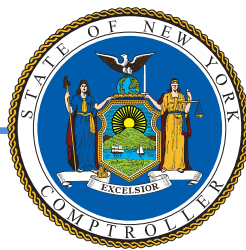# Enterprise Fraud, Waste and Abuse Prevention and Detection:

Annual Report to the New York State Legislature

OFFICE OF THE NEW YORK STATE COMPTROLLER

Thomas P. DiNapoli, State Comptroller

SEPTEMBER 1, 2019

Introduction

The New York State Finance Law was amended in 2015 by adding a new section 8-c, which provides for the establishment of a statewide electronic system to help detect and prevent fraud, waste, and abuse in government spending and avoid improper payment of public moneys. Section 8-c affirms the State Comptroller's role in protecting the public's money, and requires cooperation by State agencies and State public authorities in this effort.

The Office of the State Comptroller (OSC) continues to make progress in several areas towards identifying and applying data analytics to enhance efforts to identify and prevent fraud, waste and abuse. By evaluating innovative methods and technologies and adopting those that prove effective, OSC constantly refines and improves its systems for protecting the public's money.

Better Data Gathering, Management and Reporting Lead to Better Risk Management

Improvements in data quality and management

Successful use of data analytics depends in part on reliable and accurate data. OSC audits have identified multiple incidents where State agency data was inaccurate or incomplete, or where insufficient controls existed to prevent unnecessary or inappropriate access to data. OSC makes recommendations to agencies and other organizations it audits on how to improve data quality and reporting, and implement effective controls.

Better organization of data can also lead to more effective use of taxpayer dollars. For example, while the State Commission of Correction (SCOC) was upgrading its information technology systems for tracking and monitoring inmate complaints and grievances, OSC discussed the potential value of a data warehouse and analyzing data to identify risk trends. SCOC added this dimension to its data system, helping to more easily identify problems and improve agency responsiveness. Using these new tools, the agency was able to identify a spike in complaints about food services at a local facility following a change in vendors and take action to address the problem.

Leveraging public data

The drive for government accountability and transparency, combined with advances in information technology, have led to a tremendous expansion in the amount of data that federal, state and local governments make public. Increasingly, public data sets contain information that can be valuable for a wide range of purposes. However, certain complex public data sets require substantial technical expertise to extract information and organize it for use by analysts and policymakers. To take advantage of increasingly available public data sets, OSC has strengthened its use of data analytics and improved its capacity to extract, validate, and structure data to facilitate analysis.

For example, in an audit of the Office for People with Developmental Disabilities (OPWDD), OSC used public traffic violation records as well as OPWDD administrative data to assess risk exposure. Risk exposure is the measure of potential future losses resulting from a specific activity or event. The State incurs risk exposure when program services are not provided adequately or safely and it can occur in a variety of settings. The audit found that staff assigned to transport the agency's vulnerable clients were issued violations for serious traffic infractions, including speeding through school zones (273 instances), running red lights (20 instances), driving with suspended licenses (7 instances), as well as more than 200 other traffic violations. Allowing staff with serious traffic violations to transport clients places both the clients and the public at risk.

Continuous monitoring through automated reporting
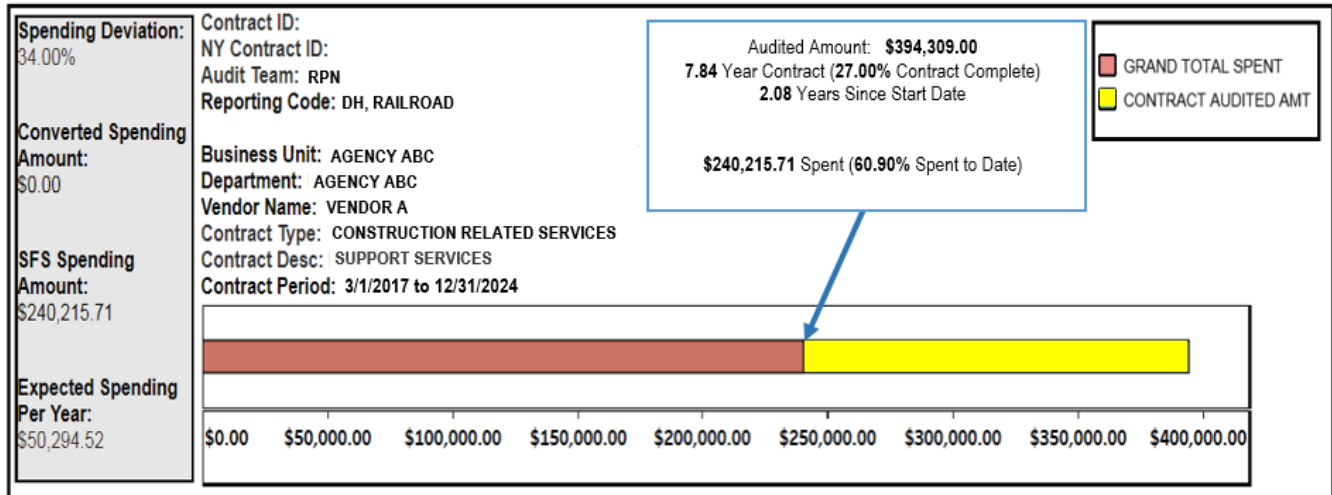
Identifying pending voucher payments for audit

OSC is using new, continuous monitoring systems to conduct a more rapid, systematic review of data. For example, OSC developed a system programmed with over 120 known risk indicators, including contracts that were let without OSC pre-audit oversight. The system provides a visual representation of all vouchers and identifies some of their relative risks. This helps auditors to identify and select vouchers with the highest risk for fraud, waste or improper payment. Since February 2019, auditors using this tool have identified more than $1 million in audit findings, including vendors not complying with contract terms and vendors calculating invoice amounts incorrectly. While this amount is currently relatively small, being able to identify these problems earlier in the contract term using data analytics could translate into multiples of savings down the line.

