

# **OSKARI DEVELOPMENT AND PROCUREMENT**

Presentation @ DG Connect Webinar

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# OSKARI IS ...

- An Open Source package
  - For creating embedded map clients onto other websites very efficiently – like Google maps API
  - For connecting to distributed SDIs like the European INSPIRE and European Location Framework (ELF) via **standard OGC interfaces**, along with other data sources
  - For setting up Geoportals
  - For setting up advanced web-based tools, such as decisionmaking support services
  - See [oskari.org](http://oskari.org) for more info
  - Try the [Finnish Geoportal](#) to see Oskari features



# OSKARI DEVELOPMENT PROJECTS

- Approx. 1-1,5 –year development projects since 2010
- Both internal and outside funding from national and EU projects
- Agile methods – scrum and kanban
  - 2-week sprints in scrum
  - Approx. 9-10 releases per year
- Roles
  - Product owner (Jani) -> prioritization, user stories
  - Product team (Timo, Riikka, Kirsi, Panu, Kai) -> user stories, testing
  - Test automation manager (Teijo)
  - Scrum team with scrum master and architect, both own personnel and consultants (7 persons)
  - Outsourced concept planning and graphical design

# DEVELOPMENT & OTHER TOOLS

- Build automation: Jenkins
- Testing: junit, Selenium, SauceLabs
- Code quality: SonarQube
- Project management: JIRA with Agile, Confluence
- Documentation: [www.oskari.org](http://www.oskari.org)
- [Roadmap](#) and [Release plan](#) in Paikkatietoikkuna, will move to a Trello board
- [GitHub](#) for collaborative development and issue tracking
- Github.io wiki to be established
- Twitter @oskari\_org, email oskari@nls.fi



# THE DIRECTIVE ON PUBLIC PROCUREMENT

DIRECTIVE 2004/18/EC OF THE EUROPEAN PARLIAMENT  
AND OF THE COUNCIL of 31 March 2004\*

on the coordination of procedures for the award of  
public works contracts, public supply contracts and  
public service contracts

(To be replaced by 2014/24/EU with effect from 18<sup>th</sup> April 2016)

**Keywords:**

Non-discrimination

Equal treatment

Transparency

# PROCUREMENT GOALS

- Maintain flexibility as to which features will be developed
- Maintain control over prioritization of development items
- Make sure best possible expertise is available throughout the project
- Make sure open standards are utilized whenever possible
- Make sure benefits are gained throughout the project -> Agile
- Fixed costs and Schedule -> Results are the flexible part
- Open Source licensing to allow for
  - Broad utilization of results
  - Joint development between organizations and the community
- Capacity Building
  - Procurement of experts from several companies



# PROCUREMENT PROCESS

- Provide in the Call for tender:
  - Project result description on a general level
  - Rough estimation of amount of work & release plan
  - Requirements for competences of developers and other experts
  - Draft contract with e.g. terms for terminating the contract
- **Personal competences matter, not company references**
  - Programming skills, scrum experience
  - Architecture design competence
  - Graphical design and usability
  - Testing competence
- Have developers work near you in the same office
  - When the team is well established, working remotely can be allowed
  - Instant messaging and video conferencing are a must when remote

# PROCUREMENT CRITERIA

- Must be **transparent and public**
- Competence e.g. 50 %
  - Based on e.g. number of years of experience in Java, JavaScript, OL, ..
- Price 30 %
  - Hourly rate
- Suitability 20 %
  - Can be evaluated in a number of ways
  - Important if team is from multiple companies
- Another way: two rounds
  - First round based on competence (and perhaps suitability), can only pass if competent&suitable enough
  - Second round based on price only



# PRICE

<b>HINTATAULU</b>			
	<b>Tarjoajan nimi:</b>		
	<b>Tarjoaja täyttää harmaalla merkityt solut</b>		
<p>Hinnat on annettava pyydetyllä tavalla, kysymyksenasettelua ei saa muuttaa.</p> <p>Kaikki hinnat on ilmoitettava ilman arvonlisäveroa.</p>			
<b><u>Kehittäjät</u></b>	Konsultointityön tuntihinta <aikamääre> (Alv 0%) €	Konsultointityön tuntihinta <aikamääre> (Alv 0%) € ( <b>valinnainen</b> )	
<b>Kehittäjä A</b>			
<b>Kehittäjä B</b>			
<b>Kehittäjä C</b>			
<b>Kehittäjä D</b>			
<b>Kehittäjä E</b>			

