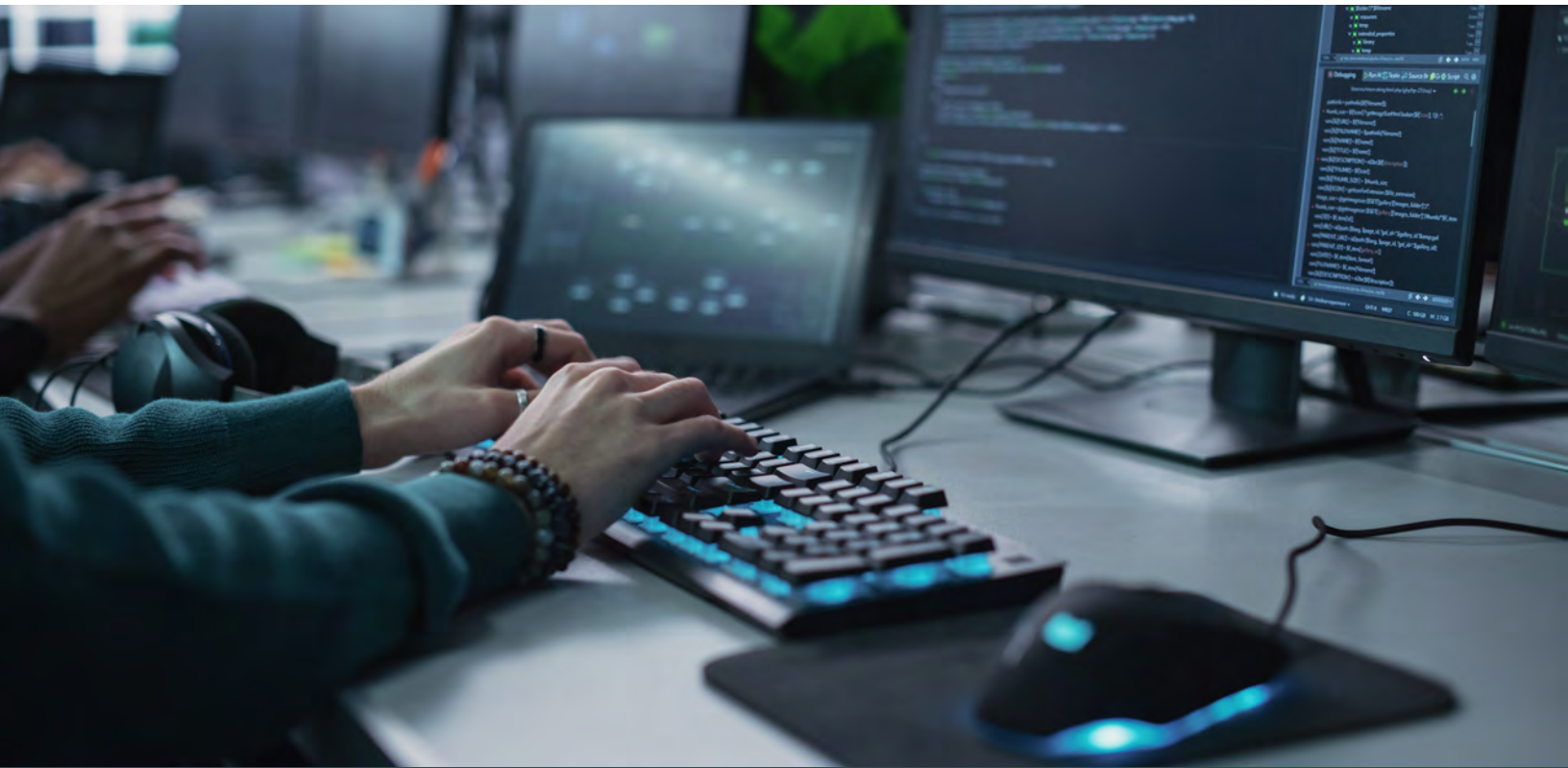


# Open to Open Source

How To Shift Your Agency's  
Mindset and Get Started  
With Open-Source Code





As of 2022, 97% of all codebases relied on open-source code, making it practically ubiquitous in the tech sector. Open-source software is widely known to drive innovation and increase speed-to-market while ensuring that organizations are leveraging the most up-to-date tech innovations. But despite its prevalence broadly, the public sector has been more reticent to adopt open-source practices. Why? Complex procurement processes combined with security concerns mean that it often feels easier for government IT departments to continue using custom-built software by default.

