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ASSESSMENT OF THE INFORMATION TECHNOLOGY SYSTEM IN THE VERMONT GENERAL ASSEMBLY

FINAL REPORT

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Assessment of the Information Technology System in the Vermont General Assembly

National Conference of State Legislatures

William T. Pound, Executive Director

7700 East First Place
Denver, Colorado 80230
(303) 364-7700

444 North Capitol Street N.W., Suite 515
Washington, D.C. 20001
(202) 624-5400

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The National Conference of State Legislatures is the bipartisan organization that serves the legislators and staffs of the states, commonwealths and territories.

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- To promote policy innovation and communication among state legislatures.
- To ensure state legislatures a strong, cohesive voice in the federal system.

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The NCSL staff assigned to this project are Rich Jones, director of the Legislative Programs Division and Pam Greenberg, program principal with NCSL's Legislative Information Services Program and NCSL's staff expert on legislative information technology systems.

Executive Summary

The Vermont General Assembly contracted with the National Conference of State Legislatures for an assessment of its information technology system.

The Vermont traditions of self-reliance, efficient allocation of resources, and fiscal responsibility are reflected in the use of technology in the legislature. The Vermont legislative information technology system is a solid, effective system. It provides legislators, legislative staff and citizens with most of the basic functions performed by legislative systems in other similar states.

However, the legislature's ability to keep pace with the benefits of technology is threatened by limited staff, by an under representation of legislators and other legislative staff in the technology decision making process, and by the lack of a long-term and strategic planning process. Vermont citizens have embraced the Internet and view government's use of technology as important and useful in their everyday lives. They are likely to understand and support investments in technology that enhance the legislative process and representative democracy.

This study provides an overview of the appropriateness of the current information technology (IT) staff levels and highlights some of the kinds of uses of technology in other states that could help to improve the efficiency, productivity and accessibility of the Vermont General Assembly.

Based upon its assessment of the Vermont information technology system and a comparison with systems in other similar legislatures the NCSL study team makes the following recommendations. These recommendations are intended to improve the current system and respond to the needs identified by legislators and legislative staff users.

Recommendation 1. The legislature should purchase more computers for use by legislators.

Recommendation 2. The legislature should consider buying laptop computers as the additional computers.

Recommendation 3. The legislature should provide wireless access to the Legislative Information System for legislators who bring their own computers to the State House.

Recommendation 4. The legislature should add at least three new printers for use by legislators in the Legislative Lounge.

Recommendation 5. The legislature should add at least two full time equivalent (FTE) IT staff.

Recommendation 6. The legislature should maintain the ability to contract with outside consultants to provide additional user support and training during the legislative session and systems development services during the interim.

Recommendation 7. The legislature should provide additional training for legislators and legislative staff on the use of the information technology systems.

Recommendation 8. The IT director should meet regularly with the users in each staff office such as the Legislative Council, Legislative Fiscal Office, Senate Secretary, House Clerk, Sergeant at Arms and legislative committee staff.

Recommendation 9. The IT director should continue to meet regularly with the Information Technology Oversight Committee to obtain input from legislator users relating to the design and operation of the IT system.

Recommendation 10. To help coordinate requests for IT services and additions to the systems from the various staff offices, the directors of each staff office should meet regularly as a group along with the IT director to identify needs, set priorities and monitor progress on IT projects.

Recommendation 11. The IT staff should conduct a periodic survey of system users to measure their use and satisfaction with the various components of the legislative information technology system.

Recommendation 12. The IT director should develop a long term plan for the system including a mission statement, list of goals, activities to reach the goals and performance measures to gauge whether the goals have been met.

Recommendation 13. The IT staff should pursue the long term goals of further automating the bill drafting and the journal and calendar production processes, further integrating fiscal analysis and bill drafting functions and providing streaming audio of legislative sessions to the public.

Recommendation 14. The legislature should develop a disaster recovery plan for its IT system.

Recommendation 15. The legislature should assess the costs and benefits of using the "thin client" computing model and decide if it will continue to use this strategy.

1. Introduction

Study Objectives

The Vermont General Assembly contracted with the National Conference of State Legislatures (NCSL) to conduct an assessment of its information technology system. There were five goals for the assessment:

1. Assess the system currently used by the Vermont General Assembly including its structure and functions.
2. Identify the current and future information technology needs of legislators and staff.
3. Gather data on information technology systems used in comparable legislatures, compare Vermont's system against national benchmarks and identify applications that could be implemented in Vermont.
4. Determine the staff resources needed to manage the current system and respond to anticipated future demands.
5. Identify the strategic actions needed to ensure that Vermont's information technology system meets the needs of legislators and staff and that there are processes in place for effective legislative oversight of the system.

Study Activities

In conducting the assessment the NCSL study team completed the following tasks:

1. Reviewed documents, specifications and other information that describe the current information technology system including its architecture, hardware, software, functions performed and services offered.
2. Conducted an onsite tour and inspection of the system and examined the various components and discussed how they are used by legislators and legislative staff.
3. Interviewed most members of the Information Technology Oversight Committee, two non-committee legislators, the directors of the various legislative staff agencies and two public users.
4. Met with the staff of the Legislative Fiscal Office, attorneys in the Legislative Council, the House and Senate journal clerks, the supervisor of committee services and the Information Technology director and deputy director.
5. Met with the Information Technology Oversight Committee to present preliminary information about information technology systems in comparable states and to get input on the issues that the committee would like covered in the assessment.
6. Gathered comprehensive data on the legislative information technology systems in 11 comparison states.
7. Conducted a survey of users of the legislature's information technology system.

Report Overview

This report contains the NCSL study team's assessment of Vermont's legislative information technology system. Section two presents comparative information on other legislature's information technology systems and in-depth information is presented on the systems used in 11 legislatures that are similar to Vermont. Section three presents the NCSL study team's assessment of and recommendations to strengthen Vermont's legislative information technology system. Appendices A, B and C contain detailed information about legislative information systems in other states. Appendix D contains a summary of the user survey conducted by the NCSL study team.

Overview of the Current System

The information technology system serves the Vermont General Assembly. There are 150 representatives, 30 senators and approximately 85 full-time and session only legislative staff members that use the system. (The information in this section was provided to the NCSL study team in an overview document prepared by the IT director.) In addition, the public accesses information about the legislature through the legislature's web site. The system provides users with basic office automation functions including word processing, spreadsheet analysis, document management, e-mail, Internet access, bill tracking and other data base services.

Table 1 shows the number of legislators and legislative staff that reported they used each of the listed functions on a survey of users conducted by the NCSL study team.

Table 1. IT system functions used by legislators and legislative staff during the legislative session and interim.

Functions	Legislators Session	Legislators Interim	Staff Session	Staff Interim
E-mail	56	48	47	47
Word Processing	52	11	43	44
Spreadsheet Analysis	11	4	18	18
Bill Tracking System	46	31	45	39
Committee Agenda and Calendar System	36	17	35	23
Legislative Directory	30	32	28	28
Web Site	27	24	39	39
Internet Access	43	10	44	42
Database Management Software	1	19	0	15
Presentation Software	2	1	9	10
Legislative Calendar and Journal	35	12	29	18
Remote Access from Outside the State House	33	23	29	24

There are two full time equivalent (FTE) staff assigned to manage and operate the information technology system. The legislature budgeted $201,325 in fiscal year 2003 and $176,220 in fiscal year 2004 for system development, maintenance and operations. These totals do not include salaries for the information technology staff, which are contained in the Legislative Council's budget.

Infrastructure

The legislative information technology system is located within the State House and a building at 1 Baldwin Street. It is attached to the state government wide area network (GovNet). The system consists of networked servers, personal computers and printers connected by Category 5 twisted-pair wiring to Ethernet switch stacks located in the State House computer room and in the basement of 1 Baldwin Street. The switch stacks are connected to each other and to the GovNet by fiber-optic cable.

Hardware

The system consists of 17 servers, 135 personal computers, 24 networked printers, and 25 local printers. Table 2 lists the servers and their functions.

Table 2. The number of servers and their functions.

