

# **Report of the Special Committee on the Utilization of Information Technology in Government Presented to Vermont General Assembly pursuant to 32 V.S.A. §315 Sec. 3 January 15, 2016**

**Committee Members: John Burton, Tim Kenney, Michael Schirling**

## **Introduction**

In 2016, governments, like many complex organizations, stand at a crossroads. Technology has never been more essential to the core operations of organizations. Technology facilitates communications - both internal and with external customers and stakeholders. It collects, houses, and allows access to data that informs decision making, best practice, and organizational transparency. Arguably most important, technology facilitates and supports modern government or business practice.

Useful technology is most often simple and intuitive. It is easily understandable, easy to learn and use, and easy for people at all levels of technical proficiency to interact with. As important, it is easy to see the value that the technology brings to a task or operation by adding value, increasing access, enhancing transparency, or using a variety of other measures.

Against that backdrop this committee undertook the work assigned pursuant to our legislative charge. It is important to note that within the six core areas of our legislative charge was a request to “review the State’s mainframe and legacy mainframe applications” and make some detailed assessments regarding them. Because this committee was empaneled in September 2015 and the work involved in conducting a detailed assessment of a host of complex systems would be daunting the Committee, during its first meeting, opted to forego that portion of the charge.

## **Our Methodology**

Beginning in September and concluding in December 2015 the Committee met bi-monthly. Each meeting was publicly warned. We took “testimony” and heard from a variety of stakeholders ranging from those working for the State on information technology projects to State employees in the Administration, Legislature, finance, Secretary of State’s Office, as well as legislators, contractors, and members of the public. Additionally, we attended a day-long session at the Statehouse where presentations regarding technology were made. We issued a press release asking for public feedback on the way the State approaches information technology, and we

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created a link on the Secretary of Administration's website to enable those who could not attend a committee meeting to send comments or ideas via email or U.S. mail to the committee.

Available as a supplement to this report are the minutes of meetings, which list those who provided testimony, as well as correspondence and documents received as a result of this process.

Our hope was to create a document that was, as good information technology should be, simple, intuitive, and easy to navigate. What we were unable to create over the course of four months is a set of comprehensive recommendations regarding every possible enhancement, alteration, or improvement to the State's information technology strategy. This document serves as a starting point for action and further exploration, not the end.

### **Executive Summary**

To begin, it should be noted that over the course of four months it is impossible to fully assess all of the challenges, opportunities, and possibilities in the realm of information technology for an organization the size of the State of Vermont. What is contained in this report is a high-level overview of our observations and some of the possibilities that could be embraced by State leaders relative to information technology. This executive summary represents some of the highlights and overarching themes and recommendations of the report.

Those key themes include:

1. **Information technology (IT) is a core component of government** (and all business or organization) operations. It is no longer peripheral. As described by Ken Hays of the Enterprise District in Chattanooga, TN at a meeting in Burlington in October of 2015, "Dominos is a technology company that also delivers pizza." At a presentation to the VT Legislature in November of 2015, Gartner, Inc. **noted that IT has shifted from a support role to a strategic asset in government**. Those statements encapsulate the relationship of IT to operations in 2016. IT is central to how employees do their work, how

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leaders make decisions, how information is made available to the public, and the core data upon which to conduct research and inform evidence-based practice and drive data-driven decision making to improve outcomes for all Vermonters. As Gartner noted during their 2015 presentation, data and information are essential to improving government and society.

- a. Because IT is a core component of operations the State should establish government structures that embrace IT as such. Examples include creating a Chief Information Officer that is a cabinet level position and assigning a specific legislative committee, such as Government Operations, for oversight of IT projects. Additionally, the current system of short-duration (2 year) appointments of key leaders into roles where the execution of large policy initiatives projects takes substantially longer poses notable challenges. Thus, we recommend considering changes to the length of executive leadership cycles.
- b. To ensure success there should be an essential division of tasks and workloads and equally important changes to elevate the institutional importance of IT. This could include such things as:
  - i. Create and elevate a position of Chief Information Officer to the cabinet level - together with the Chief Performance Officer - this position is responsible for continuous innovation and improvement with a focus on the future needs of the State. In addition to crafting strategy, this position is also ultimately responsible for creating the frameworks for IT project success and for communicating about the projects in a consistent and easily understandable way. The CIO should put people at the center of technology decisions and dig deeper into citizen perspectives on what is working well and what needs improvement.
  - ii. Maintain the position of DII Commissioner - the implementation arm of IT projects.
  - iii. Create a position of Chief Data Officer - responsible to ensure that every unit of State government embraces data as central to operations and decision making and defines “open standards” between government entities and acceptable private sector access to the data.