However, avoiding open-source code comes with an opportunity cost for government IT departments. That's why the United States Digital Service (USDS) created a mission to encourage the use of open-source software in government, in order to “decrease code spend while increasing code quality.” The org has provided approved open-source repositories which government agencies can leverage, including [Digital.gov](#), [Code.gov](#), and [18F](#).

So what's stopping your organization from using open source to further your mission? In this three-part e-book, we'll explain why your agency should use open-source software, we'll uncover common obstacles and myths, and we'll outline a few steps to get you started.



## Part I: Three Reasons Why Open Source is Mission Critical

There's a reason open-source software is everywhere in the technology sector. For agile, for-profit corporations, open source provides the speed and innovation necessary to compete. And there's no reason why U.S. agencies can't experience these same benefits—all in service to their mission. In Part I, we'll explore three reasons why open-source code helps governments better serve users while maintaining the quality and security essential to public services.



## 1 Ensure the quality of your code

There is a misperception that open source is like the Wild West: new, mysterious, and unregulated territory. In reality, open-source projects—particularly those recommended by the USDS—have been rigorously peer-reviewed. Because the code is available to the public, developers have tested, poked, and prodded to ensure efficacy. That means if you're using open-source software, you're starting from a mature code base.

If you have developers on staff, open-source repositories serve as ongoing professional development. Developers learn by seeing the work other developers have achieved, and their knowledge can evolve as the open-source code continues to improve.

### Add Open-Source Requirements to Your RFP

If your agency is hiring a vendor to develop software, write open-source requirements into the RFP. Why? Vendor-written software will likely be more expensive and of lower quality than the code that has already been created, tested, and made available via open-source repositories.





## 2 Put time and budget to better use

Don't waste precious resources reinventing the wheel. When you use open-source code in your development cycle, you drastically reduce your developers' workload, since they no longer have to create code from scratch. Instead of writing new code, your team can build on tested, mature software that will shorten your overall time to deployment. In addition to saving time and budget on development, your agency also saves money on costly annual software licenses—allowing you to put those dollars back toward digital transformation that supports your mission.

## 3 Increase Security and Support

Somewhat paradoxically, there is nothing more secure than code that has been seen by thousands of strangers. Developers are keen to put their best work into open-source repositories where they know it will be picked apart, tested, and made more secure by ethical hackers worldwide. And as we mentioned earlier, other developers will continue to build and improve upon the original, making the final product even stronger.

Of course, security ultimately requires privacy. Keep in mind that open-source code is just a starting point. Using open source as the foundation, your team or vendor will customize the software to fit the needs and security of your agency, and that customization will not be shared externally—keeping your organization safe.

### Seeking Help When Using Open Source

When you're using open-source code, there's no official "help desk" to call when you run into challenges. Luckily, there is a vast community of open-source developers to turn to—so you're never alone.

There are over [40 million developers](#) on GitHub, the central repository for the open-source community, who can work with your team to resolve issues as they arise.

USDS (as well as many other U.S. agencies) is already on GitHub. There's even a semi-private peer group specifically for government employees. And, in fact, [GitHub is FedRAMP authorized](#), validating the safety and security of the open-source code.



## Part II: Addressing Potential Roadblocks to Open Source

Software procurement within the public sector is complicated. While the average technology buying cycle for commercial companies is seven months, [the average cycle for governments is 22 months](#), largely due to agency or jurisdictional-specific rules and regulations slowing the process down.

As a result, agencies often fall back on known entities: large software providers with entrenched public sector sales and support teams that can navigate the complexities of the procurement process. While open source can open up your agency to greater innovation, it is also daunting because the community is vast and multi-faceted, and the journey from procurement to deployment seems less straightforward.

In Part II, we'll uncover early obstacles your team might experience as it seeks to leverage open-source code—and offer ways to troubleshoot these challenges.



## 1 Open Source Isn't on the Radar

Your agency may not be averse to using open source—but your leadership team may not know the methodology exists or how to use it! Through the efforts of centralized digital agencies like the USDS, knowledge of open source is starting to trickle down through the federal government. Several agencies, like the Cybersecurity and Infrastructure Security Agency (CISA), are even [looking to hire open-source leaders](#).

Even so, the public sector is known for being slow to change. Agencies are accustomed to certain norms and traditions, and advocates for open source should remember that it's crucial to respect long-standing processes. Below, we'll discuss how to address some of the common concerns that might be raised as open-source policies are implemented.



## ② Worried About Getting Approval

Think that open source is too edgy for the government? Think again! In fact, [The People's Code](#) project was put into place in 2016 with the goal of making all U.S. federal agencies utilize (and create) open-source code.

