

Vision and Requirements of Scenario-driven Environmental Decision Support Systems Supporting Automation for End Users

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Sascha Schlobinski

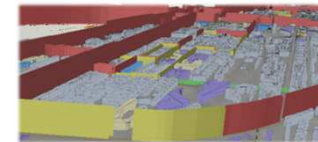
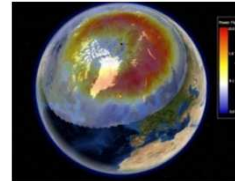
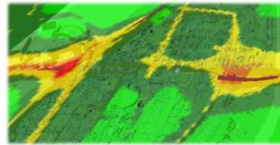


Topics

- SUDPLAN Vision
- Include Climate Change in Urban Planning
- Approach
- Common Services
- Scenario Management System
- User Needs & Requirements (Process)
- Requirements Overview for a EIS/DSS Platform
- Features
- Benefits

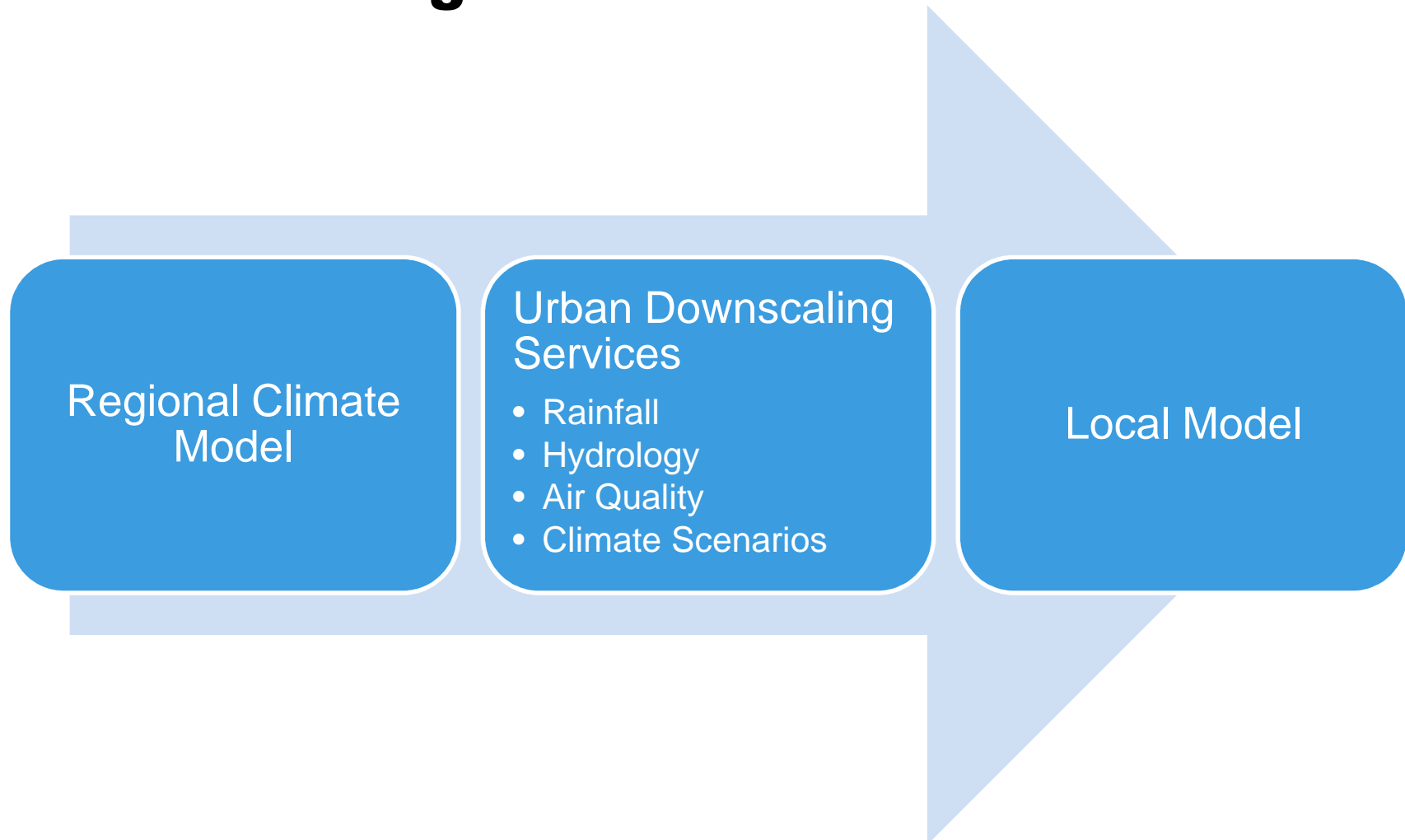
SUDPLAN

- Climate is changing!
 - But how will this change affect our lives in the city?
 - How can urban planners infuse the effects of climate change in their planning processes?



