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Bill Bradbury, Secretary of State

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Secretary of State Audit Report

Department of Administrative Services: Computing and Networking Infrastructure Consolidation (CNIC) Risk Assessment

Summary

PURPOSE

The Department of Administrative Services (department) is responsible for providing centralized services to state agencies. In July 2004, the governor accepted the department's proposal to consolidate 12 of the state's major data processing centers. The majority of funding for the resulting Computing and Networking Infrastructure Consolidation (CNIC) project was authorized by the 2005 legislature. The total anticipated cost of the project was approximately $63.6 million.

The purpose of this audit was to provide an interim evaluation of the department's CNIC project. Our primary audit objectives were to determine whether the department planned and managed the CNIC project to ensure its overall success.

RESULTS IN BRIEF

During our review we identified several significant weaknesses in the department's project planning and management processes that adversely affected the integrity and viability of the CNIC project, including the following:

- Initial project planning weaknesses led to unrealistic project expectations, objectives and timelines, causing the department to duplicate its efforts to adopt a more feasible consolidation strategy. We concluded that these changes were justified and likely necessary to help mitigate significant project risks. However, the changes would delay promised savings by at least one biennium.
- Revised project plans remained incomplete regarding how, when or to what degree consolidation of data center resources would occur or how some critical security and disaster recovery services would be provided.
- Because of ineffective contract management, it was unclear what value the state received from at least $3.4 million of contract dollars spent. In addition, the department may have limited its ability to obtain remedy for those dollars spent.
- The absence or ineffectiveness of independent quality assurance processes also likely impacted decision makers' view of project risk, cost, and benefit.
- Accounting and compliance issues may result in loss of federal support and/or misstatements in the financial records.

RECOMMENDATIONS

We recommend that the department:

- Develop detailed plans necessary to achieve project objectives.
- Reevaluate project management processes to ensure the viability of future major information technology projects.
- Provide more robust reviews of contract deliverables.
- Work with the contractor and legal counsel to ensure that the state receives fair value for all incomplete or insufficient contract deliverables.
- Provide more effective quality assurance reviews.
- Ensure all relevant costs are identified and capitalized in accordance with generally accepted accounting principles.
- Ensure compliance with federal Office of Management and Budget requirements and make adjustments for inequitable cost recoveries that have already occurred.

AGENCY'S RESPONSE

The Department of Administrative Services generally agrees with the recommendations.

Introduction

The Department of Administrative Services (department) is responsible for providing centralized services to state agencies, including centralized computer networks and processing infrastructure. State statute specifically directs the department to coordinate statewide planning and activities related to the acquisition, installation and use of all information and telecommunications technology for the state.

In March 2004, the department contracted with Accenture, LLP to develop a business case for consolidating the state's major data processing centers. Shortly thereafter, the then acting director of the department formed a Computing and Network Infrastructure Consolidation (CNIC) Governing Board to provide high-level direction and resolve major project issues. The CNIC Governing Board reviewed Accenture's analysis and recommended that the project proceed.

Following the board's recommendation, the department amended its contract with Accenture to include work to solidify project scope and provide expertise during data center consolidation.

The department obtained conditional funding approval at the June 2004 Emergency Board meeting to plan for a facility to house the consolidated data center operations. In July 2004, those conditions were met as the governor accepted the department's proposal to consolidate 12 of the state's major data processing centers. The resulting State Data Center (SDC) building was essentially completed in the fall of 2005, and cost approximately $20 million.

In June 2005, the department presented the CNIC project with its State Data Center's operations budget to the legislature for approval. The budgetary requests focused on providing cost savings to the state over a period of biennia, and were based on assumptions relating to a reduction of personnel and infrastructure, and streamlining of processes to provide efficiencies.

After significant discussion, the 2005 legislature approved the majority of funding for CNIC development and implementation. The approved project scope included consolidation of 12 agency data centers with their respective mainframe computers, network servers, data storage, and operations. This brought the total anticipated cost of the project to approximately $43.6 million, excluding the cost of the building.

