
European Commission
Webinar
OSS in Public Procurement
Knowledge sharing for success
OSOR
European Commission Open Source Observatory (OSOR)
12 October 2020

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Today's speakers

Jani Kylmäaho

Director of Development and Digitalization at **National Land Survey (NLS)** of Finland

Lucian Balea

R&D Program Director & Open Source Manager at **Réseau Transport d'Electricité (RTE)** in France

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Agenda

01 Brief introduction

02 Open Source & Procurement at the National Land Survey, Finland

03 Fostering an open source strategy in a public procurement context - Réseau Transport d'Electricité (RTE), France

04 Knowledge-sharing session

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Brief introduction

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OSOR provides FOSS expertise and information to serve as middle ground for connecting European public administrations with other stakeholders.
It supports a dynamic community and promotes the use of Free and Open Source Software in the public sector.
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The Knowledge Centre

Country intelligence on open source software policies

Guidelines for creating sustainable open source communities

Case studies on the deployment of open source software within public administrations

OSS repositories for European public administrations

Specific resources OSS associations, competence centres and initiatives

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Today's objectives

Learn about NLS and RTE's experience on the use of OSS in public procurement

01

02

Share and discuss lessons learnt and good practices

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OPEN SOURCE & PROCUREMENT

Jani Kylmäaho
Director of Development and Digitalization
National Land Survey of Finland
Twitter: @jkylmaaho

12.10.2020

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WHERE DO WE STAND?
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OPEN DATA & OPEN SOURCE @ NLS FI

- Programme of Finnish Government 2019 - 2023
  - “Openness of public information will become the overarching principle of information policy.”
  - “The Government will **advance** the primacy of open source software in public information systems and in the related procurement. To this end, the Government **will lay down provisions on an obligation to purchase open source software for public information systems**, unless there are serious grounds for acting otherwise.”
  - At the moment there is no binding regulation outlining use of open source
- New strategy of the NLS FI - Basic principles of operation
  - ”We develop services and systems according to the principles of enterprise architecture and use open source services and solutions.”

MML MAANMITTAUSLAITOS

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SHORT HISTORY OF OPEN SOURCE ACTIVITY @ NLS FINLAND

- Until 2008, Mostly scattered use of open source libraries and software
- 2008 First APIs based on open source servers
- 2009 Finnish Geoportal built on an open source solution
- 2010 Postgresql introduced as a storage solution
- 2011 Oskari web mapping platform shared as Open Source
- 2014 Decision that NLS FI builds all web maps based on Oskari
- 2019 Majority of APIs run on open source servers, Postgresql usage is growing
- 2020 Decision to build the new Topographic Mapping system core on open source

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CASE OSKARI

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- **Question**: To which proprietary solution would OSKARI be an alternative?
- **Answer**: OSKARI would be an alternative to ArcGIS (Online), for example, to map client publishing features.

OSKARI IN A NUTSHELL

- Oskari is a tool for easily building multipurpose web mapping applications utilizing distributed Spatial Data Infrastructures
- For creating Embedded map clients onto other websites very efficiently
- For setting up Geoportals or Web GIS systems
- For setting up advanced web-based tools, such as decisionmaking support services and data analysis tools
- Multilingual – English & Finnish full coverage, 15 other languages with partial coverage
- Naturally, open source (MIT & EUPL)

Photo credit: instagram.com/b.i.s.h.e.r/

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OSKARI
OSKARI COMMUNITY (40+ ORG'S)
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OF FINLAND
GISPO
DIGITAL AND
POPULATION DATA
SERVICES AGENCY
Statistics Finland
SITOWISE
ubigu
Finnish Heritage Agency
TURKU
Helsinki
Finnish Transport
Infrastructure Agency
LANDMÆLINGAR
ÍSLANDS
THE CITY OF TAMPERE
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HOW DID WE CREATE OSKARI?

- Oskari framework utilizes other open source components as dependencies
- A spin-off from the construction of the Finnish Geoportal
  - We realized a lot of other public sector organizations wanted to build a mapping service
- First alpha version developed by an NLS FI employee
  - Work continued by consultants under NLS FI management
  - Code shared as open source in 2011
  - Dual license: very permissive MIT and EUPL
- Also trained some developers of our own

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HOW DID WE CREATE OSKARI?