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- iv. **Maintain a position of Chief Security Officer** - a critical position in the 21st century to ensure that the IT systems and the data they contain are secure while remaining simple and intuitive for users.
  - c. **Develop a multi-year strategy and plans to assess and adopt process improvement and IT projects.** Ensure that the operating officers and managers in IT are “Directors” who, if successful in their roles, continue to work on the essential business of the State regardless of changes in administration.
2. Successful IT projects flow from successful **process improvement** (business process, workflow, etc.) work that determines the “ideal state” of operations. IT should be considered as *part* of a continuous improvement process. Successful projects assess the effectiveness of current performance and operating workflows; find opportunities for improvement and change; assess and balance risk and reward; and implement robust project plans. Reproducing existing computer solutions in newer technologies without reassessing the business process increases cost of implementation, removes the opportunity to use commercial off the shelf solutions, and reduces opportunities for new business efficiencies that might be achieved through reworking and refining the business process.
- a. To be consistently successful implementing system change and IT projects the State should **adopt and consistently use structures/frameworks for making decisions regarding best operational practices (such as LEAN) and structures/frameworks** for designing and implementing the IT projects that flow from those system designs.
  - b. While there are pros and cons to the discussion of centralized control of IT and and IT projects versus diffuse control held within Agencies or Departments, **project teams must have essential staff assigned to them** from the inception of an IT project or concept in order to be successful. This includes leadership from the department, DII staff, subject matter experts, and possibly a professionally trained (possibly contracted) professional project manager who can work to ensure the requisite focus of both the State team and contractors working on the project.

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- c. All **IT projects should be fully staffed, including executive leadership**, subject matter experts (SMEs) (from within Departments), IT implementation experts (DII), and professional, trained project managers. Also essential is backfilling the work of the Department SMEs with other staff so they can focus on the complex work involved in system change and IT projects.
  
- d. Large IT projects should be staffed well and with **professional project managers. Most often, contracted professional IT projects managers should be used for large projects. However, breaking large projects into smaller ones** and taking an agile, iterative approach, is preferential to undertaking one large project, including finding ways to modify procurement processes to accommodate this methodology. *One way to view large projects is using this three-pronged approach:*
  - i. Assess and determine the best state of business practice - the best workflows. Engage multiple departments and increase collaboration to develop IT strategy and projects that help to create data that can further inform best practice.
  - ii. Plan big, but start small. Break large IT projects into manageable smaller projects to the greatest extent possible. Speed up the RFP and contracting processes to create *more* stability and productivity. Use rapid prototyping and iterative, agile software development methodologies.
  - iii. **Accelerate cloud-based hosting, software as a service adopting, and outsourcing. Continually examine what software can be “commercial off the shelf” and** cloud-based and continue to outsource and engage external talent for complex projects.

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3. Essential to successful process improvement projects is **communication**, from which trust and confidence in the projects and plans flows. Communicating the goals, benefits, the return on investment (ROI), projected outcomes, from IT project inception, as the project evolves, and - as important - as they are completed and begin to show benefits to staff and our communities is critical to instilling confidence in IT as a core component of government operations. Effective communication will allow each department and IT executives to actively lead the digital transformation of Vermont government by harnessing the support of the departments, legislature, executive branch, and citizens; and coaxing insights from data to help shape government strategy.
  
4. IT infrastructure and projects must be funded **using more contemporary funding mechanisms**. The State should establish a targeted rate of spending on information technology based on national standards and/or best practice. Vermont needs to re-commit to investing in accelerated implementation of innovative technology solutions that accomplish critical goals while removing unnecessary cost.
  - a. Complex organizations, including many State governments, are in a state of transition from the legacy approach to IT (periodic, big capital investments in fixed IT infrastructure such as mainframes and servers housed at State facilities) to new **model (ongoing annual expenses to subscribe to software services and to “rent” hardware - Cloud basing - that is accessed remotely). This model should be embraced and transitioned to at an accelerated pace.**
  - b. When choosing which IT projects to fund, once the ideal state of business process and operations is established, focus should include defining the return on investment for each project contemplated. Additional detail regarding funding issues is included in the body of this report. It is not uncommon for funding opportunities, most often federal funding stream, to drive project creation.

