

John Keel, CPA State Auditor

An Audit Report on

The Department of Information Resources and the Consolidation of the State's Data Centers

June 2008 Report No. 08-038



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Overall Conclusion

The transfer of state agency employees to IBM could have been improved with strong requirements.

The Department of Information Resources (Department) did not develop and require agencies to follow employee transfer criteria, which contributed to gaps in knowledge and skills that have negatively affected the data center consolidation project. During the project, the transfer of knowledge and skills to IBM could have been improved if the Department had developed and enforced transfer requirements for agencies to follow in selecting the specific employees to be transferred to IBM. IBM agreed to employ agency staff who formerly supported systems at 27 agencies as part of its \$145 million annual contract with the Department (see text box for additional details).

Background Information

The Department of Information Resources (Department) outsourced data center operations at 27 agencies under Texas Government Code, Chapter 2054 (specifically pursuant to House Bill 1516, 79th Legislature, Regular Session). The Department contracted with IBM to provide data center services. IBM, acting as general contractor, created Team for Texas, a group of contractors that includes:

- IBM (implementation and operations).
- Unisys (facilities operations).
- Pitney Bowes (print and mail services).
- Other firms that play smaller roles in Team for Texas (for example, Dell Inc. and AT&T).

Auditors determined that a knowledge and skills gap existed based on the following:

- Of the 560 employee positions that agencies transferred to IBM, 231 (41 percent) were vacant positions. Therefore, in those cases, the agencies did not transfer actual employees who had knowledge of agency systems to IBM. For example, six agencies transferred less than 20 percent of the actual employees they should have transferred to IBM, and they transferred vacant positions for the remainder of their obligation. It is important to note that the agencies that transferred less than 20 percent of their actual employees included five large agencies. The vacant positions at these five agencies accounted for a total of 119 vacant positions, or 21 percent of the total positions involved in the data center consolidation project.
- > Of 443 employees who had the most experience and knowledge to support agency systems, agencies transferred only 230 (52 percent) to IBM.

This audit was conducted in accordance with Texas Government Code, Section 321.0132.

For more information regarding this report, please contact Ralph McClendon, Audit Manager, or John Keel, State Auditor, at (512) 936-9500.

After beginning operations under its contract with the Department, IBM had to contract with agencies and reimburse them for the use of state employees' time in order to support agency systems. In April 2008, one year after the data center consolidation project began, IBM still needed to rely on state employees to provide some support services. In addition, some agencies are still relying on state employees to perform functions that have been outsourced to IBM. The need for this approach might have been reduced if agencies had transferred more actual employees with knowledge about agency systems to IBM.

Because agency employees ultimately have the option of pursuing other employment opportunities, auditors recognize that it is difficult, and sometimes impossible, to ensure an effective transfer of employees under a project such as the data center consolidation project. The lack of employee transfer criteria developed and enforced by the Department allowed each of the 27 agencies involved in the project to use different employee transfer criteria that did not always consider the data center consolidation project's requirements for success. Although some agencies appropriately transferred employees who had knowledge of agency systems to IBM, auditors' survey of the 27 agencies determined that:

- Some agencies accommodated employees who should have been transferred to IBM by making internal positions available to the employees.
- Other agencies retained employees with the most valuable skills and transferred employees with less experience or knowledge to IBM.
- As discussed above, other agencies transferred vacant positions to IBM instead of actual employees who had knowledge of agency systems.

These examples indicate that some agencies may have made decisions that allowed employees to continue state employment, while putting their agency systems, other state agencies' systems, and the data center consolidation project at risk.

Despite the issues discussed above, it is important to note that the Department implemented several other critical processes and controls that improved the transfer of agency employees to IBM. For example, the Department provided data collection training to the information technology directors at all 27 agencies, developed requirements for retaining certain critical agency personnel, and hired an independent consultant to validate employee time data submitted by agencies.

Invoicing for the data center consolidation project should be improved.

Auditors identified errors and inconsistencies in an IBM database that is the basis for generating monthly invoices that IBM sends to the Department. (After it receives these invoices, the Department then sends invoices to agencies for the services they receive.) Auditors tested five of the highest risk invoices at five agencies and reviewed the accuracy of the number of application servers each agency was using. That testing identified errors that had a financial impact of only \$19,734 (4.24 percent of the total value of items tested). While none of the errors auditors identified would have a significant financial impact on the agencies tested, the potential exists for significant errors because neither IBM nor the Department has performed an accurate reconciliation of this database to the physical resources that IBM manages since commencement of the data center consolidation project on March 31, 2007.

IBM has not submitted invoices or resolved agency invoicing disputes within the timeframes specified in its contract with the Department. From April 2007 through December 2007, the Department received 8 of 9 (89 percent) invoices from IBM after the timeframes specified in the contract. On average, these eight invoices were 44 business days late when compared to contractual requirements. Additionally, as of March 26, 2008, IBM had resolved only 37 of 109 (34 percent) agency invoicing disputes. IBM took an average of 81 days to resolve each dispute, but its contract requires resolution of those disputes within 3 days. Eighty-four percent of resolved disputes were resolved in the agencies' favor.

Although IBM's database contains some errors, the Department has implemented processes and controls that help it correctly process the invoices that the Department sends to agencies. After the Department becomes able to rely on IBM's invoice data, these processes and controls will provide some assurance that agency invoices are accurate. Auditors verified that the Department correctly tracks credits, correctly calculates its cost recovery fees, and performs trend analysis on agency invoices. Auditors also verified that invoices the Department submits to agencies are consistent with the invoices it receives from IBM.

Summary of Management's Response

The Department agrees with the recommendations in this report, and it provided the following summary of its responses:

The Department agrees with the findings and appreciates the audit team's detailed review of the complex employee transition and invoicing processes. The Department has already begun implementation of many of the recommendations and will continue to focus management attention on the critical areas identified by the audit. Additionally, the Department will seek to work with state leadership to identify opportunities to improve future initiatives through stronger enforcement of enterprise guidelines.

Detailed management responses are included in the Detailed Results section of this report, and an overall response from the Department is presented in Appendix 3.

Summary of Information Technology Review

This audit did not include a review of information technology. However, the State Auditor's Office previously reported on the security of state data centers in *An Audit Report on the Department of Information Resources and Security of the State's Data Centers* (State Auditor's Office Report No. 08-030, April 2008).