Server Function	Number of Servers
Windows Active Directory Domain Controllers	2
File Server	1
Print Server	1
SQL Database Server	1
Citrix Terminal Services Servers	4
E-mail Servers	3
Tape Backup Server	1
Web Servers	2
Remote Access Secure Gateway Server	1
Anti-Virus and Anti SPAM Server	1
Total	17

All full-time staff have a dedicated personal computer in their workspace. Each of the 24 committee rooms has a personal computer and 12 personal computers are located in the Legislative Lounge for the exclusive use of legislators. There are two classes of personal computer: a "fat" client and "thin" client. Most staff offices have fat clients, which are standard personal computers with applications loaded on them locally. The committee rooms and the Legislative Lounge have thin clients that access applications located on the Citrix servers. These tend to be older computers with smaller hard drives. All personal computers run the Windows 2000 Professional operating system and identical applications are installed on the fat and thin clients. The users' interaction with both types of personal computers is essentially the same. The fat clients are replaced on a three-year cycle and it is anticipated that the thin clients will be replaced on a five-year cycle.

There are 24 networked printers located throughout the State House and 1 Baldwin Street and 25 local printers attached to the thin clients in the committee rooms and the Legislative Lounge.

Software

The software applications used by the information technology system are off the shelf commercial products except for the Legislative Information Database application. All legislative documents are created using the Microsoft Office Professional suite of applications. A number of MS Word templates have been created for each standard document type such as bill drafts, calendars and journals. Hummingbird PC Docs Open software is used to manage the documents created by legislative users. This allows users and others to locate documents on the system and provides various levels of security for these documents. All MS Word documents are stored within the PC Docs Open system but some MS Excel documents are not. MS PowerPoint and MS Access are available but used infrequently.

The bill tracking, legislator and committee agendas and history information are created and maintained using the Legislative Information Database application developed by a local contractor. Novell's GroupWise software is used for e-mail. The information technology staff uses a number of utility software products to protect against viruses, reduce Spam and manage the operation of the system. Legislators and legislative staff have remote access to the system through GroupWise WebAccess.

Web Site

The legislature's web site provides the public access to legislative information. It was developed by the legislature's information technology staff and contains information on committee meeting schedules, bills and bill status, legislative calendars and journals, the legislative directory, Vermont Statutes and reports and publications. As legislative information is updated and reports are completed the information is posted to the web.

2. Legislative Information Systems in Other States

This section provides information about how other state legislatures use information technology to increase the efficiency and productivity of the legislature. It also discusses ways legislatures use technology to be more accessible to the public and examines the ways in which Vermonters currently use the Internet. In addition, this section explores information technology staffing, budgets, and the organizational structure and governance of information technology services in state legislatures.

Appendix A provides an at-a-glance overview of information technology systems and support in states comparable to Vermont. It includes statistics relating to state population, length of legislative session, number of legislators and staff, and numbers of information technology staff and the kinds of technology supported in each state.

Appendix B is a list of states that provide all legislators with laptops and allow their use in the chambers. It also notes the states' policies regarding Internet and e-mail access in the chamber while the legislature is in session.

Appendix C lists states that broadcast legislative proceedings on the Internet through television or Internet web casts.

Use of Information Technology to Increase Efficiency of the Legislature

Vermont's legislative information technology systems provide legislators and legislative staff with most of the functions performed by legislative systems in other states. For example, all states support basic word processing and office productivity software for legislative staff. All states have information management systems that automate, to varying degrees, legislative functions such as bill status, bill drafting, journal and calendar production, front desk or chamber activities, voting and committee functions. Most states support remote access to e-mail and other legislative information.

However, some states support additional services for legislators and legislative staff that are not offered in Vermont, such as chamber automation and laptops in the chambers, committee support systems, constituent management services, fiscal analysis systems, and support of handheld devices. State legislatures also are increasingly offering better access to the process for citizens, through web casts of legislative and committee proceedings, teleconferencing or videoconferencing of meetings, and additional web information and services.

Laptops in the Chamber

Thirty-nine states provide all legislators with laptops or personal computers in at least one chamber. Several additional states allow members to bring in their own personal laptops to the chamber, where they can connect to the legislature's network. Access to computers in the chamber enables legislators to have independent access to information necessary to make decisions and can increase their ability to communicate with colleagues, staff, and constituents on a regular and timely basis.

The types of applications available to members in the chamber vary, but most states offer access to the full suite of legislative applications offered elsewhere in the capitol. States that were early adopters of chamber systems generally developed custom systems that integrated front desk applications and

provided bill and amendment viewing capabilities. In some states, roll call votes are recorded and integrated in with other systems and can provide real time access to votes. Some states provide features allowing legislators to track and attach their own notes about bills.

However, since the advent of the Internet, many states simply provide members with access to an Intranet or to the legislature's public web site and all the legislative information already available there, instead of developing a custom application for the chamber.

Several states, including Arkansas, California, Florida, Maryland, Nevada, and Utah, use bar coding to track bills and/or amendments from the chamber. The House and Senate are able to have immediate access to these documents through a bar code scanner that then produces the document on their computers.

In most cases, states have opted to purchase and standardize laptops for members. Support costs are reduced when standard laptops are used. Members' personal laptops may not be high-powered enough to handle all applications needed or may require substantial IT support to resolve incompatibility issues. IT staff have to familiarize themselves with several different models of laptops, and questions may arise about liability if a laptop fails or work is lost when IT staff support them.

Costs of laptops and chamber systems vary widely depending on the type of system, but can be offset to some extent by reduced printing and paper costs. In the Wisconsin Assembly, staff estimated they saved $100,000 after implementing a paperless chamber system–$60,000 for the paper copies and $40,000 to pay pages to file them.

Appendix B lists states that provide legislators with laptops and allow their use in legislative chambers.

Wireless Access

At least 17 state legislatures provide wireless access to legislative networks within state capitol buildings. Most of these states provide access throughout the capitol for legislators and staff and also provide the laptops and wireless cards or adapters. Several states, however, provide wireless access for legislators who bring in their own laptops. In addition, a few states, including Alaska, Indiana and Nevada, have set up handheld devices to run on a wireless network.

In states with wireless capabilities, there is a growing demand by lobbyists and the public to be able to access the legislature's wireless network in the capitol. For example, Nevada and Kentucky offer wireless access to the general public for a fee. In Arizona, legislators have wired network access, but the public now has free wireless access in the capital, through a "proof of concept" demonstration project funded by Cox Communications and Intel Corporation. Public wireless access requires IT staff to implement even greater security procedures than those already required for legislative-only wireless access.

Several states have developed written policies regarding appropriate use of legislative property and outlining the type and extent of technical support that will be provided by legislative IT staff. Policies also advise legislators to keep their own backup of data and specify who is liable for loss of data and damage to equipment that is serviced by legislative IT staff. Some states require legislators to sign agreements before being issued state-owned property.

Committee Applications

Several states have automated the committee process to include features such as electronic display of agenda items under consideration in committee, automatic processing and transmission of committee votes or committee reports to the Secretary of the Senate or the Clerk of the House, electronic display of members names and votes, and real time access to committee actions.

The Kansas House and Senate Health and Human Services Committees in 2003 began running paperless committee sessions. Tablet PCs were provided to committee members, on which they can view bills and testimony and make their own notes on the testimony. The members receive testimony on key issues electronically and work on legislation on their own tablet PC while others can observe their work through the Internet and web casts and provide electronic input.

Fiscal Applications

Most legislative fiscal offices make intensive use of spreadsheet software. In some states, however, the use of spreadsheets is combined with custom-developed databases that help increase the efficiency of these offices.

In Utah, the Meribah Fiscal Analysis System was developed in-house by a team of IT staff and fiscal analysts. It replaces a labor-intensive set of Excel spreadsheets and word processing documents individually administered by analysts and manually summed for appropriations bills and balance sheets. It automatically draws data from existing state financial, budgeting, and revenue systems and allows users to enter staff budget recommendations and legislative appropriations actions.

The system also incorporates automated rules that enforce statutory guidelines on the use of state tax funds, the duration of funds availability, and the reallocation of appropriated funds, among other things. The system provides equal footing for the legislature in creating budget policy through independent verification of staffing levels, funding sources and expenditures, and the legislature no longer has to rely on outside information from the state budget agency in making budget decisions. It frees up staff to review policy implications of the state budget rather than spending hours performing data entry and balancing functions.