Tracking contract spending to identify potential waste and abuse

By transforming a manual calculation process into a real-time display of contract spending, OSC has enabled its auditors to monitor spending and identify contracts where the allowable funds are being expended at a higher rate than expected based on the life of the contract, which can be an indicator of potential waste or abuse resulting in overspending. (See Exhibit 1) As this example shows, although the contract is only approximately 27 percent complete, over sixty percent of allowable funds have been spent.

This contract spending tracking analysis can also result in reduced agency costs. For example, when an agency requested an increase in the value of several standby contracts for emergency response across the State, an OSC analysis determined that the amount of work needed and related spending were higher than originally anticipated. Following recommendations by the auditors, the agency successfully negotiated reductions of $74,670 over the remaining term of the agreement.

Exhibit 1: Contract Spending

Spending Deviation: 34.00%	Contract ID:					
	NY Contract ID:					
	Audit Team: RPN					
	Reporting Code: DH, RAILROAD					

Audited Amount: **$394,309.00**
7.84 Year Contract (**27.00%** Contract Complete)
2.08 Years Since Start Date

$240,215.71 Spent (**60.90%** Spent to Date)

GRAND TOTAL SPENT
CONTRACT AUDITED AMT

Business Unit: AGENCY ABC
Department: AGENCY ABC
Vendor Name: VENDOR A
Contract Type: CONSTRUCTION RELATED SERVICES
Contract Desc: SUPPORT SERVICES
Contract Period: 3/1/2017 to 12/31/2024

Spending Deviation: 34.00%

Converted Spending Amount: $0.00

SFS Spending Amount: $240,215.71

Expected Spending Per Year: $50,294.52

$0.00 $50,000.00 $100,000.00 $150,000.00 $200,000.00 $250,000.00 $300,000.00 $350,000.00 $400,000.00

Monitoring investment risk

OSC is also using data analytics to better monitor financial risks in State pension funds. Data from multiple sources is combined and aggregated into a suite of automated reports to be shared with appropriate end users. This standardizes the report content, reduces the risk of errors and makes actionable information available more quickly. As a result, the pension system is better able to identify and respond to potential risks as they emerge.

Expanding Tools and Methods

Evaluating and refining existing models and methods

For certain business processes that rely primarily on the professional judgment of auditors or other specially trained staff, OSC is using advanced analytics to provide support. For example, using statistical methods to evaluate risk factors identified by auditors can help determine which have the greatest predictive value in detecting potential fraud, leading to more efficient models and streamlined decision-making. While statistical models can never replace professional judgment, they have proven to be helpful in supplementing it.

Predictive analytics, deployed thoughtfully in conjunction with a deep understanding of the business processes, can help managers decide where to focus their efforts and allocate resources.

Analytics help auditors improve agency compliance with procurement procedures and identify vouchers at risk of waste and abuse

Procurement rules require agencies to reference the contract number when submitting vouchers for payment. Failing to reference the contract number makes it difficult for auditors to determine when an agency exceeds the amount it is allowed to spend as established in the contract. Two years ago, OSC auditors began using analytics to more efficiently identify higher risk vouchers. To date, auditors have selected vouchers totaling over $20 million for audit. Of these, auditors identified $3.9 million where the agency held a contract, but did not reference it on the voucher and found agencies paid $861,000 more than the amounts approved in their contracts. Sharing the results of these analyses with agencies over the past year resulted in better data reporting and a significant decrease in the number of transactions that do not adhere to contracting requirements. (See Exhibit 2)

Exhibit 2: Pending Vouchers: Risk Assessment
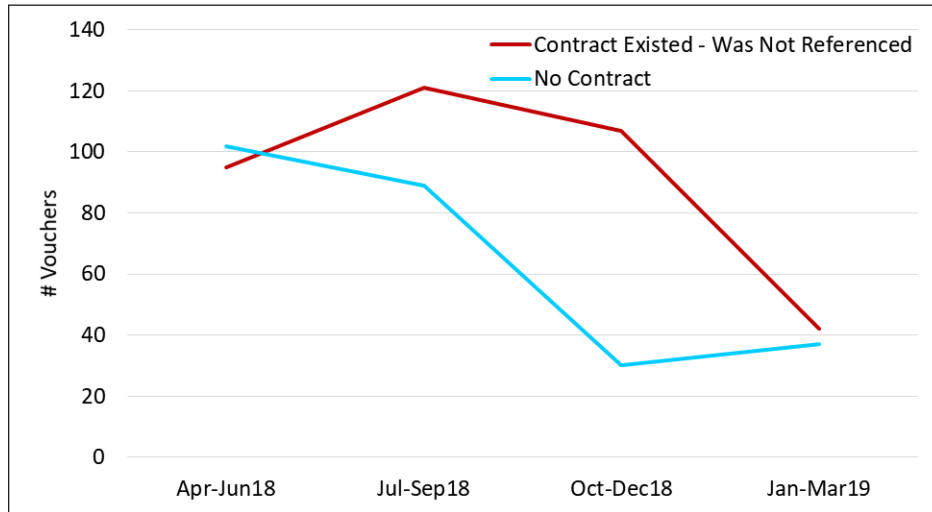
Additional analytics-driven audit results

On a more granular level, as a result of improved data analytics tools and techniques, auditors:

- Identified 119 fuel credit card purchases totaling nearly $8,000 made by one employee that were for personal use. As a result, the employee was terminated, arrested, pled guilty to a Class A misdemeanor and is required to make restitution to the State.