- The Oskari Community was started in 2014
  - Joint Development Forum to advance development, use and funding the solution
- The Oskari Project Steering Committee was started in 2016
  - Responsible for checking the code and architecture decisions
  - To act according to OSGeo Foundation principles
- Now there are tens of Oskari implementations in Finland, also international, and there are companies who provide support and development for the framework
- NLS FI is still the major developer; co-funding has been used

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CASE SPATIAL DATA PRODUCTION SYSTEM

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NEW SPATIAL DATA PRODUCTION SYSTEM FOR NLS FINLAND

- The core spatial data production system to be renewed; old one is 20+ years of age
- Used for maintaining all national topographic data in Finland, including:
  - Traffic networks
  - Buildings
  - Topography
  - Water features
  - Place names, etc…
- All Finnish authoritative maps are produced based on this data
- A key data resource for the entire Finnish society
  - Data has to be correct and up-to-date
  - SLA requirement is high (during working hours), as 120+ cartographers use the system
  - Need to create new types of features, like 3D buildings

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WHY A DIFFERENT MODEL?

Oskari

- The Geoportal was a completely new activity for NLS, not a core production system
- There were no mature open source projects on the market for building geoportals
- Oskari started as piloting, a spin-off
- Demand from the Finnish public sector for an OS mapping framework

-> we decided we start a new OS project

Spatial data production system

- There are existing products on the market for spatial data production system components
- Can build upon the existing OS communities from the start
- Expertise and support from core contributors and several companies readily available

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HOW DO WE CREATE OUR NEW SPATIAL DATA PRODUCTION SYSTEM?

- We choose mature OS software that we build the core system upon
- We will release a tender of the core system with essential functionality
- More tenders will follow for additional components of the system
- We want to work with the Core Contributors of the projects as directly as possible
  - To solve any issues rapidly
  - To have the products developed in line with the OS project and community guidelines
  - To make the enhancements part of the core products (or add-ons), not a modified version of the core product -> no separate version to be maintained

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HOW DO WE CREATE OUR NEW SPATIAL DATA PRODUCTION SYSTEM?

- We will have own competence for
  - Subject matter knowledge
  - Architecture design
  - Some developers to make database maintenance, small modifications and process development
- We will seek collaboration with other organizations in Finland and abroad who need same or similar functionalities
  - Co-funding or Crowd funding mechanisms can be used

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THE DECISION IS YOURS
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CAN YOU *CHOOSE* OPEN SOURCE?

Yes.

It is an architecture decision. Such decision does not involve any contracts being made or incur any public spending.

-> the Procurement Directive is not applicable to an architecture decision.

However, you **must** adhere to the Directive, when you actually buy something!

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PROCUREMENT OPTIONS

Strategic decision to be made first:

- Choose an Open Source architecture
- Leave the decision to the tendering process; result can be an open or closed solution

OS

Choosing the key technologies:

- Choice of Open Source key products (eg. Spatial data editor, Database)

Choosing the **work & tendering methods**:

Tender for **Product Development** in suitable work packages

- Use Core Contributors or other capable providers
- Co-funding schemes possible
- Crowd funding participation possible
- **You** are in charge of **specs, overall architecture & ensuring integration**
- Some in-house expertise for maintenance, configuration or even small development

Tender for **Development personnel**

- Via framework agreements or an open competition
- Choose the best people
- May have own personnel for some development roles
- Co-funding schemes possible
- Crowd funding possible
- **You** are in charge of the **everything**

Traditional tendering

Tendering for the technology:

- Open competition or competitive negotiation
- **Technology as given** based on tenders - can be OS

Tender for **Development personnel**

- Buy the product licenses
- Choose the best people
- **You** lead the **development.**.
- ..but have **little say** in **architecture or technology** because it's given

Tender for **Product Acquisition and Development**

- Incl. product licenses
- Usually fixed agreement for the whole delivery
- Product(s) get tailored according to your specs
- **You** try to ensure the **specs are flawless**
- Additional work has to be purchased or tendered for

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WHAT TO PROCURE?

Competence / people to build the product or solution under your management

- Worked rather well for us in the Oskari case
- Good for piloting and agile development
- You can choose who will work on your solution – get the best experts
- You need to have expertise to manage the whole package: development, architecture etc.
- Requires a lot of coordination and effort
- Usually more expensive than buying a solution or recruiting experts

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WHAT TO PROCURE?