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- c. We urge the State to take caution in undertaking IT projects that begin with a need to “chase” Federal or other funding streams. These projects may not be sized appropriately to successfully complete or fit with the overall strategy (once identified and adopted).
  
5. Data should drive the approaches to meeting the State’s challenges. There is a need to ensure that business process and IT systems consider the essential nature of collecting, sharing, analyzing, enabling decision making through such mechanisms as data visualization, and transparency. Transparency is most often thought of as a window to monitor what government is doing and how it is performing. Transparency can have a host of other benefits. Software systems should have open Application Program Interface (API) to data that is not private to enable study of the State’s information so that others, such as researchers and students, can seek solutions, and to illuminate both challenges and possible solutions or better practices.

**Defining Information Technology (IT)**

Throughout government and all organizations, there are disparate views of what “IT” is. To ensure that the content of this report, and the future vision for Vermont, works from a solid foundation we suggest adopting a simple definition to ensure clarity.

The Merriam Webster definition of **Information Technology** is: *Technology involved in the development, maintenance, and use of computers and software for the processing and distribution of information.* It is a computer and the software that runs on that computer. It is the wires and wireless networks that carry data that the computers and devices connect to. It is not the telephone system, the electrical system that powers the computer, photo copiers (though multi-function copiers and printers muddy those waters) or other things that do not collect, manipulate, or store information electronically.

The body of the report that follows outlines findings and recommendations that are organized to match our legislative charge. Once again, these should be viewed as a starting point for further work, not a fully comprehensive assessment of all options.

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Charge Number or category	Finding	Recommendation
General findings GF1	<p>Disconnects frequently occur in IT projects between policy, leadership decision-making, operational strategy, and implementation of projects. This can result in an agency or department adopting IT automating practices that are inefficient.</p> <p>For example: an agency might determine it needs to replace old technology without first asking vital questions needed to determine how to craft a project around those needs(i.e., What is needed? What is the business process? What is the ideal state?).</p>	<p>IT projects should support best business practices. The development and implementation of IT projects should begin <u>with identifying needs, examining the business process to assess if it is efficient, making the process as efficient as possible and finally determining if there is an appropriate IT solution to meet the stated needs.</u> In order to achieve this goal, business process innovation and business improvement exercises should precede IT projects.</p> <p>The State should rely on an effective and published IT strategy aligned with government goals and effective outcomes for the community and stakeholders.</p>
General findings GF2	<p>An understanding of what Information Technology is varies across and within Vermont's state agencies and departments. Currently there are no articulated definitions of IT, resulting in diluted and confusing conversations about IT efforts.</p>	<p>The State should adopt a common definition of IT that is used among stakeholders including the legislature, administration, state agencies and departments, and Vermont's citizens.</p> <p>To create a common understanding the state should engage in efforts to educate stakeholders on IT terminology and definitions. Examples of definitions and terms include the following:</p> <ul style="list-style-type: none"> <li>● customization vs configuration</li> <li>● cloud vs on-prem</li> <li>● product lifecycle</li> <li>● cap ex vs op ex</li> <li>● agile methods</li> </ul>
General findings	Changes in leadership at the Executive level which can occur as	In order to mitigate the potential impacts of turnover and



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GF3	frequently as every two years is disruptive to the success of long-term, complex IT projects.	provide continuity of leadership and support for long-term, complex projects, <u>IT leadership should be situated in non-appointed positions.</u>
General findings GF4	<u>Projects are undertaken by project teams that have varying skills sets and participation. This causes inconsistent results, and</u> sometimes drives an increase in cost.	<u>The state should create an IT project "dream team"</u> to carry out projects from throughout State government. Involvement of this team should accelerate implementation of projects. The dream team may be cross-department and should include staff representing finance, subject matter expertise, technical, and administrative positions.

