Bringing a **human-centered** approach to government procurement technology

How fixing a little-known government process can transform people's experience of government services

OPEN CONTRACTING PARTNERSHIP

Dan Hon | Ryan Ko | Kathrin Frauscher

TABLE OF CONTENTS

Introduction

Nobody is happy, and everyone is making do.

So much of government is accomplished through procurement. And if procurement is broken, then everything else is, too.

In this paper, we explain why procurement and procurement technology matters, share our vision for human-centered procurement technology, and describe what needs to happen next.

For most people, procurement and the technology behind it is boring.

Normally this is a good thing: it's good-enough infrastructure, working in the background buying the goods and services needed by governments to meet our social contract. A massive amount of money flows through this infrastructure: in the U.S., state and local governments together spent $3.7 trillion on procuring goods and services in 2021 and in 2023, the federal government spent $759 billion.

Exactly *because* procurement technology is in the background, it's overdue for urgent improvement. But as a cross-functional service spread across bureaucratic silos with different owners, procurement technology is one of the most difficult areas of government to improve, too

As much as procurement technology works, it could serve the public much, much better: from delivering more effective public benefits to addressing inequity, from empowering local economies to addressing the climate change emergency. We're all making do with processes and technology so challenging to navigate that businesses don't want to compete, leaving only large incumbent businesses left working with government, we pay higher prices for lower-quality services, and it's too difficult for governments to check whether contracts are meeting our needs.

And that's before getting into waste, fraud, and abuse.

Across the world, we've worked closely with governments to improve public services. Time and time again, we've seen our partners' best efforts limited by procurement technology. So we set out to imagine what a better world could look like, bringing together our decades of experience with new research and interviews with people across the public and private sectors.

This research led us to three principles we must follow for us to buy better and a future where human-centered procurement technology puts public outcomes first. Procurement technology must:

1 Focus on public outcomes

2 Meet people's needs

3 Deliver data we can rely on

In this paper, we'll introduce the topic of procurement technology, explain why it matters, and show what we've learned about how it works (or doesn't) today.

We all deserve better than making do, and we're excited to get started.

Why does procurement matter, anyway?

Procurement matters because procurement is democracy in action — and right now, it's too prone to failure.

> **People have to understand procurement is more than an administrative function.** "

Combined, U.S. states and local governments spend over $3.7 trillion on procurement. The federal government spends over $700 billion. That means $4.4 trillion of taxpayer funds spent per year on labor, goods, and services to help the government fulfill our social contract.

With budgets the size of these, just like the private sector, we can't expect governments to be perfect. Mistakes related to spending and purchasing will happen, but they should always be within reason and not impact vital public services.

But too often those mistakes aren't within reason, and when that happens procurements do fail the public. They fail when they don't deliver the services people expect. They fail when they take too long, or when they cost too much, or when they are used for fraud. These failures can significantly and negatively affect people's lives, and when they do, they affect how the public experiences and trusts government.

Government leaders aren't blind to these problems and failures and the urgent need to improve how procurement works. The U.S. Government Accountability Office (GAO) estimates that the federal government could save billions of dollars by implementing performance metrics and better using procurement data. A 2024 survey of the top 10 priorities for state procurement officials put "Modernizing the procurement process" in first place, and "E-procurement" in fifth place. Even then, procurement technology itself plays a critical part of at least seven of the remaining priorities.

Government procurement failures in action

Failing to deliver what people need, when they need it

- In 2021 the U.S. Centers for Disease Control and Prevention spent $44 million on a website that led to canceled appointments, staff logouts, data errors, and misreporting. Many states ended up building or purchasing their own systems instead.

- When the State of Texas's power grid failed during the winter storms in 2021, many Texans found themselves in freezing cold without heat or water. Delays in procurement got in the way of state and local government's ability to get critical supplies — from emergency generators to bottled water — to those in need.

Failing to encourage competition, especially from marginalized communities

- A 2021 report from the Bipartisan Policy Center and Goldman Sachs found that a goal set almost 30 years ago by the U.S. Small Business Administration of granting 5% of federal contracts to woman-owned small businesses has only been met twice: in 2015 and 2019.

- Forty-four percent of the U.S. federal government's procurement budget was paid to contracts drawing only a single bid, according to the latest study on this topic from 2015.

- In the relief and recovery efforts after Hurricane Maria, hundreds of millions of dollars in no-bid contracts were awarded by the U.S. government intentionally, to circumvent competitive bidding.

Failing to pay for results — or paying for a lack thereof

- In New York City, prior to a modernization and efficiency effort, nonprofits frequently complained of a procurement system that was difficult to handle and created payment delays that were fatal to small organizations like theirs that needed prompt payments to stay solvent.

