Improve Open Source Development Impact

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Abstract

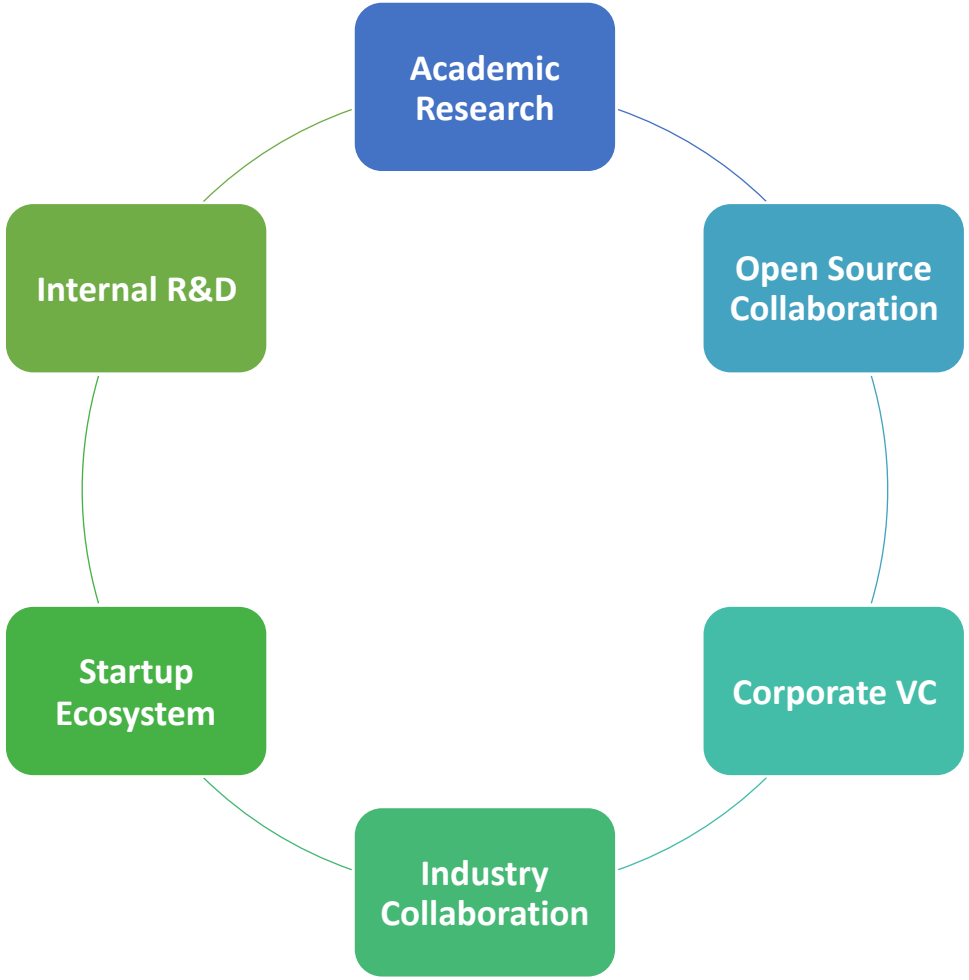
Enterprise open source development and involvement has its own set of challenges, but it becomes easier if you have a clear plan to follow. If you're one of the growing list of companies that relies on open source software for their products and services, investing time and money into improving your open source practices can pay off immensely in the long run. Fortunately, there are many success stories of companies getting involved and becoming leaders in various open source domains that they charted a path you can follow to improve your own contributions and aim for a leadership role.

This talk offers a practical guide to a number of practices that enterprises can adopt to help them grow their footprint in open source projects. We also offer an overview of the experience with Samsung's open source group and some of the lessons learned throughout this experience.

Why open source?

Another tool in your tool box

- Open source software allows shared development and lowers R&D cost by enabling you to reap the benefit of billions of dollars of open source software that can be harnessed to create better products and services.
- Open source software helps accelerate product development and enables faster time to market especially when products needs and requirements are aligned with upstream open source projects.
- Open source software development can also enable you to drive industry leadership by providing strong influence on the technologies used in products. This can help commoditize competing products and services as open source replaces critical components of innovation ecosystems.
- Participating in open source development gives you an edge in the talent war because organizations with strong open source R&D attract top software talent.



Software, Software, Software

Open Source is Eating the Software World

- Much like how “location, location, location” is the foundation for value in real estate, software has become the defining value factor in virtually every industry.
- Looking at vertical software stacks across most industries, we find the use of open source to be astounding, ranging anywhere from 20 percent to 85 percent or more.
- No matter what industry you are in or what product or software you develop, you likely have a high reliance on open source software.

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Open Source ‘Eating’ Software World: Samsung