Charge Number or category	Finding	Recommendation
Governance and management structure 1.1	<p>Currently no cohesive strategic IT plan and accompanying multi-year coordinated roadmap exists to guide the role of government in coordinating IT projects. Unlike other state functions such as transportation which is guided by DOT's five-year plan, IT is characterized by a laundry list of projects assembled across departments and included in DII's annual report to the legislature. <u>This list represents neither a cohesive strategic plan, nor prioritizes projects in any order. In essence the State's current approach to developing and implementing IT is reactive rather than proactive.</u></p> <p>Projects are not consistently explained clearly and in a timely fashion with department (to stakeholders), to legislators, and to the public.</p>	<p><u>Vermont should develop a multi-year strategic IT plan which addresses the IT needs and projects for the state as a whole</u> that has components articulated for each state agency and department. The plan should use a model that is based on a multi-year vision for each agency and department.</p> <p>The plan should articulate the following:</p> <ul style="list-style-type: none"> <li>● A set of goals</li> <li>● Operational plans</li> <li>● Short-term and long-term vision</li> <li>● Budget</li> </ul> <p>Additionally, the plan should be guided by a framework for achieving IT goals that includes and defines elements such as:</p> <ul style="list-style-type: none"> <li>● Rules (e.g. Don't buy 3 types of car, get one platform-- e.g. all Chevy),</li> <li>● Technical goals such "Cloud first" and COTS (Commercial Off The Shelf)</li> </ul>

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		Communication - with DII and, if created, the Chief Information Officer leading - regarding IT projects should follow a consistent framework or outline; be done in plain English; and, be done in a timely fashion as IT projects are conceptualized.
Governance and management structure 1.2	<u>Business process improvement frameworks or processes were not routinely used</u> prior to development of IT projects.	Before considering an automated IT solution, decision makers should engage in a continuous improvement process to determine the best solution to fit the need.
Governance and management structure 1.3	Generally, IT projects in the state lack a single point person, which can create lack of clarity at the legislature about who owns the project.  In addition, IT projects often lack staff with needed skills including IT project management skills and subject matter expertise.	<u>Assign one project owner for each IT project.</u> The project owner should be close to actual implementation of the project, not top management, and from the department in which the project exists. The project owner should not be a short-term employee (e.g., not in an appointed position).  Identify the project owner on the ABC form submitted to DII.  Executive branch leaders need to embrace and understand the connection between business process improvement and IT. When staffing projects they should assign subject matter experts within each department to IT projects. The workload for those staff members should be backfilled so they can focus on the project.
Governance and management structure 1.4	Some IT projects fail due to inconsistent project management process. More success has been observed with contracted IT project managers who use a professional management framework, and hold both vendor and state agencies accountable throughout the project.	When an agency or department lacks the skills or experience to manage complex IT projects, or when the size of a project is sufficiently large, the use of external project management is recommended to keep the State, vendors and project staff on track with project goals and timelines.
Governance and management structure 1.5	Larger IT projects are experiencing lower success rates (in VT and nation-wide) .	Assessments should be conducted to determine if and when larger projects should be broken into smaller phases. In any case each phase of an IT project must provide stand alone benefits and clear deliverables.

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		<p>For larger IT projects a <u>threshold dollar amount, intended to cap the size of the project</u>, should be set. In charting the course of a large project, explanations should address how the project will be built in stages and provide timelines for completion of each stage - akin to implementing a series of smaller projects that build like Lego<sup>®</sup> building blocks to a larger project.</p> <p>The committee is concerned that the Integrated Eligibility project now under consideration is too large and too complex to be undertaken as one project. Consider breaking the project into several smaller and more manageable projects.</p>
<p>Governance and management structure 1.6</p>	<p>DII has provided quality service and guidance in many areas including:</p> <ul style="list-style-type: none"> <li>● Help Desk</li> <li>● PC Support</li> <li>● Network Support</li> <li>● Phone Support</li> <li>● Mainframe Support</li> <li>● Cloud Consolidation</li> <li>● Bulk purchasing</li> </ul> <p>However, the State currently does not have roles in place responsible for:</p> <ul style="list-style-type: none"> <li>● <u>IT Security</u></li> <li>● <u>IT Strategic vision -- there is no roadmap or strategic plan</u></li> <li>● <u>Data governance to make data available to state offices and citizens by:</u> <ul style="list-style-type: none"> <li>○ Ensuring data collection, analysis and reporting is done in a way that informs best practices and illuminates outcomes</li> <li>○ Ensuring that the right data is publically</li> </ul> </li> </ul>	<p><u>Continue to budget and facilitate DII providing these centralized services.</u></p> <p><u>Establish a CIO (Chief Information Officer) position at the cabinet level, and retain the positions of DII Commissioner, and elevate roles to directors for Security, Data governance.</u></p> <p>The CIO should be responsible for the following:</p> <ul style="list-style-type: none"> <li>● Developing the IT strategic vision and communicating the IT strategic plan to the executive and legislative branches and to the public</li> <li>● Working with the executive and legislative branches along with division leadership to determine the priorities, project management and funding issues</li> <li>● Executing strategy and working with departments to assess, plan and evaluate the funded projects.</li> <li>● Defining computer system interoperability and technical requirements for projects</li> </ul>