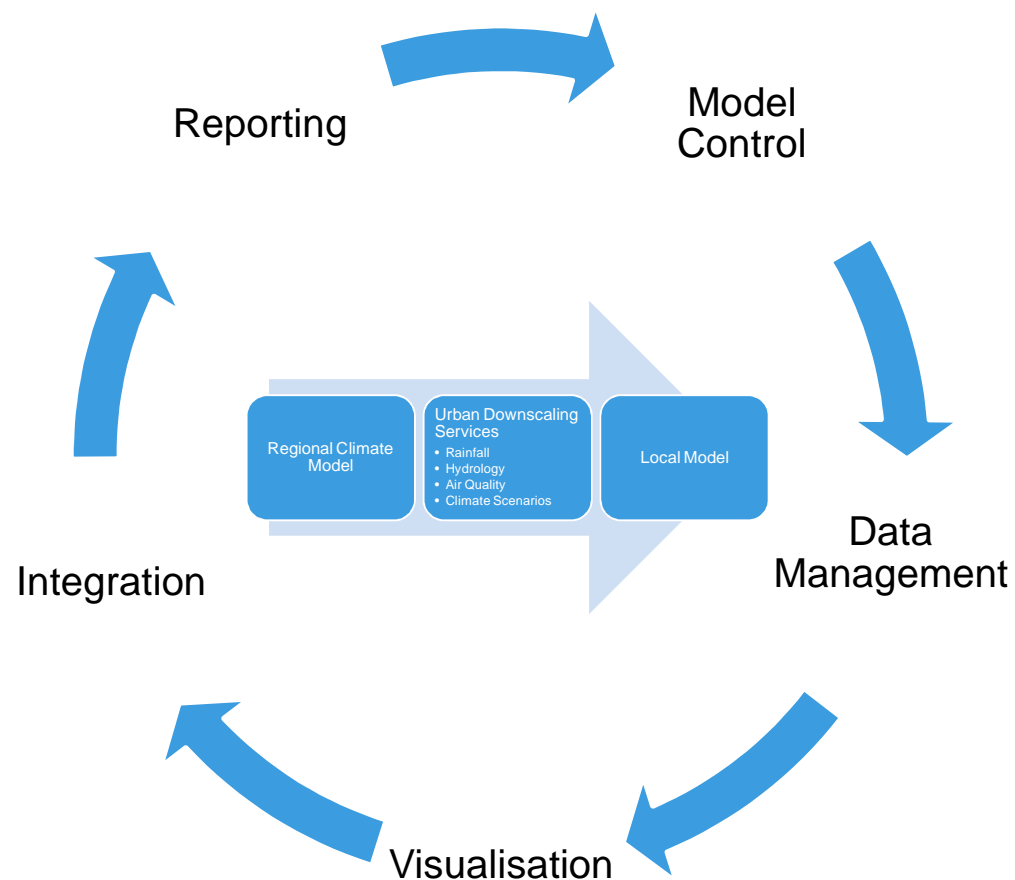
→develop a web-based **planning, prediction and training tool** to support **long term urban planning** including the **effects of climate change**

Climate Change Infusion



Objective of this EDSS

- Management & Support of related tasks



Approach

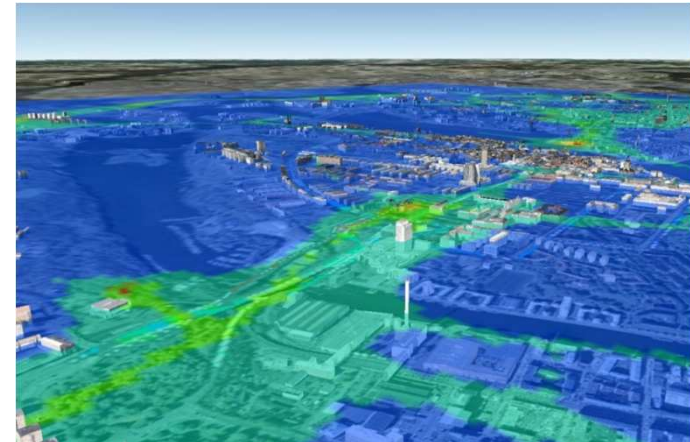
Provide 2 Building Blocks

- Services providing climate change information on an Urban Scale

→ Common Services

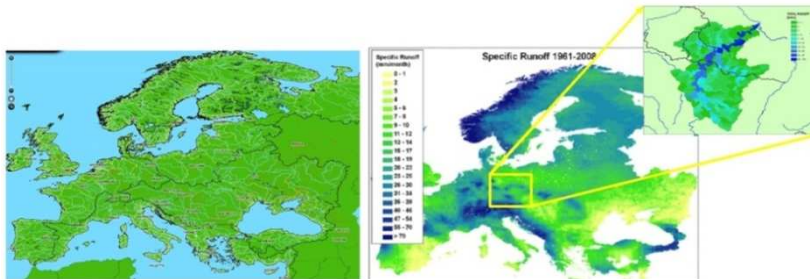
- Scenario Management Platform to support tasks involved in Urban Planning

→ Scenario Management System



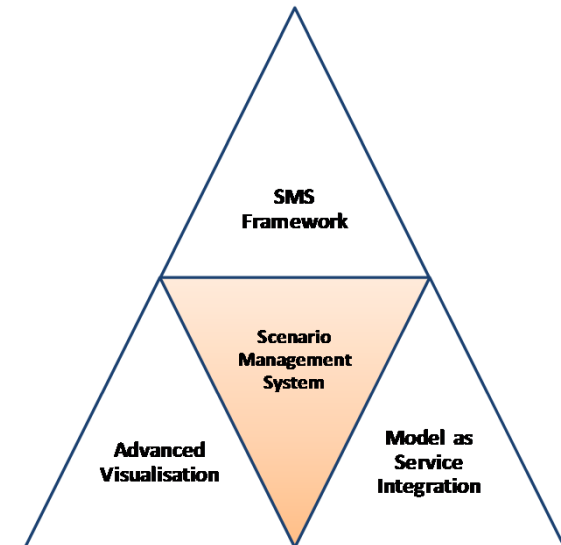
Common Services

- Provide Climate Scenario data on an European scale, available for every city. Also provide models capable of downscaling data to city level
- All models and results are accessible through OGC service interfaces (SWE)
- city specific input improves the accuracy of the results