- Quickly reduced the number of procurement card transactions needing auditor attention from nearly 280,000 to just 59 high-risk transactions totaling $17,163. Of these, 44 transactions totaling $12,340 were inappropriate.

- Nearly doubled the value of questionable income tax refunds returned to the Department of Taxation and Finance for follow-up evaluation and appropriate action to $65 million, while at the same time reducing the time to pay legitimate refunds.

- Identified more than $933,000 in improper State payments for erectile dysfunction (ED) treatment (drugs, procedures, and supplies) on behalf of Medicaid recipients, over $63,000 of which was for sex offenders. Furthermore, Medicaid made questionable payments of more than $2.8 million for ED drugs approved for other medical conditions but that were prescribed for recipients who may not have had those conditions.

With more powerful tools in place and access to larger data sets from a variety of sources, OSC continues to develop its analytical capabilities in financial program audits to identify risk factors for fraud, waste and abuse. In 2018, data analytic work done in conjunction with audits of State agencies and authorities had a fiscal impact of approximately $100 million. Outside of 8(c), data analytics plays a critical role in our ongoing work, particularly related to audits of the Medicaid program. In 2018, auditors found $1.8 billion in inappropriate Medicaid spending and fraud using advanced data analytics techniques.

Visualizing data to inform decision-making

Technological advances continue to make data analysis easier, faster and accessible to more people. Interactive data visualizations allow managers and other decision-makers to more quickly review data from multiple sources to monitor trends, identify outliers, assess risks and respond as needed to prevent waste and abuse, identify potential fraud, improve performance and explain results to stakeholders.

Assessing vendor risks in State contracting

OSC uses interactive data visualizations combined with contracting data and publicly available not-for-profit federal tax returns to identify potentially financially distressed vendors. Vendors in financial distress may be at risk of ceasing operations, which could affect programs and services thereby harming consumers who rely on those services. Having an early warning of a vendor's potential financial distress provides agencies time to take preventive actions to protect the programs, services and consumers of those services.

Dashboards allow rapid formatting of multiple years of financial data for a vendor in an easy-to-use visualization. (See Exhibit 3) Each circle, or bubble, represents a vendor and the size of the bubble represents the vendor's risk score, based on a set of metrics. The larger the bubble, the greater the vendor's risk score. Selecting a bubble on the dashboard brings up bar charts showing financial trend data for that vendor.

Exhibit 3: Vendor Financial Risks Related to Contracts
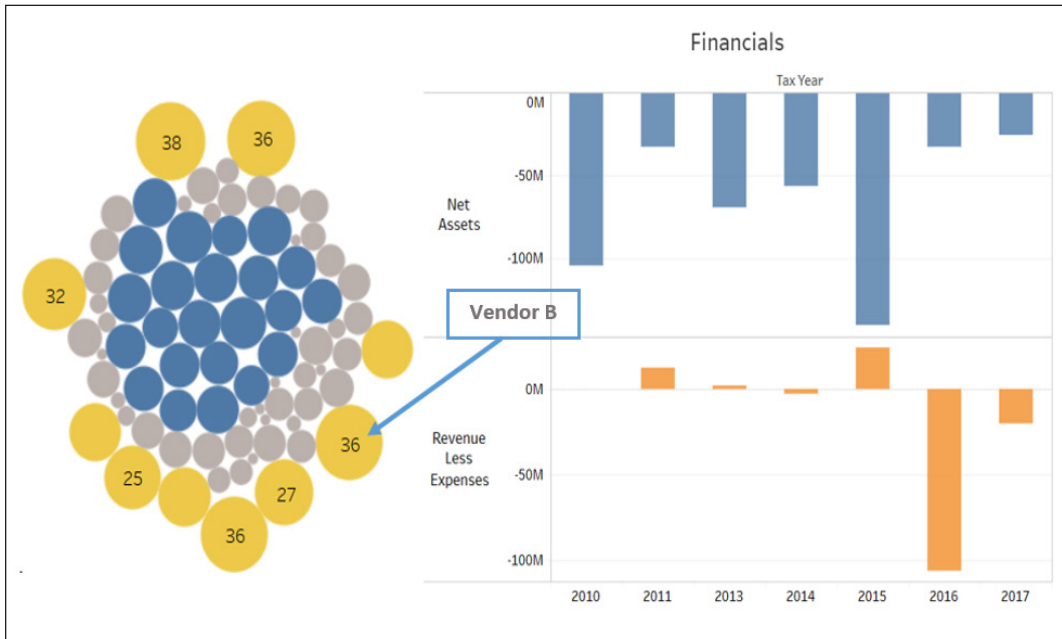
Using additional tools, a comprehensive picture of potential at-risk vendors and their contractual relationships can be created. Exhibit 4 illustrates a snapshot of Vendor B's contractual relationships with the State. Each block within the agency represents a separate contract and the size of the block represents the relative size of the contract. OSC can use this information to identify agencies that could be impacted by a vendor's financial problems and share information with agency staff about potential risks.