The Arkansas Legislature has developed a system that streamlines drafting of budget bills. Budget information from the state Office of Budget is transmitted to the legislature, where the files are converted, sorted and transferred to a data base. The fiscal staff who draft the bills are able to select needed data for various agencies (e.g., salary data, expenditures, etc.) and automatically place the data, along with boilerplate language, into a bill draft. This process significantly cuts down the amount of data entry and typing necessary.

Statutory Conflict and Compare Systems

A few states have developed programs to help identify statutory conflicts that arise during the legislative session from bills or amendments that affect the same statutory section.

The Kentucky General Assembly has developed an in-house written program that is run at the end of each day after all approved amendments have been engrossed into the newest version of the bills. The program scans each of the current bill drafts to determine possible conflicting bills that propose changes to the same sections of the Kentucky Revised Statutes.

The program produces reports that show which bills affect the same statutory section along with the action so they can be reviewed for possible conflicts.

The Kentucky General Assembly has made this program available for other states to use or adapt to their own environment. It is available through the National Association of Legislative Information Technology web site at http://www.ncsl.org/programs/lis/nalit/handouts.htm#am01.

Conflict and compare systems not only reduce the staff time required to review legislation for statutory conflicts, but can also help eliminate the necessity of introducing additional bills to resolve conflicts in the code.

Use of Information Technology to Increase the Legislature's Accessibility to the Public

Every state legislature has a web site that provides access to bill text and bill status, and all states provide e-mail for legislative staff and legislators. Forty-nine states provide web access to state statutes. Most legislative web sites also provide search capabilities for bills and statutes, biographical and contact information for legislators, and other features such as kids' pages and information about the legislative process.

Overview of Internet Use in Vermont

According to an October 2003 study by the Center for Rural Studies, 79 percent of Vermont households have a home personal computer, and 92 percent of those computers are connected to the Internet. Vermont ranks 14th among the states in the number of households with computer access, and 15th in the number of households with Internet access, according to a 2001 U.S. Department of Commerce study. Fifty percent of Vermonters use the Internet to find state government information. In addition, the frequency with which citizens seek government information online can be expected to grow. Between 2000 and 2002, the number of Americans seeking government information online on a typical day doubled from 6 million to 12 million. Table 2 indicates how Vermont citizens use the Internet.

Table 3. How Vermonters Use the Internet

Functions	Percent Using
E-mail	78%
State Government Information	50%
News	49%
Shopping	48%
Data and Statistics	47%
Schools and Colleges	40%
Municipal Information	25%

Source: Center for Rural Studies, University of Vermont, October 2003.

Given the high degree of computer literacy in Vermont and the importance of the Internet to its citizens, the legislature's online accessibility is very important. Vermont's web site provides most of the features citizens want, such as the posting of roll call votes by member and bill number in an easily accessible format. As part of a broader study about the use of electronic communications by legislators, NCSL

conducted a series of focus groups to determine citizens' attitudes about legislative web sites. Access to voting records ranked highest in the types of information sought by citizens on legislative web sites.

Other ways that technology could help make the legislature more accessible to the public include providing web casts of legislative floor and committee proceedings and including additional types of information and services on the legislative web site, such as biographical and other information about legislators, automatic bill tracking and e-mail notification services, online committee information, and Internet broadcasts of legislative proceedings.

Streaming Audio or Video of Legislative Floor Sessions and Committee Meetings

Forty-five states broadcast legislative proceedings to the public via television or the Internet. In 38 states, at least one chamber (and usually both) provides live audio or video broadcasts of floor proceedings on the Internet. Many of these states also broadcast committee hearings and some archive the proceedings and make them available on the Internet for later viewing. Web broadcasting also offers the concomitant benefit of producing automated digital recordings of floor and committee sessions. Appendix C lists states that broadcast legislative proceedings on the Internet.

Automatic Bill Tracking and E-mail Notification Services

Every state offers free public access to bill status, bill text, and calendar information via the Internet. However, a number of states now provide bill subscription and tracking services that allow legislators and citizens to maintain a list of bills they wish to track and to receive automatic notification when actions occur on the bills. The user identifies bills he or she is interested in tracking, provides an e-mail address, and then receives an e-mail notification whenever any action is reported on the bill. At least 24 states offer this type of free e-mail subscription.

In addition to bill tracking services, at least ten additional states provide e-mail notifications of other types of legislative information. For example, North Dakota allows users to sign up for e-mail notifications when interim committee meeting notices and minutes are available on the Internet. North Carolina sends House and Senate Calendars to subscribers of a listserv. Washington e-mails schedules that display the dates and times for committee and floor sessions and have agendas for House and Senate standing committees.

Online Committee Testimony and Requests to Testify

Several states are using the Internet to make it easier for citizens to access information about committees or to participate in or to testify before committees. In Hawaii, the Legislature's web site has a dedicated e-mail address for committee testimony. After the e-mail testimony is submitted, staff send a confirmation notice to the author and make photocopies for committee members. Individual legislative committees in other states have also accepted e-mail testimony. For example, the California Joint Committee to Develop a Master Plan for Education web site invites e-mail testimony and has made the testimony available on the web site. The committee also promoted an online dialog, designed to increase public participation in development of the state's Master Plan.

Teleconferencing and Videoconferencing of Committee Hearings

At least 19 states have teleconferencing or videoconferencing capabilities to bring committee hearings and meetings to citizens outside of the capitol. This allows citizens who are unable to travel to the capitol to participate and allows more citizens to participate in public hearings, especially when committee rooms

do not accommodate large crowds. It can also allow committees to take advantage of expert witnesses from around the state or country who may not be available to appear and testify at the Capitol.

Some states have amended open meetings laws or have reviewed procedures carefully to be sure that video or teleconferenced meetings comply with freedom of information requirements. Committees in some states give longer or additional notice outside the capital, and may also require written testimony to be notarized to verify the presenter's authenticity.

Table 4. States with Video or Teleconferencing of Committee Hearings

States	
Alaska	North Dakota
California	Ohio
Illinois House	Oregon
Kentucky Senate	South Carolina
Maine	Texas Senate
Minnesota House	Utah
Montana	Virginia
Nebraska	Wisconsin
Nevada	Wyoming
New Mexico	

Legislative Information Technology Operations

Size of Staff

The Vermont General Assembly has the smallest number of legislative information technology (IT) staff in the nation, with only two employees–one of those currently working only half time. South Dakota also has only two IT staff; however, unlike in Vermont, a substantial amount of their IT work, including network administration, is contracted out to the South Dakota Executive Branch's Bureau of Information Technology. The average number of IT staff in the 50 state legislatures is about 13. At the high end are California, Florida, and Texas with 360, 133 and 191 IT staff, respectively. Table 5 provides a comparison of IT staff size in state legislatures similar to Vermont.

Some additional comparisons of the number of IT staff per users in similar states also indicate that Vermont IT staff size is much lower than that in other comparable states. The ratio of FTE staff to users in Vermont is 1 to 131. New Mexico has a lower ratio of IT staff to users; however, New Mexico has an extraordinarily high number of temporary, session-only staff. If session-only staff are excluded, the ratio of FTE IT staff to users in New Mexico is 1 to 56. Table 5 provides IT staff-to-user ratios in comparable states.

Table 5. Size of Information Technology Staff and Budgets in Selected State Legislatures

State	No. of IT Staff	Ratio of FTE IT Staff to Users	Use of IT Contractors?	2004 IT Budget (excluding staff salaries)
Arkansas[1]	10	1:57	Yes	$2,000,000
Delaware	5	1:38	Yes	$550,000
Maine	12	1:31	Yes	$675,071
Montana[1]	11	1:36	Yes; also uses 2 contracted services staff and 2 interns year round.	$1,012,725
New Hampshire	7	1:84	No	$802,800
New Mexico	4	1:190 / 1:56[2]	Yes	$491,000
North Dakota[1]	3	1:88	Yes; also uses executive branch resources	$1,182,235
Rhode Island	9	1:63	Yes	Not available
South Dakota	2	1:90	Yes; also uses executive branch resources for network administration and other IT support.	$270,000
Vermont	2	1:131	Yes	$201,325
Wyoming	4	1:51	Yes	$160,000

[1] Biennial legislature

[2] The first ratio includes an unusually large number (503) of session-only staff. The second ratio represents the number of permanent staff and legislators.

