



MICHIGAN

OFFICE OF THE AUDITOR GENERAL

AUDIT REPORT



THOMAS H. MCTAVISH, C.P.A.
AUDITOR GENERAL

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– Article IV, Section 53 of the Michigan Constitution

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Michigan *Office of the Auditor General* **REPORT SUMMARY**

Performance Audit

Interface and Change Controls of the Bridges Integrated Automated Eligibility Determination System

Department of Human Services and Department of Technology, Management, and Budget

Report Number:
431-0591-12

Released:
May 2013

The Bridges Integrated Automated Eligibility Determination System (Bridges) is a social services computer system that processes client intake applications; registration; eligibility determination; and the issuance of cash assistance, medical assistance, food assistance, and child care assistance. In fiscal year 2010-11, benefit expenditures for the cash assistance, Medicaid and medical assistance, and Child Development and Care programs totaled \$11.9 billion or 39.9% of General Fund expenditures for the State of Michigan.

Audit Objective:

To assess the effectiveness of the Department of Human Services (DHS) and the Department of Technology, Management, and Budget's (DTMB's) efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces.

Audit Conclusion:

DHS and DTMB's efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces were not effective. We noted one material condition ([Finding 1](#)) and four reportable conditions (Findings 2 through 5).

Material Condition:

DHS and DTMB had not fully established effective processing controls over Bridges interfaces ([Finding 1](#)).

Reportable Conditions:

DTMB management did not utilize system-generated reports to effectively monitor Bridges processing ([Finding 2](#)).

DTMB had not fully established and documented formal procedures for Bridges operations, including interface scheduling and processing ([Finding 3](#)).

DTMB, in conjunction with DHS, did not maintain complete interface design documentation. In addition, DTMB, in conjunction with DHS, did not ensure that all interface design documentation was stored in the Bridges version control tool, ClearCase ([Finding 4](#)).

DHS had not established data-sharing agreements with all State agencies that exchanged information with Bridges ([Finding 5](#)).

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Audit Objective:

To assess the effectiveness of DHS and DTMB's efforts to implement change controls over the Bridges application and data.

Audit Conclusion:

DHS and DTMB's efforts to implement change controls over the Bridges application and data were moderately effective. We noted two material conditions (Findings 6 and 7) and two reportable conditions (Findings 8 and 9).

Material Conditions:

DTMB, in conjunction with DHS, did not always comply with the State Unified Information Technology Environment (SUITE), contract provisions, and change control best practices. In addition, DTMB, in conjunction with DHS, did not ensure that the Bridges maintenance and support contract and the Bridges project management and technical support contract accurately reflected the contractors' responsibilities for Bridges change controls (Finding 6).

DTMB had not established effective access controls over the Bridges version control tool, ClearCase, and the Bridges workflow tool, ClearQuest (Finding 7).

Reportable Conditions:

DTMB had not established an appropriate segregation of duties over Bridges (Finding 8).

DHS and DTMB had not updated the Bridges configuration management plan to include all information and processes required by the SUITE Systems Engineering Methodology (SEM) (Finding 9).

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Agency Response:

Our audit report contains 9 findings and 11 corresponding recommendations. DHS and DTMB's preliminary responses indicate that they agree with 6 recommendations and either have complied or will comply with them. DHS and DTMB partially agree with 5 recommendations.

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A copy of the full report can be obtained by calling 517.334.8050 or by visiting our Web site at: <http://audgen.michigan.gov>



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May 31, 2013

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Department of Technology, Management, and Budget
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and
Mr. David B. Behen, Chief Information Officer
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Dear Ms. Corrigan, Mr. Nixon, and Mr. Behen:

This is our report on the performance audit of Interface and Change Controls of the Bridges Integrated Automated Eligibility Determination System (Bridges), Department of Human Services and Department of Technology, Management, and Budget.

This report contains our report summary; description; audit objectives, scope, and methodology and agency responses; comments, findings, recommendations, and agency preliminary responses; a summary of information technology audits of Bridges, presented as supplemental information; and a glossary of acronyms and terms.

Our comments, findings, and recommendations are organized by audit objective. The agency preliminary responses were taken from the agencies' responses subsequent to our audit fieldwork. The *Michigan Compiled Laws* and administrative procedures require that the audited agencies develop a plan to comply with the audit recommendations and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agencies to take additional steps to finalize the plan.

We appreciate the courtesy and cooperation extended to us during this audit.

Sincerely,

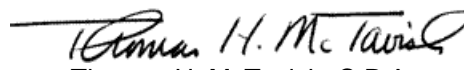

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Description

Bridges Integrated Automated Eligibility Determination System

The Bridges Integrated Automated Eligibility Determination System* (Bridges) is a social services computer system that processes client intake applications; registration; eligibility determination; and the issuance of cash assistance, medical assistance, food assistance, and child care assistance. Bridges determines eligibility and benefit amounts for 34 Department of Community Health (DCH) Medicaid and medical assistance programs, 10 Department of Human Services (DHS) public assistance programs, and 1 Michigan Department of Education (MDE) program. Through a memorandum of understanding and an interagency agreement, DHS determines eligibility for certain Medicaid and medical assistance programs for DCH; however, DCH administers the Medicaid program. Similarly, DHS determines eligibility for the Child Development and Care program for MDE. Executive Order No. 2011-08 transferred the administration of the Child Development and Care program from DHS to MDE.

In fiscal year 2010-11, benefit expenditures for the cash assistance, Medicaid and medical assistance, and Child Development and Care programs totaled \$11.9 billion or 39.9% of General Fund expenditures for the State of Michigan.

Interface Controls

Interface controls* ensure the timely, accurate, and complete processing of data exchanged between information systems. As of May 2012, Bridges had approximately 334 batch interfaces that exchanged data with other information systems. In addition, Bridges had approximately 24 real-time Web interfaces that interactively queried and retrieved information from other DHS and State agency information systems. Examples of interfaces include the exchange of social security numbers from the U.S. Social Security Administration and sex offenders registry data from the Michigan Department of State Police. The batch support team within Agency Services, Department of Technology, Management, and Budget (DTMB), has the primary responsibility for scheduling and monitoring batch processing, including interface processing. For third shift processing, the batch support team transfers the responsibility for monitoring batch processing to the Service Management and Monitoring Center within DTMB Data Center Operations.

** See glossary at end of report for definition.*

Change Controls

Change controls* provide assurance that all changes to information systems and data are properly authorized, tested, documented, and monitored. Changes to information systems and data are necessary to ensure that information systems continue to satisfy users' needs. For example, information systems are modified to implement new business requirements, improve performance, correct defects, and enhance security*.

