SIMO

Describe you DSS in 10 minutes session
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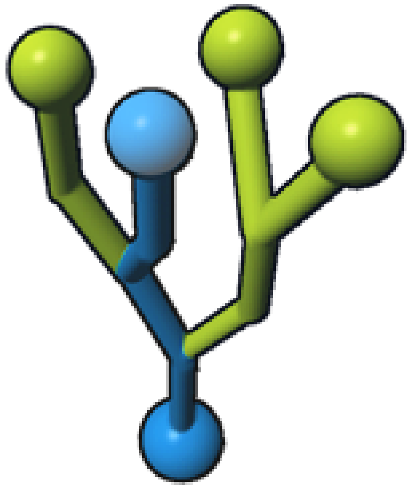
SIMO

- Open-source forest management planning software
  - strategic and tactical planning
- Originates from the University of Helsinki, since 2004
- Used by the major industrial actors in Finland; UPM-Kymmene Ltd, Tornator Oy, Forestry centres, Metsähallitus



Development team

- 2004-2007: university research project, three developers + the project leader
- 2008-: a private company (Simosol Oy),
  - 2008: those three former researchers, forestry background
  - 2009: 3 + 3 software developers
  - 2010: 3 + 4 software developers
  - of those 3-4 doing development targeted directly at SIMO
- My role: one of the original architects of the system, now part time developer, part time manager of the company

Tools provided by SIMO

- Simulation and optimisation framework
  - decoupled models, data and business logic
  - configurable via XML, ability to handle geospatial data
  - to be used by an management planning expert, or to be embedded as a server side component in a larger IT solution
- SIMO GUI & derivatives: web-based & desktop planning UI
  - making SIMO user friendly for a forestry professional, not necessarily a planning expert
  - ongoing work

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IT-environment

- OS: cross-platform; Windows, OS X, Linux
- Programming language: Python (framework), C (models), Fortran (models), Actionscript (UI)
- Types of tools: several incarnations; COM-component, stand-alone (web) server, command line program, GUI on web & desktop

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IT-components

- Subsystems:
  - object database for storing the configurable simulation logic (ZODB)
  - relational database backends for storing the input and result data (SQLite, PostgreSQL, Oracle)
  - Spatial extensions for the RDBMs for handling the spatial data (Spatialite, PostGIS, Oracle Spatial)
  - optimisation libraries: LP by JLP-package from Metla, metaheuristic algorithms implemented directly in the framework
  - Knowledge management: simulation logic described as a structure document (XML), does this qualify as KM?

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IT-components continued

- Interoperability: different APIs exposed depending with what kind of systems SIMO should interoperate with
  - through COM (or .NET, but still essentially a COM component)
  - through Remote Procedure Calls to systems implemented in ?? using Thrift
  - through a HTTP interface
- User-friendliness of the GUI? Remains to be seen…

Development process

- Started with trial and error ;-) for the framework

- TDD adopted at later stages, agile development in that sense that features are added as they are needed, but now less with trial and error as the base framework is already at place

  - version control with Subversion

  - code review actively used, i.e. code review before submitting to repository

Transfer to users

- Integration to user’s IT infrastructure done in collaboration with the users: requirements definition, system implementation, system testing
- Simosol Oy provides commercial support and maintenance contracts for custom SIMO versions
- Very little open-source usage yet, support by email, bug reports via a Trac-site, quite extensive documentation on the website

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Stakeholder involvement

- Very active involvement at the beginning: the research project originated from collaboration between the different industrial forest owners and private forest owner support organisations in Finland. All were very active in defining requirements for the system.

- Active involvement continues in the form of defining the requirements for the custom SIMO versions the organisations are implementing

About guidelines

- a. What is specific to sustainable forest management (SFM) in the development of the tools ? What were the adaptations, respectively the extensions you made to the generic development of computer-based tools?
- b. What is the effective contribution of the tools to SFM ? What was/is essential to ensure this effective contribution ? What are the key factors for success ? Check-list ?
- c. What are the recommendations you propose to ensure the proper development of DSSs for SFM ? Do guidelines to develop and apply DSSs already exist ?

- Adaptablity & extensibility of the system vs. What is SFM? I.e. if the definition changes, the system can be changed accordingly

- Involve users early on, build the system for them

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