UIC John Marshall Journal of Information Technology & Privacy Law

Volume 9
Issue 1 *Computer/Law Journal - Winter 1989*

Article 4

Winter 1989

The Unfulfilled Promise: Use of Computers By and For Legislatures, 9 Computer L.J. 73 (1989)

Robert L. Stoyles

THE UNFULFILLED PROMISE: USE OF COMPUTERS BY AND FOR LEGISLATURES

By ROBERT L. STOYLES*

Table of Contents

* Professor of Law, Willamette University College of Law, J.D., University of Iowa, 1954. Many of the comments in this article are based on the author's experiences teaching courses on Legislation and Computers and on extensive use of personal computers. Many of the statements regarding the use of computers by the Oregon Legislature are based on observation and general information.

I. INTRODUCTION

While computers are currently being used in virtually every state legislature,[1] there is still a pressing need to implement a more extended use of computers in the entire legislative process, including the areas of distribution and notification. The extensive potential computers offer is more fully understood by simultaneously analyzing, in depth and detail, both the specifications and applications of various computer systems. One such system, the Oregon Legislative Information Service (OLIS), will be thoroughly analyzed here in order to demonstrate this review process (OLIS is being substantially revised for the 1989 Oregon Legislature Session so the reader of this article will need to update any references to the Oregon system when the manuals and processes are fully actualized). The OLIS system was chosen as the model system because it is readily available to the author, and because Oregon appears to be an average state with regard to its implementation of computer systems within the legislature. A model system was used because it allows specific requirements, critiques, testing, and applications to be discussed and avoids the confusion that might arise if examples from various jurisdictions with differing contexts were used. I hope this article will suggest improvements that might be made throughout the United States. But, this article will also demonstrate how politically difficult it is to achieve optimum results.

Studying the use of computers by state legislatures is no easy task. An insufficient number of legal materials address the issue of using basic computer systems within a legislative framework, and discussion of using more elaborate computer systems is even more limited.[2] This lack of information and evaluation may be due to the fact that few legal scholars have experience with both computers and the legislative process, however, quasi-legal sources are also scarce. A better explanation for this shortage of information might be that computer use has recently expanded, and it is therefore quite natural for legal resources in this area to be limited.[3]

A good example of the lack of present legal consideration of the legislative use of computers is found by examining the updated treatise,

1. *See* Kauffman, *Automated Legislative Information Systems: A New Tool for Research?*, 76 LAW LIBR. J. 233, 257 (1983).

2. Chartrand, *Redimensioning Congressional Information Support*, 11 JURIMETRICS J. 165, 174 (1970).

3. An example which illustrates the shortage of information about the use of computers in the law is that the Index to Legal Periodicals placed articles dealing with computers under the heading "automation" until 1980.

Gemignani, *Computer Law*. Its index and section titles do not refer to legislative uses of computers. A few relevant mid-seventies sources are available[4] but they are quite broad, and thus their present usefulness is limited. General legal sources make limited reference to computers and do not subdivide the computer category, making it a very broad search term.[5]

A few relevant law review articles were published in the sixties and early seventies.[6] However, most law review articles dealing with computers concern copyrights or crimes. The articles discussing the use of computers in legislatures are limited in scope and outdated due to the rapid development of computer potential, the expansion of available useful information and techniques, and the substantial growth of the legislative process. Some of these articles predicted future growth in the use of computers by legislatures,[7] but even these hopes, which were uncertain given the state of computer are at the time, have not been realized to any substantial degree.

II. THE FUTURE OF LAW IS COMPUTERS

Some state legislatures have enacted statutes concerning the use of computers in legislatures.[8] However, most of these statutes simply authorize legislatures and agencies to acquire and utilize some type of computer system.[9] Such open-ended statutes have potentially unex-

4. *See* HOUSE COMM. ON ADMINISTRATIVE REVIEW, STATE LEGISLATURE USE OF INFORMATION TECHNOLOGY, H.R. DOC. NO. 271, 95th Cong., 1st Sess. 284-88 (1977) (includes as extensive bibliography of the relevant computer sources available in the mid-seventies)[hereinafter HOUSE COMM.]; *See also* NAT'L CONFERENCE OF STATE LEGISLATURES, COMPARATIVE LEGISLATIVE INFORMATION SYSTEMS: THE USE OF COMPUTER TECHNOLOGY IN THE PUBLIC PROCESS (J. Worthy ed. 1976). *See also* LEGAL AND LEGISLATIVE INFORMATION PROCESSING (B. Eres ed. 1980) (includes a few chapters (7) dealing specifically with state and federal information processing).

5. *See, e.g.*, AM. JUR. 2d. *General Index "C"*, at 15 (Supp. 1988).

6. *See, e.g.*, Ryan, *Computers in the Legislature*, 1977 WASH. U.L.Q. 389 (However, this article is limited in its discussion of legislatures uses for computers. It basically considers using computers for administrative and record functions.); Kauffman, *supra* note 1, at 233 (this article basically considers research by parties outside of legislatures for legislation retrieval and status); *see also* Schulte, *A Survey of Computerized Legislative Information Systems*, 72 LAW LIBR. J. 99 (1979)(discussing the computer systems then used by various state legislatures).

7. *See* HOUSE COMM., *supra* note 4, at 3, 232-236; Smith, *Information Technology Potential in the Legislative Process*, in NAT'L CONFERENCE OF STATE LEGISLATURES, *supra* note 4, at 162.

8. *E.g.*, OR. REV. STAT. §§ 291.034,.038, 293.595 (executive dept.); §§ 173.780, 190.250, 291.042 (access to copyright and patent info.); §§ 171.852, .855, 173.710,720 (legislative committees); 192.310,410 (computer public records).

9. Lautsch, *Computers and State Law*: in COMPUTERS AND THE LAW: AN INTRODUCTORY HANDBOOK 134 (R. Bigelow 3d ed. 1981).

pected side effects such as shifting power and funding.[10] Most statutes relating to computers regulate the use of computers in society.

Because we live in a Computer, Information, Service Age the need for legislators to use computers is evident. The effect of computers is not yet completely recognized or understood.[11] Computers are both creators and tools; they make problems and they solve them. One author on the subject makes the following statement about the future of computers and the law:

> The 'Information Revolution' will, no doubt ultimately produce as many and profound changes in the law as did the Industrial Revolution. . . .[This is a] new and rapidly evolving technology and legal field . . . [U]pdates [are] . . . particularly important. This is a dynamic area of law in which there are many questions and as yet comparatively few precedents."[12]

Many recent developments make the need for compeers critical. Government complexities are increasing the legislative workload in quantity and variety. Legislative sessions and hearings have been increasing in frequency and duration. Legislators are becoming full time and professional and are employing more and more staff members. Increased turnover of legislators has created additional informational needs.[13] Without the aid of computers the productivity and effectiveness of legislators will be critically impaired.[14]

In October of 1970 Congress stated that its informational requirements included: interpretation and evaluation of issues, possible alternative solutions, the impact of proposed legislation on existing laws and programs, court decisions relevant to pending legislation, status and content of pending legislation, legislative history, and data bases such as the Code.[15] Legislators need complete, accurate, immediate information; a computer can most effectively furnish most, if not all, of these legislative requirements.

Legislative action is based on the future and the unexpected. There is a growing need to avoid crises instead of correcting them after they occur. Critical issues need to be predicted as soon as possible. One commentator describes a legislator's need for the computer in the following way: "The urgent need for the elected official to maintain him or herself in the public eye can sometimes create issues of great political mo-

---

10. *See infra* text accompanying notes 32-47.

11. NAISBITT, MEGATRENDS (1982).

12. GEMIGANI, COMPUTER LAW VII (1985 & Supp. 1987).

13. DAVIS, LEGISLATIVE LAW AND PROCESS 13 et. seq. (1986).

14. Chartrand, *supra* note 2, at 167; Norton, *The Quiet Revolution of Information Technology in Congress*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 3, 7 (B. Eres ed. 1980).

