

# Open-source and Health Care: Key Factors for the Transfer of R&D Results into Healthcare Solutions

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## Scientific and Technological Domains:

Information and communication technologies



Materials technologies



Business organization and management



Environmental technologies



**Health care technologies**



## Activities:

Applied and experimental research

Doctoral research

Development of tools, methods, labels, certifications and standards

Technological assistance, consulting and technology watch services

Knowledge and competences transfer, as well as incubation of high-tech companies

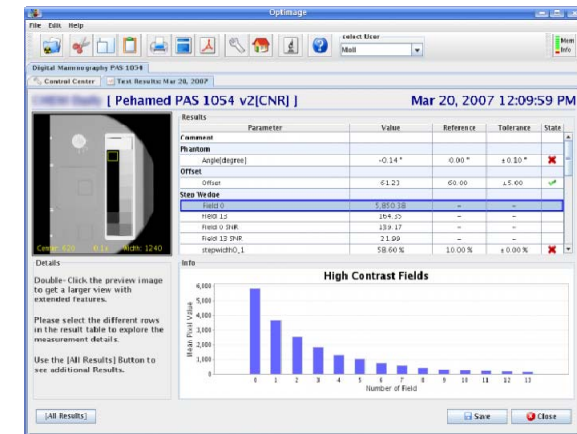
Training and high-level qualification

- Technology Transfer efforts are important because:
  - A “gap” exists between the lab and practical application
  - Potential end users may not be able to “find” the results
  - How the results are used in a commercial format may be very different from what was envisioned at the start of the project
  
- Typical first steps for any Technology Transfer activity
  - Secure the intellectual property – who owns what and how?
  - Market analysis
  - Development of the value offer
  - Creation of a targeted communications effort
  
- Specific concerns for FOSS Tech. Transfer activities
  - Multiple FOSS licenses - licenses are not always compatible
  - Industry concerns over the value, sustainability and quality of FOSS software

- Optimage is a Java-based medical imaging software package that:
  - Works with DICOM images and data
  - Assess the image quality of a wide range of modalities in an automated, easy to use way
  - Provides reporting for analysis and controls

- Developed using software components from:

- NIH – public domain software
- Academic partners: Brüderkrankenhaus Trier
- Sun java APIs and other components



- Initial Project Goals

- Developed and funded to support the tracking of patient dose values as required by Luxembourg law
- Develop technical competencies and contribute results back to the medical imaging software community

- Researchers like FOSS because it:
  - Promotes the sharing of knowledge – Open Innovation effects
  - Programmers can evaluate and modify the code directly
  - Contributing results back to a community is normal in the research domain
  
- Why the LGPL V2.1?
  - Originally developed for software libraries
  - Less viral than GPL V2
  - Developed so that programmers can link to non-FOSS software components
  
- Conditions of using the LGPL V2.1
  - Copyleft conditions upon distribution of the LGPL software, but
    - As long as proprietary software is not integrated into the LGPL licensed software, no copyleft or viral issues

- FOSS is good for R&D collaboration, but...
  - Business, such as hospitals, may be concerned with –
    - Who will provide support for the software when I need help?
    - How does the FOSS license impact my operations?
    - What is the value of the software vs. a commercial solution?
- How does this impact the transfer strategy?
  - Need to answer the above questions in a clear and concise manner
  - Need specific tools to support your argument
- From our Tech. Transfer “First Steps” list...
  - Secure the intellectual property – copyright, license due diligence
  - Development of the value offer – why a FOSS software?
  - Communication – get the right message to the potential user

Folder: [Software Repository/](#) [Optimage/](#)  
[Optimage.tar](#)

Count	Files	License	Optimage/
353	<a href="#">Show</a>	'LGPL'-style	
351	<a href="#">Show</a>	'LGPL v2+ '-style	
294	<a href="#">Show</a>	'LGPL v2.1 '-style	
27	<a href="#">Show</a>	Phrase	
18	<a href="#">Show</a>	Apache Software License v2.0	
14	<a href="#">Show</a>	'LGPL GNU C Library'-style	
10	<a href="#">Show</a>	'Sun Microsystems Free with Copyright'-style	
7	<a href="#">Show</a>	'LGPL v2.1 Preamble'-style	
7	<a href="#">Show</a>	'GPL'-style	
7	<a href="#">Show</a>	'LGPL v2.0 '-style	
6	<a href="#">Show</a>	LGPL v2.1	
6	<a href="#">Show</a>	'GPL v2'-style	
6	<a href="#">Show</a>	'Apache Software License v2.0 '-style	
4	<a href="#">Show</a>	'Apache Software License v1.1 '-style	
4	<a href="#">Show</a>	'GPL v3+ '-style	
3	<a href="#">Show</a>	'CeCILL_V2-en'-style	
3	<a href="#">Show</a>	Eclipse Public License v1.0	
3	<a href="#">Show</a>	'CeCILL_V2-fr'-style	
3	<a href="#">Show</a>	'INRIA-OSL'-style	
3	<a href="#">Show</a>	'Intel-OSL'-style	
2	<a href="#">Show</a>	'X11'-style	
2	<a href="#">Show</a>	Public Domain	
2	<a href="#">Show</a>	LGPL v2.0	
2	<a href="#">Show</a>	GPL v2	
2	<a href="#">Show</a>	'Sun Microsystems Binary Code License'-style	
2	<a href="#">Show</a>	LGPL v2	
1	<a href="#">Show</a>	'Network Computing Devices 1993'-style	
1	<a href="#">Show</a>	Non-commercial	



- R&D software engineers may need support to communicate the value, quality and tangible results of their work
  - Technology transfer is a support role
  
- Healthcare providers, like other actors who would like to implement the results of FOSS R&D results, need to have confidence in software that has been developed
  - Tools from the valuation and IP disciplines can help explain the value and quality of the R&D results to commercial actors
  
- As applied R&D results may not be ready for immediate use in a production environment, a transfer strategy can aide in the adoption of this work:
  - Healthcare stakeholders have information by which they can make strategic decisions
  - Can reduce the negative sentiment that some people have concerning FOSS development

**Thank you for your attention**

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