State Auditor's Office

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An Audit Report on

Selected Information Technology Projects at the Texas Medical Board, the Texas Alcoholic Beverage Commission, and the Texas Water Development Board

July 2010
Report No. 10-034

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Overall Conclusion

Information technology systems audited at three agencies—the Texas Medical Board (TMB), the Texas Alcoholic Beverage Commission (TABC), and the Texas Water Development Board (TWDB)—were designed and implemented to ensure the completeness, accuracy, and security of system data.

To develop these systems, the agencies used system development methodologies that helped to ensure system functionality and usability. Each of the agencies used either (1) the Department of Information Resources' (DIR) project delivery framework or (2) a similar project delivery framework that contained a majority of the elements of DIR's project delivery framework to document their project implementation plans, as required by the Texas Administrative Code. The agencies also encouraged end user participation during the system development process.

The systems audited will assist the agencies in reporting information and will provide necessary functionality. For example, TMB's Licensing Inquiry System of Texas (LIST) enables applicants to check the status of applications and to communicate with TMB staff online. TABC's Cash /Credit Law (CCL) system allows wholesalers to enter delinquent payment information online in real time. TWDB's Texas Water Information System Expansion (TxWISE) will allow TWDB to merge multiple systems and improve reporting.

However, opportunities exist for the agencies to ensure that system data is complete, accurate, and secure; that the systems are functional and usable; that all costs associated with the project are captured; that policies and procedures are documented; and that all system testing is documented. Specifically, agencies should:

➢ Review user access to systems to determine the appropriateness of access rights.

Agencies and Systems Audited

- **The Texas Medical Board's Licensing Inquiry System of Texas (LIST),** an interactive Web site that allows licensure agents and applicants to check on the status of license applications and communicate with TMB staff on the status of the applications. According to the project report, LIST was implemented in May 2008.

- **The Texas Alcoholic Beverage Commission's Cash /Credit Law (CCL)** system, which allows liquor wholesalers and their employees to enter data on bad checks and delinquent payments. According to agency management, CCL was implemented on September 25, 2009, and the system began issuing notices of nonpayment to wholesalers in February 2010.

- **The Texas Water Development Board's Texas Water Information System Expansion (TxWISE),** a comprehensive loan, grant, and contract system for state-funded loan activities. A contractor is responsible for completing phase 1 and phase 2 of the project. According to management and the contractor, phase 1 was implemented in November 2009.

➢ Review and reconcile data migrated from old systems to new systems to ensure the accuracy of the data.

➢ Implement edit checks on key system fields to assist users with data entry and help to ensure data integrity.

➢ Capture and report all costs associated with information technology projects.

➢ Develop, update, approve, and retain system-related policies and procedures and system test plans and test results.

Auditors also identified other less significant issues that were communicated separately in writing to agency management.

Summary of Management's Response

The audited agencies agreed with the recommendations in this report.

Summary of Objective, Scope, and Methodology

The objective of the audit was to determine whether selected information technology projects were designed and implemented to ensure the completeness, accuracy, and security of the data and to provide functionality and usability of the systems and data for agencies and stakeholders.

The scope of this audit covered a review of non-major information technology projects (projects with a total cost of less than $1,000,000) that the agencies reported were designed and implemented between September 2006 and March 2010.

The audit methodology included reviewing system design and development documents, collecting systems data and documentation, reviewing systems policies and procedures, conducting interviews with the audited agencies' management and staff, testing the accuracy and completeness of system data, and evaluating the system functionality and results of testing to ensure system usability and functionality.

Contents

Detailed Results

The Agencies Used Appropriate System Development Methodologies to Develop Systems

The Texas Medical Board (TMB), the Texas Alcoholic Beverage Commission (TABC), and the Texas Water Development Board (TWDB) followed system development methodologies to help ensure proper design and implementation of the systems audited. Those systems included:

- TMB's Licensing Inquiry System of Texas (LIST), an interactive Web site that allows licensure agents and applicants to check on the status of licensure applications and communicate with TMB staff on the status of the applications.

- TABC's Cash /Credit Law (CCL) system, which allows liquor wholesalers and their employees to enter data on bad checks and delinquent payments.

- TWDB's Texas Water Information System Expansion (TxWISE), a comprehensive loan, grant, and contract system for state-funded loan activities.

The system development methodologies the agencies used included project descriptions, goals and objectives, constraints, project oversight, end user acceptance, project milestones, and testing of the completed system.

Agencies are required to use the Department of Information Resources' (DIR) project delivery framework as their development methodology if the total cost of a project exceeds $1,000,000 (see Appendix 2 for additional details on that framework). However, agencies are not required to use the DIR framework if total project costs are less than $1,000,000, but they must use a framework that meets the standards in Title 1, Texas Administrative Code, Chapter 216. The three systems audited each had total project costs that were less than $1,000,000. Although they were not required to use DIR's project delivery framework, both TMB and TABC voluntarily used that framework. TWDB used a system development methodology that contained the essential elements of DIR's project delivery framework, as required by Title 1, Texas Administrative Code, Section 216.11 (see text box for additional details).