Exhibit 4: Contracts by Vendor and Contracting State Agency or Public Authority

Number of Contracts by Agency (major colors) for a Specific Vendor
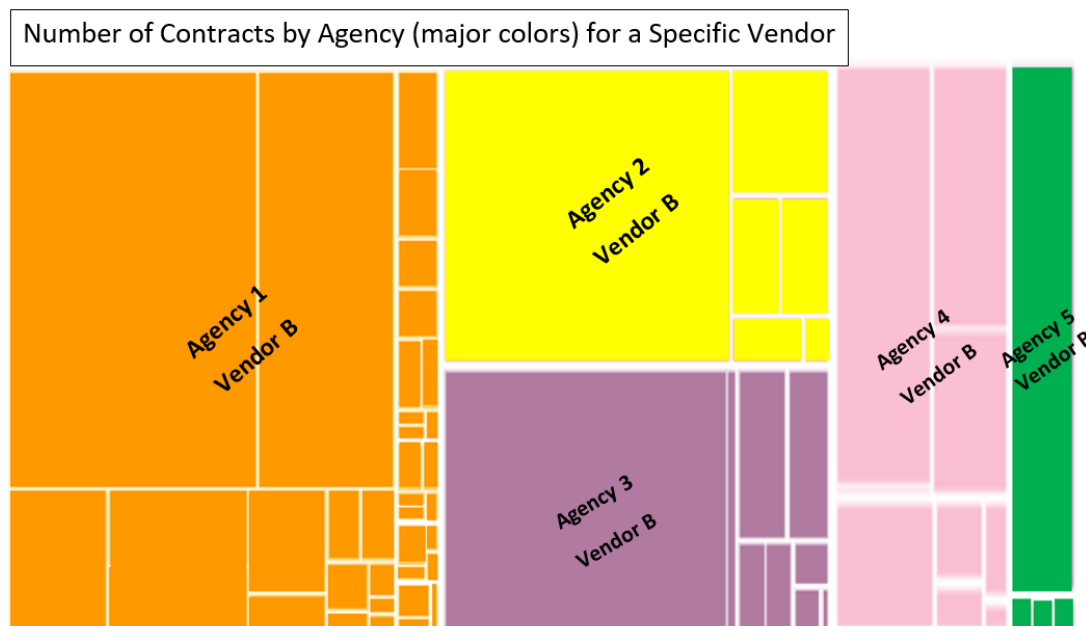
This same interactive visualization can also be used to identify when multiple agencies rely on the same vendor for similar goods or services. Sharing this information across agencies can reveal opportunities for cost savings. For example, when an agency procured psychological testing services and received only one bid, OSC used these visualizations to identify an agreement for similar services with another State agency at a better rate with the same vendor. The agency negotiated a better rate, saving $25,000.

By analyzing procurement patterns, OSC and agencies have collaborated on a more effective and efficient approach to procuring needed goods and services, including:

- Potentially replacing several one-year discretionary contracts for waste hauling services where there appears to be an ongoing need by the agency. The agency is considering a more efficient long-term solution.

- Consolidating contracts with a pest management vendor with multiple contracts with the same agency. OSC and the agency agreed that a single, long-term contract would save time and money and streamline contract oversight.

- Consolidating the purchase of similar equipment by separate facilities within the same agency. The agency is now conducting a single, competitive procurement to reduce staff effort and obtain better volume discounts from the vendor.

Monitoring compliance with discretionary spending limits

OSC auditors use another visualization tool to identify agencies that are exceeding the amount of money they are allowed to pay a vendor without a contract. For example, Exhibit 5 shows an agency that greatly exceeded the $50,000 aggregate discretionary purchasing limit for a vendor. This practice circumvents State law, is unfair to other vendors and can result in unintended overspending.

**Exhibit 5:** Agency Exceeding Discretionary Spending Threshold
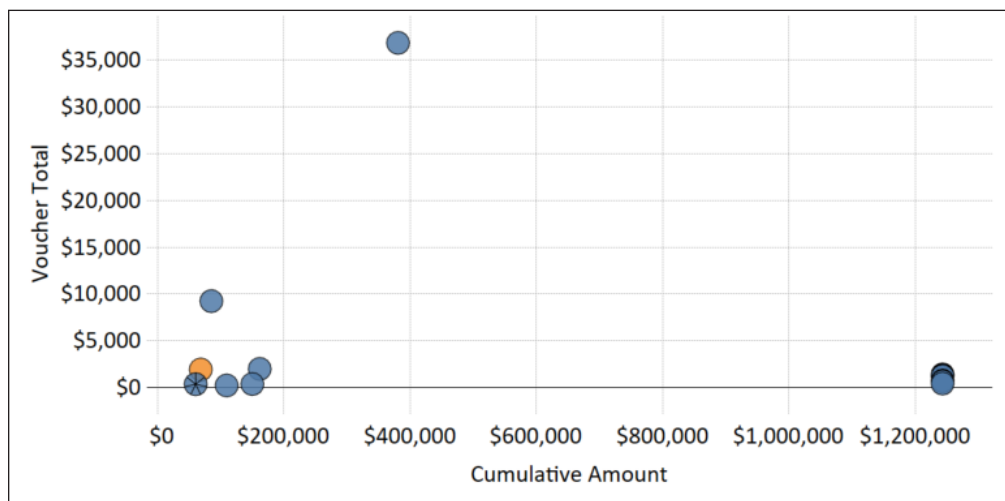
Using maps to demonstrate audit findings