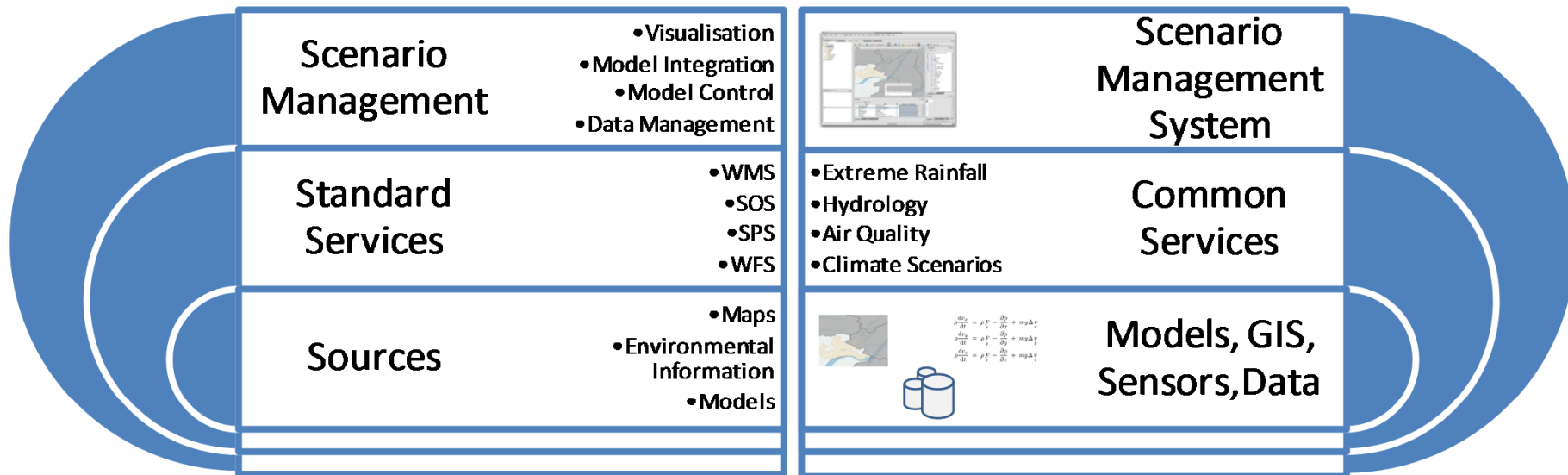


Scenario Management System

- highly interactive, 3D/4D graphics-based, DSS-environment (scenario management system)
- Users define, manage, execute & explore different decisions & simulate decision scenarios
- visualisation, comparison & documentation of different decisions



SUDPLAN Layers



Objective of the SMS

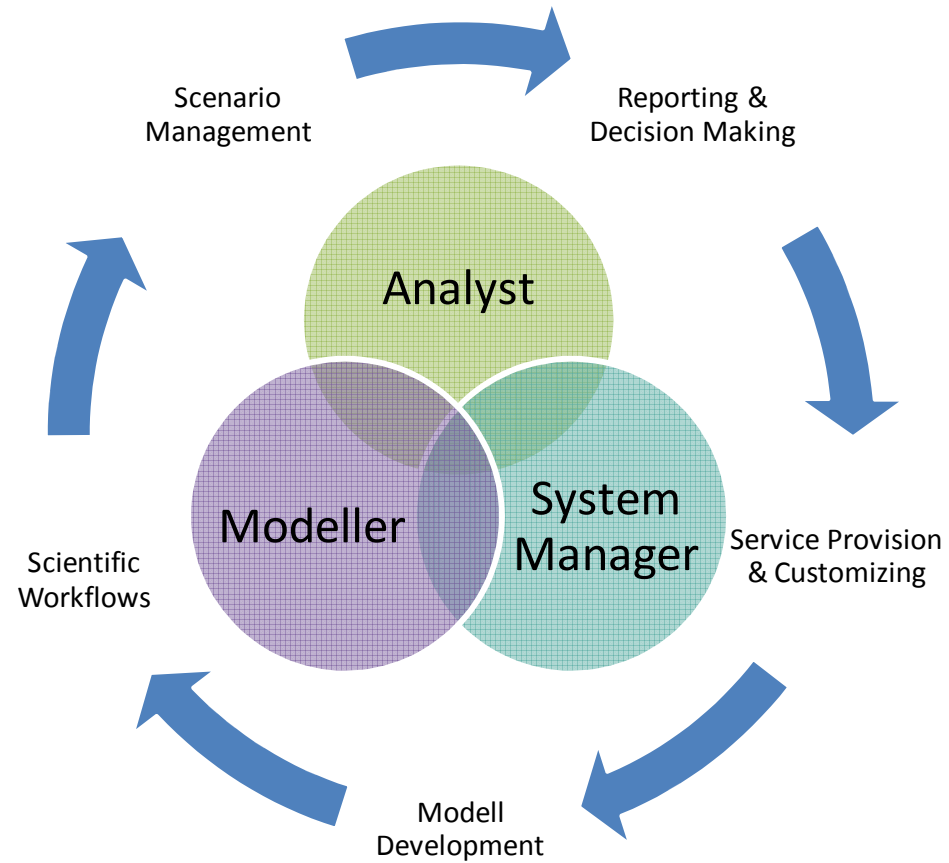
- Develop a Solution that can be the basis of a potentially large number of concrete EIS and DSS (transferability)

- ➔ Develop a platform that supports a large number of tasks in this context

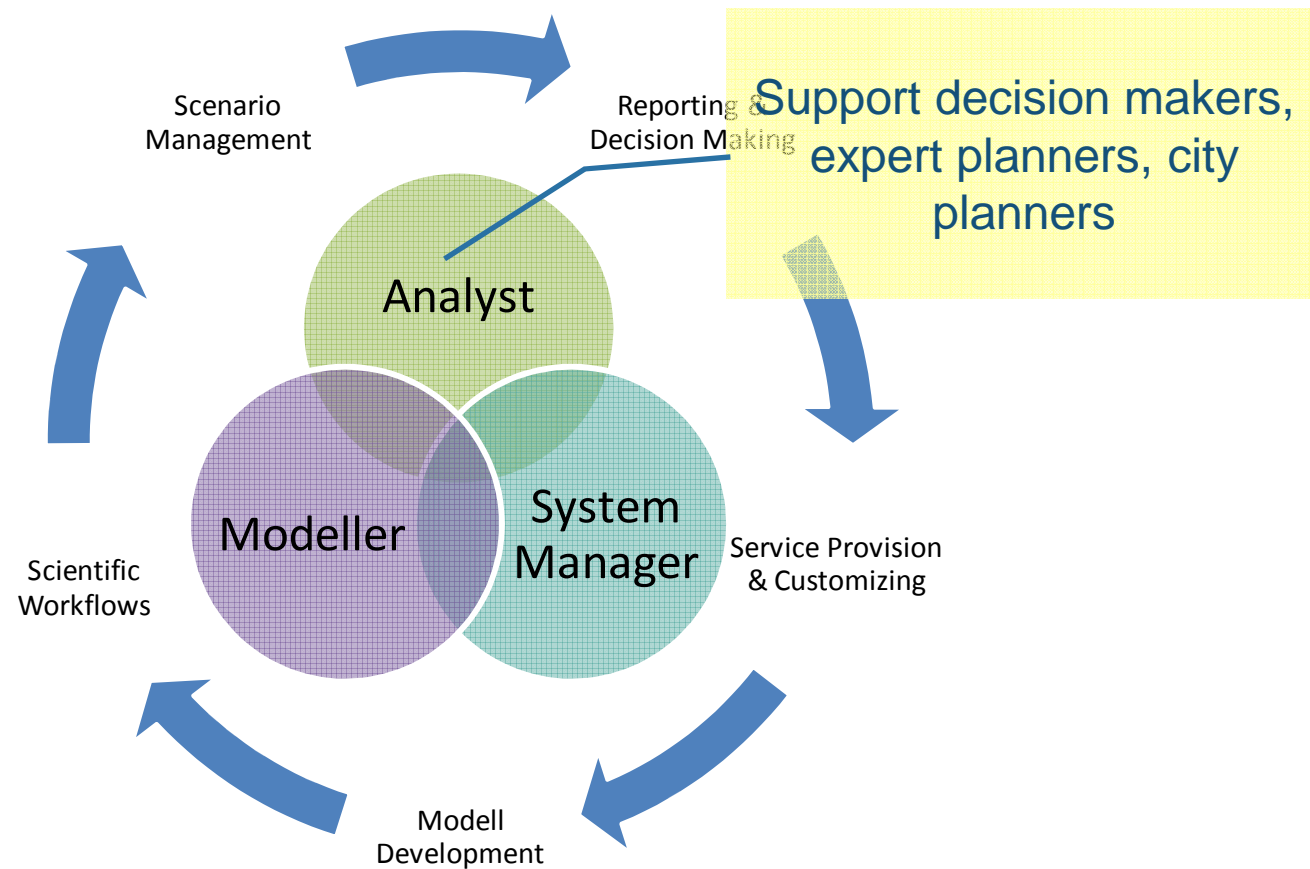
- Which tasks to support & who are the users?

