Office of the County Auditor
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Cook County Auditor
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January 25, 2016

The Honorable Toni Preckwinkle, President
And Board of Cook County Commissioners
118 N. Clark Street, Room 537
Chicago, Illinois 60602

Dear President Preckwinkle and Board of Commissioners:

We have conducted a Countywide Software Licenses Audit. We conducted our audit in accordance with the Cook County Auditor Ordinance.

The scope and objectives of the audit were to verify that internal controls are in place to ensure software licensing compliance.

Please refer to the following audit report for the results of the audit. The audit report contains 4 audit findings. The Executive Summary provides an overview of the audit with the main finding areas.

We express our appreciation for the assistance all department staff extended to our office during the course of our audit. We have discussed our findings with the Bureau of Technology staff and would be pleased to discuss our recommendations in greater detail in order to assist with the implementation of our recommendations.

Respectfully Submitted,

Shelly Banks

Shelly A. Banks, CPA
Cook County Auditor

cc: Simona Rollinson, Chief Information Officer
       Anita Alvarez, State's Attorney
       Arnold Randall, General Superintendent, Forest Preserve District
       David Orr, County Clerk
       Dorothy Brown, Clerk of the Circuit Court
       John Jay Shannon, MD Chief Executive Officer, CCHHS
       Joseph Berrios, Assessor
       Karen A. Yarbrough, Recorder of Deeds
       Maria Pappas, Treasurer
       Timothy C. Evans, Chief Judge, Circuit Court of Cook County
       Thomas Dart, Sherriff

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COOK COUNTY GOVERNMENT

OFFICE OF THE COUNTY AUDITOR

Software Licenses Audit

Internal Audit Report

Report Date: January 2016

Issued By:
Shelly A. Banks, County Auditor

Audit Conducted By:
Frances M. Roybal, Field Auditor

EXECUTIVE SUMMARY

The Office of the Cook County Auditor has conducted an audit in regards to Software Licenses. The scope and objectives of the audit were to verify that internal controls are in place to ensure software licensing compliance. Our scope included reviewing internal controls for Countywide Offices.

We noted the following findings in regards to the internal control structure:

- Countywide policies and procedures in regards to software licensing are lacking. Software licensing procedures should address the processes for acquisition, deployment, usage, backup, security, monitoring, disposal and asset management.
- Procedures or specific guidelines do not exist Countywide on the usage of the Enterprise Licensing Agreements (ELAs).
- Periodic monitoring throughout the year is not in place to ensure software licenses are appropriately accounted for and in compliance with relevant agreements.
- There is a lack of a central repository of software usage and license entitlements across the County.

The findings noted were presented to the Bureau of Technology. Please refer to the Findings section for more detail on the findings with the management responses, corrective action plans and estimated completion dates.

BACKGROUND

The Cook County Bureau of Technology (BOT) aims to collaboratively assist Cook County Agencies and Departments to meet their business needs through collaboration, policy, strategic planning and services. Bureau of Technology provides software application and website development and support functions. BOT has authority to manage Offices under the President, but has limitations to its governance authority for Elected Offices. BOT has concurrence authority only on purchases that require CPO/Board approval, which presents limitations to overall governance authority.

BOT manages a subset of Software Licenses for Cook County Agencies and Departments under the President. BOT has three primary Enterprise License Agreements (ELAs) which are Adobe, Microsoft, and ESRI. Prior to these County Enterprise Agreements, various County departments purchased licenses independently based on the particular needs of their agency. There were numerous POs and invoices because licenses were purchased on an as-needed basis. The three Enterprise Software License Agreements account for a significant if not the majority of the Office of the President's Productivity software. The Microsoft Enterprise Agreement was executed in June 2013. The Adobe Enterprise License Agreement was executed in February 2014.

In preparation to enter into enterprise agreements with Microsoft and Adobe, BOT worked with other County agencies and with vendors to determine the total quantity of each manufacturer's licenses owned by the County at that time, regardless of software version. The County and the vendors agreed that the specified quantity accurately represented the number of licenses in use at the County, and that the vendor would support that quantity of licenses going forward. All product versions within that quantity are covered by the respective enterprise agreements.

