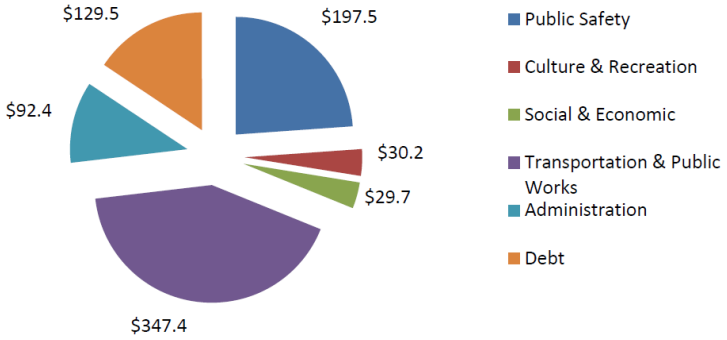
Vendor and Contract Risk
For the calendar year ended December 31, 2017

Office of the City Auditor

Overview of Vendor and Contract Risk

An estimated five percent of an organization's annual revenue is lost to fraud according to the 2018 Global Study on Occupational Fraud and Abuse by the Association of Certified Fraud Examiners. This would amount to **$39 million dollars** per year the City of Tulsa could lose to fraud based on FY 17-18 revenue projections. The study also finds the use of data analytics as one of the best methods to prevent this amount of loss from occurring.

In FY 17-18, the City of Tulsa budgeted over $826 million dollars in the following areas:



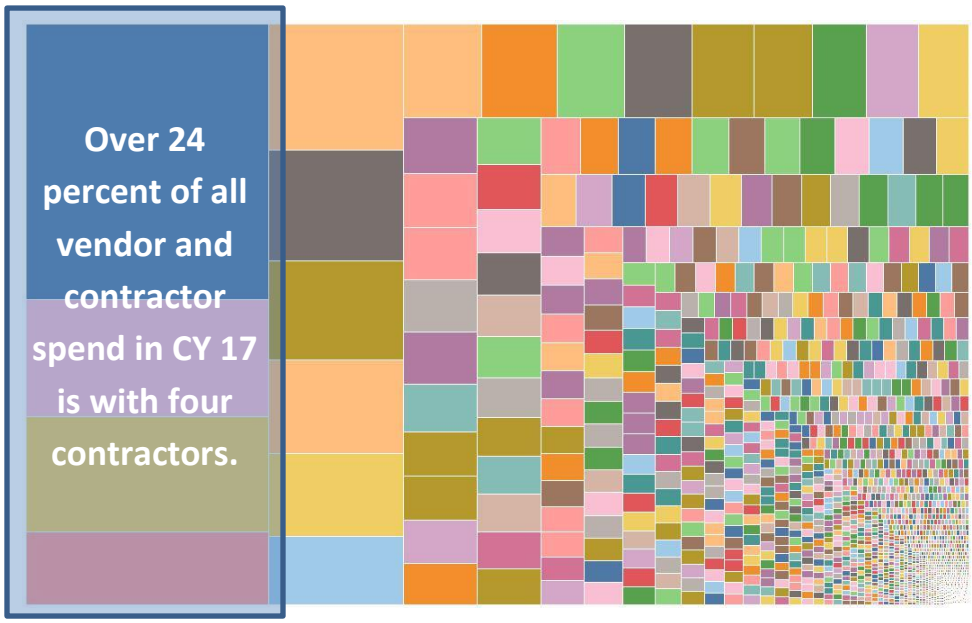
https://www.cityoftulsa.org/government/departments/finance/financial-reports/city-budget/fy-2017-18-budget/

This amount of spend can be overwhelming when determining where deliberate misappropriation of assets is occurring. Our analysis found the City of Tulsa's vendor and contractor spending in the following categories in calendar year 2017:

The size of the words are proportional to the amount of spend.

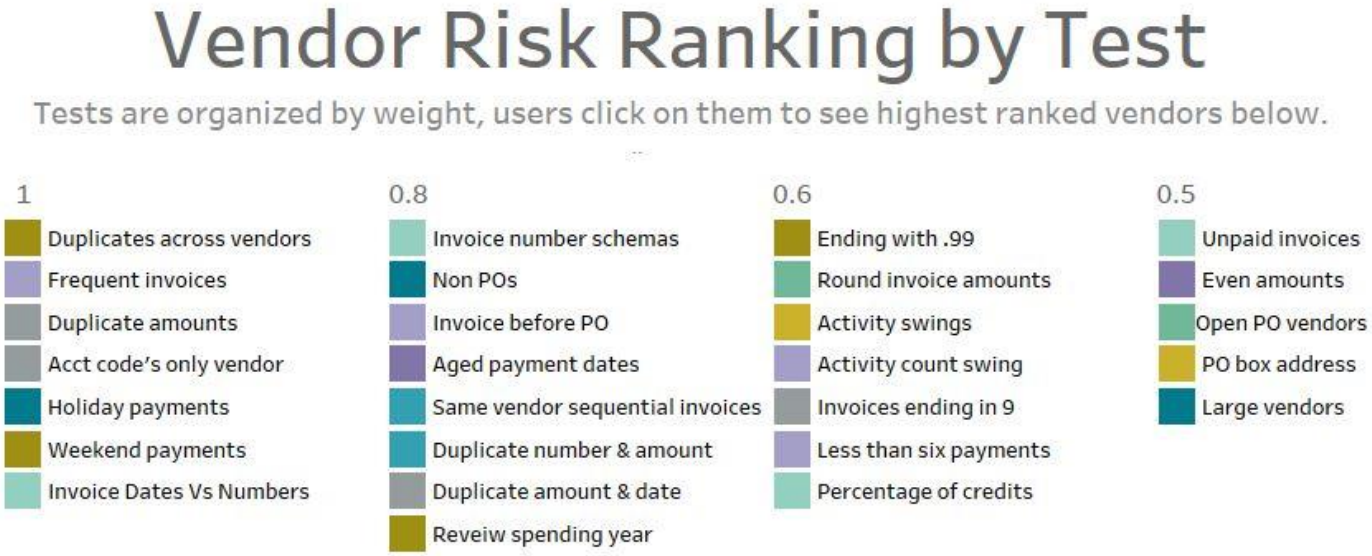
City Vendor and Contract Risk Analysis Tools

We found over 2,500 contractors and vendors were paid by the City in calendar year 2017.



