPUTERS: THE LEGAL ISSUES OF PRIVACY

by HEDY GORDON*

As every man goes through life he fills in a number of forms for the record, each containing a number of questions There are thus hundreds of little threads radiating from every man, millions of threads in all. If these threads were suddenly to become visible, the whole sky would look like a spider's web, and if they materialized as rubber bands, buses, trams, and even people would lose the ability to move. . . . They are not visible, they are not material, but every man is constantly aware of their existence Each man, permanently aware of his own invisible threads, naturally develops a respect for the people who manipulate the threads.¹

INTRODUCTION

There is little question that society has always been changing. What is significant is that the process of change has accelerated during the last century, with prospects that this acceleration will continue in the future.

The reason for this increasing pace is manifold. For the historian who espouses the "significance factor" theory, there is one significance factor which is dominant in each epoch. The consensus seems to be that society is entering a new epoch with the dominant significance factor being information. If this is true, then "computers will replace production machinery as the key technology in the epoch of Information."²

The social implications of the emergence of the computer are

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1. A. SOLZHENITSYN, *CANCER WARD* 189 (1968).

2. Dorsey, *Computers from the Perspective of Social Philosophy*, 1977 WASH. U.L.Q. 379.

many—some subtle, and others not so subtle. “The emergence of the computer in the last twenty years has drastically changed the manner in which people relate to each other socially, politically, and economically.”³ Individuals need a better understanding of the “interrelationships between society, technology, law, science, and ethics.”⁴ All of these changes will have serious implications for the lawyer, who has traditionally been society’s information specialist.

The legal profession must become involved in an organized analysis of the current uses of computers in society and possible future technological advances. A lawyer’s involvement with computers is twofold: (1) in relation to his own practice and (2) in relation to his client’s operations. Another area of interest, which might be added to this list is the formulation of specific legislation regulating the computer, with an eye to its potential for good and evil.

The computer has altered, and will increasingly alter, the environment in which lawyers work. “The computer is already streamlining office management, but its use as a data bank and legal research tool will have a far greater impact on the legal profession.”⁵ Services that can be provided by computers include: Law office research, statutory research in the legislative process, law office management, electronic data processing as an aid to trial lawyers, estate planning, and the use of computers in preparing tax returns.⁶ This list is by no means exhaustive.

A more specialized use of the computer in the law is labeled “jurimetrics.” In jurimetrics, the computer is used to analyze law by symbolic logic, and to analyze and predict judicial decisions.⁷ Computers have also become useful tools in the legal education process itself.⁸

A lawyer’s approach to the legal issues concerning computers is as diverse as that lawyer’s clientele. There are specialized concerns involving the use of computers in government and by private corporations and educational institutions. The uses of the computer in these organizations are highly diverse, and a lawyer should be aware of the difficulties that his client could encounter because he does—or does not—have a computer. The issues that could arise in-

3. *Symposium: Computers in Law and Society, id.* at 371.

4. Dorsey, *supra* note 2, at 380.

5. Randall, *The Impact of Computers on the Legal Profession, id.* at 393.

6. COMPUTERS AND THE LAW ix (R. Bigelow ed. 1969).

7. Mason & Jones, *Programming the Law*, in LEGOL PROJECT 2 (London School of Econ. & Political Sci.).

8. Bigelow, *supra* note 6, at x. See also Munro & Noah, *Plato, Educom and Legal Education*, 1 COMPUTER/L.J. 545 (1979).

clude, *inter alia*, computer contracts, insurance, tax considerations, labor relations, proprietary protection of hardware and software, torts of the vendor or user, copyright infringement, banking and electronic funds transfers, and data banks and privacy.⁹ These legal issues are becoming increasingly complex.

I. CYBERNETIC APPROACH OF JAMES MILLER

Addressing the increasingly complex field of "computer law" within the confines of this article requires adoption of certain limitations. To maintain continuity with a general cybernetic approach, an article by James G. Miller will be used to provide a sense of focus.¹⁰

As stated by Miller, "dealing intelligently and sensitively with a society of greater sophistication and complexity than any that man has ever formed may no longer be avoided."¹¹ Since the beginning of the first industrial revolution in about 1800, man has been inventing machines to aid in and improve the general living process. Many of these machines act as prosthetic devices, enabling man to successfully complete tasks never before possible. More recently, man entered into a different sort of industrial revolution—the basis of which is the computer. In this era, "science has changed its primary emphasis in a number of fields from energetics to information processing."¹²