Under the current enterprise agreements, the County pays for a given number of software licenses on an annual basis. Elected Offices participate in the ELAs managed by BOT or ERP. Licenses are distributed to each agency from a general pool of licensing that is available. Elected Offices are responsible for

maintaining their own inventory of licenses and users. Under ELA contracts managed by BOT that require true ups, BOT will conduct an annual review of the number of licenses actually in use (a "true up") and report that number to the vendor. If it is determined that the County has more licenses in use than are covered by the ELAs, the County will owe money to cover the cost of the new additional licenses. The annual purchase order and invoice from these vendors states the quantity of licenses that are supported. All licenses within that quantity are covered by the County's annual payment.

Cook County Department of Geographic Information Systems has an Enterprise Agreement with Environmental Research Institute (ESRI). The ESRI License Agreement was executed in November 2012. BOT has used this software, which is standard across the world (local, state and federal agencies), for geospatial technology environments. The software is used by all sectors in Cook County - property, public safety, health and hospitals and the administration agencies. All licensing and products are maintained on a GIS server. To maintain security of the application, BOT and other agencies are given a unique password to access the GIS database which houses GIS data. By providing access to the FTP site, the installation of the application is streamlined and eliminates the demand for helpdesk to complete installation process.

AUDIT SCOPE AND OBJECTIVES

The scope and objectives of the audit were to verify that internal controls are in place and to ensure software licensing compliance. Our scope included reviewing internal controls for Countywide offices.

The specific objectives were the following:
- Determine that written policies and procedures for software licenses exist and are adhered to.
- Determine that internal controls are in place to ensure software licensing compliance.
- Verify that proper authorizations are obtained prior to installing software.
- Verify that a current inventory report exist identifying software licenses and users.
- Determine that monitoring of software licenses is performed and reconciliation reports are prepared regularly.
- Determine that software licensing agreements exist and are in accordance with contract requirements.
- Determine that original media, proof of licenses and other supporting documentation exist and are stored in a secure central location.

FINDINGS

Finding #1
Countywide policies and procedures in regards to software licensing processes are lacking. Software licensing procedures should address the processes for acquisition, deployment, usage, backup, security, monitoring, disposal and asset management. Software licensing processes are managed separately by the Bureau of Technology and the Elected Offices. The Bureau of Technology and Elected Offices have varying procedures that address various components of the software licensing process but not the entire process to ensure that all the proper controls are in place. According to the Bureau of Technology, they do not have the leverage to enforce the establishment and implementation of procedures within the Elected Offices due to the fact that they do not have the regulatory authority.

Recommendation
We recommend that BOT work with the departments and Elected Offices to establish the following controls for Countywide Software Licensing Policies and Procedures:

- Develop procedures that address all software license processes (acquisition, deployment, usage, backup, security, monitoring, disposal and asset management).
- Promote the adoption of software licensing procedures in Offices under the President as well as the Elected Offices.
- Develop a checklist to provide guidance to offices/departments on the software licensing processes.
- Establish a central repository of all Countywide IT policies and procedures and request that Elected Offices submit all IT policies and procedures to the central repository. A central repository will allow all offices to share their IT policies and procedures to enable best practices.
- Develop an ordinance on software licensing management to establish software license management roles, responsibilities, and procedures and proper authority with BOT. As an example, the GSA recently issued a GSA Order for software licensing management.
- Establish an annual reporting process to the Board on Countywide compliance with the ordinance and software licensing policies.

Management Response
BOT intends to purchase and deploy a software asset management solution in FY'2016. This solution will permit the County to monitor software deployment and usage. BOT will engage Elected Officials (via the CIO Roundtable) to evaluate the feasibility a Software Asset Management Policy that can be adopted by each of the respective agencies.

