



How we navigate an open source compliance and contribution in a semiconductor company

OpenChain Japan WG - The 30th meeting

Munehiro Shimomura, Open Source Program Manager

Yuji Handa, Open Source Program Office Lead

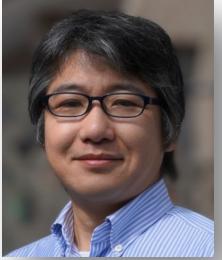
Copyright 2023, 2024 Sony Semiconductor Solutions Corporation

Agenda

- License clearance for open source compliance
- Compliance challenges in semiconductor company
- How we navigate an open source compliance
- Contribution to open community

About us

About Speakers



Munehiro Shimomura
Open Source Program Manager

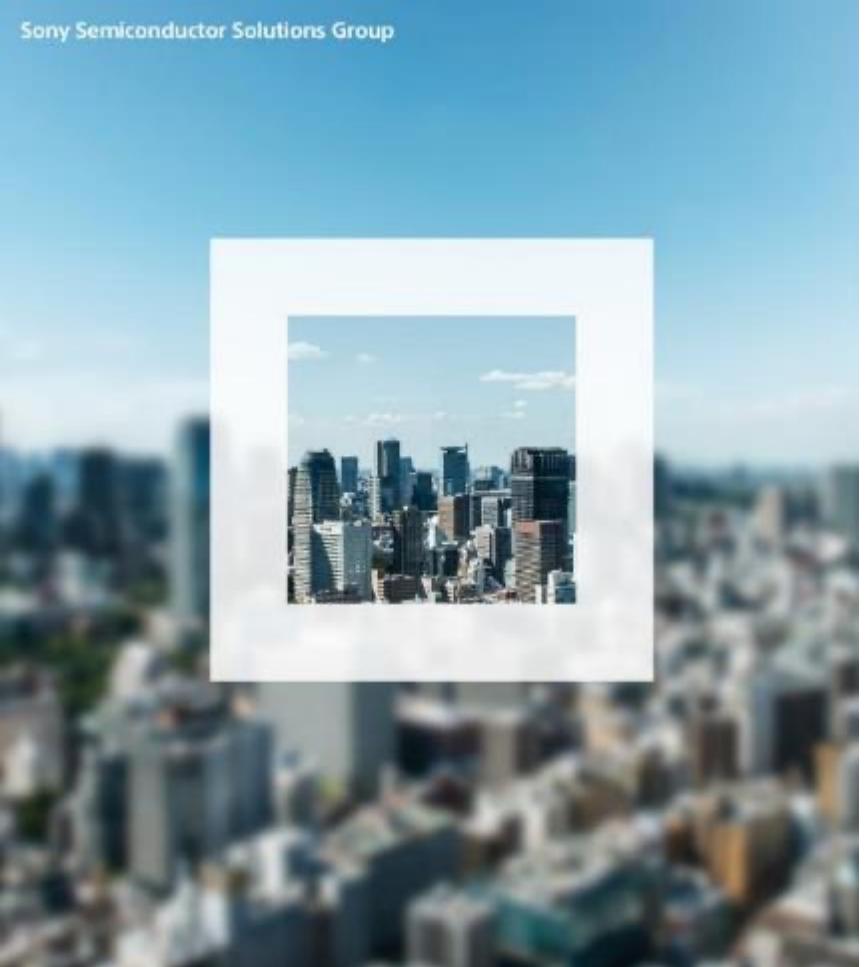
System Solution Business Div.
Sony Semiconductor Solutions Corporation



Yuji Handa
Open Source Program Office Lead

System Solution Business Div.
Sony Semiconductor Solutions Corporation

Sony Semiconductor Solutions Group



Sony Group Organizational Structure

SONY



Sony Semiconductor Solutions Corporation



Sony Semiconductor Solutions Group

Sony Semiconductor Solutions Corporation

<https://www.sony-semicon.com/en/>

R&D, Product planning/design , Sales
(Sony Group Corporation's 100% Subsidiary／Atsugi-shi,Kanagawa)

Process development, Manufacturing
(Sony Semiconductor Solutions' 100% Subsidiary／Kikuchi-gun, Kumamoto)

Development of Time of Flight (ToF) image sensor
(Sony Semiconductor Solutions' 100% Subsidiary／Belgium)

Development of LTE IoT modem chip, AI solutions
(Sony Semiconductor Solutions' 100% Subsidiary／Israel)

Development and sales of software for cloud computing
(Sony Semiconductor Solutions' 100% Subsidiary／Minato-ku, Tokyo)

Development Event-based vision sensor
(Sony Semiconductor Solutions' 100% Subsidiary／Switzerland)

Development image sensor
(SOHBV※'s 100% Subsidiary／Israel)
※Sony Overseas Holding B.V.

Image sensor's assembly process
(SOHBV※'s 100% Subsidiary／Thailand)
※Sony Overseas Holding B.V.

Manufacturing of Optical pickup
(Sony China's 100% Subsidiary／China)

Facility management service
(Sony Semiconductor Manufacturing's 100% Subsidiary／Kikuchi-gun, Kumamoto)

Sony Semiconductor Manufacturing Corp.

Sony Depthsensing Solutions SA/NV

Sony Semiconductor Israel Ltd.

Midokura Japan K.K.

Sony Advanced Visual Sensing AG

ISDC Ltd.

