

# Introduction to RepOSS

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# Background and Goal

# Surrounding OSS

1. In the ICT (Information and Communication Technology) field, OSS (Open Source Software) has important roles as key components of many systems these days
2. As of March, 2012, about 320K OSS projects with 3.4M developers were registered into sourceforge.net (From SourceForge.net®)
3. **In order to choose which OSS is more suitable for your use, OSS information based on criteria will be useful as references**

## Concerns around OSS

- Functions, Supportability, and Quality
- Continuity, Stability of its community
- License restrictions and IPR
- POC (Proof of Concept), Show cases

## Our Goal

To promote OSS adoptions and applications by providing **practical OSS references and assessments** with respect to concerns, such as these

# Existing OSS Assessment Methodologies

# OSS Assessment Methodologies

	OSMM Capgemini	OSMM Navica	QSOS	OpenBRR	OMM
Seniority	2003	2004	2004	2005	2008
Original authors/sponsors	Capgemini	Navicasoft	Atos Origin	Carnegie Mellon Silicon Valley, Spike Source, O'Reilly, Intel	Qualipso project, EU commission
License	Non-free license, but authorized distribution	Assessment models licensed under the Academic Free License	Methodology and assessments results licensed under the GNU Free Documentation License	Assessments results licensed under a Creative Commons license	Creative Commons Attribution-Share Alike 3.0 License
Assessment Model	Practical	Practical	Practical	Scientific	Scientific
Detail levels	2 axes on 2 levels	3 levels	3 levels or more	2 levels	3 levels
Predefined criteria	Yes	Yes	Yes	Yes	Yes
Technical/functional criteria	No	No	Yes	Yes	Yes
Score model	Flexible	Flexible	Strict	Flexible	Flexible
Scoring scale by criterion	1 to 5	1 to 10	0 to 2	1 to 5	1 to 4
Iterative process	No	No	Yes	Yes	Yes
Criteria weighting	Yes	Yes	Yes	Yes	Yes
Comparison	Yes	No	Yes	No	No

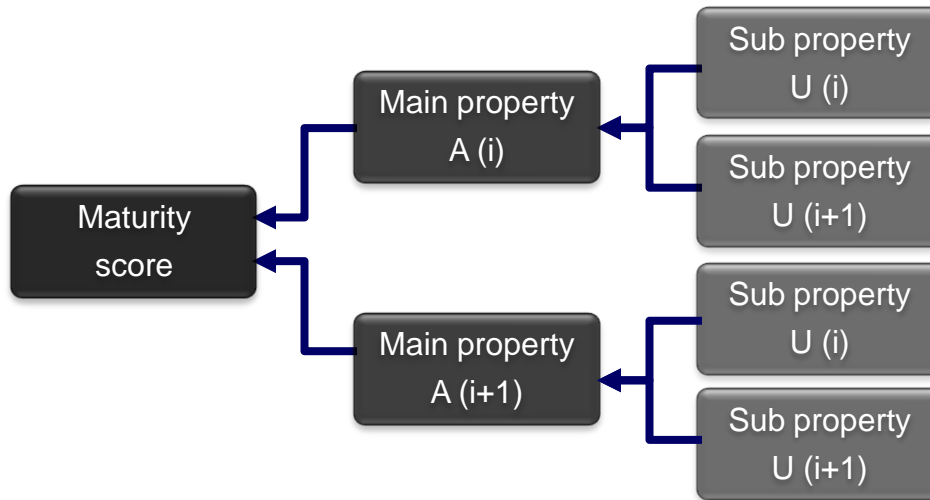
✂from Wikipedia, "Open, source software assessment methodologies", April, 2012

# Yet no standard, as the case may be

OpenBRR	No open repository
	Terminology is broad and imprecise
QSOS	Ambiguous scoring rules
	Universality of scoring rule is not possible
Qualipso OMM	Criteria based on Waterfall model
	No open repository

1. Deprez, J.-C., Alexandre, S., "Comparing Assessment Methodologies for Free/Open Source Software: OpenBRR & QSOS"
2. Etiel Petrinja, Alberto Sillitti, and Giancarlo Succi, "Comparing Open BRR, QSOS, and OMM Assessment Models"

