

A Definition of an Academic OSPO

Jeffrey Young <https://orcid.org/0000-0001-9841-4057>

Lorena Barba <https://orcid.org/0000-0001-5812-2711>

Sayed Choudhury <https://orcid.org/0000-0003-2891-0543>

Ciara Flanagan <https://orcid.org/0009-0005-3153-7673>

David Lippert <https://orcid.org/0009-0003-6444-9595>

Richard Littauer* <https://orcid.org/0000-0001-5428-7535>

Over the last 20 years, Open Source Program Offices (OSPOs) have become a relatively common feature in major tech companies and other industries. Many businesses rely upon their OSPOs to manage open source software efforts within their organizations. Industry OSPOs also have other functions including developing guidelines and policies on use of open source; contributing to the open source ecosystem; and ensuring alignment with corporate strategy and vision.

As open source software continues to grow in importance in academic settings; universities and other academic institutions are looking to enhance their open source capabilities by establishing **academic OSPOs**. This article provides a short overview of the current findings of a sub-committee of [CURIOSS](#) members who are collaborating to develop, refine and expand upon the definition of an academic OSPO.

This document is versioned. Additions, thoughts, and comments are encouraged! Conversations are encouraged through any CURIOSS.org channels, or through the [GitHub archive](#) for this document.

This document is licensed under a [Creative Commons 4.0 CC-BY International](#) license.

Corresponding author: richard.littauer@vuw.ac.nz.

Section 1 - What is an Academic OSPO?

Definition of Open Source Software

When a project is open-source, anybody can view, use, modify, and distribute the project for any purpose. These permissions are communicated through an open-source license.^{1,2} Open source is powerful because it lowers the barriers to adoption, allowing ideas to spread quickly. In its most basic form, open-sourcing your software means making your source code available with an open source license where it can be viewed and reused by others. Generally, the [Open Source Initiative](https://opensource.org/) (OSI) is the standard-keeper for what licenses are open source, evaluated against their [open source definition](https://opensource.org/licenses/).

OSPO Definition

An open source program office or OSPO is defined as an organizational construct supported by one or more individuals that acts as a convener, community steward, and center of competency for open source software. In the academic context, OSPOs need to account for the specific mission and cultural context of the hosting institution which may include focuses on teaching, research, and outreach. The overarching goal of an academic OSPO is to maximize the social and economic impact of open source software for research, education, both within and outside the academic environment, which will likely include community engagement and possibly technology transfer. Academic OSPOs may also support other open initiatives such as the development of open hardware, open education and scholarship, open data, open access, and related open science concepts.

The CURIOS (Community of University and Research Institution OSPOs) community emphasizes academic OSPO-to-OSPO partnerships as a means for achieving impact at scale, particularly as it relates to open source software as a key component of digital infrastructure.

¹ The Open Source Definition <https://opensource.org/osd>

² <https://the-turing-way.netlify.app/reproducible-research/open/open-source>

Section 2 - Executive Summary

“As we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours; and this we should do freely and generously.” — [Benjamin Franklin](#)

Software has become an integral part of our scientific infrastructure and daily lives. The [State of Open Source](#) paper notes that of all software, 96% included open source software (OSS). A recent Harvard Business School [study](#) noted that open source software has generated \$8.8 trillion of value and reduced production costs by a factor of 3.5. University OSS that underpins our scientific infrastructure has the potential for high impact translation related to:

- Industry and external engagement
- Societal impacts and supporting the mission of the university
- Impacts to science and research including reproducibility and the adoption of best practices for software development

Global institutions, federal and state governments, and the private investment sector have recognized the importance of OSS, as noted in this selection of relevant bills, memoranda, funder policies, etc:

- Federal funding agency (e.g., NIH, NSF) responses to the Office of Science and Technology Policy public-access policy guidance (Nelson memo)
- CHIPs Act, Build Back Better, Infrastructure Bill, and place-based investments include OSS
- DoD, CISA memoranda and guidelines affirming the value of “open by default” while acknowledging the need for greater cybersecurity (possibly in response to EU Cyber Resilience Act)
- Importance of open source AI in response to multiple federal and global memoranda or programs (e.g., NIST AI Safety Institute, EU AI Act)
- Funding by venture capital firms like the [Sequoia Open Source Fellowship](#)