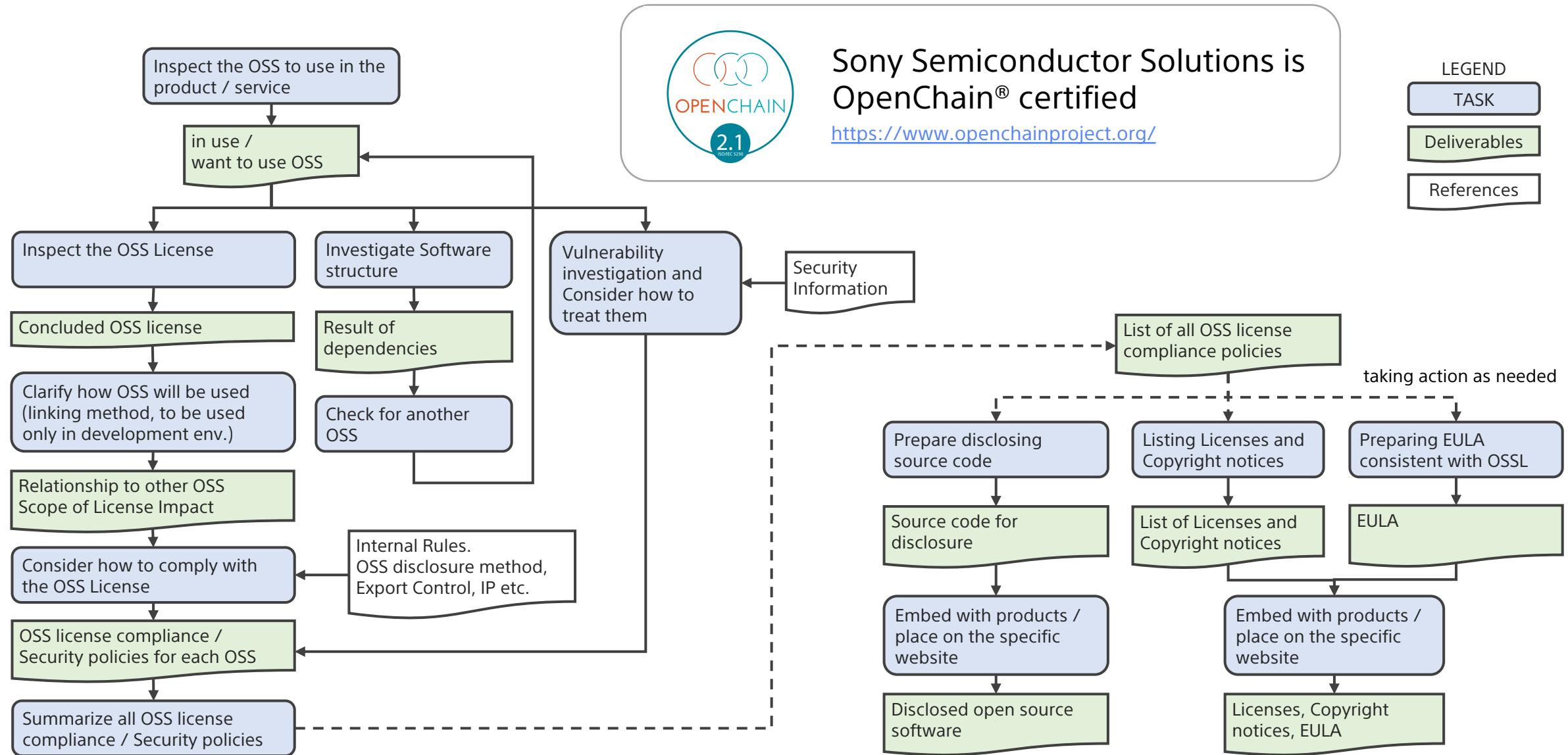
Sony Device Technology (Thailand) Co., Ltd.

Sony Precision Devices (Huizhou) Co., Ltd.

