Industrialization of Research tools – ATL (Reading seminar)
The paper...

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„Industrialization of Research Tools: the ATL Case“

- Industrialization of a particular research tool
  - Real example of succesfull process
  - Long term sustainable model
    - How to combine research and proper user support
    - Technical aspects
    - Business model
Why this paper

• Research groups are producing plenty of tools
  ▪ As we do...

• Not many of them are adopted by industry
  ▪ As many of ours..

• That’s a pity
  ▪ Let’s learn from succesfull stories
Paper organization

- ATL Intro
- Why is ATL good example
- ATL industrialization experience
  - Technical aspects
  - Non technical aspects
- Generalization of the industrialization process
- Future work & Conclusion
ATL intro

- AtlanMod Transformation Language
- Model driven engineering
  - Alternative to QVT
- Industrially relevant
  - Based on industrial use-cases
- Integrated into Eclipse modeling framework
  - Large user base
- Other details in [2]
  - Not so important
Why is ATL a good example?

- Industrially relevant research tool
- Successful industrialization
  - Plenty of industrial users (claimed)
  - Partnership with commercial technology provider
- Emerging area
  - No other dominant tools
  - New tool can make a difference
Towards commercial quality

- Technical aspects
- Non-technical
  - Documentation
  - Examples, tutorials, user base
  - Support
  - Code maintaining
  - ...
Typical scenario

- Researchers does not have man-power
  - Non technical aspects are not a priority for funding agencies

- Different interests
  - Researchers: research, new challenges
  - User base: quality assurance and support needed
  - => Lot of tools just as a proof-of-concept
    - => Does not have non technical quality
    - => Ignored by industrial partners
ATL Team experience

• Large user base as an advantage
  ▪ Empirical validation of technology
  ▪ On-the-field experimental data
  ▪ Increasing visibility of the group, potential collaboration

• Large user base as an dis-advantage
  ▪ Requirements for many non-technical aspects
    • Up-to-date documentation, user-support, agronomy, interoperability with other tools, backward compatibility
  ▪ Not interesting for researchers
Strategies to provide appropriate support

- Enable third party contributions
  - Good software design (e.g. modularity)
  - Open-source license
    - X

- Good, but does not solve the problem
  - External contributors are not interested in creating documentation and maintaining code
  - Prefer working on most challenging parts
  - Often need to quickly add new functionality
Strategies to provide appropriate support

- Working strategy: needed both...
  - Technical aspect
    - Good software design
  - Non-technical aspects
    - Can not be provided by core research group
    - Community does not help
    - => Define business model
Good software design

• Use standards & Standard technologies
  ▪ Adopted by community (e.g. EMF)

• Modularity
  ▪ standard module interfaces (eclipse ext. points)
  ▪ => Clear separation of concerns

• Interoperability
  ▪ Keep possibility to change technology in the future (MS DSL Tools)

• “Eat your own food”
  ▪ Non trivial test for technology
  ▪ Ergonomic design
Bussines model

- Needed as user base grows
- Partnerships with „technology provider“
  - Obeo company in this case
    - Commericially interested in ATL
  - Provide support for non-core aspects
    - maintenance, graphical UI, ...
- AtlanMod research team is focusing only on new research
Obeo responsibility

- Quality assurance
  - Bugs, optimizations,...
- Interoperability
  - With other existing tools
- Continuity
  - Projects based on older versions will be supported
- User experience
  - Ergonomics, UI, IDE integration, ...
- Release management
  - Milestones, releases, roadmap, packaging
- User support
  - Mailing list, web, trainee programs, ...
Obeo role

- Maintain *stable* version
- Choosing research branches to be merged in
  - Merged with respect to backward compatibility
- Open source license helps
  - Transfers from obeo to research branch
  - Adding contributions from the community
Generalization of the process

- Application driven research
Conclusion

- Motivation by real problems
  - Community, industrial partner
- Good software design is essential
- Non technical aspects are also important
  - Often not granted by agencies
  - Not so interesting, but more than important
- Solution could be technology provider partner
  - Tool has to be industrially/commercially relevant