Open Source, What, Why, How

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Introduction

- Review of generic principles, intended for newcomers.
- Overviews of available open source softwares.
- Integration issues.
- Economic model.
- Discussions between users of Open Source software. Further evolution and how to overcome limiting factors.
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What is Open Source

- Share software know-how in the public domain with the full documentation, including the source code.
- Full name = FLOSS, “Free/Libre Open Source Software”.
- Related to “Open Data”, free access to knowledge in the public domain.

Why Open Source in healthcare ?

- Since healthcare software requirements are similar everywhere, international communities can exchange ideas and share development efforts.
- Transparency, control of what a software is doing and not doing.
- Sustainability, avoid to depend on any single software provider.
- Quality by means of peer review.
- Affordable, allow to make any number of copies, without licenses costs.

How to find Open Source

- Many modules are already freely available in the public domain.
- Generic repositories: Linux operating system, software tools, data base systems, etc...
- Today most medical functionalities are available as open source software.
- See MEDFLOSS, http://www.medfloss.org/ a large inventory.
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Advanced Medfloss Search

- by popularity
- by application types
- by enterprise functions
- by standards

Sharing know-how

- Community members may use all the existing software components made up to now.
- New development tasks are distributed between the members of a community.
- Priority for the modules of most common interest.
- However still the possibility to make own development at own costs.

Distributed developments

- Since the documentation is free, several teams can contribute in different countries.
- Anybody can make improvements and extensions for own use.
- Proposed new versions can be accepted by the coordinators of the community. Advantage of the maintenance of common versions.

Support

- Support is critical.
- New users may need help for installation.
- At any time in case of any problem, users need the possibility to call for assistance.
- Support require people knowing the software, but who are not necessarily developer themselves.
- Support services may be charged as any traditional business.

Development resources

- Many enthusiastic volunteers provide development and support.
- But more is necessary, in order to have people working at day time and respecting a planning.

Interoperability Challenges

- Interoperability is always a challenge. Exact definitions and granularity of concepts may be be a little different in different contexts.
- Poor motivation between commercial software products.
- Less difficult in an Open Source context since developers share their documentation.

Economic model

- Developements:
  - In principle to be supported by wellfare foundations and public authorities.
  - The results are available to a large audience at international level.
- Support services:
  - A more traditional business at regional level, in principle to be supported by the users.

Economic model: (1) Users

- Users need solutions and when not yet available software extensions must be made.
- Users are willing to pledge resources in order to get what they need, but on condition deadlines will be met.
- Donations from foundations and public authorities will be very much multiplied when using an open source approach.
- Medical users are not interested in becoming owners of software licenses.

Economic model: (2) Developers

- Developers need good explanations about the requirements of medical applications.
- Developers like interesting challenges.
- Although not the primary motivation, everybody needs realistic incomes.
- While volunteers already do a lot, development budgets are necessary in order to provide solutions within foreseen delays.

Economic model: (3) Broker, “Open Source Market Place”

- Focus on software reuse and interoperability.
- Review of user needs and formulation in technical terms.
- Seek solutions starting from existing Medfloss components and seeking how to make new extensions.
- Guarantee the money pledged by users until valuable software will become available for production.

Health Care Recommendations

- When public money is used for software developments, the results should always be Open Source, as a mandatory condition in calls for tenders.
  Otherwise the citizen would pay twice.
- Reliability is critical in Health Care.
  Critical for both commercial and Open Source, but Open Source can be peer reviewed.
- Importance of availability of maintenance services as a classic business.

Responsibilities

- More and more critical procedures relay on informatics.
- Most organization have insurances but the situation should be clarified. Much more is at stake than the replacement of defect software.
- Certification by independent actors becomes mandatory.
- This is why peer review of Open Source software is essential.

Peer reviewed projects

- Candidates Open Source:
  Projects made in one location by one or a few developers.
- Confirmed Open Source:
  Projects good enough and well documented to have been reused by an other independent group elsewhere.

Future

- Alleviate limiting factors: too many people are not yet aware of the benefits.
- Sharing Open Source software is a way to cope with healthcare budget limitations.
- Make more support services available. Promotion of more informaticians acquiring experience with Open Source technical environment.