

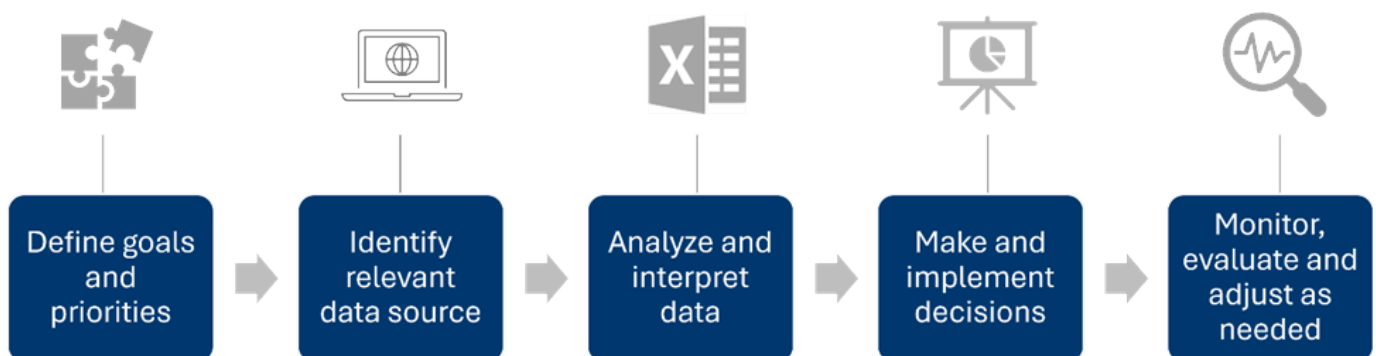
Using Data to Guide Municipal Decisions

Municipalities can use data as a strategic asset to inform governmental decisions, support pre-defined goals, or identify patterns and potential issues needing resolution. Through data-driven decision-making, municipalities leverage data to guide their actions rather than relying on instinct, precedent, or assumptions. Typically, a goal or priority will help define the data needed. Analyzing relevant data can provide insights to clarify a municipality's best course of action.

The COVID-19 pandemic brought the value of data-driven decision-making into sharp focus. Municipalities with foundational data skills and existing data infrastructure were able to quickly respond to the challenges the pandemic presented. Data on the number of COVID-19 cases and their location, coupled with demographic information such as housing density, helped municipalities identify where to deploy rapid testing and vaccination sites. Municipalities also used data to identify where to dedicate funding and how to prioritize financial relief to residents in need.

Using the best available data to inform decisions, especially in an emergency, ensures that resources are used efficiently, delivered effectively, and prioritized appropriately. On the other hand, taking action without evaluating data may lead to unnecessary costs and wasted resources. For example, opening a new playground and simply assuming that nearby residents will use its amenities is not a data-based decision. To better estimate the need, a municipality could collect and analyze various data points such as the number of children in the neighborhood, the location of other parks, or responses to community surveys.

A typical data-driven decision-making process consists of several steps:



The OIG offers the following insights to facilitate this process for your municipality.

Collect and analyze existing data

As a municipal or agency leader, you have a wide range of data sources available for analysis and application. Relevant data sources may include maintenance logs, road usage, utility usage, crime reports, traffic accident statistics, building permits, business licenses, code violations, procurement records, invoices, inventory records, payroll records, or tax records.

If your municipality is newer to data analysis, data sources may not be readily available. Start to build your data collection to increase capacity. For example, transpose hard copies of invoices to an electronic spreadsheet to better track and visualize pricing trends over time and identify potential cost savings.

Also leverage publicly available data. For example, analyze resident demographics to ensure that city services are equitable and aligned with the needs of the community's population. Or use data available through the [Massachusetts Division of Local Services' Municipal Databank](#) to compare financial performance metrics (e.g., revenue, debt, expenditures) with communities of similar size, population density, or other characteristics.