A complete OS product, tailored to your needs

- Can be an easy choice, if you don't have much expertise
- Does anyone else need the product exactly as you've designed it?

Divide the procurement into components

- Choose the best solution for each component
- Easiest to give back to the community
- Requires more expertise; e.g. integration of components has to be taken care of
- You need expertise on system architecture to be able to define clear components

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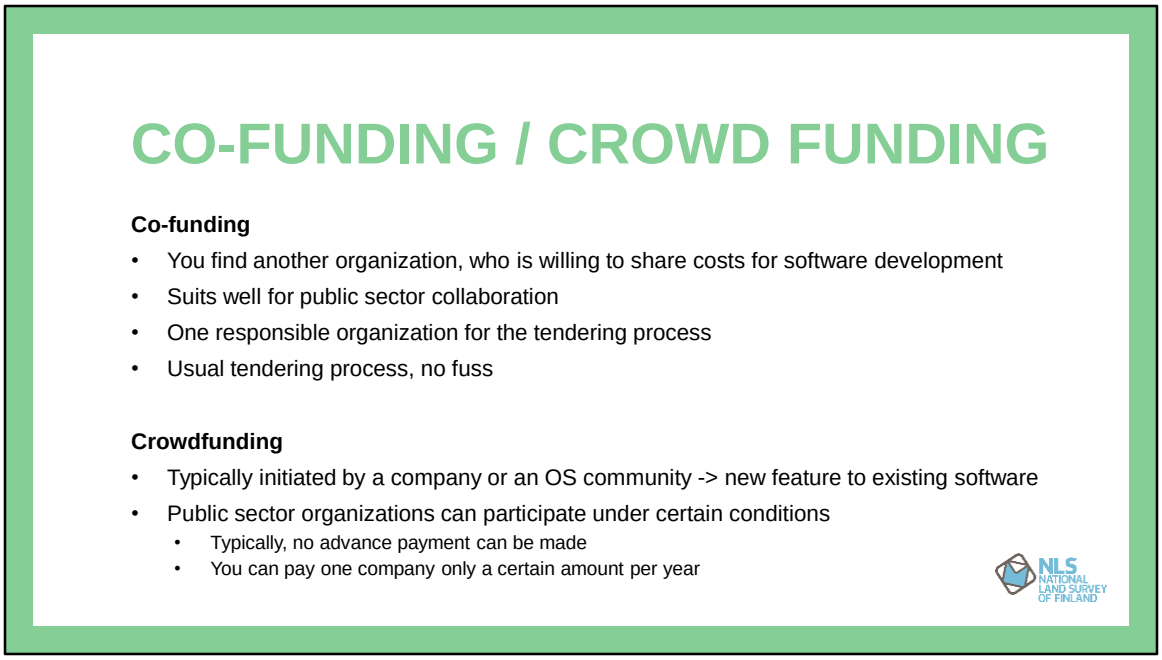

- **Question**: How does one find public organisatinos with the same needs to run co-funding initiatives?
- **Answer**: It is important to maintain good relationships with other public organisations within your country, as well as sister organisations abroad, in oder to facilitate communication and the exchange of information.

- **Comment**: The French association Adullact has experimented with many successful co-funding initiatives, including for Départements & Notaires, S2low and i-delibre. This model is deemed to be very attractive as it leverages savings for public finances.

EXPERTISE

What kind of expertise do you need to procure and manage open source?

Depends on your approach.

- Inside out knowledge or your subject matter
- Knowledge of procurement practices is a must - but also courage to experiment new approaches
- Ideally some technical expertise, even developer(s)
- Community involvement and collaboration
- In Oskari-like cases, also community facilitation

