Secretary of State Audit Report

Kate Brown, Secretary of State

Gary Blackmer, Director, Audits Division

Oregon State Lottery: General Accounting Software Provides Reliable Information

Summary

The Oregon State Lottery (Lottery) provides revenue for the state without the imposition of additional or increased taxes. Lottery is financed through sales of the various games it runs and does not receive general funds or other tax dollars.

In October 2011, Lottery replaced its general accounting computer software with Microsoft's enterprise resource planning application, Dynamics AX (system). The system includes several modules designed to support important business and accounting functions such as inventory control, fixed asset accounting, purchasing, and the organization's general ledger. Lottery uses information from the system to generate its annual financial statements.

The purpose of this audit was to evaluate system controls and assess risks associated with transactions processed through the system. Based on our audit work, computer controls provided reasonable assurance that system data remained complete, accurate and valid during their input, processing and output. However, controls over a small subset of transactions should be improved to better ensure their accuracy and validity.

In addition, system files and data are appropriately backed up to facilitate timely restoration, and processes for changing system code were adequate but could be improved.

Security over the system and data provided reasonable protection against unauthorized use, disclosure, modification, damage or loss. However, some security processes could be improved. We communicated details regarding these matters to Lottery management in a separate confidential document, as provided in ORS 192.501 (23).

Agency Response

The agency response is attached at the end of the report.

Background

In November 1984, voters amended the Oregon Constitution to require the establishment and operation of the Oregon State Lottery (Lottery). Lottery's purpose is to provide additional revenue without the imposition of additional or increased taxes. Lottery is financed entirely through sales of the games it runs, which include Video Lottery, Scratch-Its, Keno, Powerball and Megabucks. It operates under the direction of a five-member citizen commission with members that are appointed by the Governor and confirmed by the Senate.

Lottery relies heavily on information technology systems to record lottery sales and expenditures and for financial reporting purposes. The majority of lottery revenue transactions flow through Lottery's two gaming systems, ES On-Line and ES Video. Lottery contracts with an external vendor to manage both of these computer systems.

In October 2011, Lottery replaced its general accounting computer software with Microsoft's enterprise resource planning application, Dynamics AX (system). Lottery acquired the system from a third party vendor, Crowe Horwath, which managed the initial system implementation and modifications. Lottery continues to utilize Crowe Horwath when specialized system maintenance and support is needed.

The system includes several modules designed to support important business and accounting functions such as inventory control, fixed asset accounting, purchasing, and the organization's general ledger. Lottery uses information from the system to generate its annual financial statements.

The purpose of this audit was to evaluate system controls and assess risks associated with transactions processed through the system.

Audit Results

The Oregon State Lottery's (Lottery) implementation of Microsoft's Dynamics AX computer system (system) aggregates financial information from its various subsystems to provide the information staff use to produce Lottery's financial reports and to manage operations. In turn, these subsystems often rely on detailed information produced by other external computer applications to populate key General Ledger accounts such as Sales, Accounts Receivables, Prize Expense and Retailer Commissions.

The integrity of system data depends on automated and manual controls governing transaction input, processing and output. These controls, however, are reliable only when security measures are in place to protect the system and when changes to program code are strictly controlled. We evaluated key computer controls and found they provided reasonable assurance that:

- Transactions remain complete, accurate and valid during application input, processing and output.
- Processes for making system changes were adequate but could be improved.
- Staff performs regular backups of system files and data.
- System data is protected against unauthorized use, disclosure, modification, damage or loss.

Taken together these controls provide reasonable assurance that the system and its data can be relied upon for accuracy and completeness. However, Lottery could reduce some risks and increase security by adding additional system controls.

Transactions remain complete, accurate and valid during application input, processing and output

Effective application controls include both manual and automated processes to ensure only complete, accurate, and valid information is entered into a computer system; data integrity is maintained during processing; and system outputs conform to anticipated results. Controls should also be in place to timely detect and correct errors that may occur during transaction input and processing.

