Using Data to Improve Procurement Operations and Outcomes

Authors: Kailey Burger Ayogu and Rebecca Graffy

Contributors: Elena Hoffnagle, Danielle Kavanagh-Smith, Laura Merryfield, and Hope Patterson

In this how-to guide you will:

- Learn how to start using data to track the effectiveness of procurement operations, which can result in overall improvements to how contracted services are delivered
- Review common key performance indicators used by purchasing offices
- Understand how to discuss these metrics regularly within your purchasing team and how to use them as a tool to elevate challenges and opportunities to leadership

HARVARD Kennedy School
Government Performance Lab

Procurement Excellence Network

Introduction

Government officials, the vendors they work with, and even the public often complain that government procurement is "too slow," "too bureaucratic," and "ineffective." For procurement officials interested in reform, it is hard to know where to begin with just these anecdotal impressions. Diagnosing bottlenecks in the procurement process, understanding where contract outcomes can be improved, and prioritizing systemic challenges require the kind of clarity provided by *data*. Procurement data is foundational to running an efficient, effective, proactive, and strategic purchasing office.

Your Government's Data Journey

If you're like most governments we work with, your data may be scattered across many spreadsheets, databases, and even on paper in filing cabinets. Fear not – no matter where you are on your data journey, there are many ways to quickly leverage data to improve your procurement process! To start, review this diagnostic checklist below and see how many questions you can answer for your government – this can help you begin to assess where you might want to focus your efforts to gather data:

Diagnostic Checklist:

Beginner

☐ How many solicitations are issued annually?

☐ How long does an average solicitation take? Which stages take the longest?

☐ How many responses do solicitations receive on average?

☐ What percentage of solicitations are awarded annually?

☐ How many contracts are awarded annually?

☐ How much money is spent on goods and services annually?

Intermediate

☐ How many contracts are awarded annually through each procurement vehicle?

☐ How much money is spent through each procurement vehicle annually?

☐ What percentage of vendors who are awarded contracts are small, local, or minority-owned firms?

☐ How much money is spent with small, local, or minority-owned firms annually?

☐ Do staff experience the procurement process to be efficient, inviting, and effective?

☐ Do vendors experience the procurement process to be efficient, inviting, and effective?

Advanced

☐ How many solicitations are expected to be issued in the coming year?

☐ Are solicitations resulting in the best quality and best value contracts?

☐ Are contracts achieving their intended impact?

☐ Are contracts supporting the local economy?

What Data Can Help You Achieve

If you're at the beginning of your data journey – the "beginner" level - efforts to gather and use data will be most effective if focused on specific goals for improving procurement in your government. Once you're regularly collecting data – at the "intermediate" or "advanced" level – regular data reporting will itself illuminate the problem areas where you'll want to focus strategic attention. Regardless of where you are on your journey, the goals and metrics below can be a helpful guide for considering improvement opportunities:
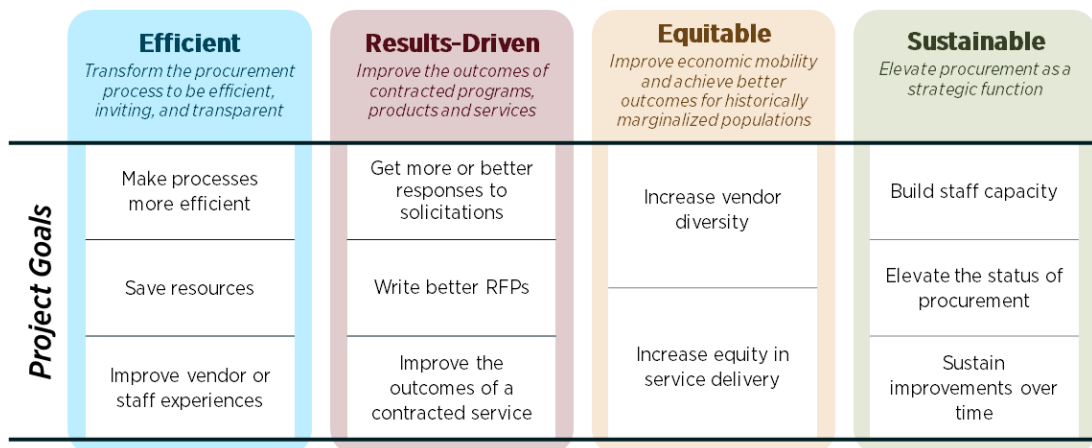
Reform Goal	Sample Metrics
Make procurement processes faster	• **Cycle time:** average number of days per procurement stage, per solicitation • **Rebids:** frequency of solicitation cycle repetitions due to cancellations or failed solicitations
Increase vendor diversity – by contracting with more small, local, and diverse firms	• **Diverse vendor participation:** number or percentage of small, local, or diverse businesses participating in the procurement process at each stage • **Diverse spend:** dollars or percentage of contracted dollars spent with small, local, or diverse businesses
Receive more responses to solicitations, especially from firms who have never worked with your government	• **Response rate:** average number of responses (proposals or bids received) per solicitation • **Rate of competitive solicitations:** percentage of solicitations getting more than a target number of responses (2+ responses, 3+ responses, etc.)
Improve the knowledge of staff in your government to run procurements effectively	• **Staff trained:** number or percentage of staff trained in procurement, or trained to write RFPs that will improve the results of contracted programs or services