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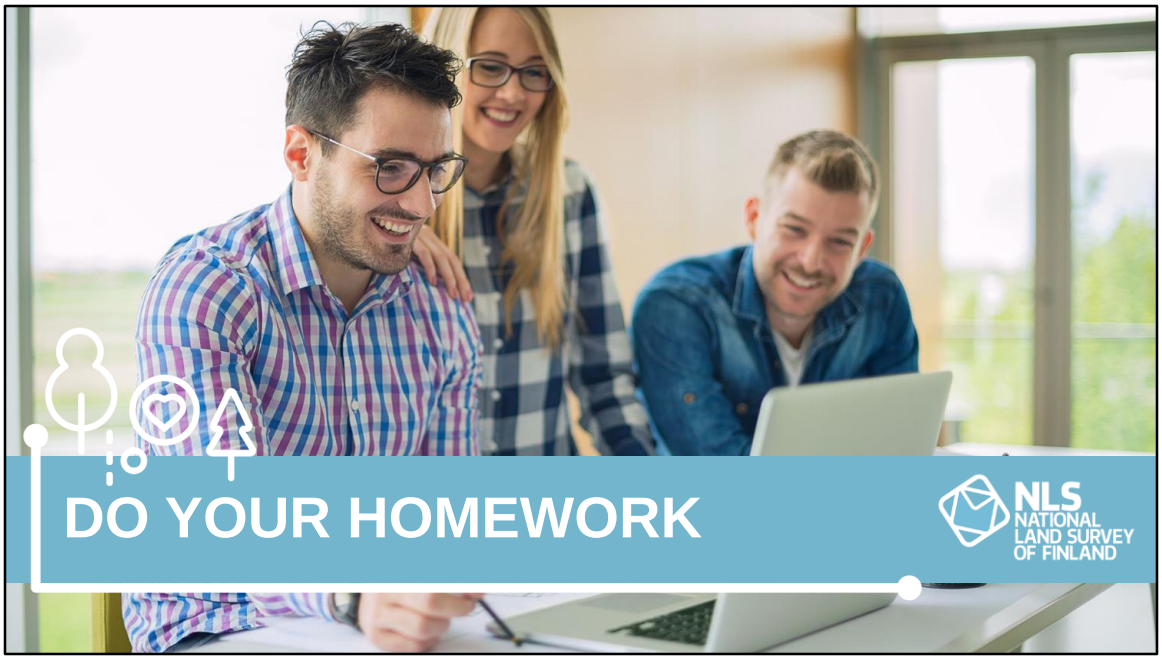
DO YOUR HOMEWORK
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CHECKLIST BEFORE YOU GO

- Find out what has been done and is being done within your own company
- Find out if there's already OS software out there, which suits your needs or could potentially be developed to fullfill them
- Check you options
  - **There is no** potential software out there to develop upon. Consider starting a new project or buying a tailored product.
  - **There is one or more** potential software out there we could use as a basis. Consider evaluating them for fittness for purpose.

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IF YOU FIND A SUITABLE LOOKING PRODUCT…

- How is it licensed? Do you have requirements for the license?
- Is there a community to contact? Other similar users?
- Is the project healthy and properly maintained?
  - Regular releases, bug fixes?
  - Is the operating model transparent?
  - Are roles of stakeholders clear?
  - Are there suitable and active communication channels?
- What kind of a role is your organization willing to take?
  - Maintenance
  - Funding

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IF YOU GO FOR PROCUREMENT…

- Maintenance is 90% of the total cost over lifetime
- Development is only 10%, don't get greedy, less is more
- Specify very clearly what you are ordering
  - Development (how often delivered, how & where)
  - Testing (automated, manual, acceptance, who does and when/where)
  - Documentation (for whom, when/where)
  - Deployment? SAAS?
  - Professional support?
  - Maintenance?
- For most FOSS there are ready conventions to help you
- The community is a valuable resource, if you respect the rules!