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	<p>available so that others can study what is going on and make recommendations</p> <ul style="list-style-type: none"> <li>○ Providing a data dictionary</li> <li>● Communicating strategic plan, project successes, failures and lessons learned</li> </ul>	
Governance and management structure 1.7	Some State agencies and departments either lack a clear understanding of and/or are resistant to using DII resources and supports. As an example, when departments develop Requests for Proposals (RFPs) for IT projects without seeking input from DII, their submission to DII for approval immediately prior to issuing the RFP seems to indicate failed collaboration between departments and DII, and between DII and departments.	In order to <u>create a collaborative working relationship between DII and state agencies and departments, roles and responsibilities should be clearly delineated and communicated through a written document intended to describe how to effectively use DII.</u>
Governance and management structure 1.8	DII exercise of oversight over services including internet access and security is varied. DII's communication to stakeholders regarding changes in these internet access is not always clear.	DII/Chief Security Officer should determine appropriate levels of access to internet services for all branches of government. DII needs to improve the communication process to notify stakeholders about significant changes.

Charge Number or category	Finding	Recommendation
Legislative Oversight 2.1 	The acknowledged lack of IT expertise among members of the legislature presents challenges for having meaningful dialogue and making funding decisions about IT.	Develop and <u>deliver a "Crash Course" in IT basics, including terminology and basic contemporary IT principles, for legislators and State operations staff. Consider using a contracted IT educator to develop this training.</u>
Legislative Oversight 2.2	<p>Legislators want to know how to best approach IT projects, asking the right questions.</p> <p>Currently, no consistent type of information about IT projects is given to the legislature.</p> <p>Current legislative oversight of IT initiatives comes through testimony to various committees in inconsistent fashion, with inconsistent information shared across committees.</p>	<p>Since IT is a core government operation, IT <u>proposals should first be reviewed by Governmental Operations to determine whether the proposed project is needed. Subsequently, the IT funding proposal should be reviewed by the appropriate committee of jurisdiction (Institutions or Appropriations).</u></p> <p><u>The CIO should develop a standardized template for presenting IT project proposals to the legislature. The template should address the following questions:</u></p>

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		<ul style="list-style-type: none"> <li>● <u>Is IT the appropriate solution to address the identified need or is there a better way?</u></li> <li>● <u>What are the implications of an IT solution?</u></li> <li>● <u>Is this the right project at the right time (rather than responding to available funding)?</u></li> <li>● <u>How much is being spent on IT and for what purpose?</u></li> <li>● <u>Are there any specific requirements which are driving the majority of the project cost which could be removed for significant savings?</u></li> <li>● <u>How does this IT project impact complex organizations?</u></li> </ul> <p><u>The Legislature should have staff preview IT project proposal presentations to ensure they are ready for presentation, and use the standardized template.</u></p>
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<b>Charge Number or category</b>	<b>Finding</b>	<b>Recommendation</b>
Evaluation of COTS (Commercial Off the Shelf) vs customized software	A variety of IT projects have been delivered on budget and on time, with desired functionality, using COTS. Examples include IT projects implemented by the Department of Corrections and the Tax Department.	<u>COTS solutions will most likely continue to deliver a reduced cost versus a custom written software system. The state should always investigate utilizing a COTS solution. This investigation should evaluate changes to business processes</u>