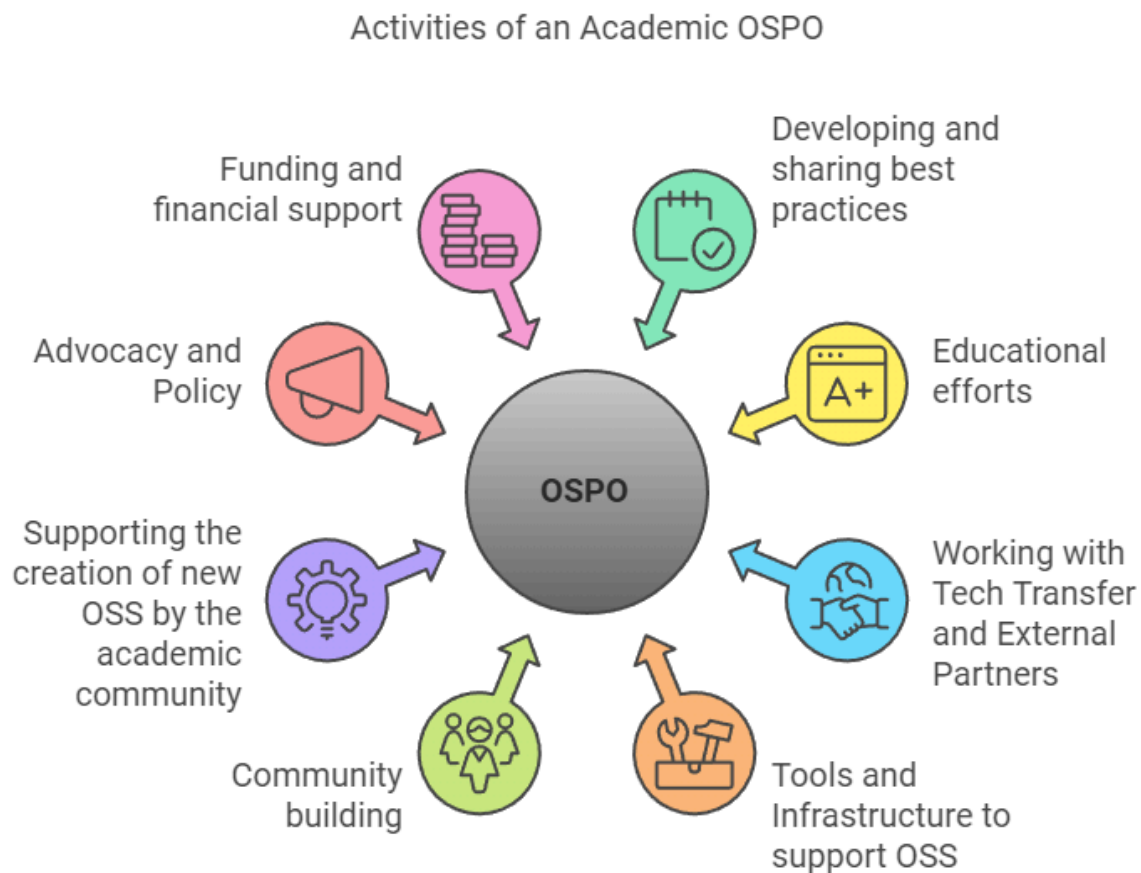
Universities need a strategic response to maximize impact and minimize risk related to the translation of OSS through a dedicated center of competency. This center, in the form of an Open Source Program Office (OSPO), can provide:

- A focal point for collaborative efforts around OSS education and outreach
- An intentional strategy for engaging with open source
 - Requirements from national policy
 - Development and use of open source for EdTech
 - Policies for inter-lab open source engagements
- Risk mitigation with respect to the use of IP

Section 3: What does an Academic OSPO do?

An academic OSPO might support a breadth of diverse activities that varies from one institution to another.

The graphic below provides a broad overview of the various activities undertaken by different OSPO members within the CURIOS network. The types of work undertaken by different OSPOs will depend on the mission of their university, the resources available and the strategic direction of the service. It is important to note that not all OSPOs support all of these activities, but at least some examples exist for each of these activities. For more details on which OSPOs are focused on specific activities please see the OSPO Activities page hosted on the SustainOSS website.