Step 1. Understand your goal

The first step to using data in your purchasing office is to be clear on the *why.* Is there a change you're trying to make, such as improving process efficiency? Is there one specific, pressing question you'd like to be able to answer?

Or perhaps your goal is to diagnose the most critical challenges vendors experience working with your government. Having a clear goal will help you determine what data you need to analyze and what you will do with it.

The GPL has identified four pillars on which governments commonly anchor their goals for procurement excellence. Within these pillars, common goals for procurement reform include:

	Efficient\nTransform the procurement process to be efficient, inviting, and transparent	Results-Driven\nImprove the outcomes of contracted programs, products and services	Equitable\nImprove economic mobility and achieve better outcomes for historically marginalized populations	Sustainable\nElevate procurement as a strategic function
Project Goals	Make processes more efficient	Get more or better responses to solicitations	Increase vendor diversity	Build staff capacity
	Save resources	Write better RFPs		Elevate the status of procurement
	Improve vendor or staff experiences	Improve the outcomes of a contracted service	Increase equity in service delivery	Sustain improvements over time

Step 2. Pick the right indicator(s)

Once you know what you are trying to accomplish, data in the form of a **key performance indicator (KPI)** can help you objectively understand whether you are on track to achieving it. For instance, if your goal is to *make procurement processes more efficient*, tracking the cycle time (i.e., the duration of each stage of the procurement process) will tell you concretely whether you are meeting your goals. In this case, your key performance indicator is *procurement cycle times*.

To get you started, we've created a menu of KPIs linked to the goals that they often support. In general, when selecting key performance indicators:
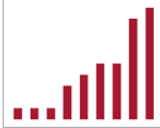
- **Start small:** It takes time to collect, analyze, draw conclusions, and take action from data. If your purchasing office is new to using data, don't bite off more than you can chew! Focus on one or two indicators to build up the skill.

- **Choose indicators that are important, but realistic:** Because data-driven decision making takes time, you'll want to focus on indicators that are meaningful signals for whether you are achieving your goal, but that are also feasible to track. If you're considering an indicator that seems important but difficult to track, ask yourself if the juice is worth the squeeze—whether the benefit from collecting and analyzing the data is worth the benefits you will derive from it. If it is, look for ways to make data collection and analysis operationally realistic. This might mean planning to collect or analyze the data less frequently or sampling a smaller but representative subset of users or solicitations.

- **Orient towards action:** Remember, you're not analyzing data for the sake of it. When you pick an indicator, you should have a hypothesis for the *real world changes you might make* to achieve your goal. For instance, if your goal is to improve vendor experiences with procurement, you might plan to measure progress in terms of the percentage of vendors who would recommend doing business with the government in a post-contract survey. If a lot of vendors wouldn't recommend doing business with the government, what would you do next? If you're orienting towards action, as part of your survey you may also want to ask for information that will help you understand the problem and define potential solutions. For instance, is the negative feedback from vendors working with a specific department or buyer? What rationale do the vendors who gave negative feedback provide? Plan for these ancillary data needs.