Article | Comments

By RACHAEL KING

Reporter

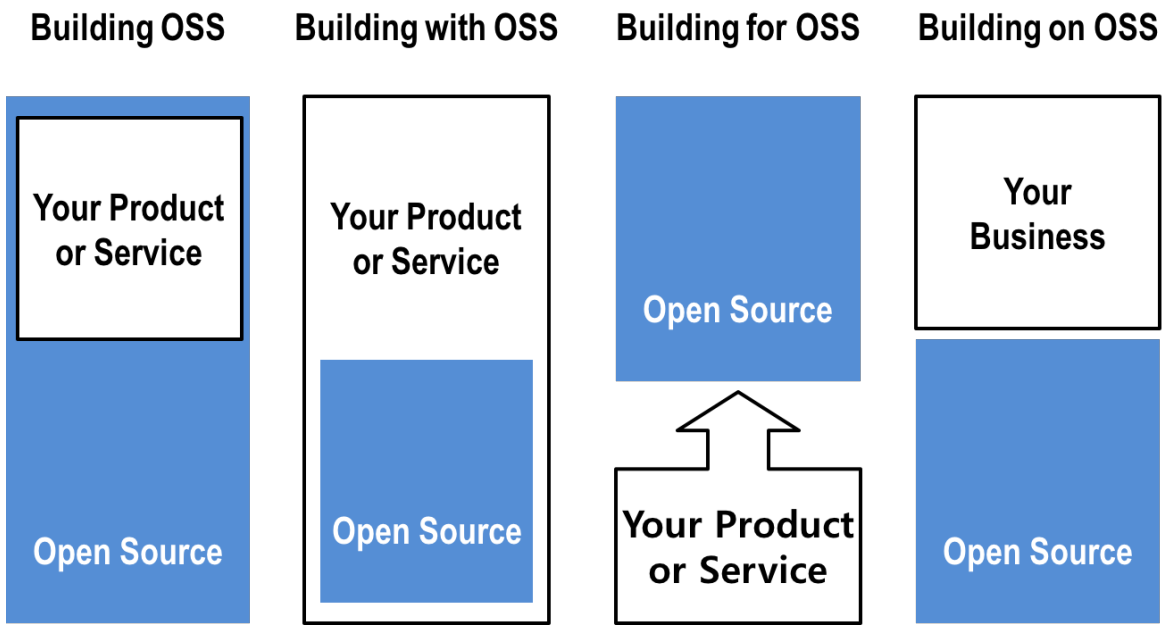
THE WALL STREET JOURNAL. WSJ

Samsung Electronics is ramping up its contributions to various open source projects as the company depends more on open source software in its products. The company sees open source software as a faster path to innovation.

Adaptability to Various Business Models

- If you put specific license requirements aside, open source software supports a variety of business models.

- These use cases are proven and have remained true for some time now, but their separation is mostly for illustration purposes. Hybrids of these models also exist, and these depend on a company's specific products or services strategy; it is common to find a company that uses multiple modules



Product Dependency

- Organizations can rarely build a product without using open source.
- Virtually everything we build relies on open source in some way or another, and this also applies to enterprises that use software as part of their commercial offering.
- If you have valuable products that rely on open source, would you want to turn your back on billions of dollars worth of R&D?

More Focused, Faster Path to Innovation

- Open source software is often used at lower levels of the software stack because these are the areas with the most in common between organizations. Better use of these low-level components allows you to focus your own resources on differentiating at higher levels in the software stack and improve upon the unique value you provide to your consumers.

- This is a fundamental business advantage that open source software enables. To examine this concept, consider the following:
  - Do people buy your products because of the specific software libraries you use in them? Probably not.

- Freeing yourself from building low-level components frees up valuable resources to create value in the places customers care about the most.

Product Enablement

Direct enablement

- Fulfill open source development requests from R&D and product teams.
- Upstream internal code into open source projects.
- Implement and upstream related drivers.
- Support open source compliance efforts.

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Indirect enablement

- Stabilize upstream projects used in products.
- Participate in internal policy discussions .
- Effectively influence the upstream projects via thought leadership and code contributions.
- Participate in upstream technical discussions.

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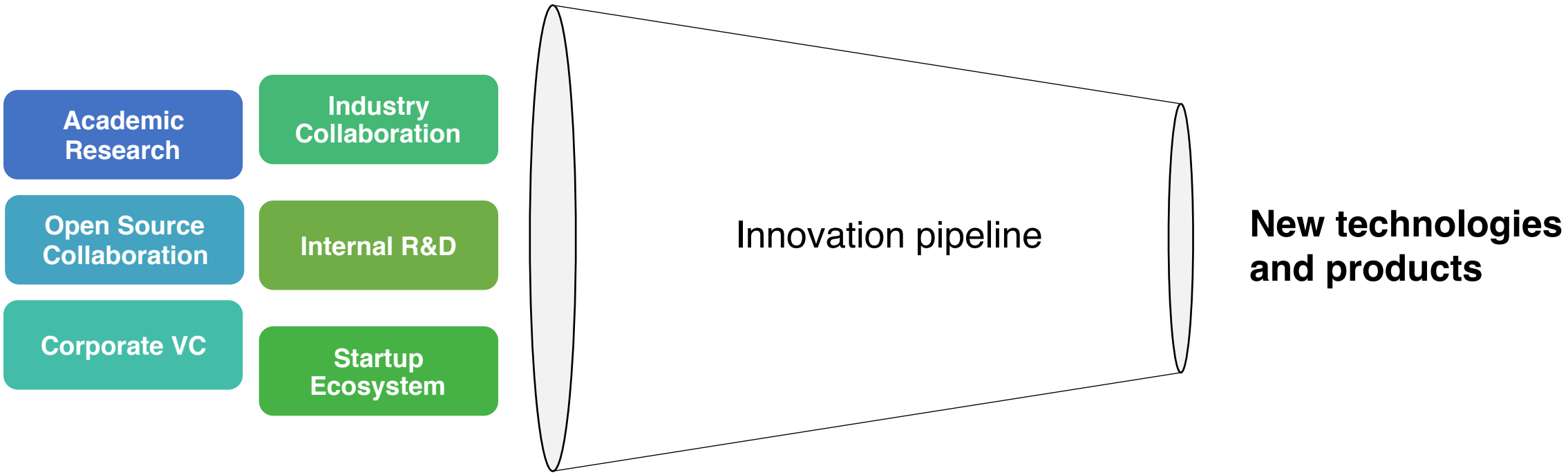
Upstream development enables better products

- Less work for product teams.
- Minimized cost to maintain source code.
- Better quality code.
- Faster development cycles.
- More stable code bases.
- Improved reputation in upstream projects.