Summary of Objectives, Scope, and Methodology

The objectives of this audit were to determine whether:

- > Agencies' information technology staff were transitioned to the state data center contractor in accordance with related contract provisions to achieve the transfer of knowledge and expertise critical to the success of the data center consolidation.
- Billings for state data center services are accurate and complete and made in accordance with applicable provisions of the contract and agencies' policies and procedures.

The scope of this audit included the Department's implementation of the data center consolidation project. Auditors' review of staff transferred to IBM covered the time period from December 2005 (when agencies reported outsourced positions to the Department) through May 2008. Auditors' review of invoicing for state data centers covered invoices that the Department processed from May 2007 through May 2008.

The audit methodology included interviewing Department and IBM personnel; interviewing information technology directors from several agencies; reviewing the November 2006 master service agreement signed by IBM and the Department; and policies and procedures. Auditors also conducted a telephone survey of all information technology directors from the 27 agencies involved in the data center consolidation project. Survey results were used to focus some of the resource unit testing.

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Detailed Results

Chapter 1

The Transfer of Skills to IBM Could Have Been Improved if the Department Had Provided Specific Criteria to Agencies

During the state data center consolidation project, the transfer of skills to IBM could have been improved if the Department of Information Resources (Department) had developed strong requirements for agencies to follow in selecting the specific agency employees to be transferred to IBM.

The primary weakness in the Department's guidance for the data center

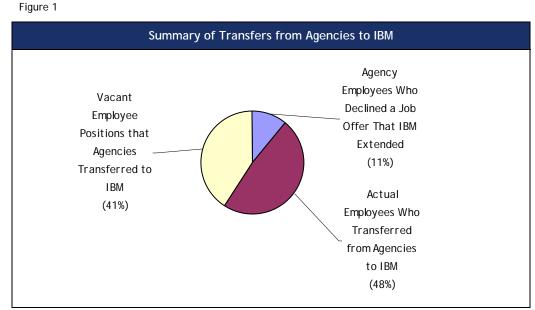
Data Center Consolidation Project

Pursuant to Texas Government Code, Chapter 2054 (specifically pursuant to House Bill 1516, 79th Legislature, Regular Session), the Department of Information Resources (Department) began the data center consolidation project. The project had the following timeline

- December 2005: Agencies reported the number of affected positions.
- March 2006: The Department issued a request for offer.
- April 2006: The Department evaluated vendors' bids.
- June 2006: The Department contracted with a consultant to validate agency-reported positions supporting outsourced activities.
- November 2006: The Department and IBM executed a contract to outsource data center services.
- December 2006: IBM extended job offers to identified agency employees.
- April 2007: The contract between the Department and IBM commenced.
- October 2007: The transition of personnel from agencies to IBM ended, and IBM began the data center consolidation process.

consolidation project was a lack of employee transfer criteria for agencies to use to select and transfer state employees to IBM. In the absence of these criteria, the Department left this critical decision to the agencies. According to auditors' survey, agencies used different employee transfer criteria to select employees to transfer to IBM. For example, some agencies chose to retain employees by making other internal positions available to them; other agencies retained the more experienced and knowledgeable employees while transferring the employees with fewer skills to IBM.

Of the 560 positions that the Department identified as supporting outsourced activities, the agencies transferred an average of 41 percent vacant positions to IBM, instead of transferring actual employees (see Figure 1 on the next page). Four agencies transferred only vacant positions and did not transfer any actual employees. An additional two agencies transferred less than 20 percent actual employees and transferred vacant positions for the remainder of their obligation.



Source: Auditors' analysis of the Department's employee transfer documentation.

In addition, only 52 percent of the agency employees with the most knowledge and experience were transferred to IBM. As a result, IBM did not receive all the knowledge and skills that agencies had been using to provide data center services prior to the data center consolidation project. To address this skills gap, the Department established a process for IBM to reimburse agencies for work performed by state employees. However, the Department's process changed multiple times, and this process lacked details for tracking the time that state employees worked on behalf of IBM. As of April 1, 2008, one year after the beginning of its contract with the Department, IBM still needed to rely on state employees to provide support services for outsourced operations.

Auditors recognize that multiple factors may have negatively affected the overall progress of the data center consolidation project. One of these contributing factors is the lack of the Department's employee transfer criteria. For example, data center consolidation plans have been delayed by an average of 273 days. In an initial schedule developed in June 2007, IBM estimated it would take an average of 77 days to consolidate an agency's systems; IBM's updated schedule in February 2008 estimated an average of 349 days to consolidate an agency's systems.

The Department views its contract with IBM as a service level contract. The Department's primary concern is whether IBM meets the service requirements of its contract. In April 2008, one year after the data center consolidation project began, some agencies were still using state employees to perform

functions that had been outsourced to IBM. This could artificially influence the service levels that IBM is responsible for and gives the appearance that IBM is able to support the contract with the current staffing levels; therefore, auditors were unable to determine whether the staffing levels were appropriate.

Chapter 1-A

Agencies Did Not Transfer All Employees Involved in the Project

The Department allowed each of the 27 agencies involved in the data center consolidation project to use different employee transfer criteria, and it did not require agencies to select and transfer the employees performing outsourced activities. This allowed agencies to make the critical decision regarding which employees to transfer to IBM and which employees to retain. As a result, the 27 agencies involved in the data center services consolidation project used different criteria that did not necessarily consider the data center consolidation project's requirements. For example, auditors' survey of the 27 agencies determined that:

- Some agencies appropriately identified the employees performing most of the outsourced activities and transferred these employees to IBM.
- Other agencies accommodated employees who should have been transferred to IBM by making other internal positions available to them.
- Other agencies retained the employees with the most valuable skills and transferred employees with less experience or knowledge to IBM.
- Other agencies transferred vacant positions to IBM instead of actual employees with knowledge of agency systems.

These examples illustrate the conflict of interest that existed for the 27 agencies involved in the data center consolidation project. Given this situation, some agencies may have made decisions that allowed their employees to continue state employment, while putting their agency systems, other state agencies' systems, and the data center consolidation project at risk.

Because agency employees ultimately have the option of pursuing other employment opportunities, we recognize that it is difficult, and sometimes impossible, to ensure an effective transfer of employees under an outsourcing project such as the data center consolidation project. As noted in Figure 1 above, 11 percent of employees identified under the data center consolidation project declined IBM's employment offer.

The Department and the 27 agencies involved in the consolidation project identified 560 employee positions that supported the outsourced activities. Auditors determined that 443 employee positions were performing at least 60 percent of the outsourced activities at their agency prior to the Department's

contract with IBM. These 443 employee positions had the most experience and knowledge to support agency systems.

