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ADMINISTRATION

Information Technology Consolidation

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YELLOW SHEET

Findings in the audit of Information Technology Consolidation

Survey Responses and Other Comments	<p>Information Technology Services Division (ITSD) employees and agency users provided mixed survey responses regarding the benefit of statewide information technology (IT) consolidation. Slightly more than half of the agency users responding to our survey did not agree the statewide IT consolidation was positive for the users' state agency. However, more ITSD employees responding to our survey agreed, the consolidation was beneficial to the agency the employee supports (37 percent) than disagreed (33 percent) with 30 percent remaining neutral.</p> <p>Many respondents included comments on areas the consolidation benefited as well as areas the consolidation hindered, indicating that while progress had been made, additional steps need to be taken. Two common themes in survey comments were concerns with employee morale and communication. Employees also indicated various concerns with how the consolidation was handled. Our review of several of these concerns indicated various misperceptions about the statewide IT consolidation, which may have existed due to a lack of communication from ITSD management.</p>
Consolidation Goals	<p>The ITSD had accomplished or made progress on all seven consolidation goals established for the statewide IT consolidation in 2005. However, management had not offered security training to state employees and had not fully established a strategic planning process to align technology with business to increase overall customer satisfaction and to present a vision for future goals. Security training is expected to be in place by January 2010, and the strategic plan for 2009 was being refined to focus on the ITSD's customers, according to the state Chief Information Officer.</p>
ACTS Program	<p>ITSD management had not solicited a legal opinion to verify the ACTS (<u>A</u>ppraise, <u>C</u>heck It Out, <u>T</u>humbs Up, Gold <u>S</u>tar) program was constitutional, ensured the program was used equitably across the division, or ensured adequate controls over the ACTS system were established. ITSD management established the ACTS program as a way to reward employees for exceptional work. ITSD staff estimated 368 hours of leave had been awarded under this program from July 2, 2007, through March 27, 2009.</p>
Service Level Agreements	<p>Service Level Agreements (SLAs) between the ITSD and user agencies were established by prior management to document the services provided by ITSD and the responsibilities of the user agencies. The current ITSD management identified concerns with the measurements of customer satisfaction after taking office in January 2009. According to ITSD management, reviews of SLA measurements have been suspended pending the resolution of these concerns, and the development of new agreements and measurements.</p>

Project Management

ITSD management had not developed a project management framework to ensure IT systems development and maintenance occur in an effective, efficient manner. Having a complete plan reduces the risk of unexpected costs and project cancellation, improves communications to and involvement of business and end users, ensures the value and quality of the finished project, and maximizes the contribution of the project to the organization. Management allowed each business unit to establish individual project management policies because of the differences between the structure and resources of the business units. As a result, ITSD management lacks assurance that projects are actively managed in a consistent manner, which is necessary to ensure the state receives the maximum benefit of each project at the minimum cost. In addition, the risk that ITSD management cannot effectively manage projects is increased without a time accounting system to track staff availability or manage personal service expenditures.

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Abbreviations

ACTS	Applause, Check It Out, Thumbs Up and Gold Star
CIO	Chief Information Officer
GAO	Government Accountability Office
GASB	Governmental Accounting Standards Board
IT	Information Technology
ITSD	Information Technology Services Division
NASCIO	National Association of State Chief Information Officers
SLA	Service Level Agreement



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Missouri State Auditor

Honorable Jeremiah W. (Jay) Nixon, Governor
and
Kelvin L. Simmons, Commissioner
and
Steven R. Siegler, Interim Chief Information Officer
Office of Administration
Jefferson City, Missouri

This audit was conducted to review the statewide information technology consolidation effort and the related impact on employees and agency users. The Office of Administration Information Technology Services Division (ITSD) was formed in January 2005 to consolidate information technology (IT) staff and funding for most executive branch agencies. The ITSD's responsibilities include, but are not limited to providing IT services and expertise to customer agencies, providing centralized data center services to state agencies, developing IT policies, and coordinating IT initiatives for the state.

Our audit objectives included determining (1) the impact of statewide IT consolidation efforts on ITSD employees and agency users, (2) whether the goals established by ITSD management for the consolidation of IT resources have been successfully met, and (3) whether ITSD management properly identified and classified IT appropriations to be transferred from agencies to the ITSD as part of the consolidation process.

Surveys conducted of ITSD employees and agency users revealed mixed responses regarding the impact and benefit of statewide IT consolidation. Two of the key areas leading to negative responses were concerns with employee morale and the lack of communication. Prior ITSD management established consolidation goals, IT governance techniques and management processes to guide the IT consolidation and transformation. We found the original consolidation goals have generally been met. However, governance techniques and management processes had not been fully developed.

We conducted our audit in accordance with the standards applicable to performance audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform our audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides such a basis. This report was prepared under the direction of John Luetkemeyer, CPA. Key contributors to this report included Jeff Thelen, CPA; Lori Melton, M.Acct., CPA; and Patrick Pullins, M.Acct.

A handwritten signature in cursive script that reads "Susan Montee".

Susan Montee, JD, CPA
State Auditor

Introduction

Effective information technology (IT) governance becomes a top priority as the public demands more transparency and accountability in state government. Increasing demands and fiscal stress are requiring state government to search out technology enabled transformation. IT is now firmly entrenched in the fabric of state government as greater reliance is placed on all aspects of IT to conduct the business of the state. To facilitate this transformation, state officials consolidated most IT resources.