- The Los Angeles Homeless Services Authority was so late with payment to nonprofits providing homelessness services that they resorted to measures like taking out bank loans to make payroll, also putting families at risk of losing temporary shelter.

- The U.S. government regularly makes payments to contracts for work that was never done, or goods that were never delivered. Two examples are in public education systems and public construction.

So what does procurement technology have to do with this?

These days, it's impossible for large governments to buy goods and services without using expensive, complicated software. At the other end, very small governments may be making do with manual spreadsheets, forms, and pen and paper.

Government procurement technology is a general term for the software systems used across the parts of government that purchase goods and services, whether those goods and services are for big ticket items, or commodity supplies. The technology handles processes like:

- **articulating program needs and outcomes**, and the purchases required to achieve them;
- **budgeting**;
- **contracting mechanisms** (the solicitation methods to buy goods or service);
- **vendor bid/proposal management and evaluation** (from communicating to suppliers to choosing the winner); and
- **managing contracts, invoicing, and payment.**

Procurement technology is a tool that supports the procurement process. It doesn't define needs and outcomes — those are determined by policies and broader strategic planning — but the technology can help meet those needs efficiently.

Whether it's spreadsheets, paper and websites, or giant enterprise resource planning (ERP) and accounting systems, procurement technology is the single tool and common experience for everyone on the journey of delivering goods and services: from lawmakers crafting legislation to achieve specific outcomes, to public servants interpreting that legislation and identifying needs, through to suppliers delivering goods and services.

Taken together, and at whichever level or scale of government, the processes and technology of procurement are profoundly complex, unclear, and slow for all but the most expert and experienced users.

This complex, unclear, and slow technology leads to a host of bad outcomes.

It leads to suppliers giving up because registering to do business means filling in forms across three different websites, and then finding it too difficult to find opportunities, or sometimes hand-delivering 200-page packets of paper proposals requiring notarized wet signatures. It means public servants cannot easily assess past supplier performance, or track individual or aggregate contract outcomes. It leads to residents unable to provide feedback on low quality services.

While technology won't fix procurement on its own — that requires political and policy change, and changes in the administration and structure of government — it is a strong place to start.

Making procurement technology human-centered procurement technology is where buying better all comes together.

What's human-centered procurement?

For us, human-centered procurement is making sure procurement decisions best meet community needs, instead of best serving the bureaucracy. As part of this, we also must understand and meet the needs of people involved in the procurement process itself: our public servants and suppliers. (We credit Sascha Hasselmayer for this framing in his 2021 report, "Serving the Citizens - Not the Bureaucracy") In other words, human-centered procurement delivers the best possible outcome for residents, public servants and suppliers, and the process of participating in procurement is easy, fast and inclusive.

Procurement technology today

Nobody is happy, and everyone is making do

One of the main problems is that procurement software is usually bought as part of an expensive enterprise resource planning (ERP) system. Putting them in place is often difficult, complicated, and prone to risk of being late, over-budget, or not doing what was promised or needed.

The State of California's Fi$Cal system has taken over 15 years of development and accrued a total cost of over $1B, with countless cost overruns, schedule revisions, and auditor scrutiny. The State of Illinois, spurred by an audit identifying financial challenges due to ~260 separate financial systems, has also been on a decade-long ERP journey with a budget of $350M. The State of Nevada recently spent $80M on an ERP project, only to completely terminate it in-progress and start over.

Modernizing and putting in place procurement technology in government faces the same issues as other complex, "legacy" systems that have worked for decades and built up layers and layers of rules and regulations.

But modernizing government technology is a subject for another paper. Here, we're interested in the problems faced by procurement technology specifically.

In our research, we've found five themes hampering governments' ability to buy better.

1 Disparate systems don't deliver an end-to-end experience

Procurement is a cross-government function, stretching across many teams, departments, and agencies. Where the procurement role sits varies a great deal in any particular government. Some agencies and departments are large enough to have their own procurement teams, while smaller ones rely on a central procurement team. That central team might sit with finance, or government operations, or general services.

No standard home for procurement, and responsibility across multiple government functions results in a fragmented market for technology. Technology vendors offer unique solutions focused on the needs of different parts of government, all claiming "procurement" functionality and features. While jack-of-all trades enterprise resource planning have problems over and over, modular approaches have their own challenges, too.

Without a clear vision, it's hard to unite the disparate procurement-related systems into a consistent user experience. Governments often adjust their processes to fit technology systems, rather than the other way around, creating inefficiencies, redundancies, and reducing flexibility. In the worst cases, people's experience of procurement software mirrors the worst of bureaucratic government: putting the same information into different forms for different departments, none of which appear to talk to each other.