Price per hour  
per developer

Price per hour per  
developer  
- When an option to  
extend the contract  
is applied

# COMPETENCE

Maanmittauslaitos			<b>KOMPETENSSIT</b>		Tarjouspyyntö
Tukipalvelut					14.8.2014
Oskari-ohjelmiston kehittäminen					Liite 4
			Tarjoaja täyttää harmaalla merkityt solut		
<b>Tarjottavien henkilöresurssien kompetenssien kuvaus</b>					
Nimeä kaikki tarjotut henkilöt taulukkoon			<b>KEHITTÄJÄ A</b>	<b>KEHITTÄJÄ B</b>	<b>KEHITTÄJÄ C</b>
<b>NIMI</b>			<nimi>	<nimi>	<nimi>
<b>OHJELMOINTITYÖN KOMPETENSSIT</b>					
<b>Technology competences</b>		<b>PAINO-%</b>	Arvioi kompetensseja asteikolla 0-3: 0 = alle 1 vuoden kokemus, 1 = 1-3 vuoden kokemus, 2 = 3-5 vuoden kokemus, 3 = yli 5 vuoden kokemus		
			Years of experience		
<b>Palvelinohjelmat ja -tekniikat</b>	<b>30</b>				
Java		10			
PostgreSQL/PostGIS tai Oracle/Oracle Spatial		4			
GeoTools		5			
GeoServer		8			
SSO: SAML2, Shibboleth		3			
<b>Käyttöliittymäohjelmat ja -tekniikat</b>	<b>50</b>				
JavaScript		20			
jQuery		5			
CSS		10			
OpenLayers		15			
<b>Rajapintatekniikat</b>	<b>20</b>				
WMS, WMTS		5			
WFS, WCS, WPS		15			
<b>Yht.</b>	<b>100</b>				

Weight in %

Knowledge of Open Standards



# AVAILABILITY

<organisaatio>						Liite 5			
<yksikkö>		Käytettävissäolo vähintään 80% ajasta jakson aikana				<päivämäärä>			
Oskari-ohjelmiston kehittäminen		Tarjottava vähintään kaksi perättäistä hankintajaksoa vuoden 2015 aikana							
<b>Hankintajaksot</b>		Tarjoaja täyttää harmaalla merkityt solut							
		<aikamääre>				<2016 (optio)>			
Kehittäjän nimi		tammi-helmi-maalis Hankintajakso 1	huhti-touko-kesä Hankintajakso 2	loma	elo-syys-loka jakso 3	marras-joulu jakso 4	tammi-kesä jakso 5	loma	elo-joulu jakso 6
ESIMERKKI 1	Kalle Kehittäjä	x			x	x	x		x
ESIMERKKI 2	Kirsi Kehittäjä	x	x			x			
Kehittäjä A									
Kehittäjä B									
Kehittäjä C									
Kehittäjä D									
Kehittäjä E									

For which months the developer is available?

# EVALUATION

  keltaisella merkittyihin soluihin saa kirjoittaa

	Kehittäjä 1	Kehittäjä 2	Kehittäjä 3
<b>Hinta</b>	€	€	€
Hinta konsulttitunnin osalta 2015			
<b>Tarjouksen vastaavuus</b>			
Toimittajan tarjous on tarjouspyynnön mukainen (vastaus: kyllä/ei)			
<b>Hintapisteesä yhteensä</b>	n/a	n/a	n/a
Hintapistemäärä saadaan seuraavasti: <span style="background-color: yellow;"> </span> hinta saa 50 pistettä, kaksi kertaa keskihajonnan verran kalliimpi 0 pistettä ja kaksi			
<b>Työpersoonallisuustestin pisteet</b>	0	0	0
Työpersoonallisuustestin mukainen arvio 1 - 5			
Arviointiasteikko: erinomainen = 5 pistettä, erittäin hyvä = 4 pistettä, hyvä = 3 pistettä, tyydyttävä = 2 pistettä, heikko = 1 piste, ei käy ilmi kuvauksesta/ei sovi			
Työpersoonallisuustestin pistemäärä saadaan kertomalla arvio (1-5) 20:llä, jolloin maksimipistemäärä on 100.			
<b>Ohjelmointityön kompetenssit</b>			
Tekniset kompetenssit arvioidaan kunkin osa-alueen osalta kompetenssitaulun (Liite 4) ja CV:n tietojen mukaan.			
Arviointiasteikon mukaiset (0-3) pistemäärät jaetaan kolmella ja kerrotaan osa-alueen painotus. Osa-alueiden painotetut pisteet lasketaan yhteen, jolloin			
<b>Ohjelmointityön kompetenssipisteet</b>	0	0	0
	0	0	0
<b>Competence</b>			
Palvelinohjelmat ja -tekniikat	30		
Käyttöliittymäohjelmat ja -tekniikat	50		
Rajapintatekniikat	20		
<b>Vertailuperusteet</b>			
Hinta	35 %	0,0	0,0
Työpersoonallisuustesti	15 %	0,0	0,0
Ohjelmointityön kompetenssit	50 %	0,0	0,0
<b>Painotetut pisteet yhteensä</b>	100 %	0,0	0,0
<b>Sijoitus</b>	e ei voi vertailla	e ei voi vertailla	e ei voi vertailla