Background

Prior to statewide IT consolidation, each state department had one or more IT units. In recent years, governors have taken steps to consolidate these IT units into one statewide division. The following is a timeline of the steps taken towards consolidation:

- December 2003 – The Office of Information Technology, located within the Office of Administration for administration purposes, was created. The office was responsible for coordinating IT initiatives for the state and was headed by the Chief Information Officer (CIO).
- January 2005 – The Office of Information Technology was consolidated with the Office of Administration's Division of Information Services, creating the Information Technology Services Division (ITSD). A new CIO was named at that time.
- July 2005 – The consolidation of the IT units in 13 of the executive agencies began. The IT appropriations were included in the agency budgets. However, the ITSD had final approval of all IT expenditures as funding for each of these units was placed under the authority of the ITSD.
- July 2006 – The Department of Revenue's IT unit was included in the consolidation. The transfer of funding and personnel to the ITSD was completed.
- January 2009 – A new Governor took office and appointed a new CIO.

IT units from the following 14 state departments (agencies) were consolidated in the ITSD: Agriculture; Corrections; Economic Development; Elementary and Secondary Education; Health and Senior Services; Higher Education; Insurance, Financial Institutions & Professional Registration; Labor and Industrial Relations; Mental Health; Natural Resources; Office of Administration; Revenue; Social Services; and select divisions of Public Safety.

When planning for the statewide IT consolidation in the spring of 2005, ITSD management reviewed the IT expenditures of consolidating agencies to determine the amount of funds to transfer to the ITSD. In fiscal year 2006, the ITSD was authorized to spend the IT funds at each consolidated agency, but the funds remained with each agency. In fiscal year 2007, the

funds were fully transferred to the ITSD's budget. Table 1.1 lists the ITSD's expenditures since the funds were transferred:

Table 1.1: ITSD Expenditures

Fiscal Year	Expenditure Amount
2007	\$174,341,931
2008	174,415,230
2009	198,304,205
Total	\$547,061,366

Source: SAO analysis of expenditure records

As of October 1, 2009, the ITSD is implementing a pilot project at an agency to organize IT along functional instead of territorial (agency) lines. This pilot will assign certain staff who typically work on programs specific to an individual agency's mission, including application development staff, directly to the agency. The staff whose typical work is not required to be agency-specific will be centrally managed by the ITSD. According to the CIO, this pilot and related appropriations will be reviewed in December 2009 to determine whether the project is worth pursuing further or discontinuing.

Consolidation in Other States

At least 42 states have undertaken some form of IT consolidation, according to the National Governor's Association. Because each state is unique, it is difficult to draw comparisons between states regarding their consolidation efforts. Some states had just started the process of consolidating infrastructure, such as data centers, which was done in Missouri many years ago. We found few states have consolidated to the extent Missouri has.

While many states have consolidated IT infrastructure across state government, few had also consolidated personnel. States that had consolidated IT personnel include Kentucky, Michigan, and Missouri.

The state of Michigan is widely considered to be one of the best examples of IT consolidation in the country and has been widely studied. In 2001, the Michigan governor signed an executive order centralizing IT resources and functions from 19 state agencies, encompassing all IT personnel, equipment, and activities. In an interview with Government Technology staff, Michigan's CIO provided the following actions that contributed to the state's successful IT consolidation:¹

- Control IT spending, so that agencies work with the IT department

¹ "Teri Takai: Survival Guide to IT Consolidation," *Government Technology*, <<http://www.govtech.com/em/96746>>, accessed April 22, 2009.

- Control projects to gain credibility
- Make service delivery a priority
- Focus on employee morale, including employee communication
- Focus on financials to be able to justify the consolidation financially
- Cultivate relationships with agency customers
- Establish a strong relationship with the governor
- Develop an IT strategic plan
- Follow through with plans

Scope and Methodology

To determine the impact of statewide information technology consolidation efforts on ITSD employees and agency users, we prepared surveys to send to these two groups of individuals. We sent surveys on February 9, 2009, to 400 ITSD employees and 83 agency users. We randomly selected the 400 ITSD employees from a list of 1,088 ITSD employees active at January 20, 2009, who had been employed at the ITSD at least a month. The 83 agency users were identified by agency audit liaisons as users of ITSD services and included individuals at every agency served by the ITSD. We received responses through March 23, 2009, from 270 employees and 142 agency users,² including at least one response from each agency surveyed. The results of the surveys are included at Appendixes I and II. Respondents were also asked to provide comments such as specific areas the consolidation helped or hindered.

The majority of ITSD employees responding to the survey indicated they were technical staff, such as computer programmers or database administrators. The survey did not request which division the employee supported. Table 1.2 lists the ITSD employee survey respondents by job type reported:

Table 1.2: ITSD Employee Survey Respondents by Job Type Reported

Job Type	Count	Percent
Technical	220	82
Management	29	11
Financial	8	3
Clerical	4	1
Other	3	1
Not Reported	6	2
Total	270	

Source: SAO analysis of returned ITSD employee surveys.

² See Appendix II for an explanation of the number of agency user responses.

We obtained the employment records for ITSD employees for January 2009 and July 2006 from the statewide accounting system for human resources. We did not perform specific procedures to ensure reliability because we considered the risk of unreliable results to be insignificant. We matched these two data sets to determine changes made in employment status from the beginning of consolidation to the time of our review.