1. Developing and sharing best practices



A key role for an academic OSPO can be focused on providing information related to best practices around open sourcing their software and data as well as the required policies on open sourcing for an institution. Many if not all OSPOs provide some advice on open source licensing and work with on-campus tech transfer offices and researchers to help support best practices around open source licensing and release of software and data products.

Developing and sharing best practices
Provide advice on licensing
Provide mentoring processes
Open source policies
Facilitating open research best practices for OSS researchers
Create guides (e.g. the Academic OSPO guide)



2. Educational efforts

Support for best practices may extend beyond simple guidance for open source licensing guidelines and processes. Many OSPOs support educational efforts through engagement with internship programs like Google Summer of Code, local workshops and tutorials, and mentorship of students.

Educational efforts
Teach students directly about OSS
Develop certified curricula
Support student internships
Support OSS educational efforts
Mentoring students (MS, PhD, UG)



3. Working with Tech Transfer and external partners

The OSPO is the center of excellence within a university most empowered to understand and advise on how open source is used externally, and how to maximize the impact of open source software. As such, they often broker agreements and collaboration both within and outside of the university.

Working with Tech Transfer and external partners
Translation of academic discovery into products
Generate societal impact
Collaborate with industry partners
Collaborate with non-profits
Work closely with (or possibly in) tech transfer office and research commercialization
Issuing template agreements for engagements with industry partners
Knowledge transfer



4. Tools and Infrastructure to support OSS

A critical part of open source software depends upon the unseen infrastructure that can sustain it. The OSPO can be well situated to do this behind the scenes work, enabling innovation.

Tools and Infrastructure to support OSS
Providing tools and software engineering support for OSS
Providing administration assistance with grants for OSS
Support efforts for OSS edtech within the university
Hosting infrastructure



5. Community building

Open source software depends upon healthy open source communities. The OSPO can provide resources and infrastructure for communities to thrive, as well as providing guidance on the best way to grow healthy, sustainable, diverse ecosystems of developers.

Community building
Discover, build, support, university OSS community
Build and maintain stakeholder groups
Organizing local conferences and meetups
Working with Summer of Code
Collaborate with other OSPOs
Working within consortia or partner universities on OSS best practices
Brokering OSS connections through providing a marketplace for sharing OSS projects
Conference and event hosting
Curation of OSS software through the institution



6. Support the creation of new OSS by the academic community

Providing support for OSS through the OSPO can involve helping researchers understand what OSS can do for them and how to maximize its impact, but could also be more hands on, involving working directly with maintainers, developers, or research software engineers to build better OSS.

Support the creation of new OSS by the academic community
Explore OSS for science
Research which uses OSS
Developing OSS
Consulting for OSS projects
Work with RSEs who develop/maintain OSS



7. Advocacy and Policy

The OSPO is part of the university - which means it is their role to help raise the voice of developers and OSS communities that otherwise wouldn't be able to be heard. This can involve advocating either locally within the institution, to external partners, or to the wider world.

Advocacy and Policy
Advising faculty and senior leadership on OSS
Advising on security and dependency management
Policy recommendations and best practices around OSS AI
Representing OSS work at universities to lawmakers
Advocating for open science practices
Building awareness of value and impact of OSS
Supporting open data initiatives and open work in general



8. Funding and financial support

OSS, including academic open source that underpins our collective global digital infrastructure, is critically underfunded in the vast majority of cases. Navigating funding is one of the roles of the OSPO, as most developers are not adept with financial systems, grant writing, or how to raise awareness of their work.

Funding and financial support
Supporting grant applications and grant writing
Grant execution as PIs or senior personnel
Grant compliance with respect to OSS requirements
Partnering with Industry Sponsors
Fellowships or Student Awards for OSS development
Paying maintainers of OSS projects

Possible Out-of-Scope Activities for OSPOs

It is also important to consider what roles or outcomes a university-based OSPO might not engage with or support, at least without considerable resources and support from other parts of the university. These activities may still be pursued by academic OSPOs but are likely time- or resource-intensive.