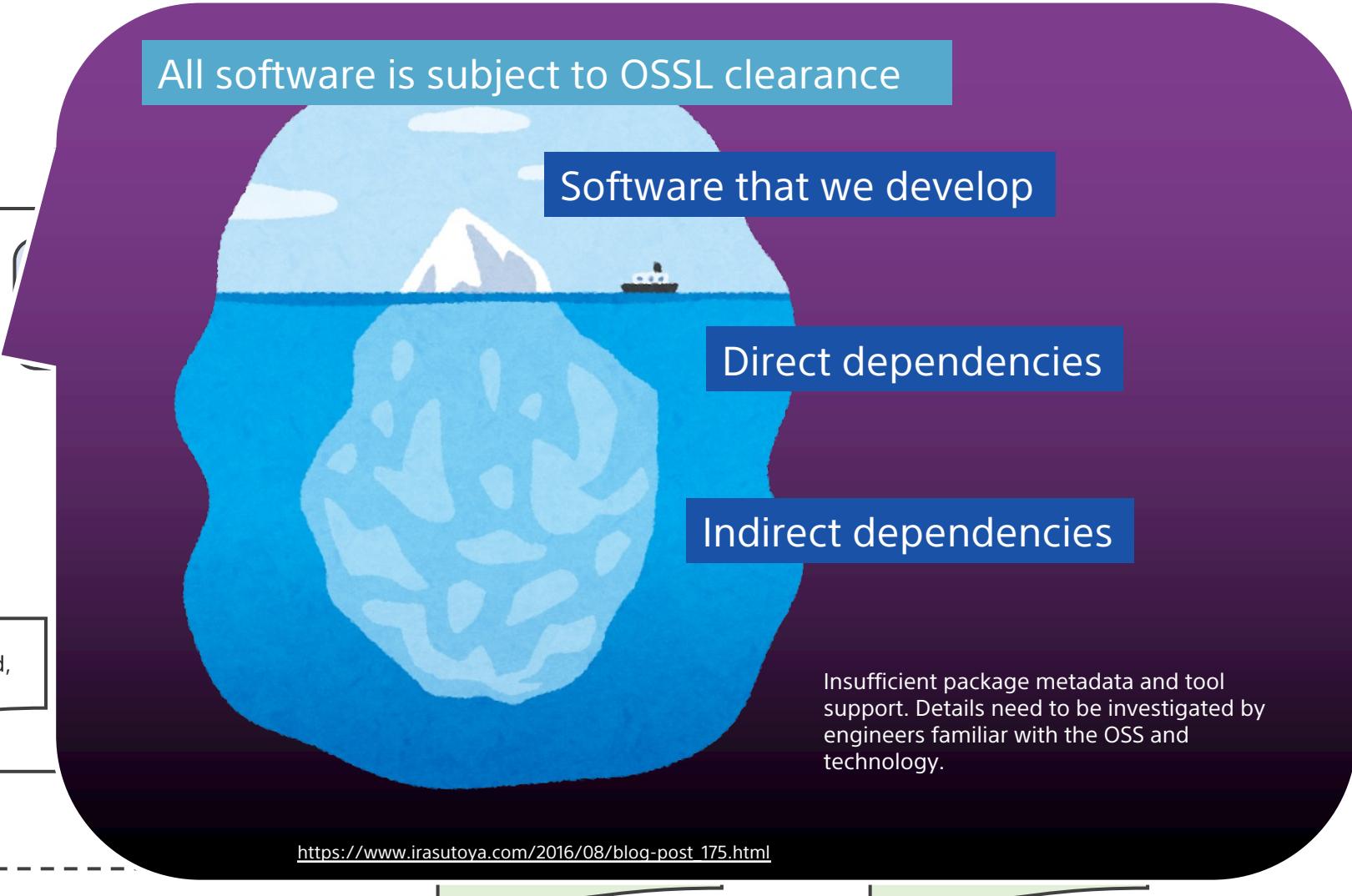
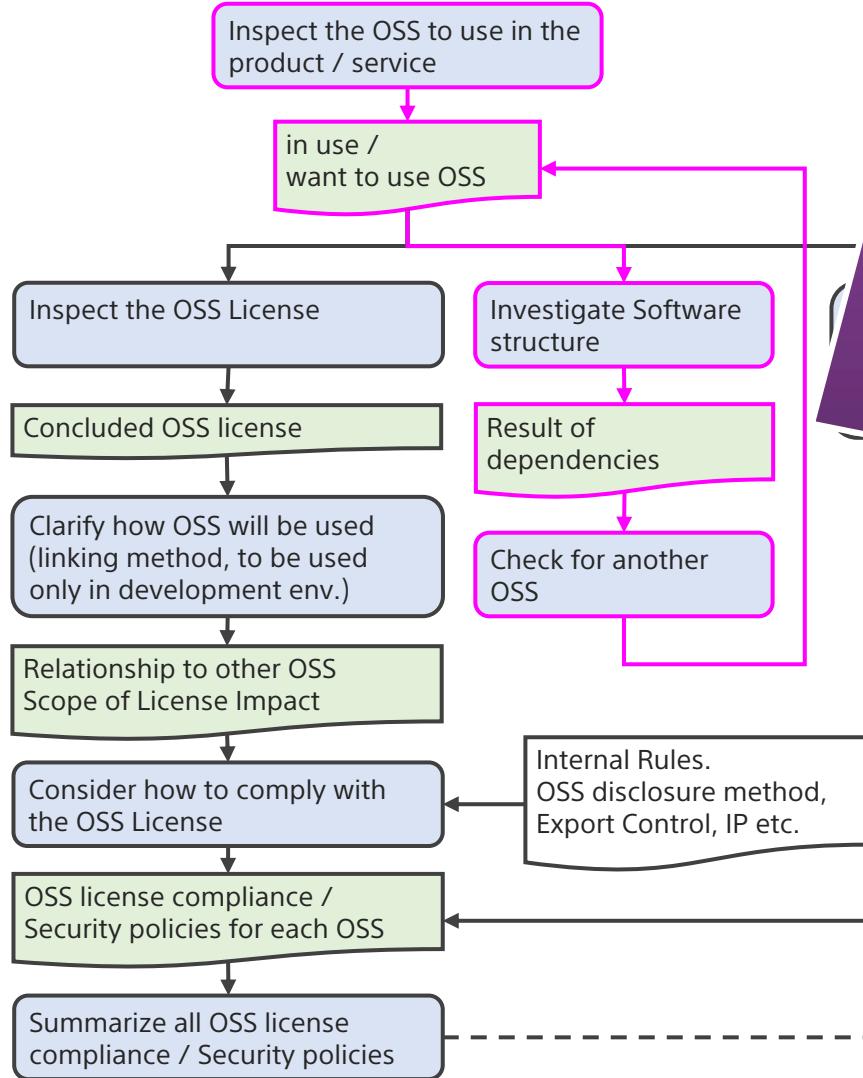
Sony Semiconductor Energy Management Corp.