To determine whether the goals established by ITSD management for the consolidation of IT resources for the executive branch agencies had been successfully met, we conducted interviews with appropriate management and staff and requested and reviewed available documentation.

To determine whether ITSD management properly identified and classified IT appropriations to be transferred from agencies to the ITSD as part of the consolidation process, we conducted interviews with appropriate management and staff, reviewed the structure of coding for state and federal expenditures, and surveyed agency users regarding accounting for federal award expenditures. Based on our analyses, we found no issues with the identification and classification of IT funds appropriated as part of the consolidation.

To evaluate Missouri's IT consolidation in comparison to other states, we reviewed documentation available on the National Association of State Chief Information Officers (NASCIO), National Governors Association, Government Technology and other national organization and state websites.

We based our work on accepted state, federal, national and international standards and best practices related to IT security controls from the following sources:

- Missouri Adaptive Enterprise Architecture³
- National Institute of Standards and Technology (NIST)
- U.S. Government Accountability Office (GAO)
- IT Governance Institute Control Objectives for Information and related Technology (COBIT)

³ The Enterprise Architecture includes standards, policies and guidelines established by the ITSD. The Enterprise Architecture is made up of several information technology domains, including domains dedicated to security and information. The domains are not fully developed, but define the principles which are needed to help ensure the appropriate level of protection for the state's information and technology assets.

Surveys Produce Mixed Results

ITSD employees and agency users provided mixed survey responses regarding the benefit of statewide IT consolidation. Two of the key areas leading to negative responses related to employee morale and communication. Employees also indicated various concerns and perceived problems with how the consolidation was handled. Better communication, could have minimized ITSD employees' and agency users' concerns.

Survey Responses

Slightly more than half of the agency users responding to our survey did not agree the statewide IT consolidation was positive for the users' state agency. However, more ITSD employees responding to our survey agreed, the consolidation was beneficial to the agency the employee supports (37 percent) than disagreed (33 percent) with 30 percent remaining neutral. In survey comments, ITSD employee respondents were almost twice⁴ as likely to say the IT consolidation did not benefit any areas as to say the consolidation did not hinder any areas. Agency user respondents were three times⁵ as likely to say the same thing. Many respondents included comments on areas the consolidation benefited as well as areas the consolidation hindered, indicating that while progress had been made, additional steps need to be taken. Two common themes in survey comments were concerns with employee morale and communication.

Morale

Thirteen percent of ITSD employee respondents commented that employee morale had been low since the statewide IT consolidation. The reason given most often (by 28 respondents) was that flextime and casual dress policies were eliminated by management. Respondents cited several reasons these policies should be reconsidered:

- A different dress code than the one followed by the agency where the employee is located makes the IT employees stand out and separates them from the agency personnel being supported.
- ITSD employees no longer work the hours of the agency they support and may not be available during the agency's normal work hours.
- Casual dress and flextime policies were seen as perks to make up for the state's lower pay scale.
- Personal reasons, such as scheduling problems with day care.

⁴ 35 employee respondents said there were no areas the consolidation helped, while 18 respondents said there were no areas the consolidation hindered.

⁵ 34 user respondents said there were no areas the consolidation helped, while 10 respondents said there were no areas the consolidation hindered.

According to a NASCIO survey of state CIO's performed in 2007,⁶ nearly half of all respondents indicated workplace flexibility is an attraction for new IT employees. People are important assets, and governance and the internal control environment are heavily dependent on the motivation of personnel, according to accepted standards.

ITSD management indicated these policies were under review. In June 2009, the CIO said a flextime policy was being tested at one business unit. The CIO also told us this program has been effective at helping morale and it will probably be rolled out to the remainder of the ITSD during 2009. The CIO said the dress code policy had been reviewed, but a decision had not been made on the issue.

Communication

Both ITSD employees and agency user respondents commented on the state of communication since consolidation. While there were eight positive comments from employees, there were negative comments regarding communication from 18 employees and 15 agency user respondents. In addition, 29 percent of users responding to our survey did not agree ITSD management effectively communicates with the users' agency.⁷ According to the comments, the problems centered on communication from ITSD central office to staff or users. Users respondents generally said the staff they deal with regularly (ITSD employees at the agencies) communicate well; however, low ratings were given for communication with the ITSD central office, including upper management. Additionally, ITSD employees commented they were not always informed of changes (e.g. network or computer environment changes) made by central office staff. These changes caused system issues at the agencies that could have been prevented had ITSD employees at the agencies been made aware of the changes in advance.

According to accepted standards, communication is necessary to articulate the mission, service objectives, policies and procedures, etc., approved and supported by management. The communication supports achievement of IT objectives and ensures awareness and understanding of business and IT risks, objectives and direction. According to a NASCIO Issue Brief,⁸ communication is crucial to a successful IT consolidation initiative. Periodic

⁶ "State IT Workforce: Here Today, Gone Tomorrow? A National Survey of the States," *NASCIO*, September 2007, <<http://www.nascio.org/publications/documents/NASCIO-HereTodayGone%20Tomorrow.pdf>>, accessed March 20, 2009.

⁷ See Appendix II for the full question and responses.