- ➔ User Needs Analysis and Requirements Gathering

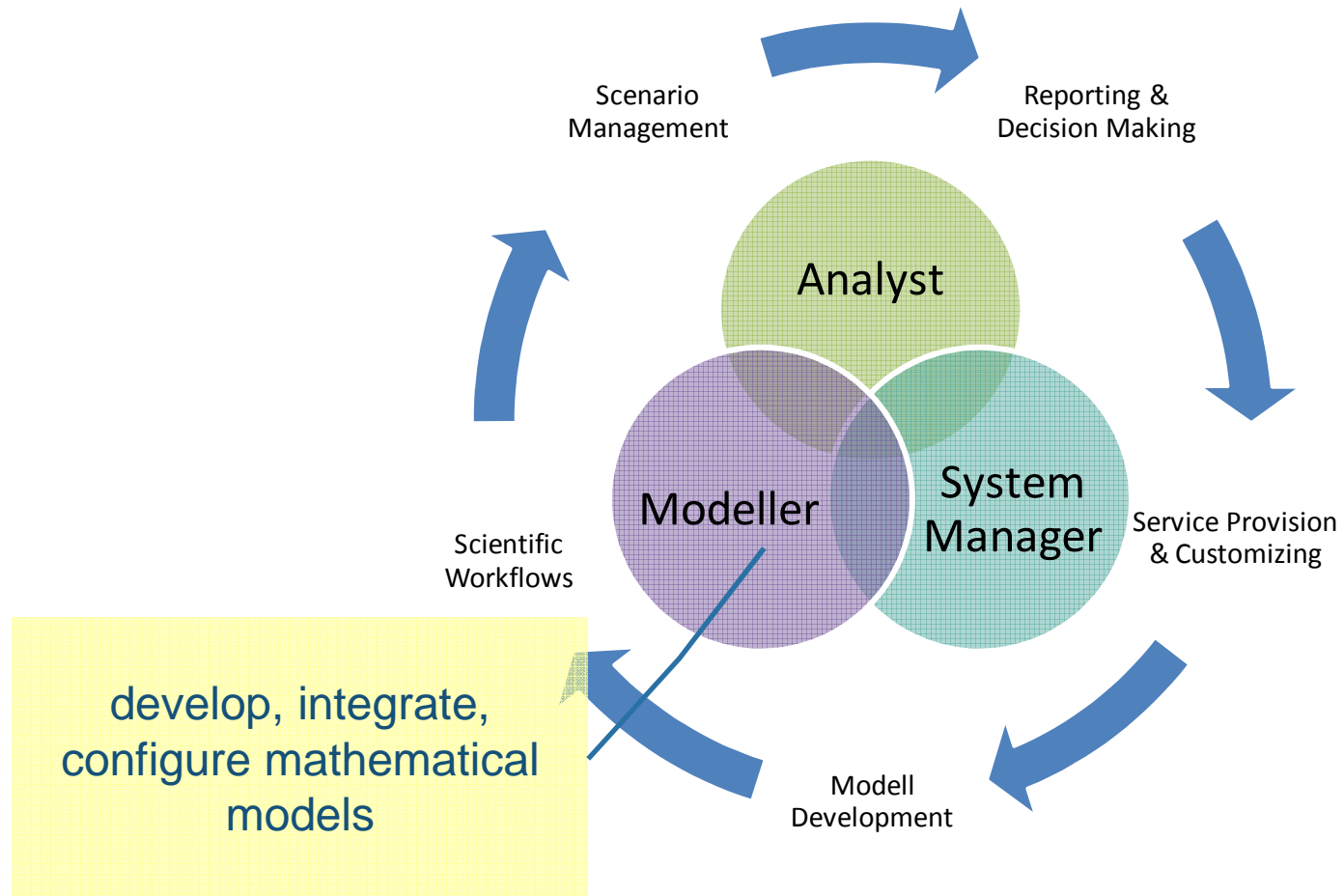
User Categories



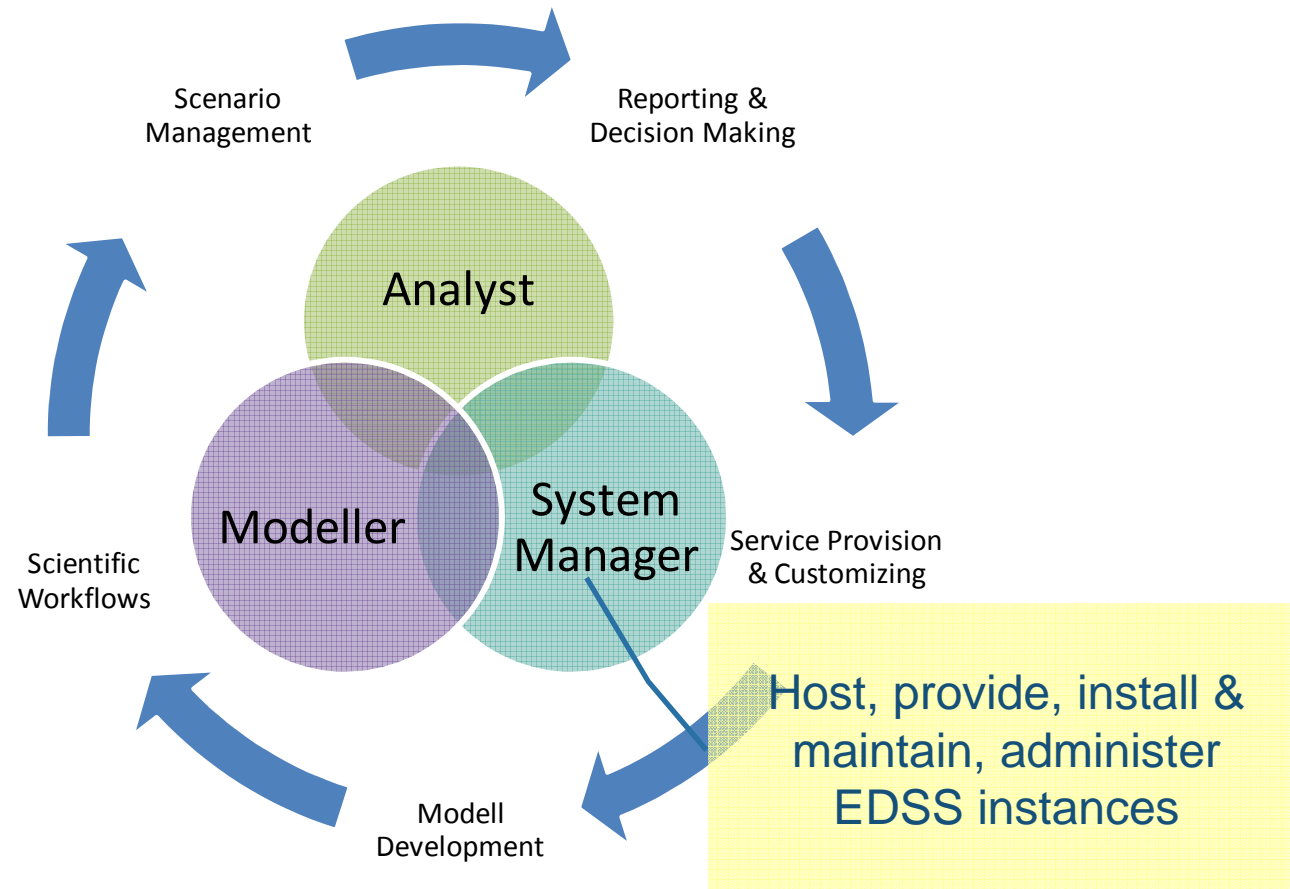