There are few studies or models about the appropriate level of information technology staffing for organizations. The MITRE Corporation, a not-for-profit organization with expertise in systems engineering and information technology, conducted a literature review and study on staffing sizes for maintaining computer networking infrastructures for the U.S. Department of Defense. According to the MITRE study, help-desk staffing has been better researched than other areas of IT staffing. MITRE's review of the research in this area resulted in recommendations of one help-desk staff for about every 87 users. For overall IT staffing levels, MITRE determined an average overall FTE ratio of 1:42; i.e., one FTE of support for every 42 users.

Applying this model to the Vermont General Assembly would result in a recommended three IT staff for help-desk services alone. However, given the part-time nature of the legislature and the (current) lower level of support provided to legislators, the use of contract or temporary personnel in addition to at least two full time user support staff could meet the current needs of the legislature. For overall IT staffing, this model would suggest an IT staffing level of six. Again, the part time and perhaps more casual use of computers by legislators, rather than the more intensive eight hour per day use by employees, suggests that a somewhat smaller ratio may be appropriate for the Vermont General Assembly.

Information Technology Budgets

The Vermont General Assembly also spends less on information technology than other states. Only one state–Wyoming–spends less on IT, but it also has a shorter session, half the number of legislators, and

considers and enacts about half the number of bills as Vermont. In addition, despite the lower expenditures on information technology in Wyoming, the legislature has four IT staff–twice that of Vermont.

Legislative information technology budgets vary substantially, depending on the amount of hardware owned, the types of systems in place (e.g., mainframe systems vs. distributed systems), the number and types of applications supported, the sophistication of those applications, the degree of integration of systems, and many other variables. Thus, while a general comparison of legislative IT budgets provides some interesting contrasts, direct comparisons are not possible. Table 5 lists 2004 budgets (excluding salaries) for various states.

Industry experts consistently warn that hardware and software costs are the smallest part of overall information technology costs. Gartner Group, a research and consulting firm, developed a now widely adopted methodology called total cost of ownership (TCO). TCO was developed to identify all the costs of an IT investment. TCO calculates direct costs, including hardware and software, operations and administration; and indirect costs, including end user operations, such as self-support, peer support, casual learning, and downtime.

Ongoing end user support within an organization is usually identified with initial project estimates and is easily tracked and computed. But a more subtle type of cost is incurred when individuals gradually evolve to become part of the support structure, usually in addition to their "regular" job. This support can consume considerable time and resources in an unplanned way. Downtime costs also appear when users are interrupted from their regular work when something goes wrong with the system or when regular maintenance results in breakdowns and lost productivity. These indirect costs are carried outside of the IT budget and rise when end user support is not provided within the regular IT staffing. According to industry groups such as the Gartner Group, the TCO of a personal computer is somewhere in the range of $4,000 to $13,000 per year. Indirect costs are always part of the IT budget equation, but they are likely to be higher when IT staffing is limited.

IT Organizational Structure and Governance

Legislative information technology offices can be categorized as centralized or decentralized. The majority of states have a single centralized, nonpartisan information technology division or office that provides information technology services to all staff agencies and legislators. This office most often reports to one or more staff agencies. In some states, the office reports jointly to the Clerk of the House or Secretary of the Senate or to leadership staff. Most of these states also have a joint legislative committee that oversees IT budget and policy decisions.

This centralized structure helps to ensure compatibility of systems, reduce duplication of effort, and facilitate a coordinated, cost-effective approach to planning and purchasing decisions for the legislature.

A second and smaller group of states take a more decentralized approach to information services. For example, in Virginia, the House of Delegates and Senate each have separate information technology staffs who provide services and are accountable to the House Clerk and Senate Clerk. The Virginia Division of Legislative Automated Systems is responsible for the legislative information system and the *Code of Virginia* and *Virginia Administrative Code* data bases, and oversees publication distribution and printing. This office reports to a joint House Senate entity. In Utah, individual agencies, such as the Legislative Fiscal Analyst, Legislative Research and General Counsel, Legislative Auditor General, Legislative Printing Office and the House and Senate each have small IT staffs that serve those agencies. Oversight

is through the Legislative Management Committee. In several states, the majority and minority caucuses also have their own information technology staff.

This type of structure can provide for more direct and priority services to a chamber or agency and can reduce cross-agency conflicts and negotiations over service and support. However, this structure poses more challenges in developing and maintaining integrated systems and may lose some cost efficiencies of a centralized structure.

Kansas has a decentralized organizational structure, with a larger central IT staff and a small number of IT staff who support the fiscal, audit and research agencies. However, Kansas also has a governance model, considered very successful in that state, that could be applied in other states with either centralized or decentralized IT offices. The Kansas governance structure consists of:

- an *Information Systems Team* composed of the Secretary of the Senate, the Chief Clerk of the House of Representatives, three staff members from each of the legislative staff agencies appointed by their agency directors, and a staff member appointed by the majority and minority party of each chamber;
- a *Systems Review Team* of legislative agency directors, the Secretary of the Senate and Chief Clerk of the House of Representatives, the director of computer services, the legislative chief information technology officer and four legislators, one member from each party in each chamber, and;
- an *Information Systems Steering Committee* composed of legislative leadership.

At the weekly meetings of the Information Systems Team, the IT staff announces any plans they may have for conversions, upgrades or system downtime. This keeps the staff informed and also allows them to have input into any issues or scheduling problems these changes might cause. The meetings also allow the staff to bring up other issues of concern and to negotiate priorities for the IT staff.

The IT budget, planning and policy issues are identified by staff, then brought to the Systems Review Team periodically. The Review Team analyzes the impact on their department and interdepartmental relations, refines the plans and policies, and makes recommendations to the Information Systems Steering Committee, when final approval on budget and policy adoption is needed.

Involving staff in decision making helps create the buy-in that makes IT projects successful. It also guarantees fewer surprises for staff affected by changes in computers or in policies and procedures, which encourages greater trust and confidence in IT staff and projects.

Studies have identified several organizational and governance factors likely to contribute to successful state IT programs:

- Leaders who are champions of IT and emphasize its value for achieving state missions.
- A collaborative management style that emphasizes positive rather than negative motivations and that shows a commitment to employees during periods of change.
- An incremental approach to the development and implementation of IT initiatives, starting with prototypes and producing periodic deliverables whose success can be assessed.
- Involvement of stakeholders, those individuals or offices that will use the IT systems and services, who set the agenda by proposing initiatives, justifying the financing, and being continuously involved in the planning and testing of IT projects.

Thin Client Computing

Thin client computing is a model in which applications are deployed, managed, supported and executed entirely on a server. This contrasts with client/server computing, in which an application runs on a personal computer but relies on a server to perform some operations. Citrix is one of the vendors of thin-

client products, and is used in the Vermont General Assembly for remote access and for computers in the Legislative Lounge. All states have adopted a client/server model; fewer are using the thin client computing model. Four other state legislatures–Iowa, Indiana, Montana, and Minnesota–use Citrix thin-client computing, primarily for remote access dialup applications rather than for use within the capitol.

Thin-client computing can ease administration for IT staff, but there are challenges in maintaining and operating these environments. Using a thin client model means the IT staff do not have to touch each computer, but rather can administer several computers at once from a central server. However, Citrix administrators must also accurately predict user traffic, and user load must be balanced across the servers. When performance slow-downs occur, the administrator must be able to identify quickly the cause of the problem. A slow down in one area can cause a slow down of the entire service, or if the network goes down, the device also goes down.

Thin clients are frequently used in environments where repetitive data entry or simple text entry is common. They are not a solution for high-end users who need desktop publishing or others with intense processing needs. Thin clients can offer reduced costs in hardware, desktop maintenance and application management, but require a higher up front cost for training and additional servers.

Citrix offers a solution for organizations that have limited IT staffing. However, most states have opted for other solutions to this problem, such as using Microsoft's Windows 2000 Server (the Vermont General Assembly currently has Windows 2000 Server). Windows 2000 Server allows IT staff to administer several computers at once from a central server. Moving from Citrix thin client solution to a Microsoft solution would require additional training for IT staff and incur transition costs, but could reduce some maintenance and server costs in the long term and may increase user productivity and satisfaction.

3. Assessment and Recommendations

Overall Assessment

The Vermont traditions of self-reliance, efficient allocation of resources, and fiscal responsibility are reflected in the use of technology in the legislature. The Vermont legislative information technology system is a solid, effective system. It provides legislators, legislative staff and citizens with most of the basic functions performed by legislative systems in other similar states.