# DRAFT CONTRACT CONTENTS

- General and specific Terms and conditions
- Indication of work location
- Indication of minimum % of availability
- Indication of who is responsible of steering the work and providing necessary equipment and software
- Clause that forbids replacing the developer with another without permission of the contracting authority
- Possibility to terminate agreement with a short notice if competence requirements are not met in practice
- Possibility to terminate agreement without specific reason with a longer notice
- Option to extend the contract

# **OSKARI NETWORK**

## **- MORE BY COLLABORATION**



Paikkatietokonsultit

KARTTAKESKUS

# OSKARI NETWORK

infoTripla

Reaktor



gofore

SITO



CGI



TURKU



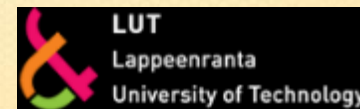
Spatineo



Tampereen kaupunki



KILOSOFT



Liikennevirasto



Unelmakoulu



Helsingin kaupunki



# HOW DID OSKARI AND THE NETWORK GET STARTED?

- Not as a hobby, research project or a product by a small company...
- ...But as a project by NLS FI to develop a map client for the Finnish National Geoportal

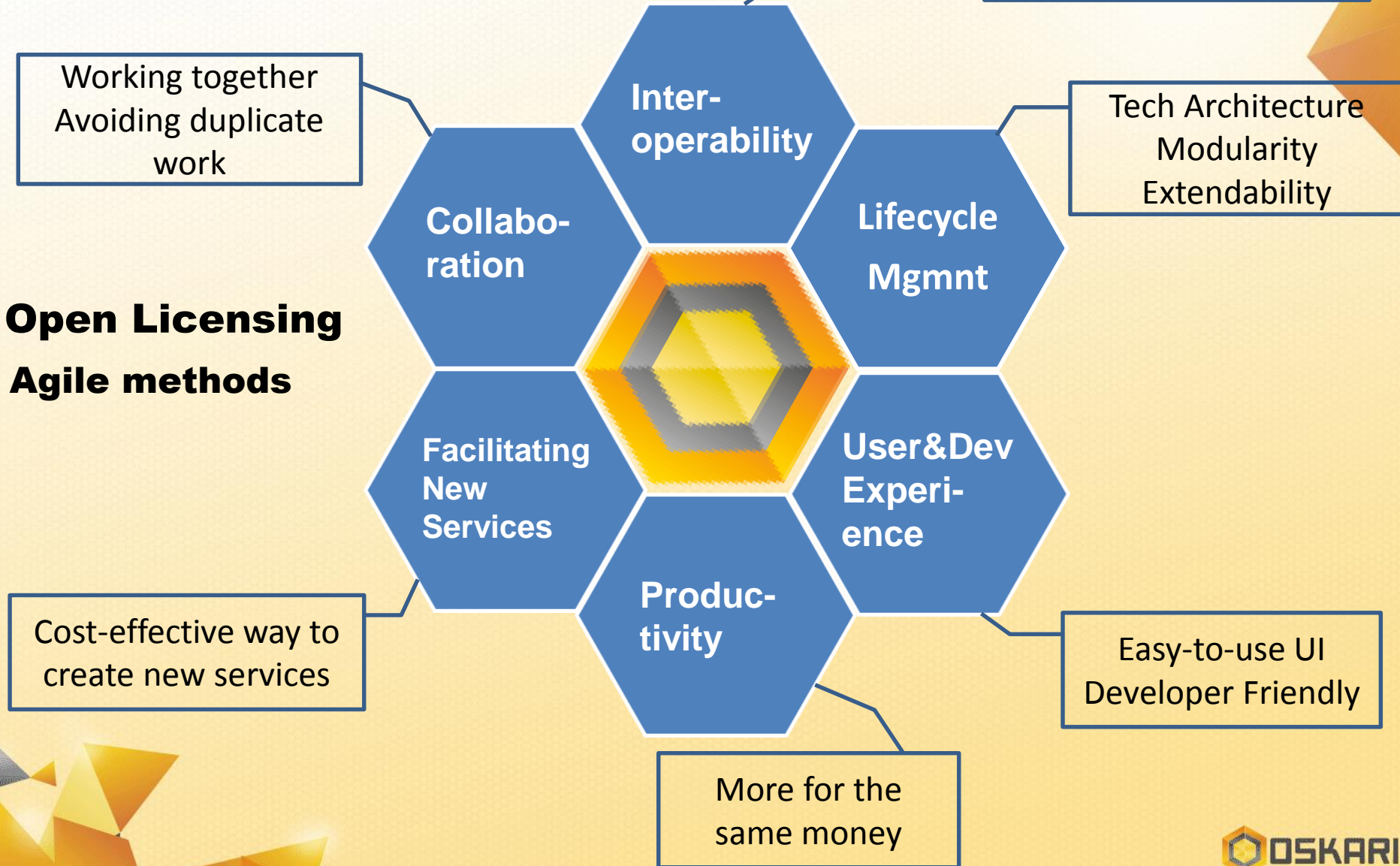
## Simultaneously

- Need of map client solutions in other PS silos
- > NLS FI proposed to start a Collaboration Network around Oskari in 2014
- > 2nd year of Joint Development now ongoing



# Principles of FOSS4G

## Joint Development






# How does a Network facilitate Joint Development?



# TIPS FOR THE PUBLIC SECTOR

- Take care of your precious Open Software! 