The implications of computer technology for Miller's thesis on living systems are many. Briefly, he states that all living systems can be arranged in a hierarchy of seven levels—the cell, organ, organism, group, organization, society, and supranational system.¹³ These living systems have many differences, but also have a great deal in common. Miller feels that they have nineteen critical subsystems in common.¹⁴ These subsystems break down into three groups—those that process matter/energy, those that process information, and those that process both.¹⁵ Consequently, all living sys-

9. Bigelow, *supra* note 5, at x.

10. The article entitled *The Computer, its Function and Place in Modern Society*, serves as an introduction to the book *THE LAW OF COMPUTERS* (G. Holmes & C. Norville eds. 1971). This book contains a collection of articles from a seminar on the Law of Computers presented by the Institute of Continuing Legal Education. The goal of the seminar was to make the participants aware of the many legal issues that could arise from the increasing use of computers in society.

11. Miller, *The Computer, its Function and Place in Modern Society*, *id.* at 1.

12. *Id.* at 10.

13. *Id.* at 8.

14. *Id.*

15. *Id.*

tems are open systems allowing significant flows through their boundaries.¹⁶

Within the last two hundred years, Miller suggests, machines have been invented to replace each subsystem function of living systems. The computer, an information processing machine, differs from earlier inventions since its function is "more intimately related to the subjective experience of human beings than are the functions of matter-energy processing machines."¹⁷ Consequently, the computer affects most of those subsystems which process information or information and matter/energy both. These subsystems are the following:

Secondarily, the widespread use of computer affects the two subsystems which process both matter/energy and information—the reproducer and the boundary. "The *reproducer* transmits fundamental information, the patterned blueprint of the new generation."¹⁸ One cannot speculate at this time how the computer could affect the reproducer at the lower three levels of the hierarchy—the cell, organ and organism. At the upper four levels, however, the computer could be used to transfer or audit charters at increased speeds. In advising on the formation of new groups, the computer could be used to find the best fit for prospective members, such as dating service computers do today.

"The *boundary* must permit flows through it of matter, energy, and information. Without such flows, the living systems would die."¹⁹ The computer might increase the permeability of the boundary of various levels of living systems and could be both beneficial in increasing information and detrimental in causing overload.

Primarily, the subsystems which process information could be the ones most affected by widespread implementation of the computer. There are nine such critical subsystems:

First, "there is the *input transducer*, the sense organ which brings information concerning the environment into the systems from the outside."²⁰ Computerization of library systems have increased tremendously the capabilities of the input transducer. Further, defective input transducers have been compensated by the use of the computer *e.g.*, deaf people can use the telephone with the aid of computer sound conversion.

Second, "*internal transducers* report the internal state of the liv-

16. *Id.* at 7.

17. *Id.* at 12.

18. *Id.* at 8.

19. *Id.*

20. *Id.* at 10.

ing system."²¹ At the group or society level, those involved with reporting attitudinal changes to the members might be able to do a more thorough and timely presentation with the aid of the computer.

"The next subsystem is a *set of interconnecting channels or a network* which transmits information to all components of the system, just as the distributor conveys matter/energy. The *decoder*, another subsystem, changes the information from a 'public' to a 'private' form."²² The use of the computer to replace these subsystem functions is common on the level of the group or higher. The computer can augment the speed and capacity of the channel and net systems, both directly and indirectly in conjunction with other mass media systems. Examples include system dealing with telephonic and postal services, and radio, television, journalism, and other mass communications activities.²³

Computers can be used to benefit the decoder function—that of the conversion of information into a more usable form for any particular individual or group. In fact, "electronic data processing systems are beginning to be programmed to perform such decoding processes as translating foreign languages, and recognizing radar patterns, handwritten script, and printed letters."²⁴

Fifth, there is an "*associator* (or learner) that synthesizes single bits of information or facts into organized knowledge."²⁵ Computers are beginning to be used in aiding learning at the organism level and above. One special case of programming that can aid the learning process is the development of models or simulations. A society could use this technique to test potential legislation to see if it will have the desired effect.

Sixth, there is a "*memory* subsystem which stores information so that it may be retrieved when needed."²⁶ The memory carries out the second stage of the learning process. Groups and organizations have individuals whose responsibility it is to "remember." The computer can increase the memory capacity, both as to the number of units that can be remembered, and the length of time of remembering.

