Open Source Governance & Innersource

2022-11-29 / Florent ZARA / florent.zara@eclipse-foundation.org

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Before we start

I Am Not A Lawyer

$whoami

- Eclipse Foundation (since 2022)
  - Open Source Services Team Lead
  - Previously Program Manager
- Henix (2002 - 2022)
  - Open Source / Innersource consultant
  - Software Quality consultant
- Systematic (since 2014)
  - Hub Open Source Steering member
  - OSS R&D projects evaluation
  - POSS Steering Member
  - OWF 14 President
- LinuxFr.org (since 2001)
  - Top contributor
  - Board member

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Agenda

- A (short) introduction to OSS
- OSPO and Governance
- Open Source Foundations
- Innersource

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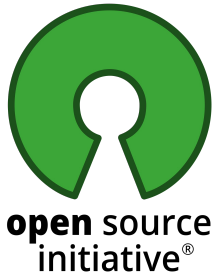
Open Source Software

Software made available under a license meeting 10 specific criteria defined by the Open Source Initiative.



anyone can review, change, use, and distribute the publicly available source code

Open Source Definition

https://opensource.org/osd

Open source licenses are licenses that comply with the Open Source Definition:

1. **Free Redistribution**: No Fees or Royalties
2. **Source Code**: Included and Redistributable
3. **Derived Works**: Allowed and redistributable under same terms or “better”
4. **Integrity of Authors Source Code**: May require derived works to carry different name or version
5. **No discrimination against person or group of persons**: Can warn of legal constraints such as trade embargos, but not explicitly forbid
6. **No discrimination against fields of endeavor**: Closes loophole that might restrict commercial use
7. **Distribution of license**: Must be self standing and not require a non-disclosure or other agreement
8. **License Must be Not Specific to a Product**: “Distribution” may be better word – must allow selective use of functionality
9. **Must not restrict other software**: In the distribution, so GPL is OK
10. **Technology Neutral**: Cannot restrict use to certain platforms (Windows™ for example)

Open Source is more than software

- Cultural shift / Way of making and distributing software
  - Transparency
  - Openness
  - Meritocracy
- Based on strong legal grounds with dedicated and globally recognized licenses
  - Plethora of licenses
  - Attempts at rationalization
- Uses specific to Open Source
  - Copyleft
  - Publication
  - Contribution
- Open source is eating the world
  - “Every industrial company will become a software company” (Jeff Immelt, GE CEO)
  - But at the end, “every software company is an Open Source company” (Mike Milinkovich, Eclipse Foundation)

The License Spectrum

A **software license** is a legal instrument governing the use or redistribution of software.

A typical software license grants the licensee, typically an end-user, permission to use one or more copies of software in ways where such a use would otherwise potentially constitute copyright infringement of the software owner's exclusive rights under copyright.

The License Spectrum: Commercial Software

Commercial Software often imposes **extra restrictions** on users that are not covered by Intellectual Property law

- Agreement **not to disassemble** or **reverse engineer**
- Agreement to **use on only** one computer
- Agreement **not to transfer or resell** your license to another entity
- Agreement **not to rent or lease the computer** with the software
- …

The License Spectrum: Non-Commercial Software

A **non-commercial license** is a license that does not provide for a commercial activity: an activity that does not have a commercial purpose.

- AFPL - Aladdin Free Public License
- JRL - Java Research License

The License Spectrum: Strong Copyleft Licenses

Strong Copyleft Licenses

- "Copyleft is the practice of granting the right to freely distribute and modify intellectual property with the requirement that the **same rights be preserved in derivative works** created from that property."[1]
- E.g.: Under the GPL 2.1, merely **"linking" GPL code** with other code may require that the other code (and the combination) be **licensed under the GPL**.

GPL Free Software
Free as in Freedom

AGPL Free Software
Free as in Freedom

The License Spectrum: Weak Copyleft Licenses

Weak Copyleft Licenses

- "This allows other software to link to the library and be redistributed without the requirement for the linking software to also be copyleft-licensed. Only changes to the weak-copyleft-licensed software itself become subject to copyleft provisions of such a license."
- Allows for commercial re-licensing
- Ensures that improvements to the original code stays under the same license

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moz://a

LGPL Free Software
Free as in Freedom

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The License Spectrum: Permissive licenses

Permissive licenses

- "Permissive" or "Non-Copyleft" Free software comes from the author with permission to **redistribute** and **modify**, and **add additional restrictions** to the license terms.
- A subsequent party can **modify** the non-copyleft free program and **distribute** the modified program **as a proprietary software product**, **without** making the source code available to others on **the same terms**.
- Do whatever you want with the code
- Acknowledge the author/contributor

THE APACHE SOFTWARE FOUNDATION

BSD

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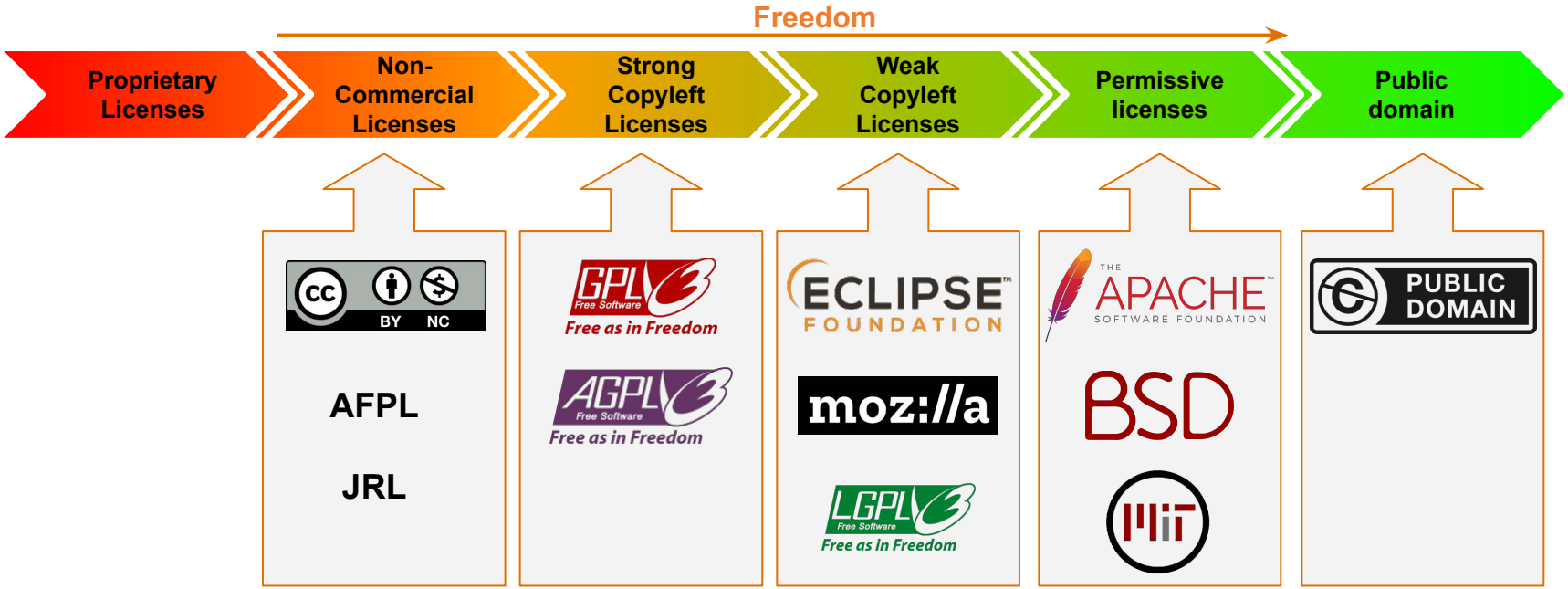
The License Spectrum: Public Domain

The **public domain** consists of all the creative work to which no exclusive intellectual property rights apply.

Those rights may have expired, been forfeited, expressly waived, or may be inapplicable.

The License Spectrum



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Open Source Is Everywhere

81%

Companies consuming Open Source Softwares in their products

80-90%

% of Open Source in applications

44%

Companies contributing to upstream Open Source Projects

According to TODO Group & Forrester

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Open Source is successful and unvoidable

Open Source is **in everyday life**

- Smartphone (Android & iPhone)
- Internet (web, emails, …)
- Healthcare (Tous Anti Covid, CovidTracker, …)

Open Source is **a necessity** when it comes to

- **AI** (Tensorflow, Pytorch, Scikit-learn, …)
- **Cloud** & **Infrastructure** (Docker, Kubernetes, Terraform, …)
- **Network** (Apache, nginx, IPtable, bind, …)
- **Big Data** (Hadoop, Spark, Cassandra, …)
- **Software development** (Git, IDE, Java, Python, QA tools, …)

Open Source is mainstream in Industry and Science

Black Hole Image

- Numpy, SciPy, pandas, Astropy, Jupyter, and Matplotlib were used to sort out data
- Two out of three image processing algorithms used are fully open source python libraries (Sparselab and ehtim)
- Open Source cloud computing tools (https://github.com/eventhorizontelescope)

SpaceX

- User interface in AngularJS
- Dragon ISS Docking Autopilot in Go and WebAssembly
- Falcon 9 powered by Linux

Tesla

- Autopilot Buildroot & Infotainment systems are Open Source (https://github.com/teslamotors)

Supercomputers

- **100%** of Top500 Supercomputers are running under Linux
- https://www.top500.org/statistics/list/

