

Open FinTech Forum

AI, Blockchain & Kubernetes on Wall Street

Using Open Source Software

Improving the Impact of your Enterprise Open Source Development and Participation

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Abstract

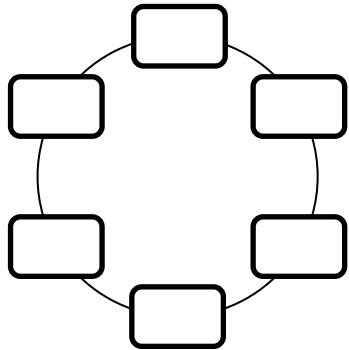
Enterprise open source development and involvement has its own set of challenges, but it becomes easier if you have a clear plan to follow. If you're one of the growing list of companies that relies on open source software for their products and services, investing time and money into improving your 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. Furthermore, the talk touches on the challenges enterprises face and how to overcome them.

Why open source?



1 Another Tool



2 Product Dependency

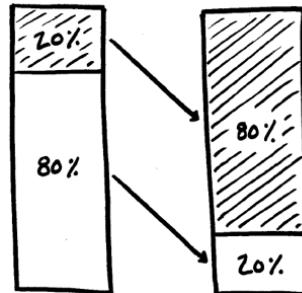


4 Software

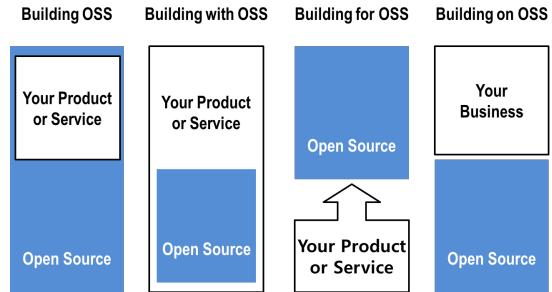
May 5, 2014, 5:51 PM ET

Open Source 'Eating' Software World: Samsung

5 Innovation



3 Business Model Flexibility



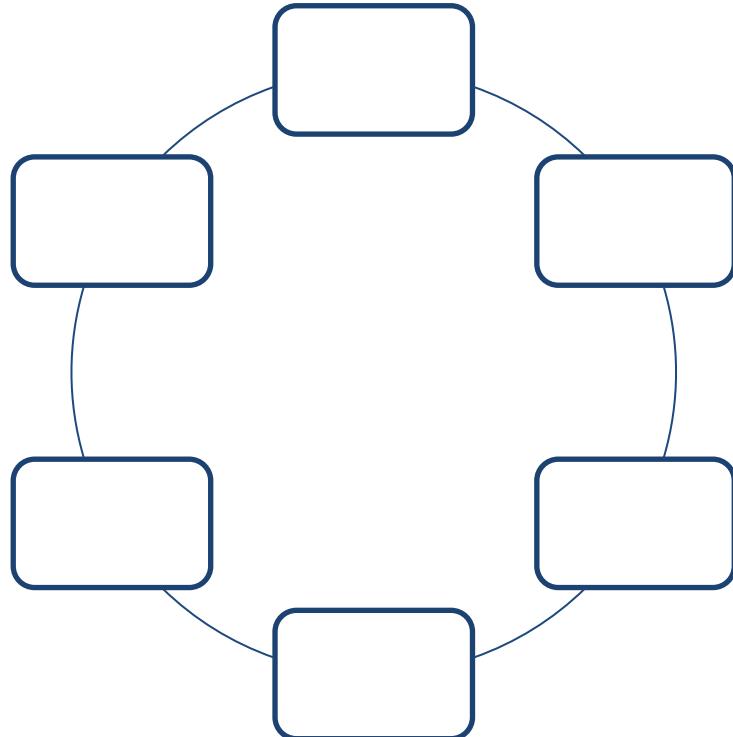
6 Enablement

New Product!

Direct and indirect enablement.

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.
- Participation in open source software development **enables influence on the technologies** used in products. This can help commoditize competing products and services as open source replaces critical components of innovation ecosystems.
- Being an active company in the open source ecosystem **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.

