



HarmoniQuA

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Harmonising Quality Assurance in model based catchment and river basin management

The HarmoniQuA project was completed at the end of 2005. This newsletter provides an updated summary of MoST before outlining the main improvements that have been implemented since its first release.

What is HarmoniQuA MoST?

HarmoniQuA has developed a software-based Modelling Support Tool (MoST) and associated Knowledge Base to contribute towards enhancing the credibility of catchment and river basin modelling. MoST prompts users with the appropriate 'next step' in the modelling process, provides an audit trail to check previous decisions and accommodates the following user types: water managers, modellers, auditors, stakeholders and members of the public. A 'Knowledge Base' containing guidance specific to 7 scientific domains (groundwater, precipitation-runoff, hydrodynamics, flood-forecasting, water quality, biota, and socio-economics) forms the heart of the tool. MoST has the functionality to:

- **Guide:** to ensure there is appropriate communication, consideration of each stage, integration of domains, selection of methods, awareness of pitfalls and use of terminology;
- **Monitor:** to allow decisions, methods and data use to be logged in a structured model journal;
- **Report:** to provide summary reports dedicated to specific users and their particular needs.

An advisory functionality may also be developed in the future to advise modellers in new modelling jobs based on experiences from previous jobs and associated model journals in the model archive.

The HarmoniQuA Consortium

Wageningen University (The Netherlands), Geological Survey of Denmark and Greenland (Denmark), National Technical University of Athens (Greece), Centre for Ecology and Hydrology (United Kingdom), WL|Delft Hydraulics (The Netherlands), Cemagref (France), Bundesanstalt für Gewässerkunde (Germany), Swedish Meteorological and Hydrological Institute (Sweden), VITUKI Plc (Hungary), University of Dortmund (Germany), Laboratório Nacional de Engenharia Civil (Portugal), DHI Hydroinform a.s. (Czech Republic)

Responsibilities

Project co-ordinator
Knowledge Base
Knowledge engineering and tools
Testing
Dissemination, exploitation
and public website

Huub Scholten (WU)
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Revised flowchart of the modelling process

A flowchart of the modelling process is central to MoST and was produced by the modelling team after reviewing existing modelling guidance and consulting with experts. The modelling process has been decomposed into five 'steps'. Each **step** includes several **tasks**, which in turn involve a range of **activities**. The later steps end with a reporting task and a client review of past progress and future plans. This flowchart has been revised throughout the project and the final version is presented below. Several new tasks have been added and feedback loops changed.