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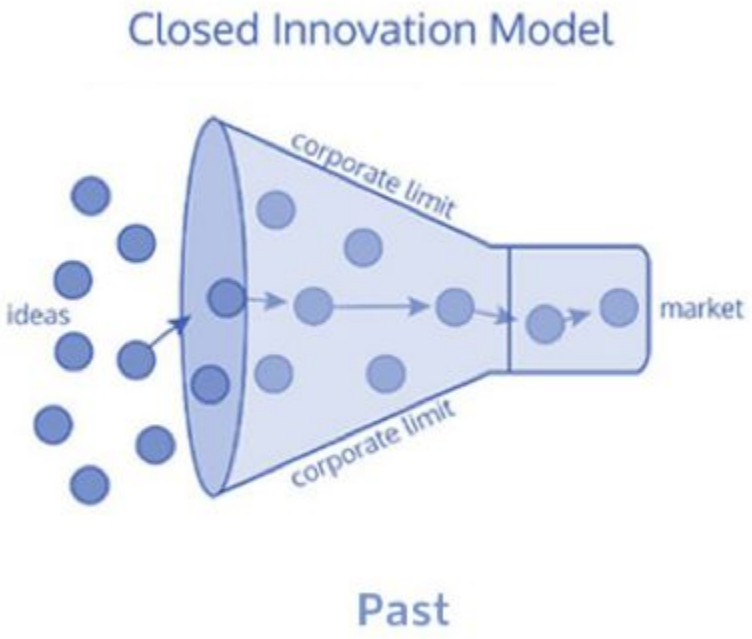
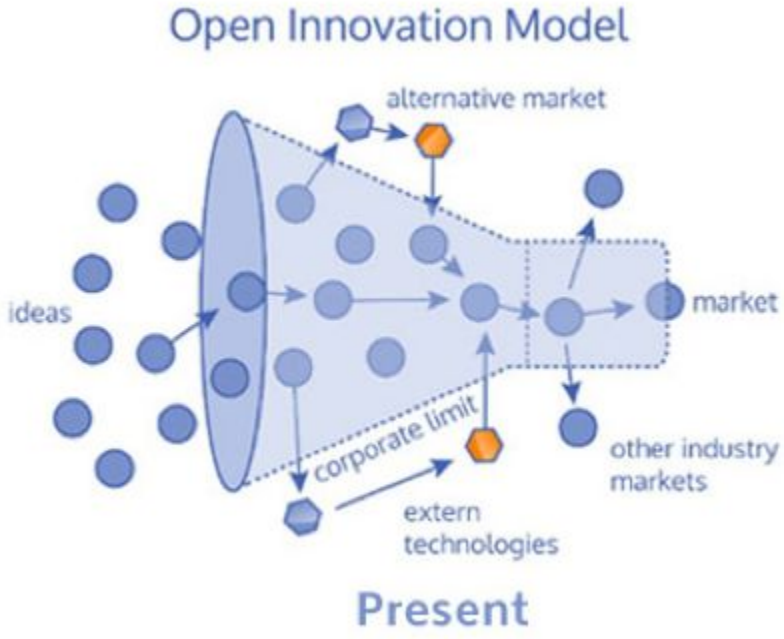
Innovation: Close vs Open



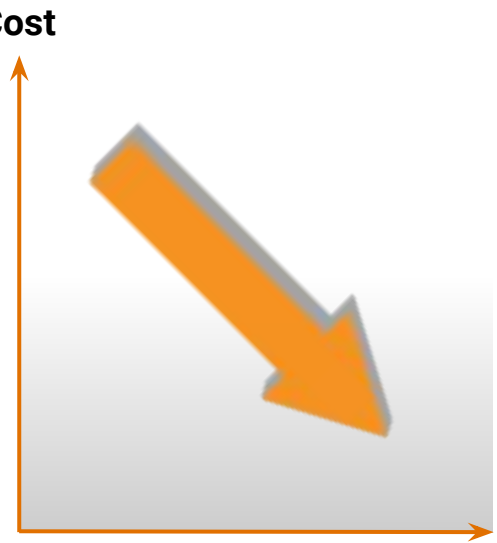


http://bock-pm.com/service/open-innovation/

The shifting impact of open source

Before:

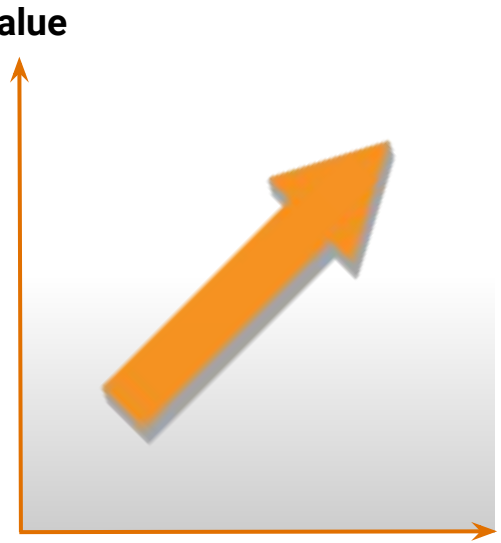
Open source as a commoditization strategy (OSes, LAMP)



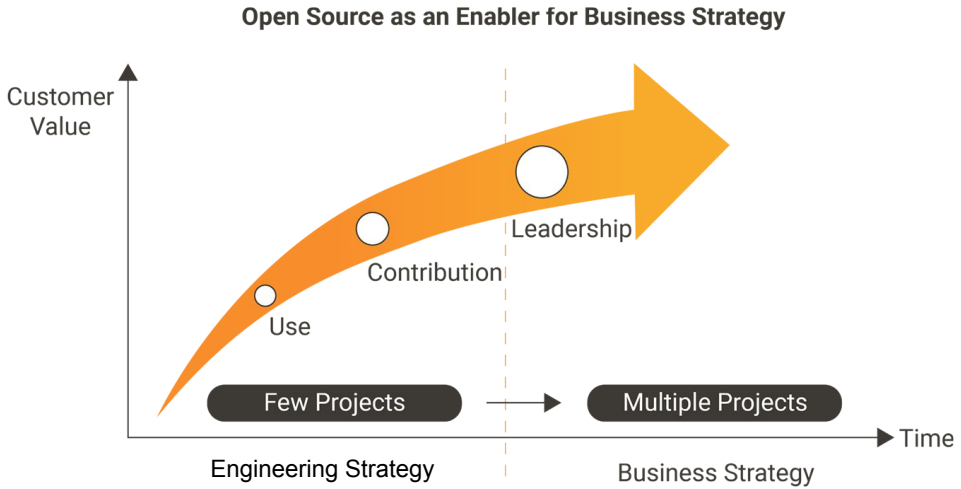
(# of projects, contributors, ecosystem participants, lines of code)

Now:

Open source is how innovation happens (Big Data, Cloud, AI, Edge, IoT)



Open source is a strategic enabler



Participation in open source has emerged as a potent force for competitive advantage

Concretely, why Open Source in companies?

Inbound Open Source

- Cost savings
- Productivity / faster time to market
- Ease of acquisition
- Independance
- State of the art
- Standards
- …

Outbound Open Source

- Cost sharing
- Protect the company regarding software supply chain (IP and security)
- Influence key software they rely on
- Attractivity: market the company brand in the tech world (attractivity)
- Sustainability
- …

Henix's Example

- Historically, a pure Software Consultancy company specialized in Software Quality
  - Hard to differentiate yourself
  - No dedicated sales or marketing force
- + Open Source Software Publisher with Squale then SquashTest
  - From 3 to 35 people
  - "Self marketing" & brand recognition
  - Easier communication
  - Commercial
    - Inbound calls
    - Explicit mention of Squash in RFP
- + Training School on software quality
  - Open Source material
  - Market shaping
  - Securing recruitment

Ecole de la Qualité Logicielle

Free & Open Source Software (aka FOSS)

- A World of Freedom and Opportunities
  - Everywhere, unavoidable, fuels innovation : FOSS is the bedrock of all modern and successful initiatives.
  - The freedom to use, modify, execute and share software brings tremendous opportunities

- With some obligations
  - FOSS also comes with legal obligations, IP restrictions.
  - Making the most out of FOSS requires deep knowledge of the ecosystems and a clear strategy.

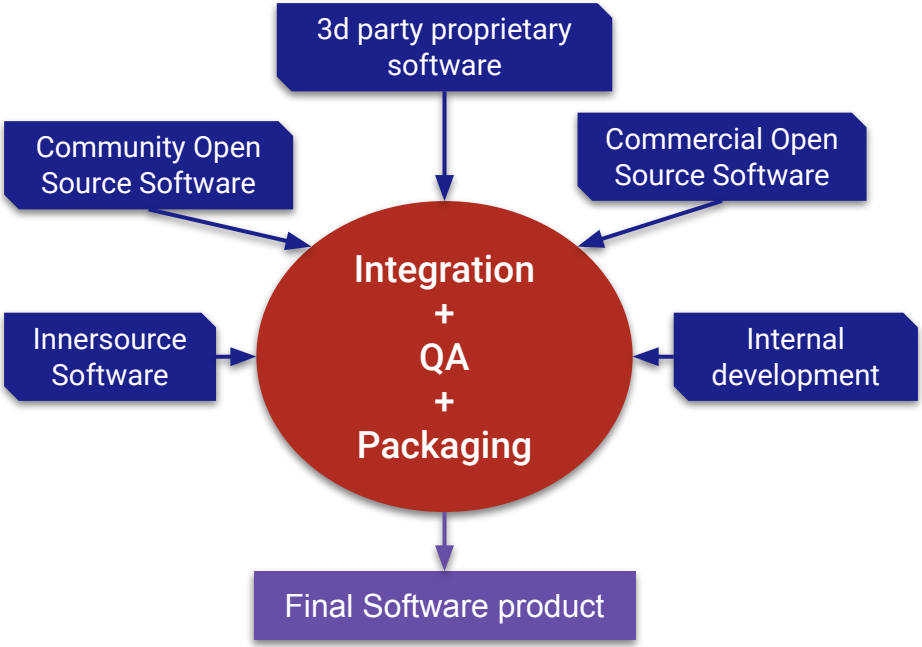
Companies internal dev be like

Multiple origins of code & binaries

- Proprietary / closed-source
  - 3rd parties
  - Internal
- Innersource
- Internal dev
- Open Source
  - Commercial
  - Community

Multiples contributors

- Employees
- Contractors
- Providers



OSPO : Open Source Program Office, an epitome of the Open Source Governance

Internal Open Source Center of Competency, aka

- Open Source Steering Committee
- Community Development team
- Open Source Software Operations
- Open Source Board
- Open Source Office

