



QUALLOSS

Quality in Open Source Softwares

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Agenda



- The Challenge
- The Project
- The Methodology
- The Benefits
- Current status
- What's next?





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Your connection to
ICT research

The Challenge



Information Society
Technologies



European Commission



Talking about...

CHALLENGE

PROJECT

METHODOLOGY

BENEFITS

STATUS



- Quality
- Quality Assessment
- Open Source
- Quality Assessment in Open Source
- ... in 15 minutes!





Quality...

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STATUS



- Problem
- Cost of non Quality
- Solution
- Need for Improvement
- Current Quality?





... assessment

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BENEFITS

STATUS



- Access data
- Extract facts
- Interpret facts
- Filter
- In Depth Analysis





... in open source

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- Data are available
- Increased adoption by SME
- Free *libre* Open Source Software (F/OSS)
- Existing methodologies: QSOS, OpenBRR, ... *What else?*





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- €2m EU Funded Project
- 8 partners, 5 countries
- 30 months
- Tooled Methodology to assess F/OSS
- Assessment of 50 F/OSS



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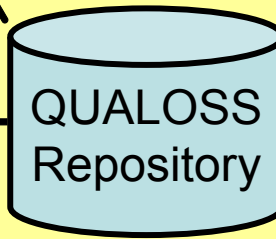
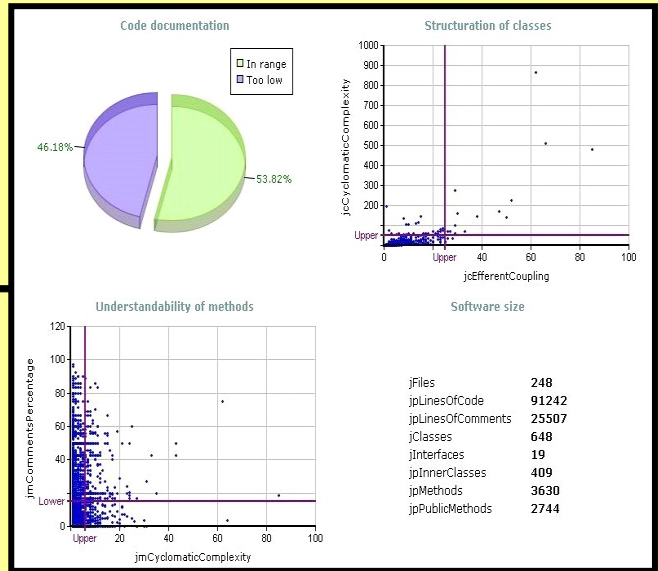


Integrator/User:
Now I know that this FIOSS fits my needs



FIOSS Community:
Now I know how integrators/users gauge quality

QUALOSS Platform



FIOSS repositories

FIOSS project repositories

Filtered FIOSS data
- FLOSSMETRICS
- FlossMole
- SQO-OSS

Other related repositories
- Com. Vul. DB
- Amazon
- Interviews

Goal

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- **Improve/Assess:**
 - Evolvability of F/OSS
 - Robustness of F/OSS
- **Improve quality of F/OSS**
- **Increase knowledge of F/OSS eco-systems**

Question

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- How Evolvable?

- How does the community behave?

- How many contributors?
- What is the probability to fork?

– ...

- How Robust?

- How is the code?

- How many bugs in the past 6 months?
- Does the code respects the conventions?

– ...

Metric

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- **Evolvability**

- Number of Function Points
- Number of Committers
- Number of Technical Documentation
- ...

- **Robustness**

- Number of coding style errors
- Average complexity of methods
- Number of vulnerabilities
- ...