Step 3. Collect & analyze your data

As you set out to collect and analyze data, and to measure and make progress toward your goal for procurement reform, here are a few considerations to keep in mind:

- *Data Source: Where will you get the required data?*
  Many governments have data readily available to export and analyze from eProcurement systems, enterprise resource planning (ERP) systems, and routine surveys of staff, vendors, or residents. Many other governments also have data readily available in Excel logs and paper procurement records, though it will take more time to organize and analyze. While it is easiest to track indicators where you have ready access to data, it's also okay to create the data you need for important indicators. For instance, if your goal is to improve staff experiences with the procurement office and you don't currently have a way of measuring this, consider implementing a survey asking program or agency staff about their experience.

- *Frequency: How often will you analyze this data?*
  The frequency with which you analyze data will depend on how difficult it is to collect and analyze, how quickly you can make changes that will impact outcomes, and how long it takes to realize impact. For instance, it might only be practical to issue a large-scale survey of the vendor community once a year, but it might be quite realistic to analyze data from a post-solicitation vendor survey on a quarterly basis. More frequent analysis does not necessarily mean better results.

- *Data Fields: What sub-analysis will uncover insights and help you diagnose challenges?*
  While your key performance indicator will highlight whether you are on track to achieving your goal, digging in to make sense of this data will help you diagnose barriers and make inferences about potential solutions. Check out the toolbox below for tips on how to work with your procurement data to draw out insights.

Techniques to Reveal Patterns in Data		
Visualize the data		• Charts • Tables • Maps
Disaggregate the data		• Solicitation type • Department • Buyer • Vendor • Industry • Good / service • Month, quarter, year
Create ratios	**10:1**	• Unit costs • Workloads • Throughput

- ***Responsibilities:*** *Who is going to collect and analyze the data?*
  Who needs to be involved in using your data to track progress, diagnose problems, and create solutions? What senior leaders can help to hold you accountable for making progress? Identify these stakeholders and enlist their support early.

Are these governments on track to meeting their goals?

Disaggregating your data is an important part of understanding whether you are meeting your goal, and if not why! In the following examples, what's the real story the datasets are telling us?
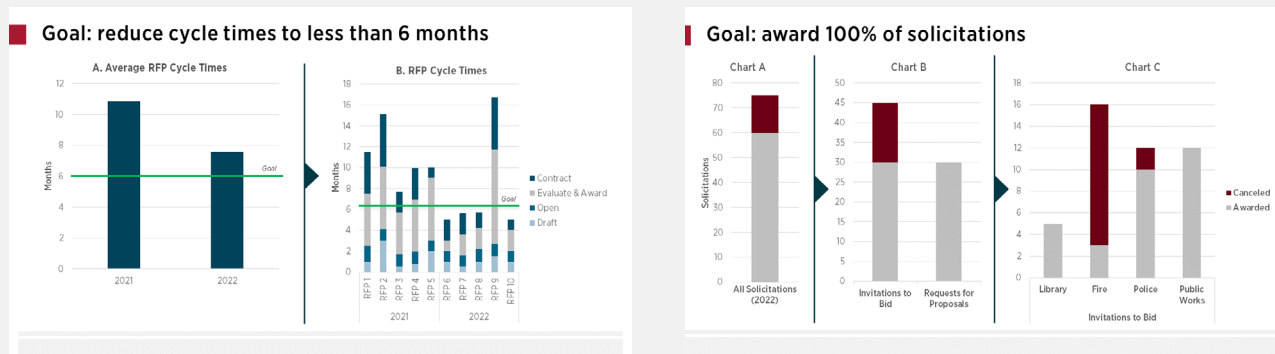
Reduce cycle times to less than 6 months: While Chart A suggests this government is not meeting its goal, the disaggregated data in Chart B tells a different story. In Chart B, we see that evaluation and award was a consistent process bottleneck for all RFPs in 2021. This is important because it gives us a specific place to focus on making improvements. We can also see that in 2022 this stage was run more efficiently, except for RFP 9, which was an outlier that dragged down the overall average. This disaggregated data tells a more positive story about overall performance and provides more information to help the government focus efforts.

Award 100% of solicitations: While Chart A shows that this government is not meeting its goal, it's not particularly actionable. Chart B offers more insight, drawing out that the challenge is with one type of solicitation (Invitations to Bid). Chart C helps characterize the challenge even further by Department. With this information, a procurement staff member could reach out to the staff in the Fire and Police Departments to understand what about the Invitation to Bid process or requirements are resulting in canceled solicitations.