Seventh, "there is the central subsystem of the whole system, the *decider*. It is the executive or the administrator."²⁷ The decider

21. *Id.*

22. *Id.*

23. J. MILLER, *LIVING SYSTEMS* 63 (1978).

24. *Id.* at 64.

25. Miller, *supra* note 11, at 11.

26. *Id.*

27. *Id.*

receives all the information over the channel and net from all of the subsystems. It also receives information from the environment and memory. The decider filters the information down to one or a few alternatives and may then issue commands.²⁸ The computer can facilitate the filtering process.

After the decider issues commands, some are interpreted internally; others may go out into the environment. This can only be accomplished "after being encoded into the 'public' language by the *encoder* subsystem. They are put out by the *output transducer* subsystem."²⁹ Often, the encoder and output transducer in social systems are the same, but this does not have to be the case. Computers can aid in the encoding process, such as by editing speeches or translating from one language to another. As with the input transducer, the computer can greatly increase both the amount and the speed with which information is transmitted into the system's environment.

II. NEED TO KNOW VS. NEED FOR PRIVACY

The legal implications of the widespread use of the computer are many.

Obviously the new information-processing technologies are going to change our lives in many ways. Some of these changes will be unpleasant and uncomfortable to us as individuals. Electronic information-processing machines will make rapid transfer of information so easy that local disruptions of the peace can readily spread like epidemics throughout the society. Maintaining the peace will require a degree of sophistication unknown in the past. The computer will threaten privacy, and constitutional guarantees of personal rights will be hard to enforce. We should not, however, be mystified and afraid of all these new technologies because all scientific and engineering developments have both constructive and destructive potentials. We must implement constructive uses and prevent destructive ones.³⁰

The following is a brief investigation of just one of these issues, the juxtaposition of the public's need for access to data versus the public's need for privacy.

A. *Need to Know*

As previously noted, the world has entered into an era of information. An apt but frightening preface to this discussion is the fol-

28. *Id.*

29. *Id.*

30. *Id.* at 15-16.

lowing thought. Today, information is power. In fact, the control that one individual or institution has over another is directly proportional to the amount of data it has collected concerning that entity.³¹

The need to know, however, is not merely a means of gaining control over others, but relates to each individual's survival in society. As change becomes more and more overwhelming, each person must keep pace with the kinetic world of today in which the future seems to be constantly invading the present. The issues involved in the "need to know" syndrome are twofold: (1) managing the information explosion, and (2) the public's demand for more services.

Alvin Toffler, in *Future Shock*³² aptly dealt with the concept of change and human adaptation.

Transience, then, the forcible abbreviation of man's relationships, is *not* merely a condition of the external world. It has its shadow within us as well. New discoveries, new technologies, new social arrangements in the external world erupt into our lives in the form of increased turnover rates—shorter and shorter relational durations. They force a faster and faster pace of daily life. They demand a new level of adaptability. And they set the stage for that potentially devastating social illness—future shock.³³

All of these conditions contribute to what can be considered an information explosion often leading to an overload. The amount of information reaching an individual through the mass communication media each day is overwhelming in itself. If one adds to that the amount of job-related information the individual receives, the result can be devastating.

Yet, the public needs to keep up with this information; it needs to know for survival. But more than merely surviving, Toffler feels that an individual must not just passively deal with the information he receives, but must use it to "undertake the control of change, the guidance of his evolution."³⁴ The computer must be viewed as an aid to the control of these changes by keeping the individual abreast of them.

In general, within the last three decades individuals have demanded more and more from society's institutions. From government, they have come to expect welfare and social security benefits, unemployment compensation, and guaranteed loans. From business, they expect instant credit to enable them to make purchases all over the world, pay for the transportation to get there, and the lodging and food while they are there.

31. *The Privacy Act of 1974*, 1976 WASH. U.L.Q. 668 [hereinafter *Privacy Act*].

32. A. TOFFLER, *FUTURE SHOCK* (1970).

33. *Id.* at 180-81.

34. *Id.* at 487.

Administrators responsible for furnishing these services must satisfy themselves of a person's eligibility by demanding and getting much personal, often sensitive, information. More and more confidential data are being injected into the stream of government and business, never to be destroyed. The computer has facilitated the collection of these data.³⁵

These increased services have a price attached to them in terms of the amount of personal information that an individual must divulge. While data banks provide an opportunity for better service, they need regulation.