> **There's no path to get from the city's homepage to their procurement portal.**
>
> **Why can't city and state procurement work together to have suppliers sign up just once?**
>
> **How can we level the playing field so if I'm a small business, it's easy for me to find upcoming expiring contracts that fit my capacity?**

Without a clear vision of end-to-end procurement that doesn't reflect bureaucratic divisions, we see:

- suppliers and public servants entering similar information into multiple systems, even when that information is already stored in an existing system, because of a lack of integration or data sharing;

- gaps in functionality like tracking public outcomes, even with multiple systems;

- public servants and decision makers become farther removed from on-the-ground understanding of public outcomes;

- public servants cobbling together the data they need using slow, manual, and brittle error-prone processes;

- inefficient purchasing, award, and contract processes that can result in purchases taking months if not years.

> **We can't easily compare what we've done in the past. Without benchmarking, we don't have the context to evaluate.**

Take, for example, a county's human services director who wants to make sure their county's houseless have food and clothing during an exceptionally cold winter. They secure philanthropic funding, process the grant, get a budget line item, and submit a purchase request to the city manager's department, who processes that request in separate systems for bidding, awarding, and contracting. Separate technology systems amplify government silos by disconnecting the relevant data. They don't help the human services director properly evaluate or purchase what's best for the people it's their job to serve.

2   Most procurement technology is focused on finance, budgetary, and compliance priorities, instead of public outcomes

To save money, governments tend to purchase the same procurement systems sold in the private sector, then customize and configure them for government. Buying software used by others is also seen as a way to reduce risk.

But private sector procurement systems are fundamentally designed to prioritize private sector financial goals, like cost savings, audit trails, or aligning budgets. Software companies selling this software in the public sector then develop an advantage as incumbents.

While financial concerns are certainly valid and needed priorities, they are only one part of what we entrust government to do to serve the public. Governments must also ensure that funds are spent in a way that delivers value. This involves tracking the proposed outcomes from the procurement, and making sure they meet the government's intended priorities.

Although most procurement processes don't track outcomes to begin with, current software doesn't encourage this approach, either. Procurement software designed to track outcomes for government is a relatively new development. Without good support for tracking public outcomes, procurement or program managers commonly end up cobbling together spreadsheets to gather and analyze the data they need.

For example, a city employee who cares about providing good trash collection services can be stuck manually pulling together customer satisfaction surveys, contract information, and service delivery data. Technology should automate manual jobs like these, and make it easier for governments to take corrective action like rebidding contracts as soon as possible when residents are having a poor experience.

> "
> **Each evaluation manager has their own Excel spreadsheet.**
>
> **The private sector does spend analysis for managing expenses, aligning against profit centers. The public sector thinks of spend in terms of service delivered, return on investment.**
>
> **We're trying to force operational data into the service of reporting into policy and legislative outcomes.**

3   Even when human-centered functionality exists, it's not used

Being human-centered helps us make sure we buy right, instead of buying wrong more efficiently.

We found that while many systems already have human-centered features that help focus on public outcomes, meet people's needs, and deliver reliable data, they are generally not being used. For example, various technology vendors provide functionality to support outreach to certified minority-owned businesses, or to simply boost small business participation with local governments. But in practice, this functionality is not often used.

At a high level, sometimes it's because the functionality exists and can be integrated into a government's system, but there isn't the money to pay for it. Sometimes it's because using that functionality requires training, or because the functionality requires extra customization and configuration — and again, there isn't the money for it. We also heard that technology vendors sometimes struggle with providing timely customer service and implementation assistance.

In the end, the ability to use these systems is also blocked by capacity. Governments often lack sufficient staff and are under-resourced, leaving them unable to dedicate the time and effort needed for fundamental work, and lacking automated tools.

Making use of human-centered features also requires improving processes and collaboration across silos, activities that require focus and are difficult to achieve in government. While a finance team's performance might be measured by how accurately it disburses budgeted funds to suppliers that nominally satisfy written requirements, a program team might be assessed based on its delivery outcomes or customer satisfaction. Between these two extremes, there's a misalignment of incentives, and a gap in organizational roles and responsibilities.

> "
> **It might be better for most municipalities to change their processes instead of customizing software to be flexible to every quirk.**

4 No standards, and no cross-silo leadership

> **We need leadership from someone who isn't a private sector vendor.** "

Public servants we interviewed universally spoke of the difficulty or practical impossibility of sharing and accessing data across government departments and agencies, counties, and states. In general, we don't see cross-silo executive leadership requiring vendors to provide better technology, or using their political capital to improve their own internal processes to make data sharing easier.

Without interoperability supported by standards for data and access, it can take a massive amount of effort for public servants to draw overall conclusions from data or make recommendations or better informed decisions. Governments can even struggle to access their own data from within vendor databases. Sometimes it's so difficult that the data isn't used in the first place.