If your municipality is experienced in data analysis, examine current practices to ensure your city or town is making optimal use of its data. Questions to consider:

- What data do you collect and how is it cataloged?
- Is your data accurate, up to date, and accessible?
- How is your data currently being used?
- Are you using data proactively?
 - For example, the New York City Fire Department predicts peak times for emergency calls and matches patients with the nearest appropriate hospitals to optimize ambulance dispatching. New York City also utilizes data on 311 complaints to monitor foodborne illnesses and outbreaks.
- How is your data being shared? Could transparency enhance public trust or encourage community engagement?
 - For example, the city of Cambridge's open data portal includes a dataset listing municipal issues that the public can help solve by analyzing their open data.¹ Other cities, like Boston, publish data on employee earnings and contract awards, which helps residents understand how dollars are being used to support city operations.
- Do you collect feedback from residents? How can that data be used to identify residents' top priorities and help provide informed solutions?

¹ See City of Cambridge Open Data Portal, [Civic Innovation Challenge Inventory](#).

Ensure data quality and accuracy

Data-driven governmental decisions rely on data that is accurate and complete. Data of poor quality can result in inefficient resource allocation, higher costs, decreased resident trust, and missed opportunities.

Your municipality should conduct a data quality assessment. Evaluate the accuracy, completeness, and consistency of your collected data or any publicly available data utilized. Data is accurate when it reflects information truthfully. Data is complete when required fields are filled with all necessary information. Data is consistent when it is uniform across different sources, formats, and systems. Identify and correct any missing values, inconsistencies, duplicates, or errors prior to analyzing the information.

If your municipality regularly collects data, also think about establishing processes to maintain data quality over time. These efforts may include periodic checks to ensure the data conforms to defined rules and standards, such as through automated validation of data types and formats. Conduct regular audits to assess data quality and identify areas for improvement. By implementing these measures, you can ensure that your data remains a valuable asset to support long-term strategic goals.

Invest in data infrastructure and training

You do not necessarily need robust technology and a large team of specialized personnel to make data-driven decisions. Widely available tools, such as Microsoft Excel or Power BI, can be effective for data analysis, visualization, and reporting.

However, to make the most of data-driven insights and to foster a data-driven culture, consider strategies for investing in data infrastructure and identify opportunities for staff to develop the necessary skills and expertise to analyze and interpret data.

If your municipality has an experienced data professional on staff, ask that person to conduct a training program open to all skill levels to empower other town employees to use data in their daily roles. Keep in mind that your municipality may have an employee skilled in data analysis who currently holds another role. Finding a way to tap into that employee's knowledge on a limited basis may be a low-cost way to start using data in your municipality.

If part of a smaller municipality, you may be able to leverage public-private partnerships, collaborate with other municipalities to share best practices, or offer public-facing data tools to solicit community involvement and innovation. You could also provide training and resources to residents to promote civic engagement.

Monitor results of decisions

Monitor the impact of decisions to ensure they achieve desired outcomes. Identify what success looks like, and establish measurable performance metrics to gauge your progress. For example, in making efforts to reduce traffic congestion, you could use average commute times or the number of traffic accidents as metrics.

Evaluating results also typically requires comparing pre- and post-decision data to assess effectiveness. If you don't have data on average commute times before implementing a new traffic management system, it will be difficult to ascertain whether the system had any effect on those commute times.

Lastly, recognize and celebrate the success of evidence-based solutions so that other communities can implement the idea.

Conclusion

Stepping into a data mindset need not be a major municipal investment. It can start with a tone from the top recognizing that data is a strategic asset that needs to be unlocked.

Work to incorporate data analysis as a core component across all municipal initiatives, whether to enhance critical services or address complex issues. Collecting and evaluating data will help inform strategic decision-making and will drive meaningful results.

*The OIG periodically issues **OIG In Your Inbox: Insights, Advisories and Alerts** as a way to succinctly share timely topics with key stakeholders, most notably the leaders within the Commonwealth's 351 local communities. The OIG hopes that **OIG In Your Inbox: Insights, Advisories and Alerts** will prompt dialogue and needed action on matters important to public entities.*

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