# Common ground of Evaluation Methods



$$M = \sum_{i=1}^n A_i \times W_i$$

$$A = \left( \sum_{i=1}^n U_i \times W_i \right) \div n$$

## Maturity score:

$A_i$ : the score of main property  $i$

$W_i$ : the weight of main property  $i$

$U_i$ : value of sub property  $i$

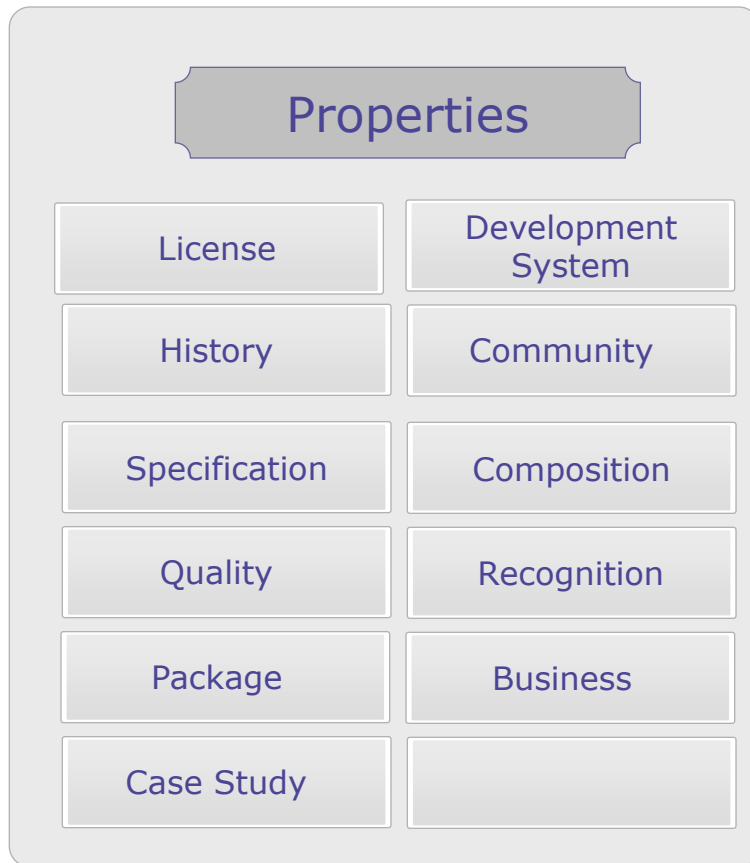
$W_i$ : the weight of sub property  $i$  in the property class. 'n' is number of properties in the property class.

## Difficulties to overcome

1. Subjective Weight assignment
2. Determination of critical maturity score
3. Different results from various OSS maturity assessment methodologies
4. Objection from OSS community (i.e. Meanings of its summation)



# Issues with Property Collection



- 1. Deviation** by Subjective information and/or qualitative analyses
2. Deep and detailed analyses with communities members without **objections from OSS communities**
- 3. Continuity** and the latest information

# Existing Methodologies

- Use similar properties and similar equations, but
- Have weights that would depend on assessors' perspectives
- Qualitative analyses and Subjective evaluation are creating deviations

A large, light blue, downward-pointing arrow with a 3D effect, pointing from the text above to the box below.

**No Universal Standard**

# Concept and approach of



**Which is a flexible OSS  
Assessment Repository**

# Approach toward our Goal

- No universal Standard
- Subjective or Qualitative information
- Continuity issue

**1. OSS Repository for Flexible assessments**

**2. Objective and Quantitative Properties**

**3. Open Community Model**

# Repository for assessments

Properties (Quantitative information)



Assessor's Perspectives and Purposes



Methodologies (QSOS, OpenBRR)