Some examples of what an OSPO might not do:

- Authorizing or declining which software may be open sourced, noting that funding requirements may stipulate specific choices
- Specific choices regarding licenses for open source software, though advice may be welcome, particularly in consultation with other units such as Technology Transfer or Research Administration
- Maintenance for open source software, which is a resource intensive commitment
- Enforcement or compliance, noting that advice on how to comply with licenses or policies could be useful
- Managing codes of conduct committees, actions against bad actors, or acting as an ethics board, but the OSPO can point to existing University resources or policies³
- Official university statements or posture regarding open source software usage (including its intended purpose)
- Brand management or public relations
- OSPOs for brand & PR only will usually fail (Industry learned this).
- Become a “tech shop” that engages with only STEM disciplines or divisions

³ <https://www.cmu.edu/policies/administrative-and-governance/code-business-ethics-conduct.html>

Section 4 - How to Set Up an Academic OSPO

Getting Started

For individuals or organizations that are beginning their exploration of open source software and OSPOs, it may be daunting to consider where to begin. This section outlines a set of questions, actions, and offices within a university that are useful in this newcomer context. Before considering the specific questions, there are a couple of key framing points to consider for universities and open source software.

There is no inherent reason why launching an OSPO would generate interest or engagement. However, noting that open source software is a primary research object or output (in addition to being a tool for research) has the useful effect of activating offices and individuals within the university. Some universities have launched open science programs or initiatives that already focus on papers and data; adding open source software is a natural extension of such open science efforts. Even for newcomers, it may be useful to focus on the point made earlier in this guide: “The overarching goal of a university OSPO is to maximize the impact of open source software for research, education, translation (i.e., the impact of research and education beyond the university) and community engagement.” Framing open source software and the OSPO in this overall context and mission of a university is a useful approach when asking the following questions.

Questions to Answer Before Creating a New Academic OSPO

What is the state of open source software in my university?

As obvious as it may seem, the first question to ask: is what is the state of open source software in my university? While this question may seem obvious, the answer is not. Most companies might have some sense of their open source software activity but, within a university context, developing an inventory of open source software may be one of the foundational goals for an OSPO.

There are multiple individuals or offices within a university who can offer a high-level or initial answer to this question including:

- Vice President (or Vice Provost) for Research or equivalent positions
- Technology Transfer Office
- Office of the CIO or Computing Services
- Department of Computer Science or Department of Information Systems (or more broadly, the School or Division that encompasses it)
- Library
- Research centers or high-performance computing facilities
- Student groups (particularly those that organize hackathons)

While it is unlikely that any of these groups will provide a clear, comprehensive response, each of the groups can provide insights into the existing and desired level of activity, interest, and engagement with open source software. It is also worthwhile to conduct a search using as many variants of the university's name (e.g., Carnegie Mellon and CMU) within GitHub, which might identify additional points of contact.

What is the existing capacity to manage or curate open source software?

The next question builds upon the first by exploring current institutional capacity. Answers may include technical resources (e.g., GitHub Campus account), advice (e.g., set of engineering practices, open source license choices), policies (e.g., an intellectual property policy that

includes open source software), and curation services (e.g., use of ACM Digital Library archiving service, Software Heritage membership). It is worth noting that a university may have well developed resources in one area while other areas remain completely unexplored, which can identify potential areas of emphasis for an OSPO.

While this question could be asked of the same set of individuals or offices within a university identified for the first question, it is unlikely that the Department of Computer Science or student groups will assume responsibility for university-wide services. For this second question, the following individuals or offices within a university might provide insights:

- Vice President (or Vice Provost) for Research or equivalent positions
- Technology Transfer
- Office of the CIO or Computing Services
- Library
- Research computing (which is sometimes part of the Office of the CIO)

It is worth noting that there may be institutes, centers, etc. that provide open source software management or curation services for their specific research group. The next question may help identify some of these organizations.

Does the university have an open science program or initiative? If so, what is its current scope and goals?