⁸ "IT Consolidation and Shared Services: States Seeking Economies of Scale," *NASCIO Issue Brief*, March 2006, <http://www.nascio.org/publications/documents/NASCIO-Con_and_SS_Issue_Brief_0306.pdf>, accessed June 25, 2009.

meetings and written communications with agency management and employees, can help the CIO instill a sense of common goals and trust within and between the organizations involved in the effort.

Current ITSD management had taken steps to increase communication. An internal blog was created for the CIO to disseminate information to employees. Employees may then respond to the blog or ask additional questions. The CIO had also met with management at each agency supported to discuss the services provided.

Other Survey Comments

ITSD employee and agency user respondents commented on various concerns and perceived problems about the statewide IT consolidation in survey comments. Our review of several of these concerns indicated various misperceptions about the statewide IT consolidation, which may have existed due to a lack of communication from ITSD management. We specifically reviewed, and found reasonable explanations existed for the following concerns:

- Additional management
- Salary increases for certain job titles or units
- Procurement delays
- Technical staff required to become fiscal staff

Additional management

Employees responding to the survey commented there were additional management positions employees must report to. Our review of the employment records confirmed there were more employees with a managerial title in 2009 than 2006. However, ITSD management said there were more employees with a managerial title because employees' job titles were reclassified as part of the consolidation process to reflect the employees' actual job duties more accurately. This process included changing the job titles for some employees.

Salary increases given to certain job titles or units

Concerns were raised in employee survey comments that raises were given to certain groups of employees arbitrarily. Our review of the employment records confirmed there were increases in the average salary, other than cost of living adjustments, for employees in certain business units. ITSD management said salary adjustments were made to equalize pay across the consolidated business units. Raises or promotions, when warranted, were given to individuals to set the salaries within established salary ranges.

Procurement delays

A total of 29 employee and 14 agency user respondents documented concerns with procurement, often stating the process had become slower after the consolidation. According to ITSD management, each step in the procurement process is expected to be completed within one business day.

ITSD management provided the following reasons procurement may appear to be slow:

- An agency delay in approving the request before submitting it to the ITSD. Some agencies require an extra level of agency approval before submitting the request to the ITSD for processing.
- ITSD business unit directors and designees were unavailable to approve the request in a timely manner.
- A problem with the coding of the transaction in the statewide accounting system.
- The vendor backordered the request or was otherwise unable to fulfill it in a timely manner.
- The request was held to combine in a bulk purchase of IT equipment.

ITSD management said these delays may not have always been communicated to the requesters.

Technical staff required to become fiscal staff

Employees commented in surveys that staff in technical positions prior to the consolidation were required to move to fiscal or accounting positions after the consolidation. However, our analysis of employment records showed only three employees with a fiscal job title in 2009 had a technical job title in 2006. In addition, according to ITSD management, some staff may have additional financial-related duties since the consolidation, but their job titles and core job responsibilities had not changed. For example, some business units now have budgetary responsibilities, whereas the agency fulfilled this responsibility before the consolidation.

Conclusions

ITSD management is working to resolve many issues that have existed since inception of the statewide IT consolidation process. With more attention paid to increasing morale and communication, resistance should decrease and employees and users should be able to see the benefits of statewide IT consolidation.

Recommendations

We recommend the Chief Information Officer of the Information Technology Services Division:

- 2.1 Reevaluate current employee policies and procedures that are negatively impacting employee morale.
- 2.2 Continue to take steps to improve communication between the various entities involved in the statewide IT consolidation.

Agency Comments

2.1 *ITSD will reevaluate employee policies and procedures. ITSD has initiated a pilot project related to the use of flextime. In addition, casual dress days have been allowed on a limited basis. Action will be taken depending on the results of these trials. It should be noted that some policies that may impact employee morale are department or statewide policies and not solely under the control of the Chief Information Officer.*

2.2 *As noted in the audit, the Chief Information Officer created an internal blog to allow anonymous, anytime two-way communications between ITSD staff and the CIO. The first blog was posted on March 2, 2009. In addition, the Chief Information Office has held informational meetings with all ITSD units to improve communication. ITSD in the past year modified the process followed when informing users of changes to the central network and computer environment. The scope of who is notified and when they are notified was expanded. ITSD will continue to seek ways to improve communication with employees and the departments we serve.*

Governance Techniques and Management Processes Need to be Fully Developed

The state CIO is responsible for ensuring state IT services are delivered in the most efficient and cost effective manner possible. Although consolidation provided the opportunity to improve state IT services, the process resulted in a fundamental change in the way IT is governed, managed, and operated in the state. Prior ITSD management established consolidation goals, IT governance techniques, and management processes to guide the transformation. The original consolidation goals have generally been met. However, governance techniques and management processes had not been fully developed. Management cannot ensure the ITSD's mission of effectively providing technology services and solutions for the State of Missouri agencies is fulfilled until the governance techniques and management processes are more fully developed.

Consolidation Goals

The ITSD had accomplished or made progress on all seven consolidation goals established for the statewide IT consolidation in 2005. The goals were established to reduce state expenditures for IT services and implement more effective IT solutions. The goals included:

- Consolidate email and Active Directory⁹ services within consolidated agencies
- Consolidate physical networks
- Reduce telecommunication costs
- Continue bulk purchase of IT equipment
- Reduce variable costs of the State Data Center
- Plan for information sharing during systems development
- Increase and standardize security strategies

Security training

While ITSD had taken steps to enhance security for state computer networks, management had not offered security training to state employees. Of the 126 users who responded to the security training question on our survey, 53 users (42 percent) did not agree the ITSD had initiated efforts to increase security training for agencies.