15. Chartrand, *supra* note 2, at 167.

ment from seemingly innocuous events. The escalation from event to issue to crises can happen with astonishing rapidity."[16]

Although computers can greatly assist legislators, legislatures should proceed with caution. Available computer speed and scope should not be allowed to push legislatures too fast. Computers cannot and should not be used to avoid renovating outdated manual systems. Additionally, computers may create more work. Decisions on computer usefulness are usually based on whether an existing function will be accomplished more efficiently with computers, but the use of computers may increase the work to be performed and may even change, or create a need to change, the type of work performed and/or the method of its performance.[17] As such the installation of a computer system would appear to hinder more than help the legislative process.

Contrary to this notion, the introduction of computers into the legislative context has met with some success. However, much of the success attributed to the computerization of legislative functions is actually derived from the reorganization and uniformity facilitated by use of the computer, not from use of the computer itself. Also, successful experience in the use of computers usually leads to a demand for new and expanded services. Ultimately, computers must be utilized for the legislative process or they will not be used.[18] Computerization should not be used unecessarily to improve manual systems or appear competent.

Once a computer system has been incorporated into the legislative context, its capabilities should be fully utilized by all areas of the legislature and not limited, as in some states, to use by only a part of the legislature.[19] The legislative use should be expanded and new functions should be added. Legislators, committees, staffs, and agencies should broadly use the systems. Experience by agencies and staffs and ultimately legislators should lead to the expansion of computer use. Given computer's potential for processing information the tendency should be towards over use of computers and inclusion of too much information.

If need be, legislators might perform some of the basic legislative tasks on low cost, personal micro-computers which now have amazing capabilities and diversifications. Among their many uses, micro-computers have the potential to allow one to network general information,

16. Thompson, *Information for a Legislature: The New York Experience*, in COMPARATIVE INFORMATION SYSTEMS: THE USE OF COMPUTER TECHNOLOGY IN THE PUBLIC POLICY PROCESS 45 (Worthley ed. 1976).

17. Rogers, Ballard, Ingram, *Mississippi's Approach to Legislative Information System Development*, in NAT'L CONFERENCE OF STATE LEGISLATURES, *supra* note 4.

18. HOUSE COMM., *supra* note 4, at 33.

19. *See e.g.*, Hull, *Computers and the Illinois General Assembly*, 62 ILL. B.J. 566, 572 (1974).

to use LEXIS or WESTLAW, and to draft and administrate. There is, however, a drawback to using micro-computers in that they would not furnish a total coordinated system and might be more expensive than using a Central Processing Unit (CPU main-frame). Personal computers, following the trend, also may be used as adjuncts to main-frames to limit expensive and inefficient uses.[20] Oregon legislators were offered one brand of personal computers but it was feared that this would give the company a potential monopoly and would be an unethical gift. OLIS is working on office automation through personal computers.

III. IMPLEMENTING A COMPUTER SYSTEM

A. ACCESS

Once a computer system of some sort is adopted by the legislature, it becomes necessary to determine who should have access to the information and by what means this information should be made available. The majority of states have limited access to legislators and staff only.[21] However, it would appear that a more liberal access policy might be favorable as it would allow other interested parties to receive information currently offered only by commercial systems at a very high cost.[22] This, in turn, would undermine the commercial services' monopolistic grasp on access and encourage these commercial services to enhance their offerings and cut costs to stay competitive.

Increased access should also be promoted by improving the availability of individual computer units for use in legislative offices, committee rooms, executive offices, as well as legislator's homes and places of business. Access will also increase through the development of direct services to many personal computers and television sets, and the growth in use of light weight portable personal computers. An example of increased access is occurring in Oregon which has offered OLIS for modems of governments, private parties and associations. Numerous brands of computers may be connected by protocol converters at a reasonable price. Costs of these connections are recovered so that there is no cost to the legislature, and interference with the legislative process is

20. Halloran, *Computers in Court Administration*, in COMPUTERS AND THE LAW 98, 104, 105 (3d ed. 1981).

21. Kauffman, *supra* note 1. The access policies are variable for example, for administrative agencies and state libraries. Libraries may have to push for access. Schulte, *supra* note 6, at 117. Vast amounts of information in the future may be acquired by laser disks. Kauffman, *Electronic Databases in Legal Research: Beyond Lexis and Westlaw*, 13 RUTGERS J. COMPUTER TECH. & L. 73, 96 (1987).

22. *See* HOUSE COMM., *supra* note 4, at 220 et seq. (Congressional access). Access might be improved with giant TV screens.

avoided.[23] So far use by those groups which might be expected to request access (lawyers, lobbyists, and librarians) has been minimal. Perhaps if the data bases were broadened, the use would be substantially increased.

B. COST OF COMPUTERS

Considering the potential benefits that a computer system would provide within the legislative context, there must be some strong factors preventing growth. Legislatures always have financial and constraints and other priorities competing with computers. Moreover, legislatures operate with a very small percentage of any state appropriations. Additional funding from private and federal sources, if available, may create problems, since funding is many times conditional.[24]

Financial considerations are crucial since the installation and operation of computers is expensive.[25] The cost may be increased in cases where current management systems are weak and experimental and pilot systems are necessary.[26] In addition, computer systems should be tested and debugged on computers separate from the primary legislative computers.

Compounding the cost problem is a difficulty particularly unique to computers: long range planning. Rapid innovations in the computer field make long range planning nearly impossible. Better predictions, however, are now possible because the potentials of computers are more fully understood. Even so, many are tempted to wait for hardware and software improvements even though the hardware available is probably more than adequate.

Computers may be more efficiently utilized if their uses are defined. Priority decisions are important and technical feasibility and user reactions must be continually evaluated. As the needs of users change, computer systems should be modified. Initially computers should be used for tasks which will demonstrate their value without threatening personnel. A computer function may be more easily instituted if it is highly defined, repetitive and capable of being developed independent of agencies. Eventually, there will be fewer problems and more avail-

23. OLIS determines who will get access. The procedure for gaining access to OLIS is to submit a written request to the director which includes the number of terminals, their locations, uses of the information, and people to be trained. The director's staff evaluates the potential impact on computer resources and security and makes a recommendation to the legislative administrator. *See also* OR. REV. STAT. §§ 173.780, 190.250, 291.250.

24. *See* Halloran, *supra* note 20.

25. *See* Chartrand & Bortnick, *An Overview of State Legislative Information Processing*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 49, 68 (B. Eres ed. 1980); HOUSE COMM., *supra* note 4, at 57-58.

26. Chartrand, *supra* note 2, at 171.

able software. Comparisons must be made to inspect the efficiencies of other methods and possible longrun savings, particularly since costs can be saved at each step. But, possible long-run advantages are hard to sell when legislatures demand immediate results. However, alternative methods such as manual searches are relatively expensive. In fact, some manual searches are almost impossible because they require too much reading and comparing.

Another concern facing legislatures is the cost and reliability of hardware and software. Hardware costs are rapidly declining but software costs are not. Furthermore, commercial software for legislative functions is hard to find or hard to adapt particularly because of the limited market and differences in legislatures and computers.[27] In-house software creation, including software created by state agencies and universities, is expensive. However, some personal and business software might be adapted for legislative purposes. In addition, some software might be shared among state legislatures but such software and data bases are diverse. In the long-run software costs will come down if legislatures use of computers is extended.

C. IMPUTING INFORMATION

Once legislatures decide to install computers, they must consider the amount and quality of information to be input. The input itself is expensive. There is a vast and growing amount of relevant information which legislatures may wish to include in their data bases.[28] How far back should the historical information go? How great is the present need for such material? Who should make these decisions? Computers are capable of holding and delivering almost limitless information efficiently and inexpensively, especially if networked and supplemented by publishing data bases. Much of the information demands ranking and formatting for maximum usefulness. Usefulness is also enhanced if the information is divided by interests.[29] Programming for usefulness should improve analysis.

Legislative information, however, is rarely logically structured and it is usually urgently needed, particularly when legislation comes out of committees at the end of a session. The time pressures inherent in any legislature may limit the amount of information that is input and require acceptance of imperfect data. Since this data involves random, diversified, and specialized subjects, and since most bills are introduced

---

27. *See* Grenier and Walker, *Administrative Law Uses*, COMPUTERS AND THE LAW, 118, 129 (concerning software contract).

28. *See supra* n. 4.