One example we heard was that it's difficult for counties in a metropolitan area to compare data about suppliers or draw conclusions about outcomes if they are all procuring using different systems. Procurement officials tell us they can't answer basic questions like: how many painting companies do we have registered as suppliers out of all painting companies in our region, never mind just our city? Or: what was the result of a survey of service recipients? Or: why do we have such a high registration rate in one business classification, rather than another?

For suppliers, a lack of standards means governments frequently are unable to group solicitations together. This requires the public to understand how government works, just to find opportunities within a certain radius. For example, a small business in the San Francisco Bay Area seeking local government opportunities must know how to deal with over a hundred cities, nine counties, plus transportation and other agencies.

This lack of useful, actionable, and open data without manual data matching drives further challenges, from a difficulty in tracking system-wide financial outcomes and spending, to being unable to assess programmatic delivery quality.

> **Force us [governments] to share vendor and business lists.** "

5 Each obstacle leads to exponentially worse results

Across our interviews, we found a difficult procurement environment for both hardworking, well-intentioned public servants and would-be suppliers to government, to say nothing of the public that pays taxes and expects services to be delivered.

The obstacles we describe here also compound and compound and compound. When so many little tasks are difficult to do, medium tasks become hard too, and big tasks nearly impossible to do. Add this all together, and it's challenging to even get started, since purchasing better procurement technology means buying things differently in the first place.

And when so much of government is acquired through procurement, if procurement is broken, then everything else is, too.

> **Something has gone wrong if our vision of government is constrained by technology.** "
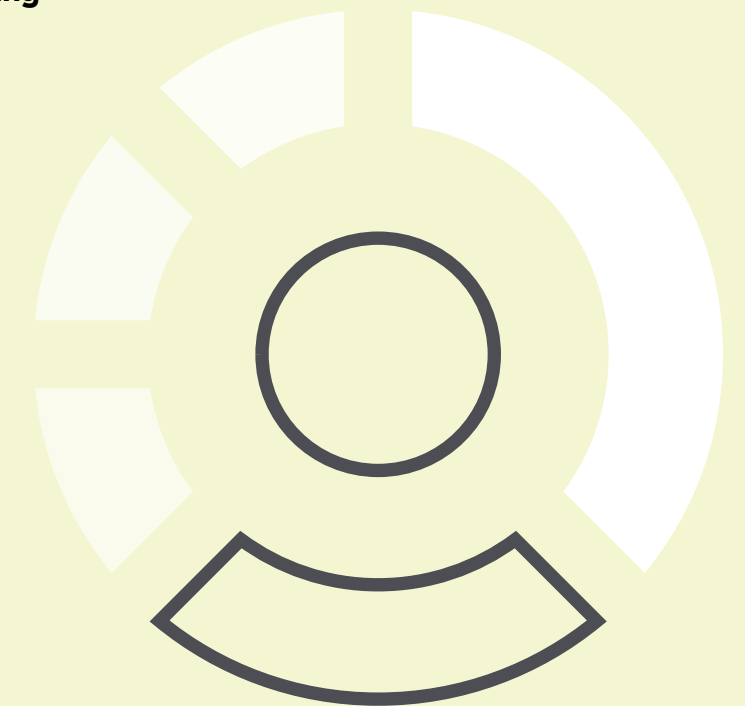
Three principles of human-centered procurement technology

Procurement technology doesn't have to work this way. Here are three principles for governments to put in place and require, for technology vendors to follow, and for residents, citizens, and those selling to government to demand.

1 Focus on public outcomes

Put serving the public above all else, and always be able to answer the question: are we serving the public properly?

With this core principle, procurement technology that focuses on public outcomes helps increase sorely needed trust in government. Human-centered procurement technology:

- tracks core key performance indicators (KPIs) for goods and services across silos and throughout a contract cycle from planning through implementation;

- provides clear KPIs for government-wide spending on factors such as equity, inclusion, local economy, and climate change as a default, as well as specific metrics of interest like level of competition on different bids, cycle times at each stage of process, and ongoing vendor performance; and

- highlights and centers areas of potential improvement, not of blame.

Procurement is where policy becomes practice. By following this principle, legislatures will be able to make stronger legislation and understand its effects, public servants will be able to better shape contracts and programs that serve their communities, and the public will be able to better understand on what their taxes are spent.

2 Meet people's needs

Make procurement simpler, clearer, and faster for everyone.

Simpler, clearer, faster procurement technology means doing the hard work of making the complex clear.

By following this principle, public servants would benefit from technology that:

- makes it easier to do the right thing, from radically improving and changing processes, to collapsing silos;

- helps public servants be excited to receive more bids, not dreading or even discouraging them; and

- is designed to simplify and streamline collaboration across departments and empower public servants, from finance analysts to contract managers to product and service providers, to work better and faster together across the procurement process.

