



# **Analytics Suite**

## **Human Resources Module**

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

9b is a benefit corporation based in Tulsa, Oklahoma. We do analytics to make organizations awesome and help communities thrive. Our analysts specialize in financial reporting and business intelligence, continuous audit and monitoring, and data consulting. We work with corporations, nonprofit organizations, and government entities. As a benefit corporation, 9b is legally empowered to pursue positive stakeholder and community impact alongside profit. Find more information at [9bcorp.com](http://9bcorp.com).

# Overview

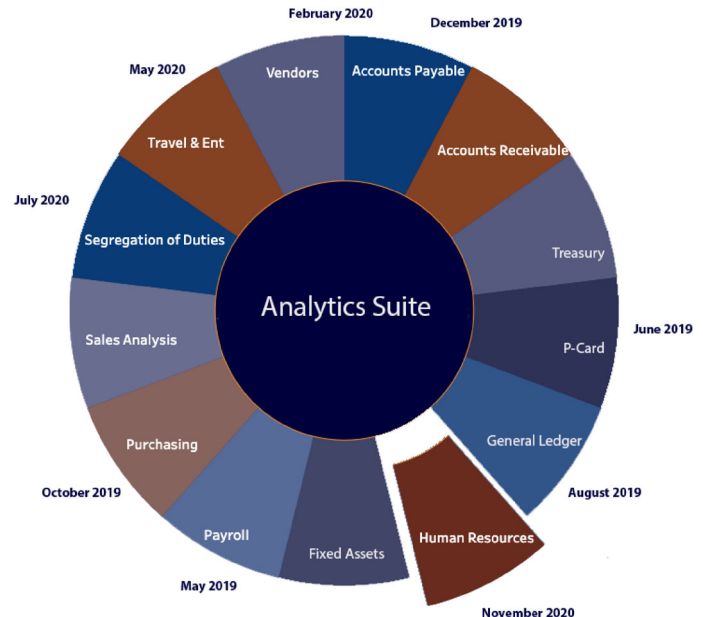
## Why we did this project

The City of Tulsa aims to hire the best candidate for an open position in a timely manner. The Human Resources (HR) department is largely responsible for the hiring process. Prior to this project, the HR team did not have the workflow documentation or automation to run as efficiently as possible, increasing the risk of qualified applicants moving on to other job opportunities.

Internal Audit partnered with 9b to create a solution: **automate Munis data to identify risk and inefficiency so that HR can help the City hire exceptional people.** Additionally, the analytics created in this project monitor for fraud, target training opportunities, and establish timestamps to set a standard of performance. 9b visualized analytic results in dashboards, enabling users to regularly assess the health of the process and make data-driven improvements.

## How we did this project

HR is the ninth module in an audit analytics solution for the City. In the Payroll Module, 9b created analytics on personnel actions—another key HR function. This project builds out the HR monitoring capabilities by focusing on hiring. Similar to past modules, the team read internal literature, explored the data environment, and interviewed process owners to understand existing risks and controls and to develop a framework for writing analytics and creating visualizations in Tableau, the City’s business intelligence platform.



## Project Results

- **25+ analytics** integrate with Munis to locate risk, inefficiency, and training needs. *Pg 3*
- **Process dashboard in Tableau** shows analytics with high risk by process step. *Pg 4*
- **Scorecards in Tableau** curate and detail results by transaction, approver, 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 analytics in this project operate as building blocks, which means a single transaction could collect flags for each of the tests below as it moves through the hiring process. See *Pg 4*.

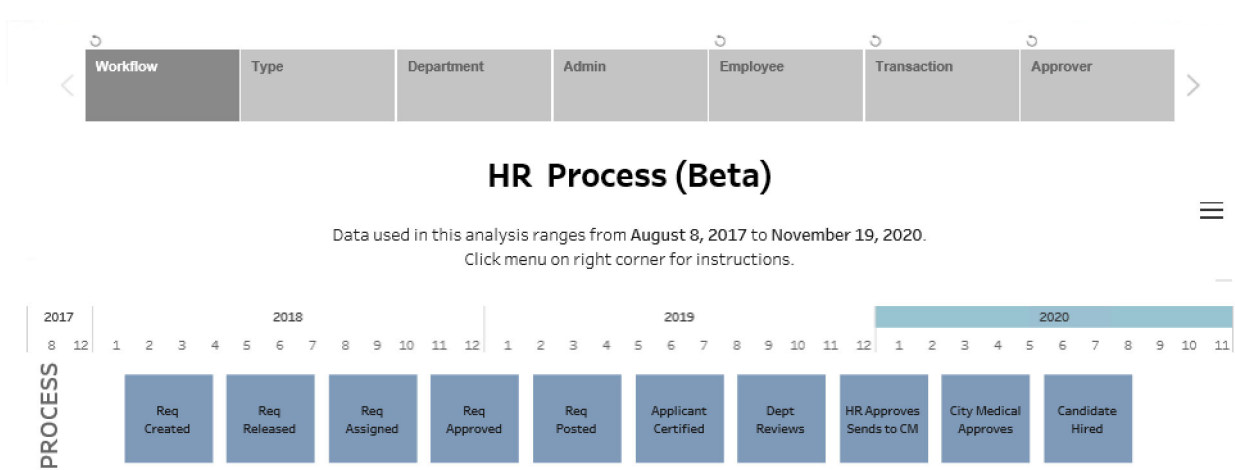
As in previous modules (Accounts Payable, General Ledger, etc.), data analytics not prioritized for this project have been recorded for future development.