DHS and DTMB are jointly responsible for the maintenance and operation of Bridges. DTMB, along with its vendor partners, Deloitte Consulting LLP (Deloitte) and Hewlett-Packard Company* (HP), provides information support services for Bridges, including operating system* configuration, application development and maintenance, database administration, production source code and data change controls, backup and recovery, system monitoring and tuning, and configuration management.

The Deloitte maintenance and support contract is effective from February 11, 2011 through February 10, 2015 and has an estimated value of \$61.2 million. The HP contract for project management and technical infrastructure support for Bridges and the Michigan Child Support Enforcement System is effective from November 1, 2009 through October 31, 2014 and has an estimated value of \$59.0 million.

** See glossary at end of report for definition.*

Audit Objectives, Scope, and Methodology and Agency Responses

Audit Objectives

Our performance audit* of Interface and Change Controls of the Bridges Integrated Automated Eligibility Determination System (Bridges), Department of Human Services (DHS) and Department of Technology, Management, and Budget (DTMB), had the following objectives:

1. To assess the effectiveness* of DHS and DTMB's efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces.
2. To assess the effectiveness of DHS and DTMB's efforts to implement change controls over the Bridges application and data.

Audit Scope

Our audit scope was to examine the information processing and other records related to interface and change controls over the Bridges Integrated Automated Eligibility Determination System. 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. Our audit procedures, conducted from November 2011 through December 2012, generally covered the period October 2010 through December 2012.

Audit Methodology

The criteria used in the audit included control techniques and suggested audit procedures from the U.S. Government Accountability Office's Federal Information System Controls Audit Manual control objectives and audit guidelines outlined in the Control Objectives for Information and Related Technology* (COBIT) issued by the IT Governance Institute and other information security and industry best practices.

* See glossary at end of report for definition.

We conducted a preliminary review to gain an understanding of selected federal programs administered through Bridges, Bridges technology and architecture, and Bridges functional areas and workflow. We also reviewed system maintenance and project management contract provisions pertaining to interface processing and changes to the Bridges application and data. We used the results of our preliminary review to determine the extent of our detailed analysis and testing.

To accomplish our first objective, we identified the interfaces related to selected federal programs. We interviewed DHS and DTMB staff and performed a walkthrough of Bridges interface processing. We reviewed interface design documentation and tested data-sharing agreements. We also reviewed controls to ensure that interface files transferred accurately, completely, and timely between source and destination systems. We tested controls to ensure that interface processing errors were identified, investigated, and corrected. We reviewed users' access to the Bridges scheduling tool, OpCon*.

To accomplish our second objective, we obtained an understanding of DHS and DTMB's processes for making changes to the Bridges application and data. In addition, we obtained an understanding of the Bridges version control tool, ClearCase*, and Bridges workflow tool, ClearQuest*. We judgmentally selected and tested a sample of data changes and a sample of application changes to ensure that the changes were properly authorized and tested. We reviewed users' access to ClearCase and ClearQuest. In addition, we reviewed users' access to the operating systems where Bridges source code, object code, and databases reside.

Except as described in our audit methodology, our audit did not include a review of other general controls* and application controls* that may affect Bridges eligibility and benefit determinations (see summary of Office of the Auditor General (OAG) information technology audits of Bridges, presented as supplemental information).

When selecting activities or programs for audit, we use an approach based on assessment of risk and opportunity for improvement. Accordingly, we focus our audit efforts on activities or programs having the greatest probability for needing improvement as identified through a preliminary review. Our limited audit resources are used, by design, to identify where and how improvements can be made. Consequently, we prepare our performance audit reports on an exception basis.

** See glossary at end of report for definition.*

Agency Responses

Our audit report contains 9 findings and 11 corresponding recommendations. DHS and DTMB's preliminary responses indicate that they agree with 6 recommendations and either have complied or will comply with them. DHS and DTMB partially agree with 5 recommendations.

The agency preliminary response that follows each recommendation in our report was taken from the agencies' written comments and oral discussion subsequent to our audit fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and the State of Michigan Financial Management Guide (Part VII, Chapter 4, Section 100) require DHS and DTMB to develop a plan to comply with the audit recommendations and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agencies to take additional steps to finalize the plan.

COMMENTS, FINDINGS, RECOMMENDATIONS, AND AGENCY PRELIMINARY RESPONSES

EFFORTS TO IMPLEMENT CONTROLS TO ENSURE THE ACCURACY, COMPLETENESS, AND TIMELINESS OF BRIDGES INTERFACES

COMMENT

Background: As of May 2012, the Bridges Integrated Automated Eligibility Determination System (Bridges) had approximately 334 batch interfaces that exchanged information with other information systems belonging to State agencies such as the Michigan Department of State Police (MSP), Department of Corrections, and Department of Treasury and external business partners such as Consumers Energy, the Internal Revenue Service (IRS), and the U.S. Social Security Administration. The information received is used by Bridges to determine a client's eligibility and the amount of benefits for various public assistance programs. Examples of information exchanged include social security numbers, child support information, and sex offender registry data.

In addition, Bridges sends information to other information systems. For example, Bridges interfaces Medicaid eligibility and benefit information to the Community Health Automated Medicaid Processing System (CHAMPS) and payment information to the Michigan Administrative Information Network* (MAIN) and the State's benefit card contractor. Bridges also has approximately 24 real-time Web interfaces that interactively query and retrieve information from other Department of Human Services (DHS) and State agency information systems.

Audit Objective: To assess the effectiveness of DHS and the Department of Technology, Management, and Budget's (DTMB's) efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces.

Audit Conclusion: **DHS and DTMB's efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces were not effective.** Our assessment disclosed one material condition*:

- DHS and DTMB had not fully established effective processing controls over Bridges interfaces (Finding 1).

** See glossary at end of report for definition.*

Our assessment also disclosed four reportable conditions* related to the monitoring of Bridges processing, Bridges operations procedures, interface documentation, and data-sharing agreements (Findings 2 through 5).

FINDING

1. Interface Processing Controls

DHS and DTMB had not fully established effective processing controls over Bridges interfaces. As a result, DHS and DTMB cannot ensure that the data exchanged between Bridges and other information systems is processed accurately, completely, and timely.

According to the U.S. Government Accountability Office's (GAO's) Federal Information System Controls Audit Manual (FISCAM), organizations should establish monitoring to ensure that data is processed accurately and that no data is added, lost, or altered during interface processing. For example, controls such as the comparison of record counts or control totals should exist to ensure that data transferred between two systems is complete and accurate. In addition, FISCAM states that procedures should be implemented to identify and correct errors that occur during interface processing.