Using Data to Improve Procurement Operations and Outcomes

Step 4. Use your data to make change

At last, where the rubber meets the road! It's time to use your data to make operational changes. As you begin your journey towards a data-informed procurement operation, here are some quick tips to get you started:

1. **Bring your team along for the journey.** Include the colleagues whose work may change based on the goals, who can help deepen insights drawn from the data, and who can make changes in their day-to-day work in response to findings. An open and collaborative approach can help to build buy in, better understand what your data is telling you, and make changes to achieve your goals.

2. **Highlight successes as well as challenges.** When presenting data to staff, use the numbers to show both positive and negative trends. This can help reluctant team members see that their efforts are recognized, even where there is room for improvement. For example, "We see that through our vendor outreach efforts, response rates are very high. But we're still struggling with cycle times."

3. **Be inquisitive and growth oriented.** We all like getting good grades and gold stars, but you haven't gone to all this work just to see a flattering dashboard! The purpose of running a data-driven operation is to keep a pulse on your ever-evolving context so you can adjust to challenges that arise, and continuously improve. When your data tells you performance could be improved, ask "what might be causing this?" and "what could we do differently?"; when you see areas where performance is exceptional, ask "what did we do well?" and "how could this be replicated or scaled?"

4. **Keep it simple.** Remember that this doesn't need to be hard or complicated. Using your data to make change can be like counting your steps and finding yourself motivated to take the stairs rather than the elevator. The small, everyday behavioral changes that staff across your organization make—when they are aware of and motivated by your goal—can add up.
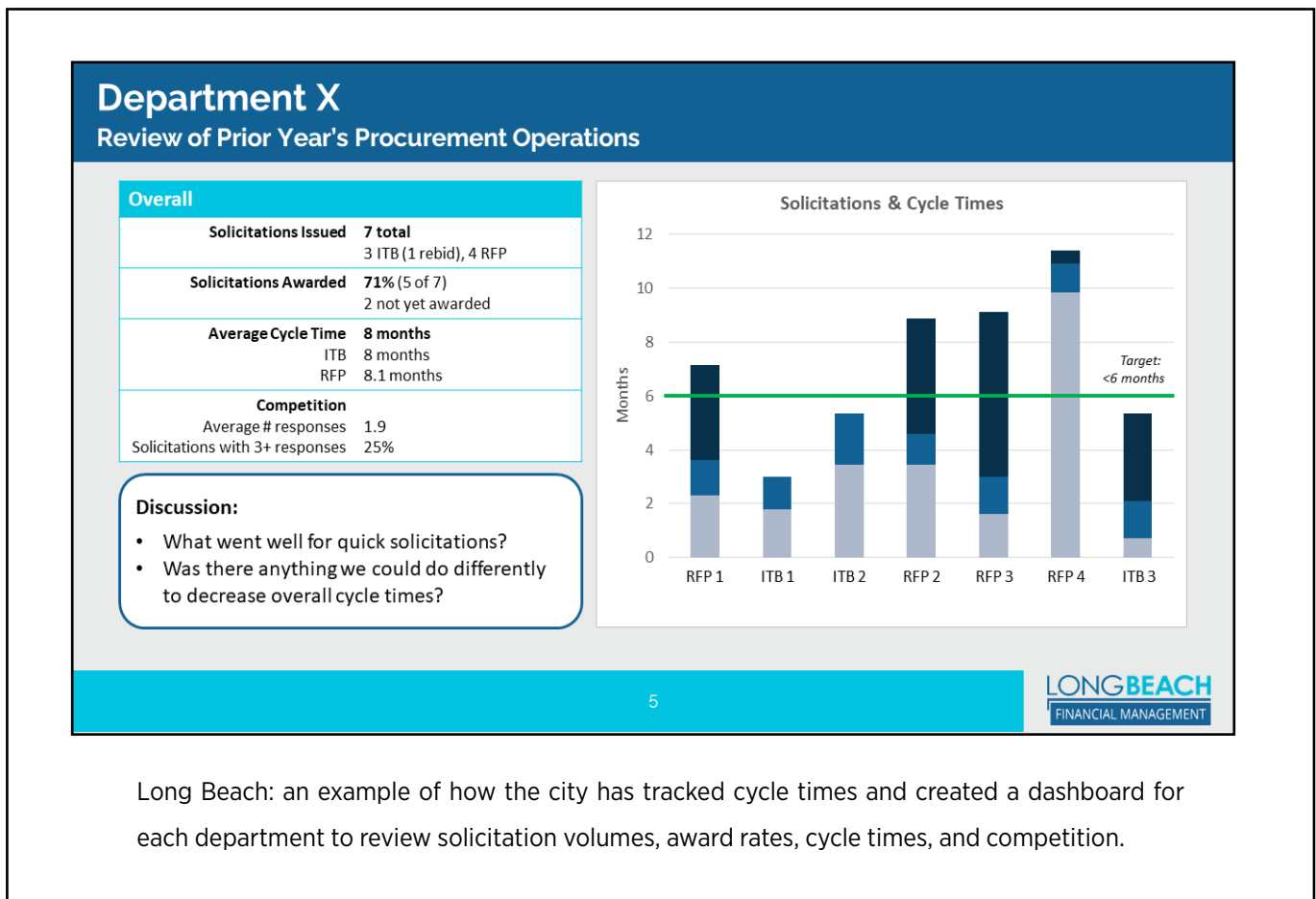
In the spirit of motivation, as you begin, take encouragement from the examples of two governments: the City of Long Beach, CA and the City of Memphis, TN.