Each vendor/contractor for the City is represented by a rectangle. The size of the rectangle is proportional to the total amount we paid the vendor/contractor in calendar year 2017.

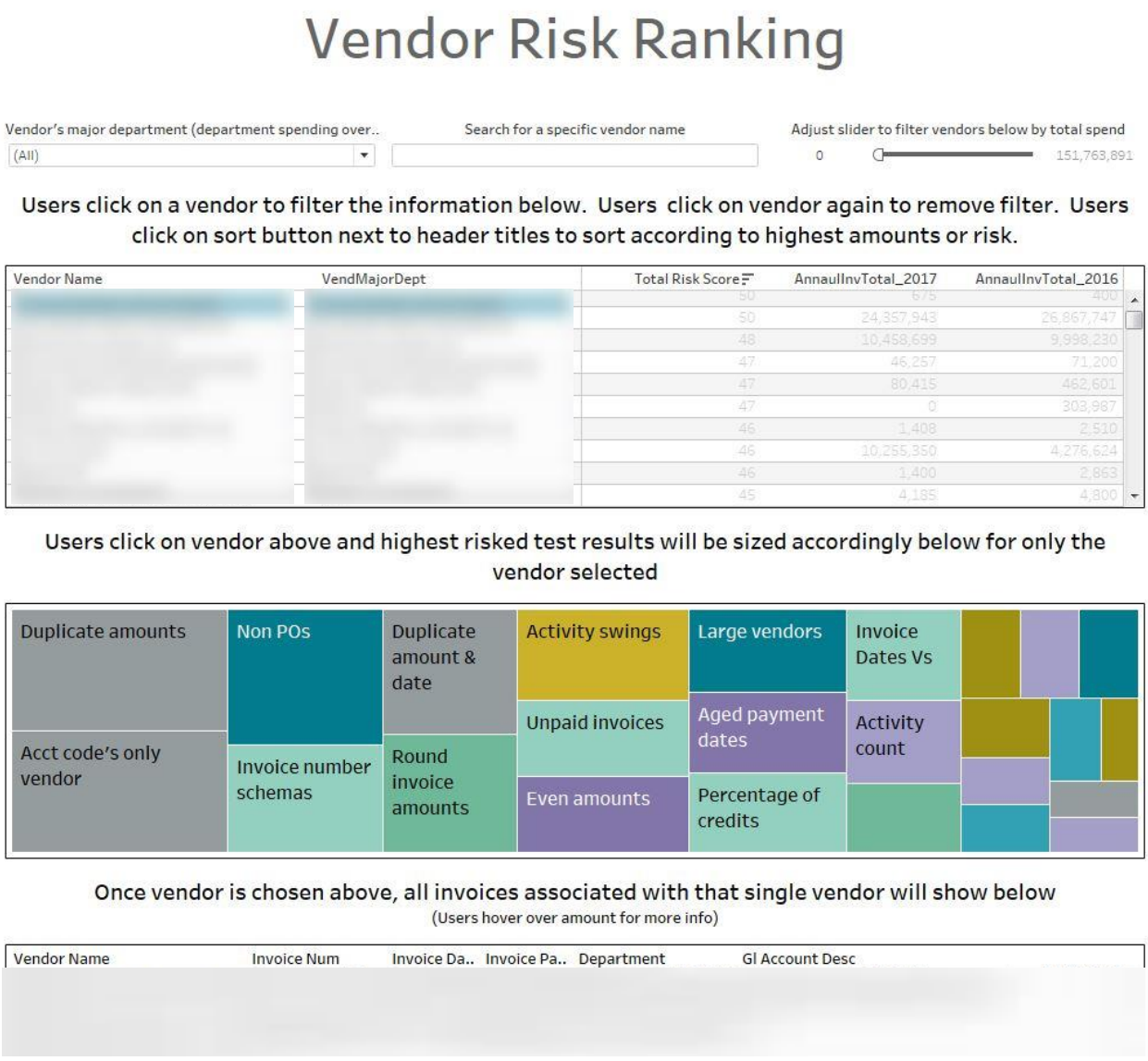
To monitor the risk of misappropriation of assets, we developed 27 unique algorithms to analyze over 2,500 vendors on an ongoing basis. We then created interactive visualizations of this data. These are on a platform that uses the City of Tulsa's new interactive visualization software.



This displays the weighted risk rankings of each algorithm performed on vendors/contractors across the City.

City Vendor and Contract Risk Analysis Tools

We created another set of code combining the results of the 27 algorithms into one total risk score per vendor. This is combined into a visualization allowing the user to sort and filter based on vendor name, risk score, or total spend by vendor. Once the user clicks on a vendor of interest, the 27 specific risk scores for the vendor are shown visually by amount of risk correlated to the size of the rectangle. In addition, all spend detail for the period is shown below.



City Vendor and Contract Risk Results

The results of this analysis provide insight into where to place vendor audit resources. The office of the City Auditor is using the analysis to select a contract to be audited for the upcoming Capital Projects Construction Contracts Administration audit. The dashboards will also be provided to upper-level management to provide new insights into their department's spending and vendor activity.