IMPETUS

Development of a framework for implementing Spatial Decision Support Systems - The "SDSS Framework" -

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Decision Support - Introduction

Decision making requires an knowledge concerning processes, driving forces, and stakeholders. IMPETUS developed tools which can be used by the local partners for answering their own questions instead of applying prefabricated solutions. IMPETUS developed about 30 Spatial Decision Support Systems (SDSS), Information Systems (IS) and Monitoring Tools (MT) which help local Decision Makers to evaluate the impact of their decisions on different aspects like water availability, food security, and income.

The SDSS Framework is a sophisticated software product providing a shell for integrating the developments in IMPETUS

Challenging Requirements

Systems usable alone and independent	**< >**	**Integrability of all systems**
Simple usage for inexperienced users	**< >**	**Complex function**
Flexible customization possibilities	**< >**	**Easy development**
Abstractness and reusability	**< >**	**Individual solutions**
Excellent usability, also for beginners	**< >**	**Many intervention possibilities**
Fast development	**< >**	**Sophisticated function**

The "SDSS Framework" meets and balances these demands!

Solutions

Integration – Scientific Model and Data

The development of interfaces is done in a module-based way:

- ✓ To link scientific Models like SWAT, EPIC, PESERA, UHP-HRU, CropWat, SRM, …
- ✓ For using different file and data formats: ASCII, Excel, XML, Database, binary Data
- ✓ To assure easy and flexible use

Graphical User Interface – Simple and functional

The SDSS Framework is developed as a system for multinational use in Morocco, Benin and other countries:

- ✓ By considering user rights, individual solutions are possible without loosing the advantage of system integration
- ✓ A detailed documentation and the forms module provide a target group oriented usability

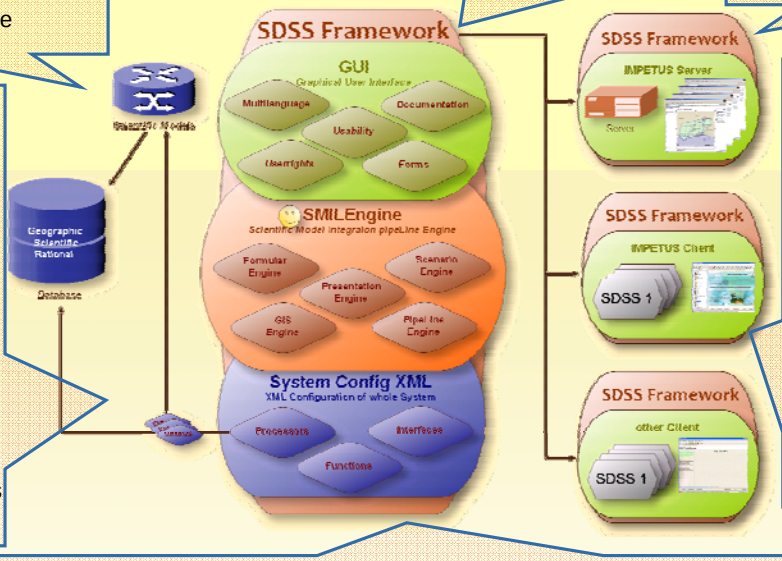
SDSS Server integration

SDSS Server will provide necessary functionalities to run the SDSS/MT/IS-Systems on a web server based application.

- ✓ Exchange and update of predefined scenarios and results for *IMPETUS Client* is provided
- ✓ Integration planned

Customizing – XML & DTD

- ✓ System uses newest technology standards like Java and XML
- ✓ No knowledge of a programming language is required for customizing and development
- ✓ Reach a high amount of complexity in system behavior while keeping a simple overview
- ✓ Framework can be used by decision makers and scientists with their scientific models



ISDSS - IMPETUS SDSS Client

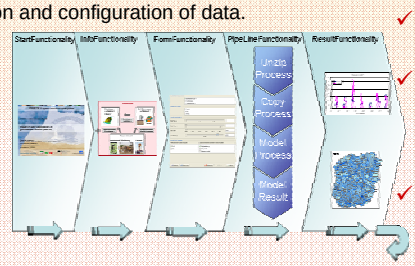
- ✓ ISDSS is portable via internet (JavaWebStart technology)
- ✓ For users without or poor internet connection Client comes on USB-Stick
- ✓ It contains all systems authenticated by user login
- ✓ Reasonable system requirements also for poor PCs
- ✓ The system is digitally signed and therefore very secure
- ✓ It can not be misused to transport infecting software

SMILE – Scientific Model Integration pipeLine Engine

The core part of the "SDSS Framework" is the SMILE ☺. It controls the whole system, providing functions like data transport, chaining of processes, transformation and configuration of data.

In the figure a system example process is shown.

Besides the interactive "Functionalities", the PipeLineFunctionality handles background processes which require no user interaction.



- ✓ Customization using interactive forms with predefined form components like slider, selection, text and tables, map value chooser
- ✓ SDSS Framework cares about the consistency and the transport of parameters and data.
- ✓ Included for background processes are file-system operations, mathematical and statistical operations, geographical operations and model integration
- ✓ Results are presentable as legend described map, diagrams, tables, dynamic html and can be stored within the scenario result database.

Further Information

Currently about 20 SDSS, IS, and MT are implemented including the IMPETUS Atlas applications with all their functionality. Within the 'SDSS Testing Area' the SDSS Framework and most implemented systems can be tested. The system will soon be made available free of charge at www.isdss.de.

You have any more questions:
Do not hesitate asking:
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