
CITY OF SAN ANTONIO

OFFICE OF THE CITY AUDITOR



Audit of Information Technology Services Department
Hardware and Software Lifecycle Management Process

Project No. AU16-015

October 17, 2016

Kevin W. Barthold, CPA, CIA, CISA
City Auditor

Executive Summary

As part of our annual Audit Plan approved by City Council, we conducted an audit of the Information Technology Services Department's (ITSD) hardware and software lifecycle management process. The audit objectives, conclusions, and recommendations follow:

Determine if current processes for managing the lifecycle of hardware and software for general office use throughout the City are appropriate and meeting the needs of City staff.

Overall, internal controls need improvement to ensure that the lifecycle of hardware and software are effectively managed. While ITSD has procedures in place to manage hardware and software needs of City staff, we did note areas where processes can be improved to serve as effective controls:

- A control to ensure that information needed to effectively monitor IT related purchase requests does not exist.
- A standard process for performing periodic physical inventories does not exist. ITSD has not performed a physical inventory of assets since September of 2014.
- Privileged users with access to modify IT assets in the Remedy System are not being reviewed for appropriateness. Additionally, critical changes to status (i.e. disposals or end of life) of IT assets are not being monitored.
- Disposed capital assets are not accurately accounted for in SAP.

We recommend that the Chief Technology Officer:

- Establish a control to ensure that each IT related purchase request is reviewed in detail by ITSD personnel prior to obtaining ITSD senior management's review and approval. IT personnel should ensure that IT purchase requests include vital information needed and that approved purchases are recorded in the Remedy System.
- Conduct a physical inventory of IT assets on a periodic basis. Furthermore, create a standard for documenting the specific location of IT assets.
- Periodically review Remedy System users with elevated privileges. Additionally, monitor the critical changes made to assets for validity and proper authorization.
- The Chief Technology Officer should perform a reconciliation of capital IT assets on a quarterly basis between SAP and the Remedy System.

ITSD management agreed with our recommendations and have developed positive actions plans. ITSD management's verbatim responses are included in ***Appendix B***.

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Background

ITSD provides services and support for City employees' information technology needs. Employees may contact ITSD to request new hardware/software, or for any other IT-related needs, in one of three ways: 1) contact their assigned Business Relationship Manager (BRM), 2) complete an online request through the IT Service Request portal on the City's intranet site, or 3) call the Help Desk.

To ensure adequate support, personnel within the Client Services Division are responsible for responding to and resolving City employees' technology needs. ITSD standard processes are that BRMs work as liaisons between City departments and ITSD. Service Coordinators take in calls and online requests and initiate a work order (known as a change request or CRQ) for each request, including requests for new hardware or software. Service Coordinators facilitate the purchase-approval process by ensuring all required information is gathered from the customer and assigned to the appropriate personnel for processing. Technicians and analysts are responsible for preparing and installing computer hardware and software for the end users.

The City spent approximately \$20.2 million on the purchase and maintenance of computer hardware and software in FY2015. According to the Information Technology Services Department (ITSD) records, the City owns 12,857 laptop and desktop computers, each with various software packages installed such as Microsoft Office and Adobe products.

Audit Scope and Methodology

The audit scope was from October 1, 2014 through December 31, 2015.

To establish our test criteria, we examined ITSD policies, procedures, and City Administrative Directives. When testing information technology, we used the Government Accountability Office's (GAO) Federal Information System Controls Audit Manual (FISCAM). The GAO's FISCAM presents a methodology for performing information system control audits in accordance with government auditing standards.

To gain an understanding of internal controls, we conducted interviews of appropriate personnel to identify controls related to the IT hardware and software lifecycle. As part of our testing procedures, we examined the following IT lifecycle management areas:

- IT Governance
- IT service request management
- Purchasing, receiving, and installing IT hardware/software
- Maintenance (Microsoft patch management and updates)
- Physical inventories and reconciliations of IT assets
- Disposal of hardware and software
- Asset management software user privileges

We relied on computer-processed data in the SAP System, the City's financial and accounting system of record, as well as data in the Remedy System, ITSD's system for managing changes and assets. Our reliance was based on performing direct tests on the data rather than evaluating the system's general and application controls. We do not believe that the absence of testing general and application controls had an effect on the results of our audit.

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.

Audit Results and Recommendations

A. IT Hardware and Software Procurement

A control to ensure that information needed to effectively process IT related purchase requests does not exist. We noted several instances where IT related purchase requests that originated outside of ITSD were missing critical information needed to ensure that assets are recorded and adequately tracked in the Remedy System.

As identified through interviews with ITSD management, information on the purchase request needs to be accurate and complete in order for ITSD to adequately track and record IT assets within the Remedy System.