The department indicated that the mission of the CNIC project was "to reduce costs while maintaining or improving service levels through consolidation of the state's computing and networking infrastructure." The department estimated that these and other consolidation efforts would save the state an estimated $10 million per year and the project would pay for itself in approximately five years.

Audit Results

The primary objective of this audit was to determine whether the Department of Administrative Services (department) planned and managed the Computing and Network Infrastructure Consolidation (CNIC) project to provide reasonable assurance that the project could be completed as approved and that the state's assets would be safeguarded.

Generally accepted controls for information technologies indicate that organizations responsible for major projects like CNIC should establish and maintain a project management framework and approach that is commensurate with the size, complexity, and requirements of the project.

Based on the results of our audit work, we concluded that the department's initial planning and management of the CNIC project were inadequate, placing the viability of the project, as approved by the legislature, in question. The most significant project planning and management issues that we identified included the following:

- CNIC project planning was inadequate.
- Project managers did not effectively manage third-party contract work.
- The department did not provide for effective independent quality assurance reviews.
- The department did not properly account for all project or transition costs.

CNIC Project Planning Was Inadequate

An effective project management framework should ensure the scope and objectives of an Information Technology (IT) project are clearly defined and an integrated project plan is formulated to guide team members through implementation phases. The approved scope and project plans should effectively provide boundaries and a roadmap leading to successful project completion and closure.

Project planning should also provide clear direction regarding how major objectives will be achieved. In that regard, project plans and decisions should be based on reliable information regarding:

- The beginning state of IT resources, systems and services to be consolidated;

- Needs of end-users, including anticipated costs and benefits of alternatives;
- The desired end-state of combined assets and services; and
- The feasibility of transitioning to the proposed end-configuration.

The 2005 legislature authorized funding for the CNIC project based on the department's assurance that it would achieve operational efficiencies and cost savings. Specific project milestones included incrementally consolidating and moving data center operations into the State Data Center (SDC) beginning in November 2005, with a project end date scheduled for June 2007. During this process, the department committed to reduce data center staffing levels from 155 positions to 93. This represented a source of significant recurring savings necessary to achieve overall project cost-saving objectives.

Shortly after the 2005 legislative budget hearings, the department hired a State Data Center Administrator. In addition, the department's Chief Information Officer and Deputy Chief Information Officer, both key project leaders, left state service. In the fall of 2005, the new project management team began questioning and reassessing the feasibility of the consolidation strategies and plans originally presented to the legislature. For example, the team questioned the level of consolidation that the department could initially provide and the timing of agency movement into the SDC. The team also questioned the feasibility of staffing commitments as approved in the project plan and agency budgets.

Based on the results of the team's assessments, department management initiated substantial changes to its CNIC consolidation plans and strategies. Those changes reflected a much more conservative approach and timeline.

The department's new plans provided for some immediate hardware consolidation, such as reductions in the number of mainframe devices. The new plans also called for transferring agencies' data center operations to the SDC in their current state and configuration, then consolidating those services at a later time. However, the plans were incomplete regarding how, when, or to what degree consolidation of servers, system tools, mainframe operations, or operating system platforms would occur. In addition, the new plans did not adequately address how and when some critical security and disaster recovery services would be provided at the SDC.

The revised project plans also specified a more conservative timeline. The new schedule called for the largest agencies to occupy the SDC by June 2006 rather than incrementally transitioning into the facility beginning in November 2005. At the time of this report, the department indicated it had transferred the majority of computing infrastructure for these agencies to the SDC.

The department's revised plans also significantly changed proposed SDC staffing. To carry out those plans, the department obtained Emergency Board authorization for an additional 49 positions, and transferred seven positions from another unit of the department, increasing SDC staffing totals to 149. That change represented a 60 percent increase from the previous total, postponing or negating much of the promised project savings.

After reviewing numerous project plans and contract deliverables, we concluded that department management's decision to revise the nature, timing, and extent of the project were justified, and likely necessary to help mitigate significant project risks. We also concluded that the need for such changes was likely avoidable through better project planning processes and practices.