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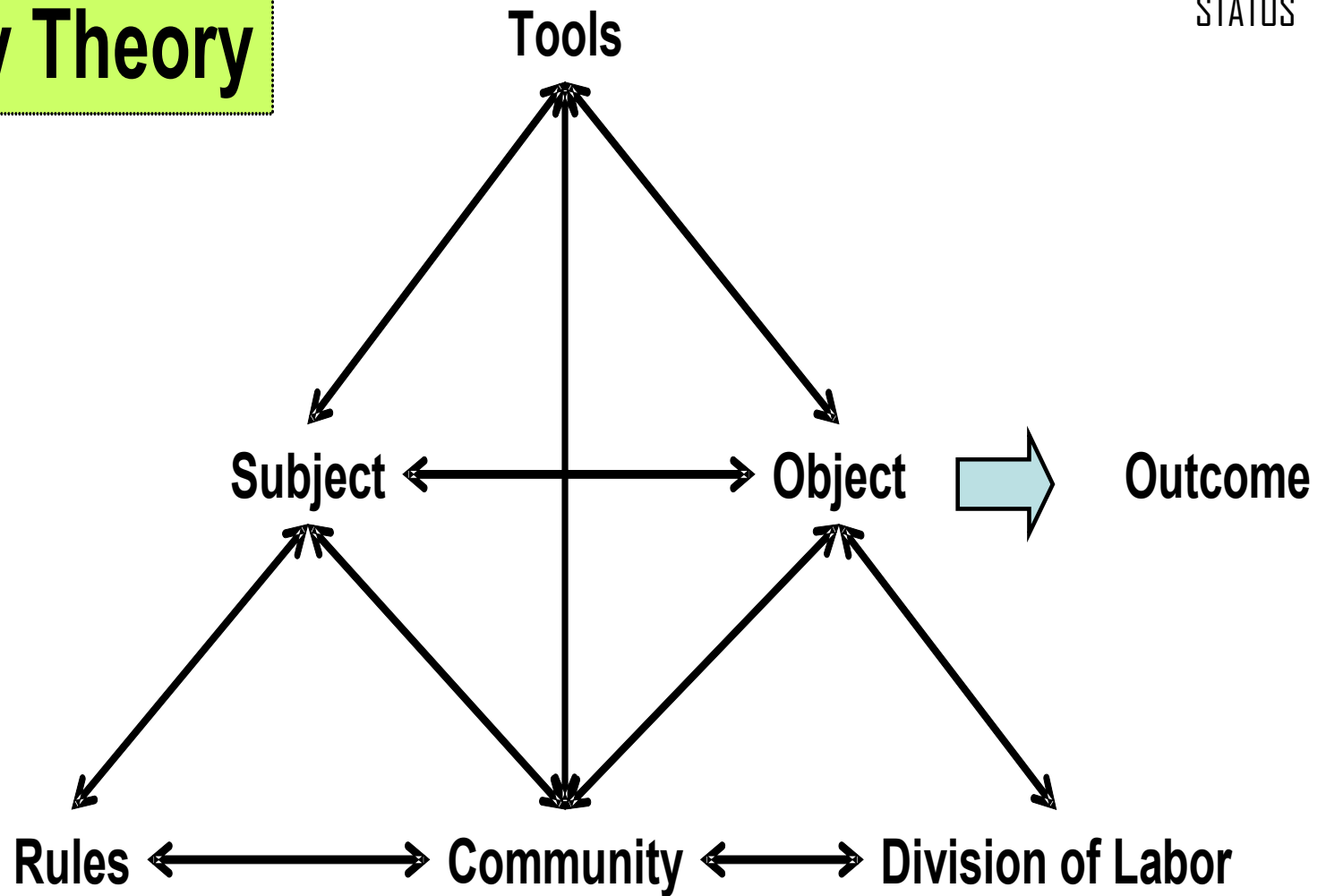
STATUS

The Methodology



The Model

Activity Theory



Assessment of

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- Evolvability & Robustness of:

- Outcome
- Tools
- (Work)Product
- People (Community, Subject)
- Process (Rules, Div. of Labor)

Body of Methods

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- Evaluation

- Product
- Tools
- Community
- Process

- Customization of the Model

- etc.