The Bridges batch support team uses a scheduler, OpCon, to automate Bridges scheduling and processing. OpCon dynamically schedules the processing of some interfaces after the receipt of the interface file. The batch support team monitors the scheduler and queries Bridges tables to obtain job processing information. During our fieldwork, DTMB developed additional queries to ensure that dynamically scheduled jobs processed according to schedule. Also, for selected interfaces, Bridges produced on-line error reports. We judgmentally selected a sample of 25 interfaces and reviewed DHS and DTMB's controls over interface processing. We noted:

- a. DHS and DTMB had not established controls to ensure that all interfaces processed according to schedule. For example:
 - (1) The monthly sex offender registry interface between Bridges and MSP did not run from April 2011 through June 2012. This interface file contained

* See glossary at end of report for definition.

a listing of sex offenders to be matched against Bridges providers. DTMB informed us that the processing of this interface was dynamically scheduled. Because DHS had not received the interface file from MSP, the scheduler never added the jobs to process the interface to the schedule. Consequently, DHS and DTMB were unaware that the interface had not processed until we brought it to their attention.

DTMB informed us that, during our fieldwork, the batch support team created daily, weekly, and monthly reports to identify dynamically scheduled jobs that did not run according to their expected schedule.

- (2) The Interim Assistance Reimbursement interface between Bridges and the U.S. Social Security Administration ran during October 2010 even though DHS suspended the interface. DTMB informed us that DHS resumed the interface on October 31, 2010. However, DTMB did not provide documentation to explain why the interface ran while being suspended and documentation of DHS's authorization to restart the interface.

In addition, we noted that the interface did not run on December 18, 2011. DTMB informed us that there was no documentation in the standard places to explain the reason that the job did not run on this date.

- b. DTMB did not ensure that the file control and batch summary tables used to reconcile Bridges interfaces contained consistent information. As a result, the information contained in the tables provided limited value for ensuring the accuracy and completeness of interface processing. For example:

- (1) The control totals on the batch summary table did not consistently account for interface header or trailer records. As a result, the record counts in the batch summary table did not always reconcile to record counts in the file control table.
- (2) The control totals on the batch summary table did not always represent the same processing information. For example, the control total represented the "number of records read" for some interfaces but, for other interfaces, the control total represented the "total records processed."

- (3) The control totals on the batch summary table did not report consistent information about processing exceptions. For example, the batch summary table reported the "number of exceptions written" or "total exceptions" or did not report exceptions. In addition, for those interfaces without reported exceptions, DTMB informed us that it was not certain whether the interface processed without exceptions or whether the exceptions were not written to the batch summary table.

DTMB informed us that the information contained in the job control and batch summary tables was inconsistent because DTMB did not ensure that programmers followed development standards related to writing information to the batch summary tables.

- c. DHS and DTMB had not established procedures to account for all interfaced records and to ensure that all records identified with errors and excluded from interface processing were investigated, corrected, and resubmitted for processing, as appropriate. According to FISCAM, organizations should use processing logs or reports to identify any errors or problems encountered during interface processing. In addition, FISCAM states that organizations should retain documentation including the date and time of the error, error codes, or description of the error as well as the date and time and description of any corrective action taken. We noted:
 - (1) DHS and DTMB had not established a process to review records excluded from interface processing. DTMB informed us that, for certain interface files, records that did not meet Bridges business rules were excluded from processing. DTMB also informed us that DHS and DTMB did not review the records because they relied on the sufficiency of testing performed during interface development. FISCAM states that management should account for all data presented for processing and that logs or reports should provide an audit trail containing sufficient information regarding the reason the data was rejected. FISCAM also states that management should regularly review edits and restrictions placed on data input to validate that they are accurate and appropriate.

- (2) DHS had not established procedures to ensure that all interface processing errors were reviewed and resolved, as appropriate. DHS informed us that it had evaluated the Bridges interfaces and identified specific interfaces that required business owners to follow up on errors. For these interfaces, Bridges creates an on-line error report. For the other interfaces, DHS informed us that it believed that it was not necessary to produce error reports. However, DHS did not provide us with documentation of its rationale for not producing the error reports. DHS also informed us that, because of resource limitations, it had not assigned the responsibility for reviewing and resolving the errors to a responsible business owner.

RECOMMENDATION

We recommend that DHS and DTMB fully establish effective processing controls over Bridges interfaces.

AGENCY PRELIMINARY RESPONSE

DHS and DTMB partially agree with the finding and related recommendation. DHS and DTMB informed us that they have implemented additional controls to ensure that all interfaces run according to their schedules. In addition, DHS and DTMB informed us that they will develop a corrective action plan to improve the effectiveness of interface processing controls.

With regard to part a.(1), DTMB informed us that it conducted research of Bridges provider data and determined that none of the providers would have been determined to be ineligible to be a child care provider.

With regard to part c.(1), DTMB does not agree that records excluded from interface processing by business rules approved and tested for a particular interface require further review. DTMB believes that there would be no reason to resubmit these records as no correction was needed. In addition, DTMB indicated that, regarding the FISCAM standards mentioned in this report, these records did not create any errors or exceptions and are not the result of any problems encountered during interface processing.

OFFICE OF THE AUDITOR GENERAL EPILOGUE

In the agency preliminary response regarding part c.(1), DTMB stated that the "records did not create any errors or exceptions and are not the result of any problems encountered during interface processing." However, without data input controls to account for all records presented for processing and regular review of records rejected for processing, DHS and DTMB did not have a mechanism to detect problems originating from information systems sending interface data to Bridges.

FINDING

2. Monitoring of Bridges Processing

DTMB management did not utilize system-generated reports to effectively monitor Bridges processing. Without effective monitoring, DHS and DTMB cannot ensure that Bridges is operating as intended, cannot effectively isolate and correct performance problems, and cannot establish performance baselines to be used for future planning.

According to Control Objectives for Information and Related Technology (COBIT), management should collect timely and accurate data to review and report on the effectiveness of its processes and internal control*. In addition, COBIT states that the collection of monitoring data should be automated whenever feasible.

Our review disclosed that DTMB had not developed system-generated reports that provide management with detailed information about all failed jobs, such as which specific job or job step failed and the corrective action taken. In addition, DHS and DTMB had not developed system-generated reports that would allow management to monitor over time the success or failure and run times of all batch processing jobs on the daily schedule. As a result, DHS and DTMB did not have an effective and timely means to validate that Bridges is working as intended.