The most significant planning problems were the result of the poor quality of information the department and Accenture used to develop project plans and objectives. For example, initial milestones and objectives, including how much money the project could save, were formulated using high-level metrics. We noted that some of the key assumptions and data used in those calculations were inaccurate or incomplete. When the department presented its project to the legislature, it had not determined the beginning state of IT resources, the desired ending state, or the feasibility of transitioning resources to achieve proposed objectives.

These same issues continued to hinder the project as it entered implementation stages. At that time, the project team continued to lack critical information regarding the beginning state of IT resources necessary for carrying out specific planning and project objectives. For example, the project team did not have a complete inventory or understanding of agency applications, the environment on which they operated, and their dependencies. This lack of detail made it infeasible to carry out planned server consolidation.

Inadequate planning also affected the department's ability to obtain full use of contracted resources. As described in the contract management section below, many key project planning and implementation steps that Accenture was supposed to perform could not be done because the department could not provide vital information relating to the

beginning state of information technology systems and infrastructure. We concluded that some of that information, such as how many remote servers existed, should have been readily available, but was not.

The results of the above planning weaknesses were significant. The lack of good front-end planning led to unrealistic expectations, objectives and timelines. In addition, significant wasted or duplicated efforts occurred as project managers significantly revised Accenture's initial consolidation strategies and adopted a different approach. Furthermore, without specific plans for providing security and disaster recovery services, the data center will be at greater risk of disruption or loss of data. Finally, the department has estimated that promised savings will not occur until one biennium later than originally planned.

We recommend that the department develop detailed plans to fully address how, when, and to what degree it will consolidate network servers, system tools, mainframe operations and operating system platforms. Those plans should also address how it will provide critical security and disaster recovery services within the SDC.

We also recommend that the department reevaluate and adjust its project management processes and procedures to ensure that future IT project plans are based on sufficient, competent and relevant information. Those plans should provide a clear assessment of project scope, feasibility, timelines, costs, benefits, alternatives, and risks. In addition, they should provide sufficient detail to guide implementers to successful project completion and closure.

Project Managers Did Not Effectively Manage Third-Party Contract Work

Another key aspect of project management is to ensure that third-party contract work is planned and managed to achieve project objectives and provides appropriate value for contract dollars expended.

The department first contracted with Accenture, LLP in March 2004 to determine whether there was a business case for data center consolidation. That contract amount was approximately $1.7 million. The department later amended that contract to include approximately $11.6 million of additional work. The Accenture contract with amendments represented approximately 30 percent of the CNIC project's total budget, excluding the cost of the building.

The Accenture contract was "deliverables-based," meaning that contract payments were contingent upon the successful completion of items specified in the contract's statement of work. Each deliverable in the statement of work included a description of the item or service to be provided, and the amount to be paid upon its receipt and acceptance by the department.

We evaluated the 59 Accenture contract phase II deliverables that had been presented for approval and payment from January 2005 through February 2006. The cost of those deliverables totaled approximately $7.7 million. Based on the results of that review, we questioned the justification or appropriateness of 23 deliverables totaling approximately $3.4 million. Those questioned deliverables included:

- Eleven deliverables, totaling approximately $1.1 million, that did not meet the criteria included in the contract statement of work;
- Nine deliverables, totaling approximately $1.7 million, that we concluded were unnecessary or unjustified; and
- Three deliverables, totaling $585,000, that were not accepted by project managers, but were paid.

Deliverables that did not meet the statement of work criteria included those that were incomplete or could not be fully performed for various reasons. For example, one deliverable to provide application migration requirements could not be fully performed because sufficient information regarding applications in use by the agencies did not exist.

Unnecessary or unjustified deliverables included three, totaling approximately $310,000, that were near duplicates of previously accepted deliverables. Three more deliverables, costing $465,000, provided for a newsletter, guest speaker list, and a status-reporting template. The remaining deliverables, which cost $945,000, were for assisting an accounting and budgeting workgroup.