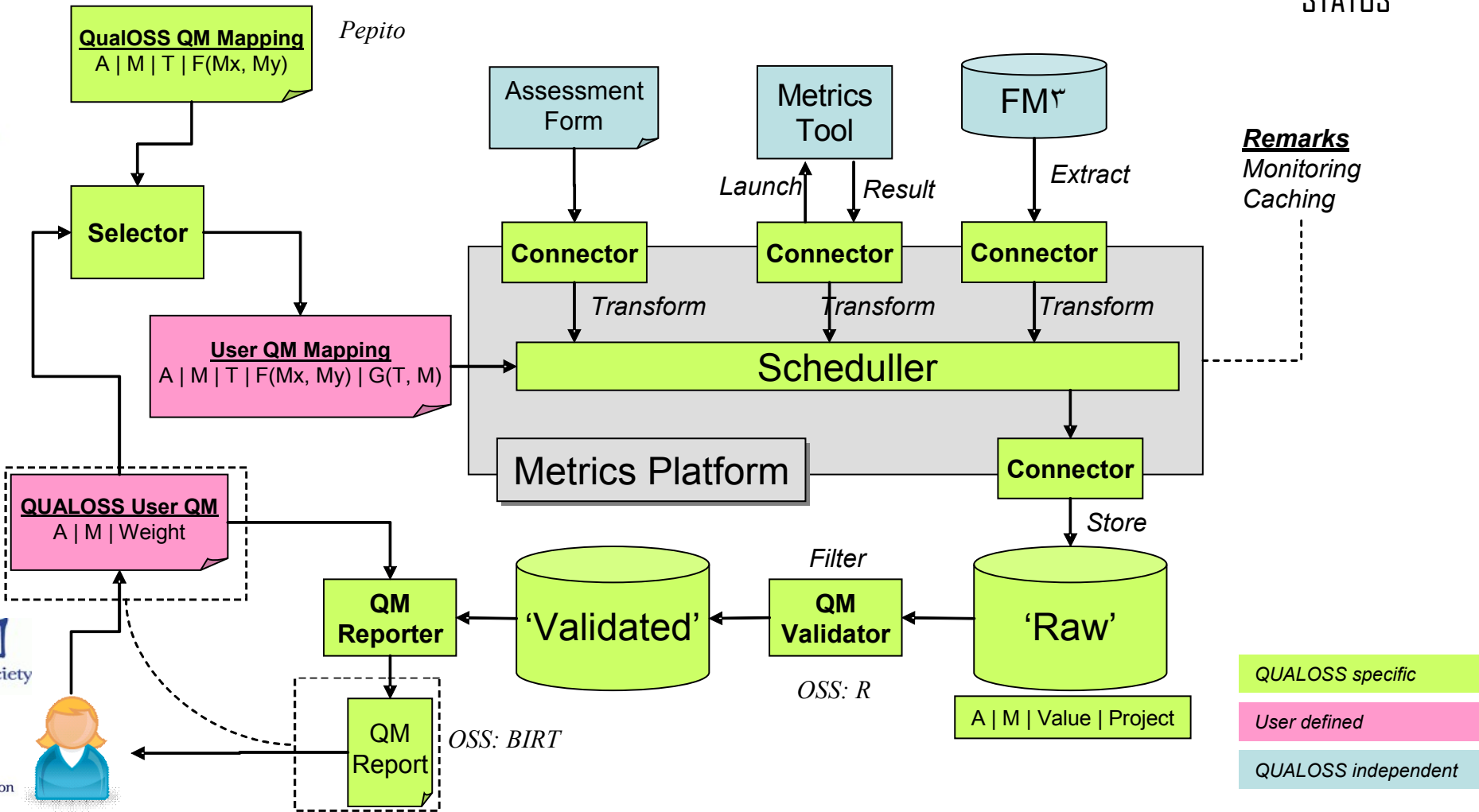


3 Levels



- **Lightweighth Model**
 - Manual assessment
- **Middleweighth Model**
 - Manual & Tooled assessment (basic)
- **Heavyweighth Model**
 - Manual & Tooled assessment (advanced)

The Architecture



The Architecture



- Facts Extractors
 - Checklists Results
 - Source Code Analyzers
- Connectors
- Scheduler
- Validator
- Reporter



Plumbing

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- From Data ... to Report

- Analyzer(SourceCode|Result): Data
- Connector(Data): Facts
- Scheduler(QualityModel, Facts):
Indicators
- Validator(Indicators): Calibrated Database
- Reporter(Calibrated Database): Report

Analyzers



- Source Code
 - Sissy, Checkstyle, PyLint, etc.
- Version Control Repositories
 - CVSAAnaly
- Mailing Lists
 - MLStats
- Others: data directly from Fm3



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The Benefits



For SMEs

- Optimize their adoption cost
- Reduce the risk associated to the adoption of F/OSS
- Improve their competitiveness by using quality F/OSS
- Reduce their skepticism about F/OSS

For Endeavours

- Improve their processes
- Improve their tools & their availability
- Improve their source code
- Improve their understandability of the perceived quality
- Improve their communication



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Current Status



Current Status

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STATUS

- Prototype of the methodology
- Year-1 Review OK
- Specifications of the platform
- Definition of the lightweight methodology
- Implementation started



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What's next



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What's next



- Implementation of the platform
- Definition of the middleweight and heavyweight methods
- Deployment on CETIC's Cluster
- Assessment of 50 F/OSS





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Thank you!



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