Although the batch support team manually prepared a daily report of outstanding batch processing issues, the report was not system-generated and did not provide DHS and DTMB with a complete picture of all processing errors that occurred during Bridges batch processing. In addition, DHS and DTMB receive from the

** See glossary at end of report for definition.*

development contractor a monthly report that includes a log of batch processing issues and their resolution. However, neither of these reports provide DHS and DTMB with comprehensive information to effectively monitor Bridges scheduling and batch processing activities.

RECOMMENDATION

We recommend that DTMB management utilize system-generated reports to effectively monitor Bridges processing.

AGENCY PRELIMINARY RESPONSE

DTMB partially agrees with the finding and recommendation. DTMB agrees that system-generated reports may be beneficial to management. However, DTMB believes that automating the manual reports may not be cost effective because the information related to job failures depends on many dynamic factors, including the root cause of the failure, corrective actions needed, impacted trading partners, changes to the schedule resulting from the failure, and the projected impact on the end users and recipients. DTMB informed us that its corrective action plan will include a study of the feasibility of using system-generated reports.

FINDING

3. Bridges Operations Procedures

DTMB had not fully established and documented formal procedures for Bridges operations, including interface scheduling and processing. A lack of documented procedures increases the risk of interface processing errors and rework because of misunderstandings of procedures.

According to COBIT, operating procedures should establish roles and responsibilities to maintain a proper segregation of duties*, define responsibilities for the formal handover of duties for shift change, define procedures for exception handling, provide for authorization of initial and changes to job schedules, and provide for notification and correction of job failures. In addition, COBIT states that prior to implementation, developers should prepare operations manuals that includes specificabend* procedures, backup schedules, batch schedules, interface listings and procedures, on-call lists, and escalation procedures.

** See glossary at end of report for definition.*

DTMB informed us that some operations documentation, such as the batch schedule and listing of batch interfaces, is documented in the Bridges scheduling tool, OpCon. In addition, DTMB Data Center Operations provided us with its procedures for monitoring Bridges batches and handling job failures on the third shift. However, the Bridges batch support team did not have documented procedures for the first and second shifts.

RECOMMENDATION

We recommend that DTMB fully establish and document formal procedures for Bridges operations, including interface scheduling and processing.

AGENCY PRELIMINARY RESPONSE

DTMB agrees with the finding and recommendation and informed us that it will develop a corrective action plan to improve the documentation of formal procedures for interface scheduling and processing.

FINDING

4. Interface Documentation

DTMB, in conjunction with DHS, did not maintain complete interface design documentation. In addition, DTMB, in conjunction with DHS, did not ensure that all interface design documentation was stored in the Bridges version control tool, ClearCase. Incomplete or inaccessible documentation increases future maintenance costs and the dependency on knowledge held by key individuals.

According to the GAO's FISCAM, interface design documentation should contain information such as the purpose of the interface, data field mappings, and controls designed to ensure the accuracy and completeness of the interface. Interface design documentation should also describe the requirements for timing, ongoing system balancing, and security.

We reviewed the interface design documentation for a judgmentally selected sample of 25 batch interfaces and 5 Web services. Our review disclosed:

- a. Interface design documentation for 4 (16%) of 25 batch interfaces did not document how interface file records updated Bridges data tables. In addition,

the interface design documentation for 2 (8%) of 25 batch interfaces did not identify the Bridges data fields extracted and sent to the receiving system. Also, the interface documentation for 3 (60%) of 5 Web services did not specify whether the data returned by the Web service updated Bridges tables. Incomplete documentation increases the risk that the interfaced data will not update Bridges as expected. DTMB informed us that it believed that the 3 Web services did not update Bridges. However, DTMB did not provide documentation to support its assertion.

- b. DTMB, in conjunction with DHS, did not ensure that all interface design documentation was stored in ClearCase. Specifically, we noted that DHS and DTMB did not have a standard interface design document for 8 (32%) of 25 batch interfaces. As a result, DTMB had to search for additional documentation that contained similar interface design information. Although DTMB was able to locate the additional documentation, DTMB informed us that, because the documentation was not stored centrally, it spent a considerable amount of time looking for the documentation.

RECOMMENDATIONS

We recommend that DTMB, in conjunction with DHS, maintain complete interface design documentation.

We also recommend that DTMB, in conjunction with DHS, ensure that all interface design documentation is stored in the Bridges version control tool, ClearCase.

AGENCY PRELIMINARY RESPONSE

DTMB agrees with the finding and recommendations. DTMB informed us that it has implemented controls within the peer review process to ensure that any modifications to a screen or interface are supported by an updated storyboard, which includes data mappings, and that updated design and requirements documents are checked in to the ClearCase documentation view at the time the code is checked in.

FINDING

5. Data-Sharing Agreements

DHS had not established data-sharing agreements with all State agencies that exchanged information with Bridges. As a result, DHS cannot ensure that appropriate safeguards have been established to protect the data in accordance with federal and State laws and regulations and State of Michigan policies.

DTMB Administrative Guide policy 1340 states that agency information is considered a State of Michigan asset and must be appropriately evaluated and protected against all forms of unauthorized access, use, disclosure, modification, and destruction. In addition, the policy requires that data shared between State agencies be protected by the receiving agency with at least the same level of security used by the sending agency. State agencies use data-sharing agreements to communicate responsibilities for shared data, including access, security, and disposal.

We reviewed DHS's data-sharing agreements for a judgmentally selected sample of 25 interfaces that exchanged information with nine State agencies and external business partners. Our review disclosed that DHS had not established data-sharing agreements for 4 (16%) of 25 interfaces with two State agencies.

RECOMMENDATION

We recommend that DHS establish data-sharing agreements with all State agencies that exchange information with Bridges.

AGENCY PRELIMINARY RESPONSE

DHS agrees with the finding and recommendation and informed us that it will work with the two State agencies identified to ensure that there are data-sharing agreements.

EFFORTS TO IMPLEMENT CHANGE CONTROLS OVER THE BRIDGES APPLICATION AND DATA

COMMENT

Audit Objective: To assess the effectiveness of DHS and DTMB's efforts to implement change controls over the Bridges application and data.

Audit Conclusion: DHS and DTMB's efforts to implement change controls over the Bridges application and data were moderately effective. Our assessment disclosed two material conditions:

- DTMB, in conjunction with DHS, did not always comply with the State Unified Information Technology Environment* (SUITE), contract provisions, and change control best practices. In addition, DTMB, in conjunction with DHS, did not ensure that the Bridges maintenance and support contract and the Bridges project management and technical support contract accurately reflected the contractors' responsibilities for Bridges change controls. (Finding 6)
- DTMB had not established effective access controls* over the Bridges version control tool, ClearCase, and the Bridges workflow tool, ClearQuest (Finding 7).

Our assessment also disclosed two reportable conditions related to segregation of duties and Bridges configuration management plan (Findings 8 and 9).