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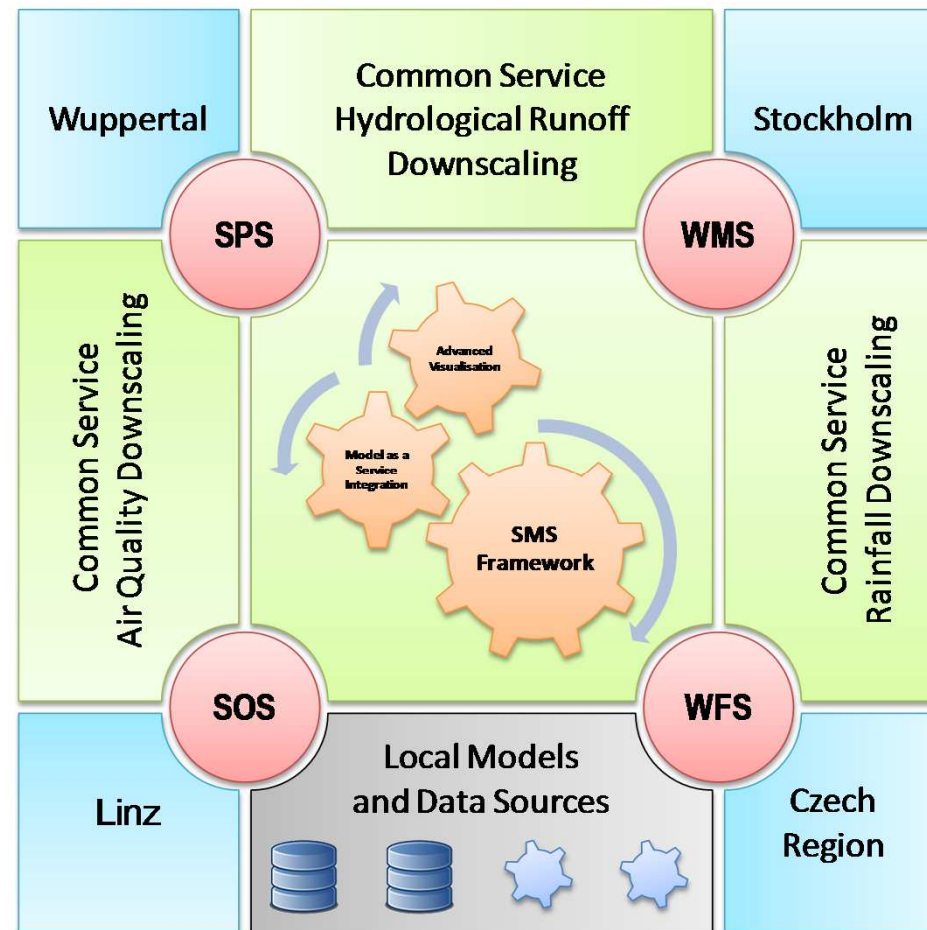
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