Open Source R&D Is an Innovation Enabler

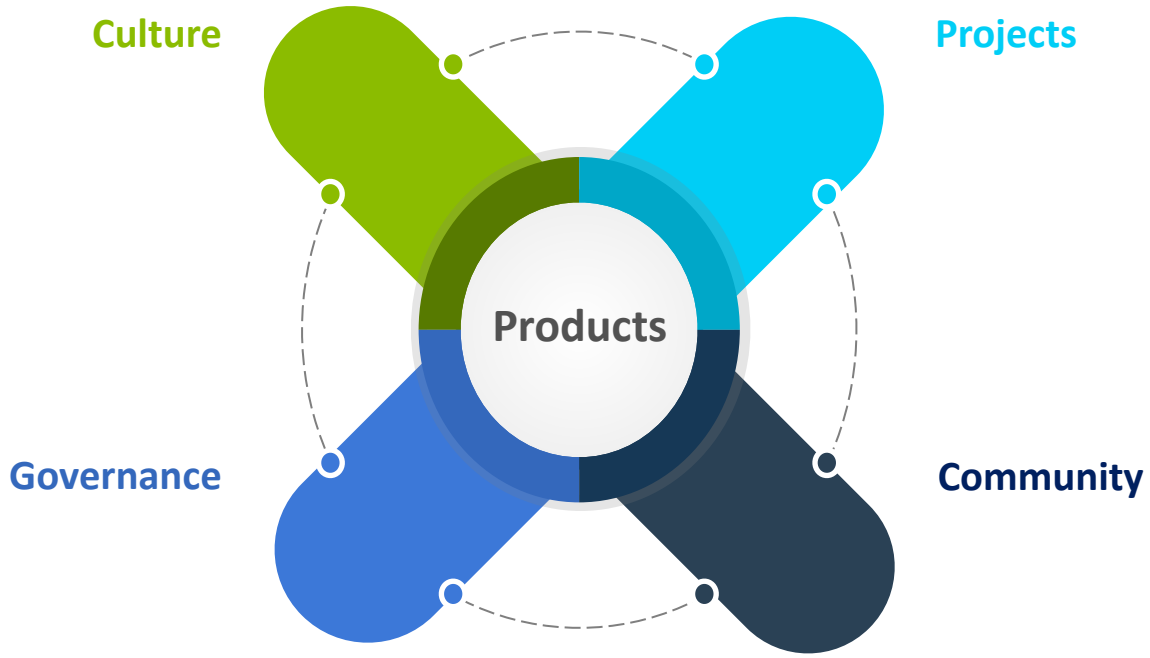


Develop your open source strategy

The product is always the center

- There are many questions to answer when determining your open source strategy, and they should be answered early in the process.

- An open source strategy should address four key requirements:
  - The open source projects it aims to address,
  - The respective open source project community it aims to engage with,
  - The internal enterprise open source governance, and
  - The internal enterprise culture and whether or not it will be enabler of open source efforts.



Strategy objectives

- Although you can choose from several strategy objectives, some objectives are common for most companies that use and develop open source software:
  - Reduce development costs.
  - Improve the quality and flexibility of products,
  - Achieve a faster time to market for products,
  - Increase engineering capacity through community engagement,
  - Broaden and deepen developer community commitment to your open source efforts.

- Common benefits seen by customers of companies that use and contribute to open source software include:
  - Lower cost products and applications,
  - Higher quality and more reliable products and applications,
  - New products, capabilities and applications delivered to the market sooner

How can an open source strategy help you achieve your IP strategy?

- Open source licensing is different from proprietary licensing and your company must account for how differences in licenses affect your ability to benefit from the use and development of open source software.