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SHARING IS CARING
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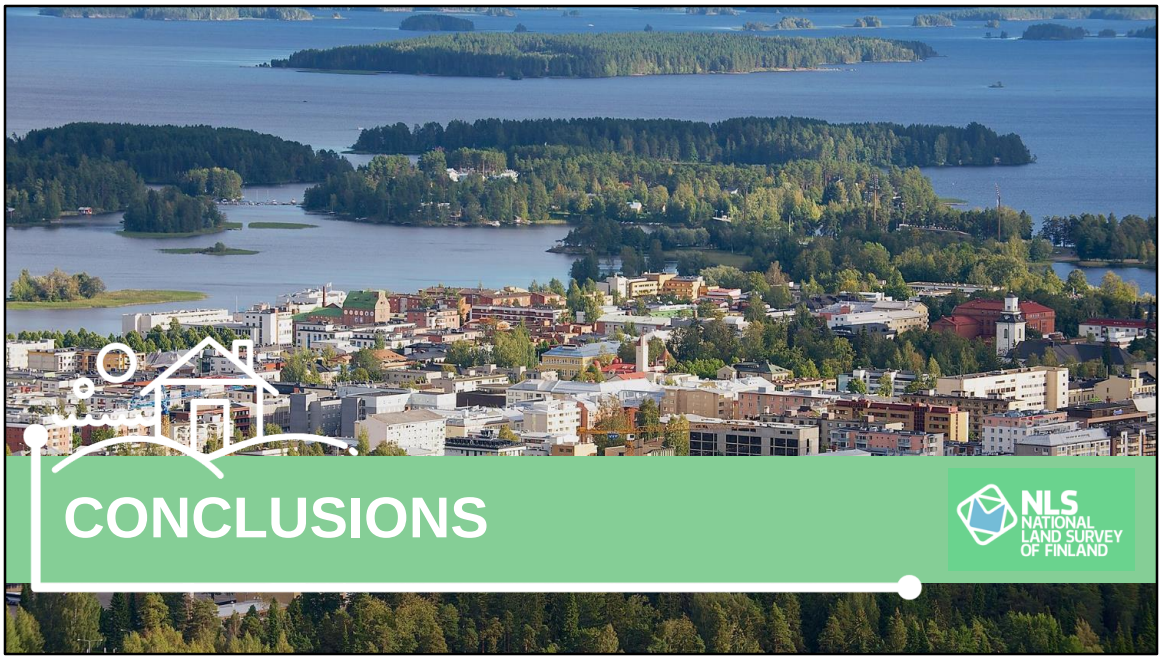
CONCLUSIONS
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TAKEAWAYS

Ensure you have support from your management.
Open Source can (or should) be a strategic decision.

Do your research and consider your options carefully.

Open Source fosters collaboration.

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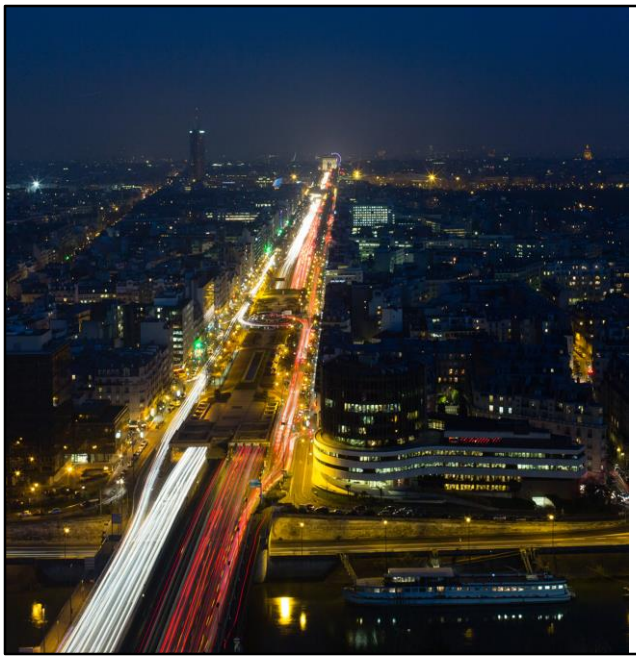
- **Question**: Is it better to look for a complete solution tailored to your needs or to procure for several components?
- **Answer**: Both approaches have their positive and negative aspects, it depends on the procurement strategy of your organisation. The NLS opted for the modular approach because it has enough in-depth knowledge of processes and market solutions to launch tenders for minimal components and MVPs. Additionally, the modular approach gives you freedom of choice, both with the providers and the components, which is valuable for future updates.

- **Question**: What was the success of previous crowdfunding campaigns?
- **Answer**: Thus far, the NLS has organised two crowdfunding campaigns. During the latest one, the NLS received a total contribution of 3k€. Many organisations contributed by donating a small amount.

- **Question**: What was the procedure in place regarding crowdfunding campaigns?
- **Answer**: The NLS consulted a lawyer to make sure that their campaign was aligned with Finnish legislation. The lack of legal knowledge is the main barrier to the launch of such campaigns.



RTE operates, maintains & develops the French electricity transmission network.

1st European network with 105,000 km of high and extra-high voltage lines, this vital infrastructure guarantees everyone, 24 hours a day, a safe, economical and environmentally friendly power supply.

RTE is subject to European public procurement rules as an entity with “special or exclusive rights” operating in the energy sector.