Training is an essential component of a security program. Computer intrusions and security breakdowns often occur because computer users fail to take appropriate security measures. For this reason, it is vital employees using computer resources be aware of the importance and sensitivity of information they handle, as well as business and legal reasons for maintaining its confidentiality, integrity, and availability, according to GAO.

⁹ Microsoft's Active Directory is a centralized and standardized system that automates network and resource management.

Accepted standards require that all employees of an organization receive security training adequate to their responsibilities with the organization. ITSD management indicated they are aware of the need for computer security training for state employees. According to ITSD management, ITSD staff are modifying a federal security training system to provide to all state employees. This training is expected to be in place by January 2010. Until security training is in place, management's ability to rely on employees to help protect and ensure the confidentiality, integrity, and availability of information in today's highly networked systems environment is reduced.

Strategic plan

Although the ITSD had accomplished most of the original goals set for the statewide IT consolidation, management had not fully established a strategic planning process to align technology with business to increase overall customer satisfaction and to present a vision for future goals. ITSD employees commented in surveys that there were still unrealized benefits of consolidation and consolidation was not complete. One respondent said "If you want to make a true impact for the future, you need to standardize more than just operating systems, domains and e-mail."

According to the GAO, strategic planning is vital to create an agency's IT vision or roadmap and help align its information resources with its business strategies and investment decisions. It is important the agency identify goals, resources, and dependencies in the context of its strategic vision. The ITSD is required to present an annual report to the legislature, in which a strategic plan is presented. The most recent plan, submitted in December 2008, did not discuss the resources or operating environment of the ITSD. The plan only included basic goals and simple measurements. The plan did not include investment/operational budgets, funding sources, sourcing strategies, acquisition strategies, or legal and regulatory requirements, as required by accepted standards. The plan for 2009 was being refined to focus on the ITSD's customers, according to the CIO.

ACTS Program

ITSD management had not solicited a legal opinion to verify the ACTS (Appraise, Check It Out, Thumbs Up, Gold Star) program was constitutional, ensured the program was used equitably across the division, or ensured adequate controls over the ACTS system were established. ITSD management established the ACTS program as a way to reward employees for exceptional work. State employees who receive exceptional service from an ITSD staff member are encouraged to visit an intranet site to provide information about the experience. The staff member who provided the service then receives an ACTS card email from the online system. The system automatically tracks the number of cards awarded to each staff member. Once the employee accumulates 10 cards (and for every 5 cards

thereafter), the employee is awarded 2 hours of paid leave. ITSD staff estimated 368 hours had been awarded from July 2, 2007, through March 27, 2009.

Program may not be constitutional

ITSD management allows employees to issue ACTS cards as a reward for extraordinary service provided by an ITSD employee. Because these cards are then redeemed for time off with pay, the benefit could be construed to represent additional compensation for work performed.

Article III, Section 39, of the Missouri Constitution, prohibits granting any extra compensation, fee, or allowance to employees for services already rendered, and Attorney General's Opinion No. 72, 1955 to Pray, states, ". . . a government agency deriving its power and authority from the constitution and laws of the state would be prohibited from granting extra compensation in the form of bonuses to public officers after the service has been rendered."

It is unclear whether the leave permitted under the ACTS program grants additional compensation for services already rendered, which violates the Missouri Constitution. ITSD management said a legal analysis of the program had not been performed to determine constitutionality.

Program usage was not equitable across ITSD

The ACTS program was established as a way to reward ITSD employees, according to program documentation; however, ITSD employees indicated the program was not being used equitably across ITSD business units. Thirty-one survey respondents indicated they had never heard of the program.

ITSD staff provided a report showing the number of ACTS cards issued each year since the program was started. As of March 27, 2009, 404 ACTS cards had been issued during calendar year 2009. ITSD employees in 5 of 14 business units had not received any of these cards, while employees in 2 other units had received over half (204) of the cards. ITSD management stated the major reason for this discrepancy is that business units with more cards issued had similar programs prior to the IT consolidation, meaning the employees are more knowledgeable about the program and more likely to use it. However, different reasons were cited by multiple survey respondents, including:

- Our ITSD business unit management does not support the program.
- Only a select few contribute or benefit.
- The program gives supervisors a chance to play favorites.
- Some ITSD units were told not to use the system very much, while other units abuse it.

-
- The program is not being used in our unit.

Without ensuring uniform support for the program across the division, the ACTS card program is not benefiting all eligible employees and may lead to employee morale problems. More employees responding to our survey disagreed the ACTS program helped boost employee morale, (40 percent) than agreed (23 percent) with 37 percent remaining neutral.

Numerous issues were noted with the ACTS computer system

ITSD management relies on an internally developed computer system to administer the ACTS program. This system is responsible for awarding cards to employees, crediting employees with leave once earned, and tracking leave balances to allow supervisors to ensure employees do not use more leave than they have accrued. However, the system is missing the following functions:

- A record of total leave awarded or leave used.
- A method to detect calculation and recording errors.
- Appropriate reports to manage the program.