OSC uses Geographic Information System mapping software to create maps displaying geographic data, including audit findings. Displaying findings in this way makes them more engaging and accessible to a wide range of stakeholders. For example, in an audit of the Office of Alcoholism and Substance Abuse Services (OASAS), OSC used a map to highlight areas with little access to gambling treatment facilities, specifically those where there are gaming establishments but either no gambling treatment center in the vicinity or where driving distances to a treatment center exceed one hour. (See Exhibit 6)

Exhibit 6: Access to Gambling Treatment Facilities by Driving Time
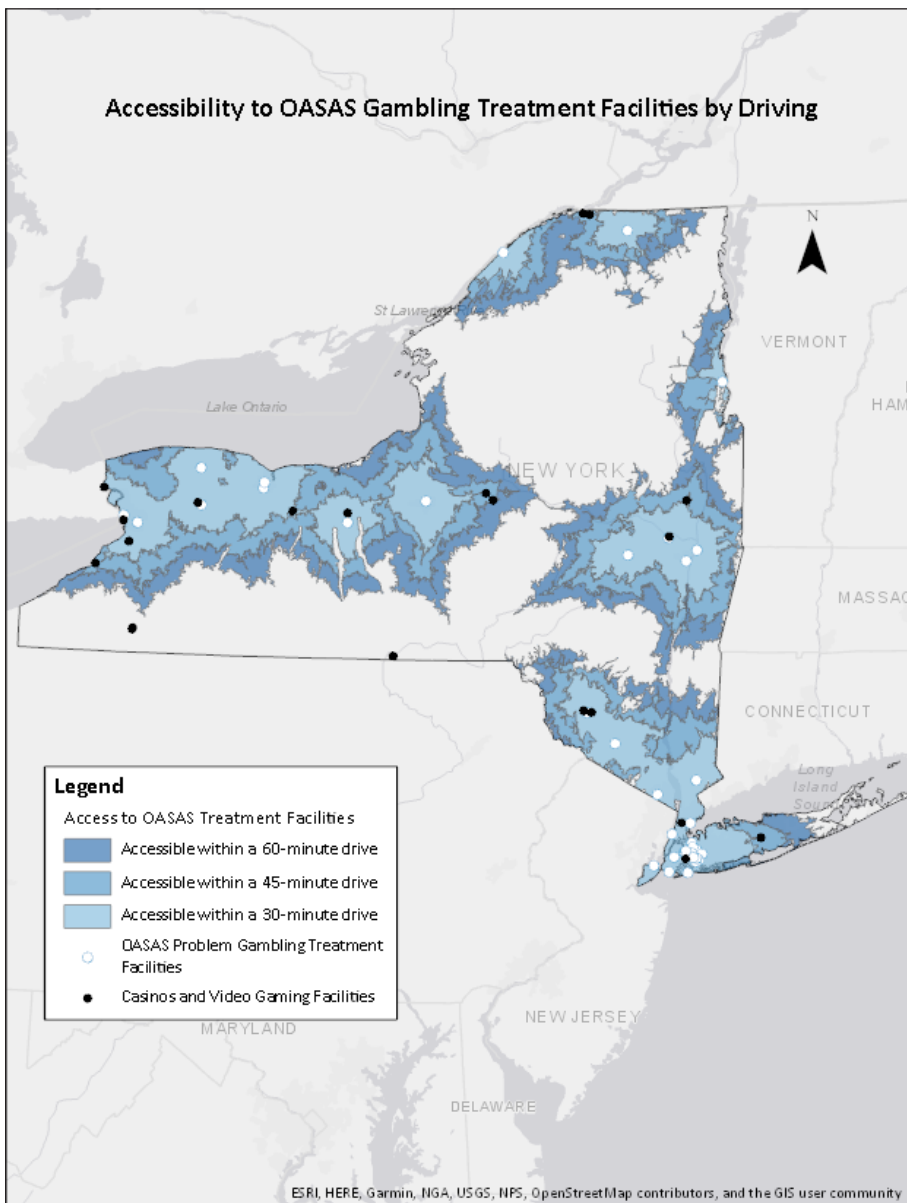
Keeping Up with the Technology

Incorporating data analytics into strategic plans

Preventing fraud, waste and abuse is a core function of OSC. As data availability expands and tools evolve to handle large datasets and more sophisticated methods, this office is evolving to keep up. OSC is ensuring that data analytics continues to be a priority by including it in division-level strategic planning and pledging to make the necessary investments in technology and in workforce development to continue to carry out our mission effectively.

Capacity building

OSC is working to improve data literacy among staff and seeks to share knowledge with agency partners. Contract and payment audit findings are shared with agencies to integrate into their own reviews, and access to dashboards is provided to give agencies information to help streamline their processes and identify wasteful practices. OSC has developed and delivered training for its staff members in statistics and for selected data analysis software/applications. In addition, communities of practice meet regularly to share their knowledge of data analytics and visualization software. Managers encourage staff to access on-line training resources to keep skills current and have developed collaborative relationships with academics to share knowledge and pursue mutually beneficial research projects linking theory and practice.

Engaging Stakeholders in Identifying Fraud, Waste and Abuse

Improving public access and transparency to promote accountability

OSC and other State agencies continue to make extensive data available to the public. This can help external stakeholders monitor the use of public money and hold public officials accountable for carrying out their duties effectively. However, the data is not always easy to use—especially for people without special training in data analysis. In order to make public data more user friendly for a broader range of stakeholders, OSC has been developing web-based tools that allow members of the public to filter and view data interactively.