This need to know has been legitimized by several laws, especially in relationship to government practices. Two of the more encompassing laws are the Federal Reports Act³⁶ and the Freedom of Information Act.³⁷ These laws deal with the concept of personal data record-keeping, specifically data collection and dissemination. There are constraints, but the right to know of various individuals and groups is affirmed.

The Freedom of Information Act mandates that federal agencies, with some exceptions, obtain approval from the Office of Management and Budget before collecting data on identical topics from ten or more individuals.³⁸ The goal of the Act is to limit the duplication of data collected, and thus easing the burden of the reporting subjects as well as minimizing data collection costs. The ultimate result sought by the Act was to maximize the usefulness of collected data. Implicit in the Act is the guarantee that, with some constraints, the agencies involved do have a right to know the information sought.

Although concern for the interests of individuals can be discerned in its administration, the Act itself makes no mention of personal privacy. It neither creates nor recognizes any rights for individuals with respect to the personal data record-keeping practices of the Federal government.³⁹

The Freedom of Information Act is even more explicit in affirming the public's right to know. The Act mandates the disclosure to the public of information held by the federal government.⁴⁰ Federal agencies do have authority to withhold disclosure if such disclo-

35. Linowes, *Must Personal Privacy Die in the Computer Age?*, 65 A.B.A.J. 1182 (1979).

36. 44 U.S.C. §§ 3501-11 (1976).

37. 5 U.S.C. § 552 (1976).

38. UNITED STATES DEP'T OF HEALTH EDUCATION AND WELFARE, RECORDS, COMPUTERS AND THE RIGHTS OF CITIZENS 35 (1973). [hereinafter HEW REPORT].

39. *Id.*

40. *Id.* at 36.

sure constitutes a clear, unwarranted invasion of privacy.⁴¹ In these cases, the agency has total discretion to determine which disclosures fit into these categories. "The Act itself gives the data subject no way at all to influence agency decisions as to whether and how disclosures will affect his privacy."⁴²

Many states have similar statutes, all equally as broad, whose objectives are to insure public access to data in state government records.⁴³ Most do not provide any exceptions or constraints to the disclosure of that data in recognition of privacy interests.

As was implied in the discussion of Miller's theories, the computer has been used to enhance or replace all of the subsystems that process information for several levels of the hierarchy of living systems and, in general, to make them more open. The computer minimizes the cost of data collection and retrieval while maximizing capacity and speed. The effect of the computer on the collection and dissemination of information is threefold:

- (1) Computerization enables an organization to enlarge its data-processing capacity substantially.
- (2) Computerization greatly facilitates access to personal data within a single organization, and across boundaries that separate organizational entities.
- (3) Computerization creates a new class of record keepers whose functions are technical and whose contact with original suppliers and ultimate users of personal data are often remote.⁴⁴

In fact, the computer could be a positive force for privacy. First, it has created a general awareness on the part of citizens and legislators of the dangers of those governmental and private data banks which have always existed. Second, it is more feasible to continually update, correct, and delete individual data if it resides in a computer system.⁴⁵

However, surveys indicate that the public is concerned with accountability associated with the use of information, especially in large organizations such as the federal government.⁴⁶ The effects of the use of computers for information collection and dissemination have serious implications for the individual. In fact, rather than emphasizing the problem of the growing "organizational appetite for information," the public's concern over loss of control and confidence seems to center more around the issue of computers and the inva-

41. *Id.*

42. *Id.*

43. *Id.*

44. *Id.* at 12.

45. R. BIGELOW & S. NYCUM *YOUR COMPUTER AND THE LAW* 144-45 (1975).

46. *Id.* at 29.

sion of privacy.⁴⁷

B. *Need for Privacy*

Before the invasion of privacy can be discussed, the ambiguous notion of personal privacy must be clarified.

Most of us have an intuitive sense of the meaning of value of privacy. As a legal matter, however, the term "privacy" has proved remarkably elusive, and the dispute over what it means, what rights it encompasses, and the degree of legal protection it deserves, rages unabated.⁴⁸

Further, there is a commonly-held belief that personal privacy is essential to the individual's well-being in four areas: social, moral, physical and psychological. This has serious implications for society as a whole, as well as for each member of society. "For one individual, privacy, as a value, is not absolute or constant; its significance can vary with time, place, age, and other circumstances."⁴⁹ In this way, privacy is extremely fluid.