- The licensing of products you create should be completely open and on equal opportunity basis
- When publicly tendering for OS solutions, check that nothing prevents Joint Development
  - License is open
  - Software architecture is on a stable basis
  - Open Standards are adhered to
  - Development is always based on latest stable version -> no old version lock-in
- Be careful with declining/neglected OS projects



# **NECESSITIES FOR JOINT DEVELOPMENT MODEL FOR COLLABORATION**

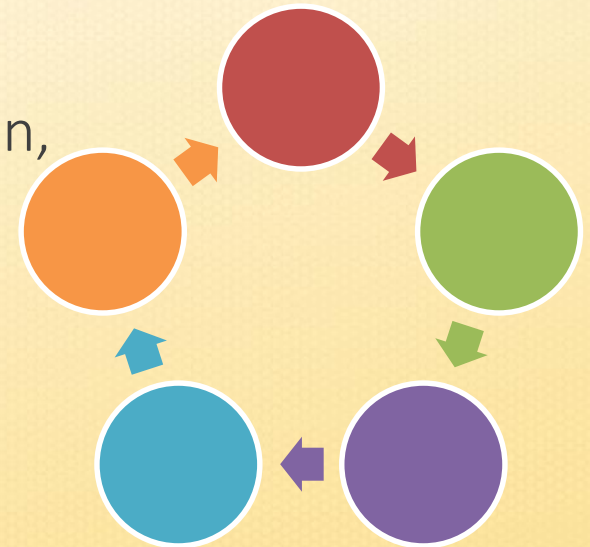


# WHAT DO YOU NEED TO START A COLLABORATION NETWORK?

- Use Case + Ideas
- A Governance Model
  - Including guidance for procurement
- Documentation, Licensing and Versioning policies
- Communications
- Funding and Time
  - Your own commitment
  - Other interested users and developers
- Involvement of academia, education and businesses
  - Research, tutoring and support services
  - Ecosystem of Public and Private stakeholders
- Metrics of success

# PRODUCT LIFECYCLE MANAGEMENT PLAN

- You create Open Source software - you maintain it, too!
- Purpose of the plan is
  - To document responsibilities, organization, ground rules and best practices
  - Help reduce lifecycle costs
  - Communication tool to decisionmakers
- Will help with the OSGeo Incubation process
- The Product Lifecycle Management Plan for Oskari ([docx, in Finnish](#) sorry)