- 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



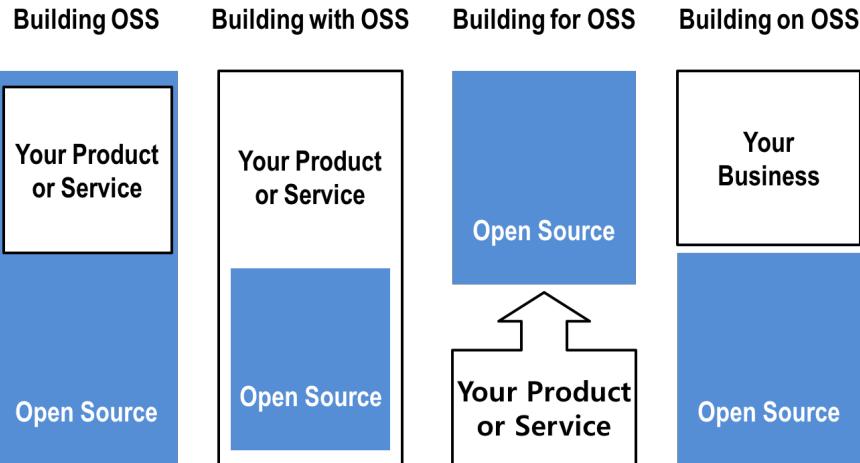
THE WALL STREET JOURNAL

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 for a company to use multiple models.



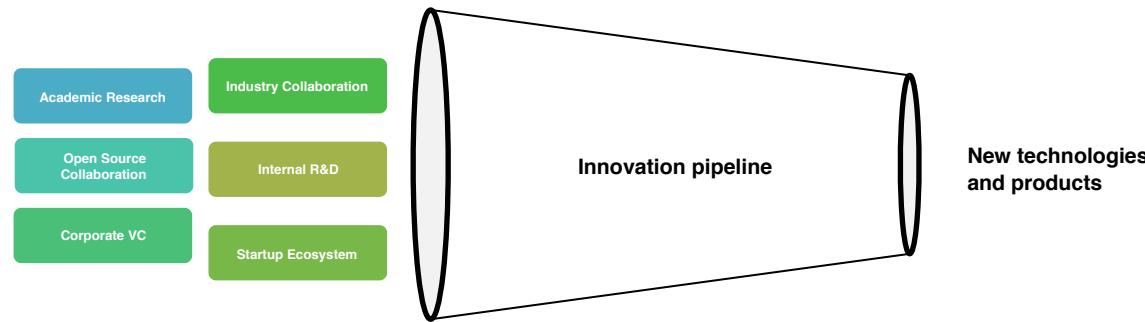
Product Dependency

- Enterprises rarely build a product or a service without using open source.
 - Upstream first policies.
- Virtually everything we build relies on open source in some way or another.
- Why would anyone want to turn their 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?
- 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.



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.



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 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.



Objectives

- Some objectives are common for most companies that use and develop open source software:
 - Reduce development costs (lower cost of products)
 - 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.

Open source strategy to support IP strategy



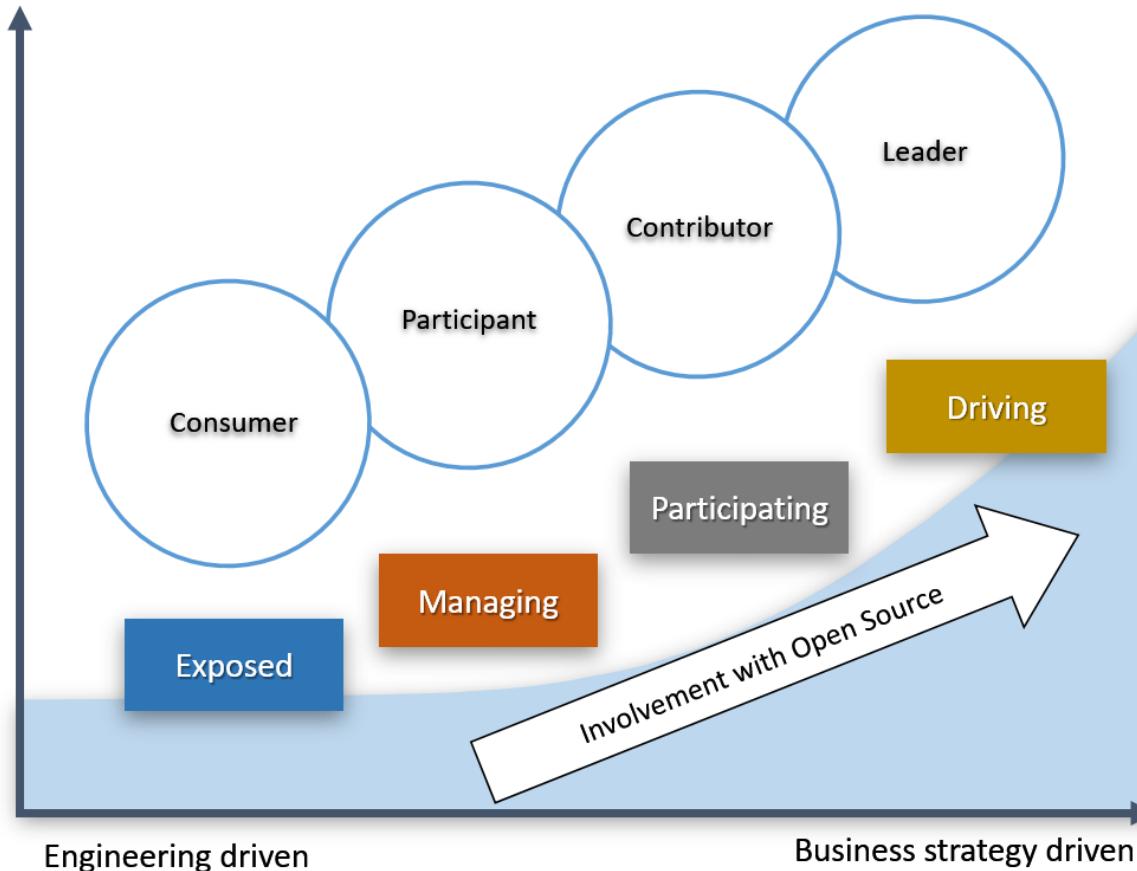
- Open source licensing is different from proprietary licensing and your company must account for how differences in licenses affect your ability to benefit from the use and development of open source software.
- The objectives you set can include any of the following:
 - Determine a licensing strategy 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.