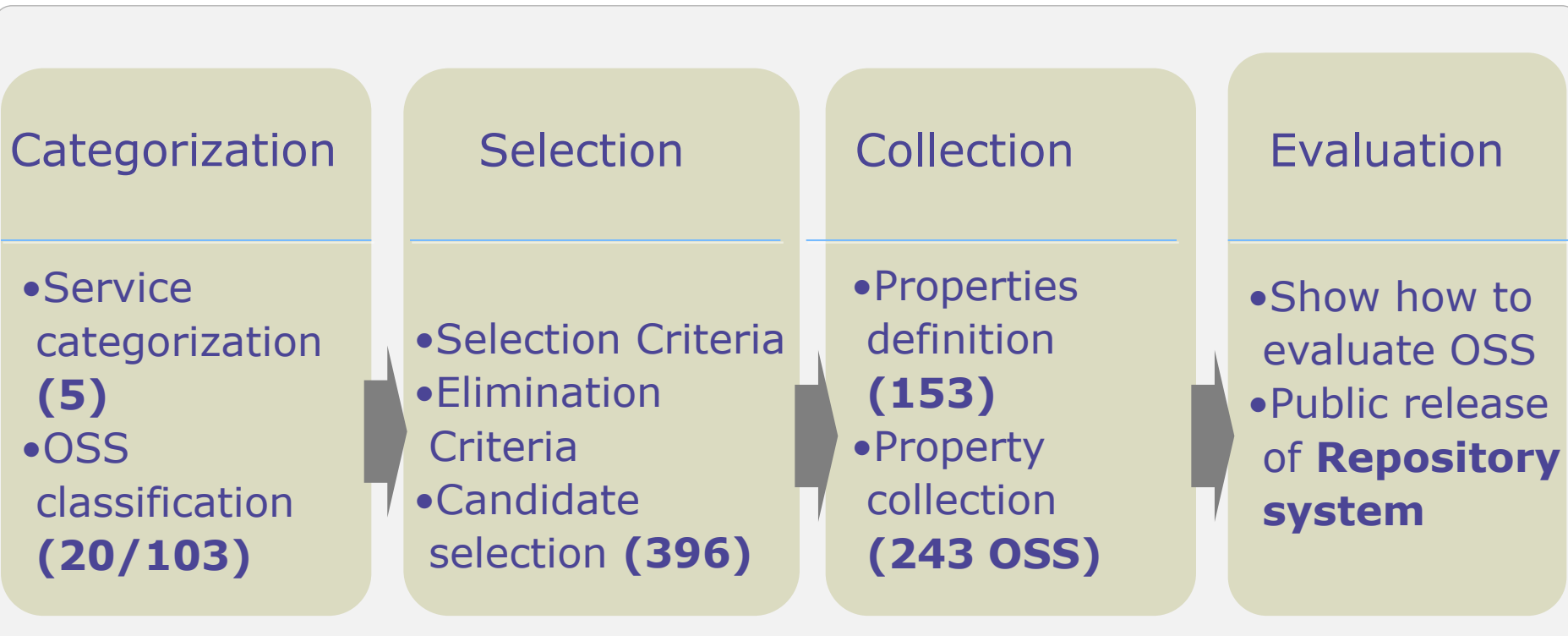
Own analyses



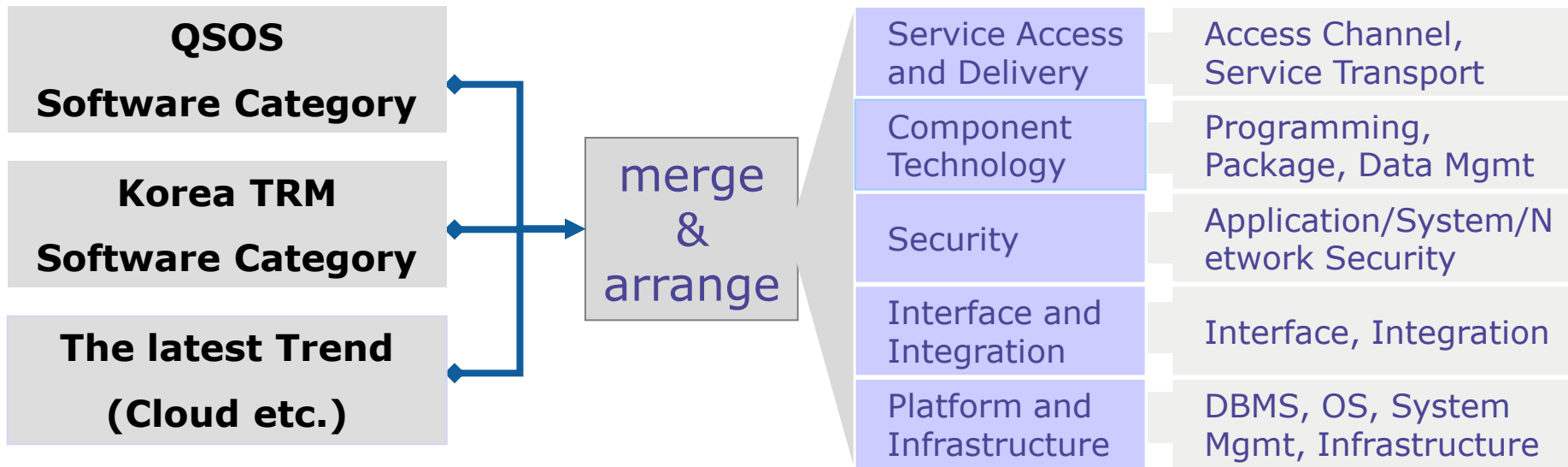
Flexible OSS Assessments

# Steps

- To measure the quality of OSS by comparing and evaluating various properties



- Categorize 396 OSS projects based on the Korean government TRM (Technical Reference Model)
- 5 main categories, 20 sub categories, additional 103 sub-sub categories



- If too detailed, integrated into a higher category
- If too rough, divided into sub categories
- Functions for a specific business category are excluded

# Collection

## 154 Properties Defined

1. OSS information must be retrieved from the **official and public websites**
2. **Quantitative data** which **can be evaluated** must be adopted
3. Detailed **Properties gathering Procedures**

License

Development Organization

Release Information

Communication Infrastructure

Specification

Composition

Quality

Popularity

Portability

Business

Cases



# Assessment Properties



<b>License</b>	License information (i.e. GPL, MPL, and so on)
<b>Development Organization</b>	Community/Company, Main Developers, Demographics
<b>Release Information</b>	Major Versions, Release Periods
<b>Communication Infrastructure</b>	Official Sites, Source Code Repository, Bug Tracking System, Mailing lists
<b>Specification</b>	Localization, Support OSeS
<b>Composition</b>	Development Languages, Plug-in Architecture, GUI tools
<b>Quality</b>	Number of Bugs, Bug Fix Rate, Average Period Until Being Fixed
<b>Popularity</b>	Number of Downloads, User Manual, Number of Web sites, Number of Books, User Group, Awards
<b>Portability</b>	Distributor Packages, Type of Installer
<b>Business Cases</b>	Incorporating OSS into Other Software, Support by vendors Proof of Concept, Showcases