Within the SAePS¹ purchasing system, all IT related purchases are routed to two ITSD senior managers for review and approval prior to the request becoming a purchase order. During FY2015, the two senior managers reviewed and approved over 4,000 IT purchase requests. The large amount of IT purchase requests hinders a more detailed review of the request details such as material numbers and asset classification.

In FY2015, 29% or \$5.8M of all IT computer related purchases were originated by departments other than ITSD. Of these purchases, we tested a judgmental sample of 25 IT hardware and software purchases to ensure that they were recorded in the Remedy System. Our test results indicated that 3 of the 25 assets purchased were not listed in the Remedy System due to missing material number or incorrect asset classification. We also noted that in some cases, the required IT change request was not created.

ITSD's lack of a detailed review for IT related purchases increases the risk of IT assets not being tracked or managed properly, missing or incorrect financial information, and additional work for ITSD to research and correct errors.

Recommendation

The Chief Technology Officer should establish a control to ensure that each IT related purchase request is reviewed in detail by ITSD personnel prior to obtaining ITSD senior management's review and approval. IT personnel should ensure that IT purchase requests include vital information needed and that approved purchases are recorded in the Remedy System.

¹ San Antonio electronic Procurement System which handles sourcing, procurement, transaction processing, order management, and payment support functions.

B. Physical Inventory of Assets

ITSD has not completed a physical inventory of IT assets since September of 2014. Additionally, there is no standard for documenting the specific department/building location of hardware within the Remedy System.

According to the Federal Information System Controls Audit Manual (FISCAM) section SM-1.5, “an inventory of systems is necessary for effective monitoring, testing, and evaluation of IS controls, and to support information technology planning, budgeting, acquisition, and management.” FISCAM recommends that the physical inventory be maintained and updated annually.

Of the 12,857 computers listed in the Remedy System, the location of 2,509 (20%) is labeled ‘unknown.’ According to ITSD, a physical inventory had not been performed because the position of Asset Manager had been vacant since March of 2015.

Without period physical inventories, ITSD is unaware of excess, unused, damaged or missing IT assets and data that support technology forecasts or budgets may be inaccurate. Additionally, without a standard for documenting the physical location of IT assets, the physical inventories will be inefficient and difficult to repeat.

Recommendation

The Chief Technology Officer should implement a standard process for conducting periodic physical inventories of IT assets to include identification of physical locations for all IT assets.

C. Asset Management Access Controls

Remedy System user access to decommission or dispose of IT assets is excessive and has not been reviewed for appropriateness. Additionally, the Remedy System does not have the functionality to create asset management subgroups so that users only have access to modify the types of assets they are responsible for.

There are over 94,000 IT assets listed in the Remedy System inventory which includes both hardware² and software. Once the status of an IT asset is changed to ‘end of life’, the asset is considered to be no longer in use by the City. Currently, 31 users have access to the asset administration group which allows them to modify the asset status of all IT assets listed in the Remedy System.

² IT hardware includes technical equipment such as desktop and laptop computers, monitors, servers, network infrastructure, security equipment, and telephones.

A lack of review of users with privileges to decommission or dispose of IT assets could result in inappropriate or unauthorized changes. Furthermore, without proper segregated access controls, users have the ability to modify assets beyond the scope of their designated area.

Recommendation

The Chief Technology Officer should establish controls to ensure periodic reviews of Remedy System users with elevated privileges. Additionally, because the Remedy System does not have the ability to create asset management subgroups, critical changes to the status of IT assets should be monitored for appropriateness.

D. Disposal of Capital IT Assets

Disposed capital IT assets are not accurately accounted for in SAP. Consequently, Finance continues to record accumulated depreciation for these assets and the book value recorded on the balance sheet is inaccurate. Furthermore, there is a lack of reconciliation of capital IT assets between the Remedy System and SAP.

A capital IT asset is any computer equipment or software with an acquisition value of \$5,000 or more. According to A.D. 8.7 Financial Management of Capital Assets, subsystems, such as the Remedy System, used by departments for asset management are to be reconciled to SAP on a quarterly basis.

Once an asset is retired in the Remedy System, the asset is automatically retired in SAP. We compared the Remedy System asset database to the SAP asset database and identified IT capital assets that were no longer active in the Remedy System but remain active in SAP.

Without the proper recording of the disposition of capital IT assets, the City is not complying with Governmental Accounting Standards Board (GASB) Statement No. 42, "Accounting and Financial Reporting for Impairment of Capital Assets and for Insurance Recoveries." Additionally, if disposed capital IT assets in SAP are not updated or being reconciled to the Remedy System, financial reports and inventory amounts could be misstated.