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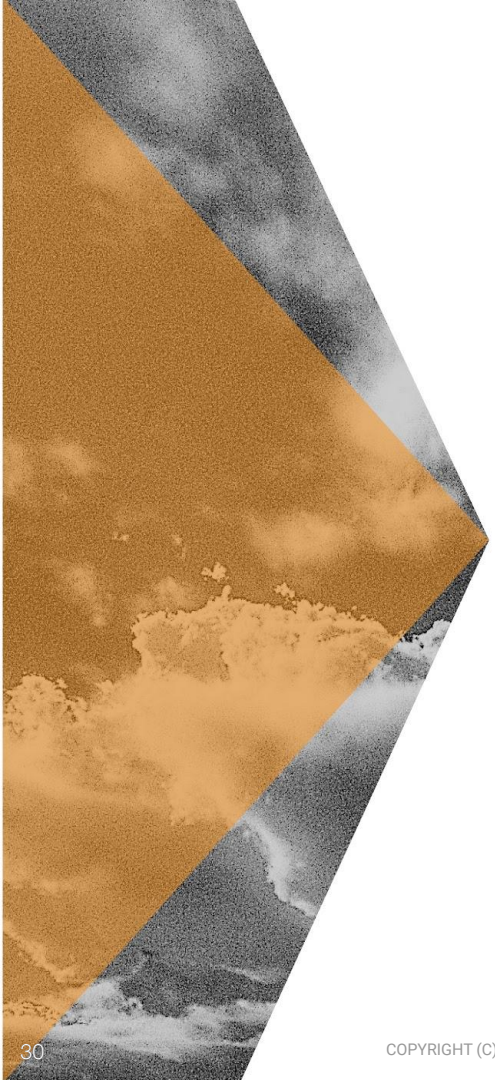

Among the OSPO missions

- Manage relationship with the open source ecosystems
- Improve Engineers' Practices
  - Training
  - Using Open Source Software Properly
- Mitigate Legal Risk
  - Compliance
  - Liability
  - Publication
- Define, implement a corporate strategy
- … and enforce it!

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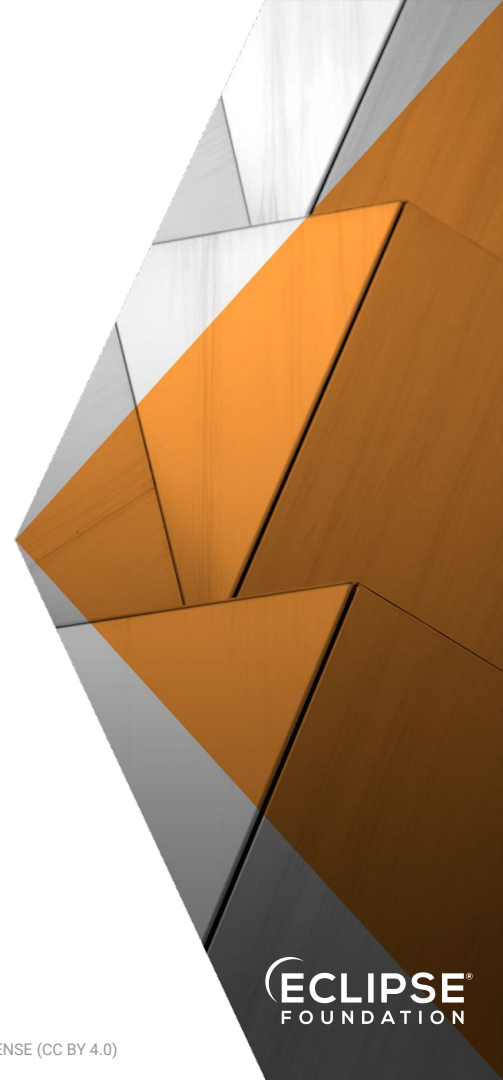
OSPO members (wishlist…)

- (Hopefully dedicated) Open Source SME(s)
- Top Management representative
- Software Architects / Tech Leads / DevRel
- DevSecOps
- Legal
- HR
- Marketing / Communications
- Financial
- (sales?)



Real life example of an OSPO implementation

Following slides …

- by Lucian Balea, Architect at RTE and Open Source Program Director
- for a talk given at an OnRamp meeting of the OSPO Alliance on June 17th, 2022
- availables at https://ospo.zone/resources/onramp_20220617/220617_OSPO_OnRamp_Building_an_OSPO_at_RTE.pdf
- Under a CC-BY-ND 4.0 license

Video for the interested ones …

- Conference replay available on XWiki's Peertube https://peertube.xwiki.com/w/bDWqEvU5twosD2J1jpYj3f?start=25m40s

Implementing an OSPO

- Most companies are only starting to realise they need an OSPO…
  - do not know where to start,
  - where to go
  - or get lost along the way!
- Most of the time it starts with an OSPO that is
  - shadow
  - virtual
  - (multiple) local
- Many structured resources exists nowadays
  - TODO Group
  - TODO++
  - OSPO Alliance

Focus

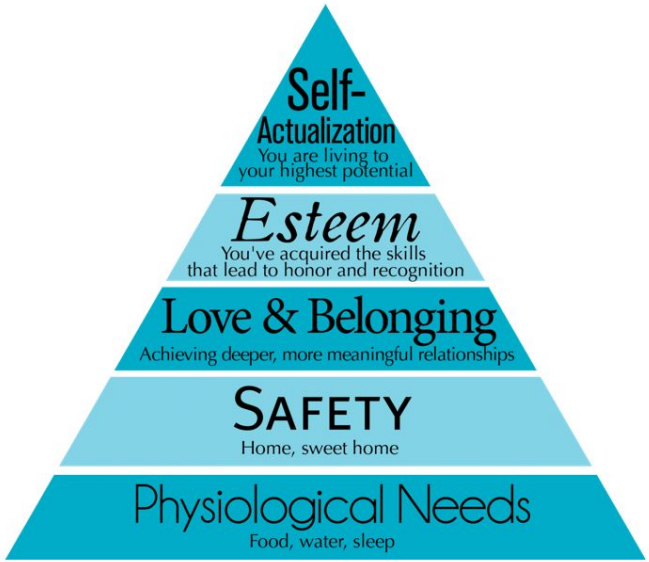
- **The GGI Handbook**
  - A Framework to create a full blown OSPO
- **The Resource Center**
  - Collect existing relevant material to address all open source challenges
- **OnRamp Meetings**
  - A space to share and promote OSPOs, implementations and good practices

GGI Goals and Activities

Proposes a path to a successful OSPO, with a proven method and practical guidance:

- Lists 25 **Activities**, from Software Composition Analysis and development best practices, to training, HR and executives' education.
- Activities are organized into **Goals**, from discovery to engagement and strategy.

GGI Five Goals against



Abraham Maslow's Hierarchy of Behavioral Motivation

Strategy	Embracing the full potential of OSS. Proactively using OSS for innovation and competitiveness.
Engagement	Engaging with the OSS ecosystem. Contributing back. Developing visibility, event participation.
Culture	Implementing best practices. Developing OSS culture. Sharing experience.
Trust	Securely and responsibly using OSS. Compliance and dependency management policies.
Usage	Technically using OSS. Technical ability and experience with OSS. Some OSS awareness.

OW2 Goals to OSS Good Governance

The Five Goals

The Good Governance Initiative body of knowledge is structured around 5 Goals:

- **Usage Goal**: Technical Skills in Using Open Source Software.
- **Trust Goal:** Secure and Appropriate Usage of Open Source Software.
- **Culture Goal:** Belonging to the Open Source Community at Large.
- **Engagement Goal:** Engaging with the OSS ecosystem.
- **Strategy Goal:** Proactively using OSS for innovation and competitiveness.

Activities

- Usage goal
  - Inventory of open source skills and resources
  - Open source competency growth
  - Manage open source software development skills and resources
  - Open source supervision
  - Open source enterprise software
- Trust goal
  - Manage legal compliance
  - Manage software vulnerabilities
  - Manage software dependencies
  - Manage key indicators
  - Run code reviews
- Culture goal
  - Promote open source development best practices
  - Contribute to open source projects
  - Belong to the open source community
  - HR perspective
  - Upstream first
- Engagement goal
  - Engage with open source projects
  - Support open source communities
  - Engage with open source vendors
  - Publicly assert use of open source
  - Open source procurement policy
- Strategy goal
  - Setup a strategy for corporate open source governance
  - C-Level awareness
  - Open source and digital sovereignty
  - Open source enabling innovation
  - Open source enabling digital transformation

Insider hints

- Identify key stakeholders
  - Make them agree on a set of primary objectives.
  - Engage them in the success of the initiative as a part of their own agenda.
- Get initial buy-in, agree on the steps and pace, and set up regular checks to inform them of progress.
- Make sure stakeholders understand the benefits of what can be achieved and what it involves:
  - Expected improvement should be clear and outcome visible.
- Establish a first diagnostic or state of the art of OSS in the organisation.
  - Outcome: a document describing what this program will achieve, where the organisation stands and where it aims to go.

When Large Entities Suffer Similar Challenges…

… They work together, even competitors!