# **LIFECYCLE MANAGEMENT PLAN, CASE OSKARI: ORGANIZATION AND ROLES**

# ORGANIZATION AND ROLES

- Software Owner: **Oskari Network**
- Organization of the Network:
  - The **Network** itself is open to anyone, joining requires to sign a *Memorandum of Understanding* (1 A4)
  - The **Steering Committee** is for funders of the projects. They sign an *Integration Agreement* (4 A4s). Also elected reps from the network
  - The **Coordinator** (now NLS FI) facilitates the network and it's activities, provides support to the projects utilizing the software and is secretary to the Steering Committee
  - The **Integrator** (now NLS FI) is responsible for technical coordination, e.g. architecture of the software core. Reviews pull requests made by contributors, maintains repositories and core documentation. Also manages software versions
- You don't **need** to be member to use or contribute to Oskari



# MEETINGS – WORKING TOGETHER

- “Networking day” at least once a year
  - Status reporting and future activities
  - Presentations of projects and activities around the software
  - Selection of network representatives to the Steering Committee
- Developer meetings / Architecture group 3-4/year
- Steering Committee meetings at least 4/year
  - Oversees the Network and plans activities
  - Chooses the Coordinator and sets the yearly fees
  - Prioritizes the Roadmap
  - Is responsible for communications activities with the Coordinator
- Presentations of the software and the Network activities in conferences and other meetings



# SOME GROUND RULES FOR OSKARI DEVELOPMENT PROJECTS

- Independent projects – commonly agreed principles
- **No overlapping development** within the Network
- Common understanding of software architecture
- Support to projects on application of architecture
- Developed code
  - integrated as part of the software core
  - or maintained in linked repositories
- Development projects shall document, test and maintain the source code they have developed
- Uniform model for licensing

# **DOCUMENTATION LICENSING COMMUNICATIONS VERSIONING**



# DOCUMENTATION

- Description and usage of the software
- Use Case examples
- API documentation!
- Code examples
- Installation and upgrade procedures
- Development projects / developers shall document, maintain and support the modules they have developed, unless they are integrated to the software core
- **DON'T** let the documentation become obsolete!
  - Outdated documentation can be even more confusing than no documentation at all..



# LICENSING

- Use a common Open Source license
- Code Provenance: Ensure you don't have copyrighted or patented code in your codebase
- Provide a Contributor License Agreement (CLA) - for the benefit of both your project and the contributor

# COMMUNICATIONS

- Roadmap
- Public backlog and issue tracker
- Regularly updated release schedule
- Documentation and guides
- Use Case Examples -gallery
- Q & A pages
- Tweets & other social media presence
- Events, gatherings
- Discussion forum, instant messaging



# VERSIONING – CASE OSKARI

- Coordinator maintains the roadmap of releases as a [Trello board](#) – also a place for sharing development ideas
- Development projects / Developers inform the Coordinator of upcoming new features so they can be added to future releases
- Bug reporting at the moment in [GitHub](#) – a public issue tracker is being planned
- Coordinator and Integrator are responsible for of technical versioning
- Steering board approves new major versions
  - Coordinator and Integrator take care of hotfixes and minor releases



# **FUNDING THE NETWORK ACTIVITIES**

# FUNDING

- Funding gathered from Steering Committee member organizations for
  - Architecture support
  - Communications
  - Code integration reviews
- NLS FI is a major contributor and user
  - Coordination of Architecture work & software core maintenance
  - This activity could be run by a non-profit or a business
- Software core maintenance activities (and funding) should be more evenly distributed among the Network and wider community – or centrally funded

# **MEASURING SUCCESS**



# METRICS

- N:o of Oskari installations - **~10** (that we know of..)
- N:o of ongoing development projects - **~8**
- N:o of active contributors - **10-15**
- N:o of attendees in Network day - **~40-60**
- Amount of money spent
  - On Oskari-related development **>1 million €** in 2015
  - On community activities approx. 20 000 € in 2015
- Amount of money saved – not a simple issue
  - License costs saved
  - Lifecycle costs – *major* savings, evident in longer term
  - Other benefits, like enhanced co-operation, involvement, capacity building etc.