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3a.1		and reporting requirements that would allow the state to take advantage of less expensive solutions.
<p>Risk Mitigation Success of project: on budget, on time, with required functionality 3b.1</p>	<p>The current system to <u>identify risk (project outcomes and finances) is generally fundamentally sound* and includes outside consultants to review IT project RFPs, responses to RFPs, and project budgets.</u></p> <p>Not all projects go through the risk assessment process - some because of internal State influences and others in order to meet Federally mandated timelines.</p> <p>No process exists to ensure the issues from the independent review are addressed. Independent reviewers currently don't review Return on Investment (ROI), although they have expressed interest in doing so.</p> <p>IT project management resources within state agencies and departments at times aren't sufficiently robust.</p> <p>*current IT review methodology doesn't work well for very large projects</p>	<p>Authors of reports should meet with the IT project team to determine how to address issues. Include return on investment as part of review of proposal.</p> <p>All projects over \$500,000 should go through the review process.</p> <p>Smaller state agencies and departments may not have sufficient staff and therefore should receive the most help with their IT project management and pre-bid documentation. No project should be authorized without the correct Project Management (PM) <u>resources. Money should be allocated for PM training and mentoring to designated Project Managers in each agency or department.</u></p> <p>Include risk assessment in IT project prioritization</p>
<p>Risk Mitigation 3b.2</p> <p align="center">✓</p>	<p>Software that is being used by the state is not always updated in a timely fashion and falls behind vendor's currently supported releases. Some of these releases include security patches which need to be applied.</p> <p><b>Old operating systems no longer supported by the vendor present security risks.</b></p>	<p>Software as a service should be considered so the vendor is responsible for maintaining the software environment.</p> <p>Operating systems no longer supported by the vendor need to be replaced.</p>
<p>Risk Mitigation 3b.3</p>	<p>The current steps within the IT RFP process include:</p> <ul style="list-style-type: none"> <li>The ABC Form, which is designed to assess risk, cost, and life-cycle cost is completed BEFORE a</li> </ul>	<p>The ABC Form should include <u>an assessment of business process improvement. Ease of use, user training, and maintenance need to be included in the assessment to mitigate risk of system failure . Assessment of user training</u></p>

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	<p>vendor is selected - so the costs are best estimates.</p> <ul style="list-style-type: none"> <li>The current RFP process is designed to build 100% of what is needed (or believed to be needed) for a complex IT system rather than allowing for an “agile” and iterative development process that allows for construction of a complex system in manageably sized components.</li> <li>Milestones <u>for projects are often at the endpoint of the project so assessing project success happens once at completion instead of measuring accomplishments and deliverables along the way</u> (testing as you go). Currently, RFPs are set up for one launch of the IT solution at the end of a project.</li> <li>Currently, RFPs may <u>not take into consideration ease of use, training, and maintenance</u>.</li> </ul>	<p>should be part of the final selection process.</p> <p>The ABC Form should be updated and the project reviewed after a vendor is selected.</p> <p>Projects should use an agile and iterative process, building components of a complex system in smaller sections, to REDUCE risk. Large complex projects, which might actually increase risk and inflate cost and should be carefully contemplated.</p> <p>A written document on risk reduction should be distributed to all stakeholders involved in developing IT projects. This document would include recommended risk reduction practices such as:</p> <ul style="list-style-type: none"> <li>The use of mature software which most likely has best practices built into it.</li> <li>When using COTS the agencies and departments should find examples of <u>the product working elsewhere, rather than relying on the vendor’s demonstration of the product</u>.</li> </ul>
<p>Risk Mitigation 3b.4</p> <p style="text-align: center; font-size: 2em; color: red;">✘</p>	<p>Some state employees serving as IT <b>project managers have limited or no experience in project management and limited or no training in managing IT projects.</b></p> <p>The state has <b>not adopted a specific IT project management model or methodology.</b></p> <p><b>Some agencies, as an example, the Judiciary, have had success using professional contracted IT project managers.</b></p>	<p>State staff that are used as IT project <b>managers should receive training on a selected project management model or methodology.</b></p> <p><b>Contracted professional IT project managers should be considered for complex or large scale projects.</b> ✓</p>
<p>Procurement policy 3c.1</p>	<p><u>Funding, rather than a prioritized and demonstrable need, sometimes drives IT projects. In many cases if</u></p>	<p>All IT project development should begin with the question: “<i>is this the right project at the right time or a response to funding</i>”</p>