29. White, Miller, & Fitchett, *A Legislative Information System: Washington*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING, 107, 112-15 (B. Eres ed. 1980).

for the first time in session, it is generally impossible to plan ahead for what will be needed. The need to have information immediately to defeat a proposed bill after it is introduced is a handicap for computers which require information to be input before it can be retrieved. This is particularly true if the information needed is from an agency since it is usually fragmented, possibly classified, or it may be organized in such an unusual way to make it useless.

Another problem that may limit the amount of information available is that input must be thoroughly proofread, preferably by people with sufficient legal experience. One possible solution might be to contract with existing systems, for example, West Publishing.[30] A drawback to this type of arrangement is that the legislature may have to agree to limit users. Such a contract would provide experienced staff and early system availability. While optical scanners may, in the future, provide high speed and low costs for data input, presently optical scanners are relatively costly and of questionably accuracy. Nevertheless while it is an expensive process to read multiple fonts, some publishers have recently used optical scanners.[31]

IV. COMPUTERS MAY AFFECT THE BALANCE OF POWER

Legislators may be reluctant to change the existing intergovernmental functions, powers, relationships, and processes, particularly the if potential effects are unsure. For example, a watchdog agency such as the General Accounting Office may obtain increased power through the availability and use of computers.[32] Some legislators, particularly those in control of information, or with expertise, or seniority may not want all legislators to have equal access to information. Also, lobbyists, and government agencies may not want legislators to have access to confidential information.[33] However, improved results from legislatures will help bolster sagging confidence and increase public support. Information from and about constituents is politically and practically necessary. Although some information may bypass committees, committee information will also be increased and may be more partisan. This additional committee information could be indexed and made accessible in full text.[34] In spite of the potential gains through computers most legis-

30. Hull, *supra* note 19, at 568.

31. Doanne & Gazzard, *A Pilot Study for Computerized Legislation*, 48 LAW INST. J. 180, 183 (1974); Hursh, *Law Book Publishing and Information Distribution*, in COMPUTERS AND THE LAW 67,68 (R. Bigelow 3d ed. 1981).

32. Chartrand, *Legislative Uses of Information Technology*, in COMPUTERS AND THE LAW 107, 108, 111 (R. Bigelow 3d ed. 1981).

33. *See* Gregory, *Changing Information Needs of Congress*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 37, 43 (B. Eres ed. 1980).

34. *Id.*

lators probably do not understand computers and therefore fear them. They may also fear that the legislative process will be depersonalized. They would also probably be overwhelmed at the ease with which computers make information available.

An existing computer system may not have been originally designed for expansion. When properly designed a system should be flexible and open ended to accommodate future applications. Otherwise, later additions may be incompatible. Also, the use of separate computers for separate functions may be expensive and inefficient.[35] An example of a flexible system is Oregon's legislative computer system which was primarily designed for publication. The system was designed so that retrieval and drafting could be added later. Drafting is now the leading function. In the Oregon system bill drafting uses components of many other functions in addition to text processing. This is an example of a system whose original design promoted expansion rather than limited it. Note that unless careful attention is paid to the future needs of a system, it may be designed in such a way as to effectively prohibit expansion.

Some legislatures may arrange to use computers that belong to the executive or an agency, allowing them to control the use to some degree. For example, Oregon uses the executive's mainframes.[36] With the extensive capabilities and power of current mainframes, time sharing conflicts may be minimized and money saved. However, legislative work is cyclical, and if legislatures increased their uses of computers, central mainframes may be overburdened. It may thus be more cost effective to have separate legislative computers. However, this may lead to incompatibility of government computers, a serious roadblock to having a complete information processing tool. There may also be substantial duplication.[37] In Oregon agencies were allowed to contract for their own computer systems. While different computer languages are not eas-

35. Hull, *supra* note 19, at 572.

36. OR. REV. STAT. §§ 291.030,.034,.038; 293.595 (executive department planning, coordination, acquisition, installations, servicing, and use for agencies including Legislative Assembly and committees at its option - including office automation, accounting, and microcomputers); OR. REV. STAT. §§ 171.852 (formerly 182.115)(1987), 171.855 (formerly 182.121)(1987)(Joint Legislative Committee for Data Processing - duties including establishing state wide data processing goals and policies, recommending established or proposed data processing programs and equipment acquisition, and studying data processing efficiency and security); 173.710 (1971),173.720(1977) (Legislative Administration Committee - including conducting continuing study of possible application of technological improvements, recommending uses, providing administration and research).

37. Elkins, *A Survey of the Use of Electronic Data Processing by State Legislatures*, in NAT'L CONFERENCE ON STATE LEGISLATURES, COMPARATIVE LEGISLATIVE INFORMATION SYSTEMS: THE USE OF COMPUTER TECHNOLOGY IN PUBLIC POLICY PROCESS (Worthley ed. 1976); Hull, *supra* note 19, at 572.

ily translatable, OLIS does provide access to many different computer brands.

Who controls legislative computer systems is another serious policy decision that leads to controversy. Most states centralize executive information processing in agencies although some agencies are also responsible for the needs of the judiciary and legislature.[38] There is some value in having an independent organization control the legislative computer system since the legislature almost always has discretion over the system's funding.[39]

Additionally, concentrated control, in either agencies or legislatures may violate constitutional separation of powers requirements.[40] Although courts have rarely addressed this issue, they have shown concern over this problem.[41] In one instance, the Massachusetts supreme court held a proposed statute, which consolidated in one agency computing and telecommunications for all three government branches to violate the state's constitutional separation of powers act.[42] The court acknowledged the possibility that certain types of government computer system agencies could avoid this problem, especially if it functioned strictly as a service industry, and promoted economy and efficiency, but:

> [t]he manner in which data are collected and stored in a carefully programmed computer has major implications for the manner in which they can later be used. Control over the collection, processing and dissemination of data is thus at least indirect control over the information processed and the activities of personnel engaged in its collection and use. This basic fact belies the assurance . . . of the bill as to control and regulation by the source agency.[43]

Although a government computer system is supposed to be a neutral record processor, the legislatures and the agencies struggle for its control and the funds it receives.[44] But even without this struggle, a centralized information system can interfere with the arm's length relationship between legislative committees and the agencies they oversee.[45] Legislatures may inadequately supervise the agencies, and agency staffs furnishing legislative services may be too servile, particularly because legislators furnish appropriations and powers, and additionally, agencies may be using the legislature's computer. However, as com-

38. Lautsch, *supra* note 9, at 136.

39. *See* Cohen, *Federal Procurement of Computers*, in COMPUTERS AND THE LAW 126, 127 (3d ed 1981) (federal control decentralized among agencies including de facto to buying agency).

40. Lautsch, *supra* note 9, at 136.

41. *Id.* at 136, 137.

42. Opinion of the Justices, 365 Mass. 639 , 309 N.E.2d 476 (1974).

43. *Id.* at 642, 309 N.E. 2d at 79.

44. Lautsch, *supra* note 9, at 136.

45. Ryan, *supra* note 6, at 391.

puters become more available to the legislatures, their use may help the legislatures become less dependent on executive and administrative bodies for information gathering.[46]

A legislature could try indirect methods to control legislative computers. For example, it could enact a joint resolution each session and require the houses, leaders, committees, staffs, and agencies, to study, report and recommend the minimum services required by each group.[47] The practical problem with this approach is the difficulty in obtaining agreement in any legislature. Each group is likely to have its own idea of what information it needs to do its job and no group is likely to be willing to compromise its needs for the needs of another.

V. MANAGEMENT OF COMPUTER SYSTEMS

As legislatures rely more and more on computers, and the functions performed by computers become more sophisticated, there is a growing need for legislatures to monitor their computer systems and plan for the future. Initially, legislatures only used computers for basic functions such as voting or bill status reporting. These limited functions did not require much planning for the future. As more sophisticated functions are utilized by legislatures, it is useful to separate operational and policy decisions.[48] Control of the operation might be given to the legislative drafting service because they usually do a major part of the information searching and drafting. However, such an agency may not have experience, knowledge, or interest in recent innovative computer functions and information. Thus, legislatures need technically elite staffs or at least coordinating units to help the legislature make decisions regarding future uses of computers. The drawback of this system is that a technical elite staff might exercise too much power but this appears unlikely.