Excerpts from Texas Administrative Code Requirements for Managing Information Technology Projects

Agencies' project management practices should:

(1) Include a method for delivery of information resources projects that solve business problems.

(2) Include a method for governing application of project management practices.

(3) Be documented, repeatable, and include a single reference source.

(4) Include a project classification method developed by the Department of Information Resources, the agency, or another source.

(5) Include a method to periodically review, assess, monitor, and measure the impact of project management practices on the agency's ability to achieve its core mission.

(6) Align with the Texas Project Delivery Framework.

(7) Accommodate use of other practices and methods that intersect with application of project management practices.

(8) Be reviewed and updated at least annually to help ensure continuous process improvement.

Source: Title 1, Texas Administrative Code, Section 216.11.

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The use of system development methodologies assisted the agencies in clearly defining the goals and objectives for the projects, identifying necessary project resources, estimating project costs, determining milestone dates, and documenting the testing to be performed to ensure that the systems functioned as needed. This assisted the agencies in developing systems that (1) were designed and implemented to provide assurance that the systems contained complete, accurate, and secure data and (2) were useable and functional for the agencies and stakeholders. System development methodologies assist agencies in planning and managing their information technology projects. When used appropriately, those methodologies can assist agencies in minimizing the risk of developing systems that do not provide intended system functionality.

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The Agencies Should Improve Certain Aspects of Their System Development

Although TMB, TABC, and TWDB used system development methodologies to help ensure proper design and implementation of the systems audited, each agency should improve certain aspects of their system development process for future development projects. These changes should improve the completeness, accuracy, and security of data and should help ensure that developed systems provide needed functionality and usability of systems and data for the agencies and stakeholders.

TWDB should complete reconciliation of key data migrated to TxWISE to verify proper data migration.

TWDB did not reconcile all key data migrated from other systems to TxWISE to ensure that all data was properly migrated. As a result, auditors identified data that TWDB did not properly migrate from other systems to TxWISE. Specifically:

- Auditors reviewed data for 10 key data fields on 30 project records migrated from TWDB's legacy system, the Facility Needs Management Information System (FNMIS), to TxWISE. For all 30 project records tested, TWDB migrated 8 of 10 data fields correctly. However, for 8 (27 percent) of the 30 project records tested, TWDB did not properly migrate the "commitment amount" (the amount of the approved loan or grant) from the legacy system to TxWISE. The commitment amounts for these 8 project records in TxWISE were double the amounts in the legacy system, resulting in a total overstatement of $89,404,210. This could lead TWDB to make decisions based on inaccurate data. Additionally, the funding program field was not properly migrated from FNMIS to TxWISE in one of 30 projects tested. User specifications in the contract for the development of TxWISE require TWDB to further test migrated data and modify or supplement the data as necessary to ensure proper data migration.

- Auditors compared project records in the tables in TxWISE, and identified 20 instances in 3,692 records in which data was inconsistent between tables. According to TWDB management, 3 of these instances occurred because TWDB did not properly migrate project records from the legacy system and 17 of these instances occurred because an automated routine to delete data did not appropriately update TxWISE tables. TWDB confirmed these errors and intends to correct them in a new release of TxWISE. User specifications in the contract for the development of TxWISE state that the TxWISE contractor will organize existing data and convert that data into table structures.

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- Auditors performed data analysis on 6 key data fields in TxWISE for 5,345 project records. Three of the 6 fields were fully populated for all project records. However, 173 (3 percent) of the 5,345 records did not have data in the "project commitment code" because that data was incomplete in the legacy system. The commitment code was identified as a key field that must be complete in order to access project commitment information.

The agencies should include internal staff salaries and benefit costs related to development of the projects when they report project costs to the Legislative Budget Board.

TWDB, TMB, and TABC did not include all internal staff costs in the total project costs that they reported to the Legislative Budget Board. The Legislative Budget Board requires agencies to report all direct costs and project life-cycle costs associated with a project. These project costs include all information resource (IR) internal staff costs (including both salaries and benefits) and IR procurements (whether purchased, rented, leased, leased for purchase, or licensed) for all hardware, software, and services, regardless of the source of funding or method of procurement.

Table 1 provides specific details on project costs that the agencies did and did not report.