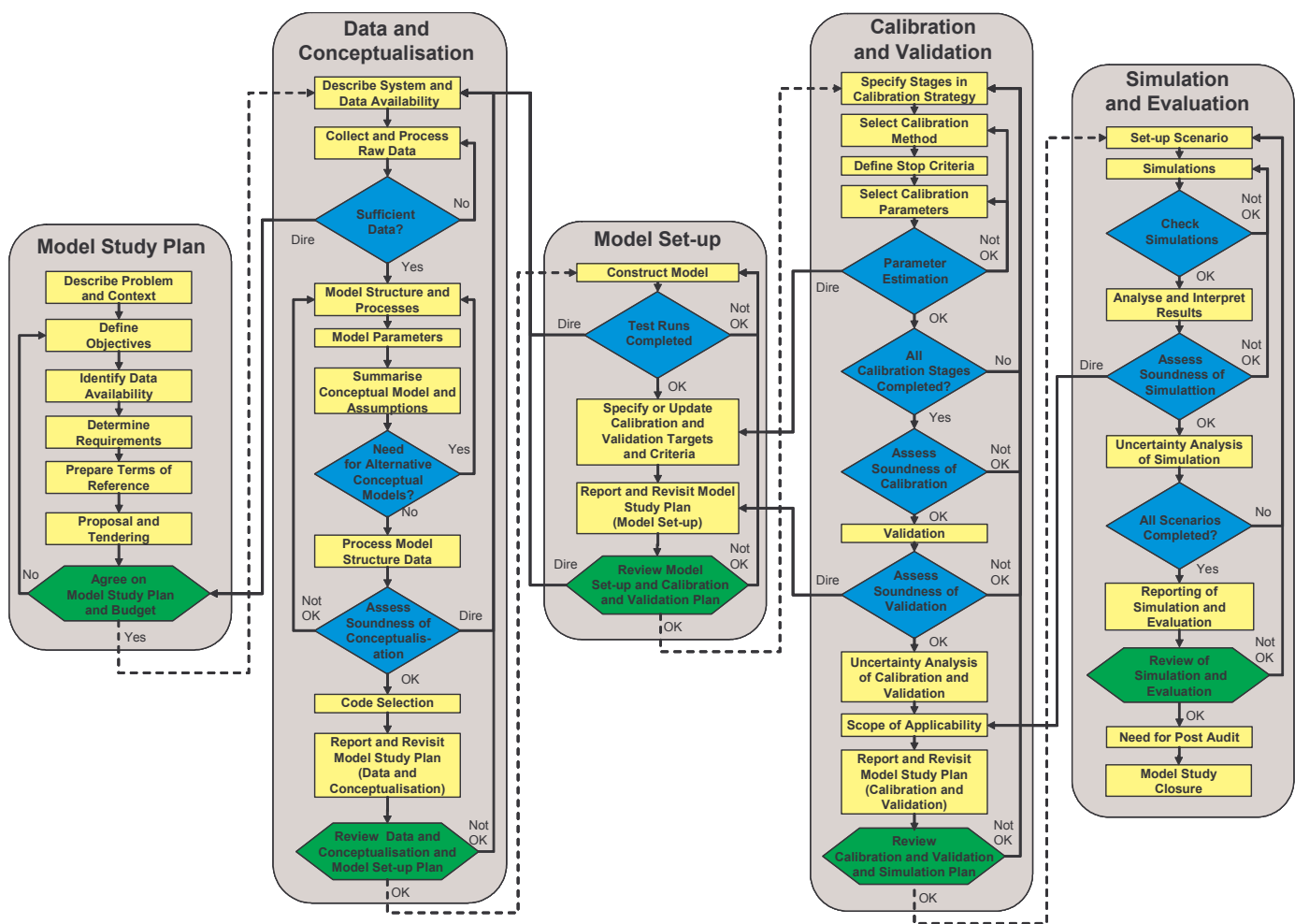


Fig. 1. Flowchart of the modelling process as defined by HarmoniQuA.

A computer-based journal is produced within MoST where the water manager and model team record the progress and decisions made during a model study according to the tasks in the flowchart (see Figure 1).

MoST work Window

The screenshot shown in Figure 2 illustrates the main work window of the final version of MoST. It shows the typical three panel layout under the **Project** tab for guiding and recording work on a specific **Task** within the modelling flowchart. The left-hand panel shows the sequence of **Tasks** completed or skipped, and highlights the current **Task 2.4: Model Structure and Processes** (which forms part of **Step 2: Data and Conceptualisation**). Note that **Task 1.6: Proposal and Tendering** has been skipped as the work is being done 'in-house'. The upper right-hand panel shows the (currently blank) model journal for an **Activity: Spatial resolution** currently open under the **Task**. The user can enter details of the actions and outcomes relating to this **Activity**, or can attach files or enter references relevant to the **Activity**. If suggested methods are available they will be listed to the right. The lower-right panel shows part of the guidance text on what the **Activity** should address, with hyperlinks to glossary terms. Each panel has a scroll bar and each can be resized.