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GOOD + FAST + CHEAP
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Expected benefits for our industry

INTEGRATE NEW FUNCTIONS AND TECHNOLOGIES

Innovation

Benefits stemming from open source collaborations

Velocity & cost-efficiency

KEEP PACE WITH THE CHANGES OF GRID USES AT REASONABLE COST

A leveraged development model

Better modularity, interoperability and shorter release time cycles

Reduced lock-in, eased participation

ACHIEVE AN "INDUSTRIAL TAILOR-MADE" SOLUTION

Scalability & Flexibility

Cross-industry collaboration

VENDOR-AGNOSTIC IMPLEMENTATION AND CONVERGENCE OF UTILITY PRACTICES

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Our journey towards open source

7. Adapting procurement practices

6. Changing software development culture

5. Setting up an internal Open Source Program Office (OSPO)

4. Building community and governance framework

LFENERGY www.lfenergy.org

3. Gaining executive support

2. Learning how other industries are leveraging open source

1. Understanding licenses and compliance, building legal understanding

0. Unstructured use of open source

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- **Comment**: For more information on LFEnergy, you can consult the following website: https://www.lfenergy.org/wp-content/uploads/sites/67/2019/10/Note_OpenSource_CompetitionLaw_EN-1.1.pdf

- **Comment**: The LFEnergy foundation gathers multiple useful resources: https://wiki.lfenergy.org/display/HOME/Resources

Adapting public procurement to open source

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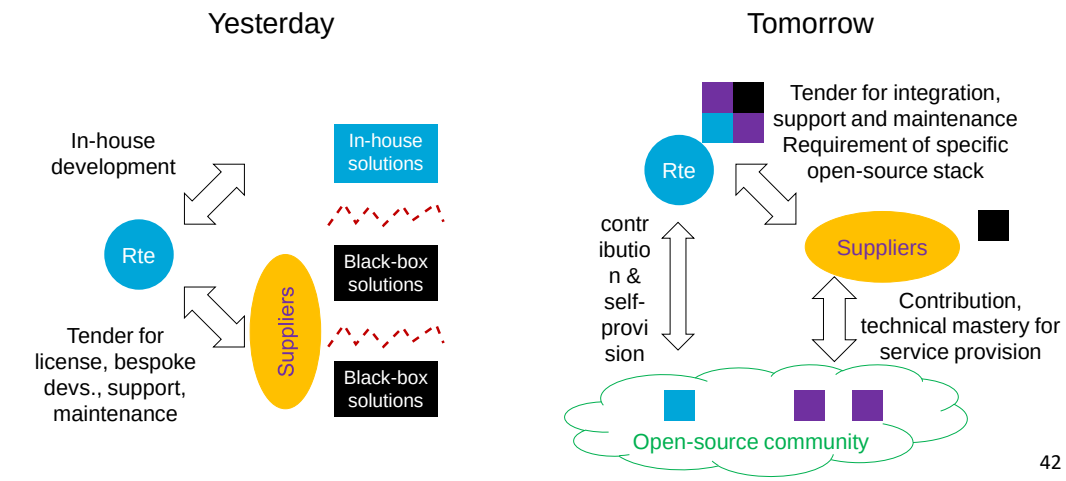
A new vision of interaction with our suppliers



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From initial thoughts…

Starting from an intuition:

If we could require specific open source software in public procurement, we would better articulate software purchases and inhouse developments and thus better meet the goals of our open source strategy!

Confirmed by an analysis made by RTE and Inno^3:

Procuring Open Source Software in European Public Sector: https://www.lfenergy.org/wp-content/uploads/sites/67/2019/10/Note_OpenSource_CompetitionLaw_EN-1.1.pdf

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… to concrete implementation …

First use case was a public procurement Q1 2019:

- Requirement of open source or bespoke developments for a significant part of the functional scope
- Requirement of permissive or moderate copyleft open source licenses

Lessons learned:

- Some vendors opted out
- But others submitted proposals, resulting in a very satisfactory outcome

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- **Comment**: In OSKARI's experience, the majority of vendors were satisfied with the new open source policy. Nevertheless, it is important to ensure continuity and that companies invest in delivery capabilities. To boost the creation of a 'pool of vendors', OSKARI contracted developers from various companies.