License Clearance for Open Source Compliance

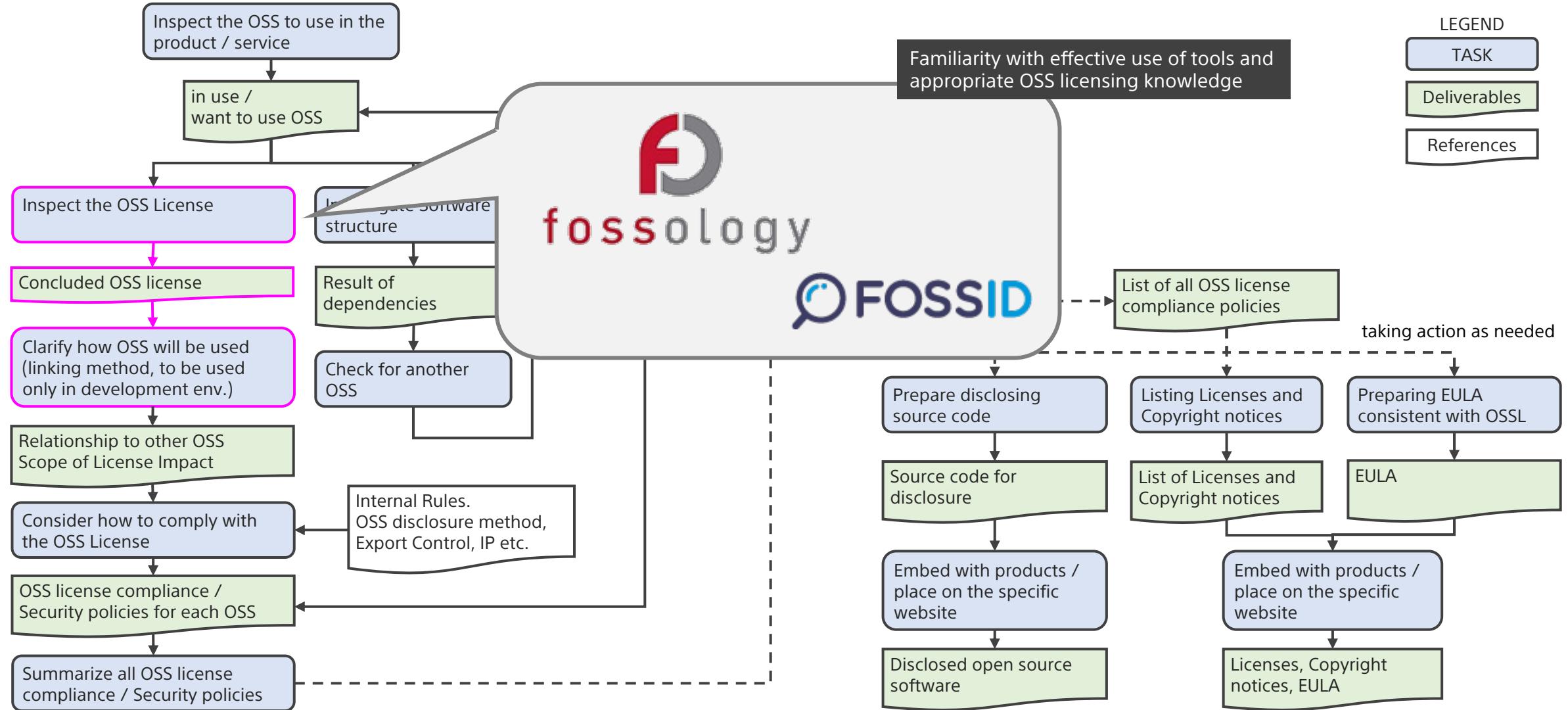
Our open source compliance management process