However, the legislature's ability to keep pace with the benefits of technology is threatened by limited staff, by an under representation of legislators and other legislative staff in the technology decision making process, and by the lack of a long-term and strategic planning process. Vermont citizens have embraced the Internet and view government's use of technology as important and useful in their everyday lives. They are likely to understand and support investments in technology that enhance the legislative process and representative democracy.

Based upon its assessment of the Vermont information technology system and a comparison with systems in other similar legislatures the NCSL study team makes the following recommendations. These recommendations are intended to improve the current system and respond to the needs identified by legislators and legislative staff users.

Increase the Number of Computers and Printers Available to Legislators.

The current system consists of 135 personal computers with most assigned to legislative staff. Legislators can use 12 personal computers located in the Legislative Lounge and the 24 computers located in the committee rooms. However, committee staff use the computers in the committee rooms to conduct committee business. In addition, the speaker of the House, Senate president pro tem, and the majority and minority leaders have a personal computer assigned to them.

Legislators most frequently cited access to more computers and printers as an additional IT service they want in the user survey conducted by the NCSL study team.

Table 6. Most Frequently Cited Additional IT Service Legislators Want

Additional IT Service	Number of Responses
More computers for legislators	37
Laptop computers for all legislators	31
More printers that legislators can use	31
Better control of Spam	29

Vermont lawmakers have more limited access to computers than those in other similar states. For example, Arkansas, New Mexico, North Dakota, Rhode Island, South Dakota and Wyoming provide all

legislators with laptop computers in the chambers. In these states, legislators also can take the computers out of the chamber and use them for their legislative business.

All but three legislators who responded to the user survey said access to a computer was important in performing their legislative duties. In fact, two out of three said they "must have" access to a computer to perform their legislative duties.

The legislature conducted an experiment with wireless connections two years ago. Most of the legislators who participated found it to be successful. However, the NCSL study team was told there were parts of the State House where the signal was weak, such as the Appropriations Committee room. In addition, it put extensive demands on the IT staff to support the users. However, in interviews with the NCSL study team, some legislators indicated a strong interest in pursuing wireless access in the State House.

There is one printer connected to the personal computers located in the Legislative Lounge. The computers in the committee rooms each have a printer connected to them. Legislators told the NCSL study team members during interviews that the printer in the Legislative Lounge was old and slow and that more printers were needed.

Recommendation 1. The legislature should purchase more computers for use by legislators.

The legislature should immediately add 12 computers to those in the Legislative Lounge for use by legislators. This will increase the ratio to about one computer for every seven legislators. The IT staff and legislative members should monitor usage and increase the number of computers if needed.

Recommendation 2. The legislature should consider buying laptop computers as the additional computers.

This would help address space limitations in the Legislative Lounge and give the legislators an opportunity to experiment with laptops to see if they want to add them to the chambers. A system could be established to allow legislators to check out the laptops and use them in other parts of the State House. The laptops could be configured to provide wireless access to the Legislative Information System while used in the State House.

Recommendation 3. The legislature should provide wireless access to the Legislative Information System for legislators who bring their own computers to the State House.

The legislature should provide legislators with wireless cards and assistance in connecting to the legislative system. This would expand the number of computers available to legislators without requiring the legislature to purchase more computers. However, it does require additional IT staff to support the users and to maintain the wireless infrastructure and security for the network, and the legislature may need to buy additional software licenses to cover the legislators who would access the system through the wireless connection. Depending on the number of legislators that choose this option, the legislature could reduce the number of new computers it purchases and apply the funds to the cost of the wireless connection.

The legislature should also establish minimum specifications relating to the type of computers they will support through the wireless connection (i.e., memory, processor speed, operating system, and anti-virus software). The legislature should avoid loading software owned by the legislature on legislators' personal laptops to minimize licensing fees and compatibility issues and should have policies in place to ensure the

return of wireless cards when legislators leave the legislature. These policies and uniform specifications would ensure that legislators' computers have the capacity to effectively access the system and might reduce the variety of computers that the IT staff must support, thus reducing staffing demands. The recommendation to add IT staff (see Recommendation 5 below) would help the legislature meet the staffing demands required by this initiative.

Recommendation 4. The legislature should add at least three new printers for use by legislators in the Legislative Lounge.

This will reduce the ratio to about eight personal computers for each printer.

Increase the Number of IT Staff and the Use of Outside Contractors to Support System Users.

Currently two IT staff are assigned to the Vermont Legislative Counsel. However, one of the staff is working half time, so the net result is that only 1.5 full time equivalent (FTE) staff are assigned to the IT function.

This is the lowest IT staffing level among the 11 comparison states. South Dakota for example, which also has two IT staff, contracts with the executive branch information technology agency for help desk, personal computer support and system administration services. North Dakota, which has three IT staff, contracts for substantial help in running its system.

The NCSL study team finds that the IT staffing level in Vermont barely meets the minimum necessary to support the current system. While the staff is able to operate the current system, over the long term, such a low staffing level requires staff to focus on immediate crises and limits their ability to effectively support system users. It also makes it difficult to make improvements in the system such as developing new applications.

Adding more computers for legislators as recommended above will exceed the current staff's ability to support the users.

Recommendation 5. The legislature should add at least two full time equivalent (FTE) IT staff.

The additional staff should be assigned to user support services. The most pressing need is for IT staff to support end users by showing them how the system works, answering user questions and resolving problems. They could also assist staff in applying information technology to create more efficient work processes. While this is particularly important for legislator users, legislative staff also need more user support. On the user survey legislative staff most frequently cited "more help with computer problems" as the additional IT service they wanted. Even after adding two staff, the number of IT staff in Vermont will be low compared to similar legislatures.

Recommendation 6. The legislature should maintain the ability to contract with outside consultants to provide additional user support and training during the legislative session and systems development services during the interim.

We understand that the legislature has contracted with the executive branch IT agency to provide user support to legislators during the 2004 session. This should be continued even with the addition of IT staff. The ability to contract for systems development services will help the legislative IT staff meet the long term goal of better integrating the current system and automating the legislative processes.

Increase Training for Legislator and Legislative Staff Users.

On the user survey about one out of five legislators indicated they need training in using the legislative information technology system.

During interviews legislators and legislative staff stated that additional training would help them more effectively use the functions available on the legislature's system. Some say they do not use these functions now because they do not know how.

In the past, the IT staff contracted with outside vendors to train legislative staff. During interviews staff indicated that this training was very helpful and recommended that it be offered again. According to the user survey, users were less satisfied with more general outside training classes.

Training will make users more knowledgeable about the system and how to use it and thus may reduce the demands on the IT staff to explain functions and resolve problems.

Recommendation 7. The legislature should provide additional training for legislators and legislative staff on the use of the information technology systems.

The legislature should use the outside contractor that it used in the past for training. In addition, the training should focus on the specific needs of the users and be offered to legislators close to the beginning of the session to make it easier for them to apply what they learn.

Increase User Input and Involvement in the Design and Operation of the Information Technology System.

The IT director is part of the Legislative Council staff and reports to the chief legislative counsel. The Information Technology Oversight Committee oversees the plans for the legislative information technology system and provides broad guidance to the IT staff. This committee was formally established in the past two years.

In addition to the committee there is a group of staff users that periodically gives input on the system to the IT staff. The Appropriations Committee and Legislative Council set the legislature's budget including funding for the IT system.

To date, the legislature has used an ad hoc process to design and oversee the operation of the IT system. Most decisions regarding the IT system have been made by the IT director.

In meetings and interviews legislative staff expressed frustration with not being consulted on decisions affecting the design and operation of the IT system. Staff report being informed about significant changes after they occur and do not feel they have enough input into decisions that affect how they use the system in performing their duties.

Staff reported lower satisfaction with the IT staff's sensitivity to user needs than with any other system function listed on the user survey. This was the second lowest rated function on the user survey when both legislator and legislative staff responses are combined.

The limited number of IT staff requires the IT director and deputy director to spend a large percentage of their time with tasks directly related to the day-to-day operation of the system, thus limiting the amount of time they have available to meet with users. However, engaging users in the design and operation of the IT system will help ensure that it meets their needs. IT directors in other legislatures use several methods to get user input and communicate decisions about the system to users.

The legislature should take the following approaches to get user input and employ a more bottom-up approach to designing and operating the IT system.