A. PUBLIC ACCESS

The next issue is whether the public should be given access to the legislatures data base. This question is similar to the one raised by a law review article which suggested public control of LEXIS and WESTLAW.[49] Legislative data bases do not present the same problems

46. Norton, *supra* note 14, at 16; *see* Blakely, *Computers Alter Way Congress Does Business*, 43 CONG. Q. WEEKLY REP. 1379, 1382 (July 1985) (particularly budget).

47. Chartrand, *supra* note 2, at 172 (re Congress); *see* Ryan, *supra* note 6, at 391; HOUSE COMM., *supra* note 4, at 234 (discusses how computers should be shared).

48. Chartrand, *supra* note 2 (re Congress).

49. Gelfand, *Public Control of Computer-Assisted Legal Research: A Commentary*, 55 J. URB. L. 783 (1978) (includes discussion of anti-trust issues. *See also* Franklin, *A Short History of the Computer Industry*, in COMPUTERS AND THE LAW 42 (3d ed. 1981)). Gelfand

because they are inherently public, but the legislatures might contract legislation into private systems and there might be some indirect access to privately developed data bases which are usually very expensive to initiate. Since legislative data base development costs are generally paid by the public, they should have access to the information, although they may be charged a fee for that access. An example of this philosophy is occurring in Oregon where the public is charged a reasonable fee.

Another concern of the author of the law review article was that by allowing LEXIS and WESTLAW to be run by private companies only large law firms could afford to do this type of research.[50] He noted that lawyers without Computer Assisted Legal Research would not just take longer to research or do poorer jobs but would not take the cases. He proposed buying through purchase or condemnation those computer services at an early stage before they became prohibitively expensive through the expansion of imputed information. In the context of legislative information, legislatures or their agencies might more effectively represent the public in the uses of legislative computer data bases.[51] Legislatures would be able to combine systems and regulate their availability. Also, legislative furnishing of information could remove the need for profit and would allow broad public funding. By now the public and lawyers recognize the need for computer research and processing.

If the goal is for the public to be well informed about the law, computers provide a means to increase public awareness, particularly if access is broadened. OLIS furnishes single copies of official legislative materials without charge and multiple copies for a small fee. During legislative sessions it also provides a toll free telephone line to find out legislation status. In spite of these services which make legislative information accessible to the public, there is still a problem with providing information to low income and minority individuals. Too much reliance may be placed on computers with payment for information. Decreasing costs through economies of scale and payment of initial high costs will help but probably not adequately. Access through libraries and public places may aid as may future consulting machines. Standardization of legislation format and language would also help.[52]

Another advantage of computers is to make legislative history, evidencing legislative intent and law, easily available without traveling to

---

notes that other countries have public systems of computer assisted legal research (CALR).

50. *See infra* text accompanying notes 70-76 on the advantages of computers over manual searches.

51. *But see* Gelfand, *supra* note 49 (particularly VI). The author is a lawyer and therefore may be biased.

52. *See infra* text accompanying notes 87-92.

the archives. By providing a means for the public to have access to this information the public may become more involved in legislation, but it also may result in more requests by the public for legislation and administration, including applications for subsidies.[53] Another way to increase public interest in the legislature may be to publicize voting records. At present public information about legislatures is haphazard and fragmented, usually from the media, and not about the prime decisions in committees. If computers were used by legislatures, the public would have access to more information of a higher quality since it would not come from the media where the emphasis is on personalities rather than substance.

B. EDUCATING LEGISLATORS

No matter how much time computers can save legislatures, and no matter how much information can be stored and used, computers will never be widely used in legislatures until the recipients of that information, the legislators, become knowledgeable about all of the possibilities available with computers. Since the legislator is the basic "customer" in an information system based on computers, he must be active in molding the system to his own needs.[54] Without his input the system will fall behind and lose its usefulness.

Initially, legislators and staff may learn about computers through use in every day routine matters, such as bill drafting or storing addresses of constituents. However, this is only the beginning and they must continue to receive training and become more computer literate to be able to understand the effect of computers on the legislative process.[55] Training also affords feedback which itself will point out areas needing change.

The computer experts including systems analysts, programmers, and information support personnel (including librarians and legislative researchers and drafters) must combine their knowledge with that of the implementors, managers, operators and users.[56] The shortage of

53. *See* Gregory, *supra* note 33.

54. Chartrand, *supra* note 32, at 114.

55. OLIS requires training before access. Publication and audio-visual aids are available. The manuals are neither too simple nor technical and contain useful examples. Hands on training is necessary with computers. OLIS helps the user with menus (maps), light pens, etc. Special Keys may be used if available. Some of the codes are not obvious but the manual explains them. Requirements to fill directives out to a certain number of symbols may cause problems. CALR usually affords high level languages so that the typical expected user may communicate easily. Horty, *The 'Key Words in Combination' Approach*, M. U. L. L. 54 (December 1960).

56. Smith, *Information Technology Potential in the Legislative Process*, in COMPARATIVE LEGISLATIVE INFORMATION SYSTEM: THE USE OF COMPUTER TECHNOLOGY IN THE PUBLIC POLICY PROCESS (Worthley ed. 1976).

people who are versed in both the legislative process and computer technology make cooperation between these two groups vital. However, the use of in house developers and outside vendors should be balanced for efficiency. Agencies and computer experts should be restrained against natural temptations to overuse computers.

VI. BASIC COMPUTER FUNCTIONS PERFORMED BY A COMPUTER IN A LEGISLATIVE SETTING

The remainder of this article will analyze the basic computer needs of a state legislature, refinements of present systems and additional functions which might be implemented. As discussed earlier, the use of computers by legislatures is minimal when compared with their use by government administrations and businesses. Government administration and business experiences with computers can be used to improve the use of computers by legislatures. Government administration and business applications are somewhat limited in the legislative context due to the urgent need for information (within the session or term) and due to the breadth of issues covered in any one term. An example of the uses made of computers by state legislatures is contained in *The Book of States*.[57] Most states use computers for statutory retrieval, bill drafting, bill status reporting, financial purposes, and some administrative activities.[58] About half of the states use computers for reapportioning. A few states use computers for case law retrieval and statutory revision.

In addition to these basic functions, computer functions may be expanded to provide many more services to legislatures. As discussed previously, one of the primary uses of computers by legislatures is to retrieve legislation. The main purpose of retrieving legislation is for

57. THE COUNCIL OF STATE GOVERNMENTS, THE BOOK OF STATES 138-139 (1988-9 ed.); *cf.* Chartrand, *supra* note 32, at 109 (re Congress). The Book's survey is questionable. The categories, notes, and responses contain more than the usual possible misunderstandings of a survey of this sort. For example, there is no specific category for computer use to obtain information other than legislation and cases. The table fails to note that Oregon uses computers to retrieve cases. Also, publication responses are noted in several places. The categories need to be more specific and attuned to the typical possible uses of computers. An attempt should be made to track the uses of personal computers for legislative purposes. Oregon is reported to use computers for statutory retrieval, bill drafting, statutory revision, redistricting, administrative code and rule retrieval, Atty. Gen. Opinions retrieval, fiscal purposes, printing and mailing among other uses. OLIS attention over the last years has been to improve efficiency and cost effectiveness of existing functions. This appears to be the policy in other states too.

58. *See* Schulte, *A Survey of Computerized Legislative Information Systems*, 72 LAW LIBR. J. 99 (1979); HOUSE COMM., *supra* note 4, at 6 et seq for history including reports and involved associations. *See also* Johnson, *Legislative Data Processing: Florida*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 75 (B. Eres ed. 1980). Washington has the most extensive legislative computer system discovered in the authorities. White, *supra* note 29.

drafting and amending, which will be discussed in the next part of this article. Retrieval is also used for session laws and code. Retrieval is important because most legislation involves additions, deletions, and changes in existing legislation, in addition to repeals and reenactment. Legislation retrieval may include ancillary information such as titles, preambles, headings, abstracts of statutes, and editorial notes. The data base could be extended to include private bills, resolutions, and other legislative data.[59] A computer could be used to inform interested parties of programs due for expiration; an example of such a system is OLIS which has a sunset review table. This is particularly useful in Oregon where a detailed Constitution makes it difficult to keep track of all of the programs beginning and expiring.