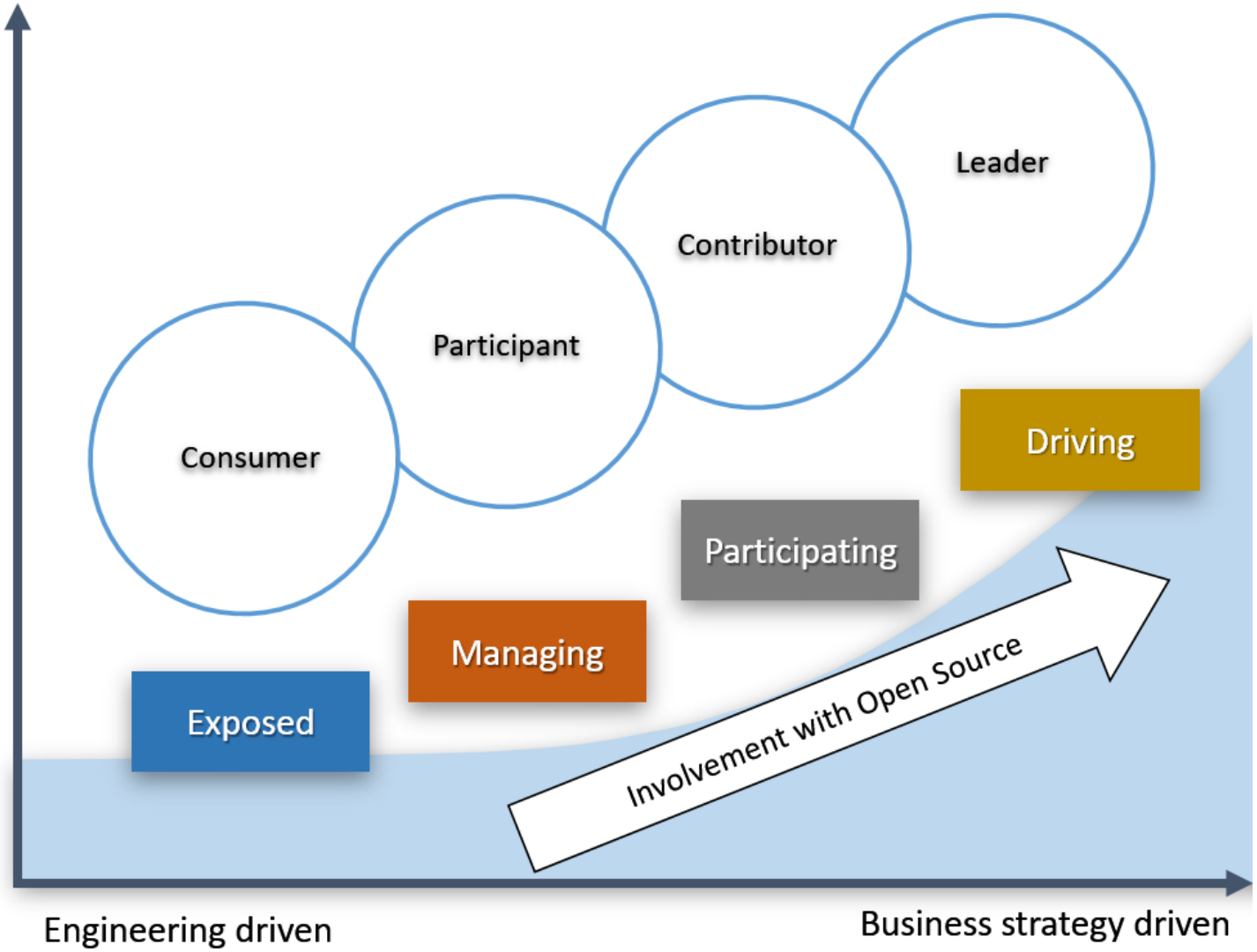
- The objectives you set can include any of the following:
  - Determine a licensing strategy that best allows the company to benefit from external involvement while enabling better proprietary products.
  - Mitigate intellectual property risk by ensuring compliance with open source software used in products and services.
  - Enable greater differentiation in proprietary intellectual property.

How can an open source strategy help you grab opportunities that are otherwise unattainable?

- Open source also offers some unique opportunities that are only be obtainable through an open source strategy.

- Common objectives that fall under this category include:
  - Provide market leadership by focusing R&D investment to improve key open source technologies that are complementary to differentiated capabilities in products.
  - Defend existing market positions by supporting key open source initiatives and consortia, selectively releasing proprietary capabilities as open source to disrupt competitors or competing markets, and use open source to level the technology playing field.
  - Drive cost of goods sold improvements by incorporating readily available open source commoditized capabilities and market accelerators in products. The cost per product delivered will decline over time in as a result.

Starting Point: Identify Current and Target Position on the Open Source Strategy Ladder



Strategy: Open Source Consumption

- The most common starting point for organizations is as an open source software user in their commercial products. Aggressively consuming open source components will increase your ability to differentiate and reduce overall time and cost to deliver commercial products.

- Here are the necessary components of the open source consumption strategy:
  - Use a strategic classification scheme to guide decisions on what open source software to consume.
  - Ensure the company meets all obligations of its use of open source software.
  - Deploy automated workflow software for evaluating/approving open source usage.
  - Establish an Open Source Review Board (OSRB) immediately to serve as a clearinghouse for all Open Source activities.
  - Create incremental investment in headcount and infrastructure in engineering, product management, and legal to manage a complex mix of closed source / open source software.

Strategy: Open Source Participation

- Once your company is successfully using open source software in products or services, you can expand your strategy to participate in the open source community. Unless you have already hired experienced developers from the community, you will first need to engage more closely with the community to increase your visibility and to begin attracting the talent you need.

- Here are the necessary components of the open source participation strategy:
  - Monitor community communication platforms like chat servers, mailing lists, forums, and websites to stay informed about project developments.
  - Attend relevant conferences and meetups to establish a relationship with the community.
  - Sponsor project events and foundations to improve visibility within the community.
  - Educate developers on how to participate in and contribute to open source projects

Strategy: Open Source Contribution

- Once you are ready to build on your company's participation and begin contributing code to an open source project, you need to selectively engage with targeted projects and communities to drive you company's needs.

- Contributing to strategic open source projects can help your organization gain additional value as code contributions can help shape future features in the project that meet a company's needs.

- Here are the necessary components of the open source contribution strategy:
  - Hire a staff director to lead open source strategy and manage the OSRB.
  - Hire contributors and committers to key open source communities that are critical to your products.
  - Deploy open source collaboration tools to support open source usage and contributions.
  - Add open source developer resources.
  - Incrementally invest in engineering, product management, and legal to engage with existing external communities.

