Motivation

- Component-Based Software Development (CBSD) is considered the “standard” way of developing software.
  - Software Reuse

- The use of OSS components has greatly influenced the CBSD practices.
Motivation
Problems

- OSS components are offered through a large and diverse marketplace
  - Internet acts as “the infrastructure”
    - Widespread offering of OSS components
    - Information is subjective and not always available nor trustworthy
    - Overwhelming amount of information of very diverse nature

- ...Many prescriptive methods and evaluation schema with limited uptake in the industry
Problems

To improve OSS components selection:
We need to understand the industrial needs and the actual offerings of the marketplace.
An Explorative Study…
The Study

- **Goal:** To establish an empirical foundation of the challenges of the OSS marketplace for dealing with the informational needs of industrial reusers.

1) Investigation of the OSS marketplace

2) Investigation of the informational needs of reusers and how do they get such information from the marketplace
1) Investigation of the Marketplace

- Better understanding of the resources offered
- Between March and November 2008
- More than 60 websites and search mechanisms
  - Web investigation
    - From answer of respondents
    - Previous studies
    - Research team experience
Elements of the Marketplace

- **Reuser**
  - Wants to find OSS components that fit the functionality he is looking for

- **Search mechanism**
  - e.g., Google, Google Code Search, Koders

- **Provider**
  - OSS communities (e.g., moodle, joomla)

- **Intermediary**
  - Repositories, Consulting services (e.g., SourceForge, Gartner)

- **Promoter**
  - Individuals and organizations promoting OSS
2) Investigation of reusers interaction with the Marketplace

- Semi-structured interviews
  - Developers in SMEs companies
  - 5 Spanish and 3 Norwegian (Currently 16 Spanish, 5 Norwegian)

- The interviews were taped and transcribed
  - Transcriptions worked as a basis for the analysis
2) Investigation of reusers interaction with the Marketplace

- Information was grouped into:
  a) How companies search OSS components?
  b) How companies Evaluate and Decide OSS components?
a) How companies search OSS?

- No Search is required
  - Re-use components they have used before
  - **Problem**: Companies may not use the best component

- Regular monitoring of marketplace trends
  - Follow sources they are familiar with (e.g. domain-specific portals with rss mechanisms, blogs, books)
  - **Problem**: Huge amount of components and information. Difficulties in navigating in portals e.g. SourceForge

- Open Search
  - Mainly Google
  - **Problem**: A lot of irrelevant information
b) How companies Evaluate and Decide OSS components?

- Experience-based Evaluation
  - The developer or a colleague has previous experience with the component
  - **Problem**: Evaluation not necessarily thorough

- Searching for information to Evaluate components
  - Mostly in the community portal
  - But also a lot through search engines (Google)
  - **Problem**: A lot of poor and irrelevant information, often subjective and incomplete. Limited functionality in portals for arranging the information
General Conclusions

- Actual situation of the OSS marketplace does not allow to fully exploit the benefits of software reuse.

- Companies do not usually have time to deal with these drawbacks and properly select components.
Discussion of the challenges

- More flexible classification schemas in portals
- Advanced and configurable search engines
- More sophisticated knowledge portals with decision support
- To improve components documentation
Further Conclusions

- **Implications**
  - Practitioners: Share their experiences
  - Researchers: More empirical studies, focus on how to systematize and benefit from the diverse and subjective information across the Internet
  - OSS communities: should strive to increase the availability of quality information available

- **Future work**
  - More details on how developers use Internet resources in selection
  - Detailed analysis of these resources
  - Possible EU project proposal
Feedback, Questions?

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Further detail of our studies
http://research.idi.ntnu.no/oss/