For suppliers, human-centered procurement technology:

- is so welcoming, clear and easy to use that selling to the government should be the easiest market, rather than the exception;

- allows businesses to opt-out as suppliers at the time of registration, instead of requiring registration to sell to government; and

- doesn't require suppliers to know an obscure NAICS code, UNSPSC code, SICS code, or SINS code to describe what they supply... ever again.

We must work towards a world where nobody must be required to submit information that's already in a government register at whichever level. Sellers shouldn't have to submit virtually identical information to sell to cities, counties, and states. If it only takes a week to start selling to a city, selling to more governments should take on the order of hours.
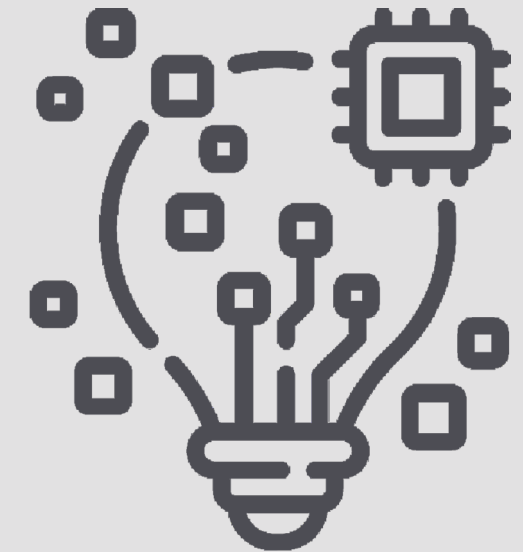
3 Deliver data we can rely on

Procurement technology must provide and produce complete, accurate, and up-to-date data for government and the public to rely on.

The public needs reliable open data to rebuild public trust, for suppliers to have easier, fairer, and more equitable access to a slice of the trillions of dollars spent on procurement each year, and to hold government accountable for its spending decisions.

Governments need reliable data to deliver better public outcomes by tracking procurements from planning through to delivery, simplify and clarify complex processes, and to understand the system-wide effects of procurement. Better data and transparency should be leveraged to generate insights that improve practices, rather than treated more than a compliance exercise or record keeping.

Procurement technology delivering data we can rely on means we can:

- easily access the government's own data, and understand, ask, and answer the right question at the right time, like "are there suppliers we're not reaching for our vision zero traffic initiative?" and "is it time to switch suppliers?"

- productively use modern tools like AI to suggest where policy can be clarified, simplified, or removed due to duplication;

- help officials weigh and balance regulatory burdens versus quality of delivery;

- integrate systems that should work together, business registration, supplier registration, and certification systems, and finance.

The two technical basics of human-centered procurement we must get right first

Sure, it's possible right now to develop and use procurement technology that focuses on public outcomes, meets people's needs, and delivers data we can rely on.

But it's incredibly hard work. The governments that have made progress deserve all our respect and recognition. Making that work easier for everyone requires long-term focus and resources to mindfully configure and customize existing software, integrate third party services, train their staff, and make sure they buy human-centered software from technology vendors.

We need and *deserve* the technology and tools that make human-centered procurement simpler and easier to achieve. That means more technology options, requiring less work, than needed now. To meet our principles, we must focus on two basic technical issues:

1 **Reduce complexity with standards**

2 **Require interoperability**

It's reasonable for people to be disappointed and dismayed when government technology systems don't interact with each other, and when the same questions are asked by multiple systems. We must remember that these are basic expectations to get right.

With both standards and interoperability, the smallest buyers and implementers — those with perhaps just one or two people with responsibility for procurement — will be able to benefit from human-centered technology, too.

Reduce complexity with standards

The data used in procurement is complex, but complex doesn't have to mean complicated. In 2024, the process of buying goods and services increasingly integrates more data from more sources. In our interviews, we found that the formats, interfaces, and definitions for that data vary, sometimes significantly, across governments, whether vertically at the city, county, state or federal, or among peers.

For a public servant to find out the number of disabled, veteran-owned businesses or minority-owned businesses in a city, or any geographical area, means coordinating data from multiple local governments and state governments. Each of these governments stores and defines data in their own way, and with data that commonly needs to be disambiguated.

For example, what rules are used to assess whether a supplier is diverse, or women-owned? This assessment is done by states, and sometimes by third parties. Sometimes the information is submitted by checking a box, but can't be trusted because the information hasn't been verified. We heard countless times that problems range from differing standards for data fields, to a lack of agreement on which standard to use.

Procurement data standards can help governments with data governance by defining where the data come from, what they mean, and how they are aggregated. In some cases, it might make sense to

agree on a single source of truth, collected once at the appropriate level (for example, federally by the Internal Revenue Service or Small Business Administration), made available in a standard way, that can be trusted by all. Putting standards in place means users are much less likely to have to enter the same information more than once.

