



Analytics Suite

Segregation of Duties Module

Prepared for: City of Tulsa
Prepared by: 9b
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About 9b

9b is a Tulsa-based benefit corporation that provides data analysis and visualization services to help organizations discover value, make decisions, and reach their goals. Learn more: 9bcorp.com.

Overview

Why we did this project

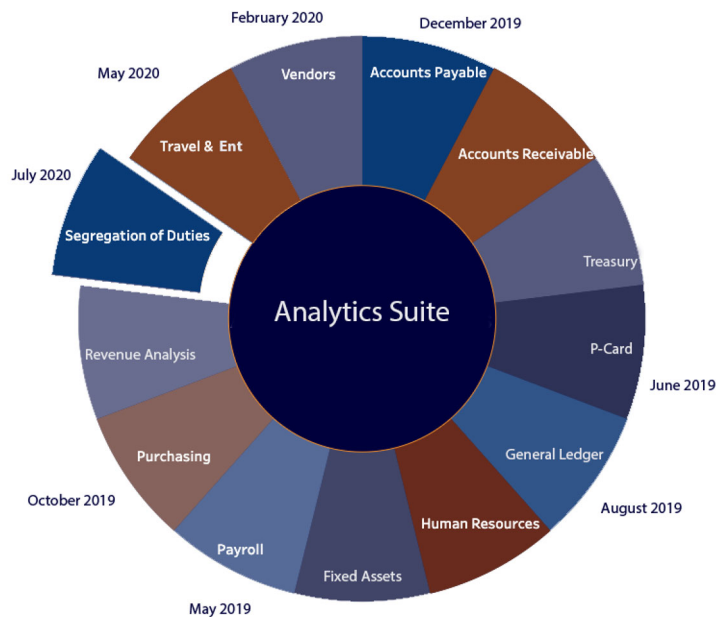
Segregation of Duties, or **SOD**, is a “**basic building block of sustainable risk management and internal controls for a business,**” according to the American Institute of CPAs. “The principle of SOD is based on shared responsibilities of a key process that disperses the critical functions of that process to more than one person or department. Without this separation in key processes, fraud and error risks are far less manageable.”

The sheer number of users with varying access in the Munis financial system makes tracking the segregation of duties across City processes a monumental task. Internal Audit partnered with 9b to create a solution: **automate Munis data to monitor and identify high-risk access situations.**

How we did this project

SOD is the eighth Module in a financial process monitoring solution being developed by 9b for the City.

Similar to past modules, the team read internal literature, explored the Munis data environment, and interviewed key stakeholders to gain an understanding of the existing risks and controls and to develop a framework for writing data analytics in Audit Command Language (ACL) and creating visualizations in Tableau, the City’s business intelligence platform.



Project Results

- **55 analytics in ACL** review Munis data, flagging user access conflicts as they arise. *Pg 3*
- **Process dashboard in Tableau** surfaces high-risk analytic results by process step. *Pg 4*
- **Scorecards in Tableau** curate and detail results by transaction, employee, and more. *Pg 5*

Next Steps

9b will work with Internal Audit to identify initial product users across City departments, conduct beta testing, and develop comprehensive documentation and training based on user feedback.

Sample of Analytics

The majority of analytics created in this project were informed by “Best Practices to Resolve Segregation of Duties Conflicts” from ISACA, the Information Systems Audit and Control Association. Below is a condensed version of the ISACA list; our analytics identify when current user permissions in Munis allow the possibility of these conflicts.

Permission 1	Permission 2	Conflict
Maintain Bank Master Data	AP Payments	Create a non bona-fide bank account and create a check from it.
Maintain Asset Document	Process Vendor Invoices	Pay an invoice and hide it in an asset that would be depreciated over time.
Cash Application	Bank Reconciliation	Allows differences between cash deposited and cash collections posted to be covered up.
Maintain Asset Master	Goods Receipts to PO	Create the asset and manipulate the receipt of the associated asset.
Maintain Bank Master Data	Manual Check Processing	Create a non bona-fide bank account and create manual checks from it.
Vendor Master Maintenance	Process Vendor Invoices	Maintain a fictitious vendor and enter a Vendor invoice for automatic payment.
AP Payments	Vendor Master Maintenance	Maintain a fictitious vendor and create a payment to that vendor.
Process Vendor Invoices	AP Payments	Enter fictitious vendor invoices and then render payment to the vendor.
Maintain Time Data	Approve Time	Change payroll master data and enter time data applied to incorrect settings.
Maintain Purchase Order	Goods Receipts to PO	Enter fictitious purchase orders for personal use and accept the goods through goods receipt.
PO Approval	Process Vendor Invoices	Release a non bona-fide purchase order and initiate payment for the order by entering invoices.
HR Benefits	Process Payroll	Change employee HR Benefits then process payroll without authorization. Potential for fraudulent activity.

Note: As in previous modules (Accounts Payable, General Ledger, etc.), data analytics not prioritized for this six-week project have been recorded for future development.

Tableau Dashboards

The principal dashboard created in this project visualizes the segregation of duties across various City financial processes. The dashboard is made up of three interactive sheets in Tableau.