For example, OSC has created dashboards summarizing local government and school district financial data using their annual financial reports. Local officials and members of the public can choose an entity and quickly view ten years of revenues, expenditures and debt. (See Exhibit 7)

Exhibit 7: Interactive Local Government Data
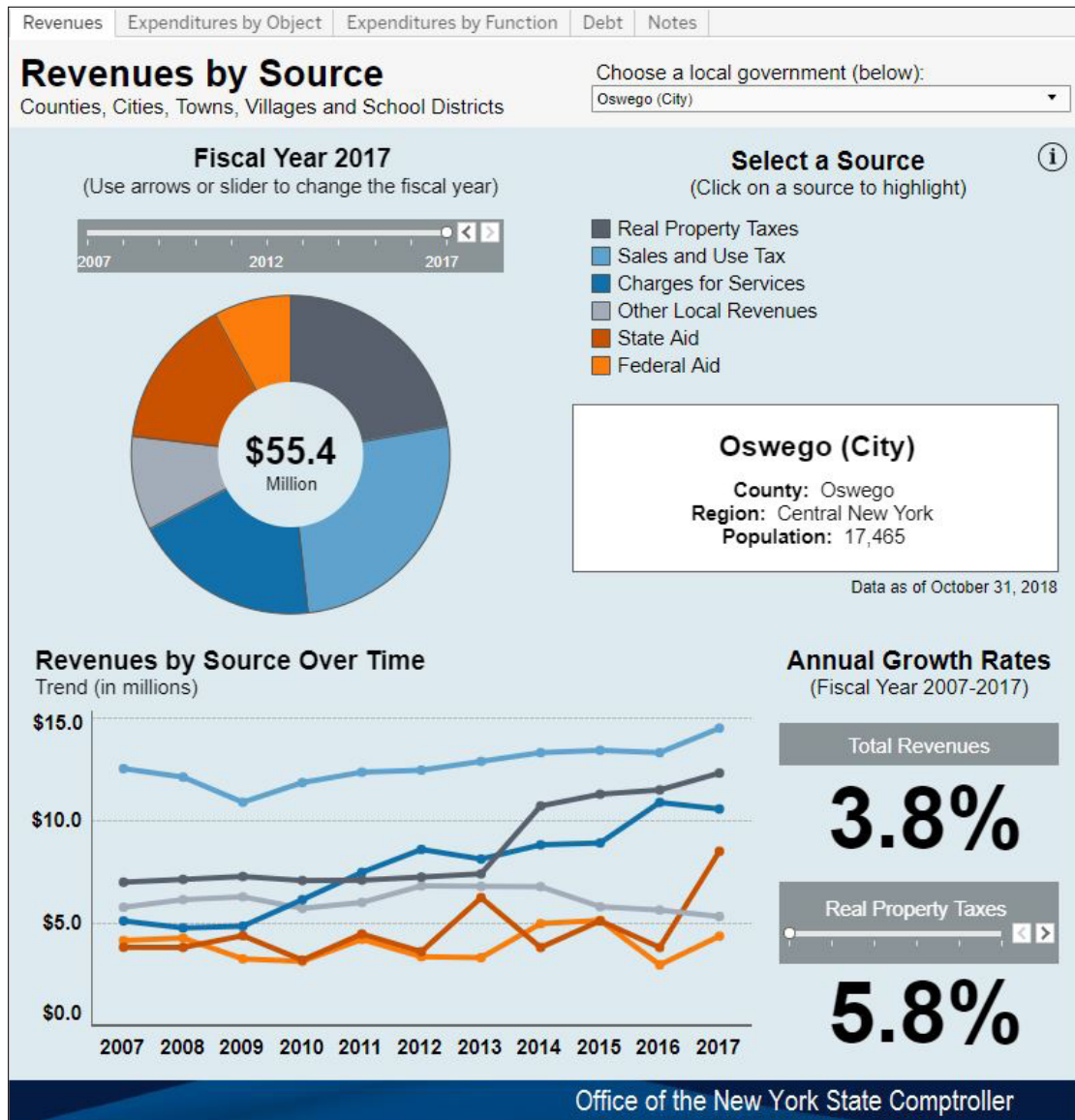
OSC has also created interactive web-based tools to allow users to view data on Industrial Development Agencies by region. (See Exhibit 8)