FINDING

6. Bridges Change Controls

DTMB, in conjunction with DHS, did not always comply with SUITE, contract provisions, and change control best practices. In addition, DTMB, in conjunction with DHS, did not ensure that the Bridges maintenance and support contract and the Bridges project management and technical support contract accurately reflected the contractors' responsibilities for Bridges change controls. Without improvements, DHS and DTMB cannot ensure that Bridges change processes are repeatable, planned, controlled, and monitored under all circumstances.

* See glossary at end of report for definition.

The Bridges maintenance and support contract and the Bridges project management and technical support contract require Bridges contractors to follow SUITE Project Management Methodology* (PMM) and Systems Engineering Methodology* (SEM) to achieve Capability Maturity Model Integration* (CMMI) level 3 practices or higher.

We reviewed DTMB and DHS's change controls over Bridges. In addition, we judgmentally selected a sample of 25 changes, referred to as work requests*, that DTMB and DHS made to Bridges from October 2010 through May 2012. The 25 work requests were associated with 11 releases*. We reviewed selected controls to ensure that the work requests were properly approved, developed, and tested in accordance with SUITE, contract requirements, and change control best practices. In addition, we reviewed controls to ensure that DTMB and DHS approved each release before the release was placed into production. Our review disclosed:

- a. DTMB, in conjunction with DHS, did not perform all change control practices required by SUITE. For example:
 - (1) DTMB and DHS did not perform or sufficiently document structured walkthroughs* of system requirements and system design documents. According to SUITE, the purpose of the structured walkthrough is to find errors and improve the quality of deliverables. The SUITE Structured Walkthrough Process Guide allows departments to vary the format of their structured walkthroughs based on the size and complexity of the deliverable being reviewed. The SEM System Maintenance Guide recommends that, for small maintenance projects, departments document their structured walkthroughs on the SEM-0931*.

DTMB and DHS informed us that, during the audit period, they substituted joint application design documentation and other meeting notes for the structured walkthrough. However, our review indicated that the documentation did not include all elements of a structured walkthrough, such as the date of the walkthrough, the structured walkthrough participants, and documentation of any changes or defects identified. DTMB informed us that it had established a new process for reviewing

** See glossary at end of report for definition.*

requirements and design documentation that will comply with SUITE requirements.

- (2) DTMB and DHS had not established a strategy to re-create Bridges' requirements traceability matrix* (RTM). According to the SEM, departments should use the RTM to trace all requirements from project initiation through implementation, including all subsequent releases. DTMB informed us that the project managers responsible for developing and implementing Bridges did not require the development contractor to complete the RTM. Consequently, DTMB and DHS were unable to update the RTM to reflect changes that impact business requirements. Without an RTM, DHS and DTMB do not have a mechanism to efficiently demonstrate how Bridges satisfies business requirements.
 - (3) DTMB and DHS did not document final lessons learned at the conclusion of each Bridges release. DTMB informed us that, during release planning meetings, DTMB and DHS discussed issues and risks associated with their current change control practices. In addition, DHS and DTMB discussed at release planning meetings any documented problems and recommended actions specific to work requests. According to the PMM, final lessons learned sessions would provide a structured mechanism to identify and communicate problems or improvement areas in all key project areas.
- b. DTMB, in conjunction with DHS, did not require the Bridges maintenance and support contractor to complete all tasks and documentation as specified in the maintenance and support contract. For example:
- (1) DTMB did not ensure that the Bridges maintenance and support contractor completed unit test checklists. According to the maintenance and support contract, the contractor was required to complete the appropriate unit test checklist for each work request when the work request was checked into the Bridges workflow tool. The contract stated that the purpose of the checklist was to ensure that changes are made in accordance with documented standards and that all changes are

** See glossary at end of report for definition.*

supported by approved requirements. According to DTMB, although the unit test checklists were designed to ensure compliance with coding standards and other best practices, the unit test checklists did not validate functionality. As a result, DTMB reevaluated the effectiveness of the unit test checklists. DTMB informed us that it plans to replace the unit test checklists with a new peer review checklist that validates compliance with standards and functionality.

- (2) DTMB did not ensure that the Bridges maintenance and support contractor completed or sufficiently documented peer reviews. According to the Bridges maintenance and support contract, the contractor was required to conduct a peer review in which senior developers were required to assess code conformance to function, standards, and performance prior to promoting code from the unit testing to integration testing environments. DTMB informed us that, during our audit period, DHS and DTMB worked with the maintenance and support contractor to establish a pilot process for completing the peer reviews.
- (3) DTMB had not established standards for documenting the Bridges maintenance and support contractor's quality control audits, including documentation of when a quality control audit would not be required. In addition, DTMB did not provide evidence that the maintenance and support contractor performed a quality control audit for 18 (72%) of 25 work requests. DTMB informed us that, for some of the work requests, the contractor would not have been required to perform a quality control audit because the changes were minor. According to the maintenance and support contract, the contractor was required to perform a quality control audit prior to promoting code out of the integration testing environment. The contract states that the purpose of the quality control audit is to ensure that developers comply with unit testing checklist and peer review requirements.
- (4) DTMB had not established documentation standards for reporting the results of the maintenance and support contractor's postimplementation monitoring. According to the Bridges maintenance and support contract, after each Bridges release, the contractor (DHS) and DTMB will perform

postimplementation validations that include monitoring for Bridges performance and functionality problems, reviewing error logs, and running data integrity* checks. For 10 (91%) of 11 releases, the documentation of the maintenance and support contractor's postimplementation monitoring did not address all of the elements required by the contract. In addition, DHS and DTMB did not provide evidence of postimplementation monitoring for 1 (9%) of 11 releases.

- c. DTMB, in conjunction with DHS, had not established detective controls* to ensure that Bridges change control processes were being followed. DTMB had configured its Bridges version control tool, ClearCase, and Bridges workflow tool, ClearQuest, to include preventative controls*. For example, developers cannot check in code that is not associated with a work request and code cannot be promoted out of the development environment without review by an independent lead developer. However, without detective controls, such as a scanning tool that could be used to audit changes, DHS and DTMB cannot ensure that preventative controls are effective and all changes to Bridges are known. DTMB informed us that it is in the process of acquiring a scanning tool that could be used to scan the Bridges application.
- d. DHS and DTMB had not modified the Bridges maintenance and support contract and the Bridges project management and technical support contract to accurately reflect the contractors' responsibilities for Bridges change controls. In addition to the items identified in part b., DHS and DTMB did not enforce certain project management provisions of the Bridges project management and technical support contract. DTMB informed us that it believed that the contract had been amended. However, DTMB Procurement informed us that the amendment had not been processed. To protect the State's interests and avoid potential disagreements, DHS and DTMB should modify the contract language to accurately reflect the contractors' responsibilities.