Open source strategy to enable new opportunities



- 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 down cost of products** 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



Strategy: Open Source Consumption

- The most common starting point for organizations is as user or adoptee of open source software in their products.
 - Aggressively consuming open source components will increase your ability to differentiate and reduce overall time and cost to deliver commercial products.
- Approach for an 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 workflows for evaluating/approving open source usage.
 - Establish an Open Source Review Board (OSRB) 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.
- Approach for an 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

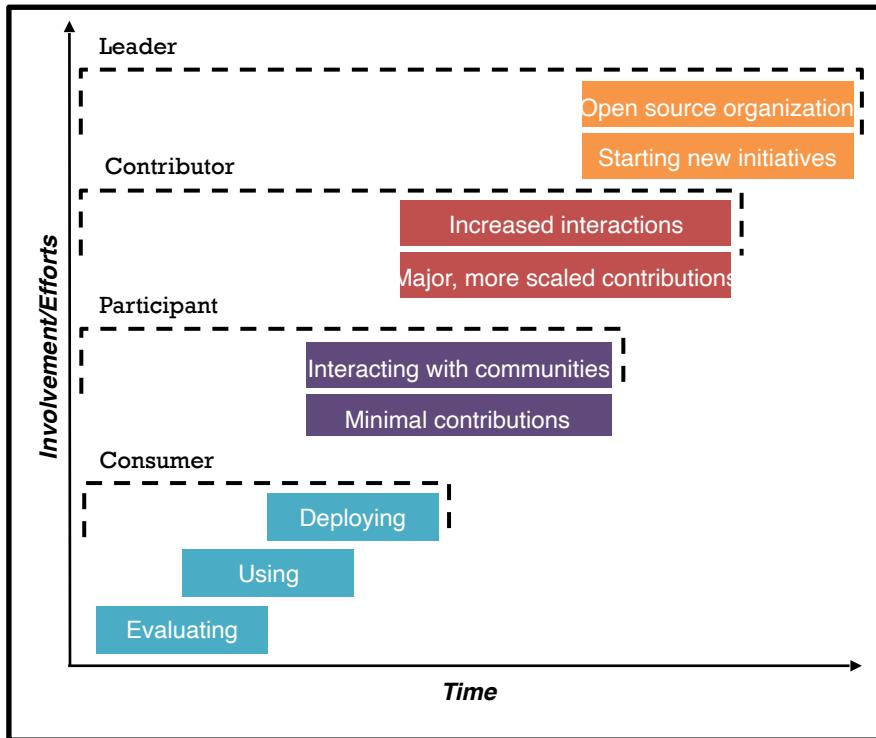
Strategy: Open Source Contribution

- Selectively engage with targeted projects and communities to drive your company's needs.
- Contributing to strategic open source projects can help your organization gain additional value as code contributions shape feature development and steers the projects in a favorable direction to your products.
- Approach for an open source contribution strategy:
 - Incrementally invest in engineering, product management, and legal to engage with existing external communities.
 - 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.

