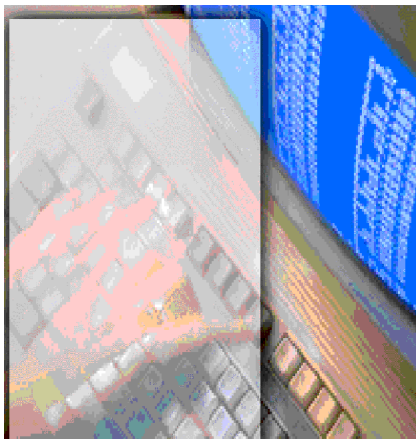
Office of the State Auditor

# Wiring Vermont's Future

Special Review



## Stronger Oversight & Project Management Needed to Develop and Protect Vermont's Information Technology Investments

**Elizabeth M. Ready**
**Vermont State Auditor**

**Issue Date: March 14, 2002**

"…information technologies are changing our patterns of social, commercial and political interactions. These changes raise profound opportunities and threats for people everywhere …
Due primarily to the astonishing growth of the Internet and e-commerce, technology is now widely acknowledged as a critical force in shaping the future."[1]

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# State Auditor's Review
## of Vermont's Information Technology Systems Development

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# Appendices

***"A popular Government, without popular information, or the means of acquiring it, is but a Prologue to a Farce or a Tragedy."***

***- President James Madison August 4, 1882*** [2]

***"I've always believed that technology was important as a tool for not only making government more accessible and user friendly for our citizens, but also to streamline government and to free up dollars that we need for police, jails, prisons and parks. The simpler it is for citizens to interact with government ... the more that instills greater confidence in government among our citizens."***

***- Governor Gary Locke, Washington, July, 2001*** [3]

# Executive Summary

Vermonters value accessible government. They want to tell the governor just what they think - in person. They expect their elected officials to listen. Most live in communities where the town clerk knows most residents on a first-name basis.

At the same time, the Internet has forever changed the way Vermonters do business. They still want the personal touch, but we expect easy access, quick response, and first-rate customer service from our government. They expect to file a tax return, buy a fishing license, and book a weekend in the Champlain Islands, all with a few clicks of their computer mouse.

The State of Vermont spends more than $50 million per year on information technology (IT) projects - everything from computers and software to websites describing state services and the complex systems that process benefits payments, track legislative bills and pay state vendors.

Increasingly, the public's trust - and scarce tax dollars - are placed into wires, software and computers. But technology is a tool, not a panacea. These projects come with unique and inherent risks that must be properly managed to assure public benefits.

This means new challenges for state government. Old, compartmentalized notions must be broken down in favor of a more streamlined system where citizens can interact easily with their government and readily receive the information and the services they need. To be successful, state government needs strong leadership and thoughtful oversight. It needs to develop new systems and protocols. It needs to invest in new assets and better manage its existing assets. And, it needs to foster an atmosphere of controlled risk-taking, where successful efforts are rewarded and problems become opportunities for improvement.

The Office of the State Auditor conducted a special review to determine whether Vermont has the proper controls in place to design, develop, integrate and manage its IT systems. We wanted to know: Is Vermont wisely investing its dollars and properly managing its assets? Are the projects delivering improved performance and better service to the state's customers? Are Vermonters receiving appropriate returns for their tax dollars?

## Securing IT Assets

As a companion to this Special Review, we conducted a high-level assessment of the State's security and data recovery policies. We examined the policies in place at three departments, as well as the policies developed by the Office of the Chief Information Officer and the Information Resource Management Advisory Committee.

We found there is limited guidance regarding the implementation and monitoring of these policies, which may place Vermont's IT assets at unnecessary risk of theft, sabotage, or natural disaster. Basic measures, which do not require increased spending, could be taken to improve IT security.

We released our findings and recommendations in a separate report, *Securing the Enterprise*, which is available on our website www.state.vt.us/sao.

## A Foundation on Which to Build

IT innovation is risky in any organization - it involves substantial investments of time and money, it is reliant on technologies that evolve rapidly, it requires a thorough understanding of business processes, and, finally, both managers and front-line employees must be willing to "endure the pain of shifting from one pattern of work to another and from one organizational structure to another."[4]

The State has initiated a number of ambitious computer system redesigns and upgrades in recent years that, when fully implemented, will have far reaching benefits for Vermont and its taxpayers.

The new Tax Department system, *ADVANTAGE Revenue*, is designed to provide comprehensive support for tax and revenue management processes. Its benefits will include a redesign of data collection and information processing procedures to provide quicker and easier access to information, greater employee productivity, expedited bank deposits, and improved efficiency and effectiveness. Best of all, the system will enhance filing and remittance procedures to make compliance and payment requirements more convenient for the public. Department personnel have endured a tough year of transition and have taken many steps to improve the system. In its second year of operation, the system is working better and taxpayers are reporting greatly improved service.

The Department of Finance and Management's Project VISION will provide the State with a comprehensive, integrated financial management system and allow Vermont to move to a full encumbrance accounting system that better accounts for and tracks the State's fiscal resources. The benefits are many. The system is designed to improve record keeping, reporting and accounting functions that meet Generally Accepted Accounting Principles (GAAP). When fully operational, it will also improve strategic planning, forecasting and performance-based decision making, and provide online budget development and better access to data and information.

Vermont's third giant step forward will be the E-Government Portal, which is designed to enhance citizens' ability to navigate and locate information and services across state government. This dynamic portal will allow citizens to apply for benefits, buy licenses or registrations or reserve a campsite - all with a secure and convenient online system. The Tax Department's online tax return filing - V-File - is the portal's first application, and it will make the job of filing taxes easier and more efficient for thousands of people each year.

Each of these projects has benefitted from the leadership of the Secretary of Administration, the Office of the Chief Information Officer (CIO) and key project sponsors and staff within the departments. They deserve much credit and thanks for their vision. In 2003, when a new administration takes office for the first time in 10 years, they will find a foundation on which to build.

We hope our recommendations willcomplement what has been accomplished and serve as a blueprint for enhancing and protecting our investment in technology in the future.

## Summary of Findings

Unlike a for-profit business that may have many products, but only one or two lines of business, governments encompass a broad array of services and functions. Vermont has 62 distinct business units within State government. IT solutions, therefore, must meet multiple needs, including regulation, advocacy, public safety, promotion, revenue collection, grants management and retail sales.

In order to better understand the current climate and context, our Office reviewed how the current laws and policies affecting IT projects were developed and how they evolved. We then considered the unique challenge of developing IT projects in a government environment, and sought to assess the State's IT spending, its IT staffing and the IT resources already in place.

***Our Review found that Vermont can improve accountability and controls for IT selection, oversight and evaluation. The State would also benefit from managing its IT systems as assets of the overall enterprise. We found three interrelated areas of concern and opportunity. They are:***

## 1. Governance and Oversight

- Vermont would benefit from stronger management and oversight of its information technology investments, with an eye toward viewing its IT investments as enterprise assets of state government. (Finding 1 - page 10)

- The Administration has not prepared, nor has the Legislature demanded, a "strategic plan for information technology" as required by 3 V.S.A. §2222 (a) (9). The Administration has requested the Legislature fund projects year to year, without the benefit of a strategic plan, and the Legislature has complied. (Finding 2 - page 14)

- IT policies, procedures and standards would benefit from clearer direction, greater scope and uniform enforcement. (Finding 3 - page 16)

- Financial controls for selection and funding of IT initiatives should be strengthened. (Finding 4 - page 18)

## 2. Structure & Capacity

- The Office of the CIO lacks the sufficient statutory authority and resources needed to become a dynamic manager of Vermont's IT investments and architecture. Therefore, the value of IT investments in improving productivity has not been fully realized. (Finding 5a - page 22)

- The current State administrative structure for coordinating and managing IT assets and initiatives needs strengthening. (Finding 5b - page 22)

- The State needs an integrated approach to developing skills within its staff for project management of IT development efforts and for ensuring that IT staff remain skilled in the rapidly evolving details of their profession. (Findings 6a & 6b - page 26)

- Training of non-technical state employees in the computer applications they are expected to use could be enhanced. (Finding 6c - page 26)

## 3. Project Management

- Vermont would benefit from stronger controls to monitor the management and development of individual IT projects. Successful IT projects have been due more to the dedication and commitment of individual employees rather than systematic oversight or controls. (Finding 7a - page 28)

- The process by which the state procures and contracts for software development has sometimes been cumbersome, and time-consuming. It could be improved to better meet the State's policy of cost effectiveness and open and competitive bidding. (Finding 8 - page 30)

- The State needs a formal method to assess project performance, and use findings to improve the implementation of future projects. (Finding 7b - page 28)

## Summary of Recommendations

Vermont and its leaders must recognize information technology as a critical asset that is essential to the State's ability to continue serving citizens efficiently and effectively. We recommend that Vermont:

- Establish an independent IT Investment Board comprised of representatives from the Legislature, the CIO, and both private and public sector professionals with business and IT expertise.
- Require the preparation of a strategic plan for IT investments.
- Develop clear selection and funding criteria for IT projects.
- Develop meaningful policies, standards, procedures and guidelines for IT development and management, and implement mechanisms to ensure that they are enforced.
- Empower the Office of the CIO with the statutory authority and resources to oversee the development and effective use of IT resources by the State of Vermont. This includes codifying the CIO's role and responsibilities in statute and providing the Office with additional resources.
- Optimize the IT management structure through a "linked" relationship between the CIO and department IT staff.
- Enhance opportunities for professional development and training of IT staff.
- Enhance the State's project management capacity.
- Develop and enforce project management standards and oversight procedures.
- Consider pre-qualified contracts for IT software and application development.
- Require post-implementation review for all major IT projects.

Respectfully Submitted,

**Elizabeth M. Ready**
**State Auditor**
**March 14, 2002**

# Vermont IT - A User's Perspective

## *We Paid for It: Make it Work*

When Vermont gathered a team of state personnel to design and oversee the implementation of VISION, the new accounting software application for all of government, the Treasurer's Office gave up a staff member to work full-time on the project team.

Once VISION was up and running for several months, the Treasurer's Office expected its workload to return to normal. But, it didn't.

The software application designed (specifically for use by the Treasurer's Office) to automatically reconcile deposits made by individual units of state government didn't work, according to Deputy Treasurer Susanne Young.

PeopleSoft, the software developer, admitted in October 2001 that a "bug" existed in the application and agreed to make a "critical fix." Young was told that PeopleSoft later said the source of the problem was with the project's consultant, Arthur Anderson.

"We were caught in the middle of two vendors, and it was hard to get their attention," says Young. Despite repeated attempts to call attention to their software application problems, nothing happened. "We paid for it, so I wasn't going to work around it - they needed to make it work."

The problems with the Treasurer's software means a staff person was faced with the task of manually reconciling hundreds of deposits that should have automatically reconciled.

This software problem was compounded by Department of Finance and Management's delay in closing out the books for the first fiscal quarter. Instead of closing out the books in October for the first quarter activity in July, August and September - the Department didn't close the books until the end of December. "We had been pressing [the Department of Finance and Management] for a ledger since August," says Young. A full seven months later, the Treasurer's Office received a general ledger.

*Employees throughout state government are learning to use the new VISION system.*

A consultant from PeopleSoft came to the Treasurer's Office in January to help them use their special software application. Aside from confirming what the Office knew - that the automatic reconciliation module was broken - he advocated for the Office to receive the appropriate help.

Even with these glitches, Young says her Office can tell that many deposits are not being properly entered into VISION. This makes it more difficult to review the deposit slips electronically, and may necessitate the need for staff to make site visits to various state departments to review deposit slips and employees' use of VISION.

In January, Young advocated for aggressive outreach from the Department of Finance and Management in conjunction with the Treasurer's Office reconciliation work. This began in February, when the Treasurer's Office lined up an accounting firm to catch up on the reconciliations. If a department has made deposits or journal entries that cannot be reconciled within the system, it can expect to receive a request in the near future for back-up documentation for all non-reconciled items.

The Treasurer's Office and the Department of Finance & Management are committed to using the resources of an outside accounting firm to not only bring the reconciliations current, but also to work with departments to correct user mistakes that have made this process so challenging.

# Findings and Recommendations

Our review found a need to improve controls in the selection, oversight, management and evaluation of information technology. Our findings concentrate on general areas of concern rather than specific detailed findings. The findings are grouped into three interrelated areas:

• Governance and Oversight - encompasses the oversight by which information system acquisitions are selected, funded, supervised, controlled and evaluated.

• Structure and Capacity - encompasses the methods by which the State deploys, trains and retains personnel with IT responsibilities.

• Project Management - is the process by which specific information systems are planned, staffed, initiated, executed, closed out and evaluated.

These areas are interdependent. While specific recommendations follow each finding, the interdependency of these areas means that each recommendation, if implemented, can have an impact on all three areas of concern.

To review the State's IT project development process we examined four recent projects:

- **ACCESS** is the information management system that determines eligibility for and processes social service benefits including welfare, heating assistance, food stamps and child support payments.
- **VIRCS** (Vermont Integrated Revenue Collection System) is the Tax Department's phased project of comprehensive systems replacement.
- **VISION** (Vermont Integrated Solution for Information and Organizational Needs) is the State's new integrated financial management system.
- The **E-Government Portal Project** is being coordinated by the CIO "to provide a single point of access to all government services for citizens, employees and businesses that is citizen-centric in its focus."[5]

Details from the test cases are used to illustrate our findings (See Appendix G - page 46). Each case provides opportunities for improvement. It is important to note that managers charged with implementing IT projects often operate in a rapidly changing environment with little direction and minimal support. In this context, the State is fortunate to have achieved the current level of success with its IT projects. Haphazard success is obviously not the ideal. We believe it is valuable to analyze the difficulties that have been encountered, and to consider improvements that can lessen their impact and ensure the success of future IT projects.

***continued, page 10***

# Investment Boards: A Key to Managing IT Assets

## *Bringing Unity & Cohesion to IT Planning*

A number of states make significant use of IT Investment Boards, using them to not only create strong management and oversight of IT projects, but to change the culture within government to better accommodate and utilize technology to improve services for taxpayers. As the U.S. Government Accounting Office rightly notes, "The IT Investment Board is a key component in the IT management process."

The State of Washington, a recognized leader in digital governance, has a department of information services headed by the CIO who reports to the Governor. A 15-member Information Services Board made up of leadership from the Legislature, state agencies, higher education and the private sector is charged by statute to:

- Develop standards to govern the acquisition and disposition of equipment, software and purchased services;
- Approve IT acquisitions or set rules that delegate acquisition authority;
- Develop interagency technical policies;
- Review and approve the statewide IT strategic plans;
- Provide oversight on large projects; and,
- Establish and monitor appeals processes.[6]

In Arizona, the Information Technology Authorization Committee (ITAC) approves or rejects IT projects developed by any branch of government and costing in excess of $1 million. Like the other oversight boards, ITAC is composed of representatives of all three branches of government, as well as a number of individuals with senior-level private sector experience in IT. In most instances, the ITAC monthly meetings are the only public forums available for discussion of IT projects in Arizona's state agencies.

Nebraska's Information Technology Commission has nine members appointed by the Governor and approved by a majority of the Legislature; it is currently chaired by the Lieutenant Governor. The Commission's responsibilities include:

- Preparation of the statewide technology plan;
- Creation and management of a technology information clearinghouse that identifies and shares best practices and new developments;
- Policy development and adoption;
- Making biennial recommendations to the Governor and the Legislature for technology investments including a prioritized list of projects; and,
- Project status oversight.[7]

Members of the investment boards in Washington and Arizona are not paid for their time, but are reimbursed for travel expenses related to their board duties. This is similar to how many of Vermont's advisory councils and committees are reimbursed.

These investment boards are able to help streamline and strengthen the planning and implementation of enterprise-wide IT projects, rather than add to the bureaucracy.

# Governance & Oversight

***Finding 1***

***The Office of the CIO currently exercises some operational responsibilities over IT systems. However, the State would benefit from stronger management and oversight of its information technology investments. Vermont could better manage its IT investments as overall assets of state government.***

***Discussion***

Like many organizations, the State of Vermont has undertaken IT projects that have cost too much, taken too long, consumed too much employee time, and failed to improve performance.

The Department of Taxes adaptation of American Management Systems' (AMS) tax accounting package (called "A/R," for "ADVANTAGE/Revenue") for use in Vermont was initially expected to be relatively straightforward and rapid. Tax law changes and development problems complicated the project, and it is still not completed six years after the first contract. To date, it has cost approximately twice the original estimate.[8] The personal income tax component was substantially implemented during the 2001 tax season. Well-publicized problems regarding the accuracy and timing of tax refunds raised questions about functionality and performance. But, the system bears great promise and the second year of operation is off to a good start.

Project VISION, first considered in 1994, was designed to improve the State's financial reporting. It was slated to be operational by July 1, 1999 at a cost of about $9.8 million, but went live two years later on July 1, 2001. Total cost is currently estimated at $18 million, exclusive of considerable employee time.[9] While VISION is not yet fully implemented, there are concerns about the system's slow response time, an unresolved bug in the software and the system's capacity to fully meet the State's requirements.[10] Still, VISION is bringing many benefits to the State; it is improving historical record keeping, strategic planning and performance-based decision making, as well as providing online budget development and better access to data and information.