Computers could also be used to store model statutes from other state, including proposed statutes, and uniform acts. These could be added by a system of networking with other legislatures computer systems. Such model statutes are useful as a starting point for legislation. Inclusion of this information would also improve the knowledge of the legal community about pending legislation by improving access to the information.

The current system of manual searching for various state legislation is very difficult due to the many separate books and variable indexes.[60] Once legislative information is made available on computers, the next step is to make it available to others such as lawyers and other state legislatures. Communication with legislative data bases of other states is possible, but access is limited due the different system of indexing used by each legislature. To access the information the user would have to use an infinite number of search queries to try to match the system used by that system.[61] Federal laws, court decisions, and agency rules should also be networked.

A. What Should be Included in a Data Base

The crux of any computer is its data base. One commentator describes a data base in the following manner:

> A data base is a collection of interrelated data stored together to serve one or more applications. The data base management system is intended to reduce the amount of redundancy, avoid problems of inconsistency, provide sharing of stored data, enforce standards, provide security, maintain integrity and balance conflicting requirements.[62]

---

59. Hull, *supra* note 19, at 568.

60. Horty, *Experience with the Application of Electronic Data Processing Systems in General Law*, 1960 M.U.L.L. 158.

61. Schulte, *supra* note 57, at 117.

62. Awalt, *Management Information and Data Base Management Systems*, in Computers and the Law 34, 35 (R. Bigelow 3d ed. 1981).

In addition data bases allow data to be retrieved in various ways under various terms, keeps similar formats, limits the need for reconstruction, insures timeliness and accuracy, are available for applications, enables the addition of information with limited repetition, and avoids added costs. Given the flexibility provided by a data base it is an invaluable tool for any legislature.

To achieve maximum results from a data base it must be continuously updated. A full text method is the easiest way to update a data base because materials only have to be added. Whatever system of updating is used, information should be stored for expected and unexpected new uses. In addition to updating, to achieve maximum results a data base should be coordinated between all of its uses. For example, drafts of legislation should be automatically added to the data base so that they are available for bill status reporting and printing. Coordinating is also necessary to achieve maximum economic efficiency, ensuring that a data entry serves as many purposes as possible.

In addition to the information already mentioned, data bases should be expanded to include other legal resources such as attorney general opinions, law reviews, treatises, encyclopedias, and dictionaries. The data bases and resources of libraries - local, state, agency, interstate, and national - should be used.[63] Computers are helpful if the legislative research services of a state are limited, especially if library and research services are overworked during the legislative session. The legislative computers could be programmed to inform interested parties of recent relevant acquisitions. Computers may also furnish Computer Assisted Instruction for specific issues.

As discussed earlier this explosion of information through advances in computer technology and communication demands networking. Sources are becoming too expensive to duplicate in hard copy and need to be shared.[64] Publishers' data bases should also be accessed. Publishers also network other publishers. For example, LEXIS acquired AUTO-CITE from Shepards. Networking allows access to information from many different sources to solve problems. The more information that is included in the data base the more useful it would become and the lower its cost per unit would be.

One of the powerful tools available with a computer is the possibility of global searches. The ability to globally search for a piece of legislation is invaluable given its innumerable provisions on a host of subjects.[65] An example of the need for a global search capability is the

63. THE COUNCIL OF STATE GOVERNMENTS, THE BOOK OF THE STATES 317 (1986-7 ed.) (includes references to models in New York and South Carolina).

64. *See* NAISBITT, *supra* note 11.

65. "A computer run showing that New York has no less than 9,669 statutory provi-

task of changing all references in legislation to include the female gender. Another example is checking of cross references in statutes. In addition reenactment, revisions, and law reforms will be easier to accomplish with computers.[66] Such global searches would be aided by through coordination of word frequency indexes to help locate variations and misspellings and aid in estimates of outputs.[67]

Another feature which a computer provides is the ability to create indexes and tables automatically as the data base is established. Indexes can be created to show the text and context of the information.[68] Data bases also allow extensive cross referencing and uses for other computer systems. The major limitation of all computers is the fact they are literal and comparative and can not conceptualize or determine context. This limitation means they must be fed specific words and physical relationships to be of any use. Data bases, however, may be accessed through internal lists of alternative terms, synonyms, word roots and endings, spelling and typographical checks, hyphenation variations, and mechanical conflicts. In addition to word searches number searches are particularly useful for legislation. Data bases for legislation usually require numbering systems different from the typical official and unofficial present methods but access by various number systems may be coordinated.[69]

B. ADVANTAGES OF COMPUTER SEARCHES

Overall, Computer Assisted Legal Research (CALR) has many advantages over manual searches.[70] Avoidance of tedious, mechanical searching allows the searcher to be fresher for analysis, application, and writing. The thoroughness with which a computer can search through information eliminates the need for supplemental searches. The vast amount of information that must be reviewed in a manual search tempts the lawyer to avoid researching altogether or to research beyond a point that is efficient given the returns expected.

The cost to legislatures of networking general information systems

---

sions relating to evidence played a substantial part in the appropriation of funds for the proposed New York Code of Evidence." Meyer, *Foreword* to COMPUTERS AND THE LAW: AN INTRODUCTORY HANDBOOK, iii (3d ed. 1981). Oregon administrators have asked the legislators to trust them regarding possible results of tax changes. They said that even with computers, with so many tax provisions, they could not predict results until after experience.

66. Doanne, *supra* note 31, at 185.

67. Skelly, *Computers and Statute Law*, LAW AND COMPUTER TECH. 30, 34-35 (1970).

68. Doanne, *supra* note 31, at 183, 184; Skelly, *supra*. note 67, at 37.

69. Doanne, *supra* note 31, at 181,182; Hull, *Computers and the Illinois General Assembly*, 62 ILL. B.J. 566, 568-569 (1974).

70. Gelfand, *supra* note 49.

and private systems such as WESTLAW or LEXIS would not be burdensome given their resources. Numerous individuals would be using the systems. Fixed charges particularly would not be a problem. In addition, legislatures could access other government systems easier than a private organization. Private organizations might argue unfairness in competition if private and public groups were not granted equal access or if the legislature competed. Legislative access might indirectly furnish services to those, including lawyers, who had access to the legislative system. Legislatures might save considerable money by using the data base techniques perfected by private organizations since these methods are not copyrighted.[71]

The advantage of computer research is the flexibility it gives to the researcher. Research may be done by viewing full text opinions or small editorialized portions. A researcher may search according to subject matter or by categories which are provided by the computer service. The computer researcher may call up all or part of the source. OLIS even allows modifications of displays for a session. The search may be accomplished remotely from the data base. No time consuming trips to or around the library are necessary. More choices for access are available and may be added. Patterns and combinations of words may be used. A researcher may emphasize facts instead of legal concepts.[72] CALR often involves the use of an index and then ordinary words and phrases. This may lead to unusual but valuable information such as discovering the legislation and logic of a legislator.[73] Computer research may lead to a better legal system through better perception and presentation, more preferable decisions, and less unnecessary litigation because there may be clearer available precedents.

Conversely, manual research still has some advantages. Conventional manual searching methods may not work with CALR, although the searcher may assume that they will. CALR requires the correct buzz words and phrases be used to get the desired results; if these words are not used, the result may be inadequate and incomplete. Manual researching is helpful to expand the knowledge and vocabulary of a researcher who is researching an unfamiliar area of the law. The manual researcher sees more in the way of the context of the information,

71. *See* Grenier & Walker, *Administrative Law Uses*, in COMPUTERS AND THE LAW 118, 129 (3d ed. 1981) (re: government rights in software); *Cf.* Management Science America, Inc. v Pierce, 598 F. Supp. 223 (N.D. Ga.1984), *aff'd. without opinion*, 778 F.2d 792 (11th Cir. 1985) (Record failed to show government about to disclose software and, therefore no injunction under the trade secrets act.)

72. Note, *Legal Research - Computer Retrieval of Statutory Law and Decisional Law*, 19 VAND. L. REV. 905 (1966). This sometimes avoids reading the entire source.