Because of this variation, integrating complex data in a useful way is complicated — which means it's slow, expensive, or not done at all. Each department that needs data — which is all of them — usually ends up creating its own spreadsheets, with manual processes that quickly go out of date, are not shared across organizations, and aren't documented for the next person to use. They are heroic workarounds by public servants trying to do their best in a technology environment that falls woefully short of meeting their needs. These workarounds are a symptom of systems like ERP software and standalone e-procurement software not following usable standards.

Vendors of procurement technology don't like this complexity, either. Or, at least, they shouldn't: inconsistent standards means complex customization and configuration, brittle data pipelines, and difficult integrations — all increasing the risk of failed, late or over-budget technology projects. We're spending time, effort, and money repeatedly when we could be

investing in human-centered procurement focusing on public outcomes.

We can reduce this complexity if we agree to and require common standards (and even better, open standards). But to achieve this goal, we'll all need to work together.

Require interoperability

While some technology vendors may insist otherwise, we do not think there is any one-size-fits-all approach in the procurement technology market. Different users have different needs that may not be met by the customization or configuration of a single product.

Guaranteeing interoperability means that governments and technology vendors can be sure their products and solutions will work with each other, with as little customization and configuration as possible.

Systems that don't work together are irritating to users, so much so that people prefer not using them at all. Suppliers encounter this when they need to register with multiple local governments — like neighboring cities or counties — for the areas they serve. Interoperable systems would mean less work for suppliers and more opportunities, and for governments, easier access to more suppliers and more reliable data.

From a practical view, systems that work together make it easier for governments to collaborate across boundaries - whether internal (from department to department or process to process), or extra-governmental (between cities, counties, and states), and from the smallest to the largest.

Interoperable procurement software with open data standards means a competitive, vibrant ecosystem of software meeting users' needs, one where governments have more choice and aren't locked in. It means a faster loop of understanding and meeting users' needs, whether they be the public or public servants. Working in the open means more choice; standards make it easier to simplify and clarify bureaucratic processes.

What's next?

A substantially open standards, interoperable market of procurement technology is a decades-long undertaking. But from the world of technology, we've learned that the most successful way of tackling large problems is to break them into smaller pieces.

Here are steps that we can take right now, as well as a long-term vision to transform the ecosystem.

What we must do now

Government leaders must make buying better a priority

- **Elevate procurement and procurement technology** as a priority for their tenure, taking actions such as issuing executive orders, setting clear cross-departmental human-centered goals, and ensuring teams have the support and resources they need to succeed.

- **Simplify and improve procurement processes** so that new technology can be shaped around better cross-functional processes, versus digitizing bad practices. This holistic approach means looking at related functions as well, such as budget and supplier engagement.

- **Only buy open, and try before you buy.** Governments should require openly published documentation, test data, and access to APIs as above, as a procurement condition, as well as testing technology themselves with live data. An organization like the National Association of State Procurement Officials (NASPO), for example, could support this step by requiring these conditions for Cooperative Purchasing Agreements.

- **Lobby for federal investment.** Lobby the federal government to pass legislation funding the best practices upgrade of procurement technology in states and local government. Better procurement technology will deliver better outcomes for federal dollars.

Procurement technology vendors must lead the charge towards open standards

- **Collaboratively publish and adopt industry-wide data standards,** and make public commitments towards interoperability.

- **Show your human-centered software.** Show how your technology achieves the human-centered procurement technology principles of focusing on public outcomes, meeting people's needs, and delivering data we can rely on.

- **Do user research.** Find out what your user needs are, openly share your research, and design technology to help meet these needs.

Governments and procurement technology vendors must share information and make things simpler together

- **Publish useful, usable, up-to-date documentation in standard formats about how their procurement systems work.** This includes data dictionaries, schemas, and APIs, and more. To be useful, this documentation must be accompanied by test or example data, and open access to APIs for testing interoperability.

- **Start the hard work to make things simpler.** Governments and vendors should start work on a project achieving a standardization and interoperability goal. These projects could include activities such as:

- building on the success of the IRS' e-file pilot, researching and discovering opportunities for integrating with the IRS and using standards to better meet people's needs;

- lobbying to mandate standards at the appropriate levels of government;

- putting in place data sharing agreements where needed; and

- agreeing across governments which systems act as systems of record.

Philanthropy must make the case for and support procurement technology as critical government infrastructure

- **Invest in disrupting the market.** Provide capital to innovative software providers, both for-profit and nonprofit, working towards increasing the competition in government technology, especially in the procurement space.

- **Invest in government capacity to use procurement technology in a human-centered way.** Fund training and work with governments to use and acquire technology that puts public outcomes first, and start and support field-building initiatives for developing and implementing standards.