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.
- Approach for an open source leadership strategy:
 - Increase engagement with targeted open source communities.
 - Selectively engage with open standards to drive the company's agenda.
 - Engage with open source foundations.
 - Incrementally invest in engineering, product management, and legal to engage with existing external communities.

Transitioning

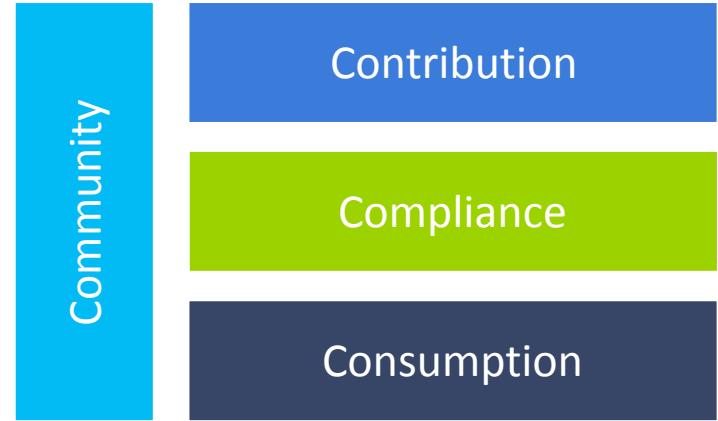


Implement your open source infrastructure



Introduction

- 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.



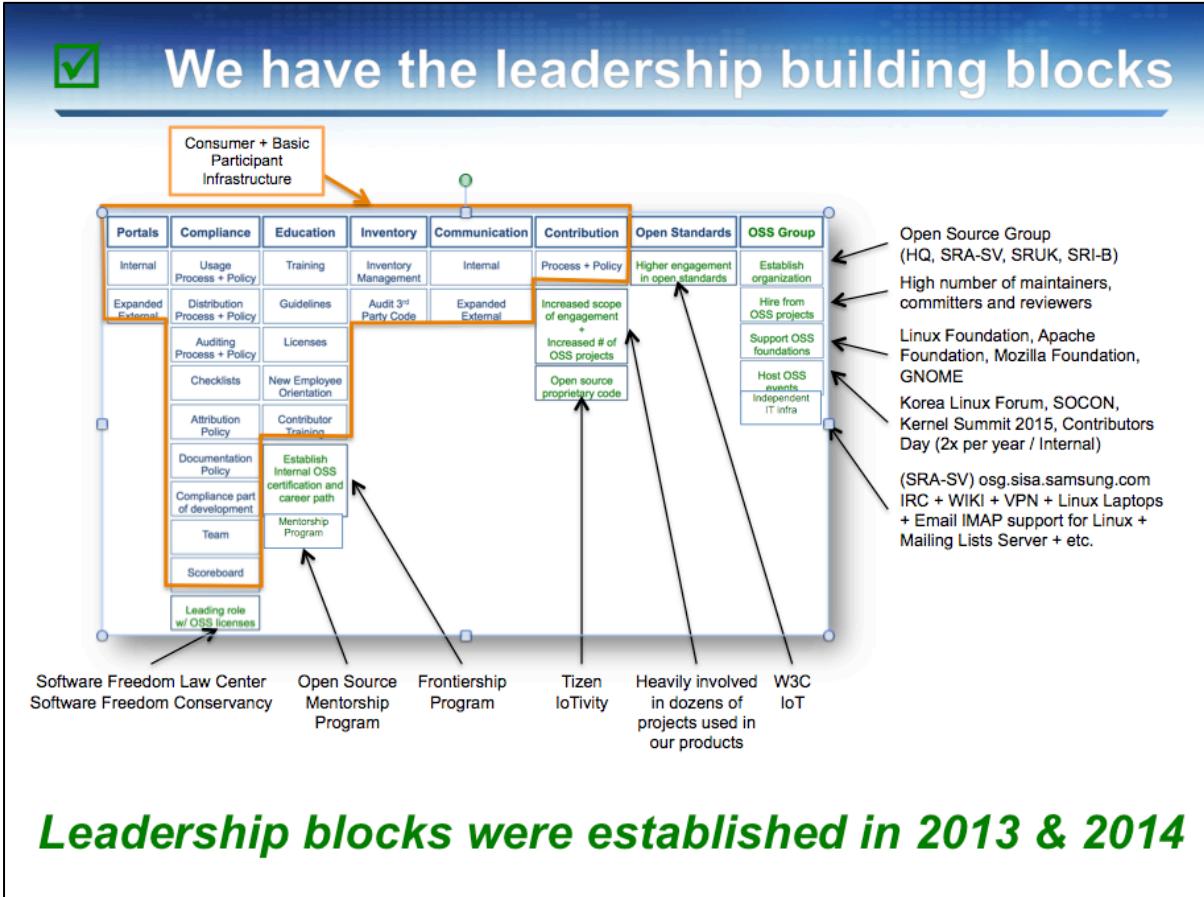
Consumption and Compliance Infrastructure