Agencies decided to transfer 329 of the 560 employees whom the Department identified. However, only 230 of the employees who transferred to IBM were among the 443 employees who had the most experience and knowledge to support agency systems. As a result, the Department could not ensure that IBM received the knowledge and skills needed to effectively support the outsourced activities. This contributed to IBM's skills gap.

Agencies transferred a significant number of vacant positions to IBM.

It is important to note that agencies transferred 231 vacant positions (41 percent of the 560 positions identified by the Department) to IBM, instead of transferring actual employees. Four agencies transferred only vacant positions and did not transfer any actual employees (this included three large agencies—the Department of Aging and Disability Services, the Department of Family and Protective Services, and the agency function at the Health and Human Services Commission¹). An additional two agencies, the Department of Transportation and the Texas Education Agency, transferred less than 20 percent actual employees and transferred vacant positions for the remainder of their obligation. Therefore, in those cases, the agencies did not transfer actual employees who had knowledge and experience with agency systems.

It is important to note that the agencies that transferred less than 20 percent actual employee included five large agencies. The vacant positions that were transferred at these five agencies accounted for a total of 119 vacant positions, or 21 percent of the total positions involved in the data center consolidation project. This created a skills gap in the resources that IBM obtained during the data center consolidation project. It also created significant risks for their agency operations, other state agency systems, and the data center consolidation project.

The Department established other critical processes for transferring employees.

Although the Department did not develop specific employee transfer criteria for agencies to follow in selecting the specific agency employees to be transferred to IBM, it established other critical processes. The Department took measures to ensure the accurate accounting of all activities to be outsourced and employees performing these activities. For example, it:

¹ For purposes of the data center consolidation project, the Department has divided the Health and Human Services Commission's systems into two categories: the agency function (which includes systems used only by the Health and Human Services Commission) and the enterprise function (which includes systems used by multiple health and human services agencies).

- Trained human resources and information technology directors from all 27 agencies participating in the consolidation project on data collection methods to identify and quantify the activities to be outsourced to IBM.
- Required IBM to retain certain agency personnel for one year and critical agency employees for two years to encourage the transfer of knowledge and skills under the data center consolidation project.
- Hired an independent consultant to review and validate the allocation of employees' time data submitted by all 27 agencies participating in the consolidation project.

The Department also was successful in selecting and transferring certain critical employees (employees who agencies identified as having unique or special knowledge of the outsourced activities). These critical employees were ensured two years of continued employment with IBM. The Department also allowed agencies to determine selection criteria for critical employees, but the additional year employment provided agencies with an incentive to transfer these employees. As a result, 90 percent of these critical employees were transferred to IBM.

Chapter 1-B

As a Result of the Skills Gap, IBM Had to Contract with Agencies to Support Systems

When its contract with the Department commenced on March 31, 2007, IBM did not have the necessary knowledge or personnel to perform all the outsourced activities required by its contract with the Department. To fill the skills gap, the Department worked with IBM to contract with agencies and reimburse them for the use of state employees to perform some outsourced activities. State employees who performed work on behalf of IBM possessed critical knowledge of data center operations that was never transferred to IBM.

IBM established a reimbursement rate of 150 percent of the state salaries for the state employees who worked for IBM. The Department established a temporary process to collect information about the amount of the time and salary of state employees who worked on outsourced activities each month, and it deducted 150 percent of the value from IBM's monthly invoices. During this audit, IBM continued to use state employees to fill its skills gap. In April 2008, one year after the data center consolidation project began, IBM still needed to use state employees to provide some support services. In addition, some agencies are still using state employees to perform functions that have been outsourced to IBM.

The Department views its contract with IBM as a service level contract. The Department's primary concern is whether IBM meets the service requirements of its contract, and not IBM's staffing retention. It is unclear whether the use

of existing state employees is a result of IBM not performing required functions or the agencies' reluctance to relinquish control of their operations.

Although the Department tracked IBM's use of state employees, auditors identified weaknesses in this tracking. For example:

- For the first month of the contract, April 2007, the Department implemented a temporary process for tracking state employees' time, but this process did not ensure that all activities these employees performed were identified and paid for.
- The Department did not communicate a permanent process for agencies to track and report these employees' time until November 2007, six months after the contract began. Agencies also expressed confusion regarding which activities they were required to perform and which activities state employees could be reimbursed for during the period from May 2007 through October 2007.
- As of November 2007, the Department implemented a third process for IBM's use of agency personnel that required IBM to pre-approve the work assigned to state employees. However, some agencies are still performing outsourced activities without prior approval even though they are uncertain about whether they will be reimbursed for those activities.
- The Department did not monitor the implementation of its tracking processes, which limited its ability to obtain timely information regarding IBM's progress in filling the skills gaps.

These weaknesses limited the Department's ability to ensure that all outsourced activities performed by the state employees were consistently identified and paid for. Auditors met with three agencies involved in the data center project and all three provided examples of times when state employees performed outsourced activities and did not report the time for reimbursement.

Chapter 1-C IBM Did Not Comply with Contractual Staff Retention Requirements

IBM did not comply with staff retention requirements in its contract with the Department. These staffing requirements were established to ensure that IBM would be capable of providing services at a level that was at least equivalent to the level previously provided by agencies. For example:

 As of March 2008, 11 months after it began performing outsourced activities, IBM experienced a turnover of 33 percent among the employees it assigned to the data center consolidation project. The Department's contract with IBM requires IBM not to exceed 15 percent turnover for any rolling 12 months. These changes in its personnel had a direct effect on IBM's understanding of agencies' systems and operations. Additionally, high turnover required additional training and coordination, which added overhead to the cost of the data center consolidation project.

- During the first 11 months of the project, IBM experienced a 67 percent turnover rate for nine "key personnel" positions (the Department's contract with IBM defines certain managerial positions as "key personnel"). The Department acknowledged that it requested some key personnel to be replaced. To ensure continuity in management of the outsourced operations, IBM's contract with the Department requires employment of these nine key positions for at least two years.
- Twenty-one percent of the employees identified by agencies as critical to the success of the data center consolidation project have left their employment with IBM. The contractual requirement for these employees is continued employment for at least two years, unless those employees choose to voluntarily resign.