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	<p>there are available funds, projects are developed to <u>match the available funding.</u></p> <p><u>IT procurement processes are sometimes inconsistent, inefficient, and time consuming. Project reviews sometimes cycle through the same people multiple times as documents or circumstances evolve.</u></p> <p><u>Observations include:</u></p> <ul style="list-style-type: none"> <li>● <u>Some RFPs are given to other agencies required to review them on very short notice.</u></li> <li>● <u>Some RFPs are authored by staff who have no experience with or training for writing them.</u></li> <li>● <u>The procurement process is often lengthy and not viable in a constantly changing IT market (It can take 2.5 years for procurement negotiation of IT products. The products and possible solutions have changed significantly during that time frame.)</u></li> <li>● <u>Many layers of approvals are sometimes needed and often repeated.</u></li> <li>● <u>IT projects often use a manual approval process with paper moving between people.</u></li> <li>● <u>It is not always clear what roles are in the procurement process.</u></li> <li>● <u>Contracting suffers from many of the same issues as procurement. These inflate cost significantly.</u></li> <li>● <u>Often the nuances of a contract or proposal are not understood by those reviewing it. Examples were varied and include such things as the difference between software customization versus configuration.</u></li> <li>● <u>Sometimes language in Attachment C creates</u></li> </ul>	<p><u>opportunity only?"</u></p> <p><u>Purchasing and contracting should be centralized in the Agency of Administration. Elements of centralized contracting include:</u></p> <ul style="list-style-type: none"> <li>○ Business requirement come from the departments</li> <li>○ Use of more RFQs and RFIs to develop the project</li> <li>○ Training to agencies and departments issuing the RFP/RFI/RFQs on how to write a request.</li> </ul> <p>Procurement processes should be analyzed to ensure that they flow well and are not so risk averse or laden with unnecessary steps of bureaucracy that it raises cost and prolongs timeframes:</p> <ul style="list-style-type: none"> <li>● Timeframes, such as specific deadlines for review, should be clearly set in the process.</li> <li>● Procurement for smaller/low risk projects should be streamlined.</li> <li>● Procurement needs to be more automated (relying less on paper) and communications improved for best outcomes.</li> <li>● The number of approvals required should ensure a balance between rigor and speed/reasonableness.</li> <li>● <b>Attorneys General who review IT projects should be trained or a specialist with IT knowledge assigned.</b></li> <li>● <b>Require collaboration with the Dream Team (referenced above) of people on all RFPs rather than review processes after the creation of the RFP. Team should be placed in Agency of Administration.</b></li> </ul> <p><b>In RFPs - ensure that core</b> components and options are bid specifically so that changes can occur as the process move</p>
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	<p>vendor confusion.</p> <ul style="list-style-type: none"> <li>Some vendors report that the unpredictability and complexity of the State procurement process for IT projects increases their risk and decreases their willingness or ability to respond to State projects.</li> <li>Complexity, the extensive time to navigate the process, and risk management requirements are often too cumbersome and sometimes eliminate VT companies from responding to RFPs.</li> <li>It was generally observed that it is high risk to do business with the State/Federal government because of often changing requirements resulting in inflated costs and complexity.</li> </ul>	<p>forward .</p> <p>Use RFIs/RFQs more frequently preceding development of RFPs to discover alternatives.</p> <p>Communicate to vendors with specificity about requirements and change requests so they can provide a proper response with an estimate of costs that addresses needs.</p> <p>Develop a simple, intuitive guide for the procurement process for potential vendors regarding State IT projects.</p> <p>Legislation regarding contracting requirements should be minimal.</p>
Procurement policy 3c.2	IT RFPs and contracts often do not articulate clear measures of success. Nor are follow-up assessments on the IT project outcomes conducted.	<p>Clear measurable benchmarks are needed to ensure success for every IT project. These measures may include:</p> <ul style="list-style-type: none"> <li>Project impact on department overall budget.</li> <li>Time savings for all stakeholder vs the older process</li> <li>Satisfaction with the new vs old process</li> <li>System utilization</li> </ul>
Procurement policy 3c.3	<u>Vermont state agencies and departments do not always research what other states have done to address similar needs. When that type of research has been done, IT projects have been more successful.</u>	Prior to developing specific IT proposals, State agencies and departments <u>should research other States' procurement on similar projects to learn from both mistakes and successes.</u>
Procurement policy 3c.4	The state is having a hard time quantifying the ongoing cost of legacy systems and ongoing security risks.	The State should seek solutions to this issue.