<b>Analytic</b>	<b>Description</b>	<b>Notes</b>
Requisition Released Processing Time	Calculates the median number of days between when a requisition is created and when it is released into workflow.	9b created a similar time analytic for each step in the hiring process.
Duplicate Requisitions	Flags if a requisition and another requisition have the same job and job location and were entered within 10 days of each other.	HR currently has a manual check for duplicate requisitions.
Open Requisition Outliers	Flags if it takes longer than 60 days to fill an open requisition.	Open requisition outliers could be addressed with an audit, training, or process improvements. Additional flags would inform next steps.
Incomplete Requisitions	Flags if a requisition has incomplete fields after it was created.	HR can monitor which employees/departments need training to improve requisition input.
Applied and Hired < 5 Days	Flags if an applicant is hired fewer than five days after submitting an application.	Auditors can investigate these potentially high-risk exceptions and strengthen controls.
Internal Hire Process	Flags if the internal hire process is used for a requisition.	9b created a similar external analytic. Both serve as simple KPIs, showing how requisitions are being processed.

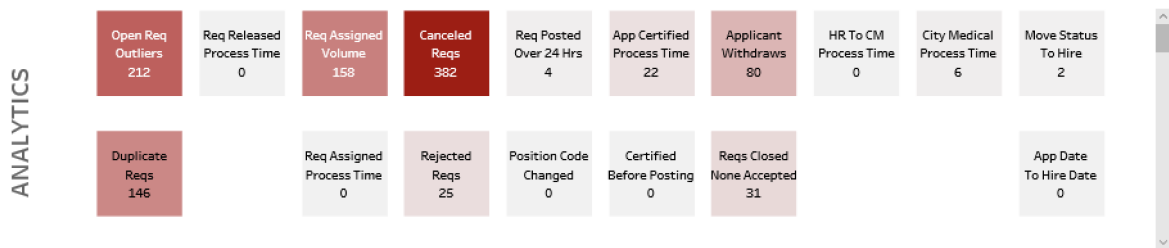
# Tableau Dashboards

The principal dashboard created in this project visualizes the hiring process in three dynamic sheets.

- The **Process Sheet** shows key steps in the hiring process. Find instructions and filters for analysis in the collapsible menu in the top right corner of the dashboard.



- 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.

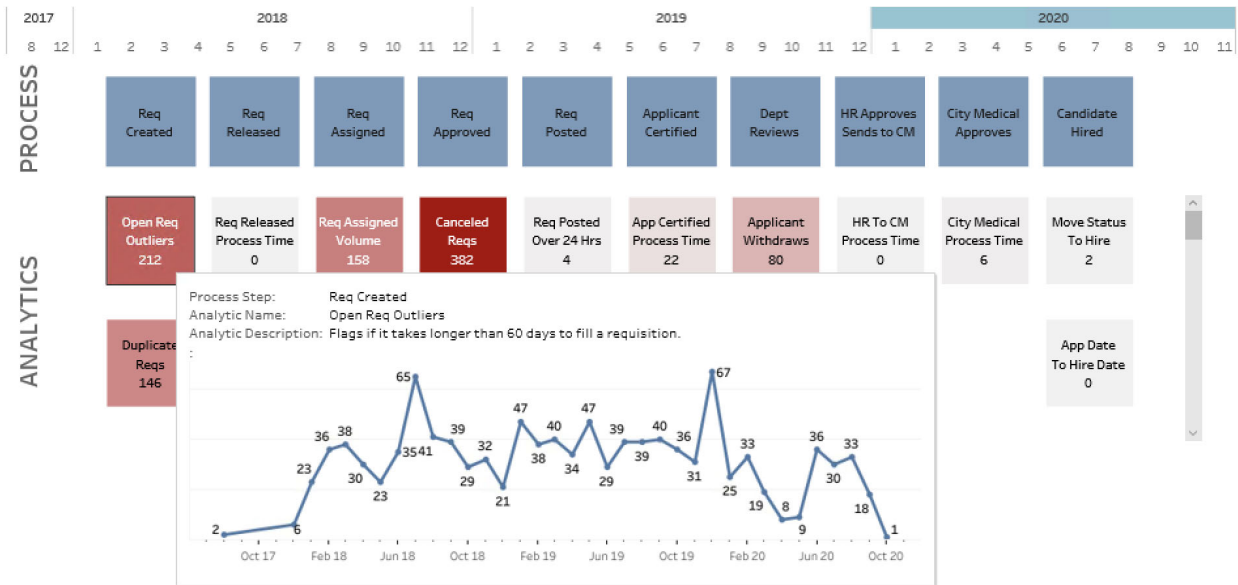


- The **Details Sheet** provides transaction details, which allow the user to understand what conditions triggered the analytic to flag. Details are hidden until an analytic is selected.

The screenshot shows the 'DETAILS' section of the dashboard, which is a table of transaction details. The table has the following columns: Transaction ID, Vendor Name, Date, Employee Name, Admin Name, Admin Dep, Department, Analytic Name, Expense Report Detail, and Further Information. The table contains several rows of data, but the content is blurred.

## Additional View: Trend Tooltip

When a user hovers over an analytic, a tooltip shows the monthly trend of transactions flagged.



## Scorecards

A set of dashboards shows accumulated analytic scores **by transaction (job requisition), employee (HR), approver, admin, department, and by requisition type (position/job class)**. Below: The user can see which requisitions collected the most flags in a time period and drill down into the details.

### Transaction



This dashboard shows transactions with the highest analytic scores.  
 See the menu in the right-hand corner for instructions.