TOSIT

The Open Source I Trust

- Meet and discuss about OSS
- Share feedback and good practices
- Collect & identify members needs around OSS
- Strategic and technological studies & intelligence
- Promote Open Source solutions
- Communicate about OSS success

Membres fondateurs :

Membres associés :

Some commons or reused projects

TRUNK DATA PLATFORM

#OSSbyMAIF

Designing and building commons since 1934

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Photo by Aleksandar Cvetanovic on Unsplash

Open Source Foundations

Photo by paul rossi on Unsplash

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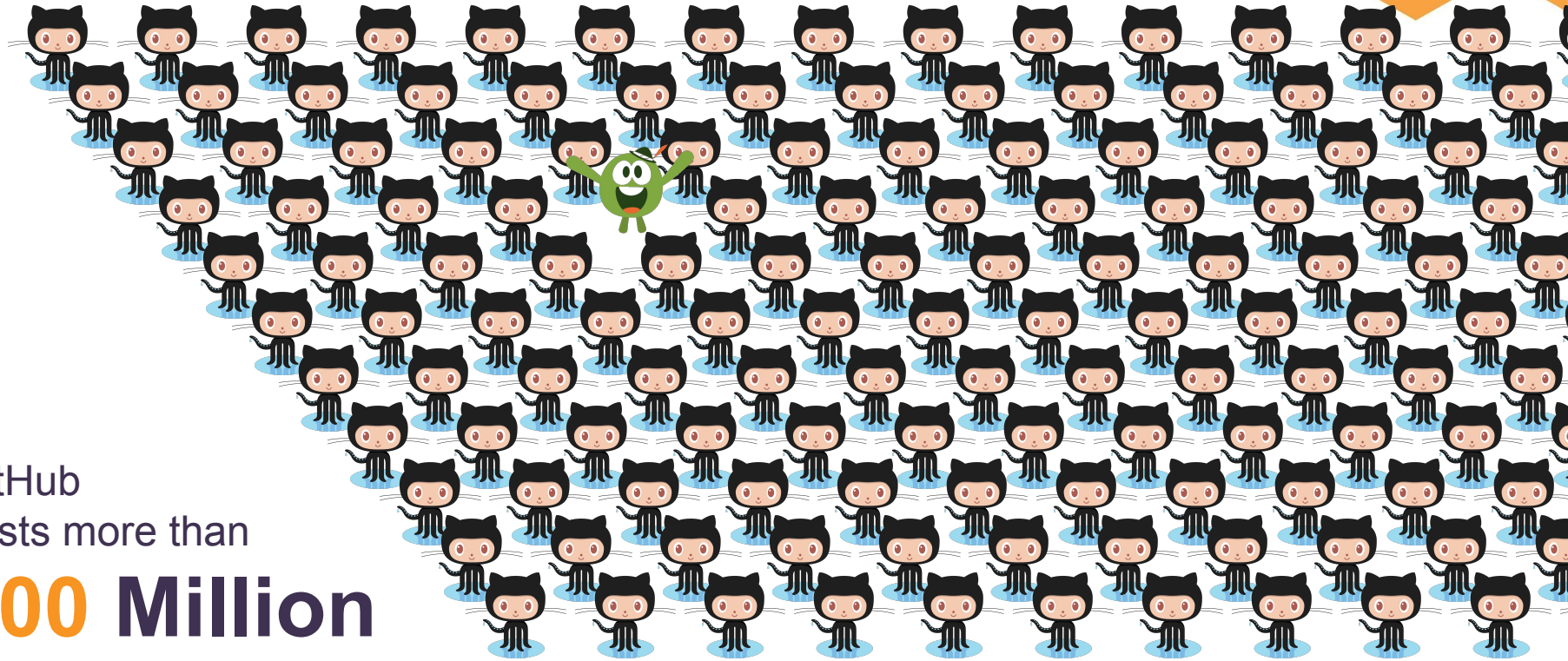
Open Collaboration through Open Source on my own

	GitHub
Thriving developer community	✔
High quality code that solves complex problems	✔

GitHub is not a silver bullet



GitHub
hosts more than

200 Million

of repositories

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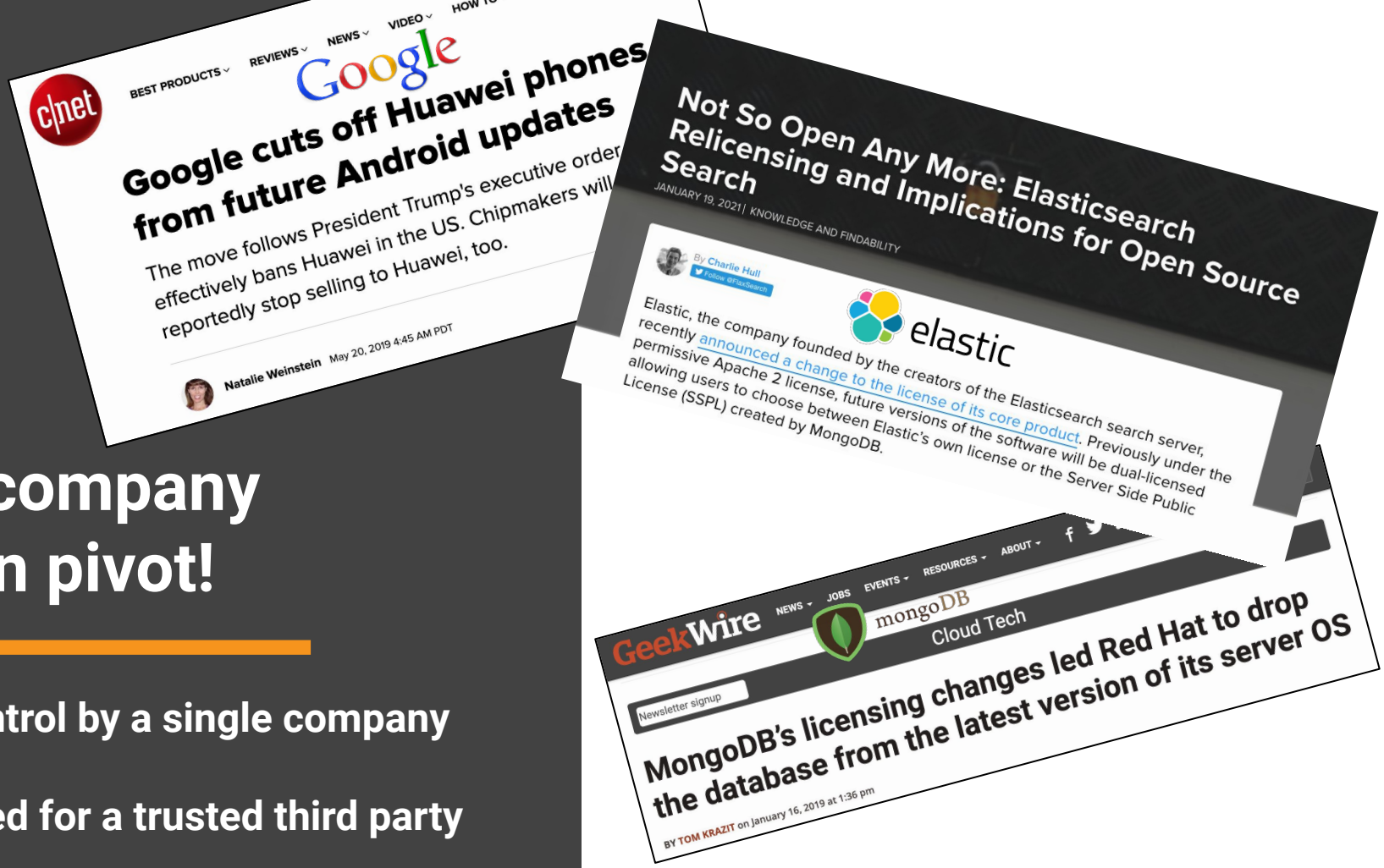
Open Collaboration through Open Source with a single-vendor

	GitHub	Single-Vendor Open Source
Thriving developer community	✔	✔
High quality code that solves complex problems	✔	✔
Ecosystem development and marketing services to drive adoption and monetization		✔



A company can pivot!

Control by a single company

Need for a trusted third party

Open Collaboration Through Open Source

	GitHub	Single-Vendor Open Source	Open Source Foundation
Thriving developer community	✔	✔	✔
High quality code that solves complex problems	✔	✔	✔
Ecosystem development and marketing services to drive adoption and monetization		✔	✔
Predictable processes and guidance to deliver large-scale innovation on a regular cadence			✔
Vendor-neutral governance model to support industry-wide collaboration			✔
Business-friendly IP and licensing services to enable commercialization			✔

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Open Collaboration: a business-friendly ecosystem

Product Service	Product Service	Product Service

Open Source Software Common Platform


Infrastructure for Open Collaboration


Ecosystem Development


Community Governance & Processes


IP Management & Licensing


Supply Chain Security

Compete on products & services

Working with your competitors

Open, Vendor-neutral, Collaboration platform

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Open Source Foundations enable sustainable, vendor-neutral, open collaboration

And more: https://opensource.com/resources/organizations

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Governance

Ostrom identified **8** "**design principles**" of stable local **Common Pool Resource** management:

1. Clearly defined **boundaries**;
2. **Rules** adapted to local conditions;
3. **Open** decision-making **process**;
4. Effective **monitoring**;
5. A scale of graduated sanctions;
6. Cheap and **easy conflict** resolution;
7. **Self-determination** of the community;
8. Multiple nested layers for scalability.