Our open source compliance management process

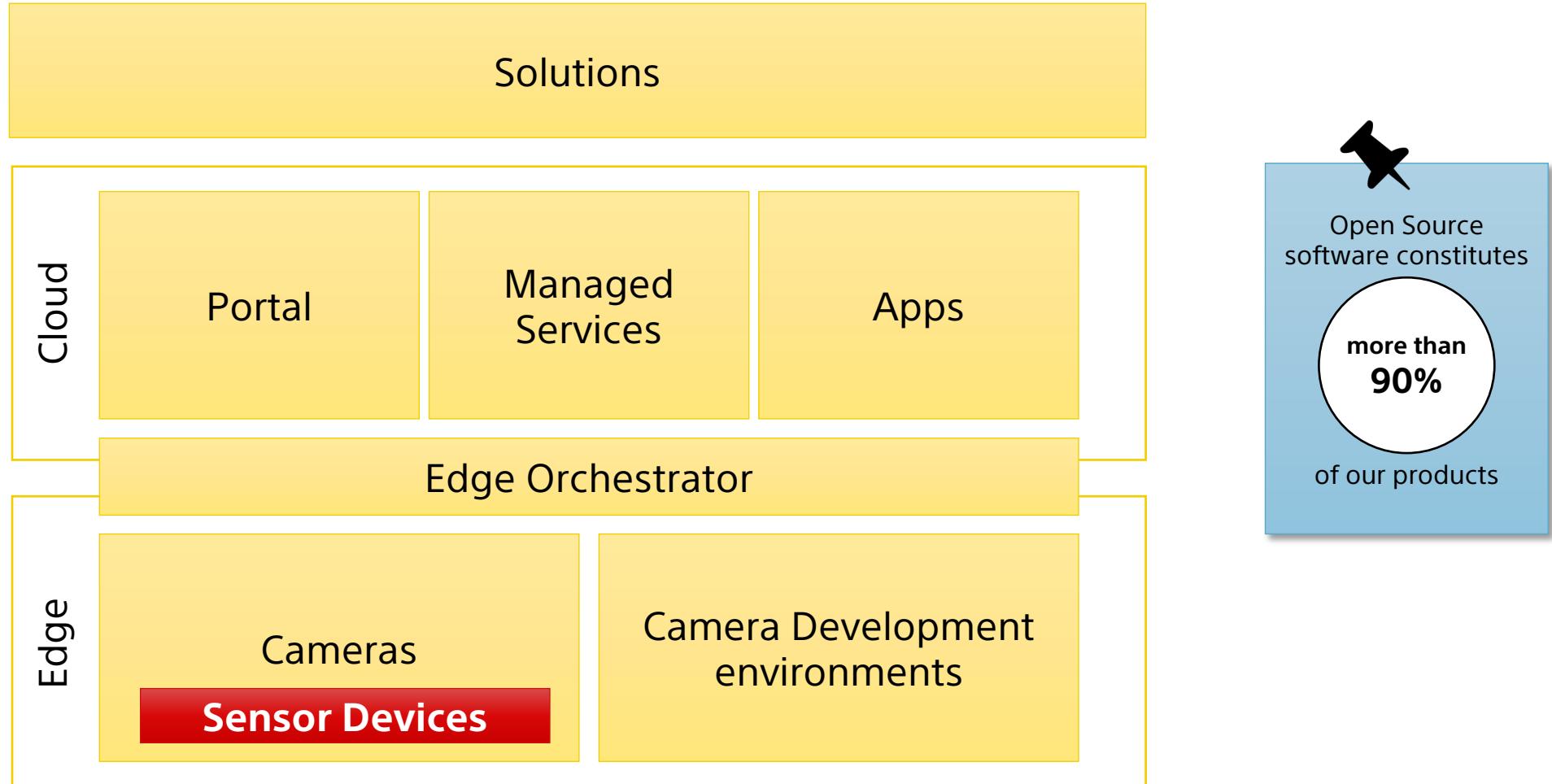


Our open source compliance management process



Compliance Challenges in Semiconductor Company

Our Business



To provide great solutions by leveraging our sensor expertise, we do all.

Various Software Products

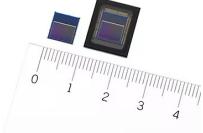


	Image Sensors	Development Boards	Camera Devices	PaaS
Managed Services				✓
Server Software				✓
Applications		✓	✓	✓
Package Managers		✓		✓
Software Development Kit		✓		✓
Middleware		✓	✓	✓
Operating System		✓	✓	✓
Device Drivers	✓	✓	✓	✓
Firmware	✓	✓	✓	✓

Different products need different techniques

Example : How to identify open source components?



Camera

- ✓ Define build dependencies
- ✓ Customize build options
- ✓ Compile source code

Read source code and build logs

configure
Makefile
CMakeLists.txt
Idd
etc.



Web Service

- ✓ Package managers
- ✓ Package metadata
- ✓ Prebuilt binaries

Use dependency analysis tools

apt-cache depends
pipdeptree
npm list --depth=n
Syft
etc.

Different products need different policies

Example : How open source components will be used?



- ✓ Embedded into product
- ✓ Distributed in the market
- ✓ Updated sometimes

Camera



- ✓ Run on server
- ✓ Accessed through browser
- ✓ Updated frequently

Web Service

Define different policies for the same open source license considering how we use components

	License A	License B
Approval of use	X	✓
Compliance Artifact A	X	✓
Compliance Artifact B	X	X
Compliance Artifact C	✓	✓

:

	License A	License B
Approval of use	✓	✓
Compliance Artifact A	X	X
Compliance Artifact B	X	X
Compliance Artifact C	X	✓

:

Problems



When building software, build options are defined.
Build options differ depending on products.
Changing build options may change licenses.



Many binaries are generated from one repository.
Each binary may have different license.
Which license should we comply with?



Container image consists of many open source components.
Some products use container as build environment internally.
Some web services use container on server to run programs.
Should we do the same for both cases?

