The impact of teaching using open source geospatial software
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Observations concerning open source geospatial software

EPFL (Swiss Federal Institute of Technology, Lausanne)

2003 – 2010

- About 80% open source software used for research and teaching
- Webmapping, software development, GIS, spatial analysis, etc
Observations concerning open source geospatial software

Canton of Vaud

2010 – 2012
About 60% open source software used for
• Webmapping
• Spatial analysis
• Spatial databases
• Map making

Politicians very interested in OSS
Observations concerning open source geospatial software

Software development company / Swiss Federal Roads Office FEDRO

2011 – 2014
About 20% open source software used for
- Webmapping
- Software development
- Spatial databases
- GIS
- ETL

FEDRO wanted to use OSS / company who developed declined
Observations concerning open source geospatial software

GIS unit at mail company

2012 – 2014
About 0% (->10%) open source software used for
• Webmapping
• Software development
• Spatial databases
• GIS

Risks?
- no support / hotline
- difficult to replace people?
- close relationship with proprietary software provider
Observations concerning open source geospatial software

Conclusions

- **Educational background** appears to have an influence on the decision whether or not to use open source software
- **Government agencies** appear to be more **positive** towards OSS
- **Companies** see **risks** in using OSS
Observations concerning open source geospatial software

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People want to use the same software they have learned at the university in their jobs

Lecturers have a power and a responsibility
Questions

What is the relationship between educational institutes and commercial software industry?

=> what measures does the industry take to foster the usage of their software?

What is the impact of teaching using open source software?

=> How do students, both current and former accept OSS?
Questionnaire

we wanted to know:

• if open source software has been chosen for teaching and why

• if proprietary software had been used before: what has triggered the change and what was the reaction of the students

• if the proprietary software industry has undertaken steps in order to promote their products for teaching (or/and to prevent institutions from using open source software)

• if there has been feedback from former students regarding the fact that open source software has been taught / has not been taught. Did they have problems adapting to a different kind of software.

=> Sent to 70 lecturers in GIS, photogrammetry, etc.
Results

• 15 questionnaires received

• from Switzerland, Germany, France, UK, Finland and Canada

• four answered that no OSS is being used

• three of the four were from the same university, but in different labs and fields
Reasons for using geospatial open source software (and switching to it)

- absence of license costs
- possibility to modify the code
- lecturers already had acquired the experience during their research (3 times the same answer) => familiarity
- performance
- scalability
- flexibility
- major support for interoperability
- good online documentation
- easiness to install (no complicated licensing software)
- for some subjects no proprietary alternative to open source software
- faculty encourages open source software
- open the students minds
Students reactions

- indifferent or positive

- only some stability issues were criticized

- no answer about the necessity to put a certain product on the CV (=> Sergio Rey, OGRS 2012)
What the proprietary software industry does

- three lectures did not resent any pressure
- seven felt a certain pressure from the industry:
  - **aggressive** promotion **campaigns**
  - **discounts**
  - access to **resources** (data, courses, etc)
  - higher level **agreements** (institute, ministry of education)
  - requirement to **book a vendor** once a year
  - requirement to **report usage**
What former students said (e.g. about adapting to proprietary software)

• three lecturers answered that students did not have any problems

• one lecturer answered that some had **problems adapting to a different GUI** (however problems disappeared after a short while)
Conclusions

• The **faculty / university** appears to have a **significant influence** on whether or not to use OSS

• **Change** towards OSS frequently **triggered by researchers** who had used **OSS for their research**

• **Varying pressure** from proprietary software industry
  • Most people who answered felt a pressure

• **No lecturer uses OSS at 100%** - most lecturers use it at about 50% (scientific publications show that it would be possible)
Conclusions

• Our goal is to **prepare the students** for their life after their studies

• Theoretical concepts must be applied through software
  ⇒ The most important thing is that students **understand what they are doing**
  ⇒ It is relatively **easy to switch** between different GUI’s

• It is important to **show alternatives** to proprietary software
  ⇒ Students know about their choices

• Borders between open source geospatial software and proprietary software are getting blurrier
Our choices (and intentions)

• Use the software that is **best adapted** to apply **theoretical concepts**

• Geospatial open source software is well suited for **higher level classes**
  • you can modify the source code
  • students already familiar with basic concepts

• Proprietary software is maybe more convenient for **basic courses**
  • Unified GUI style

• Maybe a little bit more work with open source geospatial software
  ⇒ Changes frequently => need to adapt the courses
Thank you!

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