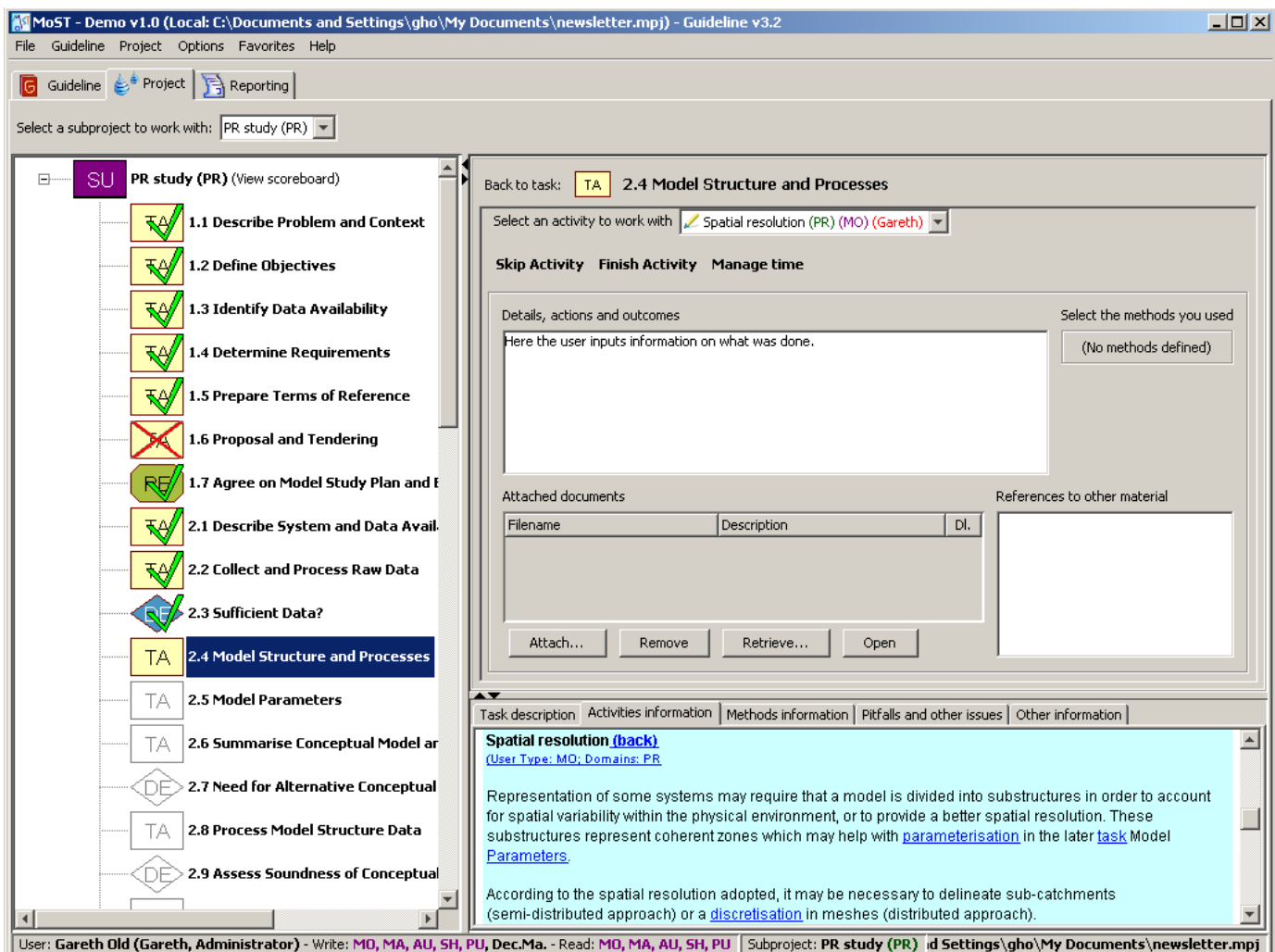


Figure 2: Final version of the HarmoniQuA Modelling Support Tool (MoST)

Developments of HarmoniQuA MoST and its Knowledge Base

Many improvements have been made to the graphical user interface of MoST and the content of the Knowledge Base has been reviewed and harmonised. The resulting changes have enhanced their functionality and user friendliness. The major developments are highlighted below:

- **Server based MoST:** Modelling in teams is now supported by the new server installation of MoST.
- **Detail of recording:** Many users reported that recording information at the *Activity level* was too detailed. This was particularly apparent for basic modelling jobs. MoST has now been modified so recording at the *Task level* is the default with the option to choose recording information at the *Activity level*.
- **Job Type Templates:** Users often reported that the customisation of MoST is very onerous. *Job Type Templates* have now been developed to support customisation of MoST for specific types of modelling jobs. Templates specify which *Steps* and/or *Tasks* can be skipped for a given type of modelling job.
- **Methods:** Significant revisions and additions have been made to methods, and in particular, those related to data.
- **Sensitivities and pitfalls:** The project team believes that guidance on *Sensitivities and Pitfalls* is potentially very useful. Therefore, they have been augmented in all domains.
- **Help system:** Many users requested greater support in using MoST. This has been addressed by developing the *Help system*.
- **Textual version of KB:** A HTML version of the KB, including introductory text, is available at <http://harmoniqua.wau.nl/tools/ShowGuideline?showas=HTML> and may be printed.
- **Developing the KB:** The KB may be adapted to meet specific national or organisational needs.

Availability of MoST and training: The final version of MoST (version 3.1.5) and its Knowledge Base are available on the project website. Training material has been developed for introducing professionals and students to MoST. It consists of a series of computer screen movies and presentations that may be used to design a specific course. Academics are encouraged to download MoST and its training material and consider its use in their teaching. The use of the HarmoniQuA training material in university courses in Greece and the Netherlands demonstrated its value in teaching students the modelling process. MoST, its KB and training material are all available to download, for free, from the project website (see below). A series of workshops have been held throughout Europe. Reports from these events are available on the project website.

Project Website: www.HarmoniQuA.org

What Next?

The project team is keen to continue developing MoST and its Knowledge Base beyond the life of the HarmoniQuA project and is currently exploring possible sources of funding for continuation. Future initiatives developing MoST and its KB will be announced on the project website.