Recommendation 8. The IT director should meet regularly with the users in each staff office, such as the Legislative Council, Legislative Fiscal Office, Senate Secretary, House Clerk, Sergeant at Arms and legislative committee staff.

During these meetings the IT director should outline plans for the system and upcoming changes to it and solicit feedback on user satisfaction with the system, user needs and priorities for system enhancements. The meetings provide an opportunity for the IT director to inform staff about the status of projects and a means for two-way communication between legislative staff users and the IT director.

Recommendation 9. The IT director should continue to meet regularly with the Information Technology Oversight Committee to obtain input from legislator users relating to the design and operation of the IT system.

The IT director should present plans for system changes, the status of system projects and respond to questions from the members. Recommendation 11 describes a specific report that the IT director should provide to the committee.

Recommendation 10. To help coordinate requests for IT services and additions to the systems from the various staff offices, the directors of each staff office should meet regularly as a group along with the IT director to identify needs, set priorities and monitor progress on IT projects.

The goal of these directors meetings is to help integrate and prioritize the IT projects within the legislature and ensure that the priority projects for each legislative agency are completed on a timely basis. During these meetings the directors can also communicate information about the needs of the users in their agencies. A report summarizing the results of these meetings and the recommended actions should be provided to the Information Technology Oversight Committee, legislators and legislative staff.

Recommendation 11. The IT staff should conduct a periodic survey of system users to measure their use and satisfaction with the various components of the legislative information technology system.

Periodic user surveys will provide information to the IT staff that will help them plan for system enhancements and offer users another opportunity to provide input about the system.

Long Term Goals and Planning

One goal of the assessment is to identify strategic actions that should be taken to ensure that the information technology system meets the long-term needs of the legislators and staff. Another goal is to ensure there are mechanisms in place for effective legislative oversight of the system.

The NCSL study team's recommendations for increasing user input in the design and operation of the system will help to identify system enhancements that will meet the needs of the users. The meetings of the staff directors should help set priorities for the system and regular communication with the Information Technology Oversight Committee should provide a means for legislators to identify long term systems goals and monitor progress in reaching them. In addition, the NCSL study team recommends that the legislature and IT staff pursue the specific long-term goals for the system described below.

Recommendation 12. The IT director should develop a long term plan for the system including a mission statement, list of goals, activities to reach the goals and performance measures to gauge whether the goals have been met.

This document should be prepared as part of the processes recommended previously to increase user input and should be updated annually. The IT director shared with the NCSL study team a draft of a plan for fiscal year 2003 that contains the suggested elements. We found it to be a good start in developing a long-term plan. We recommend that the IT director share this or a similar document with the various system users and the staff directors to solicit their feedback on the long-term goals for the system. After input from the users and staff directors has been considered, the IT director should prepare a document for the Information Technology Oversight Committee. This document should describe the long-term goals for the system, activities to reach those goals, a timeline and estimated costs for completing the activities, and outcome and performance measures. This document would form the baseline for the Information Technology Oversight Committee to use in directing and overseeing the future development of the system. The Appropriations Committee and Legislative Council could also use it as they develop the legislature's annual budget.

Recommendation 13. The IT staff should pursue the long term goals of further automating the bill drafting and the journal and calendar production processes, further integrating fiscal analysis and bill drafting functions and providing streaming audio of legislative sessions to the public.

Some of these projects are identified in the draft plan for 2003 that was shared with the NCSL study team. Further automating the bill drafting process and the production of journals and calendars and making it easier to incorporate spreadsheet data into the budget bill will help improve the internal efficiency and productivity of the legislature. Providing streaming audio of the legislative session will help the public better access information about the legislature's proceedings.

Recommendation 14. The legislature should develop a disaster recovery plan for its IT system.

Given the current concerns about terrorism and the possibility of other catastrophic disasters such as fire, the legislature should ensure that it can restore its information technology system quickly and efficiently if it is shut down. The IT staff currently makes backup copies of the Legislative Information System nightly and stores them offsite. However, there is no standby facility and the legislative system, if destroyed, would have to be rebuilt from scratch. The legislature's disaster plan should be developed in coordination with similar efforts in the executive branch. We understand that the IT director has been meeting with the executive branch IT staff to begin developing a disaster recovery plan and recommend that work on this continue.

Recommendation 15. The legislature should assess the costs and benefits of using the "thin client" computing model and decide if it will continue to use this strategy.

As discussed in section two, the use of the thin client computing model has benefits for the Vermont General Assembly, as well as costs. The use of Windows 2000 Server software could allow the IT staff to administer several computers from a central server, which is major benefit of the thin client model. As the cost of personal computers declines and their capacity increases a client server approach could be as cost effective as the thin client model. The client server model could reduce the need for servers and speed up the log-on process for users. The IT director should consider consulting with information technology staff in other states about alternative approaches, analyze the costs and benefits of each approach and report his findings and recommendations to the Information Technology Oversight Committee. The committee should decide which model the legislature will use.

Appendix A

Information Technology Support for State Legislatures: 2003/2004

	Arkansas* (pop. 2,710,000)[1]	**Delaware** (pop. 807,000)	**Maine** (pop. 1,294,000)	**Montana*** (pop. 909,000)	**New Hampshire** (pop. 1,275,000)	**New Mexico** (pop. 1,855,000)	**North Dakota*** (pop. 634,000)	**Rhode Island** (pop. 1,070,000)	**South Dakota** (pop. 761,000)	**Vermont** (pop. 617,000)	**Virginia** (pop. 7,294,000)	**Wyoming** (pop. 499,000)
Length of Session [2]	97C	45L	S:49L H:50L	90L	45L	45L	77C	59L	35L	S:89L H:81L	60C	37L
No. of Legislators	135	62	186	150	424	112	141	113	105	180	140	90
No. of Legislative Staff [3]	493	131	190	236	165	648	124	454	41	82	682	114
No. Bills/Resolutions Introduced ('02)	2,843	605	388	1,265	813	949	1,061	2,767	551	611	2,907	337
No. Bill & Resolutions Enacted ('02)	1,959	400	330	672	298	131	679	868	280	309	1,585	104
IT Budget (Excluding Salaries)	$2,000,000	$550,000	$675,071	$1,012,725	$802,800	$491,000	$1,182,235	Not avail.	$270,843	$201,325	$1,000,000	$160,000
No. of IT Staff (FTE)	11	5	12	11	7	4	3	9	2	2	26	4
Use of IT Contractors/Outsourcing	x	x	x	x		x	x	x	x	x		x
Application development support			x	x		x	x	x		x		x
Help desk			x	x			x		x			
New development		x	x	x		x	x	x		x		
PC support			x	x			x		x			
Special projects	x						x				x	x
System administration						x	x		x			
System & network operations							x	x				x
System programming							x	x				x
Upgrades & hardware replacement	x	x								x		
PCs/Servers Supported												
Desktops	168	198	300	280	220	120	72	336	24	135	425	75
Laptops	174	92	25	50	7	330	195	122	108	3	160	95
Servers	12	8	25	10	11	14	4	14	0	17	12	5
Applications Supported:												
Accounting/payroll/human resources	x		x	x	x	x					x	
Bill drafting	x	x	x	x	x	x	x	x	x	x	x	x
Bill status/tracking	x	x	x	x	x	x	x	x	x	x	x	x
Calendar	x	x	x	x	x	x	x	x	x	x	x	x
Chamber systems	x		x				x				x	x
Committee applications	x	x		x	x	x	x	x	x	x	x	x
Constituent management	x	x				x		x				
E-mail	x	x	x	x	x	x	x	x	x	x	x	x
Fiscal analysis	x	x	x	x	x	x	x	x	x	x	x	x
Front desk	x	x	x			x	x				x	x
Help desk		x	x			x	x	x			x	
Journal	x	x	x	x	x	x	x	x	x	x	x	x
Support of PDAs/handheld devices	x	x						x			x	
Remote access	x	x	x	x	x	x		x		x		
Statutes compilation	x	x	x	x	x	x	x	x	x	x	x	x
Laptops or PCs in Chamber	x					x	x	x	x		x	x
Electronic Voting System	x	x	Sen.	x	x	x	x		House		x	Sen.
Integrated with other legis. systems	x	x	x	x	x		x		x			x
Webcasts or TV Broadcast			x	TV	x		x	TV	x		x	x
Archived for public access					x							
Workflow/Doc. Mgmt. System	x	x	x	x				x			x	x
Video/Teleconferencing			x	x		x				x	x	x