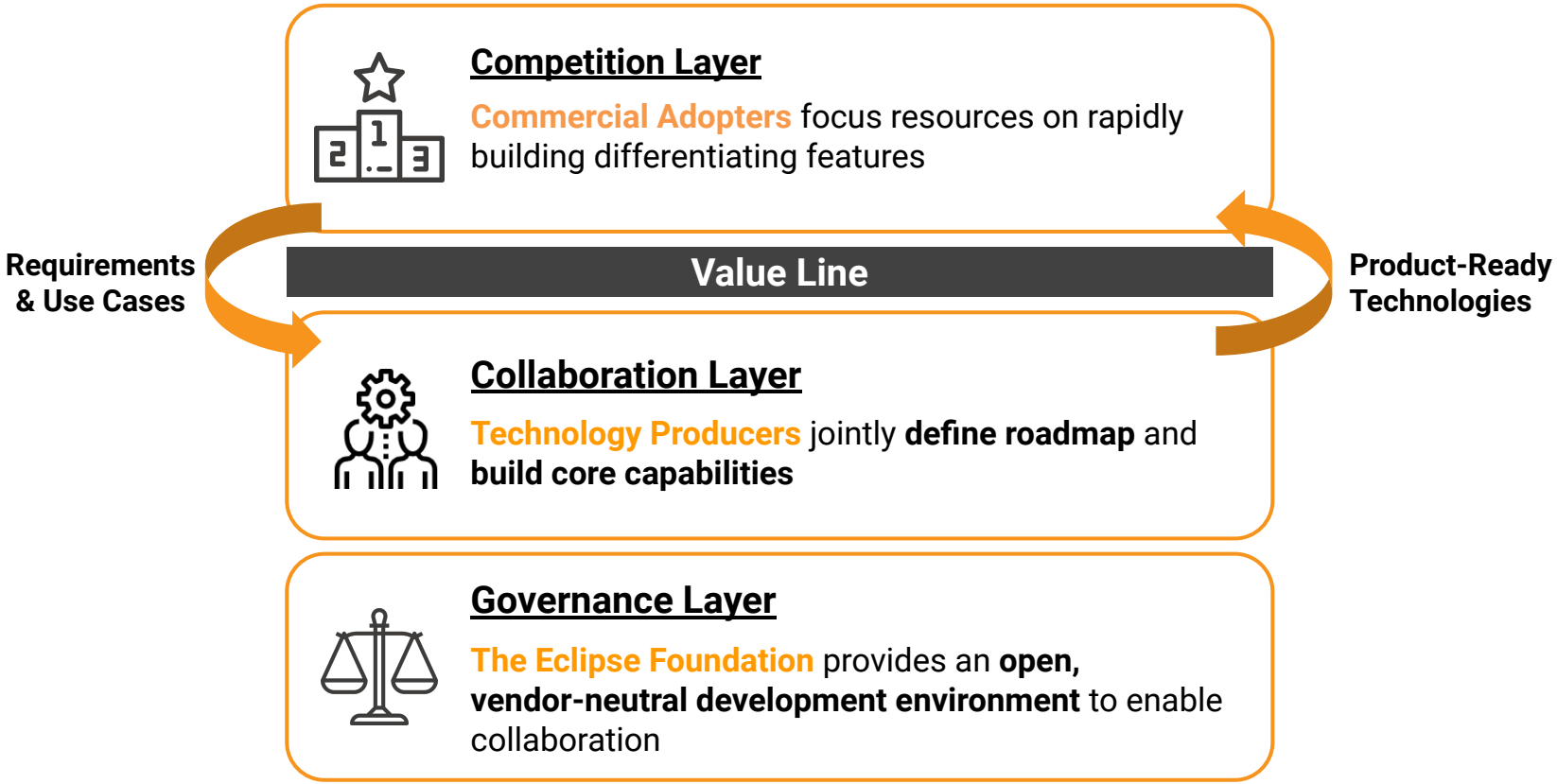
Elinor Ostrom

(Aug. 7, 1933 – Jun. 12, 2012)

Nobel Prize in 2009 on

“Economic governance of commons”

Open Innovation at Industrial Scale



Governance principles

Governance principles

Code first

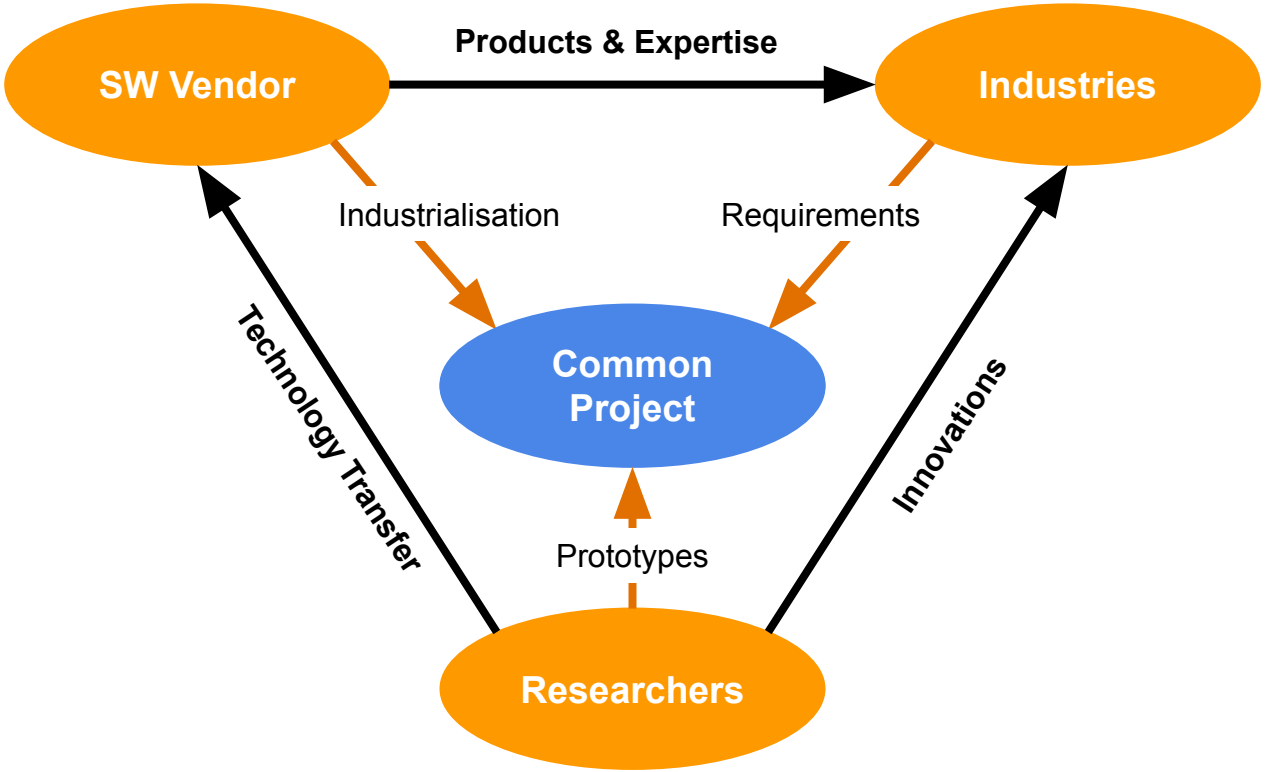
Active participation

Transparency

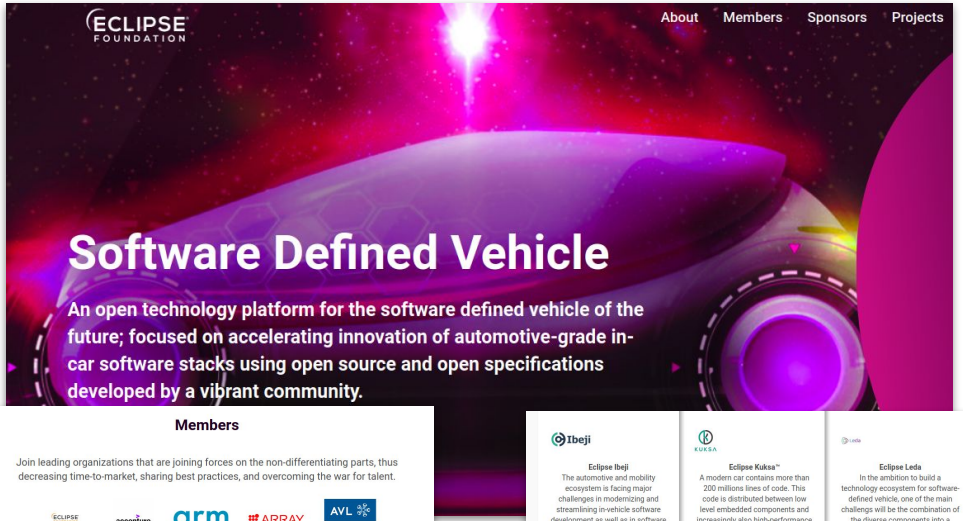
Openness

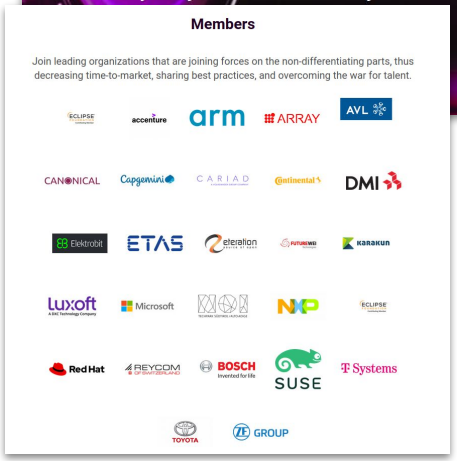
Vendor Neutrality

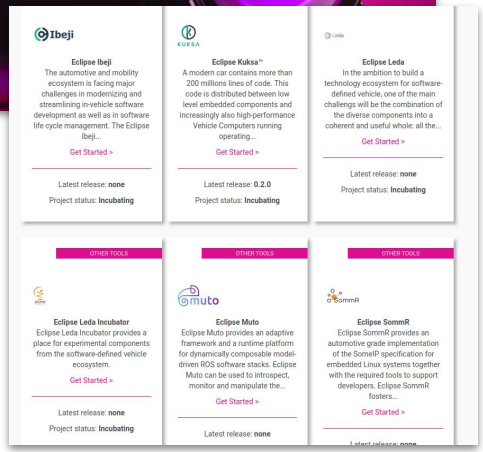
OSS as a catalyst for a Project Consortium



Consortium Examples







Who's doing Innersource?

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Why Innersource?