Challenge

Various Product
knowledge



Open source expertise

How we navigate an open source compliance

Our Solution

**Various Product
knowledge**

Assign dedicated
developers in charge of
open source compliance



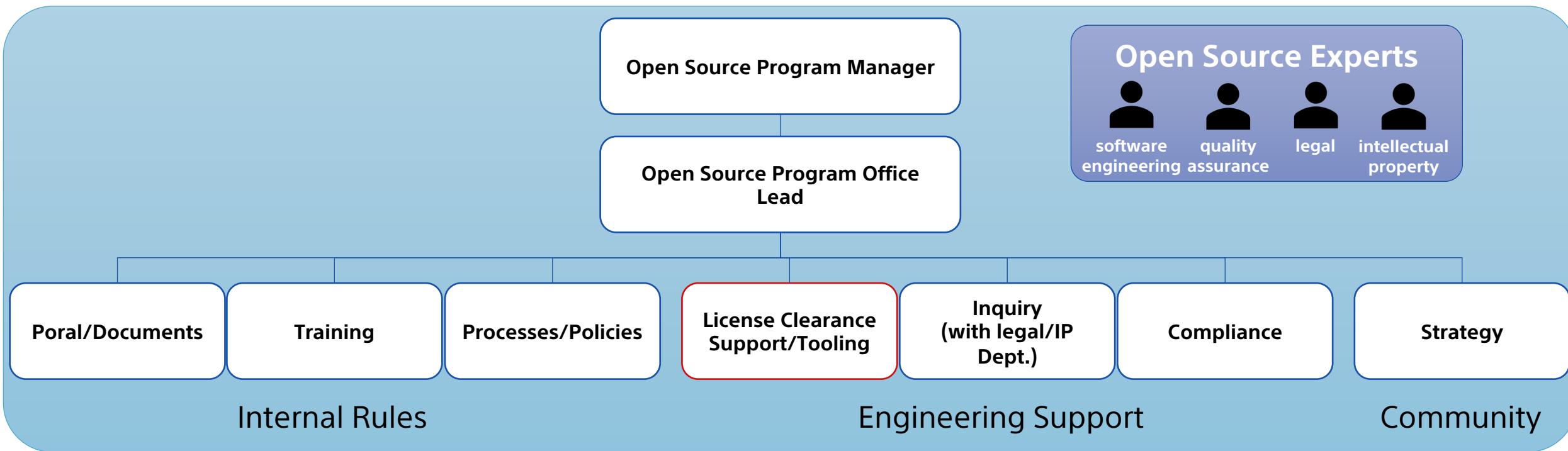
Open source expertise

Create OSPO consists of
open source experts to
support developers

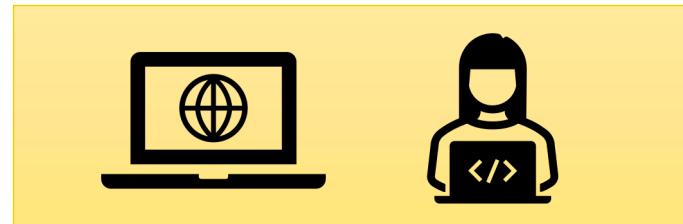
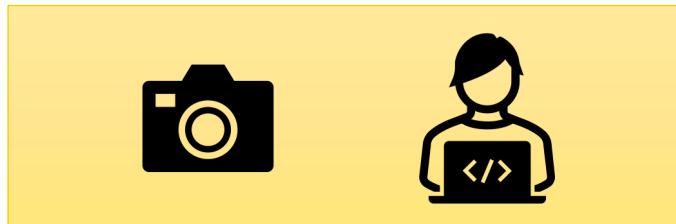
WORK TOGETHER