Table 1

Information Technology Project Costs The Agencies Did and Did Not Report				
Agency	Project Cost Reported to the Legislative Budget Board	Estimated Cost of Internal Staff Salaries (including benefits) [a]	Total Project Cost	Cost Not Reported to the Legislative Budget Board
TMB	$ 59,364 [b]	$ 26,411	$ 85,775	$ 26,411
TWDB	$226,674 [c] (contract amount increased to $249,934)	$709,198	$ 959,132	$ 732,458
TABC	$ 9,975 [b]	$ 82,138	$ 92,113	$ 82,138

[a] Auditors calculated the amounts and agency verified the amounts.

[b] Amount is from agency project report.

[c] Amount is from the Legislative Budget Board's state contract database.

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TMB and TABC should cease programming user permissions directly into systems.

TMB and TABC programmed detailed permissions for user roles directly into the program code of the systems audited. (Each agency programmed the permissions for seven levels of access in each system.) This practice increases the difficulty associated with changing, adding, updating, or reporting on those permissions.

TWDB should ensure that its system development policies and procedures are current, and TMB should establish system development and change management policies and procedures.

TABC and TWDB have formal and approved agency-wide system development policies that appear adequate to provide guidance to personnel who are developing and/or implementing an information system. However, TWDB's agency-wide system development policies were not current. Having up-to-date system development policies helps to ensure that systems will be developed in accordance with methodologies the agency has determined are the best for its operations. For example, TWDB's system development policy was not reviewed and approved during the last year. Title 1, Texas Administrative Code, Section 216.11, requires agencies to review their project management practices annually to ensure continuous process improvement.

TMB did not have formal, agency-wide system development policies and procedures that were approved by management. Having formal policies that are approved by management helps to ensure that staff develops systems in accordance with management's requirements.

TMB did not have formal change management policies and procedures to ensure that all system changes are formally approved, properly controlled, and made in accordance with TMB guidelines. For example, the LIST system was programmed by the same individual who placed the program code for LIST into the production environment. This represents a weakness in segregation of duties and is not a best practice for system development. Title 1, Texas Administrative Code, Section 202.25, requires system changes to be approved through a change management process to ensure that information resources are protected against improper modification before, during, and after system implementation.

Recommendations

TWDB should reconcile all key data fields and tables migrated to TxWISE to ensure that all data in TxWISE is complete and accurate.

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TMB, TABC, and TWDB should include all costs associated with their information technology projects, including the cost of internal staff salaries and benefits, when reporting project costs to the Legislative Budget Board.

TMB and TABC should cease programming user permissions directly into their systems.

TWDB should update its system development policies and procedures to ensure that they are current and applicable.

TMB should develop formal system development policies and procedures that are approved by management.

TMB should develop and implement formal system change management policies and procedures.

Management's Response from TMB

Recommendation 1:

TMB should include all costs associated with their information technology projects, including the cost of internal staff salaries and benefits, when reporting project costs to the LBB.

Management Response:

TMB will implement the recommendation for reporting project costs to the LBB. In the case of the LIST project, the project's initial costs submitted to LBB included hours estimated for contract consulting, development, and database analysis which were all to be performed by a consulting firm. However, due to performance issues with the selected contractor, and after filling the appropriate FTE vacancies within the TMB's Information Technology Department, the project was brought in-house. Consequently, the final project costs differed from the initial estimates.

Recommendation 2:

TMB should cease programming user permissions directly into their systems.

Management Response:

TMB will implement the recommendation and will modify the LIST application accordingly. The recommendation will also be incorporated for future projects.

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Recommendation 3:

TMB should develop formal system development policies and procedures that are approved by management.

Management Response:

TMB has implemented the recommendation. The TMB Executive Director approved system development policies and procedures on 6/1/2010. Please see the attached document, Information Security Standards and Policies, Section 8(5). [State Auditor' Office Note: The standards and policies document is not included in this audit report.]

Recommendation 4:

TMB should develop and implement formal system change management policies and procedures.

Management Response:

TMB has implemented the recommendation. TMB Executive Director approved formal change management policies and procedures on 6/1/2010. Please see the attached document, Information Security Standards and Policies, Section 8(E). [State Auditor' Office Note: The standards and policies document is not included in this audit report.]

Management's Response from TABC

Recommendation

TABC should include all costs associated with their information technology projects, including the cost of internal staff salaries and benefits, when reporting projects costs to the Legislative Budget Board.

Management's Response

TABC agrees with the recommendations and will include internal staff salaries and benefit costs related to development of future projects when we report project costs to the Legislative Budget Board. The agency will include the Cash/ Credit Law project costs in the Information Technology Detail plan which will be submitted to the LBB on August, 16th, 2010.

Estimated completion date: Ongoing

Title of responsible person: Director of Information Resources

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Recommendation

TABC should cease programming user permissions directly into their systems.

Management's Response

TABC agrees with the recommendation to change the programming methods for handling user role based permissions within the application systems. The Cash/ Credit Law system will be re-programmed to properly handle the use of role based permissions. The agency also plans to implement a procedure for the handling of user role based permissions in future application development projects.