- **Make the case for focusing on public outcomes.** Publish regular reviews of the state of procurement software and identifying market opportunities, and fund studies of the impact and ROI of outcome-focussed human-centered government procurement in the United States.

A longer term plan

Significant reform and disruption in the procurement technology market will take years. We need a long-term plan to achieve a market where the default for procurement technology follows the human-centered principles we outline above. We propose this strategy:

Develop a coalition to lead the development of standards

There are two approaches to achieve industry-wide standards: top-down, and bottom-up.

In the top-down approach, a sufficiently powerful body sets and requires standards that all technology providers and implements must follow. One example is federally legislated requirements and specifications for electronic health record systems. Use of these standards is also encouraged by federal funding. In other jurisdictions like Europe, standards are set by government bodies or nominated non-governmental organizations.

In the bottom-up approach, standards emerge organically, often through success in the marketplace, or through groups and coalitions of implementers, buyers, and vendors. This approach is reflected in most modern software standards relating to the internet, like video streaming, and the web.

These bottom-up and top-down approaches aren't mutually exclusive, and may be pursued at the same time. In both cases, vendor participation and careful thought as to governance and their long-term sustainability will be critical.

An opportunity for a top-down approach in procurement technology is the possibility of a group such as NASPO, the National Contract Management Association (NCMA), or others, partnering with a nonprofit like the Open Contracting Partnership, representing the interests of its members, setting standards and requirements that its members agree to follow.

A bottom-up opportunity can be drawn from the success of the Open Mobility Foundation, an open-source foundation governing open source mobility tools and the Mobility Data Specification — a digital tool that helps 130 cities across the United States and around the world better manage transportation in the public right of way. The foundation is hosted by OASIS-Open, a non-profit standards body that's also a leader in the open source world.

More than just technical standards, these standards should also define what's good enough. One example would be doing the hard work of only requiring one standard identifier for a supplier to use, like an EIN.
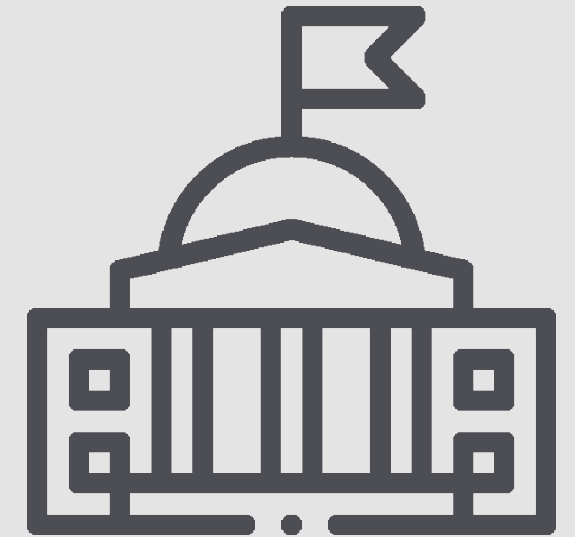
Government technology standards in action

HealthIT.gov and NIEMOpen are two examples of technology standards setting in the United States.

HealthIT.gov is the federal government's top-down clearinghouse for standards, technology and interoperability in healthcare. It's the home for the United States Core Data for Interoperability, required for vendors to certify health IT products, and also describes how healthcare technology in the United States should use industry interoperability standards like HL7 FHIR. Health IT legislation in the United States makes extensive use of top-down standards approaches.

NIEMOpen — an OASIS-Open project, like the Open Mobility Foundation — is a federal government sponsored body developing common data vocabularies designed to make exchanging information easier across public and private sector organizations. NIEM has produced data models for 17 communities, ranging from agriculture to human services, immigration to biometrics, and emergency management to infrastructure protection. For example, led by the Department of Homeland Security, state, local, tribal, and private-sector subject-matter experts work together in governing and developing the NIEM Infrastructure Protection data model.

Develop standards and assure interoperability in the open

To develop human-centered procurement technology that meets our principles of focusing on public outcomes, meeting people's needs, and delivering data we can rely on, the coalition should work in the open, following the guidance of the U.S. Digital Services Playbook.

For technology and standards to stick, the technology must meet real needs, faced by real people who use it.

That's why the most important job of the coalition will be to discover needs in exact detail by doing user research, and validating them through prototyping and producing software. We won't get these standards and methods of interoperability right the first time. Making sure procurement technology is human-centered, and stays human-centered, requires continuous feedback and improvement — developing technology in an iterative process.

We expect the early work of the coalition to include these sorts of activities and results:

• openly documenting how existing systems work and the data they make available, to better integrate procurement systems with finance ERPs, contract management, and payment processing;

• setting policy, technical specifications and standards, so everyone agrees and knows what particular data fields and names mean, to deliver data we can rely on;

• making open source tools and datasets available as part of the standards development process, so governments and technology vendors can test, show, and certify interoperability;

• publishing a regularly updated roadmap, to show the work standards setting and interoperability work that's planned and how it's being prioritized; and

• putting in place industry-standard formal governance processes, to ensure productive work and positive environment of collaboration and contribution.