The Department of Prevention, Assistance, Transition and Health Care (PATH) spent three years, hundreds of employee hours, and in excess of $350,000 for consultants to look at enhancements for the existing ACCESS system, only to have an independent review reach the conclusion that a total system redesign made more sense. The upgrade was cancelled.

Governments of all sizes have enacted laws and procedures designed to focus on management of IT as a capital investment. IT projects are considered on an enterprise-wide basis in these organizations. They are assessed on their ability to meet defined organizational goals, improve performance, be cost-effective and offer measurable benefits. Once assessed, projects are prioritized for funding based on clear criteria that consider risks and returns, both tangible and intangible. The goal of these initiatives is to deliver IT projects that "are being implemented at acceptable costs, within reasonable and expected time frames, and are contributing to tangible, observable improvements in mission performance."[11]

The U.S. Government Accounting Office (GAO) has produced numerous tools to provide guidance and structure for auditing, evaluating and assessing an IT investment management capacity, and internal controls. These guidelines recognize three phases in IT investment management: selection, control and evaluation. Selection includes the policies and processes that guide decisions to move forward with a project. Control is the oversight that assures a project delivers the benefits promised. Evaluation is the assessment of whether the organization got what it paid for.

The GAO has identified the following elements as critical for a successful investment management process:[12]

- Key organizational decision-makers are committed to the process and are involved throughout each project's life cycle.
- The investment management process is repeatable, efficient, and conducted uniformly and completely across the organization.
- Decisions are made consistently throughout the organization.
- Accountability and learning from previous projects are reinforced.
- An optimal portfolio mix is emphasized in order to manage risk and maximize the rate of return.
- The process incorporates all IT investments, but recognizes and allows for differences between various types and phases.

Apolicy group at Harvard could have had Vermont in mind when it observed, "our public leaders - including elected and appointed officials and their overseers in all branches of government - have too often ignored technology issues or have delegated them to others. The conventional wisdom has been that technology is either not very important, or requires technical expertise rather than leadership, or is simply too risky for leaders to get personally involved."[13]

### Rising Costs

Funding for the Tax Department's revenue collection system project was allocated on a year-by-year basis, in part to accommodate income tax and statutory changes. This led to the issuance of seven different contracts, four of which were not bid competitively.

The initial contract, signed in 1995, specified that payments not exceed $1 million for a software license and $4 million for consulting.

To date, the system has cost in excess of $13 million, although this figure includes more than $2.2 million to implement unanticipated Act 60 changes. Taxes that are still in the process of being incorporated into the VIRCS system include corporate, property transfer, and some of the smaller personal taxes.

In publishing its *Imperatives for Leaders in a Networked World*, the same Harvard group noted that "due primarily to the astonishing growth of the Internet and e-commerce, technology is now widely acknowledged as a critical force in shaping the future. The need for skillful and committed leadership has become obvious."[14]

Both the CIO Management Letter from the Vermont State Auditor's *1996 CAFR Audit regarding Electronic Data Processing* and the Joint Fiscal Office's 1997 GOVnet Report recommended the creation of an independent technology steering committee.

The GAO's *Framework for Assessing and Improving Process Maturity* defines five stages of IT investment maturity. Each stage builds upon previous processes and enhances an organization's ability to manage IT investments.[15]

Organizations at Stage 1 have limited awareness of IT investment management techniques and are "characterized by ad hoc, unstructured and unpredictable investment processes . . . There is generally little relationship between the success or failure of one project and the success or failure of another project. If an IT project succeeds and is seen as a good investment, it is largely due to exceptional actions on the part of the project team ... The unpredictable nature of project outcomes means that even if an organization does recognize a given project is in trouble, the organization has only a limited ability to address and resolve the project's problems. The selection process is frequently rudimentary, poorly documented, and at times inconsistent."[16]

Vermont's experience is consistent with a Stage 1 organization. Once a project is underway, the sponsoring department provides the only oversight. There are no statewide procedures for project management or evaluation outside the annual budgeting and appropriation process. The State needs formal procedures to:

1. Evaluate if the system delivered performs as expected;
2. Assess if the project improved performance;
3. Identify needed changes or modifications; and,
4. Learn from the difficulties of a project.

The Agency of Administration has been aware of these conditions for years, but proposed solutions have been ignored. In 1993, the Legislature directed the Joint Fiscal Office to study the State's purchases of data processing systems. Three of the report's four findings, issued in December 1993, remain as true today as they did eight years ago (See Appendix B, IT in Vermont - A Brief History, page 34).

**Strategy as Partnership and Process**

A successful IT strategy cannot be created in isolation; it must be a living document that originates from a collaborative effort between IT owners and IT users.

The Joint Information Technology Oversight Committee (JITOC), which had oversight responsibility for the State's IT expenditures during its two-year existence (1994-1996), was often distracted by its consideration of policies related to technology's impact on society, methods to foster an appropriate business climate, and the IT requirements of the Legislature and its staff.[17] JITOC's final report recommended that the House establish an IT advisory committee, and that the Senate rely on existing committees to oversee IT subjects. Given the complexity of many IT projects, it is unrealistic for Vermont's citizen legislature to exercise oversight without some professional staff assistance - a point also recognized by JITOC.

***Recommendation 1***

***The State should create an independent Information Technology Investment Board made up of the CIO, legislators, IT managers from state government, and business leaders with IT expertise (See page 9 for examples of how other states utilize IT Investment Boards).***

***This Board should:***

- ***Assist with developing policies and protocols for project selection;***
- ***Assist the administration to select, prioritize and approve IT investments within the constraints of the administration's budget and legislative appropriations for IT investments;***
- ***Provide technical assistance in the oversight of project development including offering specific recommendations to pull the plug when projects go awry or needs change significantly;***
- ***Assist with promulgating policies, procedures, and guidelines that improve the State's capacity to manage IT developments, including technical standards and interagency initiatives;***
- ***Advocate for appropriate staffing to support IT investments;***
- ***Educate policy-makers about IT developments and their impact on state government;***
- ***Evaluate peformance in order to learn from project difficulties and successes; and,***
- ***Assure accountability to the Legislature and taxpayers***

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# Vermont IT - A Business Perspective

## *Getting Connected to Customers*

Beth Kennett of Liberty Hill Farm in Rochester gets up early - the alarm sounding between 4:30 and 4:45 a.m. She sends her husband and sons off to early milking chores, and then she turns her attention to preparing breakfast for her guests. Her day ends when the questions stop coming from her lodgers - usually sometime around 11 p.m.

Her business is not just to run a farm, but to provide tours, lodging and meals at her 1787 farmhouse in what has become one of Vermont's exciting new market niches - agri-tourism.

Beth has had a farm website for three years, and requests for information and lodging reservations rise monthly. Getting recently linked to the State's promotional website - ConnectVermont - she hopes will build on that success.

"For me, the Internet has become crucial to my business. The other day I received several contacts, some asking for information but others asking to book a stay," says Kennett. "In the last three months I've received more e-mail than I did in the the past three years."

The current success of ConnectVermont will keep those e-mails coming; it's meeting its goal to link residents, tourists and contractors with Vermont businesses and attractions. The cross-marketing project was spearheaded and managed by the Agency of Commerce and Community Development through the departments of Tourism and Marketing and Economic Development. It also involved work with the Agency of Transportation and the Agency of Natural Resources.

The Department of Tourism & Marketing launched the new website in August 2001, which enabled it to link its IT investments to its long-term goals - to enhance the ability of businesses to connect with consumers. This is a key ingredient in the long-term success of any IT project. Another successful factor is consistent funding. The ConnectVermont project received $1.9 million in grants from the Federal Highway Administration, thanks to U.S. Sen. Patrick Leahy (D-VT).

*Doing business with ConnectVermont: Beth Kennett, and her son Patrick, of Liberty Hill Farm.*

Future phases of ConnectVermont will look to connect travelers in Vermont to businesses by using low power FM radio and personal digital assistants, among other emerging technologies.

The agri-tourism association Kennett belongs to - Vermont Farms! - says the third highest referral to its website, www.vtfarms.org, is from a link to ConnectVermont. The highest referral is through direct advertising of the agri-tourism website, and the second highest referral is from directing people when they call their toll-free number. Kennett would like the State to provide her business with reports on how many people visit agri-tourism sites on ConnectVermont, and individual farms specifically, in order to help farms make business management decisions concerning their utilization of IT.

"This effort will help all farms. People who come here to visit our farm buy more cheese, drink more milk; there is a carry-over to the rest of Vermont agriculture through agri-tourism. Once people visit a sugarhouse, they want to buy only Real Vermont maple syrup from then on," Kennett notes.

***Finding 2***

***The Administration has not prepared a "strategic plan for information technology" as required by 3 V.S.A. §2222 (a) (9). The Administration has requested the Legislature fund projects year by year, without the benefit of a strategic plan, and the Legislature has complied.***

***Discussion***

Vermont is one of only six states without a strategic plan for IT.[18] While neither the Secretary of Administration nor the CIO prepared a "strategic" plan, the Legislature has not yet required conformance with the law as written.

As the *Report of the Information Technology Strategic Planning Commission* in New Hampshire found, "the absence of a statewide strategic plan has made it difficult to effectively anticipate and respond to significant external change, to accelerate IT learning across state agencies and to leverage IT investment."[19]

For the past seven years, the CIO has prepared a document for the Legislature titled, *The Information Technology Five-Year Plan.* The document is "a project plan; it's not a strategic plan."[20] Initially, the annual plan did include some discussion of strategic directions. But, since 1998, it has been solely a compilation of information and action plans submitted by departments.

The State's CIO Patricia Urban noted, "we should have a strategic plan for IT." However, she acknowledged the challenge of creating one when, "we don't have one for government."[21]

Statewide IT strategic plans typically include a vision of how the state plans to use IT, goals and/or principles, a description of the environmental context, trends in IT, relevant developments within the state, the strategic direction the state intends to pursue, and steps needed for implementation. Vermont does not currently have an IT planning document that addresses any of these areas.

Section 2222 (a) of Title 3 of the Vermont Statutes details the obligations of the Secretary of Administration pertaining to information technology planning. Specifically, the statute states:

*(a) In addition to the duties expressly set forth elsewhere by the law the secretary shall:*

*. . .*

*(9) Submit to the general assembly concurrent with the governor's annual budget request required under 32 V.S.A. §306, a strategic plan for information technology, which outlines the significant deviations from the previous year's information technology plan, and which details the plans for information technology activities of state government for the following fiscal year as well as the administration's financing recommendations for these activities. All such plans shall be reviewed and approved by the chief information officer prior to being included in the governor's annual budget request. The plan shall identify the proposed sources of funds for each project identified. The plan shall include, for any proposed new computer system or system upgrade with a cost in excess of $150,000.00:*

*(A) A life-cycle costs analysis including planning, purchase and development of applications, the purchase of hardware and the on-going operation and maintenance costs to be incurred over the expected life of the systems; and a cost-benefit analysis, which shall include acquisition costs as well as operational and maintenance costs over the expected life of the system;*

*(B) The cost savings and/or service delivery improvements, which will accrue to the public or to state government;*

*(C) A statement identifying any impact of the proposed new computer system on the privacy or disclosure of individually identifiable information;*

*(D) A statement identifying costs and issues related to public access to non-confidential information.*

Our review of the IT plans from the last seven years found the following deficiencies:

1. The plans do not outline "significant deviations from the previous year's information technology plan." The only way to glean this information is by comparing the plans from year to year. For example, if one compares the IT plans issued in January 1997 and 1998, one finds the following:

a. The VISION project milestones were delayed a minimum of three and as much as 6 months; its cost had gone from $9.8 million to $15 million and its useful life had grown from 10 years to 15.

b. The VIRCS project had milestones delayed by 12 months; its first component had changed completely and its anticipated date of becoming fully operational was delayed a full year to the end of FY 2000.

As a result of these omissions, the plans do not seem to provide decision-makers with adequate information to make sound judgments about a project's progress, benefits, costs or risk mitigation from year to year. The plans also offer no inventory of existing IT assets which, as a component of the annual plan, could prove useful to the Legislature when it reviews requests to make IT investments.

2. IT plans are "reviewed and approved by the chief information officer prior to being included in the governor's annual budget request." However the only criteria for "approval" appears to be submission of the IT plan by an agency or department in the proper format with the authorized sign-off by the agency or department secretary/commissioner.

3. The statute requires the plan to provide life-cycle costs and cost-benefit analysis as well as statements regarding privacy and public access to non-confidential information for systems or upgrades expected to cost in excess of $150,000. None of the plans issued from 1995 through 2001 contain specific impact statements related to privacy or access to information for any proposed project. The life-cycle and cost-benefit analysis are at best cursory and often completely absent. For example:

a. The January 1999 plan listing for the Department of Finance and Management estimated the cost of the VISION system to be $15 million, yet the paragraph related to cost analysis described various benefits and noted that "savings are anticipated based on increased operational efficiency." There was no mention of actual dollar amounts for anticipated savings, nor was there consideration of ongoing operating and maintenance costs.

b. The E-government portal project, which is now under contract for an amount not to exceed $175,000 was not listed in the action plan section of any annual IT plan.

While our review indicates a record of noncompliance with statutory requirements, we would note that the Legislature appears to have accepted these annual plans as adequate. While we agree that the detailed project plan information delineated in this statute should be submitted to some type of oversight body, we question whether the Legislature needs to receive this level of detail for each and every project.

***Recommendation 2***

***The Secretary of Administration should direct the preparation of a "strategic plan for information technology" as required by 3 V.S.A. §2222 (a) 9. The CIO should prepare this strategic plan for information technology investments for review by the Legislature. The plan should be updated on a regular basis. The CIO should prepare an inventory of IT assets, including equipment and mission-critical applications, as an appendix to the plan.***

***The Legislature may wish to revise 3 V.S.A. §2222 (a) 9 to clarify what it expects to receive.***

***Finding 3***

***The State has some standards in place for databases, desktops and networks, but its current controls could be improved to fully protect its IT assets. Vermont's IT policies, procedures and standards would benefit from clearer direction, greater scope and uniform enforcement.***

***Discussion***

The Vermont State Auditor's *1995 General Purpose Financial Statement Audit: Electronic Data Processing Internal Control Review* issued findings and recommendations to the CIO regarding the adoption of policies and standards. While some of those recommendations have been adopted, others have not.

The State has little by way of policies or standards to guide project planning or approval. Business continuity (or disaster recovery) planning policies are minimal. There are few project management policies to address: comprehensive needs assessments; risk analysis; bid evaluation requirements; contractor performance monitoring; and, standards for acceptance testing or regular reporting. There are no written guidelines for website presentation, feasibility studies, or security practices. The lack of policies and guidance requires each department to reinvent the wheel. In regard to website presentation, the State lacks an integrated look and pays repeatedly for design assistance or employee time spent creating the "look" of each individual site.

Perhaps most importantly, there is no formal guidance from the CIO, the Information Resource Management Advisory Committee (IRMAC) or CIT regarding the implementation and monitoring of prudent security and data recovery policies. This Office issued a special report on these findings (*Securing the Enterprise: A High-Level Assessment of Vermont's Information Technology Security & Data Recovery Policies*) on February 19, 2002.

The Information Resource Management Advisory Committee (IRMAC) sets IT policies, per the directive of the Secretary of Administration. "IRMAC is that part of overall State Government that advises the Administration in the creation, processing and distribution of information whether computerized or not."[22]

The State currently has 19 IT policies and four enterprise-wide IT standards. About half of the IRMAC policies simply restate existing law or information contained in Administrative Bulletin 3.5, the State's Contracting Procedures.

The policies and standards often read more as desirable ideals rather than clearly worded directives or mandates. The CIO and members of IRMAC seem reluctant to provide guidance or to tell departments what they can and cannot do. For example, the standard regarding the Use of *Microsoft Office* Desktop Suite, which was adopted in February, 1998 states, "the acquisition and migration to the *Microsoft Office* desktop suite is encouraged when departments are seeking to replace existing desktop application software, which includes word processors, spreadsheets and e-mail." The policy continues by stating that submissions to the IT Five-Year Plan should contain a specific timetable and budget for conversion to *Office*, yet the CIO annual plan submission requirements never make reference to this. Enforcement of this standard is not happening as evidenced by the CIO's IT plan request for FY 2002, which asks for electronic submissions in *either Word or WordPerfect*.[23]

IRMAC's membership composition may contribute to its reluctance to issue meaningful standards. Membership includes the IT Managers from departmentss with major IT applications and *ex officio* participation by a representative, usually the senior IT person, from the Judicial and Legislative branches. Each IT manager currently operates independently. While each readily acknowledges the need for statewide restrictions or standards, there is an unwillingness to impose this on one another.

IRMAC's policy development and adoption is reactive rather than proactive. Policies are adopted after they may have had an impact. For example, an e-mail addressing convention was not adopted until May 1998, and even today it does not preclude the use of different naming conventions for individual agencies. The State also continues to have multiple e-mail systems, for no specific reason.

Additionally, there are few statewide policies about web accessibility, Internet privacy or data interchange formats. The State currently does not have a clearly written privacy policy, an essential prerequisite for digital government. A data dictionary detailing consistent standards for data interchange would allow better integration of information from different sources. An example of this would be the requirement that all date data be in a mm-dd-yyyy numeric format.