73. Some commercial services analyze legislators' styles, election histories, finances etc.

including the jurisdiction. In addition, computer research can be very expensive to those inexperienced in its techniques. It is often difficult to balance between too much and too little information. CALR turns up more possibly relevant material but also more irrelevant. Special computer researching techniques such as exceptions and identifiers must be understood and used to keep the cost down.[74] Tie-up of a main-frame is a problem, but less today, and personal computers may be used as peripherals to avoid this problem.

A 1970 law review article makes a good comparison between using computerized research for searching case law and legislative material.[75] The article is still relevant because the basic theoretical differences between cases and legislation remain. The author decided that legislative materials and procedures allow for more use of computers, although he points out some telling arguments against this decision. (To avoid repetition and verbosity in the following, L = an advantage for legislation and C = an advantage for cases.)

By their very nature legislative materials are general in their language and application.(C) This is done both intentionally and unintentionally through use of vague and ambiguous words[76] The use of general language, particularly if the draftsman is not precise, makes legislation harder to research, summarize, and index.(C) Often, legislation is found indirectly through cases, treatises, and law reviews. Legislative titles are especially questionable.(C) The effects of legislation are also often less predictable than for cases.(C) These weaknesses lead drafters to be very careful in the choice of words and omissions with possible implications.(L) They tend to copy existing legislation.(L) These compensations aid in the use of computers for legislative purposes.

Legislation is usually shorter than case opinions which may aid input (L) but hinder accurate retrieval.(C) However, legislation contains less extraneous words, variations, synonyms, and antonyms.(L) Statues are usually not noted and cross references may be limited.(C) Enforcement of legislation may be delayed.(C)

All parts of a body of legislation are authoritative,(L) however, courts interpretation of a particular law has a substantial effect on defining meaning.(C) Furthermore, new legislation may supersede the previously interpreted act and/or the prior case law.(C) Cases may gen-

74. For example, a search for legislation might be directed at only certain chapters because words vary according to concepts and contexts. Oregon uses formatted fields and selections for such purposes.

75. Tapper, *Computers and Legislation*, 23 ALA. L. REV. 1, 39 (1970).

76. Dickerson, *The Diseases of Legislative Language*, 1 HARV. J. ON LEGIS. 5 (1964).

erally be updated in data files by imputing recent case decisions but new legislation alters earlier authorities.(C)

C. USE OF COMPUTERS BY LAWYERS

The advantage to lawyers of a legislative system based on computers is to provide them with better access to legislative materials. Lawyers need better access to legislation to be able to use it as a predictive and problem solving tool, and to learn to treat it with more respect. Of particular interest to lawyers would be statutes from other states. Without the help of computers it is nearly impossible for lawyers to keep up with out of state statutes.[77] Some of the factors that make legislation difficult to track without computers are as follows: updating of legislation is slow; inclusion of amendments is complicated; information updates are needed quickly and must be accurate. These task are expensive for the government.

The legal profession is changing rapidly and computers are definitely the future of the law. Legal education from law school to continuing education must teach computer skills, literacy, and use. As one commentator puts it, "[c]omputer knowledgeability will be, if it is not already, the hallmark of leaders of the legal profession."[78] Lawyers who are not computer literate are already at a severe disadvantage at times when they must compete with the government which has significant computer power. Conversely lawyers who are already computer literate have an advantage in states such as Oregon which allows the public, including lawyers and lobbyists, to access OLIS.

D. ADDITIONAL USES FOR COMPUTERS

1. *Expanding Data Bases*

In addition to the suggestions already made for expanding computer data bases, there are many possibilities for expanding computer uses in legislatures. Conservatively ninety percent of the cases in which people are affected by some form of law or another arise from administrative action:[79] administrative rules, adjudications, and general informal actions. OLIS incorporates the agency rules of most Oregon agencies. Legislators might be automatically notified for their areas of interest.[80] Attorney General Opinions should be included, as does Oregon. These inclusions will also inform the legislature about administra-

77. Doanne, *supra* note 31.

78. Meyer, *supra* note 64, at iv; *see also* Link, *Computers in Legal Education*, in COMPUTERS AND THE LAW 94 (3d ed. 1981).

79. K. DAVIS, ADMINISTRATIVE LAW TEXT 3 (1977).

80. Chartrand, Legislative Uses of Information Technology, in COMPUTERS AND THE LAW 108, 112; Doanne, *supra* note 31, at 184.

tive action and foster supervision and control. At least the particular state's and federal administrative information should be made available. This will be expensive, unless networked, with the variety and volume and will be difficult to organize and update.

Legislative and administrative computers and information exchanges must be coordinated, standardized, and made compatible.[81] Oregon has not yet done this. Probably other states have not either. Administrative agencies, particularly federal, use computers, for regulation, investigation, rule making, and adjudication.[82] Agencies even allow data in machine readable form to be used for reports and evidence.

Perhaps law and information from local governments should be also entered into the legislative computer system. Cooperation is certainly critical as states are the authority for local powers.

2. *Networking*

Extensive networks are now available which contain important empirical data that is useful for legislative activities.[83] These networks contain primary and secondary legal resources such as *The Index to Legal Periodicals*, abstracts of Congressional debates, and reports on the status of states and federal legislation, and encyclopedias, newspapers, magazines, bibliographies, and various publications and data bases. Most of the information needed is available. University and industry data bases may also be useful. The cost should be worthwhile; the hourly rates appear high, but on line time may be limited if properly used. Organizations might be used to network the necessary information.

One wonders what the effect of computers will be on lobbying which pervades our legislative life. Much more information will be available than just the information from lobbyists. Various sides may be more adequately represented. All this available information may improve the quality of information at the expense of slowing the legislative process.

The bulk of available information that will be available combined with the special skills needed to retrieve the information will require the services of research specialists;[84] the legislative drafting agency or

81. White, *supra* note 29, at 107.

82. Gelfand, *supra* note 49.

83. Kauffman, *Electronic Databases in Legal Research: Beyond LEXIS and WESTLAW*, 13 RUTGERS COMPUTER & TECH. LAW J. 73 (1987). There are thousands of databases and hundreds of services, including publishers, and they are rapidly increasing. Some are only available within the government or legislature. Some replicate and some are exclusive. They include full texts, indexes, and bibliographies. Gateway software and agreements may be necessary. *See* White, *supra* note 29 (re legislators' most used data). The quantity of media reports may indicate trends and fads. NAISBITT, *supra* note 11.

84. Chartrand, *supra* note 80 (Congressional experience)

legislative staff might furnish this aid. OLIS staff will perform searches for pay.[85] However, it is possible to train legislators and others fairly quickly to do a substantial part of the searching and to use computers for various other purposes. Lawyers have learned to use LEXIS and WESTLAW, which include some general information data bases, although some firms have used specialists. Computer programs are now much more user friendly. As a result, the use of word processing programs have led to individualized drafting and work stations reducing the use of private secretaries.

3. *Drafting*

Computers are invaluable in the drafting process.[86] This includes amending, engrossing, enrolling, executive action, and delivery of information to the official files and could include compiling an administrative code. Unfortunately, some bill drafting systems are dedicated to that specific purpose. Computer use helps assure that words are not changed unintentionally and that the official best evidence is accurate. Computer use drastically cuts the need for tedious proofreading, particularly because major portions of legislation are not altered. Computerization gives more time for proofing changed parts, but proofreading of fewer drafts may not catch errors. All legislation and documents should follow this computerized route or be certified into the computer. One agency, probably the legislative drafting service, should track this. An early subject index could result. There should be careful control of amendment sequences.

Drafting by computer expands available information and ideas. Legislation should be retrievable in various ways, for example, by legislators' names and by subject matter. Cross references, duplications, and conflicts show up in computer searches. Statutory models, established and tested, are available. Standard words and phrases, also tested, could be listed.[87] Consistency is of great importance in legislation, one must avoid the implications of unintended change.

Uniformity of the syntax of legislation would substantially improve legislative effect and increase the possible value of computers. Computers need standardized forms. Several law reviews analyze the potentials of standardizing legislation.[88] This would also improve drafting,

85. Some networks furnish research services.

86. Tapper, *supra* note 75, at 28 et. seq.

87. *Id.* at 30-31.