Department managers indicated that the three deliverables not accepted by project managers were "automatically accepted" as per the contract. We noted that one of those, totaling $345,000, did not actually contain the prescribed deliverable. Rather, that deliverable consisted of a copy of another unrelated deliverable that had been previously received, accepted, and paid. Because the absence of the deliverable went undetected for three months, until questioned by auditors, we concluded that it was not likely essential to the project.

In addition to the above 23 deliverables, we noted that the statement of work will require the contractor to furnish three deliverables at project end consisting of a listing of deliverables it had provided to the

department, an acceptance document, and a post mortem document describing major accomplishments and deliverables produced. The sum of those deliverables totaled an additional $75,000. Most of the information to be included in those deliverables would have been previously provided to the agency. Thus, we concluded that those deliverables would also be unnecessary and unjustified if they were completed and paid.

The above contracting issues centered on the department's processes for accepting deliverables. Specifically, the project manager indicated that she did not use the statement of work requirements to determine whether or not to accept contract deliverables. In addition, the project manager indicated she sometimes accepted deliverables based on work performed outside of the contract statement of work. Both of these practices are contrary to good contract management.

Because of the above problems, we concluded that the department had not planned or managed contract work to protect state assets. As a result, it was unclear what value the state received from approximately $3.4 million of contract dollars spent. In addition, by accepting insufficient deliverables, the department may have limited its ability to obtain remedy under contract provisions.

We recommend that the project managers provide more robust reviews of contract deliverables to ensure that all required deliverable aspects are achieved prior to acceptance. That review should be based on the specific criteria found in the contract statement of work. In addition, the department should evaluate its processes for establishing statement of work criteria to ensure that deliverables are justified and necessary.

We also recommend that the department work with the contractor, Accenture LLP, and with legal counsel to ensure that the state receives fair value for all incomplete or insufficient contract deliverables.

The Department Did Not Provide For Effective Independent Quality Assurance Reviews

An effective project management framework should ensure all project objectives are achieved, planned phases are appropriately completed, and all work remains within the approved scope and budget. To provide stakeholders and decision makers with assurance that these objectives are achieved, organizations should provide for independent assessments of project work and progress. In that regard, the department's statewide policy specifically requires independent quality assurance reviews of major Information Technology (IT) projects.

During the initial CNIC planning phase, project management did not provide for independent quality assurance reviews to validate critical information, processes, methodologies and assumptions used to develop the business case or initial project plans developed by Accenture.

During February 2005, after the end of the first project phase and eleven months after the beginning of the project, the department contracted with an outside firm to provide a "quick, focused assessment" of the CNIC project's current conditions. However, that review was very brief, lasting only 30 hours, and was focused primarily on superficial project issues and suggestions for future quality assurance work.

In June 2005, the department contracted with another quality assurance firm to perform ongoing project reviews. However, department management significantly restricted the scope of those reviews to include only "specified work product deliverables," excluding those produced by Accenture. In addition, the scope of this work did not include validation of previous project phases.

Since its first report, delivered in July 2005, the quality assurance firm provided monthly reports. During this audit we reviewed the quality assurance contractor's monthly reports. Although the reports provided some insight regarding project status, we concluded that they did not address some of the most significant project risks. For example, monthly reports did not address the feasibility of SDC staffing plans or the department's lack of disaster recovery planning. Furthermore, because Accenture contract deliverables were not specifically evaluated, quality assurance reports did not address the planning and contracting issues we discussed above.

We concluded that the absence of independent quality assurance during the critical planning phases of the CNIC project likely impacted decision makers' view of project risks, costs, and benefits. We also concluded that restrictions placed on quality assurance contractors during subsequent project phases also limited the effectiveness of this important project management control.

We recommend that the department provide robust quality assurance reviews for all phases of major Information Technology projects. The scope of those reviews should be unencumbered to provide for a fair and independent assessment of overall project risk, and compliance with project plans, contracts and objectives.