## ■ Easy to have access to OSS evaluation information:

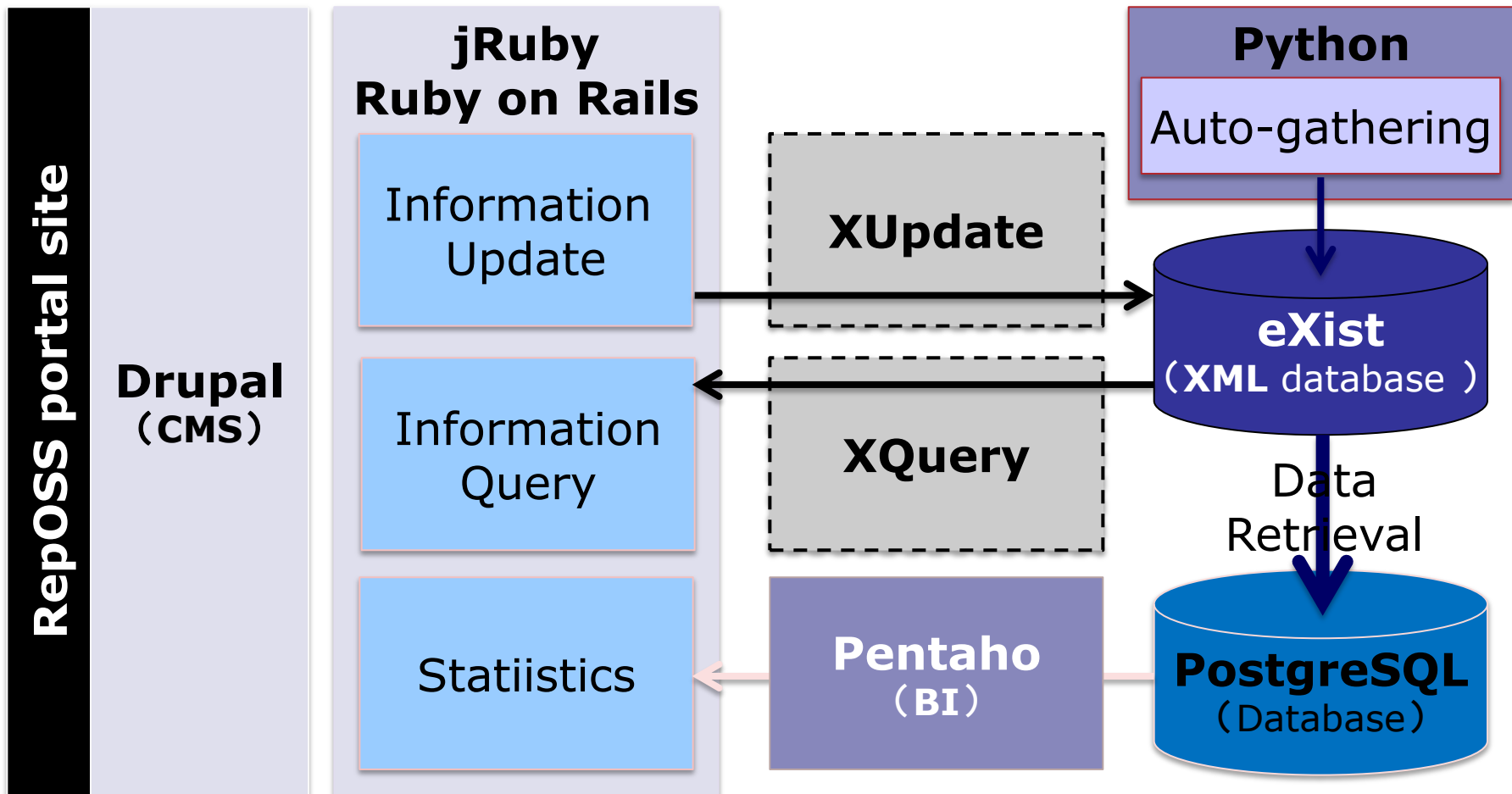
- Properties and so on in RepOSS

## ■ Show how to evaluate OSS

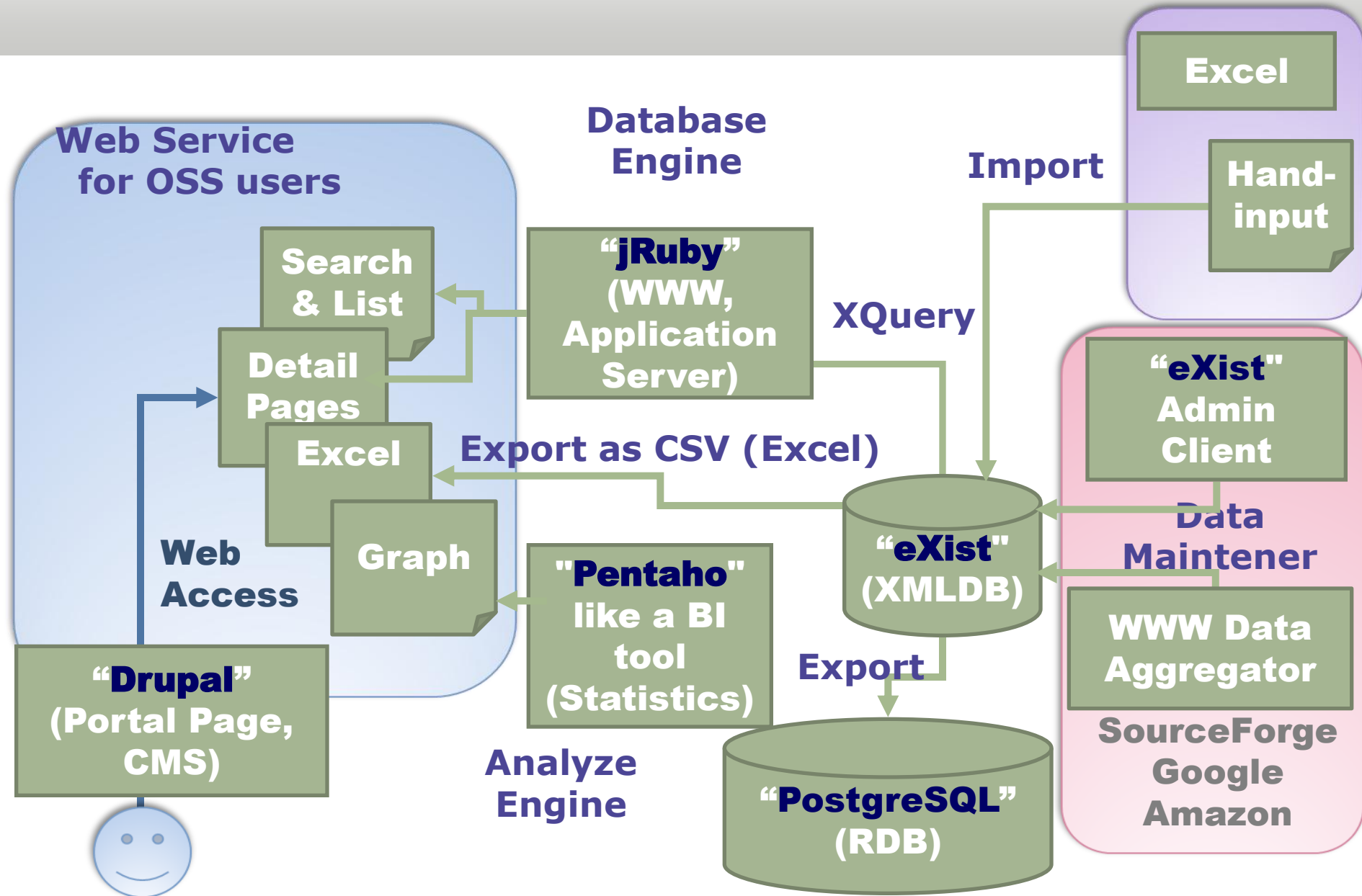
- Mapping into existing OSS maturity assessment models (QSOS, OpenBRR, and so on)
- Analysis examples by BI tools