Strategy: Open Source Leadership

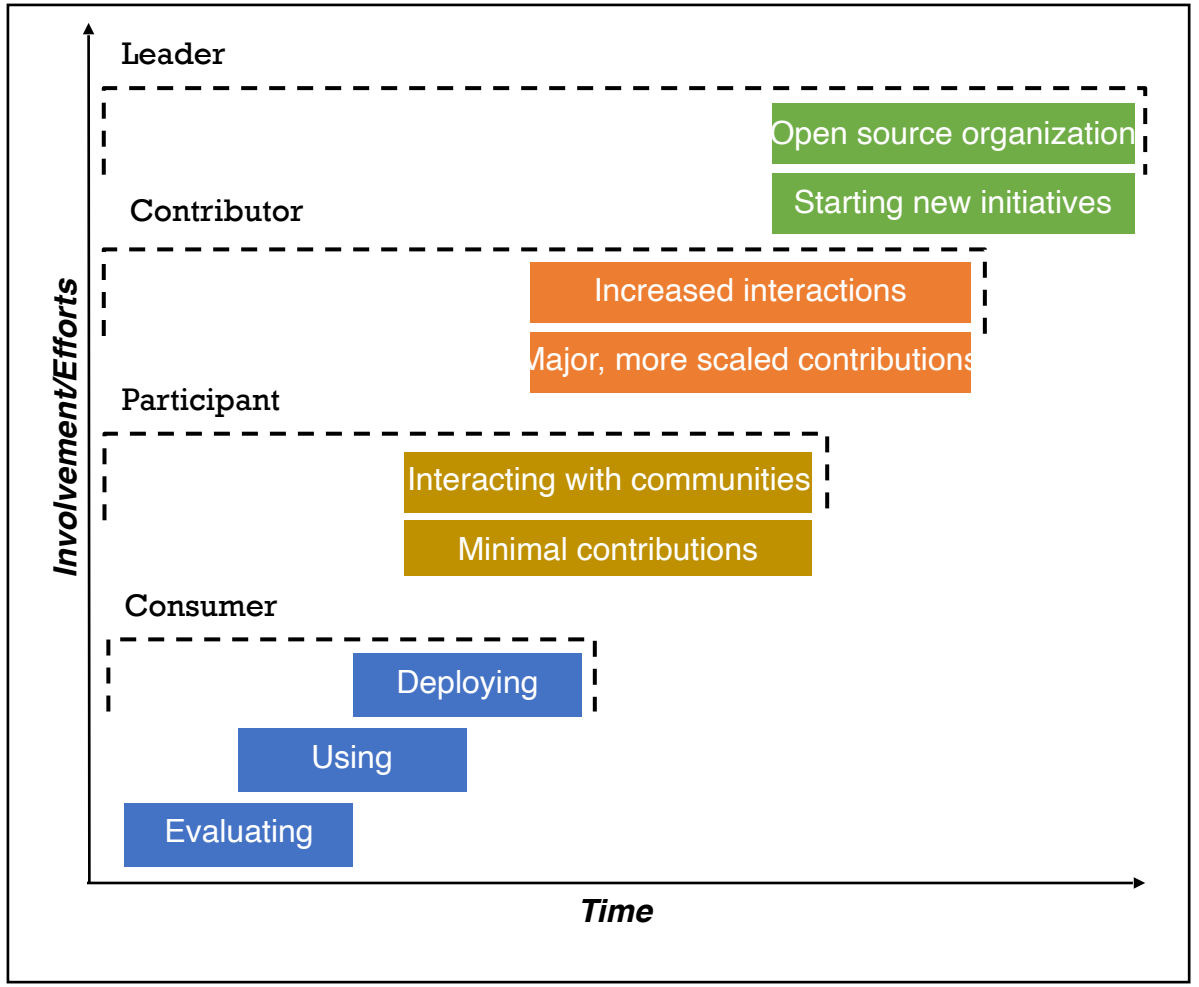
- This scenario builds on all of the prior scenarios to capitalize on emerging trends in technology to establish a leadership position.

- This scenario requires significant investment in targeted open source communities and consortia to establish leadership agenda. It will also require incremental investment primarily in engineering, product management, and legal to establish leadership in external communities and industry consortia.

- Here are the necessary components of the open source leadership strategy:
  - Increase engagement with targeted open source communities.
  - Selectively engage with open standards to drive the company's needs.
  - Engage with open source foundations.
  - Establish an open source project, organization, or foundation.
  - Incrementally invest in engineering, product management, and legal to engage with existing external communities.

Transitioning

- As an enterprise, you are evaluating, using, and deploying open source software already.
- You are likely participating and maybe even contributing to projects too. Ideally, your open source program is guiding these efforts, abating risks and leveraging your participation to benefit your strategy.