Policies could be promulgated more effectively. Managers and IT professionals that do not serve on IRMAC reveal a lack of awareness of specific policies "unless they directly impact us." Policies adopted by IRMAC are available on the CIO's website, although they are not necessarily dated, nor are there effective dates. The policy related to the CIO's review of contracts and a February 2001 policy requiring the Purchasing Division to issue RFP's for software, equipment and/or personal services related to IT are not incorporated into Bulletin 3.5. Policies related to IT are not cross-referenced in a user-friendly manner. Personnel policies related to IT are maintained by the Department of Personnel. Although both personnel and IRMAC policies may address overlapping topics, they are not cross-referenced.

Enforcement of IRMAC policies is exercised only through the procurement and contracting process. Compliance with policies related to IT use, security and GOVnet relies on the honor system, rather than any type of systematic monitoring. While improved enforcement is desirable, it is not realistic to expect the three-person CIO office to handle these duties in addition to their other responsibilities.

***Recommendation 3***

***The Office of the CIO, in cooperation with the IT Investment Board and the Secretary of Administration, should develop meaningful policies and standards for IT investments. These policies and standards should address project selection criteria, project approval process, project plan requirements, project management methodology and project reporting.***

***The Office should also issue guidelines regarding website standards, date data interchange, and requirements for security and business contingency plans. Policies should be widely available and cross-referenced in all relevant documents. Successful implementation of this recommendation will require additional capacity and resources in the Office of the CIO.***

***Finding 4***

***The State needs better controls for IT project selection, funding and approval. Current methods used to finance IT purchases do not appear to follow clear policies. The project selection and approval process can also be improved.***

***Discussion***

IT projects evolve at the department or agency level and are presented to the Legislature for funding as part of the Administration's annual budget. There are neither requirements for a formal needs assessment or feasibility analysis to be completed, nor is a cost-benefit analysis performed prior to receiving a funding appropriation. Projects, such as the E-government portal, that do not require an appropriation can avoid the entire oversight process. The ongoing costs to fund IT projects are not always obvious because internal service funds are used to pay for this activity.

IT investments are financed by all the funds of state government. Our analysis of cumulative IT-related expenses for the past three fiscal years shows the percentage of these expenses being paid by various funds:

| Type of Fund | Percentage of Total IT-related Expenses |
|---|---|
| **General Fund** | **37%** |
| **Special Fund** | **20%** |
| **Transportation Fund** | **19%** |
| **Internal Services Fund** | **11%** |
| **General Bond Fund** | **6%** |
| **Federal Fund** | **5%** |
| **All other funds** | **2%** |

The large use of the Special Fund was due primarily to the VISION project. The reasons for funding particular projects with the General Fund or the Bond Fund are not readily apparent or set out clearly in written policies. Additionally, there is no stated policy regarding multi-year appropriations.

Systems that are designed to provide benefits across state government have often been funded through billback authority where costs are assessed to agencies on a pro rata basis. This was the case with the development of the payroll system in the early '90s. More recently, a special fund with billback authority was established to fund the development costs associated with VISION.[24] In 1993, the Klein report noted, "this billing system has continued without formal legislative review or oversight ... The use of such a billing authority places an added stress on department and agency budgets. In tight fiscal times, these additional charges need to be closely monitored as they reduce the resources available for base services that departments are to offer."[25] These observations could easily apply to the funding mechanism established for VISION.

At times, the lack of financing guidance has created project development delays and challenges. VISION was delayed by a year due to differences of opinion regarding the appropriate uses of bond proceeds. The Joint Fiscal Committee rejected the Department of Finance and Management's assertion that expenses for a project director and needs analysis for the system were capital expenses and forced the project to return to the Legislature for clarification. The Tax Department had to repeatedly return to the Legislature for each phase of VIRCS.

Once a large project receives an appropriation from the Legislature, the department or agency works with the Department of Purchasing to develop an RFP.[26] The RFP is then reviewed by the CIO, who reviews the RFP but does not make any assessment of the project's ability to address the department's business needs.[27]

The bidding process then follows the State's Contracting Procedures. After reviewing proposals, the department will select the desired contractor. The CIO does not participate in the selection process since it is a "business decision of the Agency or Department."[28] If the project exceeds $500,000, an "independent expert review" is required per statute.[29] It must include:

1. An acquisition cost assessment;
2. A technology architecture review;
3. An implementation plan assessment;
4. A cost analysis and a model for benefit analysis; and,
5. A procurement negotiation advisory services contract.

This review process, while widely recognized for its potential to improve projects and save unnecessary expense, delays project start dates for three to six months. In a few instances, the independent review has quashed the entire project. This was the case with the ACCESS 2000 enhancements project where the reviewer questioned the entire business premise behind the project. While the review saved the State from making a $7 million mistake, it occurred after PATH had spent $350,000 in consulting fees and countless employee hours developing the requirements, preparing an RFP and selecting a vendor.

The cost/benefit analysis that accompanies the independent review is often the first time the department focuses on dollars. An analysis of these factors when the project is first proposed seems more appropriate. During this analysis, the department should also conduct a business process re-engineering exercise, a tact recommended by the Vermont Business Roundtable in a recent report.[30] This would "require an agency or department to analyze business methods and process prior to implementing a new system which sometimes 'automates' an inefficient or outmoded way of doing business. The results of the business process reengineering would then become input to the RFP."

In some cases, the focus of the cost/benefit analysis may obscure rather than illuminate important questions. In the case of the ACCESS 2000 Project Management Support Services Contract, the cost/benefit analysis compared the cost of the vendor project with the costs of conducting the project in-house. It did not consider the cost/benefit of the overall ACCESS 2000 project.[31]

With VISION, the cost/benefit analysis listed a fairly narrow set of intangible benefits (essentially compliance with GAAP and other accounting standards, and better reporting functionality). Yet there were other major considerations related to reliance upon operating systems and hardware platforms that were at risk due to age and lack of vendor support. In this case, moving to a new system was imperative for the State to continue functioning. In these circumstances, it is more important to analyze whether there are other methods to address the problem and whether any of them are less costly or less risky than the proposed solution. These questions were not addressed in the VISION independent review.

The treatment of risk in the VISION review was mixed. The review repeatedly - and correctly - stressed the risks to the project if Vermont did not provide adequate staffing to the project, including participation of key staff from outside Finance and Management. It also emphasized the critical nature of adequate testing, even if schedule slippage makes it tempting to hurry through. On the other hand, the

review scarcely addressed the possible risks that the technology strategy was flawed, that system functionality had been properly specified, that the specified functionality would be delivered, that data conversion would go smoothly, or that interfaces with other systems would function as needed. The analysis of the risk of schedule and cost slippage was limited to a calculation on average monthly expenses that was extrapolated to suggest the same cost for each extra month of effort that might be needed.

Finally, the $500,000 cost threshold in statute is somewhat arbitrary. A major agency hardware upgrade might exceed the dollar amount yet be relative risk-free due to existing supplier contracts previously negotiated by the Department of Purchasing. A $350,000 personal services contract for IT programming developed by a department with no IT staff and little contracting experience may have more risk to the State than a $1 million contract executed by a department with a half dozen successful system applications already completed.

The E-Government Portal Project avoided oversight completely. It was not described in the Action Plan section of the annual IT plan nor has a cost/benefit analysis been conducted since the CIO considers each E-government application separate and distinct. Nonetheless, a contract was signed by the CIO for an amount up to $175,000.

***Recommendation 4***

***IT system development projects are comparable to other assets. They should be prioritized and funded using clearly established selection criteria.***

***The Legislature should consider using a funding mechanism similar to the one used by the Department of Education for school construction and by the Agency of Natural Resources for infrastructure improvements. In both cases, a non-Legislative entity establishes criteria and prioritizes projects. Overall funding amounts are set by the Legislature. Projects requiring support over a number of fiscal years are assured ongoing funding if they meet the necessary oversight requirements. This type of process would require establishment of an IT Investment Board, as recommended above.***

***Project approval should require the preparation of a project feasibility study that justifies the business need and provides a reasonable, albeit preliminary, cost/benefit analysis. This study should also include a review of business practices to determine which could benefit from re-engineering. The cost/benefit analysis should occur prior to funding a major system or application development project, and should also address or identify project duration, project manager requirements, desired project team composition, technical needs, risk identification and mitigation, financial requirements, functional capacity, level of user support and the facilities, equipment, tools and training needed to support the project team.***

***Whenever possible, funding for IT development projects should be earmarked as such and appropriated accordingly. The use of billback authority should be avoided due to the lack of oversight and its impact on future department budgets.***

***Once an Investment Board is able to demonstrate adequate external oversight, the Legislature may want to revisit the independent review statute.***

# Digital Academies:
## *Preparing Employees for Change*

Many states have recognized the importance of project management competence and encouraged the development and use of standard methodologies. A recent Pilot Study managed by the Texas State Auditor found significant savings of money and time by using the Capability Maturity Model for Software to standardize its software project management. The Texas Comptroller of Public Accounts estimated the savings as a 5 to 15 percent efficiency gain.[32] A number of other states support the Project Management Institute (PMI) framework for project management, also known as the Project Management Body of Knowledge and encourage PMI certification.

Michigan has an Office of Project Management within its CIO office. The Office seeks to institutionalize formal project management practices into all areas of state government. These efforts include:

- Promote the use of the state's project management methodology;
- Broaden project management training opportunities;
- Implement enterprise project management tools;
- Build a project management Center of Excellence;
- Develop project management career paths; and,
- Develop project-based quality management

New York State's Office for Technology has also published a Project Management Guidebook, formed a Project Manager Mentoring program, created a user group for project managers, and coordinated a training program for project managers, team members and end users. The courses are designed to explain project management and its core competencies, outline its benefits and provide an understanding of the risks and opportunities for project success.

One of the most innovative approaches to project development and training is the State of Washington's Digital Government Applications Academy, which encourages state agencies to collaborate on transforming common processes into online applications. "Academy participants together build, test and deliver applications faster than any single member could by working alone. The class also develops an application template, which can then be customized by each agency to fit its individual business requirements. Everything that is learned in the Academy is captured and published online as the Applications Template and Outfitting Model (ATOM). ATOM is an online guide that provides project teams with a step-by-step approach to developing Internet applications by providing a list of issues to consider and steps to take. It ensures a final product that meets state standards by assembling the necessary policies, infrastructure components and useful technologies, and integrating them into a start-to-finish timeline for the lifecycle of the project."[33]

## Structure & Capacity

***Finding 5a***

***The State has not empowered the Office of the CIO with sufficient statutory authority or resources to facilitate the changes needed to reengineer its procedures.***

***Finding 5b***

***The State could strengthen its administrative structure to better coordinate and manage IT assets.***

***Discussion***

"Technology is a catalyst for government to modernize its business models, improve its operation, and update its policies. It also enables businesses and citizens to get more for their money and to have greater voice in governing." [34]

"If managed wisely, investments in information technology (IT) can enrich people's lives and improve organizational performance."[35] Inevitably, improved performance and productivity requires managers to rethink how processes are accomplished. The impetus to put government on the Internet and make services "citizen-centric" has served to sharpen this realization. As a columnist in *Governing* magazine noted, "when it comes to transforming government - making it more responsive so that services can be improved and costs reduced - technology doesn't have as much to do with it as many of us think. The real core issues have more to do with management: recognizing the citizen as a customer, breaking down the silos of the bureaucracy and making government processes simpler, more responsive and highly efficient. It also takes leadership at the top."

As the City of Denver discovered, government must "look closely at its business practices - and reorganize them . . . technology itself is the easy part; how you organize yourself to make the best use of the technology is another thing entirely."[36] Vermont is not effectively integrating technology to transform government processes or enhance constituent services. The ACCESS 2000 enhancement project identified elements of the system that did not work and sought to fix them. As the independent review found, "a step that seems to be missing in the project's development of a business case for those needs [identified in the requirements analysis]. Lacking a business case, the needs are really "wants." The reviewer added, "a system change this significant should be based upon a detailed process/workflow analysis, with an anticipated system redesign as an outcome." [37]

The E-government portal has pursued a strategy of minimal disruption to existing agency and department websites. This may be at odds with its goal of presenting an integrated online government information and services center, web standards and a consistent user interface.[38] If Vermont's E-government portal truly expects to "change the way we approach and conduct our business now and into the future," the State must be willing to make changes in its processes, in how the workforce is deployed and in how agencies and departments share information.[39] As *Governing* magazine notes, "There's no point to building a great e-government website if all it does is front for lousy processes."[40]

The public and private sectors recognize the importance of senior management personnel who can facilitate the use of IT to meet critical business needs. This strategic senior-level person is most commonly a CIO reporting directly to the governor or the equivalent executive at an agency or department. "The role of the CIO has changed from a straight technology person to a person who's responsible for many other aspects of a government's electronic face." [41]

State CIO responsibilities around the country include "policy and oversight manager, networking specialist, business change agent, operations specialist, interagency coordinator, or any combination thereof." [42]

Vermont's CIO offers statewide guidance on IT issues, but lacks the organizational position, funding and staffing to provide an enterprise-wide vision for IT investments and business processes. The position reports to the Secretary of Administration. The Government Performance Project observes, "devoid of a close relationship with the governor, the CIO will face many bureaucratic, budgetary, and jurisdictional constraints that will prolong, if not preclude, procurement, project management, and allocation of centralized versus decentralized functions, all of which contribute to effective IT management."[43]

Although the CIO was authorized by a legislative act, the position is not referenced in statute. According to the CIO's web page, the "position provides strategic direction, oversight and accountability for all activities related to information technology (IT) in state government."[44] The reality is much more mundane. The Office's primary activities are preparing the five-year technology plan, RFP reviews, engaging independent reviewers, contract reviews and some enterprise-wide coordination.

In addition to a Deputy and an administrative assistant, the CIO oversees the four GOVnet staff and an employee assigned to the Criminal Justice Integration Project. In their 2001 "Grading the States Report Card," *Governing* magazine gave Vermont a grade of C+ for information technology along with the admonition, "C'mon guys. Hire some help for your CIO ... The stingy attitude toward resources reflects a shortsighted view of the value of technology in state government. And it's hurting." [45]

In auditing GOVnet, which is overseen by the CIO, this Office's FY 2000 Management Letter observed that there was no accounting assistance available, and recommended an "individual to assist GOVnet with its accounting and reporting needs."[46]

Communications and Information Technology (CIT) is a division within the Department of Buildings and General Services that provides IT and telecommunications services to state offices. CIT seeks to recover its expenses by billing other departments for its services. It runs the statewide mainframes, makes available batch processing, hosts the State's data center and operates an e-mail system used by the Agencies of Administration and Transportation as well as the Departments of Motor Vehicles, Education, the Judiciary, Governor, Auditor and Vermont Lottery. CIT's duties are codified in 29 V.S.A. §1701.

Most states have a department or division comparable to CIT. In some states, this division runs the state's networks and provides centralized programming capacity as well as running the large mainframes and data servers. In some states, the CIT function is housed in the Office of the CIO. In other states, it is within the administrative services agency.

IT professionals operate independently within most departments. In some departments, the senior IT professional reports directly to the Commissioner or Secretary. In other departments, this individual reports to the director of administrative services. IT professionals have no formal link to other IT professionals or the CIO, except through IRMAC.

The Vermont Business Roundtable, in its recent report, suggests the State adopt a balanced management system that allows agencies and departments the authority to prioritize and complete their unique IT work, while maintaining statewide interoperability and efficiencies. One model they suggest is a"specialized analyst model," where the CIO "has a staff person assigned to each agency and department in order to be more fully engaged in the planning as well as the operational activities of the unit. This would require more resources, but could yield enormous benefits." A second model suggested by the Roundtable is mirror to the organizational structure to the Office of the State's Attorney General. Under this model, all IT personnel would be accountable to the CIO but would work in the agencies and departments to which they were assigned. The Office of the CIO would have direct oversight to the hiring, development, and motivation for the State's IT professionals. "In either model, 'Active'Agency level leadership is required to establish a business vision and to drive the business process change necessary to achieve the return on investment associated with new technology. A strong collaborative relationship needs to be established between the CIO's Office and the Agency leadership."[47]

***Recommendation 5***

***In order for Vermont to fully benefit from the promise of technology, government leaders need to recognize the importance of the CIO position and empower it with the necessary authority and resources to facilitate improved and cost-effective performance and citizen-centric services. This requires:***

***• Codifying in Statute the appointment, powers and duties of the CIO. Responsibilities should focus on strategic direction and enterprise-wide policies and procedures;***

***• Utilizing a reporting structure that insures the active involvement of the CIO in strategic decision-making;***

***• Providing greater resources to the Office of the CIO including adequate staff to perform its existing responsibilities.***

***• The CIO's office should be "linked" to agency and department IT staff. The Administration should look at the entire structure of IT management and support staffing to optimize effectiveness and efficiency. A model similar to the Department of Finance and Management's budget analysts may make sense for IT project development and management.***

The State of Washington has recognized, "perhaps no activity has greater impact on the potential for success of an Information Technology (IT) project than sound project management."

***continued, page 26***

# Vermont IT - A Taxpayer Perspective

## *Still Waiting*

When Edward Ferris filed his taxes in April 2001, he fully expected to receive his Act 60 prebate by September 1 - 30 days before his taxes were due in Ferrisburgh, as provided by state law.

He waited. And waited. Then, waited some more. The leaves began to turn.

"At one point when the check hadn't arrived I started to get a little worried, given all the press about problems at the Department, but the Governor came out and said there were problems but they were being worked on and to be patient. So, we were patient," said Ferris.