Although there were no contractual requirements regarding the Service Delivery Manager positions (which are managerial positions that individually service each agency), there also has been turnover among these positions. As of March 2008, 48 percent of the agencies involved in the data center consolidation project had changed their Service Delivery Manager. High turnover was a common concern that agencies expressed in auditors' survey. As a result of the high turnover, IBM lost critical knowledge of the outsourced operations and the data center consolidation project. As of April 2008, the project has been delayed by 273 days. Auditors recognize that multiple factors may have negatively affected the overall progress of the data center project. Additional turnover could lead to future delays in the consolidation process.

Recommendations

The Department should:

- Determine whether a skills gap still exists in IBM's ability to perform all outsourced activities. If a gap is identified, the Department should work with agencies to determine whether it should make additional agency employees available for IBM to hire or require IBM to hire outside staff with the necessary skills.
- Monitor IBM's compliance with the contract staffing requirements on a quarterly basis throughout the data center consolidation project.
- Require that agency staff discontinue performance of outsourced activities on behalf of IBM.
- On future consolidation projects:

- Develop and enforce decision criteria for agencies to identify and name all employees who perform proposed outsourced operations and require agencies to transfer specific employees to ensure transfer of knowledge and skills required to perform outsourced operations.
- Develop a process to ensure that (1) all outsourced activities performed by agency employees are identified and paid for and (2) information on contingency staff is consistently tracked and reported.

Management's Response

The Department agrees with the recommendations and appreciates the SAO's recognition that there are multiple factors influencing the success of the data center services program. Moving from 27 separate agencies, with diverse hardware platforms, software versions, and work processes, to a shared services environment is a significant undertaking for Texas. DIR, the agencies, and IBM have worked diligently over the first year of the contract to transition services, manage current operations, and plan for transformation and consolidation activities. The Department recognizes the importance of employee experience and worked with participating agencies to explain skill requirements, establish a human resources workgroup for workforce planning, and conduct change management training to ease the transition for affected employees. The Department will develop and enforce stronger guidelines on future consolidation initiatives.

The Department agrees with the recommendation and is actively working with agencies and IBM to understand enterprise and agency-specific needs and address skill gaps in the delivery of data center services. The Department has facilitated a reduction in the use of state staff to perform in scope services from 5.4 percent of the invoice (May 2007) to .002 percent of the invoice (April 2008). During this same period, critical service level attainment steadily increased from 63 percent to 90 percent, an indicator that staff performing the services have the requisite knowledge and skill. To ensure all skills are appropriately covered, the Department will contact agencies participating in the DCS program to determine if there are any critical skill gaps that have not been filled by the current IBM team. If gaps are identified, the Department will vork with IBM to develop a plan to acquire any missing skill sets.

Estimated completion date: October 1, 2008

Title of responsible person: Data Center Services Manager

• The Department agrees and will continue to monitor IBM's compliance with the staffing requirements outlined in the contract Section 8.8 c and Exhibit 5B (Personnel Projection Matrix) and will do so on at least a quarterly basis. Additionally, the Department has requested IBM provide a staff retention strategy outlining changes IBM will make to reduce turnover of staff. The Department will track IBM's implementation of the strategy and monitor the Personnel Projection Matrix to see if the strategy has a positive effect on IBM's ability to retain staff.

Estimated completion date: Quarterly

Title of responsible person: Data Center Services Manager

The Department strongly agrees that agency staff should not be performing in scope activities and will formally communicate to the agencies the importance of having IBM perform all in scope tasks. In conjunction with the aforementioned skill gap analysis, the Department will work with IBM to ensure all required skill sets are filled, removing the need for the remaining state staff performing in scope services, and set a firm date to terminate the reimbursement program. Additionally, the Department will continue to work with IBM to review the agency staff with system administration (infrastructure) access and ensure access is limited to what is required for security and oversight.

Estimated completion date: December 31, 2008

Title of responsible person: Data Center Services Manager

• The Department agrees and will implement the recommendations on future consolidation projects.

Estimated completion date: Ongoing

Title of responsible person: Chief Technology Officer

Chapter 2 The Department Should Strengthen Its Process for Validating IBM's Invoices

Although the database that IBM developed to record state inventory includes inaccurate data, the errors auditors identified did not have a significant financial impact. Auditors also identified errors on some invoices, specifically in the information for reported resource unit usage. Although

IBM Invoice and Department Validation Processes

IBM provides the Department with a monthly enterprise invoice. The invoice is derived from several databases. One of those databases—the Configuration Management Database (CMDB) contains information on state inventory and information technology resources. Another database—the IBM Tivoli Usage and Accounting Manager (ITUAM)— contains monthly state resource unit usage data. Examples of resource units include mainframe services, servers, and server storage.

The Department performs a trend analysis to validate IBM's invoice. The Department has established a variance threshold of 50 percent. The variance threshold is the percent difference in resource unit usage from one month to the next. In some cases, the Department uses the variance threshold to determine which resource units to research on an invoice.

When the Department has validated the invoice, it sends invoices to agencies participating in the data center consolidation project.

those errors also were not financially significant, they indicate there are problems with data collection. In addition, there are weaknesses in the Department's invoice validation process which, if addressed, may prevent some of the errors auditors identified.

IBM submitted invoices to the Department that were created using inaccurate inventory information.

Auditors identified errors in four of five IBM invoices that were tested for usage of application server resources, but those errors had a financial impact of only \$19,734 (4.24 percent of the total value of items tested) on the agencies considered highest risk for the months tested. Application server usage error rates for the agencies tested ranged from 6.88 percent to 10.81 percent. While none of the errors auditors identified would have a significant financial impact on the agencies tested, the potential exists for significant errors because neither IBM nor the Department has performed an accurate reconciliation of this database to the physical resources that IBM manages since commencement of the data center consolidation project on March 31, 2007 (see Chapter 3 for additional details).

As of April 2008, auditors identified the following errors and inconsistencies through inventory testing:

- At two agencies a total of five application servers appeared on invoices that were either misclassified or duplicate entries.
- Four servers were included on invoices months before they were installed and made available for agency use.
- Eight servers were included on invoices when there was not information on those servers in IBM's database.
- In October 2007, IBM invoiced the Department for 10 servers that an agency had requested be decommissioned because they were not in service for the month they were invoiced. It took four months to process the

agency's request to remove the servers from inventory. A total of 16 servers were not decommissioned in a timely manner.

In addition, in April 2008, IBM independently identified and deleted 68 duplicate servers from its database of state resources.