Estimated completion date: October 31, 2010

Title of responsible person: Director of Information Resources.

Management's Response from TWDB

Recommendations

1.)"TWDB should reconcile all key data fields and tables migrated to TxWISE to ensure that all data in TxWISE is complete and accurate."

The TWDB agrees with this recommendation. The TxWISE Business Team is and has been actively engaged in ensuring all data in TxWISE is complete and accurate. The TWDB was actually aware of the "double commitment amount" issue before the audit. It is important to note that the audit was conducted during, rather than after, the migration. Business processes and data management practices were still subject to review and revision.

2.)"TWDB should include all costs associated with their information technology projects, including the cost of internal staff salaries and benefits, when reporting projects costs to the Legislative Budget Board. "

The TWDB agrees with this recommendation and will include all costs in the project estimate, including internal staff salaries and benefits.   This will be added to the new TWDB project delivery procedure.

3.)TWDB should update its system development policies and procedures to ensure that they are current and applicable.

System development policies and procedures are included in the new TWDB project delivery procedure. This procedure will be reviewed annually.

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Application Controls

Application controls are those process controls that are incorporated directly into computer applications to help ensure the validity, completeness, accuracy, and confidentiality of transactions and data during application processing.

Source: Section 7.23, *Government Auditing Standards (*Washington, DC: United States Government Accountability Office, July 2007).

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Microsoft Best Practices for Passwords

Microsoft's best practices for passwords include:

- **Enforcement of password history policy** setting so that several previous passwords are remembered.

- **Maximum password age** policy setting so that passwords expire as often as necessary…typically, every 30 to 90 days.

- **Minimum password age** policy setting so that passwords cannot be changed until they are more than a certain number of days old.

- **Minimum password length** policy setting so that passwords must consist of at least a specified number of characters. Long passwords--seven or more characters-- are usually stronger than short ones.

- A **password complexity** setting. This setting checks all new passwords to ensure that they meet basic strong password requirements, including three of the four complexity categories: English uppercase characters, English lowercase characters, case 10 digits, and non-alphabetic characters.

Source: Microsoft best practices at http://technet.microsoft.com/en-us/library/cc784090(WS.10).aspx

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Overall, the application controls in place for the systems audited were adequate; however, auditors identified certain areas in which the agencies should improve application controls during future system development projects (see text box for more information on application controls). These changes should improve the completeness, accuracy, and security of data and should help ensure that developed systems provide needed functionality and usability of systems and data for the agencies and stakeholders.

TABC should strengthen password requirements.

Password requirements for TABC's CCL system did not meet industry recognized best practices as required by Title 1, Texas Administrative Code, Chapter 202 (see text box for additional details on industry best practices for passwords). Auditors communicated the specific details on password complexity requirements to TABC management in writing. Passwords that do not meet industry best practice standards may result in individuals gaining unauthorized access to the system.

TABC, TMB, and TWDB should improve reviews of user access to systems.

TABC and TMB did not regularly review user access to ensure that only approved users have appropriate access to systems. In addition, TABC, TMB, and TWDB did not regularly review users' access rights to ensure that those rights were appropriate for users' job functions, as required by Title 1, Texas Administrative Code, Chapter 202. This could result in individuals gaining inappropriate access to systems or having more access than is necessary for their job functions.

TWDB and TMB should strengthen system edit checks.

The systems audited at all three agencies contained edit checks to help ensure data integrity. However, TWDB and TMB should strengthen edit checks over key fields to ensure that required data is entered, appropriate, and formatted correctly. Specifically, TWDB's TxWISE system did not have edit checks to prevent the entry of future dates in decision date fields. The TMB's LIST system did not have edit checks to ensure that data entered into fields such as dates, addresses, and zip codes were reasonable.

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TMB and TWDB should retain user testing documentation.

TMB and TWDB did not retain formal user testing documentation for the systems audited at those agencies. Both agencies were able to provide evidence showing that end user testing was planned or performed, but they did not document and maintain documentation showing the actual results of that testing. TABC provided its user testing documentation, which enabled auditors to verify that this testing was performed and that corrections were made to address the issues identified during testing. Retaining the system testing documentation provides management with evidence that key issues identified during testing were adequately resolved prior to system implementation.

TWDB should ensure that its staff can perform system maintenance.

TWDB does not have staff with sufficient knowledge to perform necessary maintenance on TxWISE. The system contractor performs the maintenance, but TWDB's maintenance agreement with the contractor expires in October 2010. Without staff that has the skills to maintain TxWISE, TWDB could not maintain TxWISE after its maintenance agreement with the contractor expires. The other agencies audited developed their systems internally, which helps to ensure that their staff has the necessary skills and knowledge to maintain the systems audited at those agencies.

Recommendations

TABC should strengthen its password requirements to meet industry best practices.