That patience, however, didn't pay off.

On October 1, 2001, the Ferrises property taxes came due. With no prebate check from the State, the couple had to draw from a mutual fund to pay their tax bill, which totaled more than $4,500.

Ferris contacted his preparer, who, in turn, contacted the Tax Department.

In November, Ferris received word from his preparer that he would not receive a rebate check that year - the Tax Department hadn't picked up a check mark that indicated they wanted to receive a prebate. More importantly, however, the State was not issuing any more prebate checks for the year. To receive the money, Ferris would have to file a special form when paying his 2002 income taxes. Those forms never arrived.

In February 2002, Ferris contacted the State Auditor about his problem. His concerns were forwarded to the Department. Gloria Hobson,

*Holding out hope: Edward Ferris had to draw down a mutual fund to pay his property taxes in 2001 because the State failed to send him a prebate.*

the Taxpayer's Advocate within the Department, called him within a week to explain the problem and tell him which forms his preparer would need to file.

The problem occurred when information that appeared in the field that was scanned at the Department was at odds with what Ferris checked off manually. In the scan field, his preparer had entered "N" (as opposed to "Y") when asked if the taxpayer wanted a prebate check. Ferris, when signing the form, checked that he did want a prebate check. When the error was picked up, the Department failed to contact him or his preparer about the mix-up.

While relieved that he will get the money now, Ferris believes the design of the State's tax forms were complicated and confusing.

"I can see why it was held up, but I question why there are two places on a form that ask you the same question - why wouldn't you only ask that question once? I think the form could have been simpler," Ferris said. "Hopefully things will be better this year."

***Finding 6a***

***The State would benefit from an integrated approach to developing skills within its staff for project management of IT development efforts.***

***Finding 6b***

***The State would benefit from an integrated approach to keeping information technology staff skilled in the rapidly evolving details of their profession.***

***Finding 6c***

***The State could enhance its training of non-technical state employees in the computer applications they are expected to use.***

***Discussion***

The full effectiveness of the State's IT investments are highly dependent on the expertise of the people who develop and use them. For most agencies and departments, the implementation of a major systems project is a once in a decade (or longer) occurrence. Agency or department experience with managing the development of a major IT project is limited to a few people, if it exists at all. As the State of Washington has recognized, "perhaps no activity has greater impact on the potential for success of an Information Technology (IT) project than sound project management." Washington addresses these needs by requiring the hiring of experienced project managers or securing adequate project management training for employees overseeing major systems development projects.

Some states make the assumption that there will generally be a statewide need for project management and create project manager positions within the CIO's office or CIT-equivalent department. These project managers are full-time employees who move from department to department to complete projects. Other states encourage departments to contract for project management or build the expertise of existing staff. Regardless of the structure, there is a recognition of the need for in-house project management expertise.

Vermont could benefit from a more consistent approach. ACCESS 2000 began with a request for project management support services. The services that were provided might be better described as requirements analysis, systems research, and development of a scope of services for a request for proposal. PATH assigned a Manager and Steering Committee to the project. VIRCS hired a Project Manager but promoted the individual to IT Manager soon after her hiring. The expectation appears to be that one person could perform both jobs. VISION contracted for an external Project Director as one of its very first tasks. Two people have held the position over the course of the project development and implementation. The E-government portal project does not have a Project Manager.

Two ambitious IT employees realized that considerable IT expertise exists among frontline employees. So, in May of 1998 they created an Info-tech list-serve. Questions regarding specific problems are posted to the list: responses generally appear within a few hours. Although awareness of the list-serve tends to be by word of mouth, the group has also convened two meetings of IT professionals to discuss various issues of concern.

While this is an excellent resource, more can be done to address the professional development needs of the State's IT staff and the IT training needs of the workforce as a whole.

The need for training is universally acknowledged - everyone we spoke with from IT staff to the Secretary of Administration mentioned it. One IT Manager noted that the State has a hard time spending money on training in general. In the private sector, guidelines for professional development training have ranged as high as 20 percent of software development staff's paid hours. The State recognizes the value of continued investment in maintaining its buildings; it needs to regard IT training as a necessary cost for maximizing the effectiveness of its IT investments and staff.

**Learning from the Past**

One crucial policy that other states have adopted to improve project management is a post-implementation review. These reviews occur 3 to 12 months after a process has been cancelled or completed.

The adequacy of training is one of the items the CIO reviews when looking at IT contracts. Both the ACCESS 2000 and VISION proposals and contracts referenced specific training plans. However, the Tax Department RFP's and the original VIRCS contract did not have implementation plans nor did they address training. The E-government proposal mentions training for customers using the State's web portal, but not for state employees themselves.

The training conducted by the Department of Finance and Management prior to the implementation of VISION and the VISION Help Desk were recognized by users as helpful. For the first time, system specific training was offered to employees across state government, with positive results. Nonetheless, the Help Desk could better provide user-friendly resources such as a website with answers to frequently asked questions or regular communication regarding user problems and solutions. Anumber of users have expressed a desire for another round of open enrollment training classes. Others have responded well to the specialized training offered in response to users'needs.

***Recommendation 6***
***The State should fully support professional development for IT managers and staff.***

***The State should recognize the importance of well-skilled project management by:***

***1. Requiring it for all projects;***

***2. Offering project management training; and,***

***3. Supporting employees interested in obtaining project management experience, expertise and certification.***

***Astatewide training plan for IT should be prepared by the CIO with the assistance of the Department of Personnel as a component of the State's IT Strategic Plan. This training plan should address how the State will build its capacity in project management techniques, support professional development for IT staff, and IT skills-building for end users. The plan should also address potential methods for keeping decision-makers informed about IT trends and developments. The Department of Personnel should secure sufficient funding to implement the plan.***

***Systems development and implementation projects need to include and fund the training required for users to make full use of the system. This includes intensive training at or prior to implementation and ongoing user assistance.***

## Project Management

***Finding 7a***

***The State should improve controls for monitoring the management and development of individual IT projects. When IT projects are implemented, it is often due to the dedication and commitment of the employees involved rather than systematic oversight or controls.***

***Finding 7b***

***The State has no formal method to translate lessons learned from past projects. There is no formal evaluation of project performance.***

***Discussion***

Every major systems development project inevitably reaches an unanticipated stumbling block related to approach, contractor management, technical constraints, external circumstances and/or functionality. These challenges place the State at an increased degree of risk and can significantly impact the project's costs, benefits, timeline and/or staffing requirements.

For example, the tax law changes introduced by the adoption of Act 60 in 1997, which were beyond the control or expectations of the VIRCS project team, meant the State's VIRCS staff had to redirect their efforts to patching the existing legacy system rather than work on the new VIRCS system.

Lack of oversight can also lead to unsatisfactory contract development and administration. The E-Government portal contract does not have a project schedule, clearly delineated deliverables, or penalties for not delivering on time. The VIRCS project initially followed competitive bidding, which led to a contract with American Management Systems (AMS) for an amount not to exceed $418,500. This was followed by four sole source contracts totaling in excess of $9.2 million. Contract changes were at times executed after the contract they were modifying had expired.

From July 1998 until February 2000, work continued with no contract in effect. A completely "retroactive" contract was signed in February 2000, covering the period from July 1998 through December 1999, the end date being 13 months prior to contract signing.[48] Another contract covering July 1999 to October 2001 was also signed in February 2000.[49] No significant contract payments at all were made to AMS in the 17 months from October 1998 until March 2000.[50] Significant payments under three contracts were made in March 2000, but one cannot tell from the contract or payment data when the work they reimbursed was actually performed.

As the GAO notes, oversight should happen through all phases of a project's life cycle. External oversight, in particular, provides an impartial third party who can track and monitor performance and take corrective actions related to either the contractor or the sponsor when milestones are not being met.

Although oversight is critical, it is not the only control needed. Other states have policies that specify the roles and responsibilities for sponsors, project managers and the oversight entity as well as procedural rules and threshold criteria for corrective actions. Without these controls, there is no way to assess if a project is on track.

A minimal level of control requires the preparation of project plans for all major projects. These plans should detail resources needed, system requirements, timeliness, state responsibilities, staffing requirements, testing plans, user training, a conversion plan, an assessment of continued operations and inter-

face requirements. Kansas's template includes an approval page with signatures from the CIO, the Investment Board, the Sponsor, the Project Manager and the Contractor endorsing the plan's activities, risks, efforts and costs.

### Bringing IT Close to Home

The need to connect positively with taxpayers at the most basic level - the collection of taxes - can build or destroy the confidence Vermonters have in government as a whole.

Last October we heard that a Burlington family from Southeast Asia anxiously awaited the arrival of their income tax refund from the State for months. Both parents had worked hard, and hoped to use their refund check of more than $900 to buy school clothes for their children. If not for a neighbor who advocated on their behalf, the check may not have arrived in time for Christmas. As it was, they did not receive the check until just after Thanksgiving, due to ongoing problems with the software at the Tax Department.

Vermont leaders have worked hard to do better. Additional efforts to encourage, monitor and enforce uniform policies for the development and implementation of IT projects will help prevent future problems. In year two of the new tax system taxpayers are enjoying improved service.

VIRCS still does not have a project plan despite years of development. The E-government portal project proposal states, "Anexsys will work with the State's oversight committee to develop a strategic plan, timeliness and policies and procedures regarding the Vermont Portal project." The Task Order for the Department of Taxes, which is attached as an amendment to the contract, has no date for a project plan and "tbd" listed for every deliverable except system implementation, which was slated to occur January 2, 2002.[51] As of December 10, 2001 there was no E-government project plan or a promised date for the deliverable.

In contrast, the VISION project followed a variety of procedures that built upon best practices and lessons regarding project management. End users were involved from project initiation. The comprehensive System Requirements Report prepared by Deloitte and Touche in January 1998 was used to prepare the RFP and evaluate proposals. The vendor proposal and contract specified key milestones and deliverables, along with a timeline and payment schedule and a detailed training plan. The contract also detailed the protocol for change orders and product evaluation and acceptance. Once PeopleSoft had been selected as the software vendor, key personnel visited other government entities that had implemented a similar system. A full-time project team of 20 state employees worked with consultant Arthur Andersen to implement the project. Throughout its development, there was ongoing communication with users about the process. Unfortunately, many of the effective project management practices used by the VISION team are not institutionalized as statewide policy.

We noted several potential areas of improvement in our June 1, 2001 report on the implementation of VISION that could benefit from the development of statewide policies. Specifically, business practices related to processing financial transactions needed to be re-engineered for agencies to take full advantage of the new technology the system offered. This analysis would allow agencies to optimize both processes and technology in order to serve Vermonters in the most efficient and effective manner.

One crucial policy that other states have adopted to improve project management is a post-implementation review. Post-implementation reviews most commonly occur 3 to 12 months after a project has either been completed or cancelled. They "should be conducted by a group other than the project development team to ensure that it is conducted independently and objectively ... the information gained from [post implementation reviews] is critical for improving how the organization selects, manages and uses its IT resources."[52]

The state of Vermont could benefit from an evaluation methodology in two distinct ways. First, the State could better make a determination of whether or not the product or service purchased has actually delivered what was promised. While this is not needed for every project, it would be advantageous to have a final sign-off regarding functionality on large and mission-critical applications. Second, lessons learned on one project could be communicated to state employees, managers or the Legislature in a way that helps to inform the selection and management of future projects.

"Once a project is completed, it is always useful to assess whether the outcome/deliverables were as specified in the contract and if the cost benefit analysis was correct," says the Vermont Business Roundtable in its report on the Office of the CIO. "Currently there is little work done at the completion of a project to see if it is developed as anticipated. This is an important step to take in any organization; the lessons learned can be applied to future projects."[53]

Within the State of Vermont, project developers in various departments have learned numerous lessons about what works and what does not. Some of the lessons we have observed from the test cases include the following:

• Projects with full funding from inception can be implemented more cost-effectively and efficiently than those that must return to the Legislature over a number of years for phased funding; and,

• Projects generally require a dedicated Project Manager and Team with adequate time earmarked for the project.

***Recommendation 7***

***Project management policies should be developed by the Office of the CIO and adopted as Administrative Procedures. Requirements included in the policies should be more extensive for high-risk projects than lower-risk projects. At a minimum, the policies should require:***

- ***A project manager and sponsor for every project;***
- ***The development and approval of a project plan;***
- ***A delineation of tasks that must be completed prior to contracting;***
- ***An analysis of business practices to determine which could benefit from re-engineering;***
- ***Periodic reporting during implementation; and,***
- ***Follow-up evaluation procedures.***

***In addition, the State should require a post-implementation review for all major IT projects that includes an external review to allow IT managers and employees to learn lessons from mistakes and/or successes.***

***Finding 8***

***The process by which the State procures and contracts for software development could be improved to better meet the State's policy of cost effectiveness and open and competitive bidding. The process for procuring hardware appears to be more effective in meeting the State's policies.***

***Discussion***

Vermont's procurement practices are, in some cases, cumbersome and take too long between conceptualization and contract signing. This time-consuming process has serious implications. It inevitably increases costs and leads to an increasing reliance on sole source contracts when working in a tight timeframe.

The Tax Department has appropriately noted that, for them "in the months between the end of a legislative session and the beginning of a filing season, there is not time to bid a contract nor do an independent review, and get the necessary programming work done. The solution is not to avoid good contracting practices but to communicate more effectively about the impact of the timing of legislative changes."[53]

In the world of IT contracting, the private sector often asks vendors to help develop the RFP. The organization then decides whom to invite to respond. By contrast, government has an obligation to make "maximum use of an open and competitive contract solicitation process."[54]

Some states have sought to combine the best of both approaches by implementing a pre-qualified contractor program. Kentucky's Strategic Alliance Service (SAS) "is a state price contract with fifteen IT service providers (five full-service and ten niche vendors) that allows Commonwealth agencies to procure IT services more quickly and competitively from expert providers." SAS encourages Commonwealth departments to contact IT service providers with experience, expertise and resources prior to going out to bid. Providers can then propose creative solutions that may better meet the department's business needs and cost less to implement.

The State already does this for other services, such as transportation improvements, and to purchase computer hardware. It may be equally useful for software development.

The ACCESS 2000 project management support service's RFP was issued in October of 1997; proposals were received in December of 1997. A vendor was selected in February of 1998. Even without an independent review, the contract was signed in July of 1998, five months after vendor selection.

With VISION, the period from RFP to contract was almost two years, six months more than the interval from contract signing to the go-live date. Some of the delay was due to the need to re-bid, some was due to contract negotiation. The first RFP for the VISION implementation was issued in March of 1998; a revised RFP, which eliminated one of the originally mandated requirements, was issued in August 1998. Vendor selection did not occur until April of 1999. This was followed by the independent review. A contract with Arthur Andersen was finally signed in February of 2000.

Some larger IT projects, such as VISION, which are labor-intensive and enterprise-wide, will understandably take longer to procure a bid and hire a vendor. Once an application has been implemented, however, pre-qualified vendors could be utilized to help with system maintenance. This would improve the ability of the State to fix system problems when they arise, rather than wait six or more months for the right contractor to be approved.

VIRCS, which was exempted from independent review, took eight months from original RFP to original contract. The E-Government portal project RFP was issued in December of 2000. A master agreement was signed nine months later.

One significant improvement in the procurement process is the adoption of the policy mandating that the Department of Purchasing prepare the standard language and work with departments on the scope of services for all RFP's for IT services. When combined with proven project management, this should improve the quality and consistency of the State's IT RFP's.

***Recommendation 8***

***The State should consider expanding its use of pre-qualified contractors for certain categories of IT software and application development, such as package software, maintenance, ongoing operations, and network infrastructure.***

# Appendix A

## Objective and Scope

The Office of the State Auditor has conducted a review of how state and federal funds are spent for information technology systems as defined in 3 V.S.A. § 2222 (a)(10) across state government. This review follows up on findings and recommendations from our recent reviews of the Implementation of Project VISION, the Victim Restitution System and the Judicial Bureau as well as our audit test work at the Tax Department.

This review was conducted pursuant to the State Auditor's authority contained in 32 V.S.A. §§163 and 167, and was performed in accordance with the Government Auditing Standards issued by the Comptroller General of the United States and as part of the State Auditor's annual audit of the State's General Purpose Financial Statements.

The scope of the review included an evaluation of the operations and financial management of the Office of the CIO as well as the State's internal controls for funding, design, development, integration and management of information technology.

Areview differs substantially from an audit conducted in accordance with applicable professional standards. The purpose of an audit is to express an opinion. The purpose of a review is to identify findings and observations and to make recommendations so that the reviewed agency or program can better accomplish its mission and more fully comply with laws, regulations, and grant requirements. This review relied upon representations of, and information provided by, a variety of state employees. If an audit had been performed, the findings and recommendations might or might not have differed.

## Methodology

The methodology involved a review of relevant statutes, regulations, policies, contracts, internal memoranda, and correspondence. It included interviews with numerous state employees involved in IT project development and management. We also reviewed the State's Five-Year Technology Plans from FY1996 through FY 2002. Throughout the review, KPMG's Risk and Advisory Services Practice provided advice and counsel. They also participated in interviews and fact-finding.