Errors in IBM's inventory database have resulted in inaccurate invoices for agencies. As a result, there is a risk that the State could be charged incorrectly for information technology resources. In addition, agencies do not trust the accuracy of their monthly invoices and are spending more time than should be necessary to monitor and dispute what they are charged.

Invoices contain inaccurate resource usage information.

Twelve of 24 invoices that auditors reviewed included some resources that could not be verified; those invoices covered 7 of the 15 agencies auditors tested. Auditors also reviewed invoices for accurate reporting of resource unit usage. IBM does not have a standard process for reporting resource unit usage. Instead, its processes vary by type of resource and level of automation. Several reporting processes are still manual. Auditors identified inadequate supporting documentation for reported resource unit usage and, in some cases, there was no supporting documentation. Resource unit usage also was sometimes reported incorrectly. Auditors tested seven resource units at a total of 15 agencies for one to three months. That testing identified the following:

- The usage of off-site tape storage was invoiced incorrectly from July 2007 through October 2007. The errors were identified in April 2008, when the November 2007 invoices were released. Prior to that time, the reports that were run to produce the reported usage were not run correctly because they included historical information. These errors affected 16 agencies.
- Documentation regarding the usage of direct attached tape could not be verified, and it is handled differently at some agencies. Auditors' verification of the invoice amounts at four agencies identified the following errors:
 - Documentation was destroyed at the Commission on Environmental Quality, which prevented verification of invoices for the months of July, August, and September 2007.
 - IBM lacked some documentation at the Department of Insurance, which prevented verification of its invoice for September 2007. Additionally, documentation for the June 2007 invoice did not match the invoice amount.
 - Documentation at the Department of Criminal Justice did not match the invoice amount for the months of June, July, and August 2007.

- The usage of centralized tape was reported correctly.
- The usage of application tapes in storage was reported correctly.

The variety of tools and methods, both automated and manual, in place at agency data centers complicates the collection and reporting of resource usage. IBM is working toward developing a standard automated solution for the data collection and reporting processes.

As a result of errors that have occurred in resource unit usage, some agencies do not trust the invoice process. Results of an auditors' survey of information technology directors at 27 state agencies involved in the data center consolidation project indicate that the agencies spent a significant amount of time monitoring and disputing invoices. Some agencies stated that they lacked an understanding of IBM invoices and the Department's invoice validation process. The data center consolidation project could benefit from enhancing agencies' understanding of how their invoices are calculated, how business changes will affect their invoices, and the Department's role and process for validating invoices.

There are weaknesses in the Department's invoice validation process.

The Department has not implemented key controls for validating IBM's invoices. IBM performed a one-time reconciliation of inventory, as required by the contract, but this occurred months behind schedule and all identified errors have not been resolved. The Department's validation process includes a high variance threshold that is not consistently applied to each invoice. For example:

- Neither IBM nor the Department has performed an accurate reconciliation of database resources to the physical resources that IBM manages since commencement of the data center consolidation project on March 31, 2007. As part of managing the data center assets, the Department and IBM were required by the contract to perform a one-time inventory reconciliation and update the inventory database by June 30, 2007. The inventory database updates were concluded in February 2008. However, the agencies and IBM have identified inaccuracies with the results of this reconciliation. Neither the Department nor IBM has performed an additional reconciliation of resources. Because the data center consolidation project requires agencies to modify their hardware and software, IBM's inventory database changes frequently.
- The Department's procedures for validating IBM's invoices have not been performed consistently and are not fully documented. The Department is still developing these procedures. This creates a risk that the Department may not have identified all invoicing errors.

- The Department uses a high threshold of 50 percent variance in system resource usage before it researches resource usage reported by IBM. This high threshold would not identify errors such as those discussed above. The Department recognizes that a 50 percent threshold is not applicable for all resources that it validates.
- When the Department identifies usage variances above its 50 percent threshold, it does not consistently research those variances. For example, the Department did not research the offsite tape usage errors discussed above when the use of that resource increased significantly. For the Department of Licensing and Regulation, between July 2007 and August 2007, offsite tape storage usage increased more than 1,450 percent. When the reporting error was corrected in November 2007 and the reported usage for that agency decreased 1,000 percent, the Department researched the variance. The Department found no errors in November 2007 reporting, but it did identify an error in the prior reporting process that resulted in the 16 agencies that were overcharged between July 2007 and October 2007, as discussed above.

As a result of inventory inaccuracies and weaknesses in controls, agencies are reluctant to rely on the Department's invoice validation process. According to the results of the auditors' survey, agencies do not trust the invoices they receive; only four of 26 survey respondents agreed that their agency's invoices have been accurate. Agencies reported that they spend significant resources monitoring and disputing what they are invoiced each month. The lack of a formal invoice validation process increases the risk that errors will not be detected in a timely manner. It also increases the State's cost for managing those errors because agencies duplicate the Department's processes and the cost of logging and tracking disputes increases. Agency confidence in the data center consolidation contract and trust in the invoicing process is critical to the continued success of the data center consolidation project.

Recommendations

The Department should:

- Work with IBM to automate processes for collecting data for monthly invoices and service levels.
- Require IBM to retain source documentation to support monthly invoices.
- Establish a schedule to reconcile IBM's database of information resources to the physical resources that IBM manages.
- Formalize its process for validating IBM's monthly invoices and develop policies and procedures to ensure it consistently performs this process.

- Throughout the course of the data center consolidation project, reduce the thresholds that it uses to prompt research of the inventory and resource usage that IBM reports on monthly invoices.
- Train agency employees on the Department's invoice validation process and IBM's invoicing process.

Management's Response

The Department agrees with the recommendations and acknowledges the challenges of tracking resource consumption given the diversity of the current environment, which includes more than 40 different platforms. Due to the disparate platforms, IBM is unable to install tools on all systems; some manual processes will be used until the systems are transformed and consolidated to the state data centers. The Department will work with IBM to have automation tools installed on all applicable platforms.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Manager

• The Department agrees with this recommendation and will formally reiterate the contract requirements to IBM. The Department will periodically request source data samples to validate IBM's adherence to records retention requirements.

Estimated completion date: August 1, 2008

Title of responsible person: Data Center Services Manager

The Department agrees with the recommendation and has assigned an asset management lead to oversee IBM's management of the inventory database. As required by the contract, IBM completed an initial reconciliation of the physical inventory to the initial data base load. All agencies have approved this inventory. On July 14, 2008, IBM will initiate the annual wall-to-wall inventory of physical assets, as required by the contract. In this process, IBM technicians will go to all equipment sites to scan in scope assets and input additional information about the asset (location, configuration, etc.) into the database. The process has been automated to increase the accuracy and validity of the data.