Leave awarded and used was not recorded

Total leave awarded or used by employees in the program was not recorded in the ACTS system. When an employee accumulates enough cards for leave to be awarded, the employee's supervisor receives a notification email, instructing the supervisor to log in to the system and approve the leave. After the supervisor does so, the system automatically adds 2 hours to the employee's leave balance. When using leave, administrative staff are responsible for recording leave usage in the system. The administrative staff does not enter a negative entry to record the leave time used, but rather must manually calculate the new balance and then change the balance in the system. As a result, the system did not contain an audit trail of leave time used. In addition, the balance could have been inaccurately recorded in the system if errors were made calculating or entering the new leave balance. Finally, because only the current balance is tracked, there was no record of total leave awarded.

According to the GAO, audit trails of transactions are necessary to track the pertinent information related to application transactions, ensure the data was processed completely and accurately, and to ensure the data retains its validity.

System edits are needed to prevent or detect errors

According to accepted standards, data entered for processing by users should be subject to a variety of controls to check for accuracy,

completeness, and validity. System edits¹⁰ needed to prevent or detect certain errors had not been established in the ACTS system. For instance, the ACTS system did not have system edits to verify if the leave balance for an employee was reasonable. When auditors requested ITSD staff to verify if an edit was in place for the leave balance data, the staff were able to increase an employee's leave balance to 100 hours, even though the employee did not have a sufficient number of cards to allow that balance. System edits could prevent an employee from having more hours of leave accrued than allowed based on the number of cards issued.

Reporting functions need to be improved

The ACTS system did not have adequate reporting functions available to manage the program. As discussed above, the system did not retain records of leave awarded or used, only leave balances. According to the GAO, one of the key elements of output controls is having an overall reporting strategy. The strategy helps to reasonably assure that content and availability of reports is consistent with end users' needs. The strategy should specifically consider compliance with laws and regulations and the business needs and functionality of reports. In addition, formal procedures should be established to help assure output control totals are accurate and are being verified.

Auditors requested a report showing the number of cards awarded to each employee, along with the leave awarded, used, and current balance. ITSD staff said because only recorded balances were maintained in the system, information for leave amounts awarded and used could not be provided. In addition, ITSD staff were unable to provide a system-generated report of the current leave balances. The balance of leave outstanding could be determined by reviewing all employees one at a time using the system, but the system did not have the functionality to generate a report of the total outstanding leave balance for all employees. ITSD staff provided a report showing the total number of cards received summarized by ITSD unit and the estimated leave hours those cards generated. Staff indicated that they manually calculated the leave hours earned from a listing of all cards issued since the program was established, and this report was not system-generated. However, since these hours were estimated and there was not an audit trail, we were not able to verify the validity of the 368 hours reported.

¹⁰ An edit, also known as a data validity check, is program code that tests the input for correct and reasonable conditions, such as account numbers falling within a range, numeric data being all digits, dates having a valid month, day and year, etc.

Service Level Agreements

Service Level Agreements¹¹ (SLAs) between the ITSD and user agencies were established by prior management to document the services provided by ITSD and the responsibilities of the user agencies. Accepted standards require that management define IT services and levels, monitor these levels, and report on the service levels to business customers. As part of the agreements, ITSD and agency user management were to meet quarterly to review measurements of customer satisfaction. However, the agreements did not specify the measurements to be used, and the measurements used did not adequately measure customer satisfaction. For example, one chart reported the length of time to solve help desk calls; however, this chart failed to include all help desk calls, which artificially deflated the time reported.

The current ITSD management identified concerns with the measurements of customer satisfaction after taking office in January 2009. According to ITSD management, reviews of SLA measurements have been suspended pending the resolution of these concerns, and the development of new agreements and measurements. ITSD management was reviewing alternate measurements as of June 2009 and did not have an expected date of completion.

According to ISACA's Information Systems Control Journal,¹² a "SLA is a necessity between a service provider and service beneficiary because a service can be called "bad" or "good" only if this service is clearly described. Moreover, it formalizes the needs and expectations of the organization and serves as a kind of guarantee for both parties. In this way, potential misunderstandings are reduced and a clear view is given on the priorities of the service and its delivery. . . A balanced SLA is a compromise between the needs, expectations and requirements of the organization (user group) and the service provision capabilities and promises of the service provider. At the same time, it must protect the service provider by limiting liability, identifying responsibilities and rationally managing user expectations."

¹¹ A SLA is "a written agreement between information technology and the organization's business units spelling out the IT products and services to be delivered, and stating the performance criteria to be met. "IT Service Delivery and Support, Guideline 5," *International Federation of Accountants*', <http://www.ifac.org/Members/DownLoads/ITC-Guideline_5.pdf>, accessed April 15, 2009.

¹² Grembergen, Wim Van, Ph.D., Steven De Haes and Isabelle Amelinckx. "Using COBIT and the Balanced Scorecard as Instruments for Service Level Management." *Information Systems Control Journal*, Volume 4 (2003): 56-62.

Project Management

ITSD management had not developed a project management framework to ensure IT systems development and maintenance occur in an effective, efficient manner. Accepted standards require that a project management framework be developed for each project undertaken by an organization. This framework includes the project's master plan, assignment of resources (financial, personnel, and materials), definition of project deliverables, delivery phases, testing plans, and post-implementation review to ensure risk management and value delivery. Having a complete plan reduces the risk of unexpected costs and project cancellation, improves communications to and involvement of business and end users, ensures the value and quality of the finished project, and maximizes the contribution of the project to the organization.