The majority of system inputs enter through automated interfaces, while the remaining transactions are entered manually. We evaluated key controls that Lottery personnel rely on to ensure system data are appropriately input and remain valid through output. We concluded Lottery has a variety of application controls that collectively ensure system data remains valid throughout input, processing and output.

Some of these controls include:

- automated validation routines that check interfaced data for proper formatting, potential duplicate entry, and correct account coding;
- reconciliations that ensure sales and commission data are complete and accurate;
- system workflows that direct purchase orders to independent approvers;
- an Accounts Payable subsystem that requires separate users to input and process transactions; and
- the Chief Financial Officer who manually reviews disbursements prior to their issuance.

However, Lottery staff pays retailer refunds through the Accounts Receivable subsystem, which is not configured to require that separate users input and process transactions. As a result, a single user could potentially exercise complete control of these disbursements and bypass manual controls that would ensure the transactions are accurate and valid. We tested retailer refund checks issued between July 2012, and February 2013, and found all were appropriately approved and matched source documents.

Processes for making system changes were adequate but could be improved

Changes to computer systems should follow formal change management procedures to ensure they are secure, authorized, tested and approved prior to implementation. In addition, access to program source code should be strictly controlled in order to reduce the potential for corruption of computer programs.

The system's core functionality can only be changed by Microsoft developers. These programming changes are provided to Lottery as periodic system patches or updates. However, Lottery staff can make changes to the system's configuration, such as modifying user or system interfaces, databases, and report layouts.

Lottery has informal practices for making changes to the system including documenting and approving changes as they progress from initiation to implementation. Developers also appropriately test changes they make and obtain approvals from business users before placing modified code in production. Although these controls provide limited assurance that changes to the system are appropriate, Lottery management has not established processes for monitoring system code to detect whether unauthorized changes are being made outside of approved processes.

This weakness increases the risk that unintended system interruptions or errors could occur that would negatively impact Lottery's ability to manage operations or provide timely and accurate financial information to stakeholders.

Staff perform regular back ups of system files and data

Organizations should ensure system backups are regularly performed in accordance with a defined backup strategy. This strategy should ensure all critical files are copied as frequently as needed to meet business requirements and are securely stored at both on-site and off-site locations.

Lottery uses an automated tool to copy system files and databases to a device at Lottery's data center according to a predetermined schedule. In addition, Lottery uses automated routines to transfer and synchronize these copies to another device located at a secure remote location. We noted that Lottery staff monitors the status of the backup process daily to ensure it functions as intended. In addition, the backup system ensures backups are retained according to a predetermined schedule for up to six months.

We tested five of the 12 servers that comprise the system's production environment and found that all were backed up successfully, allowing Lottery staff to restore critical system files should that become necessary.

Lottery protects system data against unauthorized use, disclosure, modification, damage or loss

The integrity of computer systems is preserved by controls that protect the environment in which systems operate, as well as controls that protect individual systems.

Lottery implemented information system controls to ensure the system is protected against unauthorized use, disclosure, modification, damage or loss. However, we noted some improvements could be made.

Because of the sensitive nature of system security, we communicated additional details regarding our specific findings and recommendations to Lottery management in a confidential manner in accordance with ORS 192.501 (23), which exempts such information from public disclosure.

Recommendations

We recommend that Lottery management:

- implement available automated controls within the Accounts Receivable subsystem requiring separate users to input and process refunds, or process these transactions through the Accounts Payable subsystem;
- develop and implement procedures for monitoring system code to detect whether unauthorized changes are being made outside of approved processes; and
- implement the recommendations included in our confidential management letter.

Objectives, Scope and Methodology

The primary purpose for this audit was to identify and evaluate computer controls and assess risks associated with transactions processed through Lottery's Dynamics AX (system). Our specific objectives were to determine whether:

- selected transactions remain complete, accurate and valid during application input, processing and output;
- the system is protected against unauthorized use, disclosure, modification, damage or loss;
- changes to computer code are managed to ensure integrity of the system and data; and
- system files and data are appropriately backed up and can be timely restored.

