An Open Source Programme Office (OSPO) at CERN
for
Open Source Software and Open Source Hardware

1. Background

1.1 Motivation

In October 2022 CERN's Open Science Policy[1] came into force, demanding specific actions to enable consistent Open Source practices at CERN. In addition, the "Audit of CERN's dependence on external IT providers" conducted in 2022, recommends implementing an Open Source Programme Office (OSPO) at CERN.[2]

In practice, CERN's leadership in Open Source and its positive impact on society is not yet fully visible nor exploited, for instance to funding agencies and member states. External entities have no central place to see which Open Source software and Open Source hardware CERN has expertise in deploying and developing. The inadequate visibility of CERN's significant contributions to Open Source means that CERN as an employer is not as interesting as it could be.

The following mandate for an OSPO at CERN addresses the IT Audit and Open Science Policy, while creating a visible knowledge hub to advance community support. This supports the CERN Knowledge Transfer group's ambitions to create new partnerships and Open Source-based business opportunities[3], which in turn can further CERN's standing as a successful Open Source and Open Science lab with impact on industry and society.

1.2 What is an Open Source Programme Office (OSPO)?

"An OSPO is designed to be the centre of competency for an organisation's open source operations and structure. This can include setting code use, distribution, selection, auditing and other policies, as well as training developers, ensuring legal compliance and promoting and building community engagement that benefits the organisation strategically".[4] An OSPO is an established practice in many companies (such as Microsoft and Google), public institutions (such as the government of France), and intergovernmental organisations (such as the WHO).

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[1] CERN Open Science Policy, https://cds.cern.ch/record/2835057

[2] DG-IA/21-R3, page 9, Recommendation 2, Management Response: IT department will: [...], in conjunction with IPT and KT, and under the leadership of the Director of Research and Computing, establish an Open Source Program Office (OSPO) that will identify and track the use of free software across the Organization and provide training and guidance on its usage.

[3] Following the "Policy on Software Dissemination" which aims to define the framework of software dissemination activities at CERN. https://cds.cern.ch/record/2709310

[4] https://github.com/todogroup/ospodefinition.org

2. CERN's Open Source Programme Office (OSPO)

2.1 Mandate of CERN's OSPO

The CERN Open Source Programme Office (OSPO) develops and drives consistent organisational practices relating to both Open Source software and Open Source hardware (throughout this document referred to as "Open Source"). With its operations the OSPO: promotes CERN as a contributor to Open Source development; asserts CERN as a competent and conscious user of Open Source; and enables CERN's due diligence related to Open Source.

The OSPO is an entry point to CERN's expertise in Open Source. The OSPO is an open and inclusive service, working internally across departments with and for the entire CERN community, and externally as a visible interface to potential partners and the interested public. This includes events, communication, support and training throughout the year.

Internally, the OSPO is mandated to:
- Consult, advise and train CERN's community on best practices, tools, licences, developments, etc. for Open Source projects;
- Provide implementation guidance for the software and hardware part of CERN's Open Science Policy;
- Provide recommendations for open-sourcing software and hardware;
- Advise on questions and develop guidelines regarding contributions to non-CERN Open Source projects;
- Provide guidelines and best practices for the technical aspects of sharing code and designs, e.g. where to host, what services to use, appropriate use of CERN infrastructure, general tooling for Open Source such as licence compliance checks and how to set up testing;
- Process incoming requests for open sourcing software or hardware following the agreed procedures (see Appendix);
- Facilitate due diligence for Open Source dissemination;
- Support KT in scouting CERN-maintained software with high potential for KT activities;[5]
- Identify and track where and how Open Source software is used through a centrally maintained inventory, in particular for critical services; and
- Advise CERN management on Open Source matters with impact on the organisation.

Externally, the OSPO is mandated to:
- Provide a public catalogue of CERN's Open Source that is easily accessible from the OSPO website;

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[5] See the "Policy on the management of intellectual property in technology transfer activities at CERN", https://cds.cern.ch/record/2744325

- Guide interested external parties to opportunities, projects and experts at CERN through the public catalogue, events, external communication, website etc.;
- Facilitate and publicise CERN's Open Source contributions to society;
- Promote CERN as an "Open Source lab" to help recruitment; and
- Support external inquiries to CERN's management related to Open Source.

