STATE OF
NORTH CAROLINA

PERFORMANCE AUDIT

OFFICE OF INFORMATION TECHNOLOGY SERVICES

BILLING SYSTEM

DECEMBER 2012

OFFICE OF THE STATE AUDITOR

BETH A. WOOD, CPA

STATE AUDITOR

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December 11, 2012

The Honorable Beverly E. Perdue, Governor
Members of the North Carolina General Assembly
Mr. Jonathan Womer, State Chief Information Officer
  Office of Information Technology Services

Mr. Womer:

We are pleased to submit this performance audit titled Office of Information Technology Services Billing System. The audit objective was to evaluate if the system of internal control provides reasonable assurance that information technology asset inventories, used by the Office of Information Technology Services to compute agency billings, are accurate. Mr. Womer received a copy of this report. His written comments are included in the appendix.

The Office of the State Auditor initiated this audit to help ensure the accuracy of agency bills for services provided by the Office of Information Technology Services.

We wish to express our appreciation to the staff of the Office of Information Technology services for the courtesy, cooperation, and assistance provided us during the audit.

Respectfully submitted,

Beth A. Wood, CPA
State Auditor

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SUMMARY

PURPOSE

The purpose of this audit was to determine if the system of internal control provides reasonable assurance that information technology (IT) asset inventories, used by the Office of Information Technology Services (ITS) to compute agency billings, are accurate; and, if necessary, to make recommendations so that ITS management can take appropriate corrective action for deficiencies identified.

RESULTS

ITS does not have adequate internal control in place to ensure the accuracy of IT asset inventory records used to produce agency billings. *North Carolina General Statute 147-33.83(a)(2)* allows ITS to charge agencies for the products and services it provides. For many products and services, ITS bills agencies based on the inventory of associated assets.

Physical inspections, or observations of IT assets, and comparison to IT asset inventory records are not made periodically. Since IT consolidation, ITS has only conducted one physical inspection of IT assets at a consolidated agency.[1]

Policies and procedures are not adequate to ensure that ITS and agency maintained inventory records are consistent. Consequently, billing disputes may be based on conflicting inventory information. Agencies are responsible for verifying the accuracy of the IT asset inventory used by ITS to produce the bill. ITS adjusts agency billings based on agency information.

Policies and procedures are not adequate to ensure agency requested changes to ITS asset inventory records are complete and accurate.

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[1] Consolidation means combining common facilities and functions into shared services for use by multiple agencies and commissions. Currently, the IT infrastructure and associated business processes of 13 executive branch agencies and commissions have been consolidated. Consolidated agencies include: Governor's Office, Office of State Budget and Management (OSBM), Department of Administration (DOA), Office of State Personnel (OSP), the Lieutenant Governor's Office, Department of Commerce, Department of Cultural Resources (DCR), Department of Juvenile Justice and Delinquency Prevention (DJJDP), Office of State Controller (OSC), Alcoholic Beverage Control Commission (ABC), Commission of Banks (COB), Industrial Commission (NCIC), and the Office of Administrative Hearings (OAH).

RECOMMENDATIONS

To ensure the accuracy of agency billings, ITS should periodically observe or inspect IT assets and compare to inventory records. ITS should also evaluate and consider using latest technologies for this purpose. In addition, these physical inspections should also be used to improve associated services by verifying asset information such as acquisition date, location and configuration.

ITS should develop policies and procedures to ensure IT asset inventory records of ITS and agencies are consistent.

ITS should develop policies and procedures to ensure IT asset inventory changes are accurately reflected in agency billings.

AGENCY'S RESPONSE

The Agency's response is included in the appendix.

INTRODUCTION

BACKGROUND

The Office of Information Technology Services (ITS) provides information technology (IT) products to state agencies. North Carolina law authorizes ITS to charge each of these entities for its share of the cost to operate and maintain these products and services.

To allocate its expenses, ITS calculates a billing rate for each product and service. For many products and services, ITS bills agencies based on the inventory of associated IT product. IT products used to compute agency bills include personal computers and servers.[2]

In addition, ITS pays vendors for some products and services based on the associated IT inventory. For example, ITS pays vendors for some telephone services based on the number of connections provided to each state agency.

OBJECTIVES, SCOPE, AND METHODOLOGY

The audit objective was to determine if the system of controls provides reasonable assurance that asset inventories associated with agency billings for ITS provided products and services are accurate.

The Office of the State Auditor initiated this audit to help ensure the accuracy of agency bills for services provided by ITS.