# RepOSS system

- Efficient and effective use of RepOSS information
- All components are OSS, including our source code



# System Architecture



# Implementation points

Easy to use the repository

- Data into XML database
- BI tools for analyses

Evaluation and Assessments

- OSS maturity model mappings
- Evaluation examples
- Data collection manual

Continuity and durability as an OSS community

- Public Open web system, which is being developed with **all OSS components**

# OpenBRR Mapping



## 8.2 User contribution framework

1) Check it by using 4 "Communication Tools" including 8.3 "Developer Mailing List" and "User Mailing List"

## 9. Adoption

9.1 How many book titles does Amazon.com give for Power Search query: "subject computer and title: component name"?

1) 8.3.2 "Number of books"

## 9.2 Reference deployment

1) 11 "Case"

## 10. Community

10.1 Average volume of general mailing list in the last 6 months

1) Check it by using 4.3 "Developer Mailing List" and 4.4 "User Mailing List" (it's the same question as 7.1)

10.2 Number of unique code contributors in the last 6 months

1) 2.1 "Main Developer" and 2.2 "Other Developer"

## 11. Professionalism

11.1 Project Driver: N/A

1) 2 "Development System" will provide some hints

11.2 Difficulty to enter core developer team: N/A

2) Check it by checking 4.3 "Developer mailing list address"

## **Reference**

[1] Business Readiness Rating for Open Source, BRR 2005-RFC 1,

[http://www.immagic.com/eLibrary/ARCHIVES/GENERAL/CMU\\_US/C050728W.pdf](http://www.immagic.com/eLibrary/ARCHIVES/GENERAL/CMU_US/C050728W.pdf)