* Biennial legislature

[1] 2002 population data, Source: U.S. Census Bureau

[2] 2001/2002, actual days in session, Source: Book of the States, Council of State Governments (L=Legislative Days C=Calendar Days)

[3] 2003, includes session-only staff, Source: NCSL

Appendix B

*States that Provide Legislators with Laptops or Personal Computers in the Chamber, 2004**

State	Approx. Startup Date	Internet Access Provided While in Session?	External E-Mail Access Provided While in Session?
Alabama	1999	Yes	Yes
Arizona	1998	Yes	Yes
Arkansas House	1996	Yes	Yes
Arkansas Senate	1997	Yes	Yes
California	1995	**No**	**No**
Colorado	1999	Yes	Yes
Connecticut	1998	Yes	**No**
Florida House	1991	**No**	**No**
Florida Senate	1997	Yes	Yes
Georgia	2000	Yes	Yes
Hawaii House	2003	Yes	Yes
Idaho	2001	Yes	Yes
Illinois	1996	Yes	Yes
Indiana	1994	Yes	Yes
Iowa House	1997	Yes	Yes
Iowa Senate	1996	Yes	Yes
Kentucky	1998	**No**	**No**
Louisiana	1998	Yes	Yes
Maryland House	2000	Yes	Yes[1]
Maryland Senate	1999	Yes	Yes[1]
Michigan House	2000	Yes	Yes
Michigan Senate	1990	**No**	**No**
Minnesota House	1997	Yes	Yes
Minnesota Senate	1998	Yes	Yes
Mississippi	1997	Yes	Yes
Missouri House	1997	**No**	**No**
Nebraska	1997	**No**	Yes
Nevada	1997	Yes	Yes
New Mexico	1998	Yes	Yes
North Carolina House	2000	Yes	Yes
North Dakota	1997	Yes	Yes
Ohio	2001	**No**	**No**
Oklahoma Senate	1998	Yes	Yes
Pennsylvania House	1999	**No**	**No**
Rhode Island	2003	**No**	**No**
South Carolina	1999	Yes[2]	Yes
South Dakota	1999	Yes	Yes
Tennessee	1999	Yes	Yes
Texas House	1996	Yes	Yes
Texas Senate	1997	Yes	Yes
Utah	1997	Yes	Yes
Virginia	1999	Yes	Yes[3]
Washington House	1998	Yes	Yes
Washington Senate	1999	Yes	Yes
West Virginia House	2001	**No**	**No**
Wisconsin Assembly	1999	Yes	Yes
Wyoming	2002	Yes	Yes

*Additional states allow legislators to bring their own personal laptops into the chamber, but do not purchase the equipment. For example, in Delaware, Kansas, and Montana, legislators may bring in their own laptops and connect to the legislature's network.

[1] Access only upon request
[2] The chamber equipment is limited to the legislature's web site and a few other select sites during session.
[3] Legislators have two e-mail addresses–one that sends e-mail to members' offices, the other to members' desks on the floor. The latter address is not publicized, but members are free to provide the address to anyone.

Appendix C

Legislatures Live: States that Broadcast Legislative Proceedings

The number of states that provide live broadcasts of their proceedings over the Internet and television continues to grow. As of January 2004, live broadcasts were available from 45 states. Internet audio or video feeds are available from 72 of the 99 legislative chambers (38 states). Below is a chart with links to state legislatures' offerings (available online at www.ncsl.org/programs/press/leglive.htm.)

State Legislatures	Audio only via Internet	Audio and Video via Internet	Audio and Video via TV Broadcast
Alabama	Alabama Senate		
Alaska		Alaska Legislature KTOO-TV	KTOO (PBS)
Arizona		Arizona House Arizona Senate	Arizona Capitol Television (ACTV)
Arkansas			Arkansas Educational Television Network (AETN)
California	California State Senate	The California Channel	California State Senate
Colorado	Colorado General Assembly		
Connecticut	Connecticut Network (CTN)	Connecticut Network (CTN)	Connecticut Network (CTN)
Florida		Florida Legislature	The Florida Channel / WFSU-TV
Georgia		Georgia House Georgia Senate	
Hawaii			Channel 54 NATV
Idaho	Legislature Live		Idaho Public Television
Illinois	Illinois Senate	Illinois House	The Illinois Channel
Indiana	Indiana General Assembly		
Iowa	Iowa General Assembly		
Kansas	Kansas Legislature		
Kentucky		Legislative Coverage	Kentucky Educational Television
Louisiana		Louisiana House Louisiana Senate	Louisiana Public Broadcasting (LPB)
Maine	Maine House Maine Senate		
Maryland	Maryland General Assembly		Maryland Public Television
Massachusetts			WGBH (PBS)
Michigan		Michigan House Michigan Senate	Michigan Government Television (MGTV)
Minnesota		Minnesota House Minnesota Senate	Minnesota Public Television / UHF Channel 17

State Legislatures	Audio only via Internet	Audio and Video via Internet	Audio and Video via TV Broadcast
Mississippi			Mississippi Educational Broadcasting
Missouri	Missouri Legislature		
Montana			TVMT
Nebraska		Nebraska Legislature	Nebraska Education Telecommunications (NETV2)
Nevada		Nevada Legislature	PBS
New Hampshire	New Hampshire New Hampshire		
New Jersey		New Jersey General Assembly	New Jersey Cable Telecommunications Association
New York		New York New York Senate	
North Carolina	North Carolina General Assembly		
North Dakota		North Dakota Legislature	Community Access Television (CATV)
Ohio		Ohio Legislature	Ohio Government Telecommunications (OGT)
Oregon		Oregon Legislature	Oregon Public Broadcasting
Pennsylvania			Pennsylvania Cable Network (PCN)
Rhode Island			PBS
South Carolina		South Carolina Legislature	
South Dakota	South Dakota South Dakota		South Dakota Public Television(SDPTV)
Tennessee		Tennessee House	
Texas		Texas House Texas Senate	PBS
Utah	Utah Legislature		
Virginia		Virginia Senate	
Washington		Washington Legislature	TVW
Wisconsin	Wisconsin Senate	Wisconsin House	
Wyoming	Wyoming House Wyoming Senate		

Appendix D

Summary of User Survey Responses

1. Importance of access to a computer in performing legislative duties.	All Responses	Legislator Responses	Legislative Staff Responses
Must have	84	42	42
Important	14	12	2
Somewhat important	3	1	2
Not important	4	2	1
Not needed at all	1	0	1
2. How frequently is the Vermont Legislative Information System used during the session?			
Daily	90	48	41
Weekly	10	6	4
Biweekly	1	1	0
Monthly	2	0	2
Never	4	2	2
3. How frequently is the Vermont Legislative Information System used during the interim?			
Daily	43	11	31
Weekly	28	19	9
Biweekly	13	9	4
Monthly	15	12	3
Never	7	5	2
4. IT System functions used during the session.			
E-mail	104	56	47
Word Processing	95	52	43
Spreadsheet Analysis	29	11	18
Bill Tracking System	92	46	45
Committee Agenda and Calendar System	72	36	35
Legislative Directory	58	30	28
Website	66	27	39
Internet Access	87	43	44
Database Management Software	20	1	19
Presentation Software	11	2	9
Legislative Calendar and Journal	65	35	29
Remote Access from Outside the State House	57	33	23
Other			
5. IT System functions used during the interim.			
E-mail	96	48	47
Word Processing	55	11	44
Spreadsheet Analysis	23	4	18
Bill Tracking System	71	31	39
Committee Agenda and Calendar System	40	17	23
Legislative Directory	60	32	28
Website	63	24	39
Internet Access	52	10	42
Database Management Software	15	0	15
Presentation Software	11	1	10
Legislative Calendar and Journal	30	12	18
Remote Access from Outside the State House	53	29	24
Other			
6. Users self rating of their expertise in using the software used to perform legislative duties	All Responses	Legislator Responses	Legislative Staff Responses
Expert	5	0	4
Very Knowledgeable	26	10	16
Knowledgeable	57	33	24
Need Training	18	14	4
Do Not Know How to Use at all	0	0	0

Appendix D (cont.)