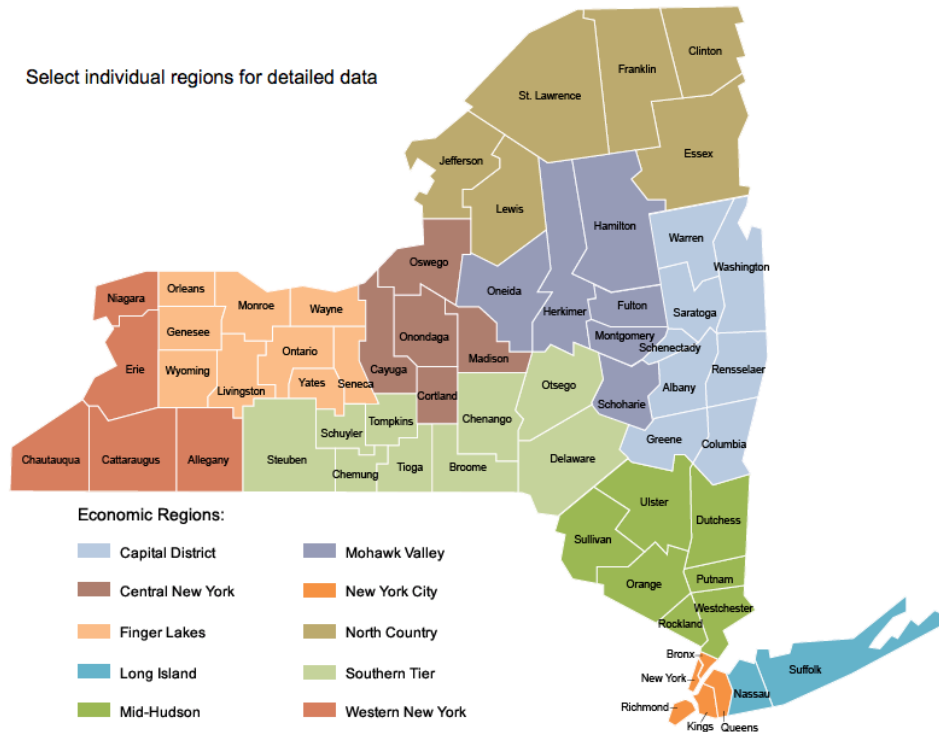**Exhibit 8:** Interactive Data on Industrial Development Agencies

2017 IDA Data by Region

Download Complete 2017 IDA Statistics With Regional Analysis (.xlsx)

New York State Summary - Total IDAs: 109

Project Count: 4,385	Net Tax Exemptions Per Project: $171,234	Net Jobs Gained: 198,522
Total Project Values: $98,126,066,430	Estimated Jobs to be Created: 225,886	Net Exemptions Per Job Gained: $3,782
Total Tax Exemptions: $1,392,598,582	Estimated Jobs to be Retained: 295,751	IDA Expenses: $102,044,324
Total PILOTs: $641,738,161	Full Time Equivalents Before IDA: 343,648	Expenses Per Job Gained: $514
Net Tax Exemptions: $750,860,421	Current Full Time Equivalents: 542,170	Expenses Per Project: $23,271

IDA Glossary

Select individual regions for detailed data

Economic Regions:

- Capital District
- Central New York
- Finger Lakes
- Long Island
- Mid-Hudson
- Mohawk Valley
- New York City
- North Country
- Southern Tier
- Western New York

Mohawk Valley IDA Data for 2017

Open + / Close -

Regional Summary - Total IDAs: 8 ⊕

Fulton County Industrial Development Agency ⊕

Hamilton County Industrial Development Agency ⊕

Herkimer County Industrial Development Agency ⊖

Region: Mohawk Valley	**County:** Herkimer	**Type:** County IDA
Project Count: 23	Net Exemptions Per Project: $55,065	Estimated Net Job Change: 271
Total Project Values: $356,000,217	Estimated Jobs to be Created: 754	Net Exemptions Per Job Gained: $4,680
Total Tax Exemptions: $2,549,907	Estimated Jobs to be Retained: 972	IDA Expenses: $6,103,293
Total PILOTs: $1,283,411	Full Time Equivalents Before IDA: 989	Expenses Per Job Gained: $22,555
Net Tax Exemptions: $1,266,496	Current Full Time Equivalents: 1,259	Expenses Per Project: $265,361