Estimated Completion Date
November 30, 2016

Finding #2
Procedures or specific guidelines do not exist Countywide on the usage of the Enterprise Licensing Agreements (ELAs). In addition, the ELAs are not being effectively communicated to all departments and Elected Offices to promote awareness of the benefits and privileges of participating. During the audit, it was noted that certain departments were not aware of the ELAs and therefore, were not utilizing to purchase software.

The County has established ELAs as a cost effective way to purchase software licenses. To ensure that the County is taking full advantage of bulk or volume licenses and managing software for maximum benefit, software licenses need to be purchased from the ELAs.

Recommendation
We recommend BOT implement the following to improve the value and controls for utilizing the Enterprise Licensing Agreements (ELAs):
- Develop procedures outlining the processes for utilizing the ELAs.
- Establish a policy requiring Countywide usage of the ELAs to ensure the maximum benefit.
- Communicate through all relevant means the requirement and benefits for utilizing the ELAs.

Management Response
BOT recommends the adoption of a shared-first policy applicable to Offices under the President and all Elected Officials and require usage of BOT-managed contracts where multiple agencies use the same license or product. BOT will explore opportunities to communicate the availability of shared/enterprise products to Using Agencies via the CIO Roundtable.

Estimated Completion Date
November 30, 2016

Finding #3
Periodic monitoring throughout the year is not in place to ensure software licenses are appropriately accounted for and in compliance with relevant agreements. BOT does complete an annual Countywide True Up for the Enterprise License Agreements. Elected Offices are asked to submit a report to BOT indicating the actual licenses used. BOT then reconciles the reported licenses to the overall licensing pool and reports the number to the vendor. A True Up only annually can be cumbersome and without tracking throughout the year there may be unnecessary expenses due to unused licenses being paid for that could be recycled or redirected to other users.

Periodic comparison of purchased licenses with users and devices reduces the risk of misuse and ensures that the usage of all installed software is in compliance with the terms and conditions of the specific vendor license agreements. Monitoring and other verifications (for example, random spot checks) provide positive assurance to management that reported assets do in fact exist, and in the quantities reported.

Recommendation
We recommend the Bureau of Technology implement monitoring processes to occur periodically throughout the year for all software licenses maintained throughout the County. Periodic monitoring throughout the year ensures the best use of software licenses and reduces unnecessary expenses. The ELAs may only require a True Up annually for contractual reporting purposes; but for the County to ensure that licenses are being appropriately tracked and used, monitoring should occur throughout the year. A Microsoft document (The True-up Guide) recommends performing interim quarterly inventories of licensed IT infrastructure.

Management Response
BOT plans to adopt a software asset management solution that will permit BOT to monitor software deployment and usage on a regular basis.

Estimated Completion Date
November 30, 2016

Finding #4
There is a lack of a central repository of software usage and license entitlements across the County. The Bureau of Technology and Elected Offices have various tools/systems used to track software licenses; but there is no consistency as to the information and level of data that is maintained. Annually, Elected Offices submit lists of software licenses for the ELAs, but this information is not maintained in a central repository. Establishing a central repository will provide for improved accountability and a more effective and efficient periodic monitoring of the software licenses, as well as allow for the ability to reduce software and support costs by negotiating volume contract agreements and eliminating or reallocating underutilized software licenses.

Recommendation
We recommend that BOT establish a central repository to maintain detailed information on software licenses issued throughout the County. Elected Offices should report software licenses to BOT with a level of detail to ensure licenses can be appropriately tracked. Software license information is currently provided from Elected Offices for ELA contractual reporting. To expand upon what is currently submitted, BOT has stated that regulatory authority would need to be established.

Management Response
BOT will work through the CIO Roundtable to evaluate the feasibility of a policy requiring that Offices under the President and the Elected Officials share information regarding software deployment and usage. BOT will also engage Elected Officials about the possibility of using a software asset management solution to monitor software assets throughout the County. It is important to note, however, that the value of this solution to the County as a whole will be contingent upon the Elected Officials' permission to deploy the solution on their systems.

Estimated Completion Date
November 30, 2016