- Increase collaboration & reduce silos
- Improved development efficiency & productivity. Faster time to market
- Permission-less innovation
- More uniform processes
- Promote & support culture of quality
- Higher job satisfaction / motivation / retention
- Attracts skilled assets

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Change management

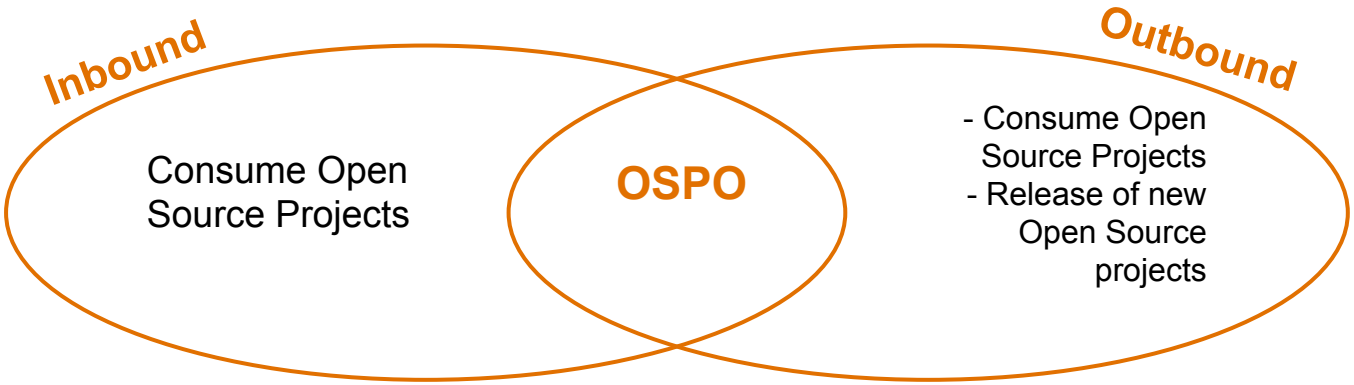
C-Level

- Improved Quality
- More efficient use of tools
- Productivity
- External Contribution
- Improved engineering process
- Resource Management

Dev Level

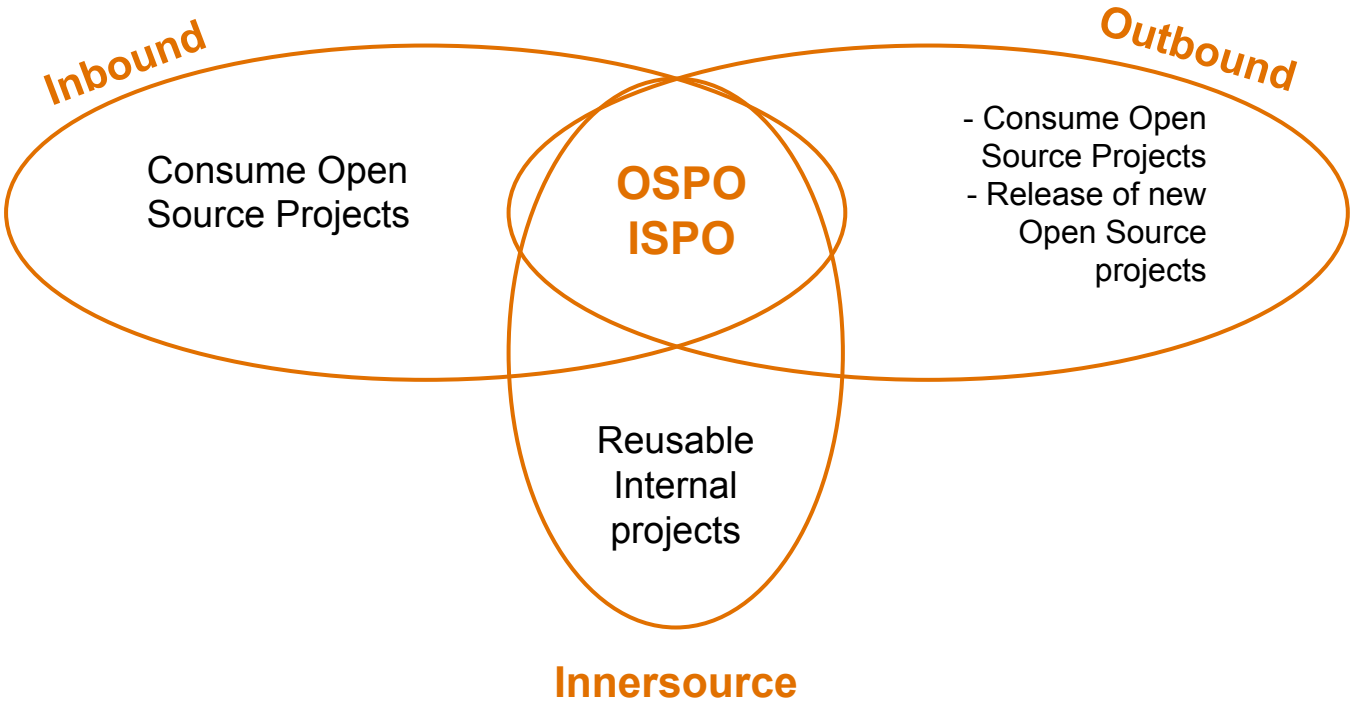
- Faster problem resolution
- Learning curve
- Lower software complexity
- Job satisfaction
- Motivation
- Reputation

Innersource in companies' strategy



Schema based on J. Manrique Lopez de la Fuente work

Innersource in companies' strategy



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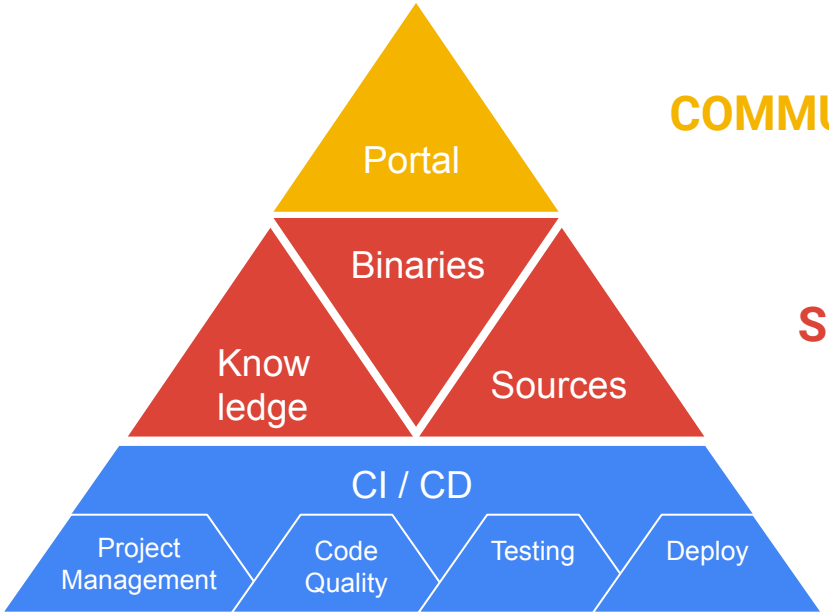
Innersource fundamentals



COMMUNICATE / Information is Power

SHARE / Impulse change management

PRODUCE / Scalable and Reliable Tools

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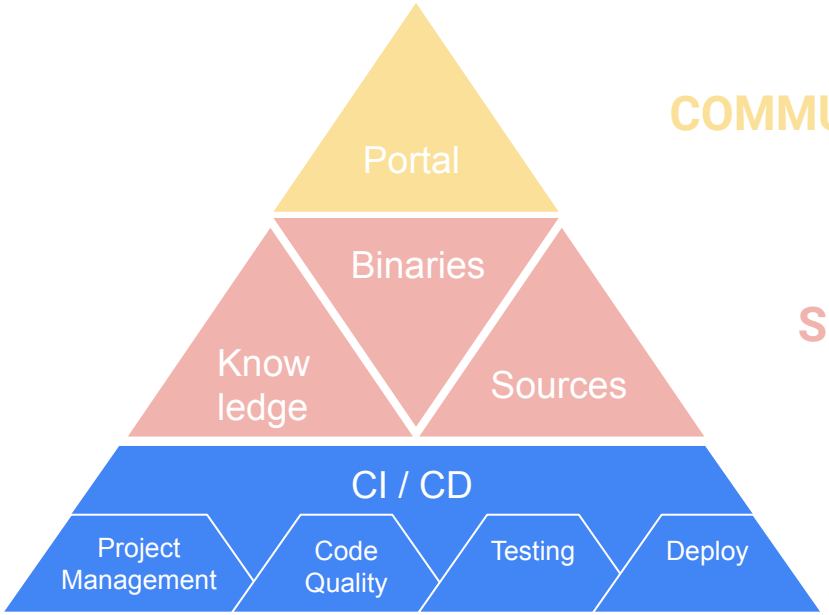
Innersource / A common Tool Suite



COMMUNICATE / Information is Power

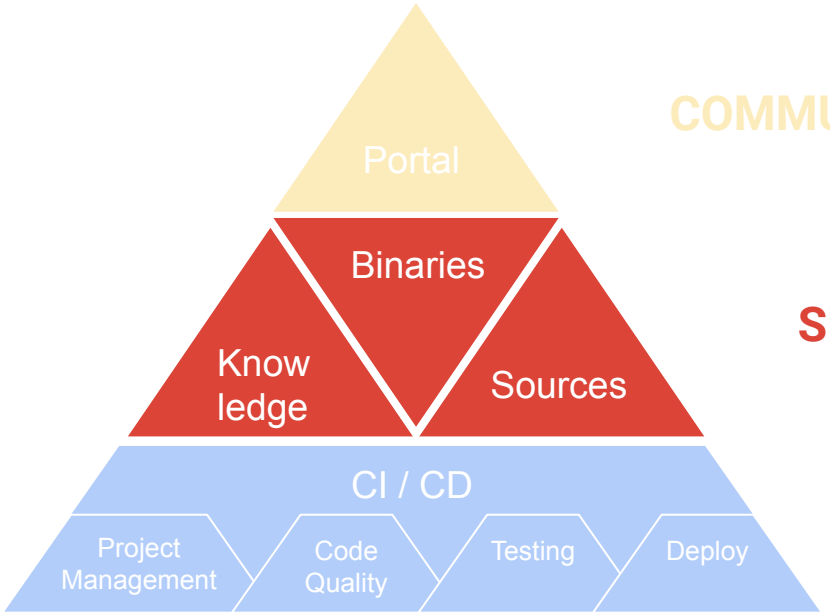
SHARE / Impulse change management

PRODUCE / Scalable and Reliable Tools

Many approaches

From Monolithic ... to the Best of Breed

Innersource / Sharing



COMMUNICATE / Information is Power

SHARE / Impulse change management

PRODUCE / Scalable and Reliable Tools

More than a licence or code

"If you have great code and a dysfunctional community, people will leave and the code will atrophy. If you have dysfunctional code but a great community, people will improve the code."