According to ITSD management, a centralized project management process had not been established. Management allowed each business unit to establish individual project management policies because of the differences between the structure and resources of the business units. As a result, ITSD management lacks assurance that projects are actively managed in a consistent manner, which is necessary to ensure the state receives the maximum benefit of each project at the minimum cost.

Accepted standards state an overall project management framework is also necessary at the organization level. At this level, the framework is necessary to facilitate the assignment of resources among the projects managed by the individual business units. Without a process in place for project management at the organization level, non-critical projects may be assigned resources ahead of critical ones. Additionally, the lack of a project management framework reduces the ability of ITSD business units to share solutions to problems because each unit works independently to solve similar challenges.

A time accounting system is needed

The risk that ITSD management cannot effectively manage projects is increased without a time accounting system to track staff availability or manage personal service expenditures. A time accounting system would allow management to determine which employees (with their associated skill sets) are available for assignment to a given project. To simplify the statewide IT consolidation effort, ITSD management instructed personnel to continue using the payroll systems in place prior to consolidation, with the intent of later developing a system for use by all ITSD employees. As of June 2009, ITSD had not implemented a comprehensive time accounting system.

ITSD projects are funded from a multitude of funding sources. Requirements attached to some funding sources, such as federal grants,

require that expenditure of those funds be used for specific purposes. Any reporting requirements related to funding sources remain the responsibility of the agency receiving the funding, not the ITSD. For expense and equipment expenditures, ITSD management collaborated with agencies facing reporting requirements to ensure expenditures were reported in a manner that supports the agencies' current reporting systems. This method allowed agencies to continue using existing reporting systems. However, there is no such capability for personal service expenditures. With the current fragmented payroll and timekeeping systems, adjustments had to be made to payroll records to allow an employee to be assigned to a project for another business unit needing the employee's skill sets.

Additionally, Governmental Accounting Standards Board (GASB) Statement 51, effective June 2009, requires certain personal service expenditures related to software development to be capitalized as an asset. ITSD management did not have the capability to provide a single point of reference to determine costs to be capitalized.

Conclusions

ITSD management had not fully developed the IT governance techniques and management processes needed to ensure the ITSD's mission of effectively providing technology services and solutions for the State of Missouri agencies was fulfilled. Management accomplished or made progress towards all goals established for the statewide IT consolidation. However, security training for state employees, which is an essential component of a security program, had not been established. A strategic plan, detailing the alignment of technology with business to increase overall customer satisfaction and to establish a vision for future goals, had not been documented. A program established to reward employees for exceptional work had not been reviewed to ensure it is constitutional, was not being used equitably across the division, and was lacking necessary controls and reporting functions. ITSD management did not have assurance customer needs were being met because management had suspended reviewing service level agreement measurements of customer satisfaction. ITSD management had not established a project management framework to minimize the risk of unexpected costs, project cancellation, and other problems affecting project quality. In addition, projects cannot be managed as effectively without a time accounting system to track staff availability, skills, and costs. To ensure IT services are delivered in the most efficient and cost effective manner, the governance techniques and management processes started during the consolidation need to be enhanced and fully developed.

Recommendations

We recommend the Chief Information Officer of the Information Technology Services Division:

3.1 Implement a security training program for state employees. The program should ensure trainees:

- Understand the roles and responsibilities related to the organizational mission.
- Understand the organization's IT security policy, procedures, and practices.
- Have at least adequate knowledge of the various management, operational, and technical controls required and available to protect the IT resources for which they are responsible.

3.2 Review and revise the strategic plan to align IT goals with business goals and to present a vision for future goals.

3.3 Review the ACTS program to determine if it is constitutional and beneficial to ITSD operations. If the ITSD determines the program is legal, beneficial, and will be continued, the division should ensure all business units are aware of the program and take action to update procedures and records by implementing the following controls:

- Maintaining a record of total leave awarded and used, and automate the leave balance calculation process.
- Establish edits to verify the reasonableness of leave and balance data.
- Establish management reporting capabilities including reporting leave time awarded, used, and balances of leave time outstanding.

3.4 Finalize the development of new service level agreements that specify and adequately measure levels of agency user satisfaction.

3.5 Implement a formal project management framework and system to ensure projects are appropriately managed and fulfill stated objectives.

3.6 Develop a comprehensive time accounting system to improve personnel/skill assignment and to facilitate and ensure compliance with federal reporting requirements.

Agency Comments

3.1 *ITSD will provide online security training for state employees. Training is expected to begin in October 2009, which Governor Nixon has designated as Cyber Security Awareness Month. In addition, a Cyber Security Awareness site has been established at www.cybersecurity.mo.gov.*

3.2 *ITSD has initiated the development of a new strategic plan to better align business goals and IT, and to provide a road map for the future, pending the findings and recommendations of this audit. ITSD will provide a strategic plan that aligns IT goals with business goals and delivers a vision for Missouri's technology future. ITSD is reviewing options that may help advance the business goals of the departments supported by ITSD.*