The audit scope included an evaluation of the process utilized by ITS to ensure the accuracy of IT asset inventories utilized in billing calculations for consolidated agencies. We selected this audit based on concerns expressed by state agency and legislative staff.

We conducted the fieldwork from March 2012 to August 2012.

To achieve the audit objective we reviewed state laws, reviewed associated procedures, and interviewed North Carolina ITS personnel. We also interviewed personnel from state agencies receiving services from ITS.

Because of the test nature and other inherent limitations of an audit, together with limitations of any system of internal and management controls, this audit would not necessarily disclose all performance weaknesses or lack of compliance.

As a basis for evaluating internal control, we applied the internal control guidance contained in professional auditing standards. As discussed in the standards, internal control consists of five interrelated components, which are (1) control environment, (2) risk assessment, (3) control activities, (4) information and communication, and (5) monitoring.

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[2] Service offerings are described in the ITS Service Catalog.

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.

We conducted this audit under the authority vested in the State Auditor of North Carolina by *North Carolina General Statute* 147.64.

Internal Control Does Not Ensure Accurate Billings

The Office of Information Technology Services (ITS) does not have adequate internal control in place to ensure the accuracy of information technology (IT) asset inventories used to produce agency billings. *North Carolina General Statute 147-33.83(a)(2)* allows ITS to charge agencies for the products and services it provides. For many products and services, ITS bills agencies based on the inventory of associated assets.

Information technology asset inventories are used by ITS to allocate the cost for many of the products and services provided to state agencies.[3]   Agencies are billed each month for the products and services provided by ITS.

No Periodic Inspection of Agency IT Assets and Comparison to Inventory Records

ITS has not conducted periodic inspections or observations of IT assets at consolidated agencies and compared results to inventory records used to produce agency billings. Since consolidation, ITS has only conducted one physical inspection of IT assets at a consolidated agency. In May 2011, ITS performed a physical inspection of personal computers at the former Department of Juvenile Justice & Delinquency Prevention (DJJDP). This inspection was conducted in response to a disputed monthly billing.

In addition, ITS has not been fully utilizing available <u>automated</u> inventory tools to identify IT assets deployed at agencies. ITS reported that it has two applications that can remotely identify some agency IT assets, such as personal computers and servers. However, due to technical issues ITS has not deployed the application used to identify personal computers since November 2009.

During our audit, ITS began a project to validate the accuracy of its inventory of selected IT assets. ITS plans to fully utilize software applications to remotely identify certain types of IT assets, such as personal computers. The listing of remotely identified assets will be compared to the ITS maintained inventory of assets used to compute agency billings. For those assets identified in the ITS maintained inventory, but not through the remote inventory, ITS will consult with agencies and conduct a physical inspection to determine the validity of the unidentified assets.

Conducting periodic inspections or observations of IT assets is necessary to ensure that ITS maintained inventory records are complete and accurate. The North Carolina Office of the State Controller (OSC) recommends that physical inspection observations be performed at least annually and the results be reflected in the perpetual inventory records.[4]

ITS uses a perpetual asset inventory system to determine the actual usage information for many of the products and services provided to agencies. The initial inventory for the perpetual inventory system was established when each agency was consolidated. The number

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[3] As specified in <u>GS 147-33.83</u>, ITS is authorized to charge for the cost to operate and maintain the products and services provided to its customers.

[4] Office of the State Controller, <u>Internal Control Questionnaire</u>, July 2011.

of assets in perpetual inventory system is continually updated to reflect notifications by agencies of additions and deletions of these assets.

Assessing the accuracy of IT asset inventories may be performed through physical inspection or remotely by utilizing automated inventory tools. Utilization of automated inventory tools is the more efficient inventory method, but is limited to assets that are connected to an applicable network. For assets that cannot be remotely detected, a physical inspection of assets is required to ensure a complete and accurate inventory total.

Billing Adjustments Made Without Consistent ITS and Agency Inventory Data

ITS has not established adequate policies and procedures to ensure that ITS and agency maintained inventory records are consistent. Consequently, billing disputes may be based on conflicting inventory information. The following illustrates the potential adverse consequences when agency billing disputes are based on conflicting inventory information.

In August of 2010, the former Department of Juvenile Justice & Delinquency Prevention (DJJDP) disputed their bill for personal computing services. DJJDP reported that they were overcharged for personal computing services because the number of desktop and laptop computers in the ITS inventory was too high. In response, ITS reduced the bill for these services. Eight months later, in April 2011 ITS performed a physical inventory of the agency's personal computers. This physical inventory found that the number of personal computers in the ITS inventory was actually too low. However, ITS did not use these new inventory totals to adjust any bills because of continued disagreement with DJJDP.

