



2023

YEAR IN REVIEW

Citywide Analytics Team

BREAKING NEW GROUND AND DELIVERING WITH EXCELLENCE

2023 was a year of exciting growth and new capabilities for the Analytics Team. We welcomed five new team members and hosted two summer fellows, all of whom brought new skill sets and points of view to support our mission of using data and evidence to drive better decision-making and more effective delivery of City services.

Through these new team members we have added completely new ways in which we collaborate with departments, including training and consulting support in process improvement tools, rigorous impact evaluation, and training offerings around technical skills such as Python and PowerBI!

We have also continued our focus on delivering high quality analyses through project based partnerships with departments focused on particular services or policy questions.

WHAT IS NEXT IN 2024?

Our newly launched Bostonia Academy will offer three types of recurring training on process improvement techniques that immerse participants into a hands-on, interactive environment that allows for staff to collaborate and connect.

We will also continue to upgrade our data infrastructure, iterate on the performance stat model, and execute projects including developing a data-driven understanding of accessibility of youth sports opportunities, and lead evaluations of several ARPA funded programs.

ANALYTICS BY THE NUMBERS

17 *team members*

2 *summer fellows*

Worked with **65%** of city departments in 2023

You can find **245** open data sets on [Analyze Boston](#)

The Analytics data warehouse currently has **600GB** of data

189 data pipelines running regularly in the data warehouse

364,247 lines of code committed

NEW PRODUCTS AND SERVICES

TRAINING AND EMPOWERMENT

We are thrilled that the demand for using data to inform decisions around the City is growing fast. In recognition and support of our colleagues across the City who are hungry to be collecting and analyzing more data, we are changing the way we work from centrally handling all reporting and analysis requests to connecting staff to the tools, training and data they need to uncover actionable insights. Our aim is to greatly expand the ways data is being used every day across city government and avoid being a bottleneck to this growth. We will continue to provide direct analytical consulting support on projects that require significant methodological or technical expertise, and on those projects that cut across departments.

Realizing this shift in approach requires training opportunities we've never offered before. To that end, four learning cohorts, each spanning 10-12 weeks, were offered in 2023. They covered three data-focused topics: JavaScript, Python, and Power BI. Our Power BI cohorts were the largest of the year, training 33 employees from 13 City Cabinets, in support of the City's transition to Power BI as its primary business intelligence tool. All in all, 55 unique staff participated in one or more of the four learning cohorts hosted this year. We also offered two workshops on git/GitHub and SQL. We're looking forward to improving upon and expanding our learning offerings in 2024.

Early next year we will be welcoming the team's first data product manager, who will drive efforts to make Power BI and other data tools easily accessible to colleagues across the City.

RIGOROUS IMPACT EVALUATION

American Rescue Plan Act (ARPA) funds provided the City with an unprecedented opportunity to pioneer innovative programs and policies aimed at fostering a strong, resilient, and equitable recovery. In collaboration with colleagues implementing

ARPA funded programs and policies, we are defining what success would look like, and we are also conducting experimental and quasi-experimental evaluations to gauge the impact of these initiatives. A key focus has also been fostering a culture of evidence-based decision-making and developing robust resources for empowering City staff to identify opportunities for impact evaluations and act on the learnings produced.

PROCESS IMPROVEMENT

Process improvement is the ongoing effort to streamline and optimize day-to-day operations in order to improve service delivery for City of Boston residents. We empower City staff to identify problems, analyze root-causes, and implement actionable change to processes within their control and influence. We encourage the use of these tools across the City through direct advisory engagements with departments and by hosting trainings for staff of all levels.

DATA CATALOG

This year our data engineers have been working on a process improvement project of their own - a substantial reorganization and refactoring of the data warehouse and the ETL pipelines that power it. All transformations and tests for the data warehouse are being migrated over to our dbt project, which has enabled even further improvements. dbt is an open source project and the industry standard for managing transformations in data warehouses. In October, we presented about the team's migration to dbt and advocated for other public sector data teams to do the same at Coalesce, the annual dbt user conference. As a result of the data transformations living in the dbt project, dbt can generate a website that documents the data warehouse. In short - we now have a data catalog! We have been using this data catalog internally for the past few months, and in 2024 a version of this data catalog will be integrated with Access Boston and available to all city workers.

PROJECT HIGHLIGHTS

CITY OWNED LAND AUDIT

Continued our collaboration with staff across many departments to identify publicly owned land and maintain [a database and map](#) of properties owned by the City to make it easier to identify opportunities to further Mayor Wu’s goal of transforming underutilized parcels to advance housing justice, and [provided an update](#) on efforts that are underway.

AFFORDABLE HOUSING PIPELINE

Partnered with the Mayor’s Office of Housing (MOH), Inspectional Services Department (ISD) and the Boston Planning and Development Agency (BPDA) to combine data from their respective data systems to track proposed affordable housing projects through the approval process. To comply with the data tracking requirement of Mayor Wu’s executive order on accelerating affordable housing, we created an automated tool to visualize how long individual steps in the review process are taking and make it easy for staff across departments to understand the current status of each project.

FASTER DELIVERY OF VITAL RECORDS

Partnered with the Registry to streamline their processes for providing constituents with birth certificates and marriage licenses. Work included reorganizing workflows, remaking documentation and tools, and eliminating the need for some constituents to return to city hall. These interventions reduced processing times by up to 55%, improved overall constituent experience, and are allowing Registry staff to plan new community outreach.