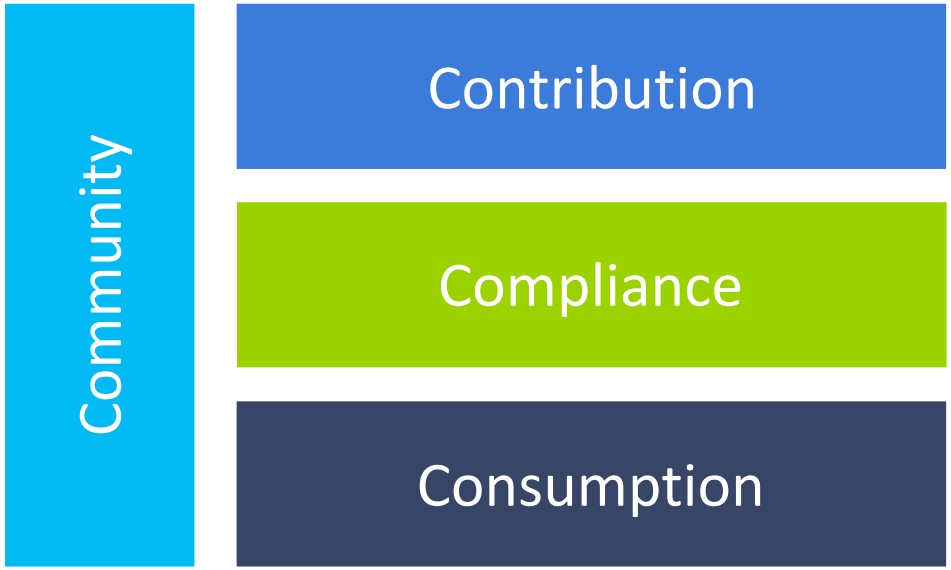
Implement your open source infrastructure

Introduction

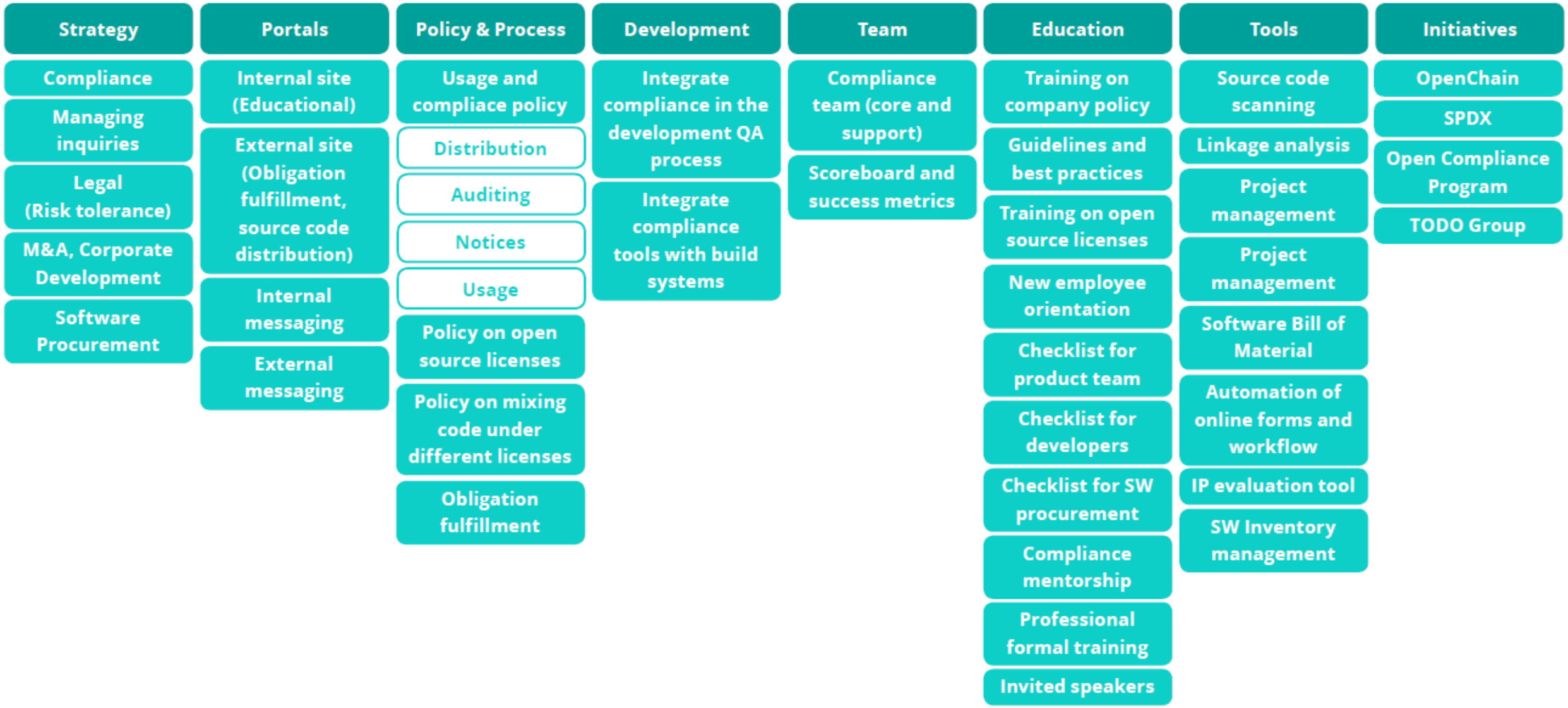
- Once you have identified your company's open source strategy, you need to build infrastructure to support your open source engineering efforts.