2.2 Governance and Procedures

A. The OSPO is operated as a formal CERN body spanning multiple sectors through its participating departments or units[6]. It reports to the Open Science Steering Board. Each participating department or group nominates one OSPO team member.
B. The head of the OSPO is a member of this team, appointed by consensus on a yearly, rotating basis; the term can be extended by a year if all members agree.
C. The OSPO meets as needed but at least once a month in person at CERN. Remote participation can be accommodated by the Head.
D. The Head of the OSPO invites for the meetings and shares an agenda with participants in advance of the meeting. If deemed useful, the OSPO can decide to prepare minutes of its meetings.
E. Decisions of the OSPO shall be taken by consensus.
F. The Head of the OSPO is an Ex-Officio member of the Open Science Practitioners Forum (OSPF). A yearly OSPO report monitors the developments and is published openly. The OSPO provides input to CERN's biennial Open Science Report.
G. The OSPO works closely with the Knowledge Transfer Group at CERN. With the OSPO, all new software disclosures are processed by the OSPO and all new hardware disclosures continue to be processed by the KT Group. For hardware made available under an Open Hardware License, KT informs the OSPO, the OSPO provides consulting and includes it in the OSPO catalogue.

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[6] Founding participants of the OSPO are BE, EP, IT, KT, SIS; other CERN departments are encouraged to join.

Appendix

Operational model of the OSPO across sectors

1. **Introduction**

The OSPO is the main entry point for the CERN community for any Open Source question, e.g. consultancy, training, new software disclosures and discussions on optimal dissemination strategies. The OSPO drives the community engagement in the organisation and takes responsibility for the OSPO catalogue. The OSPO puts together expertise from different parts of the organisation and provides easier access to it.

2. **Workflows and due diligence**

The workflow below (Fig. 1) illustrates the steps and actions taken by the various actors when a software or hardware disclosure is brought to the OSPO. Generally, Open Source software can be listed in the OSPO catalogue. Hardware disclosures and questions should be channelled to the KT Group. The CERN hardware that is disseminated under an Open Hardware Licence (OHL) is added to the OSPO catalogue. Software disclosures and questions are channelled to the OSPO. The OSPO, with representation from various departments including IT and KT should review together with the developer their ambitions, the identification of contributors, determination of ownership, assessment of legal, reputational and safety risks, and understanding the potential for applications outside High-Energy Physics. Following this process, advice is provided on the most appropriate licensing scheme.

Both CERN Open Source as well as CERN proprietary hardware and software can be used to initiate R&D partnerships or collaborations with third parties. For this purpose, CERN KT uses these two catalogues (see Fig. 1) to initiate new partnerships aiming at applications outside high energy physics.
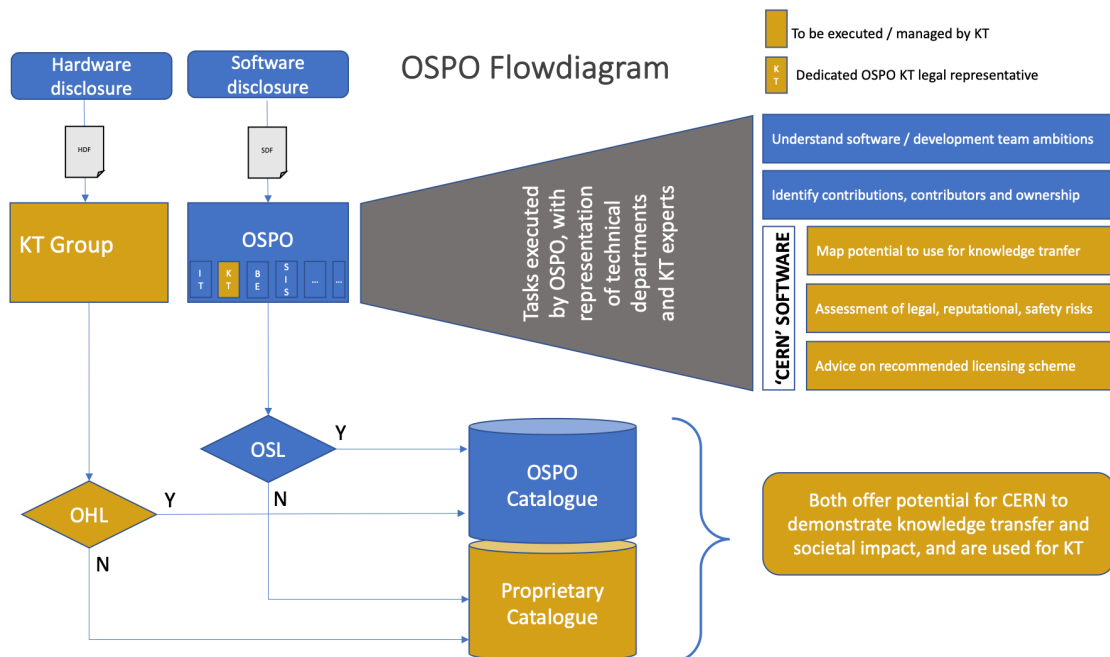
Fig. 1 OSPO decision making workflow for dissemination of software or hardware with CERN copyright.