TABC, TMB, and TWDB should ensure that approved system users have access rights that are appropriate for their job responsibilities.

TMB and TWDB should ensure that their systems contain appropriate edit checks for key fields.

TMB and TWDB should complete and maintain proper documentation of user testing results for systems implemented in the future.

TWDB should ensure that it has staff with the skills, training, and knowledge necessary to perform system maintenance on TxWISE.

Management's Response from TMB

Recommendation 1:

TMB should ensure that approved system users have access rights that are appropriate for their job responsibilities.

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Management Response:

TMB will implement the recommendation and begin a quarterly review of user access privileges and access rights for agency systems.

Recommendation 2:

TMB should ensure that their systems contain appropriate edit checks for key fields.

Management Response:

TMB will implement the recommendation for the LIST application and as resources permit, other agency applications will be reviewed and any necessary improvements made.

Recommendation 3:

TMB should complete and maintain proper documentation of user testing results for systems implemented in the future.

Management Response:

The TMB will implement the recommendation for future systems.

Management's Response from TABC

Recommendation

TABC should strengthen its password requirements to meet industry best practices.

Management's Response

TABC agrees with the recommendation to strengthen its password requirements for the Cash/Credit Law application and has implemented a change to the application. For future developed systems, the agency will ensure that it follows industry best practices for password requirements.

Estimated completion date: Implemented

Title of responsible person: Director of Information Resources

Recommendation

TABC should ensure that approved system users have access rights that are appropriate for their job responsibilities.

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Management's Response

TABC agrees with the recommendation and plans to improve the reviews of user access to our application systems. In addition, the following processes will be implemented for the Cash/Credit Law system:

   o   *Develop ad hoc scripts that will be used to create a report of active external users with no active license.*

   o   *Develop a process to inactivate accounts that are not tied to active licenses.*

   o   *Develop a report to show login accounts that are not linked to an active license and to show accounts that have not recently accessed the system.*

Estimated completion date: Ongoing

Title of responsible person. Director of Information Resources

Management's Response from TWDB

Recommendations

1.)"TWDB should ensure that approved system users have access rights that are appropriate for their job responsibilities. "

Management Response

The TWDB agrees with this recommendation. Although IT performs a quarterly review of employees and associated system access, the TWDB will implement a policy to add management review of staff system access for appropriateness.

2.)"TWDB should ensure that their systems contain appropriate edit checks for key fields. "

Management Response

Information Technology (IT) will work with the TxWISE Business Team to determine fields to be strengthened. IT will then work with Northbridge in adding the strengthened edit checks.

3.)   "TWDB should complete and maintain proper documentation of user testing results for systems implemented in the future. "

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Management Response

The TWDB concurs with the recommendation. This will be addressed in the new TWDB project delivery procedure. The test plan and test scripts for a project are included in this procedure.

4.)"TWDB should ensure that it has staff with the skills, training, and knowledge necessary to perform system maintenance on TxWISE. "

Management Response

Northbridge Consulting delivered a loan and grant tracking product to Texas much like they have delivered to many other states. The TWDB is in the process of establishing a maintenance and support agreement with Northbridge consulting for the TxWISE application. This agreement would commence on 11/1/10 and will extend to 10/31/11; the agreement will be renewed annually as appropriate. The Database Administrators in IT at the TWDB can provide support regarding the TxWISE database; Northbridge will be contacted to apply any modifications to the TxWISE application. In the event that Northbridge, as an organization, is no longer available to provide support to the TWDB for any reason, the TWDB IT department would acquire and/or grow the necessary skillset in Visual Basic for MS Access.

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> **General Controls**
>
> General controls help ensure the proper operation of information systems by creating the environment for proper operation of application controls. General controls include security management, logical and physical access, configuration management, segregation of duties, and contingency planning.
>
> Source: Section 7.23, *Government Auditing Standards (*Washington, DC: United States Government Accountability Office, July 2007).

Overall general controls for each of the systems audited were adequate; however, auditors identified some areas where controls should be improved during future system development projects (see text box for more information about general controls). These changes should improve the completeness, accuracy, and security of data and should help ensure that developed systems provide needed functionality and usability of systems and data for the agencies and stakeholders.

TABC and TWDB should strengthen controls over administrative access.

Two TABC employees and multiple Team for Texas (contracted operator for the state data center)[1] employees shared a database administrator account for the CCL system. Sharing the same account does not provide a clear audit trail to record what individual users have done in the system, which could lead to unauthorized changes. Title 1, Texas Administrative Code, Chapter 202, requires state agencies to have user accountability for access to systems.

TABC and TWDB had a large number of individuals with administrative access rights to their systems. Administrative access rights provide significant functionality to users, which increase the risk of unauthorized system changes. Administrative access should be limited to individuals who have a specific business need for that level of access. Title 1, Texas Administrative Code, Section 202.25, requires agencies to manage access to information systems to ensure that authorized use and access is appropriately modified or removed when users' job responsibilities change.