Estimated completion date: October 31, 2008

Title of responsible person: Data Center Services Asset Management Lead

• The Department agrees and recognizes the importance of consistency in financial processing. The Department will formalize the draft invoice validation procedures and establish a process to ensure the procedures are implemented for enterprise and agency invoices.

Estimated completion date: August 1, 2008

Title of responsible person: Data Center Services Financial Administration Lead

The Department agrees with the recommendation and acknowledges the need to establish appropriate thresholds to trigger investigation of variances in consumption. With a year of service and associated agency usage trends now available, the Department has suitable criteria to assess the threshold. The Department will review historical trends to understand variance patterns for each resource unit and develop appropriate thresholds based on the unique characteristics of the resource units.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Financial Administration Lead

• The Department agrees with the recommendation and will conduct and record a web meeting to train agency staff on the Department's invoice validation process. The Department will post the meeting recording, slides, and questions and answers on the data center services web portal, for future reference by interested agency staff.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Financial Administration Lead IBM has not submitted invoices to the Department by the timeframes required in its contract. As of April 2008, IBM had submitted 8 of 9 (89 percent) invoices beyond the contractually required timeframe.

IBM's contract with the Department requires it to submit invoices by the fifth business day following the end of each month. However, the invoices that IBM submitted for April 2007 through December 2007 were submitted an average of 44 business days beyond that requirement. Table 1 lists the invoices IBM had submitted as of April 2008.

Timing of Invoices That IBM Had Submitted to the Department as of April 2008					
Invoice Period	Date IBM Should Have Submitted the Invoice	Date IBM Submitted the Invoice	Number of Business Days Invoice Was Submitted Late		
April 2007	May 7, 2007	May 7, 2007	0		
May 2007	June 7, 2007	June 30, 2007	16		
June 2007	July 7, 2007	August 22, 2007	32		
July 2007	August 7, 2007	September 13, 2007	26		
August 2007	September 8, 2007	November 16, 2007	49		
September 2007	October 5, 2007	December 21, 2007	54		
October 2007	November 7, 2007	February 25, 2008	73		
November 2007	December 7, 2007	March 31, 2008	77		
December 2007	January 7, 2008	April 15, 2008	68		

Table 1

Source: IBM's invoices submitted to the Department for the data center consolidation project.

As of April 2008, IBM was four months behind schedule in terms of submitting invoices. The Department and IBM agreed on a solution to the invoicing delays by establishing an accelerated schedule for submitting and reviewing IBM's invoices. The accelerated schedule required that IBM submit invoices every two weeks, instead of each month. This would enable IBM to "catch up" to the original schedule in August 2008.

Auditors were unable to determine whether the accelerated schedule has had an effect on other weaknesses noted in this report, including delays in invoice dispute resolution or the Department's verification of IBM's payment rates. IBM has not resolved agency invoice disputes within contractually required timeframes.

As of March 26, 2008, IBM had resolved only 37 agency invoice disputes, or 34 percent of all 109 invoice disputes filed at that time. The remaining 72 agency invoicing disputes remained unresolved. For agency invoice disputes that were resolved, IBM took an average of 81 days to reach a resolution; its contract with the Department requires IBM to resolve those disputes within three business days. Both IBM and the Department representatives believe that the contractual requirement to resolve an agency's invoice disputes in three business days is not realistic. However, the Department and IBM have not agreed on an alternate requirement and have not amended the three-day requirement in the contract.

Delays in resolving invoice disputes have negatively affected agencies' ability to review invoices and budget data center resources. Agencies are required to review and pay invoices within 20 business days. For disputes that are outstanding after this period, agencies must decide whether to pay the disputed invoices. This decision affects each agency's responsibility to pay interest that is required under the prompt payment statute (Texas Government Code, Section 2251.042) because unpaid disputes that are resolved in IBM's favor will accrue interest.

Eighty-four percent of resolved agency invoicing disputes have been resolved in the agencies' favor. The Department's contract with IBM does not include any financial penalties or other incentives to encourage IBM to resolve credible agency disputes. Furthermore, while agencies are responsible for paying interest on invoices that are the subject of delayed disputes, IBM's contract with the Department does not require IBM to pay an agency interest for the time that it retains disputed funds that are ultimately returned to the agency. IBM's lack of incentive to resolve disputes in a timely manner could have a negative effect on agencies' ability to budget for the data center consolidation project. IBM and the Department have not recalculated payment rates within the contractually required timeframes.

Recalculation of Payment Rates

The Department's contract with IBM required payment rates to be recalculated after IBM assumed management of agencies' data centers. This payment rate recalculation is a one-time process through which IBM and the Department validate the volumes of information technology resources that both parties used to set contractual payment rates. Information technology resources include the types of hardware that IBM manages for agencies, including mainframes, servers, and storage devices. IBM and the Department did not complete the recalculation of five rates that the Department pays to IBM within contractually required timeframes (see textbox for additional details on the process of recalculation of payment rates). IBM and the Department also have not recalculated payment rates for server storage. The Department's contract with IBM required that this recalculation occur by June 29, 2007.

Table 2 shows details regarding payment rates that have not been recalculated within contractually required timeframes.

Timing of Payment Recalculation Completion						
Recalculation Category	Contractually Required Recalculation Date	Date Recalculation Completed	Number of Days Recalculation Was Late			
Application servers	June 29, 2007	February 25, 2008	241 days			
Mainframe services	June 29, 2007	January 31, 2008	216 days			
Server storage	June 29, 2007	Not Complete	Undetermined			
Utility servers	June 29, 2007	February 25, 2008	241 days			
Application infrastructure stack costs	August 31, 2007	December 10, 2007	101 days			
Utility infrastructure stack costs	August 31, 2007	December 10, 2007	101 days			

Table 2

Source: The Department's payment recalculation results.

Payment recalculations are one-time activities that are intended to resolve any estimation errors that may have occurred during the process of executing the Department's original contract with IBM. After the recalculations are completed, the Department and IBM plan to amend the contract according to the recalculated payment rates.

Recommendations

The Department should:

• Enforce the contract requirement to ensure that IBM submits accurate invoices within the required timeframe.