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Charge Number or category	Finding	Recommendation
Recommendations for further action 4.1	Information about IT vision, success and projects with good outcomes are often not communicated to legislators, leaders, and the public. Stakeholders do not have access to a comprehensive understanding of IT projects (including the costs, goals, benefits, etc.) , spending, and project status.	DII and other State agency leaders should tout IT successes via website, social media, and in their reports to legislature.  Successful projects should be analyzed to replicate the methodologies that resulted in success. The same should occur for unsuccessful or challenged projects in order to avoid similar pitfalls.  Annual reports, including those from DII and departments, should provide detail on the State IT and system improvement projects, the benefits the projects will bring to stakeholders, and vision for the future.
Recommendations for further action 4.2	There is a history of the State building its own infrastructure rather than using industry sources (e.g. the Mainframe and Servers).	The <u>State should not build a State of Vermont private cloud – private industry will do it better and for less cost.</u> 

Charge Number or category	Finding	Recommendation
Methods of financing DII and IT development 6.1	Legislators (and others) note that infrequent (versus regular) replacement of the IT infrastructure has led to a large backlog and high costs in the near term.	The IT project backlog should be cleared to the greatest extent <b>possible using streamlined processes as noted above.</b>  As IT <b>should be viewed as a core component of government operations, IT systems should have long term plans for continued operation, upgrade, replacement, and maintenance embedded in budgets.</b>  <b>Projects should be prioritized across all state government</b> so the right projects are done at the right time using the best funding approach.

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<p>Methods of financing DII and IT development 6.2</p>	<p>Some financing mechanisms, such as 20 to 30 year bonds, do not match the shorter life of most IT systems and do not account for an increasingly large cross section of IT systems that rely on “software as a service” that is cloud based, rather than purchasing physical items.</p> <p>Single year budgeting makes planning and budgeting for multi-year IT projects difficult.</p> <p>Uncertainty in State general funds and Federal funds creates unpredictability and additional work for many IT projects. There is no consistent, permanent and stable source of funding to support major multi-year projects.</p> <p><u>Software as a service (SAS) subscriptions allow for predictable budgeting year over year.</u></p>	<p>The following ideas are presented for consideration as ways to fund IT projects:</p> <ul style="list-style-type: none"> <li>● Shorter term bonds that match the projected life cycles of IT systems.</li> <li>● Move long term IT projects away from the yearly general fund appropriations as they are very different from short term ordinary spending.</li> <li>● Set up a new financing system to fund the operational cost of all software as a service, and cloud solutions to assure a steady payment stream. Encourage this approach where possible and cost effective.</li> <li>● Create a maintenance fund similar to the highway garage fund.</li> <li>● Create a dedicated IT funding source.</li> <li>● Explore a targeted rate of spending and a cap on IT spending at a ratio that is based on nationally recognized standards.</li> </ul>
<p>Methods of financing DII and IT development 6.3</p>	<p>Statutory definitions currently require non-commodity contracts, including IT contracts, to be classified as personal services.</p>	<p>The State should change statutory definitions to “contract for service” from “personal service” contract. <u>Many IT contracts should be categorized as an operating expense (such as utility cost).</u> </p>
<p>Methods of financing DII and IT development 6.4</p>	<p>Some facets of State government have Constitutional or elected separation from the Executive and Legislative branches. They may adopt projects that are funded and have access to resources for implementation outside of the projects prioritized on a Statewide basis.</p>	<p>All projects that utilize Statewide resources should be prioritized based on the same criteria, independent of the funding source. To the extent that projects within separate Constitutional or elected offices have resources to adopt projects on different timelines, those projects should not be approved IF they adversely impact the State’s ability to implement the top priority projects. For example, if the Attorney General has money for an IT project that is 8th on the State’s priority list and the office needs to encumber DII resources in order to carry out the project, that project would only be approved to the extent it could be carried out without</p>

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		<p>co-opting the DII or other central State resources for projects earlier on the priority list. Additionally, the State should ensure accounting practices account for nuances of different aspects of technology so that a vivid picture of technology spending can be created.</p>
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**Final Thoughts**

While this report is not a complete roadmap to all that can be done to improve the utilization of technology in government, we believe it lays critical foundation to many of the most important elements that should be considered.

The State is fortunate to have many dedicated professionals working to conduct the business of government for the people of Vermont. Providing them updated funding mechanisms, project frameworks, staffing to carry out projects, and leadership that embraces technology as a core component of government operations will go a long way to elevating the overall performance of State government, using technology as one of the tools to improve outcomes for all.