Final thoughts

Every year, governments in the United States spends trillions of dollars on goods and services as part of delivering on promises made to the public. For the most part, this system of procurement works. But it doesn't work well enough, not anywhere near as well as any of us deserve — whether we're public servants, suppliers, or residents.

In our paper, we hoped to make clear that the technology powering procurement plays a critical yet largely hidden role in how governments buy, and that it's time for us to pay attention, and do something about it.

" Our research, and who we talked to

Our paper is based on the synthesis of interviews with civil servants, developers of procurement technology, and policy specialists between March and August 2024, a review of reports and literature about procurement in the U.S., and our experience of over a decade working in public interest technology.

To encourage candid participation, we have chosen not to attribute comments and quotations.

About the authors

Dan Hon is Principal of Very Little Gravitas, based in Portland, OR. An expert on technology and its role in society, he has been featured in the MIT Technology Review article Why is it so hard to build government technology? and co-designed and instructed the Digital Fundaments for Public Impact at the McCourt School of Public Policy. His consulting work includes leading development of Vision 2023, California's Statewide Technology Strategic Plan, and digital services strategy at the federal and state level.

Ryan Ko is Principal of RKO Consulting LLC, based in Los Angeles, CA. His consulting work centers around digital, strategy, and operations for organizations serving the public interest. He is the former Chief of Staff at Code for America where he led the development of the principles and practices of Human-Centered Government.

Kathrin Frauscher is Deputy Executive Director at the Open Contracting Partnership and co-founded the Open Contracting Partnership (OCP). OCP is a global non-profit supporting government and other actors to transform public procurement to deliver better results for people and the planet. OCP works with several national and local governments on EGP and procurement-data transformation. Kathrin is based in Washington, DC.

What is government procurement technology, anyway?
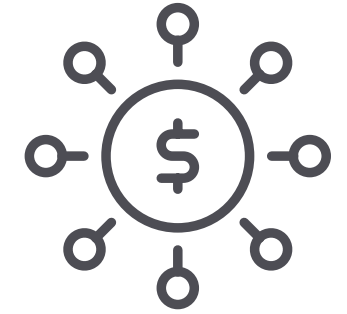
Government procurement technology is a general term for the software systems used across the parts of government that purchase goods and services.

The technology handles processes like:

- **articulating program needs and outcomes**, and the purchases required to achieve them;

- **budgeting;**

- **contracting mechanisms** (the solicitation methods to buy goods or service);

- **Vendor bid/proposal management and evaluation** (from communicating to suppliers to choosing the winner); and

- **managing contracts, invoicing, and payment.**

Procurement technology is a tool that supports the procurement process. It doesn't define needs and outcomes— those are determined by policies and broader strategic planning — but the technology can help meet those needs efficiently.

Good procurement technology can assist in tasks like market research, vendor selection, and price comparison, but that is not really identifying the needs as much as how to meet those needs efficiently.

Procurement technology is not a well-defined software market, and has no clear boundaries. In general, this is because procurement is spread across many different government functions. The technology that plays at least some part in procurement comes under many names, like enterprise resource planning (ERP), e-procurement, e-sourcing, Procure-to-Pay, and supply chain management. This range means procurement technology includes software from enterprise software giants like Oracle, SAP, Salesforce, and Microsoft, as well as government-focused and newer technology vendors such as OpenGov, Tyler Technologies, and Euna.

For bigger systems, most of the U.S. states use Enterprise Resource Planning (ERP) software to carry out procurement. In 2022, 40 of 42 members of the National Association of State Procurement Officials used procurement technology in the form of an e-procurement or ERP system. Most of these systems are funded through state appropriations, user or agency fees, supplier fees, or contract rebates, and you'll hear about the bigger ones later on.

About Open Contracting Partnership

The Open Contracting Partnership (OCP) is an independent nonprofit working in over 50 countries. OCP is a silo-busting collaboration across governments, businesses, civil society, and technologists to improve public procurement by designing goal-driven reforms, building coalitions of change and co-creating digital solutions, powered by open data. OCP makes sure public money is spent openly, fairly, and effectively on public contracts, delivering fundamentally better public spending outcomes so that people can live in more equitable, prosperous, and sustainable communities.

Contact

www.open-contracting.org
engage@open-contracting.org
1100 13th Street NW, Suite 800
20005, Washington, D.C., USA

Open Contracting Partnership is an independent non-profit public charity 501(c)(3).

OPEN CONTRACTING PARTNERSHIP