Changes to agency billings should be based on accurate and complete asset inventory data. The North Carolina Office of the State Controller (OSC) recommends that usage data be accurately maintained to ensure that amounts due are billed correctly.[5]

Each agency bill identifies the total number of assets used to compute the bill for the associated product or service. Agencies are responsible for verifying the accuracy of these asset totals and for reporting identified errors to ITS. ITS is responsible for reviewing these reported errors and for making adjustments to agency billings, as appropriate. If no errors are reported, the bill is considered correct.

Agency Bills May Not Reflect All Inventory Changes

ITS has not established adequate policies and procedures to ensure all additions and deletions to the IT asset inventory records used to produce agency bills are complete and accurate. Consequently, ITS may be overpaying vendors and mischarging agencies for services that were, or were not, provided. To illustrate these potential adverse consequences, the following example is provided.

ITS has not been ensuring additions and deletions in vendor provided long distance telephone services are complete and accurate. The current process compares the telephone connections

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[5]Office of the State Controller, Internal Control Questionnaire, July 2011.

as reported on the vendor bill with the ITS maintained inventory. Telephone connections identified in the vendor bill, but not in the ITS inventory, are flagged for investigation. Due to ITS organizational changes, each of the flagged telephone connections has not been investigated; however, ITS has continued to pay the vendor bills, as charged.

In addition, the current process does not detect when telephone connections are in the ITS inventory, but not on the vendor bill. Consequently, the ITS maintained inventory may be inaccurate, and agencies will be overcharged and/or undercharged, for telephone connections.

During our audit ITS, started an initiative to review existing procedures to ensure changes to IT asset inventories are accurately incorporated into agency billings. ITS reported that this initiative is expected to be completed by January 2013.

To ensure the accuracy of agency bills, ITS must ensure changes to applicable asset inventories are accurate and complete. North Caronia General Statute 147-33.83(a)(2) allows ITS to charge each department for which services are performed its proportionate part of the cost of maintaining and operating the shared centers for services. Accurate and reliable inventories of IT assets are essential to ensuring agency billings reflect the proportionate cost of maintaining and operating the associated IT products and services.

The North Carolina Office of the State Controller (OSC) recommends that procedures be established to ensure all inventory changes are properly recorded and reflect the actual quantities on hand.

Conclusion

As a result of inadequate internal control to ensure asset inventories used to generate agency billings for ITS provided services are accurate:

- ITS expenses may be improperly allocated to federally sponsored programs. (The cost of the products and services provided by ITS to agencies are often eligible for federal reimbursement when utilized to support federally sponsored programs.) Evaluations of outsourcing alternatives may not be valid. Inaccurate bills produced by ITS for its product and services due to inaccurate inventories result in inaccurate cost information. Consequently, quotes from private vendors to provide these services cannot be accurately compared with the current cost of these ITS provided products and services.

- Legislative appropriations to agencies may not be based on accurate product and service utilization information. Without accurate agency bills for ITS provided products and services, the Legislature does not have accurate information to use in determining appropriate agency funding levels.

- Periodic physical inspections of IT assets ensures the accuracy of billings for associated products and services. Periodic physical inspections would enable ITS to validate both its perpetual inventory and the associated agency maintained inventory. In addition, information from periodic physical inspections can be used to identify agency requested additions and deletions that were not accurately recorded in the perpetual inventory system.

Recommendations

To ensure the accuracy of agency billings, ITS should periodically observe or inspect IT assets and compare to inventory records. ITS should also evaluate and consider using latest technologies for this purpose. In addition, these inventories should also be used to improve associated services by verifying asset information such as acquisition date, location and configuration.

ITS should develop policies and procedures to ensure IT asset inventory records of ITS and agencies are consistent.

ITS should develop policies and procedures to ensure IT asset inventory changes are accurately reflected in agency billings.

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State of North Carolina
Office of Information Technology Services

Beverly Eaves Perdue
Governor

Jonathan Womer
State Chief Information Officer

November 15, 2012

The Honorable Beth A. Wood, CPA
State Auditor
Office of the State Auditor
2 South Salisbury Street
20601 Mail Service Center
Raleigh, North Carolina 27699-0601

Dear Ms. Wood:

We have reviewed the October 12, 2012, confidential draft of performance audit titled "Office of Information Technology Services Billing System." ITS generally agrees with the findings and recommendations, and has already begun working to develop or enhance policy and procedures to ensure IT asset inventory changes are accurate and properly reflected in agency billings.