Dictionary definitions of privacy deal with the concepts of secrecy, seclusion and withdrawal from public view.⁵⁰ This is seriously incompatible with life in modern society where there is great emphasis on cooperation and coordination. In fact, as a social value, the right to privacy can contradict other rights, such as freedom of speech, freedom of the press, and more importantly, the public's right to know.⁵¹

A workable definition of privacy, especially in the legal sense in relation to records and record-keeping practices, was posited by Andrew N. Farley. He stated that the definition is twofold. First, "privacy is not the absence of disclosures."⁵² This conclusion deals with two actions—the collection of information, and when completed, the confidentiality given to the data. Second, "privacy, at least in an organized society, cannot be absolute, but must be balanced against other needs of society."⁵³

A *Time* magazine survey in 1971 indicated that most people feel that privacy is a substantive constitutional principle, though this feeling is not legally definitive.⁵⁴ In fact, the United States constitution is silent on the right of privacy *per se*. There are five amend-

47. *Id.*

48. *Privacy Act*, *supra* note 31, at 668.

49. HEW REPORT, *supra* note 38, at 38.

50. WEBSTER'S NEW COLLEGIATE DICTIONARY (1977).

51. HEW REPORT, *supra* note 38, at 38.

52. Farley, *Computer-Data-Privacy: A Mobius Effect*, 47 PA. B.A.Q. (1977).

53. *Id.*

54. *Id.* at 546-47.

ments to the constitution which can be interpreted loosely as dealing with the issue. These are the fourth,⁵⁵ sixth,⁵⁶ ninth,⁵⁷ twelfth⁵⁸ and fourteenth⁵⁹ amendments. Nowhere is there an explicit reference to a right of privacy, nor is any implicit right of privacy deemed more important than the public's right to know.⁶⁰

In common law, the concept of privacy was extremely restrictive. "The common law of informational privacy was designed primarily to compensate a victim for injuries inflicted by the mass media."⁶¹ An individual ordinarily has to prove a public disclosure of intimate facts to establish his claim. Prior to the Privacy Act of 1974, the law guaranteed little protection from the dangers of extensive record-keeping systems.

The Privacy Act of 1974 attempted, perhaps at time inadequately, to define privacy in the legal sense. The Act had three broad goals:

to recognize individuals' interests in government records concerning them, to regulate the information practices of federal agencies, and to strike an approximate balance between the need of the "individual American for a maximum degree of privacy over personal information he furnishes his government, and . . . that of the government for information about the individual which it finds necessary to carry out its legitimate functions."⁶²

The first two goals are interrelated—increasing an individual's control over his data necessarily decreases the government's control. The third goal is more difficult to achieve, and in fact encompasses the formidable task of accomodating "individual privacy with such interests as administrative efficiency, effective law enforcement, and the public's right to know."⁶³

The law is a complicated one and will not be discussed at length. It is particularly applicable to federal agencies, though certain government contractors are covered also. Topics dealt with include the collection of data, maintenance of files, disclosure of records, and civil remedies.⁶⁴ It imposes specific limitations on federal agencies which are parallel to the individual interests that are

55. *Id.* at 547.

56. *Id.*

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.* at 547-48.

61. *Privacy Act, supra* note 31, at 675.

62. *Id.* at 678.

63. *Id.* at 695.

64. *Id.* at 690.92.

being promoted.⁶⁵

The Act established a seven-member Privacy Protection Study Commission to investigate the need for additional legislation, particularly at the state and local levels and for private industry.⁶⁶

The law also requires federal agencies

To notify an individual on request if there is personal information about the individual contained in the agencies records,

To permit the individual to examine and copy most of those records, and

Under designated procedures, to dispute the contents of the records and to place a statement of the dispute in the file.⁶⁷

Several states have followed the action of the federal government in considering privacy legislation. In fact, in 1975 such legislation was pending in forty-one states, including bills to give employees access to private employers' personnel files. In addition, seven states initiated studies to analyze personal privacy regulations. These studies turned "from practices and procedures of state administrative agencies to data systems and data collection files of private entities."⁶⁸ However, most legislation was not enacted.