Our OSPO - Open Source Program Office

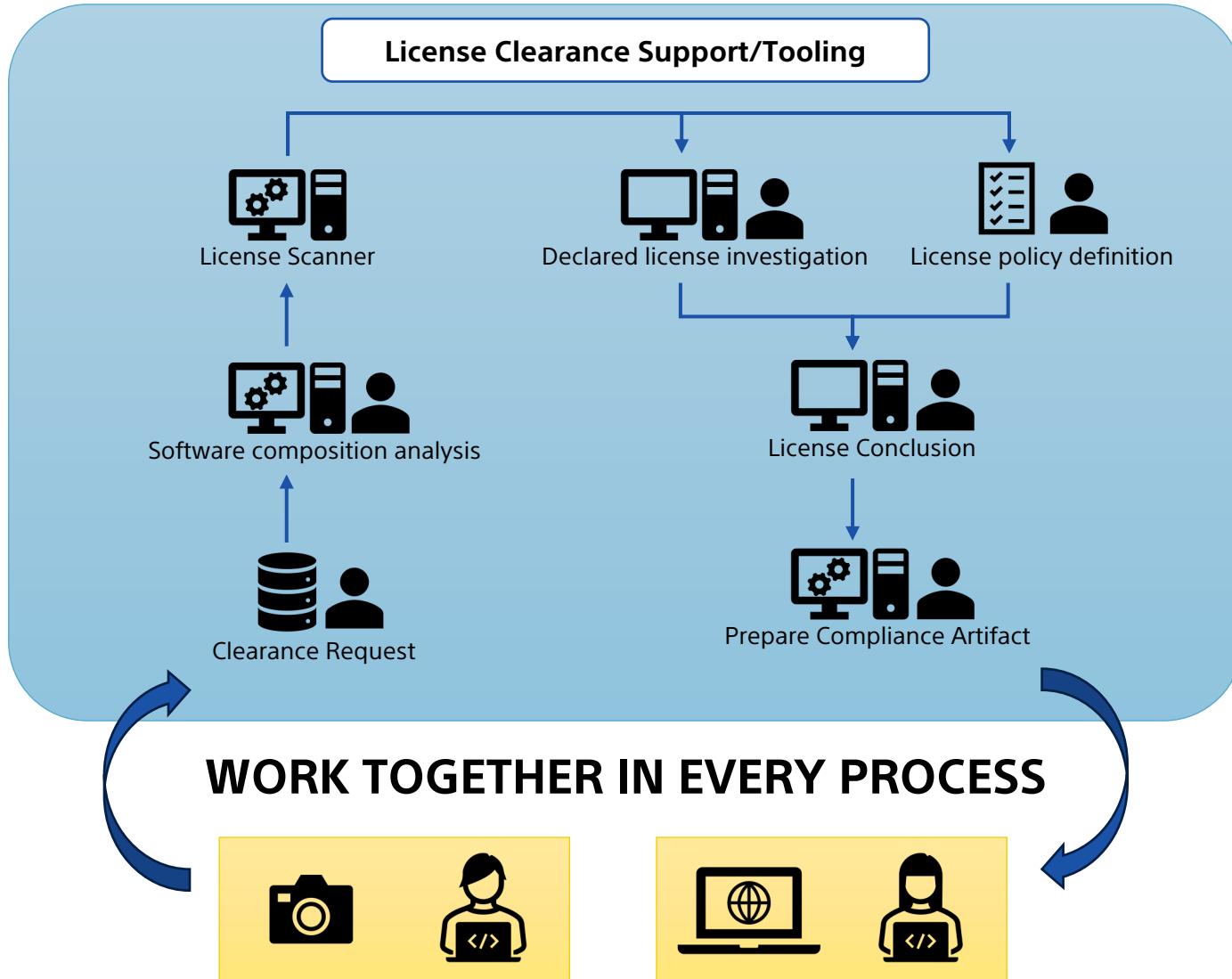
Since 2022



WORK TOGETHER



Our License Clearance Support Team



Example: OpenCV 4.5.0 license clearance process

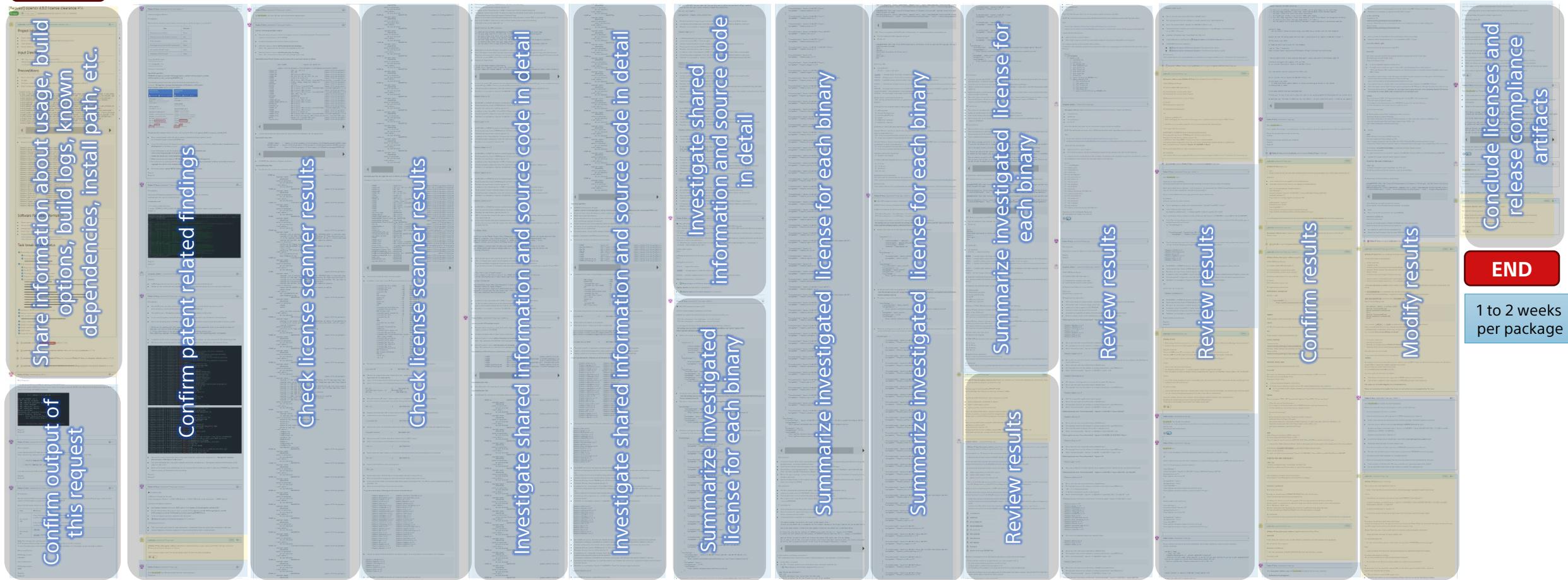
Used in embedded system

57 binaries generated from a source package

START

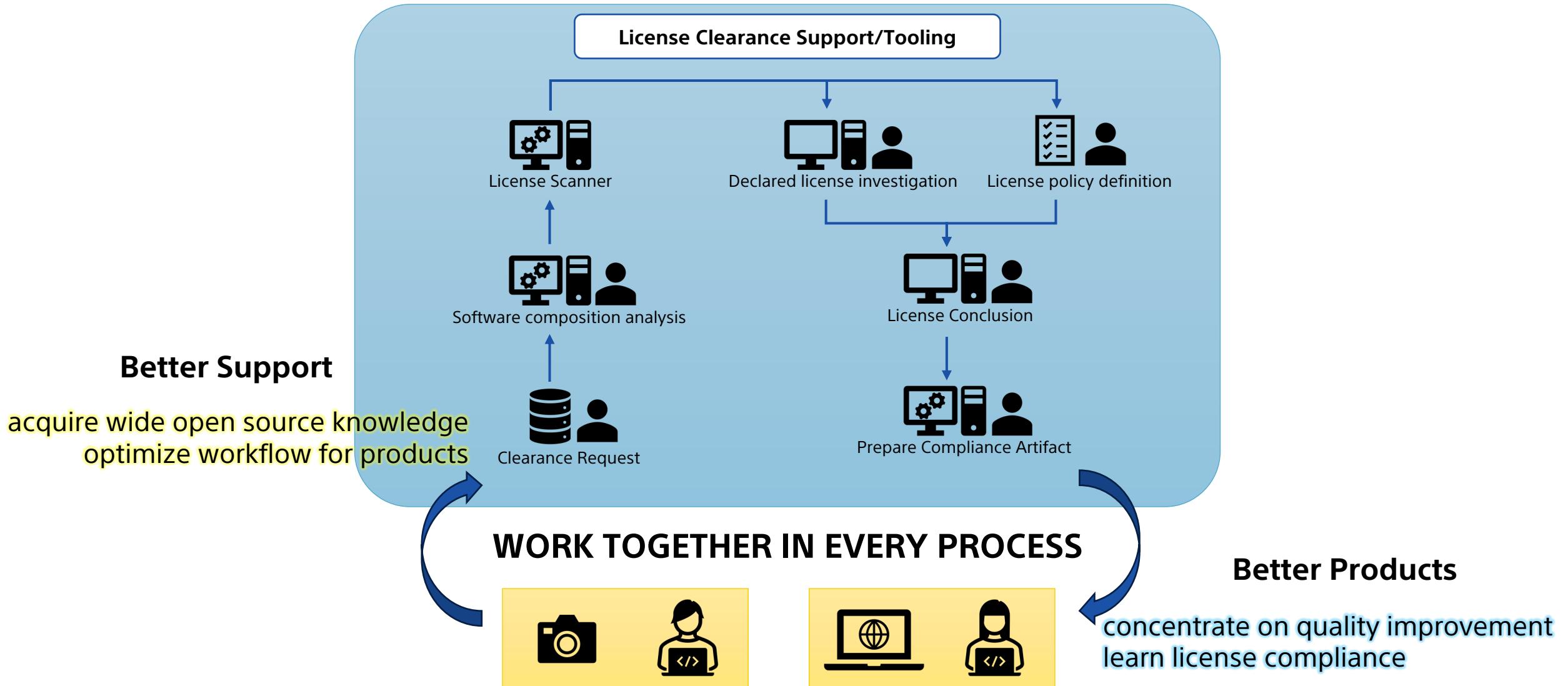
Product Developer

OSPO Expert



OSPO experts ask product developers for hints to identify license for each binary

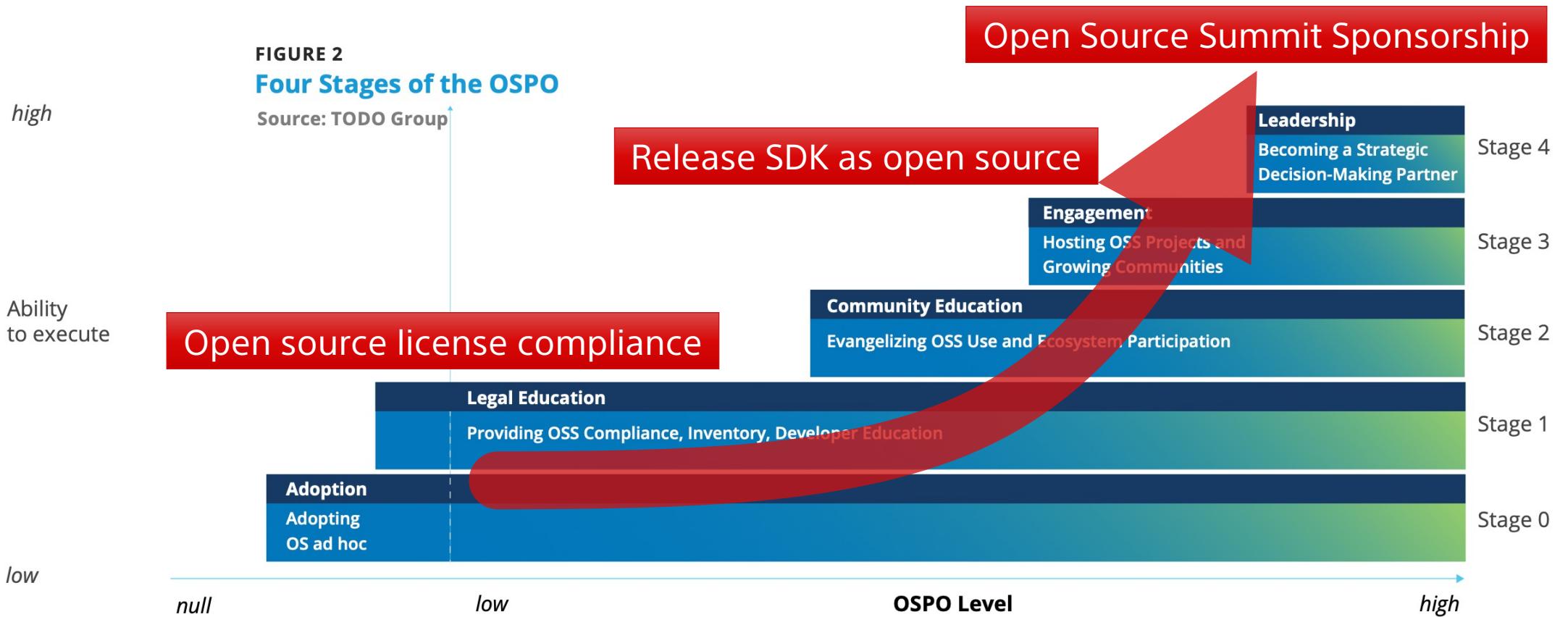
Learning from practice



Contribution to open community

Partnership with open community

Our OSPO encourages developers and business division for contribution



Chris Aniszczyk, "The Evolution of the Open Source Program Office," foreword by Jim Zemlin, The Linux Foundation, February 2022.
https://linuxfoundation.org/wp-content/uploads/LFResearch_OSPO_Report.pdf

Key takeaways

- To comply with open source license for various software, dividing the work between OSPO experts and product developers is realistic way.
- Through this activity, OSPO experts can acquire wide and practical knowledge of open source, and product developers can make their product better.
- OSPO experts also discuss open source strategy and encourage product developers for contribution.

SONY

SONY is a registered trademark of Sony Group Corporation.

Names of Sony products and services are the registered trademarks and/or trademarks of Sony Group Corporation or its Group companies.

Other company names and product names are registered trademarks and/or trademarks of the respective companies.