RECOMMENDATIONS

We recommend that DTMB, in conjunction with DHS, comply with SUITE, contract provisions, and change control best practices.

* See glossary at end of report for definition.

We also recommend that DTMB, in conjunction with DHS, ensure that the Bridges maintenance and support contract and the Bridges project management and technical support contract accurately reflect the contractors' responsibilities for Bridges change controls.

AGENCY PRELIMINARY RESPONSE

DTMB and DHS partially agree with the finding and recommendations and informed us that they will develop a corrective action plan to improve compliance with SUITE, contract provisions, and change control best practices.

Regarding part a.(1), DTMB and DHS informed us that they developed an improved work request approval process that replaces the previously used structured walkthrough. DTMB and DHS also informed us that they integrated the work request approval process into the established release planning process.

Regarding part b.(4), DTMB informed us that it believes that the contractor's postimplementation support varies with each release. In addition, DTMB informed us that it prioritizes the postimplementation tasks that the contractor is required to perform based on the scope and complexity of the release as well as any known risks or issues that require monitoring and analysis.

Regarding part d., DTMB does not agree that the contracts need to be revised. DTMB informed us that the broad range of tasks and activities identified as contractor responsibilities change with business needs and are prioritized by management as needed.

OFFICE OF THE AUDITOR GENERAL EPILOGUE

In the agency preliminary response regarding part d., DTMB stated that it "does not agree that the [Bridges] contracts need to be revised." However, we maintain our position that selective enforcement of contract terms and conditions may place the State at risk in the event of a dispute between the State and the contractors. In addition, DTMB Procurement informed us that, without an executed contract amendment to modify the contractor's responsibilities for Bridges project management, DTMB Procurement assumes that the contractor is performing all project management work as specified by the contract.

FINDING

7. ClearCase and ClearQuest Access

DTMB had not established effective access controls over the Bridges version control tool, ClearCase, and the Bridges workflow tool, ClearQuest. DTMB used ClearCase and ClearQuest to control access to Bridges source code and to promote changes to the Bridges application. As a result, there is an increased risk that changes to Bridges will not be developed and tested according to established procedures.

According to DTMB Administrative Guide policy 1335, access to State information technology resources should be restricted to only those users who require access to perform their job responsibilities. The policy states that access should be granted to users on a need-to-know basis, based on the concept of least privilege* and to promote an effective segregation of duties. Also, the policy requires State agencies to establish a formal process for managing and periodically reviewing user access from the initial granting of access until the user no longer requires access because of a change in jobs or departure. Our review disclosed:

- a. DTMB had not established a formal policy that identified user roles or positions requiring access to ClearCase or ClearQuest and that specified the level of access required. DTMB provided us with a list that identified examples of users who should be assigned to various ClearQuest groups. However, we determined that the list did not contain all active ClearQuest groups.
- b. DTMB had not established a formal process for managing and periodically reviewing access to ClearCase and ClearQuest. We reviewed the access granted to 249 ClearCase users and 378 ClearQuest users. We noted:
 - (1) DTMB had not removed access for 61 (24%) ClearCase and 40 (11%) ClearQuest users that had departed or no longer required access to perform their job responsibilities. Also, DTMB identified 1 ClearQuest service account* that should have been disabled. In addition, DTMB was unable to determine whether access was still required for 20 (8%) ClearCase and 24 (6%) ClearQuest users.

* See glossary at end of report for definition.

- (2) DTMB did not remove test accounts from ClearCase and ClearQuest. Test accounts create control weaknesses because they are generic, are often shared by multiple users, and typically have weak passwords. We identified 1 ClearCase test account and 14 ClearQuest test accounts that should not be used in a production environment. In addition, 4 of the ClearQuest test accounts had elevated privileges.
 - (3) DTMB had not established a process for updating ClearCase scripts* used to control developers' access. We identified four active accounts in the access control lists for two scripts that belonged to users who DTMB indicated no longer required access. In addition, the scripts' access control lists contained numerous inactive accounts.
- c. DTMB did not ensure that access to ClearQuest was granted based on the principle of least privilege and promoted an effective segregation of duties. We noted:
- (1) The development contractor had the ability to move source code into development environments that were the responsibility of DTMB and the contractor's technical control group.
 - (2) DTMB did not restrict access to the ClearQuest test databases to only those users who were responsible for configuring ClearQuest. We identified 329 users with access to one test database and 332 users with access to the other test database who did not belong to the ClearQuest group responsible for configuring ClearQuest.
 - (3) DTMB did not ensure that privileged access* in ClearQuest, such as the ability to modify and delete ClearQuest's database structure, the ability to create users, the ability to modify passwords, and the ability to modify access permissions, was properly restricted. In ClearQuest, capabilities are determined by the user's group assignments or by the direct granting of privileges. Our review identified users assigned to groups or assigned privileges that exceeded the users' job responsibilities.

* See glossary at end of report for definition.

RECOMMENDATION

We recommend that DTMB establish effective access controls over the Bridges version control tool, ClearCase, and the Bridges workflow tool, ClearQuest.

AGENCY PRELIMINARY RESPONSE

DTMB agrees with the finding and recommendation and informed us that it has implemented corrective actions and will continue to work toward compliance.

FINDING

8. Segregation of Duties

DTMB had not established an appropriate segregation of duties over Bridges. Without an appropriate segregation of duties, there is an increased risk that unintended or unauthorized activities may occur and not be detected.

According to the GAO's FISCAM, segregation of duties is achieved by dividing responsibilities between two or more organizational groups to diminish the risk that errors or wrongful acts will go undetected because the activities of one group will serve as a check on the activities of another. FISCAM states that the following functions should be performed by different groups: information security, system design, applications programming, systems programming, quality assurance and testing, change management, computer operations, production control and scheduling, data security, database administration, network administration, and configuration management.