III CONCLUSION

The use of the computer has made it easier to store information than to destroy it. Retrieval of data which took months in a manual system now takes only seconds. So though governments and businesses have kept records for thousands of years, only recently has the threat to privacy become epidemic.

A 1974 study of fifty-four federal agencies disclosed 858 computerized data banks containing 1.25 billion records on individual citizens. The FBI's National Crime Center alone contains over 1.7 million files and 195 million sets of fingerprints. Twenty-nine data banks, were used exclusively to maintain "black lists" containing damaging information on thousands of law-abiding citizens. One commentator estimates that the average American citizen is the subject of at least twenty records.⁶⁹

There are several reasons why this increased record-keeping ability poses a unique threat to personal privacy. The first reason deals with the computer's ability to "combine scattered bits of data into a comprehensive personal dossier."⁷⁰ This implied more effec-

65. *Id.*

66. Bigelow, *Attorney for the Computer User*, 63 A.B.A.J. 958 (1977).

67. R. BIGELOW & S. NYCUM, *supra* note 45, at 142.

68. Farley, *supra* note 52, at 549.

69. *Privacy Act*, *supra* note 51, at 670.

70. *Id.* at 671.

tive, and perhaps more intrusive, use of data already on file.

The second reason is that "the increased capacity to handle information creates strong pressures to acquire more of it."⁷¹ Often this encourages federal agencies to acquire huge quantities of personal information, much of which is irrelevant to legitimate government business. Few individuals know the importance, uses, or even the existence of such personal dossiers.

The third reason deals with the "computer's own fallibility [which] poses a significant threat to personal privacy."⁷² Both the computer and the personnel associated with it do err. In fact, the technology of security has not kept up with the technological developments in the field. Errors can occur in the process of data transfer, as well as in contextual inaccuracies. Data collected for one specific use can be put to another, not so valid, use. These errors occurred in a manual system but not with such speed and widespread ramifications.

In summary, the preceding reasons prompted by technological forces have had a devastating impact on personal privacy.⁷³ Some of the problems are actual. Almost all individuals have "committed some act at some time that would seriously jeopardize [his] chances in life if recorded, retained indefinitely, and disclosed on a regular basis."⁷⁴ On the other hand, some of the problems are only perceived. "The mere collection and retention of sensitive or personal information creates a state of severe psychological insecurity"⁷⁵ on the part of individuals involved.

"One of the major convulsions in this generation is being triggered by computer technology. We are just now beginning to respond to it. Unfortunately, the law and social mores have not kept up."⁷⁶ As the public's need to know, as well as its need for a certain amount of privacy, continue to grow, a clear-cut legal policy concerning the integration of the two is sorely needed. Our judicial system is based on the concept of precedent. Yet, there is currently little precedent concerning computers and the invasion of privacy.

Several suggestions have been made by various groups—the United States Privacy Protection Commission and the Health, Education and Welfare Secretary's Advisory Committee on Automated

71. *Id.*

72. *Id.* at 672.

73. *Id.* at 673.

74. *Id.*

75. *Id.* at 674.

76. Linowes, *supra* note 35, at 1182.

Personal Data Systems, among others. One of the more recently suggested programs is the following:

Only information that is relevant to the decision at hand should be collected, and it should be used only for that purpose. Before an organization transfers information to a third person, it should obtain the subject's approval.

The individual should be informed which sources will be contacted to get information, how the data will be used, and to whom they will be disclosed. No information should be obtained under false pretenses or through the impersonation of others.

You should have the right to see and copy records about yourself from any organization that keeps a file on you, including your employer. If you question its accuracy, you should have the right to correct the record. Where the point is in dispute, a statement explaining your position should be made part of the permanent file.

Secret files should be outlawed, so that you know where records about you exist.

Government officials who want to gain access to your records should be required to present proper authorization before being permitted to do so, and you should be notified when a disclosure is made.

Organizations should only employ service and support firms whose privacy standards and principles are equivalent to those of the organization being served.⁷⁷

Although attempts have been and will continue to be made concerning the implications of new technology on the privacy issue, much work is yet to be done. The following statement by the chairman of the United States Privacy Protection Commission speaks succinctly to the future.

Patchwork legislation and confusion will persist in America until a national privacy policy is established and consistent guidelines formulated that apply to all segments of society . . . Personal privacy can no longer exist by yesterday's standards alone.⁷⁸

77. *Id.* at 1184.

78. *Id.*