- Community before code from The Apache Way

A productive community and its accompanying practices are just as important as the code itself.

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Software craftsmanship at its best

- You share deliverables
- You do not lose your competencies
- Knowledge is the only thing that increases when you share it
- You do not represent a risk (aka bus factor)

- BE PROUD OF YOUR CODE

Your playground, your rules!

- Group Global Governance
  - User driven
  - Transparent
  - KPI
  - Connected to the outside world
- YOUR Governance aka Contributing.md
- You do not lose control

Seed Projects Criteria

Need

Technology

Documentation

Architecture

Core Team

Opportunities

Competencies

NO GO

Sensitive code

Sensitive Information

License Issues

Creating Trust - Artifacts

Deliverables Quality

Documentation

Environnement

Community / Communication

A JOURNEY TO TRUST




	ENVIRONNEMENT	DOCUMENTATION	QUALITY OF DELIVERABLES	COMMUNITY
★★★	**CONTINUOUS DELIVERY PLATFORM** Reproducible	**CONTRIBUTE** Developer guide Wiki	**MODULAR** Plugin based	**ULTIMATE TRUST** Trusted committers Champions
★★	**CONTINUOUS INTEGRATION PLATFORM** Internal Package manager	**COMPLETE & MAINTAINED** Contributing Guides / How-to FAQ	**MANUAL** Distributed Peer review Integration testing	**INTERACT OUTSIDE** Open to PR and ext. contribs Communicate about project
★	**COMMON REPOSITORY** Internal shared SCM w/ issue tracker	**ESSENTIAL SET** Licence Readme (incl. Build / Install / Setup) Code comments	**AUTOMATED QA** Unit test coverage Metric and good practices Clean code	**Share the love** Use appropriates tags on repos

ECLIPSE FOUNDATION

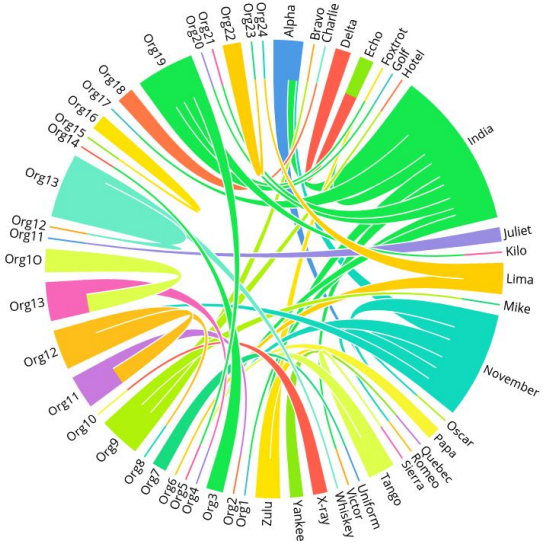
MEASURE, MEASURE, MEASURE… & AUTOMATE !

MEASURE

- Technologies, Languages
- Activity, Usage (PR, Issues, Connections, etc.)
- Dependencies (at source & binary and packaging level)

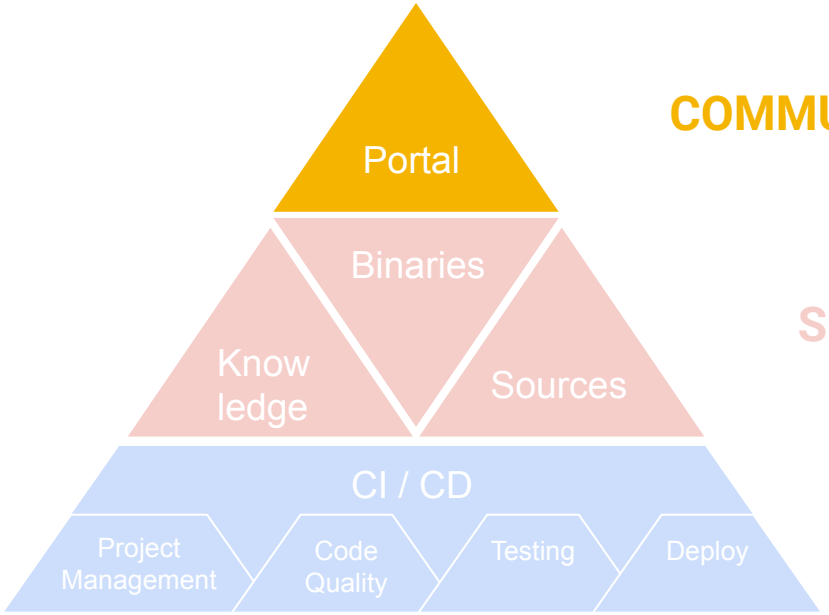
AUTOMATE

- Assessment
- Project templates
- Manifest (aka SBOM)
- Security issues (CVE/CWE/…)



KPI / Added value Example : Cross contribution

Innersource Communication



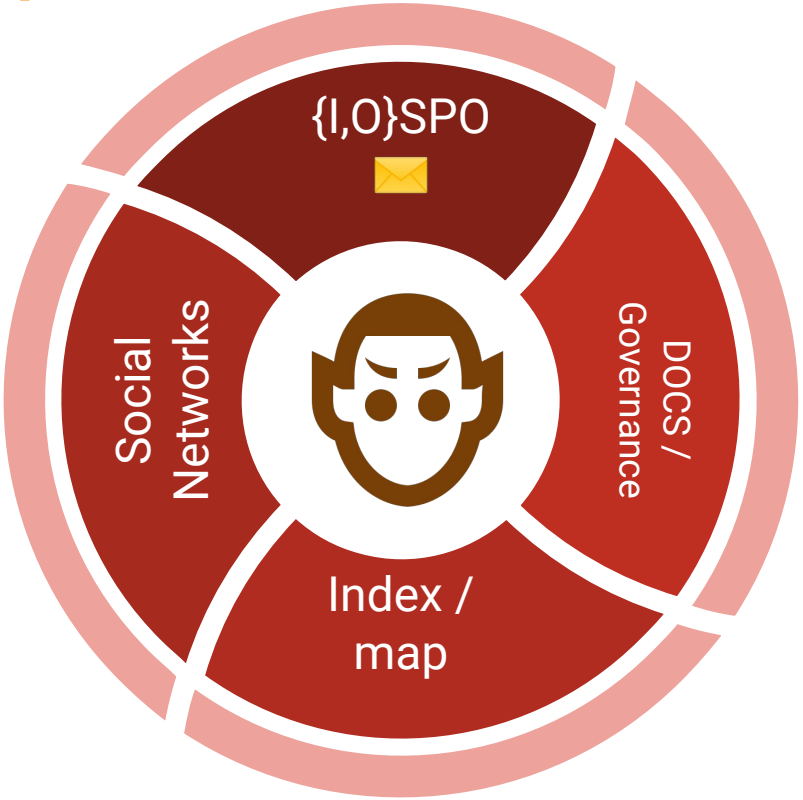
COMMUNICATE / Information is Power

SHARE / Impulse change management

PRODUCE / Scalable and Reliable Tools

Live long and prosper

A unique showcase to expose and promote all initiatives



An Open Source springboard?

Why an Innersource License?

- Needed for large companies with many legal entities
  - Especially for international companies
  - Solve legal issues once and for all (IP, Rights, Responsibilities, etc.)
  - Limit the risks

- Declare innersource approved and legitimate
  - Local CxO & Managers know the rules
  - Permissionless adoption : avoid requesting permission to legal for each project
  - License must be an incentive to collaborate, not to bother engineers

- May be completed by a charter to list/integrate
  - Collaboration processes
  - Local specificities

Business Paradigms

Over the years, 3 have emerged

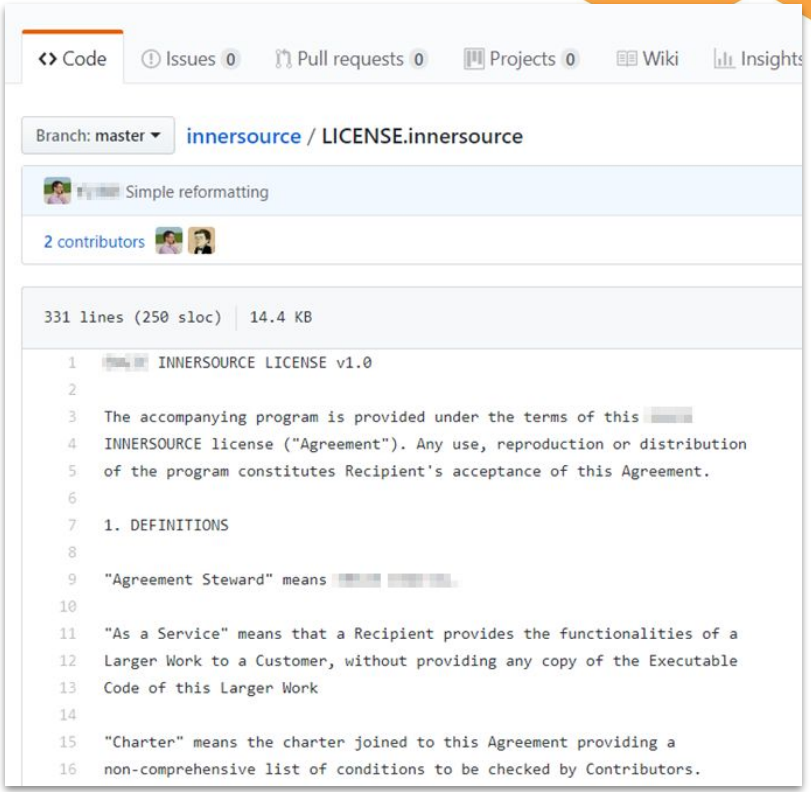
What to Innersource?