- There are four key pillars your infrastructure needs to support:
  - Consumption
  - Compliance
  - Contribution
  - Community

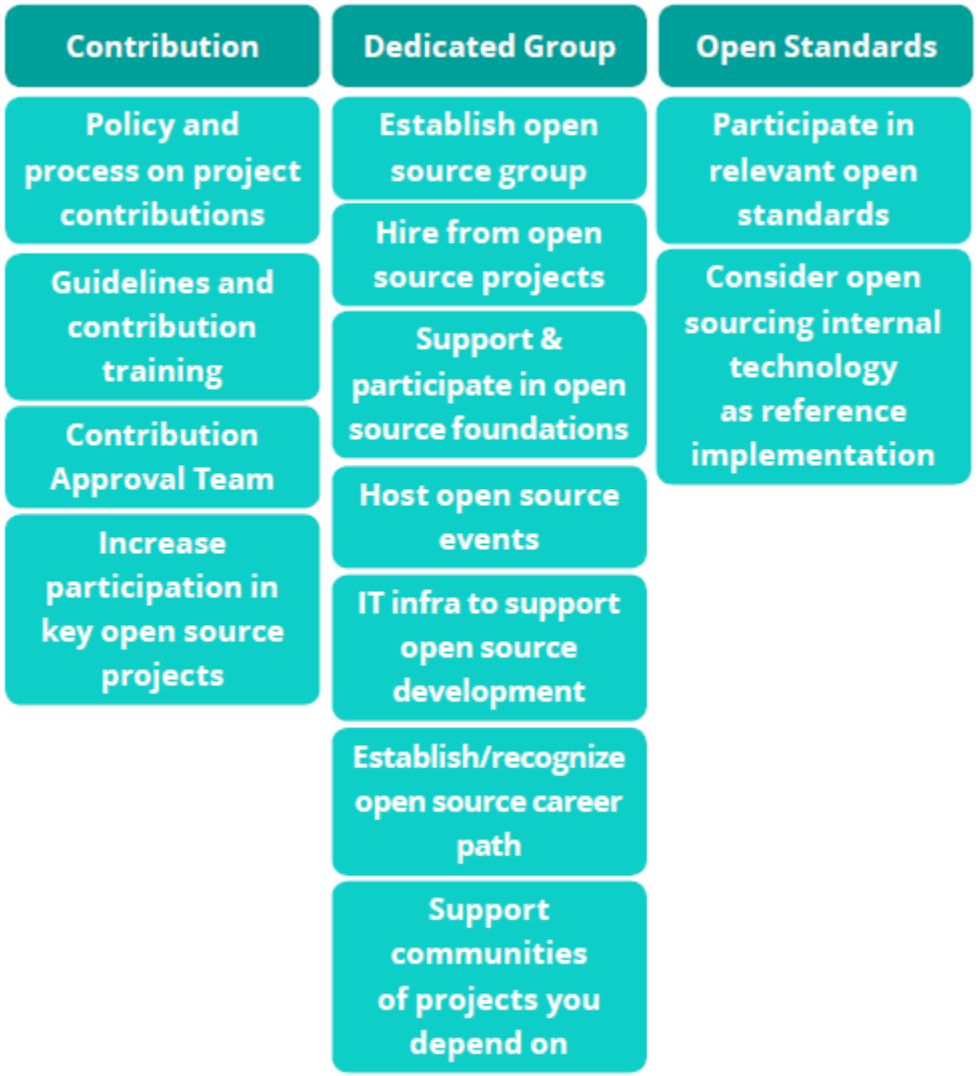
- The community is unique within these pillars because it involves all interactions between the company and the specific open source projects that the company is involved in from a consumption, compliance, and contribution aspect.



Open Source Consumption and Compliance Infrastructure



Open Source Contribution Infrastructure



Recommended practices

Create your open source program office

Hire or promote a leader for the open source office

Identify your reliance on open source software

What components are you using? Where?
How important are they to your software stack/product/service?

One option is to focus on software used by many business units or incorporated in several products. Such an approach will allow you to show a return on investment across multiple business units or across high risk areas.

Identify current and target open source position

Consumer, Participant, Contributor, Leader.
Each position requires a specific set of investment and action plan.

Develop and execute an open source strategy

Technical, legal, product, ecosystem and business considerations.
Open source strategy is a core component of any software strategy.

How can open source strategy accelerate your organization?
How can an open source strategy help you achieve overall corporate objectives?
How can an open source strategy help you achieve your IP strategy?
How can it an open source strategy help you grab opportunities that are otherwise unattainable?

Implement an open source enabling environment

Policies, processes, tools, development environment, dedicated team, educational resources, open standards, open source foundations, compliance initiatives, communication, human resources, etc.

Provide a flexible open source friendly IT infrastructure

Build expertize in key open source technical areas, ecosystem, community and strategy

Create meaningful metrics to track your progress

If you can't measure it, you can't improve it.
Some exceptions apply!

Create and outsource open source training

Create training on company strategy, policies, guidelines, etc.
Outsource technical and development training.

Establish relationships with open source foundations

Get involved.

Become a member.

Influence discussions, policy making, be in the know, etc.

Establish a framework for open sourcing internal code

Policy, process, due diligence (technical, business, legal), checklists, tooling, etc.

Encourage internal collaborations and enable them via inner sourcing practices

Participate and host open source events

Be visible.

Show your work.

Seek collaborators.

Establish open source R&D projects with universities

Update your outsourcing agreements, your M&A practices

Ensure compliance within your software supply chain.

Formalize an open source career path

Challenges

Challenge Areas

Culture	Processes	Tools	Continuity	Education
Development model	Governance	IT infrastructure	Strategy	Executive education
Collaboration	Usage	Development tools	Projects	Knowledge transfer
Transparency	Compliance	Metric tracking	Priorities	Technical training
Meritocracy	Contribution	Knowledge sharing	Funding	Compliance training
Team formation	Approvals	Code reuse	Executive support	Mentorship program
Hiring practices	Operational model			
Right success metrics				

Closing Thoughts

Closing

- Open source is eating the software world; you can either watch the show or be a part of it.

- Mastery of open source requires a strong strategy that encompasses open source consumption, participation, contribution, and leadership, and each of these requires their own incremental effort and investment into improving open source engineering.