Our assessment methodology was enhanced by the following publications:

- Assessing Risks and Return: AGuide for Evaluating Federal Agencies'IT Investment Decision-making, Government Accounting Office, Washington, DC, February 1997. (GAO/AIMD-10.1.13)
- *Information Technology Investment Management: AFramework for Assessing and Improving Process Maturity,* Exposure Draft, Government Accounting Office, Washington, DC, May 2000. (GAO/AIMD-10.1.23)
- Managing Information Systems: APractical Assessment Tool, Preview Version, Information Technology Resources Board, Washington, DC, February 1999. (www.irtb.gov)
- Risk Assessment Guidebook for e-Commerce/e-Government, National Electronic Commerce Coordinating Committee, December 2000. (www.ec3.org)
- *Role of the CIO and Administration of Information Technology in Vermont State Government,* Report of the Vermont Business Roundtable, February 25, 2002.

To better understand the project development process we took a more in-depth look at four recent projects: the ACCESS 2000 enhancements sponsored by the Department of Prevention, Assistance Transition and Health Access (PATH); the Department of Finance and Management's Vermont Integrated Solution for Information and Organizational Needs (VISION) financial management system; the Tax Department's Vermont Integrated Revenue Collection System (VIRCS); and the proposed E-Government Portal overseen by the CIO.

# Appendix B

# IT in Vermont - A Brief History

*"Information technology has become high-profile. No longer is it a separate arena, providing strictly behind-the-scenes support to state and local government. These days, it is integral to how government functions and provides the services that citizens expect."*[55]

Vermont developed and implemented a number of major mainframe information systems in the 1970s and 1980s. These included ACCESS (Human Services), FMIS (Vermont's financial management system), the Tax collection system and a Motor Vehicles system. These mainframe systems were overseen by the sponsoring department but operated by the Communications and Information Technologies Division, (CIT) formerly State Information Systems of the Department of Buildings and General Services (BGS).

In 1991, the administration of Governor Richard Snelling began work on the Vermont Information Strategy Project, in response to "the perceived need for a coordinated approach to information management to better manage state government."[56] The first phase of the project resulted in the Vermont Information Strategy Plan (VISP) prepared by the Government Consulting Group[57] and James Martin & Co.

The Plan, released by Governor Howard Dean's Administration in March of 1992, contained a strategy definition, target architecture and some initial IT Policies. Phase 2 of the Plan was expected to include additional policy development, the initiation of some projects that could "pilot new information planning approaches,"[58] and the assumption that certain strategic projects would be undertaken that would move the state to a more integrated information architecture. Revenue collection and client services were identified by the Administration as two areas that could benefit from information planning.

In January 1993, the *Client Service Information Strategy Plan* was published as a collaboration of the Government Consulting Group, the Agency of Human Services, and the Department of Employment and Training. The Plan was designed to "enhance opportunities to treat information as a shared resource."[59] During the following year, the Departments of Tax and Motor Vehicles, the Office of Child Support, and the Court Administrator cooperated on a Revenue Collection Project, which resulted in the April, 1994 publication of the State's *Revenue Collection Information Strategy Plan*.

While all of these strategy plans recognized the need for integration of services, there is no evidence that they were effective in achieving IT integration or otherwise improving the State's software development process.

In the early '90s, the State undertook a number of high-profile information technology projects. But the results were described by the State Auditor's Office as "a record of frequent missed deadlines, implementation problems that effected systems'reliability, and concern about wasted funds."[60] Projects included in the Auditor's assessment included the Department of Motor Vehicles VMOVES project, which did not receive a fully functioning system from the contractor due to a variety of problems; the Agency of Transportation STARS system, which although currently functional was implemented prematurely; and the Human Resources Management System (HRMS), which was not well-planned.[61]

Development of the HRMS in the early 1990s required interdepartmental connectivity. It led to the development of the State's GOVnet network and the installation of fiber-optic cabling in the Montpelier and Waterbury complexes. At the time, networking was a somewhat esoteric technology and not yet widely available. Legislative leaders expressed concerns that GOVnet had materialized without adequate contracting or oversight.[62] In response to these concerns, the 1993 Legislature directed the Joint Fiscal Office to conduct a study of State data processing systems purchases and report back to the Legislature.[63] The study, now known as the "Klein report," was issued in December 1993.[64] The study identified four outstanding issues and made three legislative recommendations. The findings of the report are as follows:

- There was no written plan for information system development approved by the Legislature nor any oversight mechanism;
- VISP filled an important role in evaluating systems needs and integration. The State had no protocol for system selection or purchasing;
- The State uses a variety of mechanisms to finance IT purchases without a clear policy or direction regarding appropriate sources; and,
- GOVnet and related systems were developed through an informal evolutionary process, which was highly vulnerable to changes in management.

The recommendations to the Legislature were to:

1. Require the Governor to develop an overall IT plan and submit annual reports with financing recommendations;
2. Establish a Joint Information Technology Oversight Committee to review information and telecommunications technology and IT acquisition proposals and financing; and,
3. Authorize a Chief Information Officer function within the Secretary of Administration, and statutorily recognize VISP and formalize the role of the Information Strategy Advisory Committee.

The Legislature had addressed the Klein report recommendations by the end of the 1994 session. The Legislature established a Joint Information Technology Oversight Committee (JITOC) made up of legislators from the House and Senate for a two-year period and charged the Committee with functions including review of:

1. The administration's information technology program and funding recommendations;
2. Privacy issues;
3. Development of the State's information infrastructure;
4. Public policy issues related to the development and promotion of information infrastructure networks; and,
5. The need for ongoing legislative and executive oversight.[65]

The same Act added language requiring the Secretary of Administration to submit an annual information technology plan to the Legislature that detailed IT activities and financing recommendations. Section 285 of the Appropriations Bill created the Chief Information Officer position reporting to the Secretary of Administration. [66]

The State's first IT Five-Year Plan was produced in January of 1995 by Patricia Urban, the new CIO. It briefly outlined strategic directions, discussed the statewide projects and summarized budget requests and project plans.[67] During the 1995 Legislative session, 3 V.S.A. § 2222(a)(9) was amended to require the Secretary of Administration to annually submit "a strategic plan for information technology, which outlines the significant deviations from the previous year's information technology plan."[68] The amendments also required the plan to include a life-cycle cost analysis, the costs savings or improvements, and statements regarding the impact and issues related to privacy and public access to non-confidential information for any project with a cost in excess of $150,000.

The Legislature added language to statute that mandated an independent review for projects costing over $500,000 in 1996.[69] The Revenue Collection Project undertaken by the Tax Department was specifically exempted from this provision.[70] The Legislature also directed the Joint Fiscal Office to engage a consultant to evaluate GOVnet including: an analysis of its costs, alternatives to the current system, opportunities for collaboration with other networks, and a model for future evaluations of technology. The GOVnet report, which was issued in January of 1997, found:

- No established mechanism for collecting data on costs and revenues related to GOVnet;
- Insufficient clarity regarding the role of GOVnet, thereby making it difficult to evaluate private sector alternatives;
- No significant, immediate opportunities for collaboration; and,
- A need for an independent technical oversight committee.[71]

IT planning and oversight continues much as it has since the late 1990s with each of the state's departments submitting its IT plan to the CIO's office for compilation in the annual IT five-year Plan. In theory, expenditure oversight is provided by the Legislature. The independent review is designed to assure that an independent cost assessment, technology architecture review, implementation plan assessment and cost-benefit analysis are all performed.

# Appendix C

## IT Spending

The VISION needs assessment noted in 1998, that, "the State is incapable of preparing statewide data and financial information consistently and lacks the ability to analyze certain key financial activities of their operations."[72] That was still true through FY 2001 according to testing conducted by this Office. It is therefore difficult to know the exact amount of money the State or any of its business units has spent, or is spending, on information technology.

The State incurs IT-related costs in a number of ways:

1. Salary and benefit expenses for employees who have a defined IT function;
2. Salary and benefit expenses for employees who are not focused exclusively on IT but are involved in IT oversight;
3. Contracts, equipment, software and maintenance expenses paid to external vendors;
4. The operating costs associated with CIT and GOVnet;
5. The time spent by employees across all functions in planning for and learning new IT systems.

According to Administration Secretary Kathy Hoyt, the revised fiscal year 2001 figures published in the January 2001 edition of the five year plan indicate that $39,161,498 was to be spent on IT by the end of the fiscal year. This figure is exclusive of salaries. In fiscal year 2002, this figure jumped to $51,696,160, largely due to projects in two agencies: an $11 million increase in spending for Public Safety to replace aged systems that jeopardize public health and safety, and a $9 million increase for PATH to implement federally mandated systems upgrades.[73]

The state has 62 separate business units preparing budgets and IT plans that are included in the annual budget request to the Legislature.

We attempted to calculate the actual amount paid for IT-related expenses in each fiscal year. We estimated vendor payments by using FMIS object codes for IT-related expenditures. The use of these object codes is not consistent among departments nor are all IT-related expenses allocated as such. In the case of employees, we sought the assistance of the Department of Personnel in identifying those job titles that are focused primarily on IT. In a number of departments, there may be employees with significant IT responsibilities who do not have an IT-related title and are thus missing from these figures.[74]

Given these constraints, we believe the expenses detailed below are substantially less than the State truly spends on IT. It is clear, however, that State spending on IT projects is on the rise.

**Figure 1**
***Documented IT-related Expenses (in millions)***

| | **FY 1999** | **FY 2000** | **FY 2001** | **FY 2002** |
|---|---|---|---|---|
| IT-related Vendor Payments | $22.6 | $24.9 | $39.2 | $51.7 |
| Salaries | $11.5 | $13.4 | $15.5 | $15.9 (estimate) |
| **TOTAL** | **$34.1** | **$38.3** | **$54.7** | **$67.6 (estimate)** |

# Appendix D

# IT Spending - A Selected List of Vendors (Fiscal Year 2001)

| Company (Budget Category) | Amount Paid |
|---|---|
| 1. Arthur Anderson LLP (C)<br>Newark, New Jersey | $6,075,400.00 |
| 2. American Management System, Inc. (C,D)<br>Atlanta, Georgia | $2,126,872.00 |
| 3. Gateway Companies (A,B,D,E)<br>N. Sioux City, South Dakota | $1,996,408.92 |
| 4. Sapiens (C)<br>Charlotte, North Carolina | $1,130,870.14 |
| 5. PeopleSoft (E)<br>Palatine, Illinois | $610,673.16 |
| 6. ASAP Software Express (A,B)<br>Buffalo Grove, Illinois | $534,050.77 |
| 7. Implementation Partners (C)<br>Denver, Colorado | $486,516.48 |
| 8. Advizex Technologies (A,C)<br>Boston, Massachusetts | $392,002.80 |
| 9. PC Connection Sales Corp. (A,B,D)<br>Woburn, Massachusetts | $382,077.77 |
| 10. Panurgy (A,B,D)<br>So. Burlington, Vermont | $349,978.00 |
| 11. Compaq G E M (A)<br>Atlanta, Georgia | $343,426.74 |
| 12. AASHTO* (E)<br>Washington, D.C. | $342,400.00 |
| 13. International Business Machines (B,D,E)<br>Philadelphia, Pennsylvania | $312,245.00 |
| 14. COMARK Gov't Education Sale (A)<br>Chicago, Illinois | $300,558.03 |
| 15. Dell Marketing LP (A,B)<br>Round Rock, Texas | $251,229.41 |
| 16. Universal Micro Systems (A,D)<br>Waitsfield, Vermont | $220,244.60 |
| 17. Lockheed Martin IMS (D)<br>Chicago, Illinois | $215,609.92 |
| 18. Matrix Integration (A)<br>Jasper, Indiana | $193,076.66 |
| 19. GovConnect (C,D)<br>Cincinnati, Ohio | $173,282.54 |
| 20. Booz Allen & Hamilton, Inc. (C)<br>Philadelphia, Pennsylvania | $145,000.00 |
| 21. Access Ware (A)<br>Warren, Vermont | $137,583.03 |
| 22. Braun Consulting (A)<br>Chicago, Illinois | $109,347.00 |

Amounts indicated are totals from one or more of the following budget categories paid to each company during fiscal year 2001:

(A) Data Processing Hardware Purchases
(B) Data Processing Software Purchases
(C) Professional Contracts for Data Processing
(D) Repair and Maintenance of Data Processing Equipment
(E) Repair and Maintenance Agreements for Software

Note: The above-referenced categories do not represent all IT budget categories.

* American Association of Highway Transportation Officials

Source: Detailed FMIS transaction data, State Auditor's Office, February 2002.

# Appendix E

## IT Employees

In June of 2001, the State employed 274 people with IT-related job titles (See Appendix H - page 51). This was an increase from 258 positions at the end of FY 2000 and 231 at the end of FY 1999. Anecdotal information indicates that hiring, retaining and rewarding IT employees has been challenging, particularly during the strong economy of the latter half of the 1990s. The Department of Personnel worked with IT managers to implement an improved IT career path in 1998. The Department also regularly reviews and approves market factor adjustments for IT professionals.

IT professionals are called upon to do everything from writing codes, to installing networks, to supporting the IT users within their departments. The reliance on IT varies, based upon a department's primary services and business objectives. While some departments such as CIT, Tax, PATH, Employment and Training and the Agency of Transportation require significant IT expertise, others need only user and network support services.

Surprisingly, the following departments have no personnel with exclusive IT responsibilities as determined by job title: State's Attorneys and Sheriffs, the Defender General, the Vermont State Hospital, and the Vermont Veteran's Home. (See Appendix H, page 51, for a listing of IT-related positions by department).

# Appendix F

## IT Assets

The CIO's office does not maintain an inventory of hardware, web presence or software licenses. All assets appear to be purchased on a department-by-department basis. The implementation of VISION and new financial reporting standards should result in an inventory of IT hardware, servers, networks and other equipment assets. [75] *The Needs Assessment for VISION* conducted an inventory of IT applications and equipment in January of 1998. The State has at least 45 separate local area networks connected to GOVnet, the wide area network. As the Director of CIT noted in his annual summary for FY 98, the State has "two mainframe environments, several mini computer environments, over 10 different mail systems, three major desktop tool suites, multiple database configurations and a host of Novell & Microsoft NT local area networks." [76]

We examined Vermont's home page on the web, and found that the State has at least 75 different websites. There is no statewide record of how many hosting services are required for these sites, or whether they were designed in-house or externally. There is no record of how (or if) the websites are being maintained.

The CIO does maintain a list of major applications. Like other IT information, there is a lack of consistency regarding reporting, and there is no uniform definition of "application." Some departments report their phone systems, others do not. Some list each application, others combine their network, PCs and applications and report it as one system. According to information collected by the CIO, there are in excess of 450 major "applications" across the multiple departments of state government.

# Appendix G

# Overview of of Four Recent Key Vermont IT Projects

### *ACCESS 2000 Enhancement*

The ACCESS system is the information management system that determines eligibility for and processes social service benefits including welfare, heating assistance, food stamps and child support payments. It is overseen by the Department of Social Welfare (DSW, now PATH), and the Office of Child Support (OCS).

ACCESS's importance can be better understood when one considers how it impacts Vermonters:

- ACCESS annually processes more than 100,000 applications, makes more than 200,000 changes to case records, and generates more than 1.5 million notices to clients.
- ACCESS determines eligibility for Medicaid and Health Care payments that total $450 million per year.
- ACCESS issues more than 600,000 payments annually to Vermonters, totaling more than $87 million.

ACCESS was first implemented in 1981 and received federal certification in 1985. In has since been adopted by several other states. As an older mainframe system, ACCESS's "green-screen" user interface is becoming quite dated. Increased user sophistication and greater reliance on the system means ACCESS needs to provide information to employees and service providers quickly and in a clearly understandable form.

In 1997, DSW issued an RFP seeking project management support to enhance ACCESS's business utility and improve its ease of use. This project, dubbed ACCESS 2000, sought to "investigate the limitations and problems of the system as seen by its users, maintenance people and operators and to enhance the system's utility for its users by applying new technology to the ACCESS core."[77] The project focused on individual enhancements and did not consider a general system replacement. From July 1998 through February 2000, the staff of DSW/PATH spent hours in focus groups and meetings with a consultant to define the range of enhancements required. The consultant then evaluated solutions and developed an RFP for implementation. The RFP was issued in February of 2000 and a vendor was selected in June. The independent review of the $7 million project found that one of the enhancements had a positive cost-benefit, another could be justified if scaled back significantly and the cost of the remaining two far exceeded their benefits. The reviewer concluded by noting that "PATH is at the stage of requiring a strategic plan for ACCESS."

As a result of the independent review, the planned enhancements, estimated to cost $7 million, were cancelled. In order to determine the next step, a migration assessment was conducted by another consultant in late 2000. Currently, PATH staff is continuing to use ACCESS. In-house staff is implementing a small portion of the enhancements. Meanwhile, PATH is determining the best approach and timing for a total system replacement.

On November 30, 2001, the CIO approved PATH's request to negotiate a contract with the chosen ACCESS 2000 vendor to complete Noticing, the project component determined by the independent review to have a positive cost-benefit.

### *Vermont Integrated Revenue Collection System (VIRCS)*

By the early 1990s the obsolescence of Vermont's late '70s-era mainframe system for tax revenue processing had became increasingly problematic. The system had functional deficiencies, it required redundant input, and its operating system was about to be phased out. A loss of industry support necessitated a file conversion in 1990, which proved to be more difficult than expected, as did the implementation of tax law changes in 1991.