Within the United States, two memoranda from the White House Office of Science and Technology Policy (OSTP) – first in 2013 and in 2022 – have affirmed the importance of public access to the outputs from federally funded research. It is worth noting that the 2022 memo moves the official OSTP stance more towards an open access posture (e.g., removal of the 12 month embargo period for papers). Additionally, the US National Academies of Science, Engineering, and Medicine have convened roundtables and more than one working committee focused on open science.

There is an opportunity to align a university OSPO with existing interest and activity focused on open science, particularly given the observation that open source software is a primary research object or output. Arguably, universities have expended more effort toward articles and data than software and researchers are more familiar with the ecosystem for articles and data so they may be more amenable to support for open source software. Typically, the university Provost charges a group such as a faculty committee or the university libraries to lead their

open science program. When considering how to position an OSPO, it is worthwhile to speak with the leadership of the open science program (either the Provost, Chair of faculty committee or Dean of Libraries/University Librarian).

Open science is not an end unto itself but rather a means to translate or disseminate the impacts of university research and education beyond the university, particularly as it relates to societal impact. One of the most promising and differentiating characteristics of university OSPOs is their ability to support novel forms of impact through new partnerships and engagement. It is worth asking the next question, explicitly.

There are other open fields like open data, open knowledge, open access, etc. All of these are considered to be part of open access but may not be core to a particular academic OSPO.

What are my university's goals for new forms of societal impact, particularly as it relates to community engagement?

Many universities have offices focused on government relations or community relations and programs such as workforce development within their home cities. These offices could be useful resources in terms of identifying existing connections or projects with the local community. Student groups may also have existing connections or projects with the local community though many of these engagements tend to be short-term (e.g. hackathons) or tied to the academic calendar (e.g., semester or summer length internships).

However, it is important to note that open source software “as a verb” or means for partnerships has demonstrated new opportunities and novel forms of impact. The Johns Hopkins University OSPO has worked with the City of Paris OSPO and a local community center to support its digital strategy and set the foundation for initiatives such as participatory budgeting.⁴

At the heart of these new types of partnerships is the fundamental belief that the university and local community are equal. The local community possesses unique, tacit knowledge that can augment academic research and while universities bring significant capacity to such partnerships, local communities also offer a different type of capacity that can be fostered by open source software. Perhaps most importantly, working together on open source software

⁴ <https://techonomy.com/how-open-source-software-makes-cities-more-livable/>

supports transparency that can ultimately develop trust, which is essential for sustained engagement.

The last point relates to the potential points of “tension” regarding the OSPO since it is still a new concept for universities and could represent new ways of working within a university. It is difficult to launch a new office or concept within any organization but universities present their own unique challenges. For this reason, it is worth asking the following question.

Who might be concerned or perhaps even anxious about a new OSPO?

This question is not intended to be asked explicitly of anyone or any specific office although it may come up during conversations related to the previous questions. Universities have not dedicated as much effort toward managing and sharing open source software as open articles or open data so it’s natural that some groups might view an OSPO as a “competitor” rather than a complementary resource. It is critical to know the landscape to the extent possible and identify such individuals or offices to create a strategy and plan for the OSPO that helps everyone achieve shared goals.

For example, a technology transfer office might have existing plans or resources for choosing open source licenses. If the OSPO does not clearly identify how it wishes to engage and support this process, a technology transfer office might understandably assume the OSPO will make it harder to achieve a university-wide strategy. John Whelan from Trinity College has cited the “as open as possible; as closed as necessary” mindset from the perspective of technology transfer. However, it is important to note that other offices or individuals in a university may also have concerns about a new OSPO.

What is the best path forward toward building an open source community within the university?

The last question attempts to weave together each of the previous questions (and responses) as a starting point for the next section (“We are ready to begin”). The OSPO can be an impactful convener, clearinghouse or center of competency within a university for open source software, which may best manifest itself as a community steward. Fundamentally, how to begin rests upon whether one is joining an existing community, helping to organize an existing

community, advancing the goals of an existing community, or fostering and maintaining a new community (that may be composed of existing individuals and offices). In any of these cases or different starting points, the long-term success of an OSPO will depend on its ability to be seen as a credible community steward. Before describing how to begin, it is worth mentioning that initial conditions matter. If an OSPO is only focused inwardly, it will make different decisions and choices, particularly related to capacity building, than if it explicitly embraces external partnerships and engagements from the onset.