The scope of this audit includes information system controls in place between November 2012, and February 2013. During this audit, we conducted interviews with Lottery personnel and observed operations and processes. In addition, we examined technical documentation relating to the system. Specifically, we:

- reviewed interface documentation;
- tested transaction data for evidence that controls and procedures were effective;
- reviewed Lottery's procedures for making changes to computer code and observed Lottery's change approval processes;
- evaluated system backup and retention schedules, observed use of the automated application, and verified that backup files existed for a selection of critical servers; and
- reviewed security policies and procedures, logical access reports, and procedures for maintaining and confirming user accounts.

Because of its sensitive nature, we communicated detailed information relating to security findings and recommendations to Lottery under separate cover in accordance with ORS 192.501 (23), which exempts sensitive information from public disclosure.

We used the IT Governance Institute's publication, "Control Objectives for Information and Related Technology," (COBIT), and the United States Government Accountability Office's publication "Federal Information System Controls Audit Manual" (FISCAM) to identify generally accepted control objectives and practices for information systems.

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.

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August 9, 2013

Gary Blackmer, Director
Audits Division
Office of Secretary of State
255 Capitol Street NE, Suite 500
Salem, OR 97310

RE: Oregon State Lottery: General Accounting Software Information Technology Audit

Dear Mr. Blackmer:

This letter is in response to the General Accounting Software Information Technology audit report sent on August 1, 2013. In summary, we agree with the findings presented in the report. Please see the enclosed agency response and corrective action plan for each finding and recommendation.

We appreciate the professionalism of the staff who conducted the audit.

Sincerely,

Larry Niswender, Director
Oregon State Lottery

Encl: Oregon State Lottery's Response to the General Accounting Software Information Technology Audit Report

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Finding 1: Lottery staff pays retailer refunds through the Accounts Receivable subsystem, which is not configured to require that separate users input and process transactions.

Recommendation: Implement available automated controls within the Accounts Receivable subsystem requiring separate users to input and process refunds, or process these transactions through the Accounts Payable subsystem.

Agency Response: *We agree with this finding. We instituted an approval button within the Accounts Receivable subsystem so that there is segregation of duties between two or more individuals. The reason Lottery processes payments to retailers (to close accounts, etc.) for small balances is so that all activity related to a retailer is captured on their activity statement. Lottery does not have the capability to capture refunds processed through the Accounts Payable subsystem in the Retailer Accounting module on the activity statement. This finding has been resolved.*

Finding 2: Lottery management has not established processes for monitoring system code to detect whether unauthorized changes are being made outside of approved processes.

Recommendation: Develop and implement procedures for monitoring system code to detect whether unauthorized changes are being made outside of approved processes.

Agency Response: *We agree with this finding. We are currently assessing tools that can be used to implement source code version control. Once a tool is selected, we will develop a detailed action plan that includes documenting procedures and defining a process for monitoring system code changes to detect unauthorized changes. We plan to resolve this finding by June 30, 2014.*

Finding 3: Lottery implemented information system controls to ensure the system is protected against unauthorized use, disclosure, modification, damage or loss. However, we noted some improvements could be made.

Recommendation: Implement the recommendations included in our confidential management letter.

Agency Response: *Please see our separate letter issued in response to your confidential management letter.*

About the Secretary of State Audits Division

The Oregon Constitution provides that the Secretary of State shall be, by virtue of her office, Auditor of Public Accounts. The Audits Division exists to carry out this duty. The division reports to the elected Secretary of State and is independent of the Executive, Legislative, and Judicial branches of Oregon government. The division audits all state officers, agencies, boards, and commissions and oversees audits and financial reporting for local governments.

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The courtesies and cooperation extended by officials and employees of the Oregon State Lottery during the course of this audit were commendable and sincerely appreciated.