The new system, VIRCS, represents a complete modernization of the Tax Department's 25-year-old computer system, as well as a major restructuring of the department's core business functions. The first component of the system provided processing of Sales, Meals, Room and Withholding taxes. Once the system is fully operational, the anticipated benefits are estimated to be $9,475,000 annually.

When deficiencies were first acknowledged, the Vermont Information Strategy Plan (VISP) process was calling for integration of information systems in state government. The Revenue Collection Information Strategy Plan published in April 1994 proposed developing an integrated system to provide collection services for (initially) Taxes, Motor Vehicles, Child Support, and the Court system.[78] A multi-agency committee considering revenue consolidation met from 1994 through 1998, but the State's revenue collection system still focuses exclusively on tax payments.

The 1994 Capital Bill appropriated $2 million to the Department of Taxes for revenue collection and administration, subject to review and approval of any expenditures by the Joint Fiscal Committee.[79] The 1995 Capital Bill clarified that the Tax Commissioner and Secretary of Administration "shall oversee a phased design of a proposed computerized revenue collection and administration system, which incorporates the revenue needs of some or all entities."[80] The Commissioner and Secretary were further directed to present to the Joint Information Technology Oversight Committee (JITOC) for their approval a plan for systems implementation, including a "project schedule, life cycle cost analysis, cost benefit analysis, anticipated expenditures and performance measures."[81] Expenditures for the system were to be reviewed by JITOC and approved by the Joint Fiscal Committee.

In March 1995, the Tax Department issued an RFP to "establish a partnership agreement for the design, development, and implementation of a comprehensive revenue collection information system."[82] Although it made reference to a "comprehensive" system, the specifics in the RFP concentrated exclusively on traditional tax revenues. The Department envisioned the partnership agreement as "a mutually beneficial agreement between the State and a vendor."[83] The Department expected to pay a fixed price to acquire imaging hardware and software and then anticipated working with the vendor to develop the back-end processing applications for specific taxes. The approach assumed considerable involvement by Tax Department employees and a vendor willing to provide programming at no- or reduced cost in exchange for the promise of being able to distribute the developed product.

The RFP originally called for the first components of the new system to be developed and "in production" by December 1995. It sought proposals that would provide automated tax return data input using scanning and optical character recognition, followed by programmed processing of returns after they were in the system. In the end, the Tax Department chose to split the effort into two sepa-

rate projects, with the data input portion awarded to IBM in October 1995, and the information processing portion awarded to American Management Systems (AMS) in November 1995.

From the start, VIRCS experienced cost over-runs, delayed implementation and questions about functionality. These were the result of a variety of factors including system requirements, personnel transitions, legislative changes, and alterations in priorities. The well-publicized quality and timeliness problems associated with the Personal Income Tax in the 2001 tax season have raised numerous questions about the software's functionality, the IT oversight process and the contracting process. In response to these concerns, the Tax Department sought and received a Technical Assistance Review by the Federation of Tax Administrators in September of 2001 and is currently seeking an independent review and evaluation of its Imaging and Accounting System.

Funding for the project was allocated on a year-by-year basis, in part to accommodate income tax and statutory changes. This resulted in a series of seven different contracts, four of which were not bid competitively. The initial contract specified total "not to exceed" payments of $1 million for a software license and $4 million for personal services (i.e. consulting.) To date, the system has cost in excess of $13 million, including over $2.2 million to implement Act 60. Taxes that are still in the process of being incorporated into the VIRCS system include corporate, property transfer and some of the smaller personal taxes.

### *Vermont Integrated Solution for Information and Organizational Needs (VISION)*

During the 1980s and 1990s, the State of Vermont maintained its financial information on an accounting system called FMIS (Financial Management Information System). FMIS was a mainframe-based system, which became operational in 1979. By the early 1990s it was becoming increasingly clear that the system was functionally deficient, difficult to maintain, and that the hardware and operating system on which it relied were becoming obsolete.

What resulted was VISION, which came online as of July 1, 2001. While there are bugs to be worked out, VISION is improving the State's historical record keeping, strategic planning and performance-based decision making, as well as providing online budget development and better access to data and information

In 1994 the Legislature appropriated $250,000 toward a new fund accounting system, subject to review and approval by the Joint Fiscal Committee.[84] Subsequent turnover in the positions of Commissioner and Deputy Commissioner of Finance and Management and the unexpected death of the Deputy Secretary of Administration, each of whom had a role in this project, delayed startup. A Steering Committee established in the summer of 1995 concluded that 1) it was necessary to hire a Project Director, and 2) a Needs Assessment was required prior to developing a detailed implementation strategy. At their November 9, 1995 meeting the Joint Fiscal Committee reviewed the plans for the use of these funds. While they concurred with the plan, they felt that the proposed uses were not for "capital" expenses and therefore contrary to the intent of the 1994 Capital Bill. An adjusted appropriation was passed in 1996 and the first Project Director was hired on October 28, 1996.

In January 1997, the Department of Finance and Management issued an RFPfor a contractor to conduct a Needs Assessment for the new system. Acontract to conduct this work was signed with Deloitte & Touche in June of 1997. They did extensive work over the rest of 1997, leading to the publication of

a Systems Requirement Report in January 1998. An RFP for implementation was issued in March of 1998 and then re-issued in August. After a lengthy evaluation process, a contract for the actual implementation work was signed with Arthur Andersen in January 2000.

The system, which acquired the name VISION, became operational on July 1, 2001, on a schedule very close to that projected in the contract of January 2000. Full implementation is expected to continue through the current fiscal year as users become more comfortable with the system and various problems such as slow workflow processing, cash reconciliation and report generation continue to be resolved.

Nancy Clermont, Deputy Commissioner of Finance and Management sponsored the project from 1995 through implementation. There was also a full time Project Director (though not a single incumbent) from an early point, and a Project Team and a Steering Committee, each with over twenty representatives (both technical and managerial) drawn from many branches of State government.

Payments to contractors for hardware, software and services came to approximately $18 million. This does not include the personnel expenses associated with the numerous Vermont state employees who worked on the project.

### *E-Government*

The E-Government Portal Project is being coordinated by the CIO with the assistance of an oversight committee involving key users. Its goal is "to provide a single point of access to all government services for citizens, employees and businesses that is citizen-centric in its focus." [85]

The portal project would create a web-based interface that will make it easier for visitors to navigate the State's website, locate and select information and services. A user will be guided by icons, directories, tutorials, help functions and other tools. This project will move the State away from its current website organization (by agency) to one that is based on function and services more recognizable to customers.

A Request for Information issued in May of 2000 received more than a dozen responses. An RFP with minor additions was issued in December 2000 with a response date of February 15, 2001. More than twenty companies prepared responses, of which three were invited to make a presentation to the Selection Committee in July 2001. Anexsys, LLC was selected as the vendor and a master agreement contract was executed in September of 2001 for the development of a portal and five agency applications, the first of which is expected to be online tax filing. The contract price is not to exceed $175,000. Each agency application will be guided by a task order, which will be a contract amendment.

The task order for the online tax application indicates an implementation date of January 2, 2002. Testing of the V-File system did not begin until mid-December,[86] and was not brought online until February 22, 2002 - 52 days past the time it was supposed to be available for Vermonters to fill out their tax returns electronically.

# Appendix H

| Department or Agency | # of positions with IT-related job title (as of June 2001) |
|---|---|
| Transportation, Agency of | 40 |
| Buildings & General Services | 32 |
| PATH Department of | 32 |
| Health, Department of | 19 |
| Employment & Training, Dept. of | 18 |
| Taxes, Dept. of | 18 |
| Education, Dept. of | 10 |
| Commerce & Community Development | 9 |
| Environmental Conservation | 9 |
| Aging & Disabilities, Dept. of | 8 |
| Corrections, Dept. of | 7 |
| Human Services, Agency of | 7 |
| Public Safety, Dept. of | 7 |
| Social & Rehab Services, Dept. | 7 |
| Developmental & Mental Health | 6 |
| Personnel, Dept. of | 5 |
| Administration, Agency of | 4 |
| Finance & Management, Dept. of | 4 |
| Liquor Control, Dept. of | 4 |
| Agriculture, Food & Markets | 3 |
| Banking, Insurance, Securities | 3 |
| Child Care, Office of | 3 |
| Natural Resources, Agency of | 3 |
| State Treasurer | 3 |
| Labor & Industry, Dept. of | 2 |
| Libraries, Dept. of | 2 |
| Attorney General | 1 |
| Fire Service Training Council | 1 |
| Fish & Wildlife, Dept. of | 1 |
| Forests, Parks & Recreation | 1 |
| Lottery Commission | 1 |
| Military, Dept. of | 1 |
| Public Service, Dept. of | 1 |
| Secretary of State | 1 |
| State Hospital | 1 |
| **Total** | **274** |

# Appendix I

PAVILION OFFICE BUILDING
MONTPELIER, VERMONT 05609-0201

OFFICE OFTHE SECRETARY
TEL.: (802) 828-3322
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STATE OFVERMONT

## AGENCY OFADMINISTRATION

March 11, 2002

The Honorable Elizabeth Ready
Auditor of Accounts
132 State Street
Montpelier, VT 05602

Dear Ms. Ready:

Enclosed is the Agency of Administration's response to your review of how state and federal funds are spent for information technology across state government. Following our meeting on the revised report, we adjusted our original response to the findings and recommendations to account for changes you made, so, hopefully, all the page numbers and sequences in our responses are consistent with your final report. As we noted in the meeting, there are areas of agreement and still some substantive differences that primarily are within the detail and discussion aspects of the report.

I am pleased that you have been personally involved in guiding the tone of the report and that you recognize some of the progress we have made. Your goal of making some positive suggestions and your willingness to work with the Administration to identify areas needing improvement is helpful.

I am particularly appreciative of your recognition of the importance of the Business Roundtable Report on these issues. Pat Urban, Catherine Benham and I worked with the Roundtable over the last few months to discuss improvements in the organization of the CIO office and to discuss gaps in functional authority as well as resources, and to seek their recommendations. Their expertise was invaluable to me as I considered what I believe the next steps should be.

Emphasis on development of a true Five Year Strategic Plan, the need to fill the gap in "process engineering" assistance to Departments considering investments in new uses of technology in the delivery of their services at the beginning of project development, the need to better coordinate the various funding sources for technology development, purchase and maintenance, and the need to perform and learn from post-implementation evaluation of major projects are all areas that I believe we agree could be improved.

How to obtain business and legislative advice and increase participation of other agencies and departments across state government in the strategic uses of technology is an important challenge. I see an Advisory group that works with and evaluates the technology efforts on a long term basis as an important addition to other steps an Administration could take.

In your report you make some specific comments about particular projects (e.g., VISION, E-Government Project) and I would ask you to review our prior responses to you on those specific projects. Though a separate report was issued on security issues and we responded regarding our disagreements with that report, a side-bar in this review notes that there are improvements to security that could be made that don't require additional resources. I would most certainly respond to your recommendations of these particular actions to improve security.

Finally, we included a management representation letter in a previous mailing as you had requested.

If you have any questions, please feel free to call me at 828-3322.

Sincerely,

Kathleen C. Hoyt
Secretary of Administration

KCH/cib

Enc.

# Detailed Comments from the Agency of Administration on the State Auditor's Review of Information Technology - March 6, 2002

**Finding 1 - page 10**
*The Office of the CIO currently exercises some operational responsibilities over IT systems. However, the State would benefit from stronger management and oversight of its informa - tion technology investments. Vermont could better manage its IT investments as overall assets of state government.*

We believe that existing central oversight and management of IT assets is balanced with the need to have those assets located within, and under the direct control of, the agencies which they support. We also believe that management and oversight could be improved with additional resources that would permit more central involvement and assistance.

The Office of the CIO exercises the following management and oversight of IT investments:

- Central leadership for cohesive planning and oversight of IT;

- Creation of the five-year plan (per statute) (This plan can be improved upon as discussed later, but it has forced some project planning for expenditures related to software and hardware acquisition and has resulted in equipment replacement plans for most agencies and departments).

- Administration and management of the independent review law; many projects have been terminated or re-bid because of findings associated with the independent review. This has prevented risk prone investments in IT from going forward.

- Oversight and signoff of RFP's and contracts for IT projects; The CIO reviews all RFP's for compliance with state standards. All contracts are reviewed to ensure payment for deliverables, compliance with recommendations of independent review findings, and to ensure that contractors can be managed from the contract document.

- Work with Purchasing on IT Procurement to ensure that commodities place "on contract" for agency purchases meet state standards.

**Recommendation 1 - page 12:** ***Create an Independent IT Investment Board***

This is an intriguing idea and we welcome assistance and advice from the private sector. However, we do have some specific concerns and objections to some of the specific actions this Board could take.

- Currently the executive and legislative branches of government make budget decisions. We do not see how you can allow an independent board to preempt the decision making authority of the Governor and the Legislature
- The executive branch manages state government and as such has the responsibility to "pull the plug when projects go awry." This role cannot be preempted by an independent board.

An Information Technology Board could play a useful role in advising the administration on the development of policies and standards, and by providing oversight and offering recommendations without having the authority to make budget decisions and to independently abort projects. Key issues to be addressed would be the role, authority and the membership of this board in order for it to provide useful guidance.

To reiterate Commissioner Elliott response, "we welcome the use of business leaders to obtain ideas from outside of government but we have concern about creating another formal layer of bureaucracy."

**Sidebar "Rising Cost" on page 11.**

The statement that funding for the Tax Department's revenue collection system on a year by year basis led to a series of seven different contracts is not accurate. Because of changes imposed by statute, including Act 60 and changes to the income tax, it was necessary for the State to change both the timetable, the requirements and the associated costs for the development of many of its tax types over the course of the development period.

**Finding 2 - page 14**
*The Administration has not prepared a "strategic plan for information technology" as required by 3 VSA 2222 (a)(9). The Administration has requested the Legislature fund projects year by year, without the benefit of a strategic plan, and the Legislature has complied.*

We have prepared a "strategic plan for information technology" exactly as required and defined by 3 VSA 2222 (a)(9) which defines a strategic plan as one and four year project plans. In order to comply with the letter of the statute, the plan has been prepared in this manner. We concur that a strategic plan is not a project plan, but the statute must be changed to reflect the definition of a true strategic plan. The Business Roundtable agrees that language should be added to create a strategic IT plan. Please see the Business Roundtable Report for more details We feel, however, that the definition given in the statutue is a project plan and not a true strategic plan. We agree with the need for a strategic plan and would ask that appropriate statutory language be added. Specifically, 3 VSA section 2222 (a)(9) asks for a strategic plan and then goes to prescriptively define the strategic plan as one-year and four-year project plans.

We take exception to the statement that "the only criteria for approval (of IT plans) appears to be the submission of the IT plan ----- with the authorized sign-off by the agency or department secretary/commissioner". It is certainly appropriate for the agency head to be the first signoff on the planned projects, priorities and funding sources that are itemized in the plan. The submission of the project plan, however, is only the first step in a process that includes approval of the funding, review of the RFP, a bidding and selection process, a cost benefit analysis, an independent review (over $500,000) and a contract review.

**Recommendation 2 - page 15:** ***Prepare a strategic IT plan***
We agree and suggest that you look at the Business Roundtable Report for ideas we have discussed.

**Finding 3 - Page 16**
*The state has some standards in place for databases, desktops and networks, but its current controls could be improved to fully protect its IT assets. Vermont's IT policies, procedures and standards would benefit from clearer direction, greater scope and uniform enforcement.*

The State has very clear standards with regard to database, desktop, and networking standards. These standards are enforced through review of RFPs and contracts. No RFP is issued and no commodities are placed on state contract unless they are in compliance with these standards or unless there is a very compelling reason to permit a exception form the standard. These standards can be found on the CIO's website.

For example, the State has comprehensive policies and procedures related to security. These include a state emergency response team headed by the Assistant CIO and comprehensive policies related to intrusion detection, firewalls, and security. The recent response from the Assistant CIO with regard to security is included as an appendix to this response.

The recent RFP which was issued for an e-government portal project requires the production of web standards to be used by all of state government.

Disaster recovery and business continuity plans were fully developed in conjunction with the year 2000 project. These plans are being re-evaluated in the current environment with plans for a central disaster recovery site for mission critical systems.

In case you did not know, the CIO is a Deputy Secretary of Administration and as such should be chairing the IRMAC meetings.

As for policies and standards versus mandates, we refer you to the Business Roundtable's discussion of the tradeoffs between centralization and decentralization. Nonetheless, we think you will find that under our current system in fact agencies and departments are migrating to our suggested standards.

**Recommendation 3 - page 17:** ***The CIO shall develop meaningful policies and standards.***

The CIO currently develops policies and standards and will continue to do so.

**Finding 4 - page 18**

*The State needs better controls for IT project selection, funding and approval. Current methods used to finance IT purchases do not appear to follow clear policies. The project selection and approval process can also be improved.*

While IT projects have been funded through a variety of mechanisms, this is appropriate depending on the nature of the project. Enterprise wide systems such as the state Finance and HRMS systems are used by every agency and department and it is appropriate for them to share in the cost of supporting these systems. Other systems for departments such as PATH, Child Support, and DET are federally mandated and heavily supported by federal funds and reviewed by federal audits. Historically, short term bonds were used for short term projects but due to a downsized and oversubscribed capital bill, we have found alternative funding for large IT projects.