Strategy	Portals	Policy & Process	Development	Team	Education	Tools	Initiatives
Compliance	Internal site (Educational)	Usage and compliance policy	Integrate compliance in the development QA process	Compliance team (core and support)	Training on company policy	Source code scanning	OpenChain
Managing inquiries	External site (Obligation fulfillment, source code distribution)	Distribution	Integrate compliance tools with build systems	Scoreboard and success metrics	Guidelines and best practices	Linkage analysis	SPDX
Legal (Risk tolerance)		Auditing			Training on open source licenses	Project management	Open Compliance Program
M&A, Corporate Development		Notices			New employee orientation	Project management	TODo Group
Software Procurement	Internal messaging	Usage			Checklist for product team	Software Bill of Material	
	External messaging	Policy on open source licenses			Checklist for developers	Automation of online forms and workflow	
		Policy on mixing code under different licenses			Checklist for SW procurement	IP evaluation tool	
		Obligation fulfillment			Compliance mentorship	SW Inventory management	
					Professional formal training		
					Invited speakers		

Contribution Infrastructure

Contribution	Dedicated Group	Open Standards
Policy and process on project contributions	Establish open source group	Participate in relevant open standards
Guidelines and contribution training	Hire from open source projects	Consider open sourcing internal technology as reference implementation
Contribution Approval Team	Support & participate in open source foundations	
Increase participation in key open source projects	Host open source events	
	IT infra to support open source development	
	Establish/recognize open source career path	
	Support communities of projects you depend on	

Samsung Case Study



Recommended Practices for High Impact in Open Source



Create an open source program office

Hire or promote a leader for the open source office

Develop and execute an open source strategy



- Open source strategy is a core component of any software strategy.
 - Technical, legal, product, ecosystem and business considerations.
- 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 an open source strategy help you grab opportunities that are otherwise unattainable?

Identify your reliance on open source

- 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 & target open source position



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

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 IT infrastructure

- Linux issued laptops/desktops/servers
- VPN support
- IMAP support
- IRC
- Wiki
- MLs
- File servers
- Git servers
- Github
- Firewall exceptions
- Etc.

Build open source expertise



- Technical
- Business
- Operation
- Community
- Ecosystem
- Partnership
- Foundations
- Legal

Meaningful metrics to track progress

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

Provide training

- Create or outsource
 - Technical
 - Compliance
 - Open source methodology
 - Company policies, processes, guidelines, etc.
-
- Can it scale?

Work with open source foundations

- Establish relationships with open source foundations.
- Get involved.
- Become a member.
- Start new projects, initiatives.
- Influence discussions, policy making.
- Etc.

Establish a framework for open sourcing code



- Policy
- Process
- Due diligence (technical, business, legal)
- Checklists
- Tooling
- Etc.

Foster internal collaboration



- Explore inner sourcing practices for internal adoption.

Open source events

- Host
- Sponsor
- Attend
- Be visible
- Show your work
- Seek collaborators

Establish open source projects with universities

Update your software procurement

- Policies, agreements, etc.
- M&A practices.
- Participate in relevant efforts:
 - OpenChain
 - SPDX

Formulize an open source career path

Challenges



Challenge Areas

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

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.

Contribution

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

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.

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.

Linux Foundations Resources



Using Open Source Code
Ensure that your organization
meets its legal obligations
when integrating open
source code in your
commercial products.

[VIEW GUIDE](#)

The image shows a person's hands working at a desk with papers, a laptop, and a plant. The Linux Foundation logo is in the top right corner. Below the image is the title and author information.

Enterprise Open Source: A Practical Introduction

By The Linux Foundation

[www.linuxfoundation.org](#)



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.

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