We reviewed DHS and DTMB's responsibilities for making changes to the Bridges application. Also, for selected Bridges servers, we reviewed users' access and directory and file permissions. In addition, we reviewed users' access to Bridges scheduling, configuration management, and version control tools. Our review disclosed:

- a. DTMB did not ensure that privileged access to the Bridges source code server was restricted to only those DTMB Technical Services staff responsible for

administering the server's operating system. As a result, there is an increased risk that users may circumvent established change controls. We noted:

- (1) DTMB granted administrator access to the Bridges source code server to two individuals from DTMB Agency Services who were not responsible for administering the server's operating system. DTMB informed us that the access was granted at the time Bridges was implemented because the server was classified as a development server. In December 2012, DTMB established DTMB Technical Standard 1345.00.06 that defines the server as production related* and establishes procedures for granting temporary privileged access to authorized employees who periodically require elevated privileges to perform their job responsibilities.
 - (2) DTMB did not restrict service accounts with administrator access from logging on to the server. We identified three service accounts with administrator access that could log on to the server interactively. Allowing users to log on with a service account increases the risk of unauthorized activity because service accounts are generic and users are not held accountable for their actions. In addition, industry best practices recommend that, rather than being granted administrative access, service accounts should be granted only the minimum access necessary to support required business functions.
- b. DTMB's organizational structure had not established an appropriate segregation of duties among Bridges development, scheduling, and database administration functions. According to COBIT, because developers typically have sufficient knowledge to bypass established change control processes, computer operations or a group independent of development should monitor production processing. In addition, COBIT states that computer operations should monitor the setting up of processing jobs in the job scheduler and verify that all changes to the scheduler are properly approved. Our review disclosed:
- (1) The Bridges batch support team did not report to management that was independent of development. The batch support team has the primary responsibility for scheduling and monitoring Bridges batch processing.

* See glossary at end of report for definition.

However, the batch support team had incompatible access, such as administrative access to OpCon, access to Bridges source code, and elevated privileges in ClearQuest.

DTMB informed us that it integrated the batch support team into the development team to ensure that developers, testers, and management have immediate access to the batch support team to test the impact of changes on the test and production processing schedules. DTMB also stated that the batch support team requires immediate access to the developers to help understand and resolve issues or unexpected incidents that occur during processing.

Although it is necessary for DTMB to test the impact of changes on the production schedule, after testing has been completed and changes have been approved and placed into productions, the responsibility for scheduling and monitoring should be turned over to a group outside of development, such as computer operations. In addition, a stable system with well-documented operating instructions should not require routine intervention by the development team.

- (2) A Bridges contractor with database administrator* (DBA) responsibilities was also a member of the Bridges batch support team. The contractor was part of the contractor's technical control group responsible for promoting changes to Bridges data as well as performing quality assurance and database administration functions. Performance of DBA responsibilities requires privileged access to the Bridges database and the operating system of the database server. In addition, the contractor had administrative access to OpCon, access to Bridges source code, and elevated privileges in ClearQuest.

Our review did not identify individuals with complete control over all aspects of the Bridges change control process. However, the lack of segregation of duties increases the risk that errors and unauthorized activities would not be detected.

** See glossary at end of report for definition.*

RECOMMENDATION

We recommend that DTMB establish an appropriate segregation of duties over Bridges.

AGENCY PRELIMINARY RESPONSE

DTMB partially agrees with the finding and recommendation and informed us that it will continue to evaluate and improve the effectiveness of controls over segregation of duties. However, to help ensure the efficient and accurate completion of nightly batch operations, DTMB informed us that the production batch support team will continue to be integrated with the development team.

FINDING

9. Bridges Configuration Management Plan

DHS and DTMB had not updated the Bridges configuration management plan to include all information and processes required by the SUITE SEM. Updating the Bridges configuration management plan would help DHS and DTMB ensure that all enhancements and modifications to Bridges are properly developed and tested in accordance with State standards.

According to the SEM, the purpose of a configuration management plan is to establish and maintain the integrity of the Bridges application and related system documentation during the development cycle. In addition, the SEM states that the configuration management plan should contain enough information so that compliance with the configuration management plan can be monitored through project records.

Our review of the Bridges configuration management plan identified the following examples of information and processes required by the SEM that were not included in the Bridges configuration management plan:

- a. The Bridges configuration management plan did not specify which groups of users required access to the Bridges version control and workflow tools and did not specify the appropriate level of access based on the users' job responsibilities.

- b. The Bridges configuration management plan items section needs to be expanded to explicitly include all SEM and PMM documents or their equivalents. Configuration items include hardware and software components, including documentation, that compose Bridges.
- c. The Bridges configuration management plan did not explain how DHS and DTMB use the Bridges version control tool for configuration status accounting. Configuration status accounting includes procedures for documenting and reporting on the status of configuration items as Bridges is modified. According to the GAO's FISCAM, DHS and DTMB should generate and maintain documentation, such as historical change lists and original design documentation, that document the current state of the Bridges configuration.
- d. The Bridges configuration management plan did not address requirements for configuration audits. The purpose of a configuration audit is to help ensure that all changes to the Bridges configuration are properly documented, to verify that changes to Bridges satisfy the established functional (business) requirements, and to help ensure that only authorized changes are made to Bridges.

RECOMMENDATION

We recommend that DHS and DTMB update the Bridges configuration management plan to include all information and processes required by the SUITE SEM.

AGENCY PRELIMINARY RESPONSE

DHS and DTMB agree with the finding and recommendation and informed us that the Bridges configuration management plan will be updated as part of their overall corrective action plan.

SUPPLEMENTAL INFORMATION

INTERFACE AND CHANGE CONTROLS OF THE
BRIDGES INTEGRATED AUTOMATED ELIGIBILITY DETERMINATION SYSTEM
 Department of Human Services and Department of Technology, Management, and Budget

Summary of Office of the Auditor General (OAG) Information Technology Audits of Bridges
As of May 2013

General/Application Control Area	Audit Report Number and Month and Year of Release		
	431-0591-10 October 2010	431-0592-10 October 2010	431-0591-12 May 2013
General Controls:			
Project Management Controls		x	
Contract Management Controls			
System Development Controls			
Security Management Controls			
Access Controls:			
Operating System			
Database Management System			
Application	x		
Configuration Management/Change Controls			x
Segregation of Duties			*
Contingency Planning			
Application Controls:			
Input Controls			
Processing Controls			
Output			
Interface Controls			x
Master Data Controls	x		

* This audit report contains a finding on segregation of duties.

Note: This table summarizes the OAG's information technology audits of general and application controls over Bridges. Our audit conclusions were as follows:

- 431-0591-10 Performance Audit of Selected Application Controls of the Bridges Integrated Automated Eligibility Determination System, Department of Human Services, Department of Community Health, and Department of Technology, Management & Budget, October 2010
- Audit Conclusions:
 DHS, DCH, and DTMB's efforts to ensure that selected data edits are functioning in Bridges were moderately effective.
 DHS, DCH, and DTMB's selected access controls over Bridges were moderately effective.
- 431-0592-10 Performance Audit of Project Management of the Bridges Integrated Automated Eligibility Determination System, Department of Human Services, Department of Community Health, and Department of Technology, Management & Budget, October 2010
- Audit Conclusions:
 DHS, DCH, and DTMB's efforts at establishing an effective organizational structure over Bridges were not effective.
 DHS, DCH, and DTMB's efforts in assessing whether the Bridges project achieved the goals and objectives defined by the Departments were not effective.
- 431-0591-12 Performance Audit of Interface and Change Controls of the Bridges Integrated Automated Eligibility Determination System, Department of Human Services and Department of Technology, Management, and Budget, May 2013
- Audit Conclusions:
 DHS and DTMB's efforts to implement controls to ensure the accuracy, completeness, and timeliness of Bridges interfaces were not effective.
 DHS and DTMB's efforts to implement change controls over the Bridges application and data were moderately effective.