- The **Process Sheet** breaks down by step. The date filter allows the user to view analytic results according to their preferred time period. Find instructions in the collapsible menu.

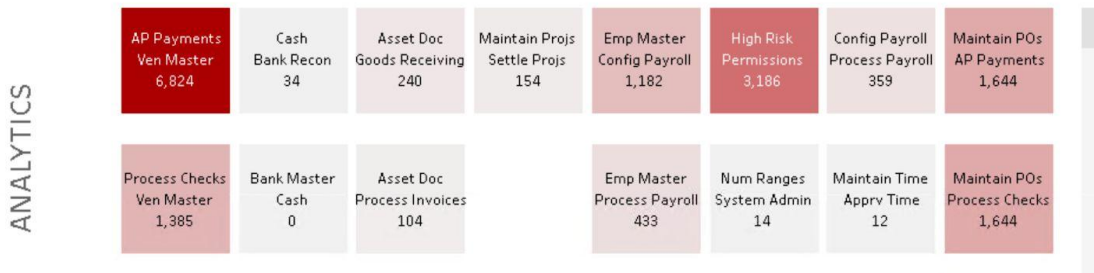
Segregation of Duties (Beta)



Data used in this analysis ranges from December 11, 2017 to July 1, 2020.



- The **Analytics Sheet** shows each analytic directly below its related process step. Red shading indicates the level of risk and immediately orients the user upon data refresh.

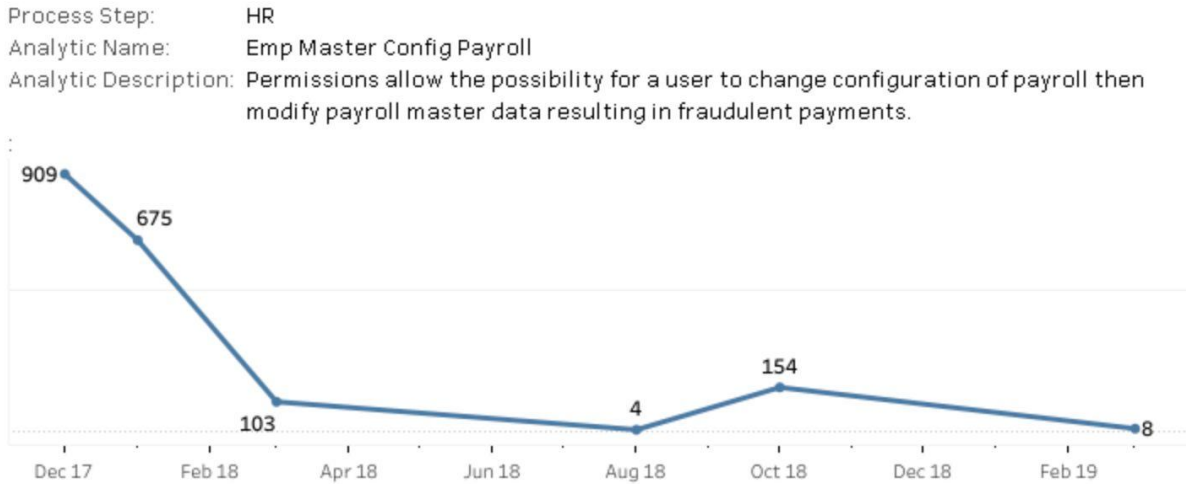


- The **Details Sheet** provides transaction details, which allow the user to understand what conditions triggered the analytic to flag. Details are hidden until an analytic is selected.

Claim Num	Date	Employee Name	Analytic Name	Expense Report Detail	Emp Dep	Further Information
						Role for v_ManualCheckProcess = 13_GL_DATA, Role for v_VendorMaster = 13_GL_DATA, Permission for v_ManualCheckProcess = apid_print_checks, Permission for v_VendorMaster = apid_limit1_warr, v_ManualCheckProcess Role Start Date = 12/11/2017, v_ManualCheckProcess Role End Date = 06/30/2020, v_VendorMaster Role Start Date = 12/11/2017, v_VendorMaster Role End Date = 06/30/2020, v_ManualCheckProcess Permission Start Date = 12/11/2017, v_ManualCheckProcess Permission End Date = 06/30/2020, v_VendorMaster Permission Start Date = 01/24/2018, v_VendorMaster Permission End Date = 06/30/2020
						Role for v_ManualCheckProcess = 16_GL_DATA, Role for v_VendorMaster = AP_PCRD_APPROVERS, Permission for v_ManualCheckProcess = apid_print_checks, Permission for v_VendorMaster = apid_limit1_warr, v_ManualCheckProcess Role Start Date = 12/11/2017, v_ManualCheckProcess Role End Date = 06/30/2020, v_VendorMaster Role Start Date = 01/24/2018, v_VendorMaster Role End Date = 06/30/2020

Additional View: Trend Tooltip

When a user hovers over an analytic box, a tooltip displays a trend line graph that shows the monthly total of occurrences that particular analytic has flagged.



Scorecards

A set of KPIs shows accumulated analytic scores **by transaction, employee, approver, and department**. Below: The user can quickly see which employees have the highest risk, which accumulates as their transactions move through the process. Find additional filters for analysis in the collapsible menu.