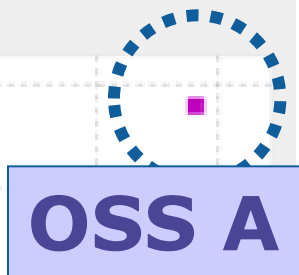
# Analysis with BI tools

## Numbers of bugs

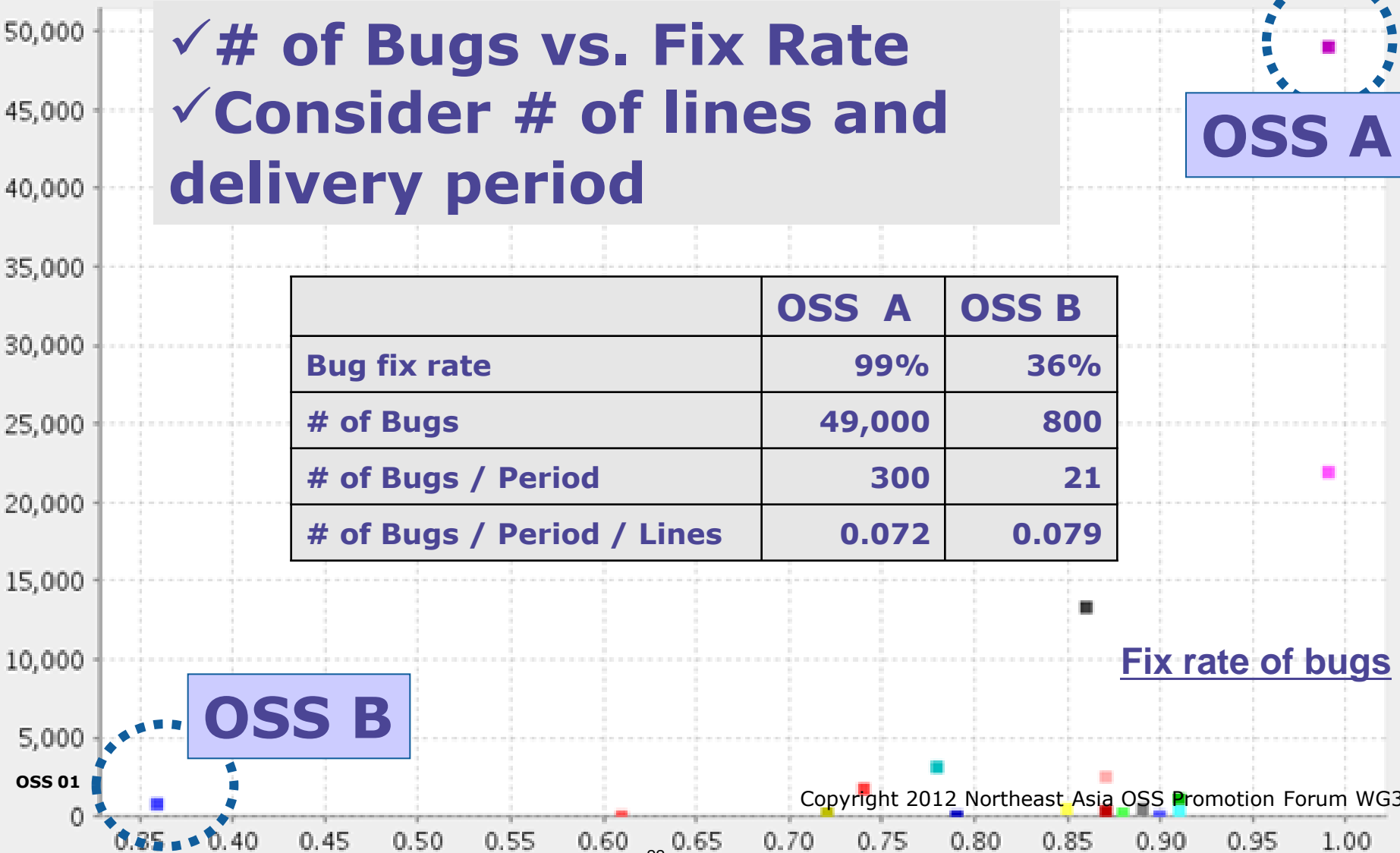
## Correlation scatter chart

- ✓ # of Bugs vs. Fix Rate
- ✓ Consider # of lines and delivery period

	OSS A	OSS B
Bug fix rate	99%	36%
# of Bugs	49,000	800
# of Bugs / Period	300	21
# of Bugs / Period / Lines	0.072	0.079



Fix rate of bugs



# RepOSS screen image 1



The screenshot shows a web browser window with the URL `203.99.77.203/reposs/search`. The page title is "RepOSS - Search & List". The main heading is "RepOSS Selection by License".

The search interface includes a search bar with a magnifying glass icon, a "Search" button, and a "Download" button. Below the search bar is a link: [Close Option & Simple Search](#). There is also an "All Clear" button with a green 'x' icon.

On the left side, there is a navigation menu with the following items: Main Category, License, Written in, Manual, and Services. The "License" dropdown menu is open, showing a list of licenses:

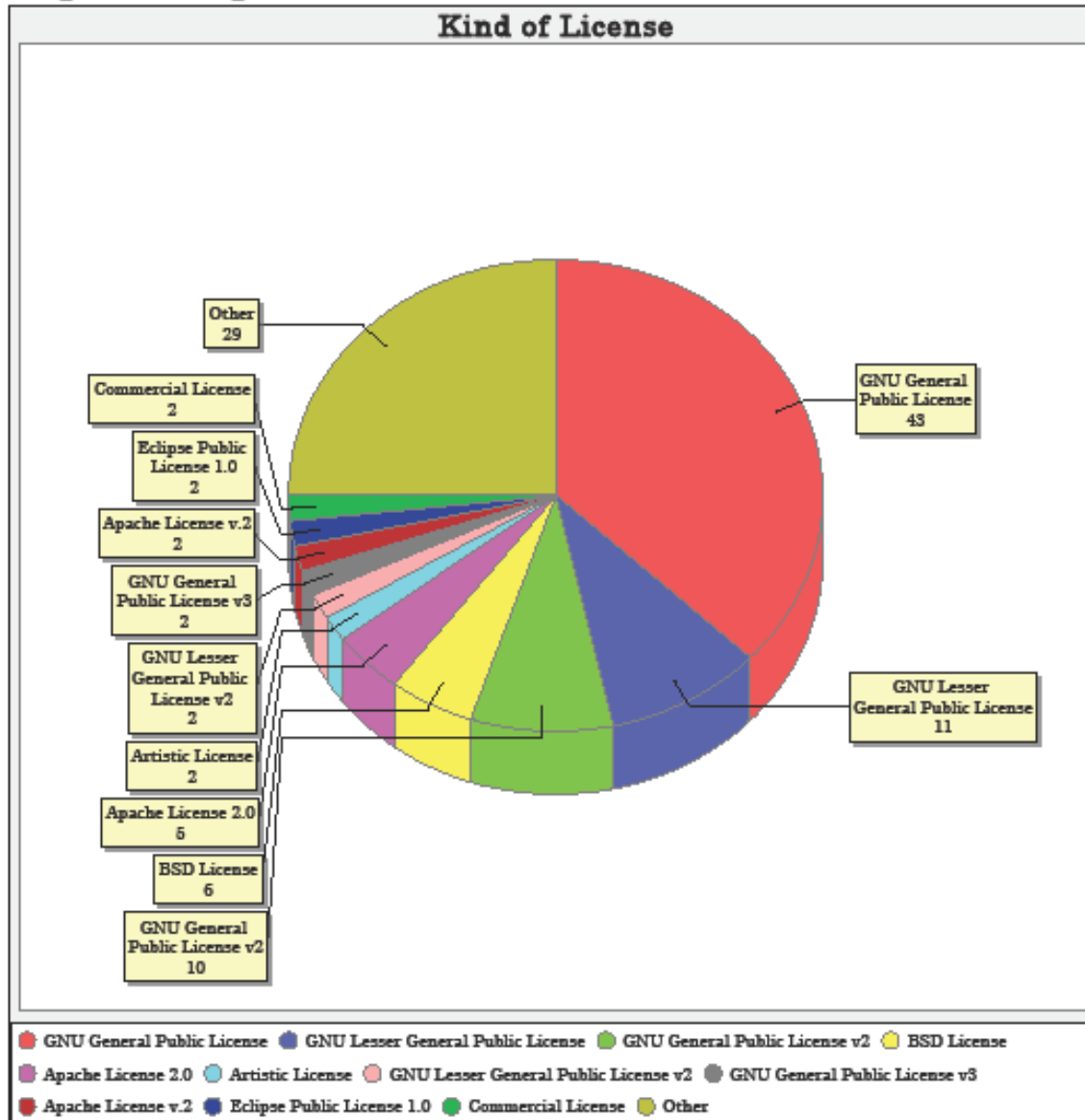
- 
- Apache License 2.0
- Artistic License
- Artistic License 2.0
- BSD License
- Common Development and Distribution License
- Eclipse Public License
- GNU General Public License
- GNU General Public License version 2.0
- GNU General Public License version 3.0
- GNU Lesser General Public License
- GNU Lesser General Public License version 2
- GNU Lesser General Public License version 3
- Mozilla Public License
- Mozilla Public License 1.0
- Mozilla Public License 1.1
- New BSD License
- OpenLDAP Public License
- OpenSSL License
- PHP License

At the bottom right of the search area, there is a "page top" link with a green up arrow icon.



# Licenses

## RepOSS Report



✓ Check OSS Licenses, and whether or not they were approved by OSI (Open Source Initiative)

✓ What should be done under the license, which do you want to use (i.e. "THE BEER-WARE LICENSE" )

✓ Check the status like Dual or Triple licenses

**Please Visit the RepOSS site:  
<http://reposs.org/>**

**■E-mail address: Comments and  
Contributions for RepOSS:**

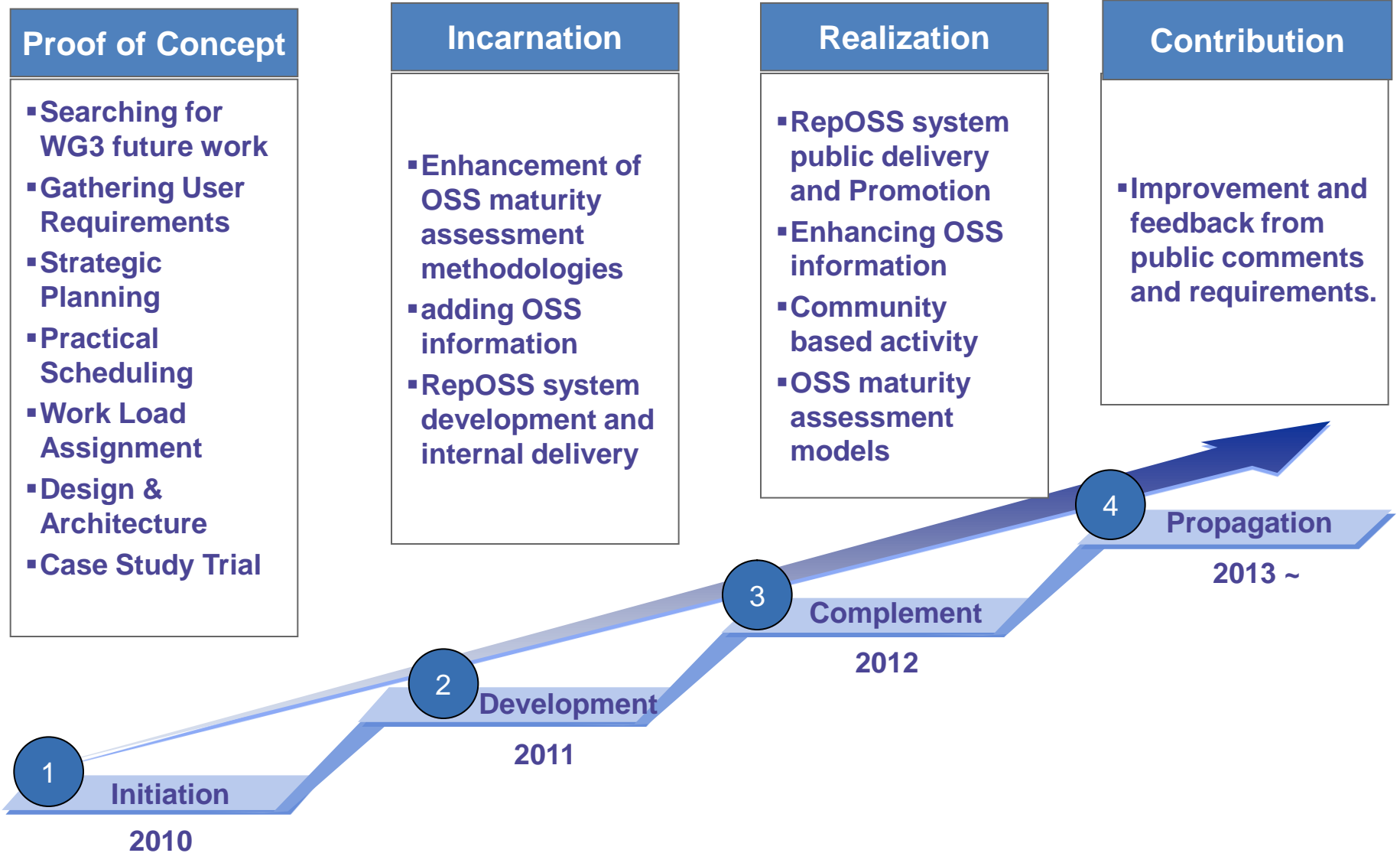
[reposs-administrator@lists.sourceforge.net](mailto:reposs-administrator@lists.sourceforge.net)