Questions to Answer While Creating a New Academic OSPO

How Should the OSPO Secure Support?

Given that Provosts (or Chancellors in the US or their equivalents in other nations) are sometimes thought of as “chief academic officers”, they are uniquely positioned to support a new OSPO as a university-wide initiative. As mentioned earlier, connecting the OSPO to an existing open science program (also often charged by the Provost) would reinforce this notion.

Where to Locate the OSPO?

However, Provost’s offices do not typically provide services directly so it would be important to consider an organizational home for the OSPO. Given that libraries often play an important (and even leadership) role with open science initiatives and offer existing related services (e.g., research data management), an OSPO within a library is worth considering. Libraries’ mission of curation aligns well with the maintenance and sustainability of open source software and their neutrality within a university can be a useful feature. Given the profile of specific universities, it may be appropriate to consider another service group with wide remit such as the research computing group or an educational group or department.

What are the OSPO’s Roadmap and Priorities?

Even with Provost support (with or without funding), an OSPO will need to consider the sequencing and pacing of its offerings and engagements with other offices within the university. Unless an OSPO has immediate substantive funding and resources, it is unlikely that it can address all of the needs identified through the environmental scan with the questions in the previous section. Having an organizational road map is as important as having a plan for offering technological support.

How Will the OSPO Secure Resources?

In any case, it is essential to identify a group that can allocate resources or make a compelling case for new resources from the base budget. While grant funding can initiate or generate specific activities for an OSPO, it can run the risk of a path dependence that could limit the (at least perceived) value of the OSPO or make it difficult to sustain programs after an initial burst of activity. Nonetheless, there are instances where such funding (either through grants or base budgets) can provide the impetus to move forward with at least the beginnings or components of an OSPO.

How Will the OSPO Engage With the Broader OSPO Community?

A new OSPO doesn't have to forge their own path. There are many relevant communities and ways to engage with collaborators. Choosing where to spend efforts to build ties in one of the most important decisions for any new OSPO director, especially as the open source world is collaborative by design.

CURIOSS may be a good place to start. Potential members can reach out to inquire about joining by going to <https://curioss.org>.

What are Potential Challenges When Creating an OSPO?

Finally, it is worthwhile to consider possible challenges or problems that a university OSPO might encounter either directly or indirectly:

- **Lack of Awareness:** The leader of an OSPO may be an even more unfamiliar role for universities than maintainers or community managers. This opens up a possible career risk for the OSPO leader. Understanding the ins and outs of the academic and open source communities is essential.
- **Lack of Clarity:** A lack of clear, delineated roles can lead to confusion at all levels an OSPO. The main risk is that the OSPO will be drawn into conversations that have little, if anything, to do with open source software or, even more broadly, open scholarship.

- **Insufficient Capacity:** Insufficient agency, capacity, or appetite to provide needed support for researchers, contributors, developers, students, and other stakeholders will eventually drown a fledgeling OSPO. Clout is also a finite resource in academia.
- **Risk of Controversy:** The OSPO can become a “lightning rod” for strong, perhaps conflicting opinions about open source, free vs. open source, etc.. The industry is not a new one, and as it is often associated with volunteers and years of unpaid labor, emotions can run high very quickly, causing an overflow in tense situations.
- **Long Term Planning:** The transition from temporary or fixed term funding (e.g., grant) to sustained, long-term funding is difficult at any stage. Working in different funding models early can help the OSPO transition to hard money.
- **Scope Creep:** OSPOs without a clear roadmap and focus on key priorities may feel pulled in many different directions related to both open source and open access efforts, which can limit the impact and sustainability of the OSPO.

Acknowledgements

Many thanks to the authors of the “Guide to Set Up a University OSPO”, from which this academic OSPO definition was informed. Thanks also go to everyone who has contributed to the creation of this guide from the CURIOS and OSPO community especially including the CURIOS team (Clare Dillon, Ciara Flanagan, Richard Littaeur) who has been critical for organization of the related CURIOS working group and community dissemination of this definition.

Funding for the working group for this definition was funded in part by the Alfred P. Sloan Foundation via their support of CURIOS and several academic OSPO partners.