The Department Did Not Properly Account For All Project or Transition Costs

Ensuring that all project costs are identified and appropriately accounted for is an important project management task. Likewise, identifying and appropriately allocating costs as a project transitions to an operational state is essential.

The CNIC project required significant effort from professionals coming from multiple agencies. The relevant costs associated with that work should be identified, recorded and capitalized in accordance with generally accepted accounting principles. Interest incurred to finance project development should be capitalized.

At the time of our audit, the majority of the interest and personal services costs associated with CNIC had not been captured for later capitalization or reporting to stakeholders. Failure to identify and capitalize all relevant costs will cause misstatements in the financial records by understating the project's cost, size and complexity, and overstating participating agencies' current operational expenses.

The state's major data centers were also required to comply with Office of Management and Budget (OMB) circular A-87 cost recovery principles to assure continued federal funding for their operations. According to federal guidelines, data center charges must be necessary, reasonable, equitably allocated, and beneficial to the federal programs to which they are charged. We identified the following issues:

- Cost recovery plans did not equitably allocate cost of operations to agencies or programs.
- Agencies were billed for services that they had not received and assessments were based on timelines that did not materialize.
- SDC assessments were based on budgets derived from historical amounts incurred at the old data centers, rather than relevant costs of operating the SDC.

These issues may result in non-compliance with OMB circular A-87 requirements, which could result in sanctions that limit the state's ability to receive federal monies.

We recommend the department ensure that all relevant costs incurred for the CNIC project are identified and then capitalized according to generally accepted accounting principles.

We recommend the department develop and implement cost recovery plans in accordance with OMB circular A-87 and make adjustments for inequitable cost recoveries that have already occurred.

Objectives, Scope and Methodology

The purpose of our audit was to provide an interim evaluation of the Computing and Networking Infrastructure Consolidation (CNIC) project.

The objective of this audit was to determine whether the CNIC project was planned and managed to safeguard assets and ensure that the project could be completed as approved.

To achieve this objective, we attended various project workgroup meetings, interviewed various department and project personnel, and examined project plans. In addition, we reviewed project management methodologies, selected contracts and deliverables and other project documentation including applicable financial records.

We used the IT Governance Institute's (ITGI) publication, "Control Objectives for Information and Related Technology," (CobiT) to identify generally accepted and applicable internal control objectives and practices for information systems.

We conducted our audit according to generally accepted government auditing standards. We also conducted our audit according to Information Systems Audit and Control Association standards for information systems auditing.

We performed fieldwork between October 2005 and May 2006.

Department of Administrative Services' Response

We appreciate the opportunity to respond to your risk assessment of the Department of Administrative Services' Computing and Networking Infrastructure Consolidation (CNIC) Project. Your comments and recommendations are important to us.

We generally agree with the findings and recommendations included in your report. The Department does have a responsibility to ensure that the CNIC project is properly implemented and managed so that the State of Oregon receives the full benefit of the project goals. We present the following response to the specific findings.

CNIC Project Planning Was Inadequate

We agree that there were deficiencies in up front planning resulting in a mid-course change in the business case and the plans to achieve the associated savings. We have taken the following actions to correct deficiencies identified in your report:

1. *A decision was made that no re-engineering would occur until after all of the agency systems had been relocated to the State Data Center (SDC). Detailed migration plans were developed and successfully executed to relocate agency systems to the SDC. Currently almost 80% of the agency system migrations are complete and operating from the new State Data Center. These systems have operated without system downtime or business interruption.*
2. *The Department conducted a reassessment of the number of support personnel required to operate the new data center and the length of time it would take to re-engineer the environment to realize the cost savings. This information was presented to the Joint Legislative Committee on Information Management and Technology (JLCIMT) and the adjustment was approved by the committee in April of 2006.*
3. *In addition to the migration of agency systems to the SDC in their existing state (referred to as "lift and drop"), we conducted a detailed analysis of the hardware, software, networks, and agency operations. In addition, we updated the vision, architecture, and road map to the SDC model based on cost, feasibility, and current information.*

Project Managers Did Not Effectively Manage Third Party Contract Work

The audit report indicates that approximately $3 million in contract deliverables may have been unnecessary or of limited value to the State.