It is also appropriate to put commodities and services "on contract" through a bidding and selection process in order for state agencies to purchase from these contracts (rather than doing separate bids for each agency). This has been the case with hardware, software, some training services, and the e-government services. The contract dollars are not "spent" until an agency elects to purchase from the contract.

In general, the type of funding depends on the type of project.

The funding mechanism, however, does not allow any agency or department to escape oversight as you suggest. If a project does not require a specific appropriation because it is funded by federal or internal services funds, it is not exempted from oversight policies. All projects are bid and are reviewed by the Office of the CIO from the point of the RFP through the contract signing. The cost benefit statute applies to every project over $150,000 and the independent review law applies to every project over $500,000 regardless of funding source.

**Recommendation 4 - page 20:** ***IT system development projects should be prioritized and funded using clearly established selection criteria.***

Please see earlier comments on the Investment Board.

The Action plan that appears in the Five Year Plan for any project over $150,000 is a start for a feasibility study and covers some preliminary data on the project. Expanding on the action plan to do a full feasibility study is reasonable. However, federally mandated projects should be exempted from any planned requirement. Federal rules and requirements necessarily preempt our state rules and requirements when the federal government provides the primary funding for projects.

We agree that funding for IT development should be earmarked. We disagree with the recommendation to avoid billback authority because that is our legislatively approved plan for funding of VISION and HR systems.

**Finding 5a, 5b - page 22:**
*The State has not empowered the Office of the CIO with sufficient statutory authority or resources to facilitate the changes needed to reengineer its procedures.*

*The State could strengthen its administrative structure to better coordinate and manage IT.*

See response to Finding 1 above and the Business Roundtable Report.

**Finding 6a, 6b, 6c: - page 263**
*The State would benefit from an integrated approach to developing skills within its staff for project management of IT development efforts.*

Project management courses have been brought in State on a coordinated basis in order to ensure that as many participants as possible can attend without having to travel out of state. These courses are very well attended in spite of their relatively high cost, which must be borne by each participating staff's agency. An integrated approach could be implemented if there were a central operating budget for the CIO to fund such activities.

*The State would benefit from an integrated approach to keeping information technology staff skilled in the rapidly evolving details of their profession.*

In order to address professional development of IT staff, there is a committee of IT professionals gathered by the CIO that is currently working with the department of Personnel on a skills inventory and professional development program for IT employees. This will help to determine training requirements and upgrade paths for IT professionals resulting in a more qualified IT workforce and promotional paths for IT employees.

*The State could enhance its training of non-technical state employees in the computer applications they are expected to use.*

In the development of enterprise wide systems such as Vision, much consideration and training was given to non-technical users of the system. Additionally, the Department of Finance & Management and Personnel are currently developing an accrual accounting training curriculum for users of the Vision system. In the case of agency or department specific applications, it is the responsibility of the agency to train its staff. We recognize that training is sometimes neglected in trying to fund IT projects with scant resources. Training and "readiness of staff to accept the new application" are two points that are addressed in the independent review.

**Recommendation 6 - page 27:** ***Professional development should be supported***

We concur that more training would always be better.

**Finding 7a, 7b - page 37**

*The State should improve controls for monitoring the management and development of individual IT projects. When IT projects are implemented, it is often due to the dedication and commitment of the employees involved not the result of any systematic oversight or controls.*

Response: The State mandates that all IT contracts be written with specific deliverables and payment tied to deliverables. This allows the agency to use the contract as a tool for managing the contractor. It is also required that contracts provide for periodic meetings and reporting for accountability by the vendor. Time and materials contracts are not permitted. Where projects have been implemented, it is due BOTH to the dedication and commitment of the employees involved as well as a contract that allows the agency to manage the contractor to deliverables. In addition, it is important for a contractor to be accountable to the agency or department head as opposed to accountability to the IT manager only.

*The State has no formal method to translate lessons learned from past projects. There is no formal evaluation of project performance.*

Response: The Office of the CIO is currently researching policies and methodology, which could be used to perform "outcomes measures" on past projects.

**Recommendation 7 - page 30:** ***Develop Project Management Policies and Require a post-implementation review.***

We agree with the concept of developing and adopting project management policies and with a post-implementation review. See the Business Roundtable Report.

**Finding 8 - page 40.**
*The process by which the State procures and contracts for software development could be improved to better meet the State's policy of cost effectiveness or open and competitive bidding. The process for procuring hardware appears to be more effective in meeting the State's policies.*

The State already makes use of pre-qualified contractors for many services. We have already planned to implement this concept for services related to maintaining software. There is nothing in statute or policy that places this process in opposition to the full and competitive open bid. Once contractors are "pre-qualified", they are asked to provide competitive quotations as projects become available.

This concept does not always work, however, in the case of acquiring new, large application systems. The State has a policy of acquiring software "off the shelf" as opposed to custom development whenever possible. In the case of the Finance System, for example, it is doubtful that the major software vendors in this sector (Peoplesoft, Oracle, SAP, etc.) would all have been "pre-qualified". It is important that the State examine the range of options on large purchases such as this in order to come as close as possible to meeting the State's requirements. On projects of this magnitude, a lengthy bidding and selection process involving committees is unavoidable and it is probably not inappropriate for an application costing millions, which must do the job for ten or more years. Once an application such as the new Finance System has been implemented, pre-qualified vendors can be utilized to assist in the maintenance activities.

**Recommendation 8 - page 41:** ***Legislature should consider adoption of pre-qualified contracts.***

This is unnecessary because we already pre-qualify contracts.

For the Security response please see our February 6th response by Bob West.

**IT Spending - Appendix C**

Here are FY01 and FY02 IT spending numbers as well as some context in order to better understand their meaning:

The revised FY '01 figures published in the January 2001, edition of the five year plan indicate that $39,161,498 was to be spent on IT by the end of the fiscal year. This figure is exclusive of salaries. In FY '02 this figure jumped to $51,696,160, largely due to projects in two agencies: a $11 million increase in spending for Public Safety to replace aged systems that jeopardize public health and safety and a $9 million increase for PATH to implement federally mandated systems upgrades.

While $51 million is a large amount of money by any measure, it represents 3.7% of the State's FY '02 spending budget. Organizations that measure adequacy of IT spending in an organization estimate that the minimal investment in IT that an organization can make to ensure minimum standards of efficiency and productivity is 3%. The average investment organizations across all sectors make in IT is 5.7% (CIO magazine, September, 2001) and organizations that highly leverage IT to improve sales and revenue may spend 10 -20% of their annual budget on IT.

**IT Assets**

The CIO kept an inventory of hardware and software through the year 2000. At that point it was determined that was a duplicative effort to implement an inventory system when the new finance system was to contain a fixed assets module that could be used to track all IT assets.

# Role of the CIO and Administration of Information Technology in Vermont State Government

## Report of the Vermont Business Roundtable

## February 25, 2002

### Introduction

The Vermont Business Roundtable has been concerned with the implementation of information technology in state government. To that end, over the past several months the Vermont Business Roundtable met with Kathleen C. Hoyt, Secretary of Administration, Catherine Benham, Principal Assistant, and Patricia Urban, Chief Information Officer (CIO), to discuss the role of the CIO and how best to administer state information technology. The discussions were informative and constructive in both understanding the current structure and implementation in state government and thinking about future directions.

This report outlines our findings and recommendations in three key areas:
- the organizational structure of the CIO and information technology in general
- recognition of current efforts
- identification of areas where further work is needed

### Organizational Structure

The discussion around organizational structure covered several issues including:
1. the organization of state government and the best fit for the CIO
2. the role of the CIO as an operational or a policy position
3. management of information technology

In Vermont, the CIO reports to the Secretary of Administration. The Secretary of Administration is essentially the Chief Operating Officer and has the financial, budgetary and personnel departments also directly reporting to her. Given this organizational structure, it makes sense that the CIO should be in this peer group with other administrative operating officers in order to be most effective. Most states (27) have the CIO report directly to the Governor, but in many of these cases the other administrative operating officers also report to the Governor. In 22 other states, the CIO reports to a staff, legislative or cabinet officer. It is important to note the CIO's position in the hierarchy of state government does not necessarily indicate the breadth of the individual's authority.

**Finding 1:** The CIO should continue to report to the Secretary of Administration. Given the current structure of state government with the Secretary of Administration acting as a chief operating officer, the CIO should have a place in the organization similar to other administrative officers. The CIO role must be appropriately positioned in the organization to provide leadership for the use of technology across all state agencies. The most significant benefits associated with technology investments will be a direct result of cross-agency communication and information sharing and from extending this capability to constituents. To ensure these benefits are achieved, the CIO office must be positioned, funded and staffed to drive a cross-agency vision for the use of technology and the associated technology investments and business process change.

The Vermont Business Roundtable went on to review the operational and strategic responsibilities of the CIO and the appropriate balance between the two. Almost every CIO in the country has some if not total operational responsibility as well as strategic responsibility. Usually, the extent of the operational responsibility is linked to the organizational structure. In Vermont, the overall organizational structure for IT is decentralized; the IT staff reside in, are hired by and work for the agency which they support. Thus, our CIO has less direct hands-on operational responsibility than some other CIOs. Nonetheless she does have some operational responsibility (e.g., GOVNET), and especially in this decentralized environment, it is critical for the CIO to manage the infrastructure that ensures interoperability.

In terms of operational responsibility, the agencies are accountable to the CIO for the five-year plan and for review of RFPs and contracts for conformance to the five-year plan, and for adherence to state standards and policies. The CIO is often involved in contract negotiations and problem resolution with contractors to ensure compliance with state standards. The CIO also administers the independent review law for projects in excess of $500,000.

In Vermont, the CIO also has responsibility for enterprise wide projects as well as projects that transcend agency boundaries. For example, the CIO has responsibility for infrastructure that supports all agencies, such as the state network, security, policies, standards, and the five-year plan. Special enterprise wide projects, such as the e-government project, are also the responsibility of the CIO. The Office also has a federally funded position which assumes responsibility for the coordination of the Integrated Criminal Justice Information System with participants from Courts, Public Safety, Corrections and States'Attorneys. This project will also serve as a pilot project for similar interagency activities.

The management of infrastructure by the CIO is critical to the successful management of security, data integrity and interoperability as well as enterprise wide applications such as the e-government project.

**Finding 2:** The CIO must balance operational and strategic responsibilities. While it is important to create a vision for the future of IT in state government, the CIO also needs to maintain some operational responsibilities, even in a decentralized organization, in order to ensure interoperability.

The Vermont Business Roundtable then examined the current structure of the management of IT and various alternatives. IT was decentralized in the late 1980s because it didn't work in terms of agencies competing for strained resources. Furthermore, it is important for IT personnel to have knowledge of the department and its applications and to be available to the Secretary or Commissioner for prioritization of projects. For these reasons, the IT staff reside in, are hired by and work for the agency which they support.

On the other hand, the downside to a decentralized system is that it is harder to maintain interoperability across agencies/departments and reap the associated efficiencies. In addition, many IT personnel are hired by Agency Managers who themselves are not skilled to recruit the right IT person for the right IT job. While it appears that the CIO is able to ensure interoperability and efficiencies, state government might be better served if she were able to provide more support on these issues. For example, the CIO currently provides oversight of IT projects during the contracting process. Once the contract is signed, the CIO is less involved in these projects. She does work on them when there is an issue, but she has limited resources (herself and one other person) to provide to many projects. Ideally, the CIO would be able to provide more and longer oversight, and assistance in

problem resolution during implementation and maintenance phases.

**Finding 3:** The best approach is to find a balance between centralized and decentralized management of IT that maximizes the benefits of both while minimizing their costs. The Roundtable believes that while the current decentralized structure has many benefits, more centralized support from the CIO would provide some additional benefits.

**Recommendation 1:** Find a balanced management system that allows individual agencies/departments the ability to get their IT work prioritized and completed while keeping statewide interoperability and efficiencies a priority. One model that might be a good compromise is the "specialized analyst model" where the CIO has a staff person assigned to each agency and department in order to be more fully engaged in the planning as well as the operational activities of the unit. This would require more resources, but could yield enormous benefits. A second model would be similar to the State Attorney's Organizational Structure where all the IT personnel are accountable to the CIO but working in the Agencies to which they are assigned. In this scenario, the CIO has direct oversight to the hiring, development, and motivation for the State's 217 IT professionals, and IT becomes a support organization dedicated to meeting the IT needs of the State Agencies. In either model, "Active" Agency level leadership is required to establish a business vision and to drive the business process change necessary to achieve the return on investment associated with new technology. A strong collaborative relationship needs to be established between the CIO's Office and the Agency leadership. Maintaining the balance between centralized and decentralized control is critical in developing productive relationships. Agency resources should focus on leveraging of the technology for business gain while centralized resources provide the base technology capability and "best practices" for managing technology investment projects.

In summary, a CIO Office must be positioned to perform both strategic and operational functions. Strong enterprise-wide technology leadership is essential to providing both the underlying technology infrastructure and the overarching architecture and standards that will enable seamless integration across agencies. This central organization must be funded and staffed with skilled IT Professionals who have the expertise to plan, design, engineer and operate a complex technology environment. The appropriate staffing for this organization can be achieved with a mix of state employees and outside consultants but must provide a consistent level of expertise and service.

**Current Efforts/Progress**

In our discussions, the Vermont Business Roundtable came to understand the progress that the CIO has made and many of the current efforts underway. We have listed some of these efforts below and grouped them into operational and strategic categories.

Operational:
- Administration and management of independent review law
- Oversight and sign-off of RFPs and contracts for IT projects
- Work with Purchasing on IT Procurement
- Enforcement of statewide security policies
- Administration of wireless communication policies and procedures

Strategic:
- Central leadership for cohesive planning and oversight of IT
- Chair of Information Resource Management Advisory Council (IRMAC) for establishment of statewide policies and procedures such as those governing statewide security, interoperability, and disaster recovery
- Management of communications infrastructure
- Creation of the five-year plan (per statute) (This has its deficiencies but it has at least forced some project planning for expenditures related to software and hardware acquisition and has resulted in equipment replacement plans for most agencies and departments)
- Enforcement of five-year plan

**Areas for Further Work**

The Roundtable and the CIO both found areas that need further work. For each of these the Roundtable has a recommendation.

**1.** Find a better way to balance benefits of decentralization and centralization of IT services. (see **Recommendation 1** above)

**2.** Business process reengineering – This would require an agency or department to analyze business methods and process prior to implementing a new system which sometimes "automates" an inefficient or outmoded way of doing business. The results of the business process reengineering evaluation would then become input to the RFP. It may or may not be appropriate to have responsibility for this function reporting to the CIO, but it is an essential component of modernizing state government.

**Recommendation 2:** The administration should support a business process reengineering function that should report to the Secretary of Administration.

**3.** Once a project is completed, it is always useful to assess whether the outcome/deliverables were as specified in the contract and if the cost benefit analysis was correct. Currently there is little work done at the completion of a project to see if it developed as anticipated. This is an important step to take in any organization; the lessons learned can be applied to future projects.

**Recommendation 3:** Do more outcomes related work to assess whether IT projects delivered as specified in the contract and as evaluated in the cost benefit analysis. Provide the assessment to affected departments and project leaders.

**4.** Strategic Planning - Vermont has a format for a five-year IT plan which is defined in 3 VSA section 2222. This is clearly a project plan and not a strategic plan. It has served the state well, however, in requiring agencies to plan equipment and software acquisitions and replacements on a cyclical basis such that most office computer equipment and software is less than three years old. Larger systems are on a ten-year cost benefit cycle. A strategic IT plan would be beneficial and would need to be linked to a strategic business plan for the department, the agency and the state as a whole.

Statutory language that is less restrictive and more constructive might be needed to encourage legislation to change the Five-Year Plan from just a project planning exercise to a strategic planning exercise.

**Recommendation 4:** The development of a Strategic IT Plan for the State of Vermont as an enterprise should be led by the CIO and be the result of a process that involves the active participation from Agency leadership. The planning process should be viewed as an instrument to develop a common understanding of enterprise-wide business opportunities, priorities, technology requirements and interdependencies. One option would be to change the statutory language for the Five-Year Plan as outlined below.

3 V.S.A § 2222 (a)(9): **(as it currently stands)**

Submit to the general assembly concurrent with the governor's annual budget request required under 32 V.S.A. § 306, a strategic plan for information technology which outlines the significant deviations from the previous year's information technology plan, and which details the plans for information technology activities of state government for the following fiscal year as well as the administration's financing recommendations for these activities. All such plans shall be reviewed and approved by the chief information officer prior to being included in the governor's annual budget request. The plan shall identify the proposed sources of funds for each project identified. The plan shall include, for any proposed new computer system or system upgrade with a cost in excess of $150,000.00:…

**The Vermont Business Roundtable recommends that this section of the statute be changed to read as follows:**

3 V.S.A § 2222 (a)(9):
Submit to the general assembly concurrent with the governor's annual budget request required under 32 V.S.A. § 306, a strategic plan for information technology. ***This strategic plan shall include a vision for state government use of IT and a strategic plan for reaching those goals, a description of relevant information including developments within the state and general IT trends, and lay out the steps that need to be taken to implement this plan. This plan shall also outline the significant deviations from the previous year's information technology plan, and detail the plans for information technology activities*** of state government for the following fiscal year as well as the administration's financing recommendations for these activities. All such plans shall be reviewed and approved by the chief information officer prior to being included in the governor's annual budget request. The plan shall identify the proposed sources of funds for each project identified. The plan shall include, for any proposed new computer system or system upgrade with a cost in excess of $150,000:…

**5.** As a policy person, the CIO needs to develop a vision and share it both within state government and with the rest of the population. People and businesses interact with state government on a daily basis and have a strong interest in understanding how government works. In addition, it is clear that Vermont state government has taken many more positive steps in IT than the Roundtable first thought. Clearly it would benefit everyone to understand projects undertaken, goals reached and the overall vision. Therefore, sharing of the vision and how every effort fits into that vision should be a priority.