88. *E.g.* Allen, *Analysis of Law by Symbolic Logic*, COMPUTERS AND THE LAW 84 (3d ed. 1981); Allen, *A Language - Normalization Approach to Information Retrieval in Law*, 9 JURIMETRICS J. 41 (1968); Niblett, *The Computer as a Consultation Machine*, in COMPUTERS AND THE LAW: AN INTRODUCTORY HANDBOOK 90 (3d ed. 1981). Other legislative information such as committee minutes also needs standardization.

including communication with various individuals and groups. This technique requires skilled users and identifies ambiguities, inconsistencies, redundancies, and complexities. Most bill requests are received originally by legislative drafters as general instructions or rough drafts.

Programs for drafting private documents with standard provisions might be emulated, but legislation is usually unique, generalized, and happenstance.[89] However, there are basically standardized provisions including penalty clauses, headings, enactment clauses, and section and line numbering. The enactment clause, for example, might be automatically provided. Some standard legislative clauses might be codified - for example, severability unless stated otherwise. Formatting might be automated. Computers could verify that required or typical provisions are included and in the correct order. Computers could insure citations are in the same form throughout the bill. Computers could furnish a checklist including constitutional requirements and judicial and substantive requirements. Drafting rules should be codified and might be included in the data bank. This would allow some of their requirements to be automatically checked by computers.[90]

Word processing programs indicate the drafting aids possible, including extensive methods for discovery, deletion, addition, modification, and correction.[91] A text creation and revision system may be used for numerous purposes in addition to drafting. Oregon inadequately uses these possible techniques. For example, OLIS needs a spelling check to save extensive proofreading hours. Personal computers could be used with existing software which include dictionaries with hundreds of thousands of words and with provisions for adding words. There are even some computer programs that critique legal writing. The drafting may be eased by the availability of special keys and codes. Codes may be used for underlining, boldface, and to indicate deletions and additions in the legislation. Codes also may be used for standard phraseology.

Personal computers may be used as buffers[92] which would avoid inefficient and expensive use of main-frames and main-frame downtime. Using personal computers also allows corrections to be made before saving legislation in the main-frame. Amendments might be processed with improved visibility and without printing if it was allowed by the jurisdiction's laws and rules.[93] Oregon does not use this

89. Tapper, *supra* note 75.

90. *See* Caldwell, *Legislative Record Keeping in a Computer-Journal*, 5 HARV. J. ON LEGIS. 1 (1967).

91. *See* Hull, *supra* note 69.

92. This method might be also designated as a shared or distributive logic systems, intelligent terminals, or electronic work areas. This is a trend with computers.

93. Barron, *Instant Information as Legislative Aid*, 49 FLA. B. J. 190 (1975); Tapper,

method. If authorized, some printing might be done with computer printers without using publishing systems.

Legislative drafting, storage and release of information, might tangentially involve legal issues regarding crimes, privacy, and liability.[94] For example, some information might violate public record statutes if it was made more accessible.[95] Legislators have considerable immunity from liability, but they may not have imputed the information. Damages from legislation may be extensive. Liability for computerization is unsettled.

Security may be expensive when compared to need. Some simple methods may be employed to ensure security:[96] secret file names, software descriptions, special terminals with limited files, passwords, and codes. Buffered storage is a possibility. Legislation might be kept out of the generally accessible main-frame until the legislation is introduced. Promoters of particular legislation often do not want it publicized prematurely. There may be control of access for viewing, imputing, and revising. This may help prevent unintended changes and tampering. Some data bases may not be accessible to the public (*e.g.* OLIS does not allow access to committee minutes). The balance of the need for access and security may be difficult.

4. *Status and Records*

The status of pending legislation is important information that should be current, complete, reliable, and immediately available on computers for legislators and other interested parties.[97] Bill status may be the most wanted computer function by the legislators while legisla-

---

supra note 75, at 39. Several amendments could be compared. Computer window techniques, a recent innovation, would be helpful.

94. Most states have legislation on computer crimes. Some have relevant privacy acts, but these are often only directed at the government. Lautsch, *Computers and State Law*, COMPUTERS AND THE LAW 134, 137-138 (3d ed. 1981).

95. *Cf.* Seigle v. Barry, 422 So. 2d 63 (Fla. 1982). The court held that under the relevant statutes computer data is a public record like written forms. However, the official in charge could require access by the official program unless it was not adequate, even if the applicant offered to furnish another program or pay for it; *See* OR. REV. STAT. §§ 192.310, .410 (public records including computer data); OR. REV. STAT. § 56.100 (corporate division data processing programs not public records).

96. HOUSE COMM., *supra* note 4, at 56; Chartrand, *Information Support for Congress: A New Era*, LAW AND COMPUTER TECHNOLOGY 146, 157; Kauffman, *Automated Legislative Information Systems: A New Tool for Legal Research*, 76 LAW LIBR. J. 232, 255; Tapper, *Computers and Legislation*, 23 ALA. L. REV. 1, 40-41. OLIS includes provisions for the personalized saving of a search.

97. Hull, *Legislative Computer Applications: The Illinois Story*, 3 RUTGERS L.J. 187; Kauffman, *supra* note 96. Bill status systems are usually developed in house because procedures and needs are often unique. Some commercial services include status systems for Congress and state legislatures but they are not as complete or current and are expensive.

tures may most need text processing and speedy printing. This information should be on line throughout the government and should be accessible by other interested parties. Status reports might be classified by users. Hard copies should be able to be reproduced at a reasonable price. This information may be used to generate calenders, journals, and reports. Voting records could be included and schedules could be provided. Status and schedule conflicts might also be shown. Committee scheduling information is particularly important but cooperation may be difficult.[98] Procedures outside the legislature might be imputed.

Priorities might be fixed by computers if the variables are not too complex. For example, the computer might determine by subject and classification which bills go to particular committees. Determinations made by order of submission might step on fewer legislators' toes.

Computers should be used for the storage and distribution of legislative records, including committee hearings. Abstracts and indexes would improve usability of the information. These records data could facilitate searches for legislative history, particularly in the states, to ascertain legislative intent. This information is more easily accessed by computers. However, this added information might multiply present problems in determining the use of legislative history. If some selection is necessary, who would make the choices? The executive might also use a fuller presentation of legislative history, including any bill amendments.[99]

Computer abilities may justify more detailed and accurate records, especially in journals.[100] Journal entries now often appear rote. In the future, such a computer record might be used to test compliance with substantive and procedural statutes and rules (mandatory and directory) in addition to constitutional requirements. The computer check could be modified for different subjects (*e.g.* amendments of constitutions). There could be queries to responsible parties to insure and warn of the need for compliance. Bills might be rejected for non-compliance.

These records would be more detailed, accessible and accurate; persuading courts to allow proof of modifications of enrolled bills or jour-

---

Newspaper networks may indicate status. One service, Billcast, even predicts the statistical likelihood of enactment of Congressional bills and claims a 94% accuracy rate.

98. Ryan, *Computers in the Legislature*, 1977 WASH. U.L.Q. 389, 391; *see also* Halloran, *Computers in Court Administration*, COMPUTERS AND THE LAW 98, 100 (3d ed. 1981). (Scheduling for courts is difficult.)

99. Tapper, *supra* note 96, at 40.

100. Caldwell, *supra* note 90. *Cf.* Florida v. Kaufman, 430 So. 2d 904 (Fla. 1983) (holding that the legislature was not required to make or keep electronic recordings of its proceedings. Transcripts of such floor debate recordings were not public records and could not be used to impeach the journal, by showing unconstitutional readings by title. A conviction under the statute was upheld).

nals. The separation of powers requirements would not be violated if the particular agency made the record.

5. *Publishing*

Publication is an important capability of computers.[101] Oregon even designed its legislative computer system with printing as the basic function.[102] The trend is toward computer printing (electronic photocomposition). This product has high quality and style flexibility. In the future the data base print out might even be accepted as official.[103] The data base could be accessed immediately.