Recommendation

The Chief Technology Officer should perform a reconciliation of capital IT assets on a quarterly basis between SAP and the Remedy System.

Appendix A – Staff Acknowledgement

Sandy Paiz, CFE, Audit Manager
Gabe Trevino, CISA, Auditor in Charge
Amy Barnes, CGAP, CFE, Auditor

Appendix B – Management Response



CITY OF SAN ANTONIO

P.O. Box 839966
SAN ANTONIO TEXAS 78283-3966

September 30, 2016

Kevin W. Barthold, CPA, CIA, CISA
City Auditor
San Antonio, Texas

RE: Management's Corrective Action Plan for Audit of Hardware and Software Lifecycle Management Process

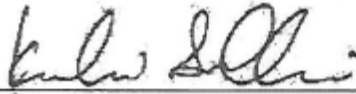
The Information Technology Services Department has reviewed the audit report and has developed the Corrective Action Plans below corresponding to report recommendations.

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
1	IT Hardware and Software Procurement Recommendation The Chief Technology Officer should establish a control to ensure that each IT related purchase request is reviewed in detail by ITSD personnel prior to obtaining ITSD senior management's review and approval. IT personnel should ensure that IT purchase requests include vital information needed and that approved purchases are recorded in the Remedy System.	3	Accept	Benito Medrano / Assistant Information Services Director	August 31 2016

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
	<p><u>Action plan:</u></p> <p>Until recently all Fiscal staff in the various City Departments were able to initiate the procurement of IT goods and services funded by those Departments. This frequently resulted in the creation of Purchase Orders with incomplete or incorrect material number information, which in turn affected the accuracy of asset data in the Remedy asset management system. As a result, ITSD asset management staff has had to consistently review and correct data in the Remedy system.</p> <p>All procurements of IT goods and services are now initiated and reviewed for accuracy by ITSD staff. That review includes ensuring that material numbers and NIGP codes are correct for these items, which ensures that they will be recorded, tracked, and managed in the Remedy system. Completed by August 31 2016.</p>				
2	<p>Physical Inventory of Assets</p> <p>Recommendation The Chief Technology Officer should implement a standard process for conducting periodic physical inventories of IT assets to include identification of physical locations for all IT assets.</p>	4	Accept	Benito Medrano / Assistant Information Services Director	March 31 2017
	<p><u>Action plan:</u></p> <p>ITSD will work with the Finance Department to establish a common schema for identifying physical locations (address, building, floor, room, cubicle) for IT assets as well as other property tracked by the Finance Department. Completed by December 31, 2016.</p> <p>ITSD will coordinate with the other City Departments to implement policies ensure that IT assets, once deployed, are not moved except by ITSD staff. Completed by October 31, 2016.</p> <p>ITSD will implement physical inventory processes and procedures as part of the Remedy IT Asset Management System upgrade project already in progress. This will include the periodic physical inventory of tracked IT assets. Completed by March 31, 2017.</p>				

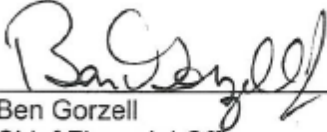
Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
3	Asset Management Access Controls Recommendation The Chief Technology Officer should establish controls to ensure periodic reviews of Remedy System users with elevated privileges. Additionally, because the Remedy System does not have the ability to create asset management subgroups, critical changes to the status of IT assets should be monitored for appropriateness.	4	Accept	Patsy Boozer / Chief Information Security Officer	March 31 2017
Action plan: ITSD will implement additional access controls within the Remedy system as part of the Remedy IT Asset Management System upgrade already in progress. These additional controls will include the ability to limit access to IT Asset data by subgroup. Completed by March 31 2017.					
4	Disposal of Capital IT Assets The Chief Technology Officer should perform a reconciliation of capital IT assets on a quarterly basis between SAP and the Remedy System.	5	Accept	Benito Medrano / Assistant Information Services Director	March 31 2017
Action plan: ITSD will work with Finance to identify and implement process improvements to ensure that capital IT assets are properly recorded in SAP when they are removed from service and disposed of. Complete by December 31, 2016. ITSD will work with Finance to establish more frequent reconciliation processes for SAP financial data and Remedy IT Asset data. Finance will also provide guidance on the frequency of this reconciliation. Completed by March 31, 2017.					
We are committed to addressing the recommendations in the audit report and the plan of actions presented above.					
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Sincerely,



Kevin Goodwin for Hugh Miller
Chief Technology Officer/ Director
ITSD

September 30, 2016
Date



Ben Gorzell
Chief Financial Officer
City Manager's Office

9/30/16
Date