- Work with IBM and the Data Center Services Advisory Council to establish a new timeframe for invoice dispute resolution and monitor compliance with this timeframe.
- Amend contract terms to (1) establish penalties for IBM's noncompliance with contractual requirements to resolve invoice disputes within the newly established timeframe and (2) require IBM to pay interest on invoice disputes that are resolved in agencies' favor.
- Complete payment recalculations for server storage and amend the Department's contract with IBM to accommodate updated rates.

Management's Response

The Department agrees with the recommendations and acknowledges that invoice delivery has been delayed by manual processes and technical complexities. The Department and IBM have focused on accelerating invoice processing. Since the conclusion of the audit fieldwork the Department issued the January invoice on May 1, the February invoice on May 15, the March invoice on May 30, and the April invoice on June 13. The May invoice is on schedule to be issued on July 1 and the June invoice will be issued on July 15, returning the data center services program to a regular, monthly invoice delivery schedule. The Department is working with IBM to extend the timeframe for invoice submission to a more realistic deadline, given the number of required validations and diversity of state systems, and will hold IBM accountable to this new standard.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Sourcing Administration Manager

 The Department agrees and will work with IBM and the Data Center Services Advisory Council to establish an appropriate new timeframe. The Department has established a goal to resolve the current backlog of disputes by the end of the fiscal year and will hold IBM accountable for meeting the new timeframe for all new disputes.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Sourcing Administration Manager • The Department agrees with the recommendation and will enter into negotiations with IBM to strengthen the contractual remedies for resolution of invoice disputes.

Estimated completion date: October 1, 2008

Title of responsible person: Data Center Services Sourcing Administration Manager

 The Department agrees and has established a goal to complete the server storage and tape payment recalculations by the end of the fiscal year. Data collection has been hampered by technical issues related to using automated collection tools on certain agency systems. The Department has directed IBM to resolve these technical issues or use alternative data collection methods in order to meet the deadline.

Estimated completion date: September 1, 2008

Title of responsible person: Data Center Services Manager

Although auditors identified weaknesses in IBM's invoicing, it is important to note that the Department has established processes and controls for the invoices that the Department sends to agencies. The Department has taken an active role in verifying key data on invoices before the agencies receive them. The Department also works with agencies to submit and monitor invoice disputes. Auditors reviewed the Department's processes and controls regarding agency invoicing and determined the following:

- Auditors tested 12 performance reports for 2 months and determined that agencies that experienced a service level default from IBM received credits on their monthly invoices.
- Auditors tested the Department's cost recovery fees at three agencies and verified that it correctly calculates these fees.
- Auditors tested two months of the Department's invoices sent to agencies and verified that those invoices matched IBM's invoices sent to the Department. This indicates that the Department charges amounts that are consistent with the invoices it pays to IBM.

Department employees also perform a monthly trend analysis to investigate some information resource charges that IBM submits.

With the exception of the issues noted in previous chapters of this report, the Department has adequately monitored the invoicing process on behalf of agencies. The data center consolidation project is structured so that agencies have interagency contracts with the Department, not IBM. The partnership between agencies and the Department must be based on mutual trust and confidence in each other. Auditors' survey results included comments from several agencies recognizing the Department for its dedicated staff and commitment to the success of the data center consolidation project.

Management's Response

The Department thanks the audit team for the acknowledgement of the time, effort, and discipline DIR uses to ensure agencies are appropriately charged for data center services.

Appendices

Appendix 1 Objectives, Scope, and Methodology

Objectives

The objectives of the audit were to determine whether:

- Agencies' information technology staff were transitioned to the state data center contractor in accordance with related contract provisions to achieve the transfer of knowledge and expertise critical to the success of the data center consolidation.
- Billings for state data center services are accurate and complete and made in accordance with applicable provisions of the contract and agencies' policies and procedures.

Scope

The scope of this audit included the Department of Information Resources' (Department) implementation of the data center consolidation project.

Auditors' review of staff transferred to IBM covered the time period from December 2005 (when agencies reported outsourced positions to the Department) through May 2008. Auditors' review of invoicing for state data centers covered invoices that the Department processed from May 2007 through May 2008.

Methodology

The audit methodology included interviewing Department and IBM personnel; interviewing information technology directors from several agencies; reviewing the November 2006 Master Service Agreement signed by IBM and the Department; and policies and procedures developed by IBM. Auditors also conducted a telephone survey of all information technology directors from the 27 agencies involved in the consolidation project. Survey results were used to focus some of the resource unit testing.

Information collected and reviewed included the following:

- Master service agreement between IBM (the lead contractor for Team for Texas) and the Department, signed on November 22, 2006.
- Policies and procedures developed by IBM.

- *Full-time Employees Validation Report*, September 22, 2006, prepared by PA Consultants.
- Department reports related to the collection of full-time employee data from the 27 agencies participating in the data center consolidation project.
- Turnover reports provided by IBM.
- Service level reports provided by the Department.
- Invoices for several agencies from April 2007 through October 2007.
- Invoicing data base (the IBM Tivoli Usage and Accounting Manager or ITUAM).

Procedures and tests conducted included the following:

- Interviewed key staff from the Department and IBM.
- Surveyed information technology directors from the 27 agencies participating in the data center consolidation project.
- Analyzed compliance with contractual staffing requirements.
- Analyzed compliance with service level contractual requirements.
- Reviewed and tested the Department's implementation of invoicing processes.
- Reviewed the Department's monitoring of IBM's service levels.
- Reviewed the Department's process for the selection of the personnel from the 27 agencies participating in the consolidation project.

Criteria used included the following:

- Master service agreement between IBM and the Department, signed on November 22, 2006.
- IBM policies and procedures.
- Department policies and procedures.
- House Bill 1516 (79th Legislature, Regular Session).
- Classification method of job evaluation used by the State Auditor's Office's State Classification Team.