Improving efficiency in the City of Long Beach through regular informal data reviews

In 2020, Long Beach launched an Extreme Procurement Makeover to make procurement more efficient, inviting, impactful, and equitable. Stakeholders across the city anecdotally described procurement as being unnecessarily slow and bureaucratic, but it was less clear how slow or why. The city started by analyzing the cycle times for procurements and found that, historically, RFPs

took eight months to be reviewed by central purchasing, opened for responses, evaluated, and awarded. Five of those months were spent on the evaluation stage, which department staff—not the central purchasing office—are responsible for. Building on this insight, the central purchasing office conducted a series of trainings around the city to educate staff on the procurement process, roles and responsibilities, and indicative timelines. As a result of this and other reform efforts, the city has reduced the cycle time for these phases of the procurement process to three months as of 2022.

To carry forward these reforms, Long Beach is now reviewing procurement data with each department annually. In these discussions, the central purchasing office and the department discuss rates of award, cycle times, and competitiveness of responses. This collaboration uncovers opportunities for further improvement that can inform planning for the coming year and prompts a broader group of stakeholders to look out for small, everyday opportunities to make individual procurements more efficient and competitive.

Long Beach: an example of how the city has tracked cycle times and created a dashboard for each department to review solicitation volumes, award rates, cycle times, and competition.

Increasing competition and elevating the role of procurement in the City of Memphis

Like many cities, Memphis sensed that procurement operations had problems, but they had limited visibility into specific barriers and root causes. To make the problem more concrete, Memphis's Office of Performance Management conducted a comprehensive analysis of the city's procurement data. This analysis uncovered that 20% of solicitations were re-released due to insufficient competition. Digging in further, Memphis found that low competition affected procurements across vendor markets, and that over 60% of all procurements received zero or one responses!

This information empowered the Chief Procurement Officer (CPO) at the time to propose lengthening the procurement response window to give vendors more time to respond and improve competition. This information also helped convince city staff that slightly longer procurement cycles would lead to more efficient and successful procurements in the long run. As a result of these findings, Memphis saw the strategic importance in interrogating procurement data, and began reviewing procurement dashboards as part of monthly performance review meetings held by the Mayor with City and Department leaders.

Are you ready to use your data to achieve procurement excellence?

This how-to guide was designed to show you how to start using data to make procurement operations more efficient and effective. The guidance and examples stem from our experiences working with governments across the country. As the learning never ends, we welcome you to share any additional best practices or success stories to motivate others on the Procurement Excellence Network website!

The **Procurement Excellence Network** is an initiative of the Government Performance Lab designed to help public sector leaders use government procurement as a tool to improve resident outcomes and advance equity. The **Government Performance Lab,** housed at the Taubman Center for State and Local Government at the Harvard Kennedy School, conducts research on how governments can improve the results they achieve for their citizens. An important part of this research model involves providing hands-on technical assistance to state and local governments. Through this involvement, we gain insights into the barriers that governments face and the solutions that can overcome these barriers. By engaging current students and recent graduates in this effort, we are able to provide experiential learning as well.