Source: Created by the OAG.

GLOSSARY

Glossary of Acronyms and Terms

abend	Abnormal termination of computer software or a program crash.
access controls	Controls that protect data from unauthorized modification, loss, or disclosure by restricting access and detecting inappropriate access attempts.
application controls	Controls that are directly related to individual computer applications. These controls help ensure that transactions are valid, properly authorized, and completely and accurately processed and reported.
Bridges Integrated Automated Eligibility Determination System (Bridges)	An automated, integrated service delivery system for Michigan's cash assistance, medical assistance, food assistance, and child care assistance programs.
Capability Maturity Model Integration (CMMI)	A process improvement model for the system development of products and services consisting of best practices for development and maintenance activities.
change controls	Controls that ensure that program, system, or infrastructure modifications are properly authorized, tested, documented, and monitored.
ClearCase	A repository of Bridges source code and other project documentation. ClearCase provides version control so that Bridges source code and project documentation is consistently accounted for and can be tracked and traced at any time.

ClearQuest	An integrated defect management system for change tracking (defects, enhancements, testing, etc.) through a flexible, fully customizable, automated workflow.
Control Objectives for Information and Related Technology (COBIT)	A framework, control objectives, and audit guidelines published by the IT Governance Institute as a generally applicable and accepted standard for good practices for controls over information technology.
database administrator (DBA)	The individual responsible for both the design of the database, including the structure and contents, and the access capabilities of application programs and users of the database. Additional responsibilities include operation, performance, integrity, and security of the database.
DCH	Department of Community Health.
Deloitte	Deloitte Consulting LLP.
detective controls	Controls that are designed to identify errors or exceptions after they have occurred.
DHS	Department of Human Services.
DTMB	Department of Technology, Management, and Budget.
effectiveness	Success in achieving mission and goals.
FISCAM	Federal Information System Controls Audit Manual.
GAO	U.S. Government Accountability Office.
general controls	The structure, policies, and procedures that apply to an entity's overall computer operations. These controls include an entitywide security program, access controls, application

development and change controls, segregation of duties, system software controls, and service continuity controls.

Hewlett-Packard
Company (HP)

After the purchase of Electronic Data Systems, HP formally changed its name to HP Enterprise Services, LLC.

integrity

Accuracy, completeness, and timeliness of data in an information system.

interface controls

Controls that ensure the accurate, complete, and timely processing of data exchanged between information systems.

internal control

The organization, policies, and procedures adopted by management and other personnel to provide reasonable assurance that operations, including the use of resources, are effective and efficient; financial reporting and other reports for internal and external use are reliable; and laws and regulations are followed. Internal control also includes the safeguarding of assets against unauthorized acquisition, use, or disposition.

least privilege

A principle requiring that each subject be granted the most restrictive set of privileges needed for the performance of authorized tasks. Application of this principle limits the damage that can result from accident, error, or unauthorized use of an information system.

material condition

A reportable condition that could impair the ability of management to operate a program in an effective and efficient manner and/or could adversely affect the judgment of an interested person concerning the effectiveness and efficiency of the program.

MDE

Michigan Department of Education.

Michigan Administrative Information Network (MAIN)	The State's automated administrative management system that supports accounting, purchasing, and other financial management activities.
MSP	Michigan Department of State Police.
OAG	Office of the Auditor General.
OpCon	Bridges automation and job scheduling tool.
operating system	The essential program in a computer that manages all the other programs and maintains disk files, runs applications, and handles devices such as the mouse and printer.
performance audit	An audit that provides findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.
preventative controls	Controls that focus on stopping errors or exceptions before they occur.
privileged access	Extensive system access capabilities granted to individuals responsible for maintaining system resources. This level of access is considered high risk and must be controlled and monitored by management.
production related	Any information technology resource or data that assists or supports production servers, such as test, quality assurance, and disaster recovery based on business function.

Project Management Methodology (PMM)	A component of SUITE that provides standard methods and guidelines to ensure that projects are conducted in a disciplined, well-managed, and consistent manner that promotes the delivery of quality products that meet the customer's needs and results in projects that are completed on time and within budget.
release	A collection of work requests that include enhancements, fixes, and infrastructure modifications and upgrades that are packaged for testing and deployment purposes. The State may also need to implement immediate releases, as needed, to respond to urgent needs outside of the regular schedule.
reportable condition	A matter that, in the auditor's judgment, is less severe than a material condition and falls within any of the following categories: an opportunity for improvement within the context of the audit objectives; a deficiency in internal control that is significant within the context of the audit objectives; all instances of fraud; illegal acts unless they are inconsequential within the context of the audit objectives; significant violations of provisions of contracts or grant agreements; and significant abuse that has occurred or is likely to have occurred.
requirements traceability matrix (RTM)	A tool used to ensure that each requirement is addressed in the functional and technical design documentation, program code, test plans, and test results.
script	A list of commands that are executed by a certain program. Scripts may be used to automate processes.
security	Safeguarding an entity's data from unauthorized access or modification to ensure its availability, confidentiality, and integrity.

segregation of duties	Separation of the management or execution of certain duties or areas of responsibility to prevent or reduce opportunities for unauthorized modification or misuse of data or service.
SEM-0931	A standard SUITE template document for documenting and processing application change requests and code and data fixes.
service account	An account used by application software or a process.
State Unified Information Technology Environment (SUITE)	A DTMB initiative to standardize methodologies, procedures, training, and tools for project management and system development throughout the executive branch of State government.
structured walkthrough	An organized procedure for a group of peers to review and discuss the technical aspects of software development work products. The major objectives of a structured walkthrough are to find errors and to improve the quality of the product. Errors typically occur as omissions or contradictions, flaws in logic, or inconsistencies in the work product style (e.g., poorly stated requirements and inefficient code).
Systems Engineering Methodology (SEM)	The DTMB methodology that identifies the processes, activities, tasks, management responsibilities, and work products that are required for each system development and maintenance project.
work request	The primary ClearQuest record used to track Bridges changes.