Printing is continually required in the legislative process in order to furnish notice and assist legislative consideration. Oregon provides some daily material and reprints bills immediately after various revisions at critical stages. Computers may avoid retyping and insure accuracy against unintentional changes because a major portion of published material is carried forward automatically. This limits unnecessary proofreading. Publishing costs are high and are rapidly increasing.[104] Publication of these materials by traditional means results in missed schedules. Computer printing saves money because slightly different versions are required at different times, often in relatively small amounts. Reprints may be furnished when necessary, including amendments.[105] Integrated publication rather than supplementation is eased by computers.[106] Direct fast publication may avoid the need for interim publications. Printing might be done in installments rather than at the end of the session. Speedy publication gives notice, especially before effective dates. Parts of publications might be separately printed. For example, an agency might be furnished with statutes relevant to it.

Unified data bases are needed and can generate, in varying formats, the many printed products, including: calendars, digests, journals, reports, session laws, and codes. Private publishers could be a source of some of this information. Needed uniform typesetting and coding sys-

101. Hursh, *Law Book Publishing and Information Distribution*, in COMPUTERS AND THE LAW 66 (3d ed. 1981); Tapper, *supra* note 96, at 36 et seq.; *see* Banks, *A Comprehensive Computer-Assisted Legislative Program: Virginia*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 95, 99 et seq. (B. Eres ed. 1980) (advantages of photocomposition).

102. "Adaptability to automation certainly will affect the speed, accuracy and cost of delivering legal information in varying forms; the ultimate success of traditional or future products soon could be directly related to the publisher's own level of technological competence." Hursh, *supra* note 101, at 69.

103. *Id.*

104. Chartrand, *supra* note 80, at 113 (computerization could be combined with microforms).

105. Doanne, *supra* note 31.

106. *Cf.* less publication of rules in compiled form.

tems are slowly becoming a reality.[107] However, the computer screen and the final product may still differ in content and code visibility. In Oregon, publication is computerized by the legislative staff rather than the printers. This, at least, avoids communication mistakes and leaves the decisions with those more knowledgeable about legislative needs.

6. *Special Subjects*

Computers were first utilized for legislative fiscal activities such as budget analysis, forecasting, and monitoring: because computers are particularly adaptable for these purposes.[108] Fiscal matters are an important legislative concern. Proper computer utilization might avoid redundancy and limit conflict. With computer aid, fiscal impacts might be more extensively noted on bills. Other information systems might be interfaced. However, fiscal areas are sufficiently politically sensitive that the needed cooperation will be difficult to obtain.

Legislatures have used computers as one of the tools for reapportionment of legislators' districts.[109] There are computer programs for the purpose and graphics and maps. State legislative reapportionment involves complex variables with many districts. Computers might help avoid gerrymandering and aid updating. Conversely, computers may afford too many choices which may delay decisions and be costly.[110] Historically, legislative computers generally have only been used to test population equality and illustrate alternative plans.[111] Reapportionment decisions have been basically politically motivated and favor incumbents. The complex mix of conflicting variables have made it

107. Hursh, *supra* note 101, at 66-67.

108. Blakely, *Computers Alter Way Congress Does Business*, 43 CONG. Q.W.REP. 1379 (July 1985); HOUSE COMM., *supra* note 4, at 118 et seq.; Chartrand, *supra* note 80, at 109; Chartrand, *Redimensioning Congressional Information Support*, 11 JURIMETRICS J. 165, 171-174 (1971); White, *supra* note 29, at 117; White, *Computerized Information in the Washington State Legislature*, in COMPARATIVE LEGISLATIVE INFORMATION SYSTEM: THE USE OF COMPUTER TECHNOLOGY IN THE PUBLIC PROCESS 117, 120 et seq. (Washington particularly uses computers extensively for fiscal purposes.).

109. HOUSE COMM., *supra* note 4, at 146 et seq.; Chartrand, *Redistricting in the 1970's: The Role of the Computer*, 1972 LAW & COMPUTER TECHNOLOGY 58; *Symposium on Computers and Reapportionment*, 2 RUTGERS COMPUTER & TECH. LAW J. 13 (1971) (old but good because after basic Supreme Court cases - Baker v. Carr, 369 U.S. 186 (1961), and Reynolds v. Sims, 377 U.S. 533 (1964)); Weaver, *Legislative Redistricting*, in COMPUTERS AND THE LAW 134 (3d ed. 1981). *See also* Slate v. Bd. of Supervisors of County of Cortland, 346 N.Y.S. 2d 185, 42 A.D. 2d 795 (1973) and Jones v. Bd. of Supervisors of County of Essex, 361 N.Y.S. 2d 18, 46 A.D. 2d 102 (1974) (upholding computer reapportionment plans with weighted voting for county). Note that computer assisted reapportionment is like computer assisted research and instruction.

110. Census data and experts, commercial and university, are available to help. Weaver, *supra* note 109.

111. *Id.*

difficult to fix priorities and weights for different factors. A fair system by one set of criteria may look much less fair when viewing a different set of parameters. Even courts have had difficulty going beyond mere population equality in making decisions. Their decisions may even have been basically political motivated using legal arguments in close decisions.[112] Computers might be valuable in revealing the determinants that are being used.

7. *Simulations*

Computers, with their ability to rapidly manipulate large amounts of data and multiple variables, are wonderful tools for creating models and simulations. These models when sufficiently developed can provide an alternative source for information. The predictions then could be compared with real world results.[113] As time goes on these models could become more complex, predicting consequences further from the legislative action. Obviously, the value of such methods depends the quality of the formulas and inputs. Often the formulas are not that complex, but simply require a large amount of data, the forte of computers. Legislatures may not have the funds or expertise for these often ad hoc problems. Outside resources, such as universities could be utilized to some advantage. Government agencies already use these resources and could be a source of information and expertise. However, models might conflict especially the legislature's and the administrator's.[114]

8. *Administrative functions*

Administrative functions are probably one of the cheaper areas to computerize. Most of these functions might be more efficiently performed on personal computers. These administrative uses include the

112. Bigelow, *Some Advanced Computer Uses*, COMPUTERS AND THE LAW 40, 41 (3d ed. 1981) (including federal use particularly for taxes). Computer models and simulations may be difficult to understand or rebut, possibly even violating due process. Grenier, *supra* note 71.

113. Blakely, *supra* note 108.

114. There are numerous articles on Congressional uses of computers. There is considerable repetition, though, with most articles pertaining to the '60s and early '70s. Most articles report on the use of the computers at the time the article was published. *See* Blakely, *supra* note 46; R. Chartrand, *Information Technology in the Legislative Process:* 1976-1985, in ANNUAL REVIEW OF INFORMATION SCIENCE & TECHNOLOGY 203 (1986) (bibliography); Chartrand, *Information Technology for Congress: A Proven Potential*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 19, 22 (B. Eres ed. 1980); Chartrand, *supra* note 32; Chartrand, *Redimensioning Congressional Information Support*, 11 JURIMETRICS J. 165 (1971); Gregory, *supra* note 33; Norton, *The Quiet Revolution of Information Technology in Congress*, in LEGAL AND LEGISLATIVE INFORMATION PROCESSING 3 (B. Eres ed. 1980).

following: budgets, accounting, payroll, personnel records, inventory, maintenance records, scheduling, memos, reports (including for elections, mailing expenditures, ethics statements, and lobby lists), correspondence, and constituent services.[115] Some of these functions may be controlled by agencies. There may be problems in confining the uses to official purposes. How should newsletters be classified? Word processing systems constitute a valuable aid. Spreadsheets and graphics would also be available.

Computers, tied into network services, could facilitate conferencing to the extent allowed by public meeting laws. The system could be modeled on existing electronic mailboxes and bulletin boards. Multiple inputs could be available with the convenience of not having to have the whole group together at one place or time. Participants could make anonymous statements, allowing for free access and the broadest possible information.

VII. CONCLUSION

The promise has not been fulfilled. Legislators still do not adequately appreciate and utilize computers. They have just begun to understand the range of possible uses for computers in their every day work. The opportunities for efficiency, economy, and improvement of the legislative system are extensive. This article discussed many of the alternatives available and the various pitfalls and dangers involved. Will an article similar to this one be written in another ten to twenty years?

115. OLIS is working on support for these administrative uses.