TMB should ensure that network passwords meet industry best practices.

Network logon password requirements at TMB did not meet recognized industry best practices, as required by Title 1, Texas Administrative Code, Chapter 202. This could result in individuals gaining unauthorized access to the TMB systems. Because of security risks associated with this issue, auditors communicated specific details regarding this issue to TMB management in writing.

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[1] Under Texas Government Code, Chapter 2054, the Department of Information Resources outsourced data center operations for more than two dozen agencies to IBM. IBM, acting as the general contractor, then created a group of contractors that is referred to as Team for Texas (see *An Audit Report on the Department of Information Resources and the Consolidation of the State's Data Centers*, State Auditor's Office Report No. 08-038, June 2008, for additional details).

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TMB should limit physical access to hardware.

The three agencies' physical security over hardware was generally adequate. However, 11 (7 percent) of 149 TMB employees could access TMB's server room, which contains all of its hardware. Access to hardware should be limited to individuals who have a specific business need to access that hardware. Title 1, Texas Administrative Code, Section 202.23, requires agencies to manage physical access to mission-critical information resource facilities to ensure the protection of information resources from unlawful or unauthorized access, use, modification, or destruction.

TMB should develop a disaster recovery plan, and TWDB should test its disaster recovery plan annually.

TMB did not have a disaster recovery plan. TWDB did not test its disaster recovery plan during the last year as required by Title 1, Texas Administrative Code, Section 202.24. Disaster recovery plans are essential to ensuring that agencies can restore normal operations within a reasonable timeframe following a disaster. These plans need to be tested regularly to ensure that they are current and to help identify any necessary changes or updates to the plans.

TMB and TWDB should strengthen controls over their business continuity plans.

TMB had not updated its business continuity plan since 1999. TWDB has a draft of its business continuity plan that has been reviewed and updated, but that plan has not been formally approved. Neither TMB nor TWDB had tested its business continuity plan, as required by Title 1, Texas Administrative Code, Chapter 202. Business continuity plans help to ensure that agencies have documented processes for re-establishing business operations following a catastrophic event.

TMB should implement recommendations from the Department of Information Resources' system penetration test.

The Department of Information Resources performed a system penetration test of TMB's network in January 2010. That test identified multiple issues in TMB's network and provided recommendations on how to improve network security. As of the time of the State Auditor's Office audit, TMB had not fully implemented the Department of Information Resources' recommendations. Implementing those recommendations will assist TMB in securing its computing environment and help to prevent unauthorized access to computing resources.

Recommendations

TABC should not allow users to share a user account and should establish individual user accounts.

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TABC and TWDB should ensure that only appropriate staff has administrative access to their systems.

TMB should ensure that the network logon password requirements meet industry best practice standards.

TMB should restrict physical access to servers to individuals with a business need for that access.

TMB should develop a formal disaster recovery plan, and TMB and TWDB should test their disaster recovery plans annually.

TMB should update its business continuity plan and TWDB should obtain formal approval of its business continuity plan. Both agencies should test their business continuity plans annually.

TMB should fully implement the Department of Information Resources' system penetration test recommendations.

Management's Response from TMB

Recommendation 1:

TMB should ensure that the network logon password requirements meet industry best practice standards.

Management Response:

TMB has implemented the recommendation. Based on TAC 202, and implementing Microsoft best practice standards on passwords, the TMB has fully implemented a password policy, approved by the Executive Director on 6/21/10. Please see the attached document, Information Security Standards and Policies, Section 8(L). [State Auditor' Office Note: The standards and policies document is not included in this audit report.]

Recommendation 2:

TMB should restrict physical access to servers to individuals with a business need for that access.

Management Response:

TMB has implemented the recommendation and has minimized security risks by reducing the access to the data center by half.

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Recommendation 3:

TMB should develop a formal disaster recovery plan and test the plan annually.

Management Response:

TMB will implement the recommendation. In conjunction with the development of the revised Business Continuity Plan, the agency will develop a formal disaster recovery plan to meet the requirements of TAC Rule Sec. 202.24(a)(4).

Recommendation 4:

TMB should update its business continuity plan and should obtain formal approval of its plan. TMB should test the plan annually.

Management Response:

TMB will implement the recommendation and is in the process of updating the original Business Continuity Plan. TMB has recently looked for further guidance and information from both the State Office of Risk Management (SORM) and the Texas Facilities Commission (TFC). The 80th Legislature passed SB 908 which incorporates a Sunset recommendation that requires SORM to assist each state agency to develop an agency-level business continuity plan, and to make available to each agency guidelines and models for a plan as well as assistance with implementation. Though SORM provides very general information about business continuity planning on its website, TMB has not found a template or guide to use in the planning process. TFC has not been able to advise the agency on alternate sites to use as business continuity facilities in the event of a disaster or emergency.