4 key pillars

Consumption and Compliance

- Establish internal infrastructure that enables proper open source practices and incorporates open source policies, processes, checklists, and training.

Participation

- Begin engaging with the open source community on communication platforms and at events.
- Sponsor projects and organizations that are important to open source software you rely on for your products.

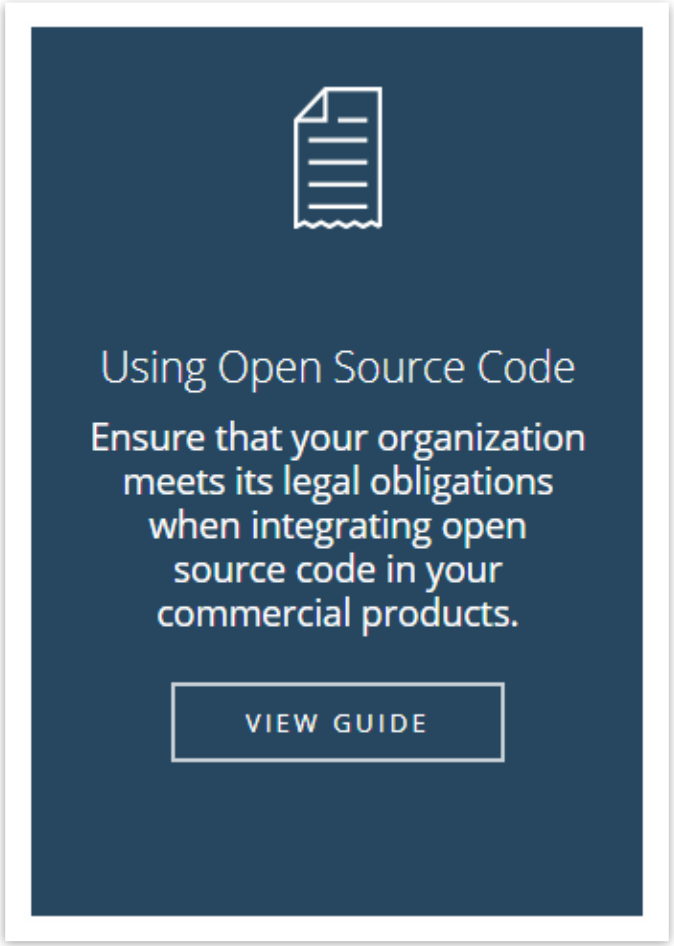
Contribution

- Hire or train developers that focus specifically on open source contributions and deploy the necessary tools to support internal open source engineering.

Leadership

- Increase engagement with open source communities, open standards bodies, and foundations.
- Launch new open source initiatives and increase your visibility in open source communities.

References


Using Open Source Code
Ensure that your organization meets its legal obligations when integrating open source code in your commercial products.
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THE LINUX FOUNDATION
Enterprise Open Source: A Practical Introduction
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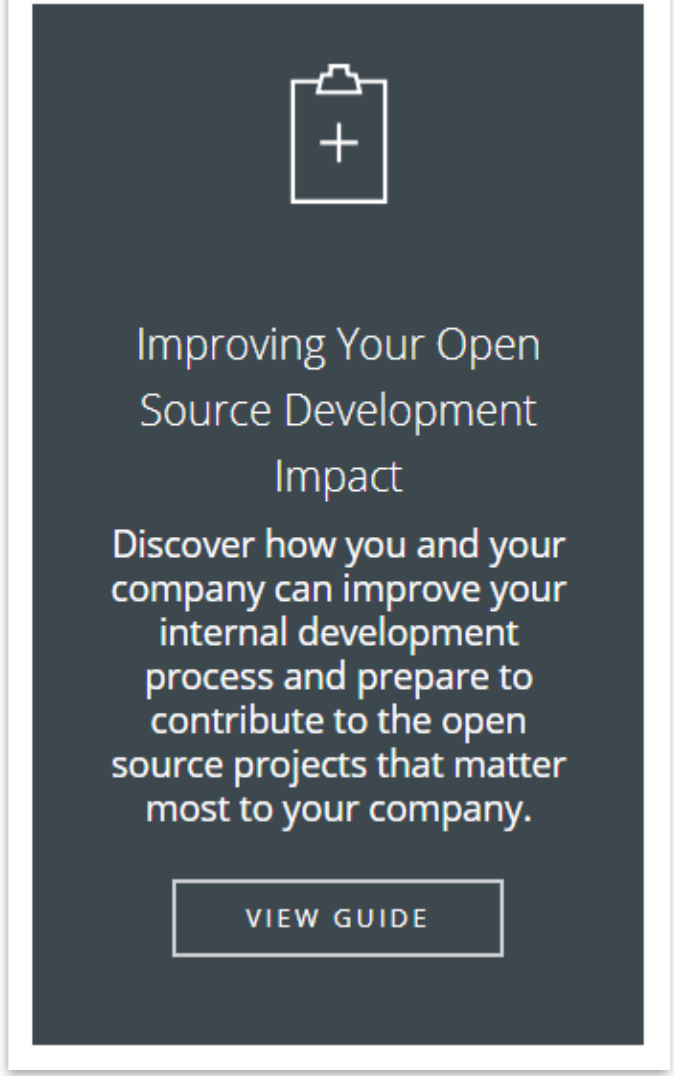
Improving Your Open Source Development Impact
Discover how you and your company can improve your internal development process and prepare to contribute to the open source projects that matter most to your company.
VIEW GUIDE

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