… and towards generalization (1/2)

RTE's procurement templates are being adapted accordingly:

- Possibility to require specific open source components to fulfil specific functional needs
- Possibility to require open source (but no prescription on components) to fulfil part or all of the functional needs
- Definition of open source licenses based on Open Source Initiative and Free Software Foundation
- Requirement of permissive or moderate copyleft licenses

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… and towards generalization (2/2)

Other key provisions included:

- Requirement of open governance for open source components (e.g. Foundations)
- Requirement of a compliance program in accordance with Open Chain specifications 2.0 (https://wiki.linuxfoundation.org/_media/openchain/openchainspec-current.pdf)
- Provisions allowing bespoke developments and documentation to be directly contributed to the corresponding upstream projects
- Possibility for RTE to commit to distribute bespoke developments and documentation under an open source license

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Perspectives

2 call for tenders implementing the previous principles expected before the end of this year

We are still at early stages of our journey and we are eager to share our experience with and get feedback from the community in order to continuously improve how to include open source software in public procurement procedures

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- **Question**: During your presentation, you mentioned that one of the key steps in your path was to change the software development culture. How were you able to change the culture within RTE?
- **Answer**: RTE followed a step-by-step approach, starting small and adapting along the way to improve the process. The changing of the software development culture was also gradual; the most important aspect was compliance and understanding the implications of each open source license. RTE's software developers were trained in that aspect, as well on the management of an open source project.

- **Question**: How do you perceive the role of an OPSO?
- **Answer**: For small or medium-sized organisations which do not have the resources for a dedicated team dealing with open source development, an OPSO plays a key role in building a network of people, identifying and proposing an open source strategy, and accompanying the company's structural change. An OPSO also coordinates interaction with external partner organisations, which can be useful when collaborating on open source projects.

- **Question**: What is the size of RTE?

- **Answer**: RTE counts more than 8,500 employees, mainly operators in charge of maintaining and operating the electricity grid. Two years ago, RTE decided to reinforce their software development capabilities in order to better balance what the company procures and what is developed internally. The company now employs more than 100 software developers.

- **Question**: What happens to the open source software once it is developed?
- **Answer**: The development and the maintenance phases are very different. If the collaboration proceeds well during the software development phase, it may start to dwindle during the software maintenance phase. Establishing a foundation can help, giving the foundation responsibility for the oversight of the period between the conception and the deployment of the software.

EU countries' insights on public procurement

- **Comment**: In Germany, an alliance of public administrations, businesses and civil society organisations launched a call for the development of an OSS code repository for the public sector. More information: https://fsfe.org/news/2020/news-20200910-01.en.html
- **Comment**: In Italy, the Constitutional court stated that open source can be considered as a juridical requisite, applicable to all software. The law requires public administrations to justify the choice of a proprietary solution when launching a tender. The choice of open source does not seem to affect competition.
- **Comment**: The Finnish Government programme is available at the following link: https://valtioneuvosto.fi/en/marin/government-programme/best-public-administration-in-the-world

OSS and public procurement - useful documents

- **Comment**: The following paper gathers information on the different levels of engagement an organisation can have with open source. More information: https://allisonrandal.com/2017/11/25/capabilities-for-open-source-innovation-background/

- **Comment**: This report from the International Telecommunication Union lists 25 key software components that could be used by public organisations to tailor their procurement processes: https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-DIGITAL.02-2019-PDF-E.pdf

Open source licenses and compliance

- **Comment**: OpenChain published a document on the key requirements for the implementation of a quality Open Source licence compliance program: https://wiki.linuxfoundation.org/_media/openchain/openchainspec-current.pdf
- **Comment**: The following hyperlink gives an overview of existing open source licences: https://landscape.cncf.io/license=open-source

- ✓ Repository of digital responses to Covid-19 on Joinup
- ✓ Live project with more than 300 entries
- ✓ Relies on user contributions

https://joinup.ec.europa.eu/collection/digital-response-covid-19

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COVID-19 contact-tracing apps

- **Comment**: The following link provides more information on the Finnish COVID-19 tracing app, in particular on their open source components and security approach: https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new/coronavirus-covid-19-latest-updates/transmission-and-protection-coronavirus/contact-tracing-app-will-help-stop-chains-of-infection
- **Comment**: The Italian contact-tracing app is also open source. Documentation in English with further information is available here: https://github.com/immuni-app/immuni-documentation

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Thank you

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