Recommendation 5:

TMB should fully implement the DIR's system penetration test recommendations.

Management Response:

TMB is currently in the process of reviewing and implementing DIR's system penetration test recommendations.

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Management's Response from TABC

Recommendation

TABC should not allow users to share a user account and should establish individual user accounts.

Management's Response

TABC agrees with the recommendation to strengthen controls over administrative access to its systems. TABC agrees to maintain a separate database administrator account from Team for Texas and has initiated the formal request to Team for Texas for the change.

Estimated completion date: TBD. Request submitted to Team for Texas.

Title of responsible person: Director of Information Resources

Recommendation

TABC should ensure that only appropriate staff has administrative access to their systems.

Management's Response

TABC agrees with the recommendation to ensure that only appropriate staff has administrative access to their systems. The agency plans to implement a process for reviewing administrative access for all systems on a regular basis. The agency has completed a review of the Cash/Credit Law system and reduced the number of staff with administrative access to the appropriate number.

Estimated completion date: Ongoing

Title of responsible person: Director of Information Resources

Management's Response from TWDB

Recommendations

1.)"TWDB should ensure that only appropriate staff has administrative access to their systems. "

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Management Response

The TWDB concurs with this recommendation and has already taken action. The "system administrator" role in TxWISE now only includes four resources: two business resources and two DBAs in IT.

2.)"TWDB should test their disaster recovery plans annually. "

Management Response

The TWDB concurs with this recommendation and while the Agency did review and test the Disaster Recovery plan in 2009, formal completion of the test was not documented. For FY10 and each year thereafter, the TWDB will test the Disaster Recovery plan and formal completion of the test will be documented and appropriate signatures will be acquired.

3.)" TWDB should obtain formal approval of its business continuity plan. Both agencies should test their business continuity plans annually. "

Management Response

The TWDB concurs with this recommendation and while the Agency did review and test the Business Continuity plan in 2009, formal completion of the test was not documented. For FY10 and each year thereafter, the TWDB will test the Business Continuity plan and formal completion of the test will be documented and appropriate signatures will be acquired.

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Appendices

Objective, Scope, and Methodology

Objective

The objective of this audit was to determine whether selected information technology projects were designed and implemented to ensure:

- The completeness, accuracy, and security of data.

- Functionality and usability of the systems and data for agencies and stakeholders.

Scope

The scope of this audit covered a review of non-major information technology projects (projects with a total project cost of less than $1,000,000) that the agencies reported were designed and implemented between September 2006 and March 2010.

The projects chosen for audit included:

- The Texas Medical Board's (TMB) Licensing Inquiry System of Texas (LIST).

- The Texas Alcoholic Beverage Commission's (TABC) Cash /Credit Law (CCL) system.

- The Texas Water Development Board's (TWDB) Texas Water Information System Expansion (TxWISE). The TxWISE project will be implemented in three phases. At the time of this audit, phase 1 was the only phase fully implemented; therefore, auditors focused work on that phase. Phase 1 was reported as implemented in November 2009, and phase 2 is not scheduled to be fully implemented until October 31, 2010.

Methodology

The audit methodology included reviewing system design and development documents, collecting systems data and documentation, reviewing systems policies and procedures, conducting interviews with the audited agencies' management and staff, testing the accuracy and completeness of system data, and evaluating the system functionality and results of end user testing to ensure system usability and functionality.

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Information collected and reviewed included the following:

- System data and source documentation.

- System development methodologies.

- System end user testing results.

- System user complaint logs and change requests.

- Project costs.

- System user access lists and access reviews.

- Lists of current agency employees and job titles.

- System security and change control policies and procedures.

- System logical and physical access.

- Agencies' business continuity/disaster recovery plans.

- Department of Information Resources' penetration test results.

Procedures and tests conducted included the following:

- Reviewed project delivery methodologies.

- Reviewed agencies' system development, user access, change management, and information technology security policies and procedures.

- Analyzed and tested system data for accuracy and completeness, including data migration (this was applicable to TWDB only).

- Reviewed and tested user access rights to the systems to determine appropriateness.

- Verified each system's edit checks and audit log capabilities for key data fields.

- Tested each system's access protocols and physical security over information resources.

- Reviewed the implementation status of the Department of Information Resources' penetration test results.

- Verified that agencies performed stress testing and end user testing on systems.

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- Reviewed system logs for significant or reoccurring system performance or reporting issues.

- Reviewed disaster recovery/business continuity plans, and reviewed whether agencies tested those plans annually.

- Reviewed project costs and determined whether agencies included internal staff salaries and benefits within the total project costs they reported to the Legislative Budget Board.