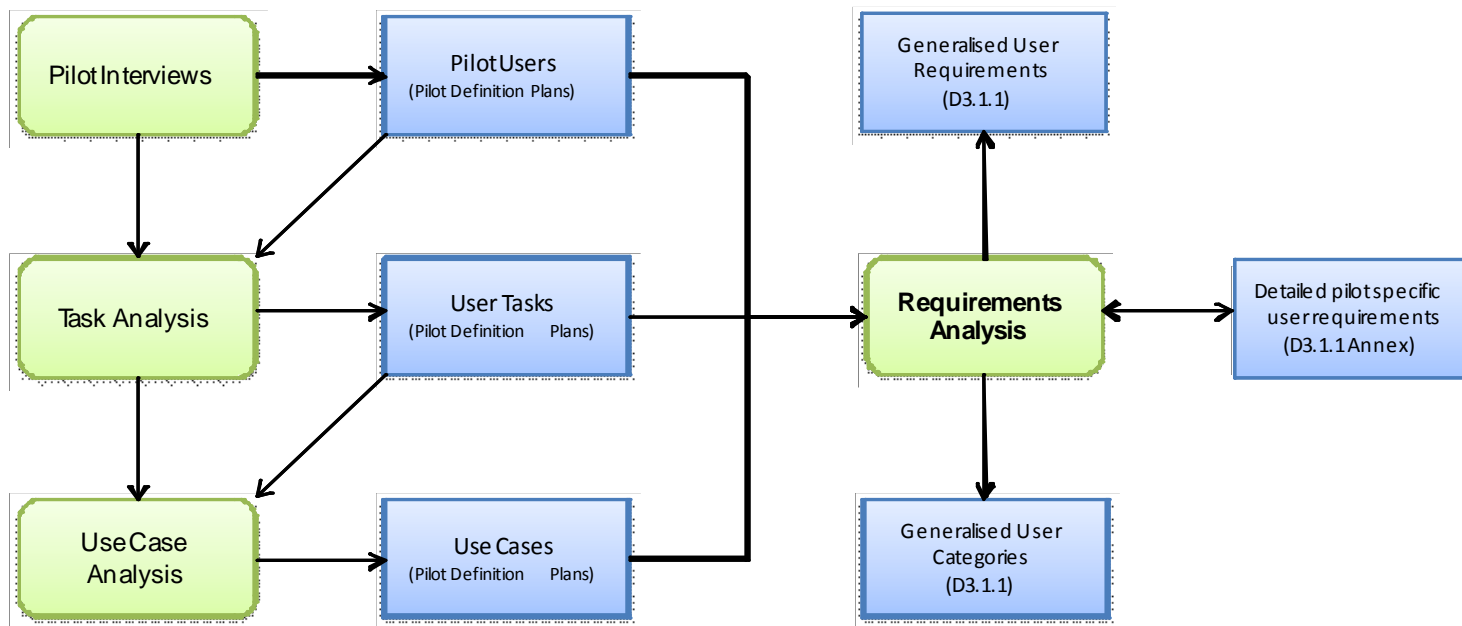
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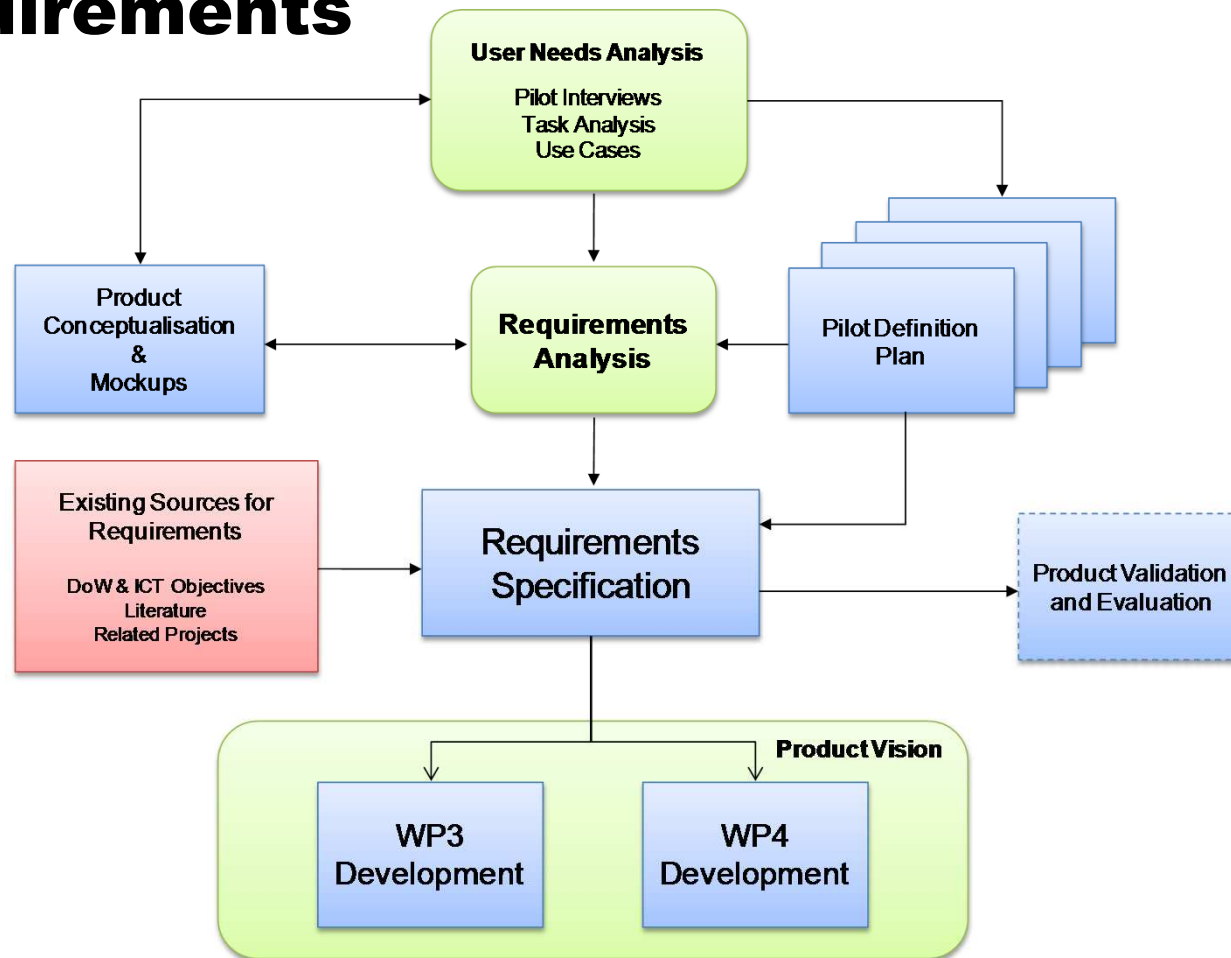
Concrete Users