In looking back at the deliverables received, we generally agree they appear to be of limited value to the State. At the time, the contractor worked closely with the Department's management and the Department did not contest the deliverables. In part, attributable to CNIC project management turnover, we failed to process timely amendments to the contract to properly reflect the work being requested and performed. Since January of 2006, the contract deliverables for the planning and migration of the three largest agencies into the State Data Center were completed on time, on budget, and compliant with the specific terms of the contract as amended and the Department has emphasized the importance of contract management controls be practical.

The Department Did Not Provide For Effective Independent Quality Assurance Reviews

We agree that independent quality assurance (QA) reviews did not occur early in the project and that once the Department hired a contractor to conduct such reviews, the scope limited. While limited in scope, the contractor was free to comment, on other observations as he carried out the obligations of the contract.

The Department understands that it has a responsibility to ensure all project objectives are achieved, planned phases are appropriately completed, and all work remains within the approved scope and budget. The Department will ensure that quality assurance reviews for all phases of information technology projects in the future are performed.

The Department Did Not Properly Account For All Project or Transition Costs

We agree that the Department did not properly account for all project or transition costs. The Department has a responsibility to ensure that all relevant costs incurred for the CNIC project are identified and then capitalized according to generally accepted accounting principles and we have taken the following steps to ensure that occurs as the project continues.

In August 2006 the department requested that each agency identify and provide us with the relevant costs associated with the CINC project. This information will be used to appropriately capitalize the relevant costs at the conclusion of the project to accurately report the project's costs, size and complexity.

In addition, we agree that the Department will develop and implement cost recovery plans in accordance with OMB circular A-87 and make adjustments for inequitable cost recoveries that have already occurred. The Department is prepared to make the necessary cost findings, disclosures, and adjustments when the next statewide central services cost allocation plan materials are prepared (i.e., in the autumn of 2006) in accordance with OMB circular A-87. For any cost items which we find that are unallowable under the OMB circular A-87, we will be properly excluding those items when the Reconciliation of Retained Earnings schedule for the affected internal services funds are prepared as a part of the next statewide central services cost allocation plan.

The Audit Report Indicates that the Disaster Recovery Plans for the State Data Center have not yet been Addressed

The existing agency disaster recovery plans were transferred over to the State Data Center and are active. The State Chief Information Office Steering Committee has appointed a Disaster Recovery Team, including participation from the State Data Center, to revise and update the plans. Recently a new business continuity and Disaster Recover planning tool was procured to facilitate the statewide disaster recovery plan. We anticipate implementation of the software and the resulting plans to be completed by early 2007.

The CNIC Plans did not Incorporate Enterprise Security

While this statement is accurate, enterprise security planning is being developed by the Department's Enterprise Security Office under the State Chief Information Officer. The State Data Center continues to architect and implement the relevant technology in support of the enterprise plans. The State's network is secure. This does not guarantee or eliminate the possibility of a security exposure. However, we continue to evolve and upgrade our security posture to provide the most secure computing environment feasible.

In summary, we believe the CNIC project, and the operation of the State Data Center, is delivering cost savings and high quality services to the state agencies. Much work remains and we will aggressively complete the project while at the same time continuing to serve the ongoing operations of our agency customers.

Today, the CNIC project enjoys great success and accomplishments. Early on the CNIC project experienced program deficiencies; however we believe the deficiencies identified in the audit report have been corrected where possible. As a result of decisions made and actions taken in early 2006 and leadership at the Department changed, we believe the project goals and objectives will be met and in some cases exceeded. We continue to work with JLCIMT members when changes are made in the project.

Again, your report is important to us. We always appreciate the time and effort you put into looking at our processes and making recommendations for improvement when needed. I also appreciate your positive response to my request for assistance with a future pro-active review of this project.

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The courtesies and cooperation extended by the officials and staff of the Department of Administrative Services were commendable and much appreciated.

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