In April 2012, ITS began a comprehensive review of the IT asset inventory. We currently use two applications that remotely validate deployed assets used to calculate billing amounts. Technical issues have prevented us from fully utilizing these tools and we are working with the vendor to resolve the outstanding issues. In November, an asset management workgroup will meet to map out a physical inventory schedule and implement several asset management policy recommendations developed in recent months by various ad-hoc committees and studies. In addition, ITS posted an RFP to procure an IT Financial Management System, and bidders' proposals are currently under evaluation. This System will allow us to track billing and inventory data in a single database, and use pertinent data to ensure adequate planning for refresh cycles in the rate structure. The new software will provide ITS customers with clearer and more information-rich monthly invoices. Simultaneous business process improvements will reduce and simplify the number of billing rates making it easier for the customer to understand and track billed assets.

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ITS Response to Billing System Audit

The report states that billing adjustments are made without consistent ITS and agency inventory data. It is important to note that ITS does have established policies and procedures to ensure that ITS and agency maintained inventory records are consistent. When a customer disputes a bill, the following steps are followed:

1. All customer disputes or inquiries are directed to the billing staff for resolution.
2. The billing staff investigates each dispute, to determine whether the invoice in question is accurate.
3. If the invoice is consistent with ITS inventory records, additional supporting detail is provided to the customer.
4. If the invoice is inconsistent with ITS inventory records, supporting detail is provided to the customer, and corrective measures are implemented.

ITS agrees that these procedures may not result in agreement between ITS and agency inventory records. In such a situation, the dispute must be resolved by physical inventories involving representatives from ITS, the agency and potentially a third party. As ITS begins to schedule periodic physical inventories, inventory disputes should decline.

The report also states that agency bills may not reflect all inventory changes. The ITS Change Management process is established to track additions and deletions to the inventory. The process requires initiation of a Remedy Change Ticket, a physical inventory of the asset(s), and then an update to Remedy asset record(s). Processes are also in place for returns to vendors, asset retirements and new purchases.

In order to enforce existing policies and ensure the accuracy of the asset records, ITS will take several additional steps by January 2013:
- Policy staff will publish an external policy manual that will include clarification of change management procedures.
- Customer service staff is working with individual agencies to ensure the current inventory is correct and resolve any discrepancies.
- Physical inventories will be scheduled at regular intervals.
- Physical spot checks of assets will be conducted when it is suspected that an automated tool is not reporting the asset.
- Budget staff will work with billing staff to establish procedures to routinely reconcile deployed (billed) assets in the Remedy Asset Database to those in billing systems.

In addition, an initiative is underway to assess and improve the inventory database addition and deletion procedures followed by ITS and State agencies. An ad-hoc team of ITS employees has been reviewing policies and procedures relating to asset identification, billing and records accuracy. Where appropriate, we will develop new policies and procedures to address the issues discovered and align policies and procedures accordingly. This initiative is part of a process review which started April 1, 2012 and is expected to conclude in January 2013.
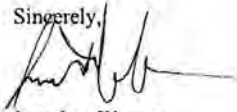
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ITS Response to Billing System Audit

We would like to provide additional clarification regarding the specific example of potential overpayment for telephone connections. Due to various taxes and regulatory fees, telephone bills are complex and may vary by provider. Therefore, a systematic comparison of information (telephone number) from the vendor bill to the telephone numbers within the billing system is routinely conducted. Numbers from the vendor bill that do not match numbers in the billing system are identified on an "unmatched report." In most cases, items appear on the "unmatched report" due to timing differences, resulting from a lag between customer usage and when the new service information is captured in the billing system. A number may also appear on the "unmatched report" if a vendor is improperly charging a phone line to ITS. When such discrepancies occur, ITS may withhold payment to the vendor until the difference is resolved.

Two telecom billing auditors review vendor bills for telecom services on a monthly basis. The review runs several months behind the bill cycle to allow adequate time for adjustments due to timing differences. Auditors ensure customer information and billing rates are correct in the billing system, and vendors are charging ITS the pre-approved rate. Where there are differences, auditors work with the vendor to correct under/over billings. During the 2011 calendar year, the telecom billing audit group identified $392,987 of potential overcharges. Beginning in 2013, ITS will work with internal audit staff to utilize software tools to increase efficiency and potential savings.

Thank you again for the opportunity to respond to the draft audit. ITS looks forward to working with the Office of State Auditor or any others to improve the efficiency and effectiveness of information technology in delivering services to the state's citizens.

Sincerely,

Jonathan Womer

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This audit required 1745 audit hours at an approximate cost of $125,640. The cost represents .066% of the $190 million in total expenditures subjected to audit.