**Recommendation 5:** Provide more external communication about the state government IT vision, strategic plan and specific actions taken to business groups and other sectors as well as the general public.

**********

**CIO Sub-Committee of the Vermont Business Roundtable's Information Convergence Task Force:** ***Sub-Committee Chairman:*** Lawrence E. Sudbay, SymQuest Group, Inc.; ***Sub-Committee Members:*** Maxine N. Brandenburg, Vermont Business Roundtable; Carolyn Edwards, Competitive Computing; Paul LeBlanc, Marlboro College; Peter Martin, Mt. Mansfield Television Company, Inc.; V. Louise McCarren, Verizon – Vermont; William H. Schubart, Resolution, Inc.; Dawn Terrill, Hill Associates, Inc.

*The Vermont Business Roundtable is a non-profit, non-partisan organization of 110 chief executive officers representing geographic diversity and all major sectors of the Vermont economy. The Roundtable is committed to sustaining a sound economy and preserving Vermont's unique quality of life by studying and making recommendations on statewide public policy issues.*

# Appendix J

**State of Vermont** AGENCY OF HUMAN SERVICES

DEPARTMENT OF PREVENTION, ASSISTANCE,
TRANSITION, AND HEALTH ACCESS
Commissioner's Office
103 South Main Street
Waterbury, VT 05671-1201
(802) 241-2853
Fax: (802) 241-2830

February 22, 2002

Elizabeth Ready, State Auditor
Office of the State Auditor
132 State Street
Montpelier, VT 05633-5101

Dear Ms. Ready,

We have reviewed your draft findings and recommendations related to information technology across state government. Our response consists of two principal statements:

- The issues being raised deserve attention,
- Whatever the next steps, they must enhance and support operations.

Because PATH is responsible for two large, mission critical systems, we are eager to be involved in developing directions and solutions.

While we believe that your report has raised a number of important issues, it will be essential that any resulting actions receive careful consideration so the outcome is beneficial. For example, an Information Technology Investment Board has been helpful in other states, and we welcome the use of business leaders to obtain ideas from outside of government, but we have concern about creating another layer of bureaucracy. Any plans developed and policies or protocols created must be sensitive to the content and structure of Federal rules related to privacy and security of systems and data, as well as to Federal funding streams. We are cognizant that there may be significant cost to the implementation of a number of the recommendations.

In addition to these general comments, included below are several corrections to statements made in the report:

- Page 17, 3rd paragraph - States that PATH spent "in excess of $350,000 for consultants". If the report is referring to The Point Group contract, we spent exactly $350,000. If the cost of the two independent reviews is considered, the statement "in excess of" is correct.
- Page 29, 1st paragraph - States "In the case of ACCESS 2000, the cost/benefit analysis compared the cost of the vendor project with the costs of conducting the project in-house." Because there were two independent reviews related to this project, the statement is clearer if it is changed to say "In the case of the ACCESS 2000 Project Management Support Services Contract, the cost/benefit analysis compared the cost of

the vendor project with the costs of conducting the project in-house." This methodology was not used for the independent review based on the proposal to complete theACCESS 2000 enhancements.

- Page 34, 3rd paragraph - States "The Project Manager has since left PATH and joined VISION." This is incorrect. Judy Higgins, IT Manager, was the designated ACCESS 2000 Project Manager, and is still with PATH.
- Page 40, 7th paragraph - States "A vendor was selected by mid-December. Even without an independent review, the contract was not signed until July 1998, nine months after vendor selection." These statements are incorrect. The RFP was issued in October 1997; proposals were received in December 1997; a vendor was selected in February 1998; the independent review was completed in June 1998; and the contract was signed in July 1998. This independent review is referenced on page 29.
- Page 51, 3rd bullet - States "ACCESS issues more than 600,000 payments annually totaling more than $87 million." We would like to insert "to Vermonters" after the word annually, to clarify the impact on typical Vermont citizens.
- Page 51, 5th paragraph - States that planned enhancements were cancelled although in-house staff is implementing a small portion of the enhancements. (On November 30, 2001 Pat Urban approved PATH's request to negotiate a contract with the chosen ACCESS 2000 Vendor to complete Noticing, the project component determined by the independent review to have a positive cost-benefit).

The corrections listed above conclude our comments. Thank you for the opportunity to respond to your report.

Sincerely,

Eileen Elliott
Commissioner

cc: Judy Higgins

# Endnotes

1 From the Preface to "Eight Imperatives for Leaders in a Networked World," The Harvard Policy Group on Network-Enabled Services and Government, John F. Kennedy School of Government, December 2000.
2 Meyers, Marvin, ed. "James Madison to W.T. Barry," August 4, 1822. *The Mind of the Founder: Sources of the Political Thought of James Madison*, p. 437, Indianapolis (1973)
3 Peterson, Shane "Locke on the Future," *Government Technology*, July 2001.
4 *Imperative 1,* Eight Imperatives for Leaders in a Networked World, The Harvard Policy Group on Network-Enabled Services and Government, John F. Kennedy School of Government, December 2000, p. 5.
5 Vermont Information Technology Five-Year Plan, February 2001, p. 1.
6 From website - http://www.wa.gov/dis/isb/enableg.htm. Statutes referenced are RCW 43.105.032 and RCW 43.105.041.
7 NITC website - http://www.nitc.state.ne.us/nitc
8 Total costs under the AMS contracts as amended total $9.6 million to date. This includes $1 million in license fees. The personal services charges include some amount of work (quantity unclear) for work beyond the scope of the original contract. Not included are software maintenance fees totaling $300,000 to date. One should note that having a major IT development project exceed its schedule and budget by "only" a factor of two is not as rare as customers might wish.
9 E-mail from Brad Ferland, Director of Financial Operations, Department of Finance and Management to Nancy Wasserman, Chief, Special Audits and Reviews dated January 10, 2002.
10 User interviews and discussions with the VISION staff have indicated concerns with the system's ability to reconcile bank accounts, prepare budgets and create reports.
11 *Accessing Risks and Return: A Guide for Evaluating Federal Agencies' IT Investment Decision-making*, Government Accounting Office, Washington, DC, February 1997. (GAO/AIMD-10.1.13) p. 1.
12 Ibid. p. 11.
13 From the Preface to Eight Imperatives for Leaders in a Networked World, The Harvard Policy Group on Network-Enabled Services and Government, John F. Kennedy School of Government, December 2000.
14 Ibid.
15 *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, Exposure Draft, Government Accounting Office, Washington, DC, May 2000. (GAO/AIMD-10.1.23) pp. 7-8.
16 *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, Exposure Draft, Government Accounting Office, Washington, DC, May 2000. (GAO/AIMD-10.1.23) pp. 7-8.
17 During the period from September 1994 through June 1996, the Joint Information Technology Oversight Committee held at least 26 meetings. From the range of witnesses, it appears that the committee spent considerable time looking at the state's information infrastructure and public policies needs related to network development.
18 Information obtained from the Center for Digital Government state web readiness assessment. Data was current as of September 10, 2001. http://www.centerdigitalgov.com
19 *New Hampshire State Government in the Internet Age: Report of the Information Technology Strategic Planning Commission,* September 2000. Available at http://www.state.nh.us/governor/it/itplan.html.
20 Interview with Patricia A. Urban, Chief Information Officer, by Nancy Wasserman, Chief, Special Audits and Reviews and Andrew Gottschalk, Senior Manager, KPMG, October 22, 2001.
21 Ibid.
22 Bulletin 1.5 RE; Information Resource Management Advisory Committee (IRMAC), issued by then Secretary of Administration William Sorrell, dated July 1, 1994.
23 Emphasis added.
24 Act No. 66 (Budget Adjustment Act) of the Public Acts of 1998 (Adjourned Session) § 58.
25 Klein et al. p. 9.
26 The policy requiring Departments to work with Purchasing when developing an RFP was implemented in February of 2001.

27 According to a letter to Elizabeth Ready, State Auditor, from Patricia A. Urban, Chief Information Officer, dated November 1, 2001, the CIO reviews the RFP for compliance with projects specified in the five-year plan and the following requirements:
- adherence to state IT standards;
- payment schedules that specify fixed payments for defined deliverables;
- pricing be quoted in a comparative table format;
- on-site custody of source code;
- warranty and maintenance arrangements;
- vendor profile and references;
- adequate testing and acceptance period.

28 Interview with Patricia A. Urban, Chief Information Officer, by Nancy Wasserman, Chief, Special Audits and Reviews and Andrew Gottschalk, Senior Manager, KPMG, October 22, 2001.
29 3 V.S.A. § 2222 (g)
30 *Role of the CIO and Administration of Information Technology in Vermont State Government*, Report of the Vermont Business Roundtable, February 25, 2002, p. 4.
31 3 V.S.A. § 2222 (g)
32 Kolodney, Steve, "Letter from the Guest Editor," Catalyst, Autumn 2001.
33 *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, Exposure Draft, Government Accounting Office, Washington, DC, May 2000. (GAO/AIMD-10.1.23) p. 1.
34 *Texas Can Benefit from Using a Standard Framework to Manage Software Development: A Pilot Study Using the Capability Maturity Model for Software*, Texas State Auditor's Office, November 2001, Report No. 02-008.
35 Kittower, Diane, "The IT Touch," *Governing,* October 2000.
36 Gurwitt, Rob, "Behind the Portal," *Governing*, August 2001.
37 McDowell, Samuel W., Ph.D., Independent Review, ACCESS 2000 System Enhancements, October 20, 2000, p. 34.
38 These are all listed as Functional Architecture Requirements in the E-Government Portal RFP issued December 29, 2000.
39 Vermont Information Technology Five-Year Plan, February 2001, p. 1.
40 Davies, Thomas R., "The Agents of e-Change," Governing, October 2001.
41 Peterson, Shane, "Delaware's Dynamic Ruth Ann Minner," Government Technology, November 2001.
42 Ibid.
43 Lee, Min, "The Missing Link: State Profiles of the Chief Information Officer" A Report of the Government Performance Project, May 2001.
44 www.cio.state.vt.us
45 Barrett, Katherine and Richard Greene with Michele Mariani, "Grading the States 2001: A Management Report Card," *Governing,* February 2001.
46 State of Vermont Management Letter for the Fiscal Year Ended June 30, 2000, Issued March 30, 2001, p. 13-14. Preliminary test work for FY 2001 indicates that this situation has not changed.
47 *Role of the CIO and Administration of Information Technology in Vermont State Government*, Report of the Vermont Business Roundtable, February 25, 2002, p. 3.
48 Contract # 408052 between AMS and the Department of Taxes.
49 Contract # 408057 between AMS and the Department of Taxes.
50 Although there was one non-contract software maintenance payment, and two small residual payments from contract 408023.
51 The Tax Department's V-File system was not available until February 22, 2002.
52 Ibid.
53 *Role of the CIO and Administration of Information Technology in Vermont State Government*, Report of the Vermont Business Roundtable, February 25, 2002, p. 5.
54 Attachment to Letter to Elizabeth Ready, State Auditor, from Janet Ancel, Commissioner of Taxes, dated November 5, 2001.
55 Bulletin 3.2.
56 Kittower, Diane, "Guide: Award-Winning Technology," *Governing*, October 2000.

57 Transmittal letter accompany Phase I VISP report from David M. Wilson, then Secretary of Administration, March 18, 1992.

58 The Government Consulting Group was an outgrowth of State Information Systems, the predecessor to the Computer and Information Technology Division within the Department of Buildings and General Services. The Group reported to the Deputy Secretary of Administration and had been charged with assisting in the process of bringing information systems planning to the State.

59 Human Services, revenue collection and travel and tourism were mentioned as potential projects.

60 Client Service Information Strategy Plan, January 14, 1993, p. 1-1.

61 Vermont State Auditor's Office, *1995 General Purpose Financial Statement Audit, Electronic Data Processing Internal Control Review*, Findings and Recommendations, p. 1.

62 Each of these is detailed in Vermont State Auditor's Office, *1995 General Purpose Financial Statement Audit, Electronic Data Processing Internal Control Review*, Findings and Recommendations, p. 2-3

63 Klein, Stephen A., Duncan W. Goss, Donald E. Dickson, Jr., "Study of Vermont State Data Processing System Purchases and Vermont State Information Systems Planning and Design", State of Vermont Joint Fiscal Committee, December 29, 1993. p. 5-6.

64 Act No. 60 (Appropriations Bill) of the Public Acts of 1993, § 279 reads: "The joint fiscal office, together with the office of the legislative council, shall conduct a study and review of the planning and design processes, the bidding and procurement processes, the procedures for financial accounting, the procedures employed in retaining consultants and advisors, and the processes for obtaining authorization and approval of and providing accountability to the legislature and governor, employed by the state agencies in planning, acquiring and upgrading automated data processing systems…"

65 Klein et al. See Footnote 11.

66 Act No. 207 of the Public Acts of 1994 (Adjourned Session). The committee had a sunset date of July 1, 1996.

67 Act No. 210 of the Public Acts of 1994 (Adjourned Session), §285. CREATION OF CHIEF INFORMATION OFFICER POSITION reads:

> An exempt position in the Agency of Administration is hereby created and designated as "Chief Information Officer." This position will report to the Secretary of Administration and shall advise the Secretary on all matters regarding the creation, processing and distribution of information. The Chief Information Officer shall serve as Chair of the Information Strategy Advisory Committee (ISAC). The position shall be funded with $75,000.00 from an internal service fund transfer through the Department of General Service.

68 Some context is probably helpful here. Late 1994 and early 1995 was when e-mail was starting to make its mark as the essential application it has become. The Internet as a readily accessible provider of information was just beginning to be recognized. Statewide projects identified at the time were GOVnet, distance learning and emerging technologies.

69 Emphasis added. Act No. 63 (Appropriations Bill) of the Public Acts of 1995, §18a.

70 Act No. 185 (Capital Bill) of the Public Acts of 1996 (Adjourned Session) § 45 reads:

3 V.S.A. § 2222(g) is added to read:

> (g) The secretary of administration shall obtain independent expert review of any recommendation for any information technology activity initiated after July 1, 1996, as information technology activity is defined by subdivision (a)(10) of this section, when its total cost is $500,000 or greater. Documentation of such independent review shall be included when plans are submitted for review pursuant to subdivisions (a)(9) and (10) of this section. The independent review shall include:
>
> (1) an acquisition cost assessment;
>
> (2) a technology architecture review;
>
> (3) an implementation plan assessment;
>
> (4) a cost analysis and a model for benefit analysis; and
>
> (5) a procurement negotiation advisory services contract.

71 Act No. 185 (Capital Bill) of the Public Acts of 1996 (Adjourned Session) § 46.

72 McDowell & Company and Competitive Computing, "GOVnet System Evaluation and Network Study: Report to the State of Vermont Legislative Joint Fiscal Office," January 22, 1997.

73 System Requirements Report, Vermont Financial Management Information System Needs Assessment Report, prepared by Deloitte and Touche, January, 1998. p. 12-8.

74 We compiled hourly wage data for all employees with the following job titles: Agency Automated Systems Specialist, Computer Operator, Data Processing Librarian, Help Desk Personnel, Information Technology Manager, Information Technology Specialist, Network Administrator and Systems Developer. FY 200 personnel expenses were based on employee data at 6/28//2001; FY 2000 used employee data from 6/29/2000; FY 1999 used employee data from 6/17/99. We calculated annual salary expense by multiplying hourly wages by 40 hours/week times 50 weeks and then adding 30% for benefits

75 GASB 34 is the new financial reporting model issued by the Government Accounting Standards Board which must be implemented by the State in FY 2002. It requires a number of changes including the addition of a statement of net assets detailing capital assets.

76 Yearly Summary for FY 98, memo from Bill Laferriere, Director of CIT to Tom Torti, Commissioner of Buildings and General Services, July 9, 1998.

77 ACCESS 2000 Project, Current Assessment Deliverable, October 1998, p. 7

78 Three of the five members of the Executive Committee who oversaw the development of this plan had left state government within five months of its publication. They included Project Sponsor Patricia Walton, who died unexpectedly in July of 1994, Tax Commissioner Joyce Errecart, who resigned in May of 1994 and Michael Griffes, Commissioner of Motor Vehicles, who resigned in September of 1994. This loss of experience at the sponsorship level undoubtedly impacted the project's implementation.

79 Act No. 233 (Capital Bill) of the Public Acts of 1994 (Adjourned Session) § 12.

80 Act No. 62 (Capital Bill) of the Public Acts of 1995, § 2.

81 Ibid.

82 Request for Formal Proposal of Partnership Joint Development Agreement, dated March 21, 1995.

83 Ibid.

84 Act No. 233 (Capital Bill) of the Public Acts of 1994 (Adjourned Session) § 12.

85 Vermont Information Technology Five-Year Plan, February 2001, p. 1.

86 Letter from Secretary of Administration Kathy Hoyt to State Auditor Elizabeth Ready, December 10, 2001.