User Needs Assessment



Requirements

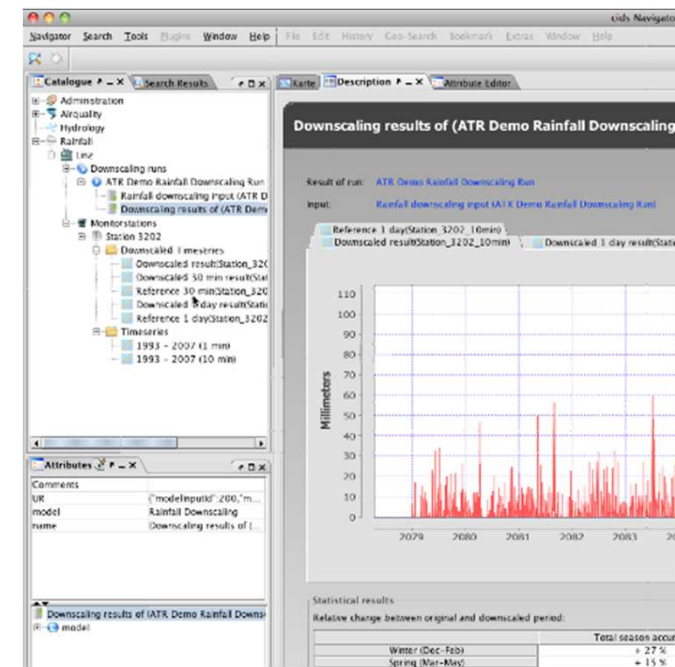
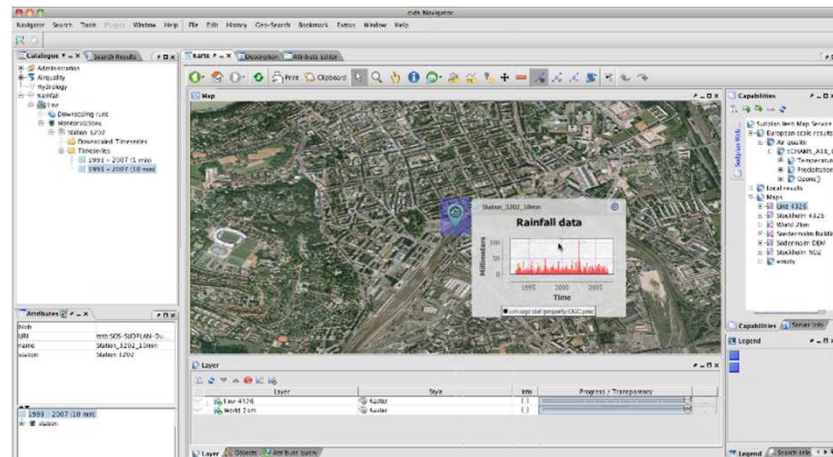


Requirement Topics

- Usability, Interactivity
- Automation
- Profiling
- Information Management
- Scenario Support (What If)
- Model Management, Calibration & Validation
- Advanced Visualisation
- Documentation, Sharing, Publishing
- Platform Management & Integration Support
- ...

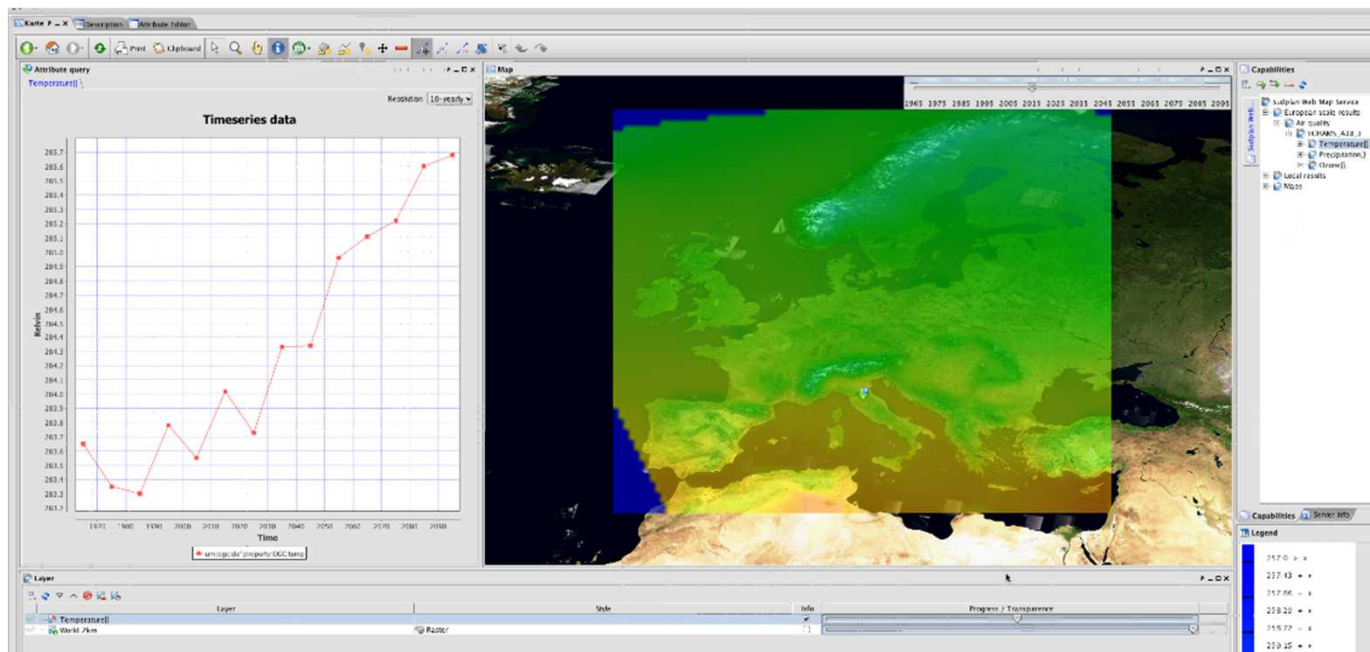
Realisation Status

- Model Management (for Common Services) including management and basic visualisation of model input and output data (2D)