# **ASSORTED REQUIREMENTS**



# **FACILITATE THE COMMUNITY - OPEN SOURCE BEST PRACTICES**

- Flexible & equal opportunity licensing (Oskari has dual license: MIT/EUPL)
- Use interfaces (standard ones if they exist)
- Make flexible, extendable architecture
- Public issue tracker
- Documentation & communications facilities
- OSGeo resources through Incubation



# PAY ATTENTION TO STANDARDS & REGULATIONS

- Oskari has OGC / INSPIRE support
  - The whole OGC-based SDI at your fingertips
  - WFS services built according to INSPIRE Download Service specifications can be connected with the administration tool
  - Use data from SDIs with your eGovernment services
- Also other APIs
  - ArcGIS REST
  - Statistical data APIs



# ADDRESS LOCAL NEEDS

- Localization
  - EPSG projection support
  - UTF8 charset
  - Tools for creating and importing localization files as Excel files
- Multilingual, Oskari 2015:
  - English (full coverage)
  - Finnish (full coverage)
  - Swedish (full coverage)
  - French
  - Italian
  - Dutch
  - Spanish
  - Norwegian (bokmål&nynorsk)
  - Estonian
  - Slovenian
  - Slovakian
  - Icelandic
  - More to be added...

# CONCLUSIONS



# CHALLENGES

- Breaking silos and overcoming prejudice
- Making sure developers take care of documentation etc.
- Getting software core development funded when everyone wants to add new features
- Spreading knowledge of the software and the features
- Matchmaking the organizations and people in need of specific features; Facilitation of Joint Development
- Going international: joining the worldwide FOSS4G ecosystem as a community

# SUCCESSSES

- Oskari popular in Finland; gaining international attention
- A strong Network has emerged around Oskari in Finland and organizations are learning how Joint Development works
- Companies and Academia involved in the Oskari Network
- Having a governance model makes things more organized
- Flexible architecture will bring savings on Lifecycle costs
- Significant Joint Development projects are in motion or due to start soon

**Benefits of Joint Development are becoming evident!**

**Work together, it's FUN!**



# **USE CASES & CONTACTS**



# USE CASES OF OSKARI

- European Location Framework [Showcase App](#)
- Arctic SDI [Geoportal](#)
- Finnish National eGovernment [services](#), to be launched by the end of 2015
- National Land Survey of Finland eServices, to be launched 2016
- City of Tampere [Map Service](#) , [Citizens' Services Map](#) + [many more](#)
- The [Regional Council](#) of Southwest Finland
- Statistical data service "Liiteri" for the Finnish ministry of Environment
- Helsinki Region Environmental Service Authority HSY [Map & Data Download Service](#)
- Finnish Transport Agency [data download service](#)
- Permit Services for Municipalities ([Lupapiste](#))
- Unemployment Services Finland [mol.fi](#)
- City of Helsinki beta map service

# COMPANY CONTACTS

• CGI Finland	<a href="mailto:pia.lahde-lyytinen@cgi.com">pia.lahde-lyytinen@cgi.com</a>	
• Dimenteq	<a href="mailto:myynti@dimenteq.fi">myynti@dimenteq.fi</a>	
• Gofore	<a href="mailto:gofore@gofore.com">gofore@gofore.com</a>	
• Infotripla	<a href="mailto:info5@infotripla.fi">info5@infotripla.fi</a>	
• Karttakeskus	<a href="mailto:vesa.niinisto@karttakeskus.fi">vesa.niinisto@karttakeskus.fi</a>	
• Kilosoft	<a href="mailto:info@kilosoft.fi">info@kilosoft.fi</a>	
• Nitor	<a href="mailto:sales@nitor.fi">sales@nitor.fi</a>	
• Paikkatietokonsultit	<a href="mailto:kari.mikkonen@paikkatietokonsultit.fi">kari.mikkonen@paikkatietokonsultit.fi</a>	
• Reaktor	<a href="mailto:myynti@reaktor.fi">myynti@reaktor.fi</a>	
• SC5 Online	<a href="mailto:info@sc5.io">info@sc5.io</a>	
• Sito	<a href="mailto:kari.tuukkanen@sito.fi">kari.tuukkanen@sito.fi</a>	
• Spatineo	<a href="mailto:sales@spatineo.com">sales@spatineo.com</a>	





<http://www.oskari.org>

<https://github.com/nls-oskari/>

<https://joinup.ec.europa.eu/software/oskari/home>

<http://www.paikkatietoikkuna.fi/web/en/map-window>

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