7. Frequency of calls to the IT staff for help during the session.	All Responses	Legislator Responses	Legislative Staff Responses
Daily	3	0	3
Weekly	11	1	10
Biweekly	14	6	8
Monthly	52	34	17
Never*	21	14	7
(*A number of users indicated that they contacted the IT staff only once or twice a session. Their responses were included under Never.)			
8. Frequency of calls to the IT staff for help during the interim.			
Daily	1	0	1
Weekly	5	0	5
Biweekly	7	0	7
Monthly	35	11	24
Never*	53	44	8
(*A number of users indicated that they contacted the IT staff only once or twice a session. Their responses were included under Never.)			
9. User satisfaction with IT System functions and characteristics. (5=Very Satisfied; 1=Not at all Satisfied)			
Reliability	3.89	4.07	3.67
Ease of Use	3.70	3.61	3.80
IT Staff Responsiveness to Problems	3.55	3.89	3.11
IT Staff Sensitivity to User Needs	3.34	3.76	2.82
Speed of the System	3.43	3.51	3.32
Access to Computers	3.54	3.05	4.13
Internal Training	3.40	3.60	3.17
Outside Training	3.38	2.84	3.71
E-mail	3.94	3.95	3.98
Spam Control	3.27	3.06	3.51
Word Processing	3.89	3.81	3.98
Spreadsheet Analysis	3.69	3.56	3.81
Database Management Software	3.40	3.39	3.41
Presentation Software	3.39	3.20	3.57
Bill Tracking System	3.90	4.02	3.76
Legislative Calendar and Journal	4.08	4.15	4.00
Committee Agenda and Calendar System	3.81	3.98	3.61
Legislative Directory	4.16	4.27	4.03
Web Site	3.92	3.93	3.91
Internet Access	3.99	3.96	4.02
10. Additional IT services or functions that users would like to have that are not currently available.			
Laptop computers for all legislators	37	31	6
More computers for legislators	45	37	8
Audio broadcasting over the internet of legislative	20	11	8
Video broadcasting over the internet of legislative	16	11	4
Electronic voting systems in the chambers	25	15	9
More help with computer problems	29	10	19
More training on how to use the computer system	27	15	12
More printers that legislators can use	40	31	9
Better control of spam	39	29	10
Improved searching for the web site	11	8	3
Digital recording of floor sessions	15	9	6
Video conferencing for legislative hearings	20	15	5
Conversion of existing tapes of committee sessions to digital media	23	14	8
Personal web pages for legislators	15	13	2
Automation of additional work processes	4	1	3
Other			
11. Overall user satisfaction with the Legislative IT System. (5=Very Satisfied; 1=Not at all Satisfied)	3.59	3.64	3.52

Appendix D (cont.)
Other Comments

We need better quality sound reproduction for representatives' hall.

The current system is good. I am looking forward to using it more. I don't think we can justify additional services or functions at this time. Please send me a copy of the survey results.

Laptop net work connections in the committee rooms are a must. Statehouse should have a wireless network so legislators can be online where ever they are in the building. Handheld text messaging would be more efficient than pink mail delivered by pages.

Overall, I am satisfied with the system as is. DO NOT want electronic voting system in the chamber.

When I need research in drafting bills I have the services of a staff person at the Leg Council. As a sitting legislator most of your questions do not apply.

FM remote access and electronic voting are the most pressing needs. Was not happy that the FM remote system was not in place last session. Bad decision for the wrong reasons! Needs to be activated in January.

The system works as well as it can with so little funding - 180 members of the assembly and a lounge with approximately 14 computers is hardly efficient in these days of IT systems. Staff does well with so little resources.
All of the additional IT services listed in number 10 are nice features but I suspect have a significant cost factor. For me the costs must be considered and known before I would indicate my preference for them.

I am not a computer person - I use only e-mail. My time is too valuable to spend fooling around with something as dysfunctional as a computer.

I interface a lot with pc, server and database users in my profession. I know how important it is to be understanding of their abilities, or lack there of, and also know that is important to simply be nice when corresponding with them. The lack of this with the legislative staff is the greatest downfall of the system!

Because I am a MAC user at home I always find pc's to be cumbersome.

I believe the biggest issue is access - we have 180 legislators and approximately 12 computers not counting 6 in the committee rooms.

More privacy with computer and printer use would be good. I was very unhappy when my password was changed without notifying me. Lack of staff help is very serious problem during the legislative session.

Sometimes in the past I have felt that it depends on who you are whether the IT staff is responsive to a users problems or sensitive to the user's needs. Duncan is very dependable. Lisa is absent a lot and doesn't seem to be as accessible. Although Amy Storti is not officially part of the IT staff, I usually ask for her help before I go to Duncan or Lisa. I feel Amy is very knowledgeable about the computers, printers and the telephone system and is always willing to try to help me with problems I may have.

The problem here is hardware. We need laptops in order to use presentation software. Not being able to access the system from home is a major frustration. IT staff changes to the system are often not communicated to us and we are left with have to track down IT staff to explain - very frustrating. Generally happy with the system - wish I could format better in word (liked work perfect much better); SPAM control is good but seems to also keep out some e-mail that should have gotten through.

I do not have access to a computer nor am I authorized to use one. I ask my coworker who has a computer to fill out my payroll form.

A system so staff can see questions and answers from IT or vendor to share knowledge - this does not happen at all. Way to share best practices. Uniform access to laptops and their functions i.e. recording public hearings off site. Concrete feedback system from users so there is a continuum of what is or not incorporated or changed over time. Some suggestions which would improve come tasks for all staff are suggested yearly and never incorporated - need rationale behind decisions.

We have one IT person that is always here and helpful. The other IT person isn't here most of the time.

Better access from home. My laptop connection is really slow and functions are sometimes unusable.

More capabilities for bill tracking system, such as: message boards on web, committee information for non legislative members (study committees) on agendas, more telephone and computer jacks throughout rooms in the buildings.

Biggest need is training. Staff needs to have regular systematic training sessions with IT staff to learn the system better. This would reduce number of times we need help and make us more efficient.

Document management system is great in theory but very slow in reality. E-mail works fine but because it is Novell this creates problems interacting with other MS software and very difficult to get help with other technology (PDA). I know there is a large customer base for IT staff, but I never feel like I have any input into new technology decisions, etc. I never feel like my needs matter - doesn't seem like I am an "customer". There is no opportunity (except informal and that has its own issues - I don't want to burn bridges) to provide input and discuss decisions. Recent purchase of computer furniture without asking anyone if they wanted it. Typical and of course many do not want it. Why can't the users be consulted?

There is no standard way for users to know more about changes/upgrades to the system for example - e-mail quarantine is a very useful feature, but almost no-one knows that it exists or how to use it. Maybe a central web accessible system with information for all users about upgrades, changes, features, etc. E-mail system seems to have been improved significantly. The more that is available online - reports, drafts, committee schedules, the better.

We need more IT staff to help with problems and to provide information on using programs. Although the current staff is doing a good job they cannot respond to all of the requests for help that they receive.

It seems like we are constantly upgrading versions of software and the upgrades don't seem to be improvements on the "user" end. Way too slow, it takes forever to boot-up and shut down. Lisa is great, she listens to you and tries to respond in a timely manner. Need more IT staff like her -- pleasant, responsive, cheerful and very helpful.

Would like more help in how to do more work on computer. We need someone that we can ask about how to set up or do for us so our job could be a little easier if we told someone what we wanted and they could set it up for us.

Biggest issues is integration of spreadsheet excel with PC docs. Have to make your process fit the system rather than having the system fit the process. Does not recognize that there are different needs? For different users. Decision making tends to be insular. We are informed after the fact rather than included before the fact.

I think the majority of phone calls for help go to the head of the department. I think he is pulled in a lot of different directions. One reason seems to be the assistant is out on sick leave or working part time.

I never ask for help unless an application such as e-mail is suddenly and totally reconfigured overnight or starts "locking up" for no apparent reason.

Question 11 is a little vague and general.

It is not possible to provide laptop computers for all legislators. We have video conferencing for legislative hearings.

We do not have presentation software on the system. It is a very inadequate system. Few printers, no color. No publisher software. No audio.

We really need to keep pace with the opportunities available at a not unreasonable cost to bring greater efficiencies and productivity to the system.

No electronic voting systems in the chamber! Need more training!