**■E-mail address: Comments and  
Contributions for RepOSS source code:**

[reposs-developer@lists.sourceforge.net](mailto:reposs-developer@lists.sourceforge.net)



# RepOSS Road Map



# Where RepOSS was born ?

<http://www.neaossforum.org/>

To contribute to dissemination and promotion of OSS through cooperation among China, Japan, and Korea, IT Directors Generals agreed to found Northeast Asia OSS Promotion Forum and jointly administer the following Working Groups (WGs) to start with:

- WG1: Technology Development & Assessment
- WG2: Human Resource Development
- WG3: Study on Standardization & Certification
- WG4: Application Promotion

**NEAOSS Forum formed “WG3: Standardization and Certification Study” in order to study Open Source Software standardization and certification in July 2004**



**RepOSS is the standard OSS assessment repository among China, Japan, and Korea as a part of the Northeast Asia OSS Promotion Forum WG3 activities since 2010**

# WG3 Member Affiliations



The individual contributors to the Northeast Asia OSS Promotion Forum WG3 come from many prestigious institutions, such as:

**China: CESI** (China Electronics Standardization Institute), **CSIP** (Ministry of Information Industry Software and Integrated Circuit Promotion Center), **Tsinghua University**, and **Red Hat China**

**Japan: Fujitsu Limited, Fujitsu Social Science Laboratory Limited**

**Korea: SAMSUNG SDS CO., LTD, NIA** (National Information Society Agency), **NIPA** (National IT industry Promotion Agency)

# Thank you !



**Here are Japanese members NEA OSS PF WG3 :**  
Kotaro Noyama and Masahiro Date from Fujitsu  
Chieko Hiramatsu and Go Yamamoto from Fujitsu SSL

1. Deprez, J.-C., Alexandre, S., “Comparing Assessment Methodologies for Free/Open Source Software: OpenBRR & QSOS”  
[http://www.qualoss.org/dissemination/DEPREZ\\_CompareFLOSSAssessMethodo-Camera-02.pdf](http://www.qualoss.org/dissemination/DEPREZ_CompareFLOSSAssessMethodo-Camera-02.pdf)
2. Etiel Petrinja, Alberto Sillitti, and Giancarlo Succi, “Comparing Open BRR, QSOS, and OMM Assessment Models”  
<http://www.inf.unibz.it/~gsucci/publications/images/ComparingOpenBRRQSOSandOMM%20Assessment%20Models.pdf>
3. George Kakarontzas, Panagiotis Katsaros, Ioannis Stamelos, “Component Certification as a Prerequisite for Widespread OSS Reuse”  
<http://journal.ub.tu-berlin.de/index.php/eceasst/article/viewFile/449/433>
4. James Howison, Megan Conklin, Kevin Crowston, “FLOSSmole: A Collaborative repository for FLOSS research data and analyses”  
<http://flosseb.floss.syr.edu/system/files/FLOSSmole.pdf>
5. Business Readiness Rating for Open Source BRR 2005- RFC 1 Method for Qualification and Selection of Open Source software (QSOS) v1.6 2006  
<http://www.qualipso.org/>



# Disclaimer

**RepOSS** is an OSS (Open Source Software) assessment repository. It is being developed by a voluntary association of individuals and groups. The structure of the project allows anyone to send back additional and/or revised information to us. However, because of its nature, **RepOSS cannot guarantee the accuracy and the validity of the information found there.** **Therefore, None of the Contributors, sponsors, administrators, or anyone else connected with RepOSS in any way whatsoever can be responsible for the appearance of any inaccurate information or for your use of the information contained in or linked from these web pages.**

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**Q/A**