IDA Glossary

Montgomery County Industrial Development Agency ⊕

Oneida County Industrial Development Agency ⊕

Schoharie County Industrial Development Agency ⊕

City of Amsterdam Industrial Development Agency ⊕

City of Utica Industrial Development Agency ⊕

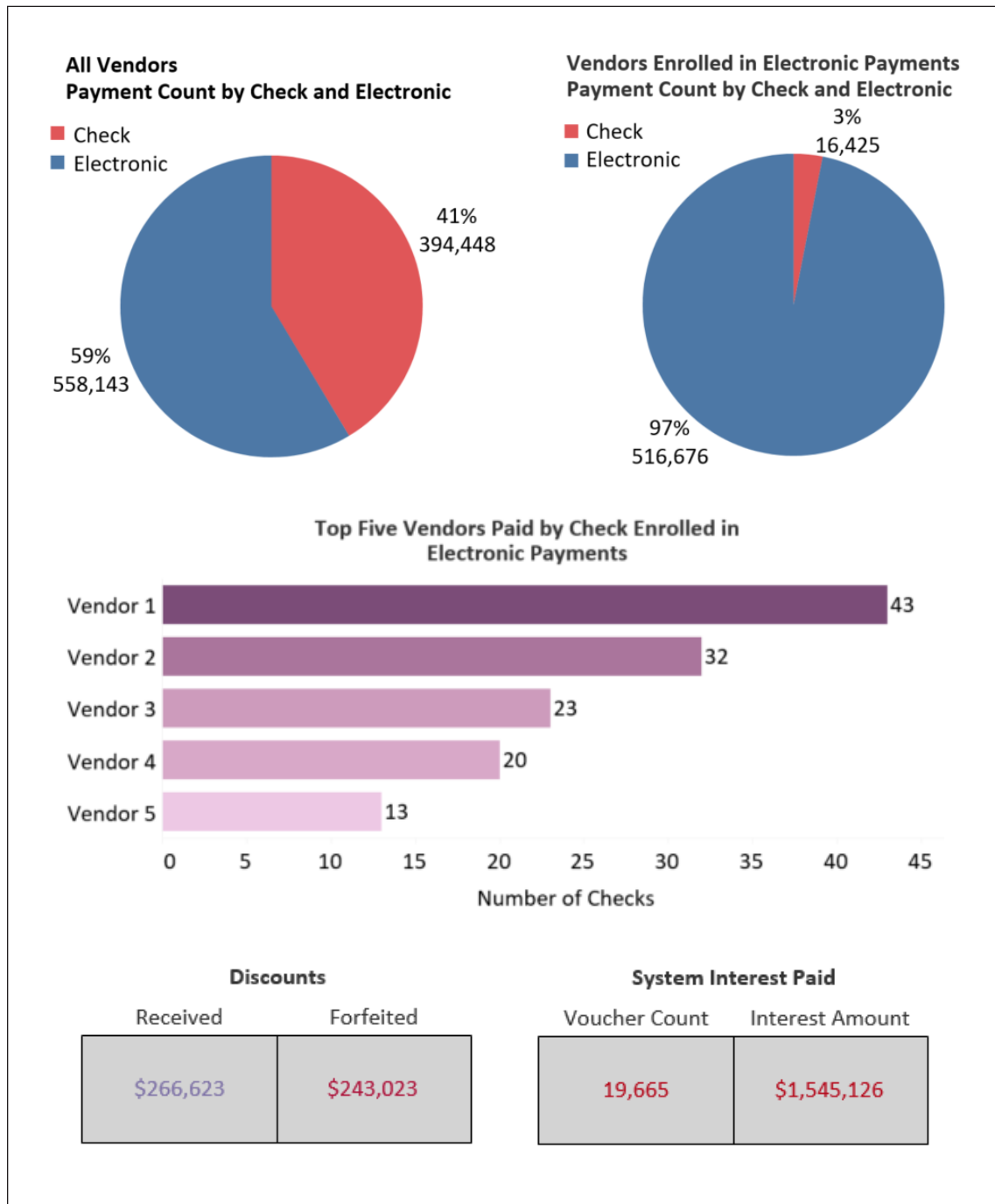## Helping agencies speed the payment process while saving the State money

Inefficient business processes can result in wasteful spending. OSC employs a variety of analytic techniques to evaluate and improve payment procedures. For example, OSC has used data analytics to identify vendors that could receive payments electronically and worked with a sample of some of the largest vendors and agencies to replace checks with electronic payments, which are quicker, safer and less expensive. Although OSC is in the early stages of encouraging increased adoption of electronic payments, this effort has already saved the State in the cost of check processing fees, while ensuring vendors are paid faster and more securely.

To help agencies see where additional gains could be made to increase electronic payments as well as reduce interest for late payments and increase discounts provided by vendors, OSC created an Agency Activity Report. In April 2019, OSC issued reports to 69 agencies and the Business Services Center (which processes vouchers for many State agencies) to provide an overall picture of agency accomplishments for Fiscal Year 2018-19 and identify improvement opportunities going forward.

While Exhibit 9 is a statewide report, each agency received its own report. The first portion of the report illustrates the number of payments sent by check or electronically and indicates whether or not they are paying vendors electronically for those vendors enrolled in electronic payments. The second portion helps the agency identify the top five vendors they paid by check even though the vendor was enrolled in electronic payments. The last portion measures how successful agencies are at earning discounts and avoiding late payment interest.

OSC also analyzed the timing of payments to ensure vendors were paid timely while also maximizing interest earned on funds in State accounts. Late payments incur penalties and discourage vendor participation in State procurement, while early payments cause the State to forgo interest that could have been earned on the funds disbursed. In the first eight months after agencies implemented OSC recommendations, the State earned over $5.7 million in additional interest. Because these changes are permanent, the earnings will continue into the future.

Exhibit 9: Agency Activity Reports – All Agencies

All Vendors
Payment Count by Check and Electronic

- Check
- Electronic

41%
394,448

59%
558,143

Vendors Enrolled in Electronic Payments
Payment Count by Check and Electronic

- Check
- Electronic

3%
16,425

97%
516,676

Top Five Vendors Paid by Check Enrolled in Electronic Payments

Vendor	Number of Checks
Vendor 1	43
Vendor 2	32
Vendor 3	23
Vendor 4	20
Vendor 5	13

Number of Checks

Discounts

Received	Forfeited
$266,623	$243,023

System Interest Paid

Voucher Count	Interest Amount
19,665	$1,545,126

Conclusion

OSC's implementation of Section 8-c of the State Finance Law has resulted in the deployment of tools and strategies leading to smarter, more efficient systems for auditing payments, monitoring transactions, allocating resources and sharing valuable results with appropriate stakeholders. These efforts have in turn spurred the development of even more robust and accurate models and tools. OSC continually evaluates and refines analytic models to incorporate additional data and apply the most effective and efficient methods to ensure that models are assessing the areas of greatest risk.

OSC will continue to work with State agencies and public authorities to identify business processes that could be modified to improve the detection of fraud, waste and abuse and prevent improper payments. OSC is advancing its efforts to use data analytics to streamline and improve its auditing and oversight capabilities. By enhancing the detection and prevention of fraud, waste and abuse, data analytics is reducing the cost of delivering services while creating a more level playing field for all the entities who do business with New York State. All New Yorkers stand to benefit from this effort, which is safeguarding public money and making our government more transparent, accountable and efficient.

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