Project Information

Audit fieldwork was conducted from December 2007 through May 2008. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the 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 a reasonable basis for our findings and conclusions based on our audit

The following members of the State Auditor's staff performed the audit:

- Kels Farmer, MBA, CISA (Project Manager)
- Cyndie Holmes, CISA (Assistant Project Manager)
- Michelle DeFrance, MA
- Anca Pinchas, MS, MA, CPA
- Kristyn Scoggins
- Serra Tamur, MPAff, CIA, CISA (Information Systems Audit Team)
- Worth Ferguson, CPA (Quality Control Reviewer)
- Ralph McClendon, CCP, CISA, CISSP (Audit Manager)

Table 3 summarizes auditors' survey of information technology directors at the 27 agencies involved in the data center services consolidation project. There are 28 responses because the Office of the Attorney General provided feedback from both its Child Support and Administration/Legal divisions. "Transition" was defined as the commencement of the contract through the current date.

lable 3					
Survey of IT Directors Affected by the Data Center Consolidation Project					
Survey Question	Yes	No	Not Applicable	Do Not Know	
Has it been a smooth transition? If not, (in your opinion) why not?	8	20			
Was anyone who was performing in-scope work prior to the transition transferred to a different responsibility/position within the agency prior to the transition date? If so, why?	6	20	2		
Have you seen a significant turnover in IBM personnel? If yes, please explain.	20	8			
In your opinion, has IBM provided enough personnel to support your systems? If no, please explain.	12	16			
In your opinion, have your agency's invoices been accurate? If not, why?	4	22	2		
Have you received the transformation schedule for your agency?	26	0	2		
If yes: Are the timelines reasonable?	15	8	2	3	
What worked well for your agency during the transition?	 Twelve agencies complimented their Service Delivery Manager (SDM). They commented that the SDMs work whard and long hours to resolve issues and that the agence rely on their SDMs' expertise in working with IBM. 		SDMs work very at the agencies		
			ff transitioned wel ng relationship afte		
What did not work well for your agency during the transition?	 Twenty-six agencies stated that IBM underestimated the effort required for transition and transformation. Agence expressed concerns about one or more of the following issues regarding IBM support: 			ation. Agencies	
		• IBM staff lack the proper skills to support agency systems. Agencies excluded the SDMs from this concern.			
	Communication is poor between IBM and the agencies.				
	 IBM lacks adequate staff to support agency systems. 				
	 IBM produces poor quality deliverables and does not meet delivery dates. 				
 The "Remedy" tool IBM provided to the have adequate functionality. 		agencies does not			
	contract a overhead spending s to stay on Seven of t of IBM sta	is a problem. T and training. A significant amou- top of issues ar he 21 agencies ff by agency per	ed ongoing costs as hese costs include gencies indicated ints of time monito nd keep their syste stated that trainin rsonnel was increa outsourcing. Agen	administrative that they are pring IBM, trying ms functioning. g and re-training sing agency	

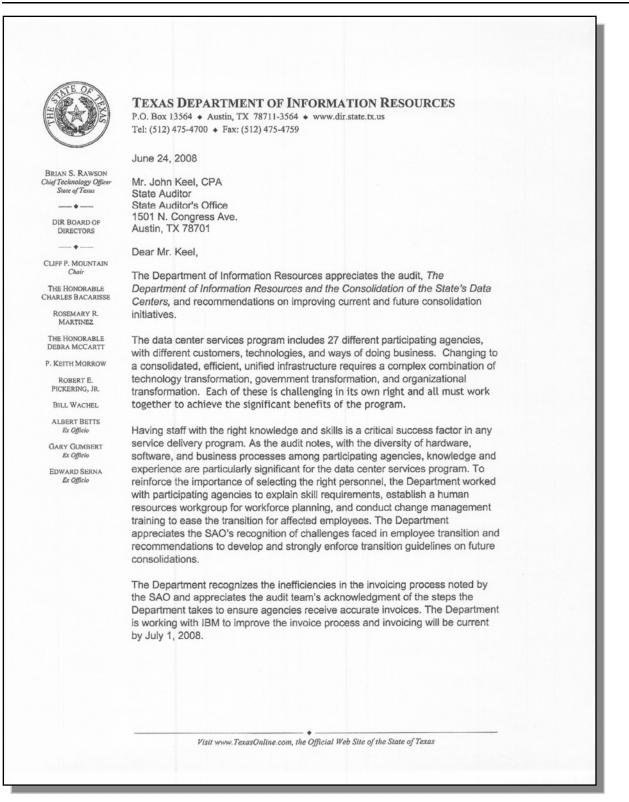
Table 3

An Audit Report on the Department of Information Resources and the Consolidation of the State's Data Centers SAO Report No. 08-038 June 2008

Page 25

Survey of IT Directors Affected by the Data Center Consolidation Project				
Survey Question	Yes	No	Not Applicable	Do Not Know
	the training expense to IBM's practice of not overlapping staff who work on a given agency's systems. These agencie indicated that turnover at IBM put them in the position of having to retrain new IBM staff. Four agencies indicated they had to provide documentation to IBM multiple times because it is not shared among IBM employees.			These agencies he position of ies indicated hultiple times
	 Sixteen agencies cited the procurement process as lengthy and tedious. One agency stated that the purchase of memory sticks took several months. These sixteen agencies communicated that the procurement process is causing them to delay or slow projects. In addition, these agencies stated that IBM was slow to renew software maintenance support and several agencies lost maintenance support until IBM completed the renewal. 			
Other agency comments	• Five agencies were concerned about the additional high cost of network connectivity between the agency and the data centers. Those agencies believed that connectivity to the data centers is not part of the data center contract and will be an additional cost.			

Appendix 3 Overall Management Response from the Department of Information Resources



An Audit Report on the Department of Information Resources and the Consolidation of the State's Data Centers SAO Report No. 08-038 June 2008 Page 27 Lessons learned from the data center services program will benefit the state as future consolidations are considered and implemented. Sharing resources, leveraging the size of Texas government, and driving for consistency all bring value to the state. The Department is committed to achieving the maximum benefit for Texas citizens and will seek to work with leadership to clarify enterprise responsibilities and strengthen enforcement on future programs.

Sincerely,

S. Rawson 6la

Brian S. Rawson Chief Technology Officer

Copies of this report have been distributed to the following:

Legislative Audit Committee

The Honorable David Dewhurst, Lieutenant Governor, Joint Chair The Honorable Tom Craddick, Speaker of the House, Joint Chair The Honorable Steve Ogden, Senate Finance Committee The Honorable Thomas "Tommy" Williams, Member, Texas Senate The Honorable Warren Chisum, House Appropriations Committee The Honorable Jim Keffer, House Ways and Means Committee

Office of the Governor

The Honorable Rick Perry, Governor

Department of Information Resources

Members of the Department of Information Resources Board Mr. Cliff Mountain, Chair The Honorable Charles Bacarisse Mr. Albert Betts Mr. Gary Gumbert Ms. Rosemary R. Martinez The Honorable Debra McCartt Mr. P. Keith Morrow Mr. Robert E. Pickering, Jr. Mr. Edward Serna Mr. William Wachel
Mr. Brian S. Rawson, Chief Technology Officer



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