When you're ready to get started, you and your team may instinctively look for an approval process or central authority that can approve your use case for open source. Good news: no decision is needed in this case. If you are leveraging the [resources recommended by the USDS](#) to inform your code, then you are already acting within existing U.S. policy.





## 3 Security Is a Concern

There is a feeling that's difficult to shake: If you're sharing your work, it makes that work more vulnerable. However, "security through obscurity" doesn't work. Eventually, some bad actor will find a vulnerability in your custom-made code and exploit it. As we discussed earlier, a security best practice is to use open-source code as your starting point and then customize it to ensure what your agency needs to keep private stays private.

### Open Source in Action – The Advanced Encryption Standard (AES)

Open-source isn't just secure, it's already being utilized to keep top secret information secure.

The [Advanced Encryption Standard](#) (AES) is used across the U.S. Government, allowing agencies to work together to determine how to encrypt their software and share best practices with each other. But of course, as each agency's developer team creates code, they keep their unique encryption key private. The result? Everyone uses the same open-source encryption process—the only publicly available cipher approved for top secret

## 4 Lack of Uniformity

With 40 million developers contributing to open-source repositories, you can imagine there's quite a lot of variety, with developers submitting code in their own style and format. This can feel overwhelming to folks in the public sector who are new to open source, but we suggest that you reframe the issue.

Open-source repositories are an incredible learning opportunity for developers. By reviewing existing, mature, tested code, developers are able to learn new techniques. Since your dev team is saving time by leveraging open-source code as the foundation for their project, they can rededicate some of that time to exploration and learning. Your agency will benefit from whatever they find that's valuable.





## 5 Lack of Documentation

When evaluating an open-source project, you might find yourself frustrated with the lack of background. When, why, or how was this code created? Open-source communities do not mandate the kind of documentation that government agencies might expect.

Ultimately, open source requires a mindset shift. It's a shopping expedition, not a targeted purchase with specs already in hand. Approach open-source repositories with a question in mind rather than an answer. Ask your team, "What can we use from what already exists? What do we need to make it our own?"

And if your team ends up using the code, there's an opportunity to "give back" to the community by creating documentation yourself.

## Part III:

# Five Steps for Implementing Open-Source Policies

Now we know why you should use open source and how you should address potential objections. But what's the best way to get started and get your team moving? In this section, we'll break down the steps to take to start leveraging open source.

### 1. Pick Your Project

What's the best project to start with? Probably whatever you have coming up next! Don't overthink it. Open source can be used to support nearly any mission or objective.

### 2. Overhaul Your Vendor Selection

Make sure open-source policies are incorporated into your RFP process. Evaluate all proposals with open-source code in mind. Seek out vendors that participate in the open-source community. Ask vendors things like:

- » How many projects have you kicked off using open source?
- » How many projects have you contributed back to the open-source community?

### 3. Jump In

Get your team learning. Start by exploring [open-source resources](#) and identify reusable code you can leverage.

### 4. Find Trainings

Sign your staff up for [free trainings](#) and make sure they're given time to explore open-source codebases.

### 5. Stay "Open"

There may be some projects that ultimately aren't a good fit for open source. However, it is always a good idea to start off a project by looking at open-source code banks to see what fits. At the very least, your team will learn something; at best, you'll find the perfect foundation to get your team moving quickly.

## Progress Is a Team Sport

We like to think of innovation as something that requires a “Eureka!” moment. We lionize the apocryphal story in which Sir Isaac Newton discovered gravity when hit in the head by a falling apple. In reality, Newton wrote in a letter to fellow scientist Robert Hooke in 1676: “If I have seen further, it is by standing on the shoulders of giants.”

Newton was describing the scientific process whereby new ideas are built on top of an existing (and ever-growing) repository of knowledge—and open source is no different. By failing to leverage the existing and most recent open-source code, agencies are resigning themselves to a less-than-optimal product that has not benefited from the thousands of “giants” contributing to software innovation.

We hope that this e-book can be your “Eureka” moment. There is nothing stopping your agency from utilizing open-source methodologies and taking advantage of the cost savings, security improvements, and quality control innate to open-source code. There are no budget requirements to get started. All you need is a little knowledge and a sense of adventure.

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it is by standing on the  
shoulders of giants.”*

- Sir Isaac Newton

With a deep knowledge of open-source software and expertise in public sector technology, Enquizit can guide you toward existing code that fits the needs of your organization while keeping your agency safe and secure. To learn more about how Enquizit helps government agencies transform their technology using open-source methodology, visit [Enquizit.com](https://enquizit.com).