HIRING IMPROVEMENT INITIATIVE

Provided data analyses and insights to support the People Operations Cabinet in their cross-departmental effort to reduce the time to hire. Our work helped to identify potential bottlenecks and opportunities for improvement, and, through ongoing measurement, allowed the team to see the impact of changes to the process and new ways of working.

BASIC CITY SERVICES STAT

Partnered with the Mayor’s Office as well as all departments within “Basic City Services” (e.g., Public Works, Transportation) to kick off monthly “Stat” style performance management meetings. These meetings are used to dig into services around the City using data to make decisions, solve problems, and become more efficient.

SIDEWALK REPAIR INVESTIGATION

In partnership with Public Works, we dove deeply into sidewalk repair as one of the monthly topics for the Basic City Services Stat meetings. We examined how the City’s sidewalk conditions index compares to the volume of sidewalk related 311 requests to identify priority areas and analyzed the capital project backlog.

VANDALISM REMOVAL PRIORITIZATION

Collaborated with the Property Management Department to analyze trends in 311 requests for vandalism removal across time and to identify hotspots. Built a tool to help staff efficiently triage incoming cases and prioritize the backlog of removal requests using a set of weighted criteria

AUTOMATED POTHOLE DETECTION

[Partnered with Mercedes Benz](#) to use anonymized data from connected vehicles to investigate whether automated detection of potholes could supplement 311 reporting and provide a more comprehensive understanding of road conditions and changes in pothole severity over time.

STREAMLINING OUTDOOR EVENT PERMITTING

Partnered with the Mayor’s Office to streamline the citywide special events process. Through collaboration with the Licensing Department, Inspectional Services Department, Boston Fire Department, Property Management Department, Public Works Department and Streets Department, process inefficiencies were identified. As a collective group, a future state process was drafted and planned to be implemented in 2024.

dbt IMPLEMENTATION

Our engineering team incorporated dbt into their data warehouse toolset, alongside a major redesign of the data warehouse and the ETL workflows that power it. dbt is open source and the industry standard for transforming, testing, and documenting data in the data warehouse. We presented about this work at dbt's user conference Coalesce 2023.

ArcGIS MIGRATION AND UPGRADE

Migrated and upgraded ArcGIS databases and servers to enable critical GIS-dependent projects to proceed, and to promote better GIS data sharing and collaboration, including the enablement of a comprehensive asset inventory and management system.

COMMUNICATIONS EXPERIMENTS

Alongside colleagues in Employee Experience, we participated in the Behavioral Insight Team's "Simple Randomized Control Trial Sprint" to learn fundamental concepts of how to design and rapidly test behavioral nudges and other interventions. We conducted a trial of two different reminders to employees to submit forms for fitness reimbursements from our health insurers.

DEPARTMENT GOALS AND MEASURES

Worked with Inspectional Services (ISD) and the Registry to develop comprehensive goals, objectives and measures for the entire department. This framework enables each department to revisit their goals annually as well as incorporate data and performance management into their day to day work.

VISUALIZING RODENT PREVENTION

Collaborated with ISD to create a tool that visualizes incoming 311 requests about rodent activity as well as observations from staff in the field to highlight recent geospatial trends and aid the team in strategically planning where to focus their time and attention.

BUILDING AN EVALUATION CULTURE

Along with team members from Budget, Equity & Inclusion, and the Office of Workforce Development, Boston was one of 14 city, county, and state governments from across the country selected to participate in a [training sprint](#) provided by J-PAL and Results for America where we learned key elements of how to embed evaluations and evidence into decision making across government.

MEASURING SUPPLIER DIVERSITY

Partnered with the Procurement and Supplier Diversity departments to automate reporting of key information regarding the City's spending on contracts with minority- and women-owned small businesses and make this information more easily accessible to department heads. Created a dashboard to make spending and contract award information transparent and easily visualized.

EMPLOYEE DEMOGRAPHICS DASHBOARD

Worked with the People Operations Cabinet to develop a tool for departments to easily understand the current demographic makeup of their employees and recent trends in the diversity of their new hires, and to communicate these insights to City Council in the annual budget process.

*Have a project idea or want to get in touch?
Please reach out to us at
analyticsteam@boston.gov!*



MEET OUR TEAM!



*Nolan Brown
Performance Coach*



*Joey Headley
Data Analyst*



*David Falta
Junior Data Engineer*



*Stefanie Costa Leabo
Chief Data Officer*



*Amy Hood
Performance Manager*



*Betty Fang
Summer Fellow
MS, Computational Analysis
and Public Policy
University of Chicago '24*



*Emma Curran
Geospatial Data Analyst*



*Mubarak Iddrisu
Summer Fellow
PhD, Information Systems
for Data Science
UMass Boston '25*



*Jenna Jordan
Data Engineer*



*Hope Ruse
Data Analyst*



*Tyler Loewenstein
Performance Analyst*



*Sebastian Sandoval
Olascoaga
ARPA Research and
Evaluation Lead*



*Jeff Kaplan
Senior Geospatial Data
Analyst*



*Courtney Moores
Director of Performance
Management*



*Charlie Sheils
Director of Engineering*



*Jeff Lambart
Director of Analytics*



*Raman Singh
Performance Analyst*



*Julia Vasta
Senior Data Analyst*



*Kayleigh Vocca
Senior Performance Coach*



Celebrating our summer fellows and putting our analytical puzzle solving skills to the test at an escape room!