- 3 paradigms, 3 approaches, 3 Innersource licenses?
  - Just like in Open Source, Innersource Licenses structure the community and the ways of collaborations
  - License restrictions may depend on the final business purpose

- **Platforms** are best candidates to start with
  - Support for transversal tech components
  - Maximize reuse opportunities
  - Facilitate contributions
  - Easier to create an Innersource momentum
  - Innersource license with few restrictions

Innersource Licenses Examples

- **Company 1**
  - Multiple versions depending on context and uses
  - Forked from EPL v2
  - Pending request
- **Company 2**
  - Forked from Company 1 < EPL v2
  - Simplification and feedback to Company 2
  - https://xxxxx.yyyy.zzz.com/wp-content/uploads/2019/10/license-innersource-zzz.pdf
- **DB Systel**
  - Forked from EUPL v1.2
  - https://github.com/dbsystel/open-source-policies/blob/master/DB-Inner-Source-License.md
- **Company 4**
  - Pending request



Topics covered by licenses

- Definitions
- Grant of Copyright License Rights
- Warranty & Liability
- Jurisdiction and Duration
- Dispute Resolution

Fairly standard legal mumbo jumbo

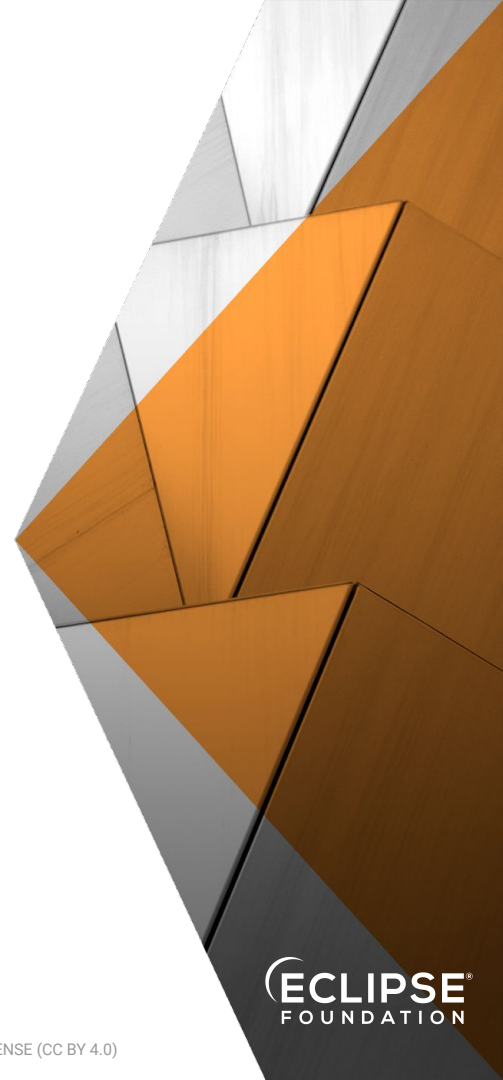
- IP
- Rights & Requirements
  - Reciprocity
  - Sublicense / Relicense
- Distribution
- Patents Rights & Retaliation
- Use of Trademarks
- Exiting / Termination
- …

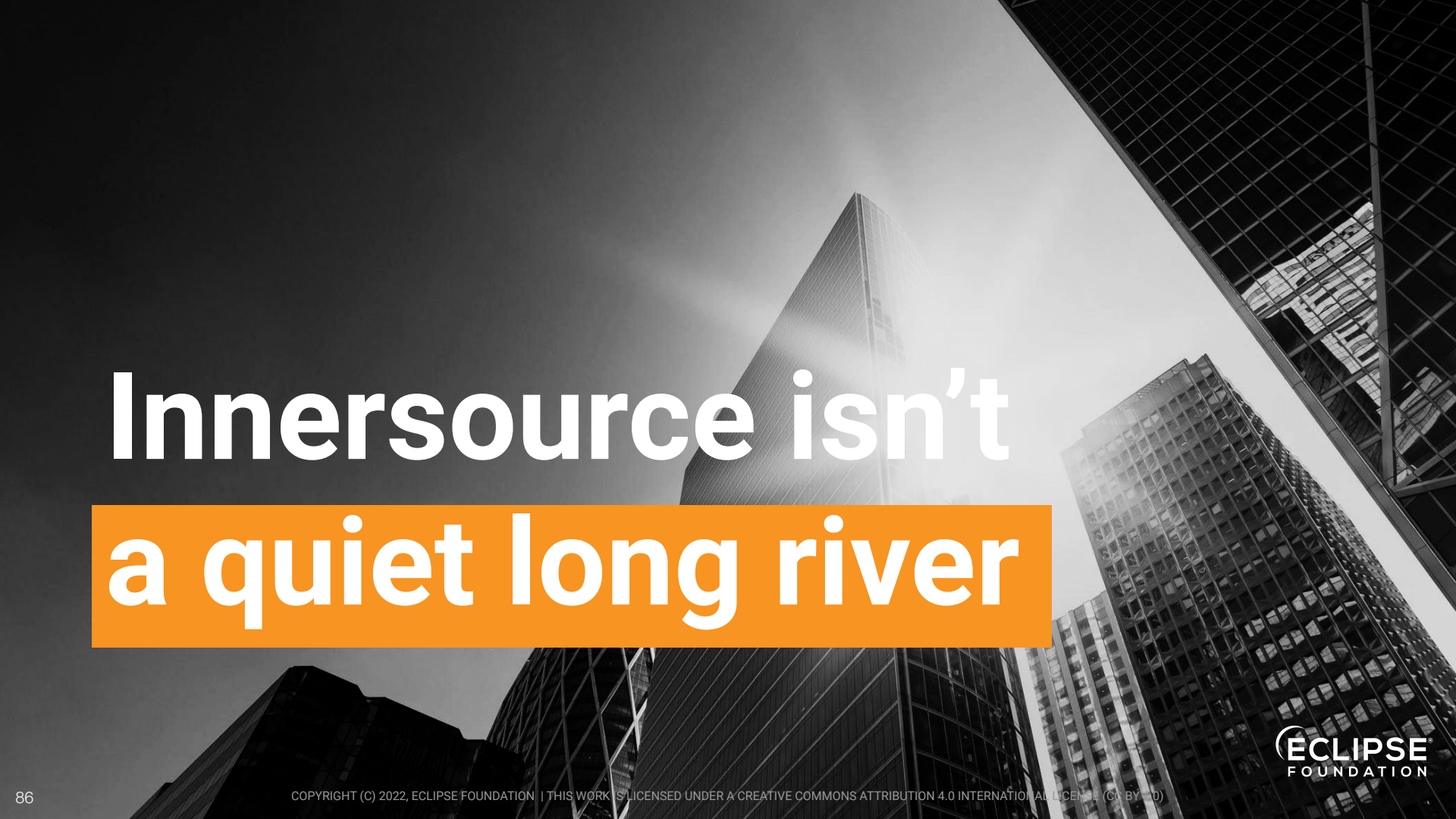
Differentiating Factors

Other topics of interest

Other topics to consider

- **Accounting**
  - Transfer Pricing
  - Tax authorities
  - How?
    - Resale
    - Cost plus
    - Transactional net margin
    - Transactional profit split
    - Other?
- **Export Control**
  - US Extraterritorial laws
  - Military use
  - Technology classification inside EU





Your Take Away

Tech is easy, human is difficult

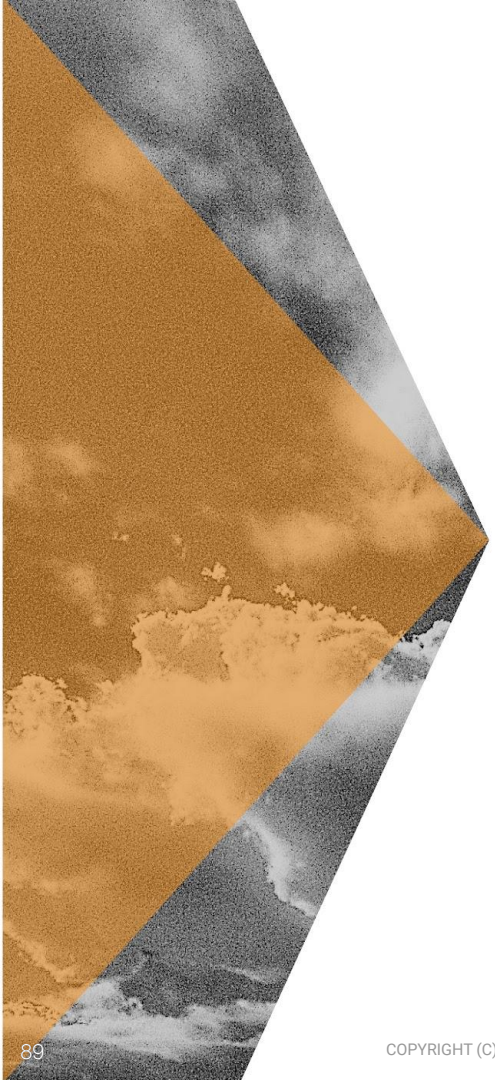
> Strong sponsorship is mandatory but not enough
> Find ambassadors and rely on an internal community
> OSPO/ISPO

Take the heat and passion out

> Innersource licence: provide a legal framework
> Propose a ready to use and flexible journey
> Innersource and Open Source helps meet legitimate needs

Polymorphic speech : adapt to your interlocutor

> Business oriented
> Back to basis



Going Further

- MOOC Open Source (online courses by B. Jean)
- OSPO Alliance website
- Open Source Law, Policy and Practice - 2nd edn (ebook coordinated by Amanda Brock)
- Innersource Commons website (online resources)
- Getting Started with InnerSource (ebook by Andy Oram

Thank You!

DISRUPT YOUR INDUSTRY WITH OPEN SOURCE!

+ Inner

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