3. Roles, responsibilities and resources

The Open Source environment at CERN is large and diverse. The OSPO is staffed with experienced experts who can fulfil the mandate and deliver a new service with reasonable response times.[7] Given the service is new for the organisation, but puts together competences already existent in the departments, it is closely monitored throughout a year of activity to evaluate how it will be scaled further.

Following the scope of the current mandate presented here, the daily operations of the OSPO are focused on two **sets of competences and responsibilities**:
- The first is particularly focused on the more technical aspects of the OSPO and provides consulting to software and hardware projects on 'how to do open source' during their daily work. This includes preparation of best practices, support tooling such as self-service

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[7] While engagement of existing personnel and expertise is envisioned in the partnering departments, it is expected that additional resources will be needed to support the expected increase in requests. Already today, legal checks for open source licensing take months to process. A functional OSPO with impact will need to respond to users in time.

Hence, it is expected that additional resources are required particularly in the execution of the due diligence and legal advice on CERN software. It is expected that the OSPO will face an increasing amount of requests, and reduce the overhead spent on software/hardware management in numerous places at CERN.

scanning tools, identifying and providing suitable training, building and maintenance of web sites and the OSPO catalogue, etc.
- A second set is focused on enabling the licensing consultancy, legal due diligence, and partnership aspects of the OSPO. This role comprises the execution of due diligence on CERN software, e.g. identifying legal risks, providing recommendations on licensing options and consulting on partnership opportunities. Responsibilities also entail considerable engagement with the CERN community on these topics, e.g. through seminars, training, documentation and communication.

The competences and responsibilities described above are naturally hosted in IT and KT, both centres of competence at CERN that already work on these matters across the whole organisation. As described in the mandate, additional departments can join the OSPO team to contribute and act as drivers and ambassadors for Open Source across the organisation.

The OSPO team members remain within their existing reporting lines, but are appointed by the departments to work (possibly among other tasks) on OSPO activities. Appropriate communication channels and regular exchanges across departments and units are put in place to ensure its operation across sectors.

4. Tasks during the first two years

Following the OSPO mandate, during the first years, CERN's OSPO will work on the following tasks:
- Build and maintain a central catalogue of CERN-made Open Source, allowing project maintainers to update metadata about their projects.
- Identify gaps in needed tools for the Open Source community at CERN. Select the key tools and make them accessible for the CERN community.
- Maintain the Open Source Hardware Repository.
- Engage with the CERN Open Source community through fora, seminars, discussion, training, etc. Be the go-to resource for any question on Open Source.
- Put together best practice guides on how to open source a project. Provide advice on licences, licence compatibility, allowed use, copyright. Create an OSPO website to distribute such information.
- Identify training needs in the Open Source community, liaise with the Learning and Development group in HR. Arrange training events for topics relevant to open source projects.
- Advise on contributing to Open Source projects and under which conditions (e.g. GitHub Terms and Conditions, Copyright transfer etc.).
- Support KT in shaping partnerships centred around Open Source, which have a potential to bring positive societal impact or industrial return. Report on significant contributions to non-HEP open source projects, as part of CERN's impact on society.

- Create an overview of available CERN Open Source for potential external partners. Summarise the functionality and potential for use cases outside HEP for CERN Open Source.
- Act as a point of contact for external entities to provide consultancy and access to experts regarding usage of Open Source components (see for example the [CERN-ICRC Memorandum of Cooperation](#)).
- Implement Open Source elements as required by the CERN Open Science Policy, such as defining key performance indicators. Ensure visibility of Open Source topics in the Computing Seminar series and other seminar series.
- Run a periodic survey on Open Source components used across CERN and in particular on critical IT services ([example report done in 2022 for IT department services](#)).
- Support purchasing group (IPT-PI) with consultancy regarding Open Source potential, options, risks and requirement definition (using lessons learnt from other OSPOs)
- Represent Open Source projects towards IT's services, possibly communicating issues and limitations perceived by Open Source projects.

The OSPO team is integrated into the community and actively searches for and adjusts to feedback and needs from the community to develop this task list further.