3.3 *This program does not violate Article III, Section 39(3) of the Missouri Constitution, which states that, "The general assembly shall not have power . . . [t]o grant or to authorize any county or municipal authority to grant any extra compensation, fee or allowance to a public officer, agent, servant or contractor after service has been rendered or a contract has been entered into and performed in whole or in part" Missouri courts have interpreted this constitutional provision to prohibit extra payment after services are rendered. However, it has not been found to be applicable to compensation earned during the services performed but taken after the period of service. See Missouri Attorney General Opinion Letter, No. 114-87 (finding that the State Treasurer did not violate the Missouri Constitution when it gave a salary repositioning adjustments to employees), citing *State ex rel. Cleveland v. Bond*, 518 S.W.2d 649 (Mo. 1975); *Jackson v. Wilson*, 581 S.W.2d 39 (Mo.App. 1979); and *Vangilder v. City of Jackson*, 492 S.W.2d 15 (Mo. App. E.D. 1973) (the payment of accumulated sick leave benefits to a city employee did not violate constitutional provision prohibiting payment of extra compensation after services has been rendered.)*

Further, pursuant to 1 CSR 20-5.020 (8)(B)(5), an appointing authority may grant an employee time off from duty, with compensation, for "extraordinary reasons sufficient in the opinion of the appointing authority to warrant such time off with compensation."

Accordingly, the ACTS Program provides leave with pay that was earned during the extraordinary services performed; albeit, the leave can be taken after the period of service. Further, the ACTS Program conforms to the applicable state regulation.

Nevertheless, the Office of Administration has reviewed the findings and concerns raised by the State Auditor as it relates to the ACTS Program. In particular, it has reviewed the issues regarding the manner in which the program has been implemented over time and the software created to document use. ITSD believes that the current automated system supplemented with additional manual tracking provides adequate controls. Modifying the current system to include additional controls

would take limited resources away from high priority projects for our agency customers. According to the survey conducted by the State Auditor, 77 percent of the respondents disagreed or were neutral when asked if the ACTS program helped boost employee morale. Upon review, the Office of Administration has decided to discontinue the availability of this program based on administrative concerns regarding past practice of the program. ITSD will review other methods of allowing staff to recognize outstanding service.

3.4 ITSD had suspended making changes to service level agreements pending the findings and recommendations of this audit. ITSD plans to include agency user satisfaction and ITSD employee satisfaction performance measures.

3.5 ITSD agrees to formalize a standard project management framework and system.

3.6 ITSD agrees that a comprehensive time accounting system would be beneficial; however, the cost to develop an independent single system has been cost prohibitive. The development of a timekeeping system as part of an Enterprise Resource Planning (ERP) system would likely provide the most benefit when compared to cost. ITSD is supportive of replacing or upgrading the current ERP system (commonly called SAM II); however, with the current budget situation of the state it will be difficult to obtain the needed appropriation. Meanwhile, ITSD continues to develop an in-house timekeeping solution for deployment when complete.

ITSD Employee Survey Results

A survey questionnaire was sent to 400 ITSD active employees as of January 20, 2009, who had been employed at the ITSD at least a month. A total of 270 responded to the survey giving a response rate of 67 percent. The results of this survey follow in Table I.1.

Table I.1: ITSD Employee Survey Results (Number of Responses)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The consolidation has been beneficial to the agency you support.	21	67	78	79	18
The consolidation has been beneficial to the state.	13	39	81	89	42
Implementation of the consolidation effort has been effective.	10	58	75	97	18
The backgrounds, skill sets, experience and staffing are adequate to support the agency you support.	20	45	42	120	40
You have the support you need to perform your job.	7	36	46	136	44
The consolidation has resulted in improved infrastructure support (i.e. for network operations, e-mail, etc.).	15	63	70	77	30
IT resources are used mainly to support basic functions, such as maintaining desktop computers.	53	91	65	39	6
The consolidation has resulted in improved support for agency-specific IT needs.	24	84	80	56	11
The consolidation has allowed agencies to devote more time on solutions needed to fulfill the agencies' missions.	35	67	97	42	11
The ACTS (Applause, Check It Out, Thumbs Up and Gold Star) Card program helped boost employee morale.	52	50	96	44	14

Note: Certain respondents did not provide a response to one or more questions on the survey.
Source: SAO analysis of returned ITSD employee surveys.

Agency User Survey Results

A survey questionnaire was sent to 83 users of ITSD services, including individuals at each consolidated agency serviced by ITSD. We received 142 responses, a 171 percent response rate. Many of the agency contacts made additional copies of the questionnaire so more employees that utilize ITSD services could respond to the survey, thus causing a very high response rate. The results of this survey follow in Table II.1.

Table II.1: Agency User Survey Results (Number of Responses)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The consolidation has been beneficial to your agency.	27	44	54	10	6
Implementation of the consolidation effort has been effective.	22	34	56	20	4
ITSD management effectively communicates with you.	15	25	36	45	16
The timeliness of ITSD staff's responses to requests for assistance has improved or remained at a high level through the consolidation.	15	39	34	37	14
ITSD employees' backgrounds, skill sets, experience and staffing are adequate to support your agency.	6	30	32	55	17
The consolidation has resulted in improved IT infrastructure support (i.e. network operations, e-mail, desktop/laptop computers, etc.).	21	34	52	28	4
The consolidation has resulted in improved support of the development and maintenance of your agency's core business applications.	24	42	51	14	4
ITSD has initiated efforts to increase security training for agencies.	10	43	51	19	3
Federal award expenditures are appropriately accounted for by ITSD.	4	3	57	13	3

Note: Certain respondents did not provide a response to one or more questions on the survey.
Source: SAO analysis of returned ITSD user surveys.