- Reviewed system maintenance staff's knowledge, skills, and abilities.

Criteria used included the following:

- Title 1, Texas Administrative Code, Chapter 202 (Information Security Standards) and Chapter 216 (Project Management Practices).

- Texas Government Code, Chapter 2054 (Information Resources).

- Legislative Budget Board's instructions for the Automated Budget and Evaluation System of Texas.

- Department of Information Resources' project delivery framework instructions.

- Agencies' information technology and system development policies and procedures.

Project Information

Audit fieldwork was conducted from March 2010 through May 2010. 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 objectives.

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

- Michael O. Clayton, CPA, CISA, CIDA, CFE (Project Manager)

- Kelley Bellah, CFE (Assistant Project Manager)

- Scott Armstrong, CGAP

- Shelby Cherian, CISA

- Anton Dutchover

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- Kenneth Manke

- Tessa Mlynar

- Anthony Patrick, MBA

- Nik Rapelje

- Dennis Ray Bushnell, CPA (Quality Control Reviewer)

- Ralph McClendon, CCP, CISA, CISSP (Audit Manager)

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Below are the Department of Information Resources' instructions for its project delivery framework.

Section 1. Project Overview

The Project Overview section outlines the highlights of the project, defines the boundaries, and describes the critical success factors, assumptions, and constraints.

1.1 Problem Statement

Briefly describe the business problem the project would solve. State the business problem in simple terms, without describing how the problem will be addressed. Identify in a concise statement any related federal, state, statute, or rule mandates. Identify the stakeholders and customers.

1.2 Project Description

Describe the approach the project will use to address the business problem. Provide a general definition of the information and/or high-level requirements associated with the proposed business process or solution. The description should summarize key information, including how the project will deliver the expected business outcomes and performance objectives.

1.3 Project Goals and Objectives

Describe the business goals and objectives of the project. Refine the goals and objectives stated in the Business Case. Goals state what the desired end result is, and objectives state how the desired result will be achieved. A project's primary purpose is to meet business objectives. Business goals and objectives include such organizational improvements as decreased costs, errors, and reworks by a specific percentage; decreased processing or turnaround times by a specific percentage; reduced redundancy in systems and/or data within the agency; and greater flexibility in responding to stakeholder requests and services.

1.4 Project Scope

Describe the project scope. The scope defines the work that is required to deliver the products and/or services to meet the project objectives (how the project will be accomplished). The scope establishes the boundaries of the project and should describe products and/or services that are outside of the project scope.

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1.5 Critical Success Factors

Describe the factors or characteristics that are deemed critical to the success of the project. A critical success factor (CSF) should be understandable by all project stakeholders and should be focused on major concerns of the organization, such that, in their absence the project will fail. In other words, if not present, these factors directly affect the ability of the agency to meet the project's and/or the agency's performance objectives.

1.6 Assumptions

Provide a list of assumptions regarding the processes and/or services affected by the proposed project. For planning purposes, assumptions will be considered to be true, real, or certain. Specifically, include assumptions about the customers, technology, personnel, and staffing.

1.7 Constraints

Describe the limiting factors, or constraints, that restrict the project team's options regarding scope, staffing, scheduling, and management of the project.

Section 2. Project Authority and Milestones

2.1 Funding Authority

Identify the funding amount and source of authorization and method of finance (i.e., capital budget, rider authority, appropriated receipts) approved for the project.

2.2 Project Oversight Authority

Describe the management control over the project and the relationship of this structure to agency-wide information technology (IT) governance structures and processes. Describe external oversight bodies such as a governance structure, project management office, and/or vendor management office. This section should also identify policies that are used by the governing/oversight authority.

2.3 Major Project Milestones

Describe the major milestones of the project including the deliverables and dates that represent the completion of specific project work products and end-user products during project delivery. Completion of a milestone typically results in one or more deliverables whereby the processes and/or services will become functional. Deliverables are those results that provide well-defined functionality and tangible products. The list should reflect products and/or services delivered to the end user as well, as the delivery of key project management or other project-related work products. Examples of major project milestones include approval of the Project Charter and approval of the Project Plan.

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Section 3. Project Organization

3.1 Project Structure

Specify the organizational structure of the project team and stakeholders by providing a graphical depiction as shown in the example project organization chart. Include all roles as described in the Roles and Responsibilities section.

3.2 Roles and Responsibilities

Summarize roles and responsibilities for the project structure and external stakeholders as identified above, including subject matter experts (SMEs). Responsibilities should describe any key project checkpoints for which approval and authorization of work products or deliverables are required.

3.3 Project Facilities and Resources

Describe the project's requirements for facilities and resources, such as office space, special facilities, computer equipment, office equipment, and support tools. Identify responsibilities by role for provisioning the specific items needed to support the project's environment.

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