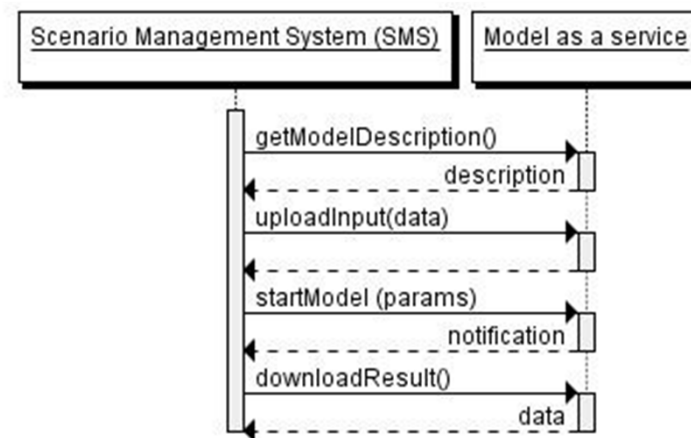
Realisation Status

- Interactive visualisation of spatio-temporal data



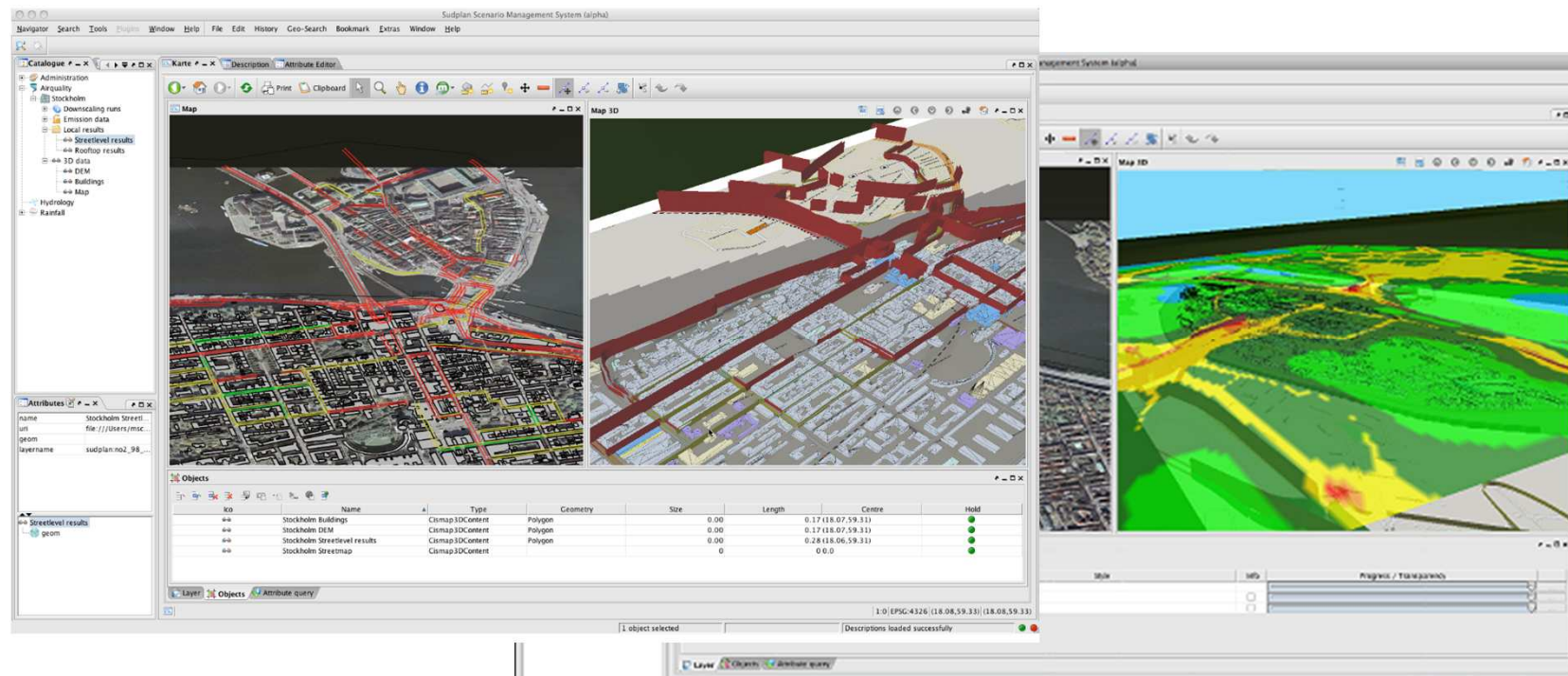
Realisation Status

- Common Services integrated through OGC Services



Realisation Status

- 3D Visualisation of the terrain model and grided results from local air pollution model



Benefits of the approach (CS)

Common Services

- Urban planners can easily include climate aspects in their planning processes
- With the models they are using anyway
- Without the need to develop an individual forecast model
- Aspects of climate change are made available to all

Assumption:

$$cost(integration) \ll cost(model\ dev.)$$

Benefits of the approach (SMS)

- Platform for EIS/EDSS that supports large number tasks

$$\textit{cost}(\textit{customizing}) \ll \textit{cost}(\textit{development})$$

- Transferable: not restricted to the Pilot applications
- Comes with CS integration

Sustainable Urban Development Planner for Climate Change Adaptation

SUDPLAN

Partners

1. Swedish Meteorological and Hydrological Institute
2. Austrian Institute of Technology
3. cismet GmbH
4. Czech Environmental Information Agency
5. Apertum IT AB
6. Deutsches Forschungszentrum für Künstliche Intelligenz
7. Stockholm Uppsala Air Quality Management Association
8. City of Wuppertal
9. Technische Universität Graz

The logo for the Swedish Meteorological and Hydrological Institute (SMHI), consisting of the letters 'SMHI' in a bold, black, sans-serif font.The logo for the Austrian Institute of Technology (AIT), featuring the letters 'AIT' in a large, grey, sans-serif font, with 'AUSTRIAN INSTITUTE OF TECHNOLOGY' in a smaller, red, sans-serif font to the right.The logo for cismet GmbH, featuring a stylized orange 'c' followed by the word 'cismet' in a blue, sans-serif font. Below the logo, the text 'cismet GmbH | www.cismet.de | info@cismet.de | Fon-Fax 0700 cismet.de' is written in a small, black, sans-serif font.The logo for the Czech Environmental Information Agency (cenia), featuring a stylized grey sunburst icon to the left of the word 'cenia' in a green, sans-serif font.The logo for Apertum IT AB, featuring the word 'APERTUM' in a blue, sans-serif font.The logo for the Deutsches Forschungszentrum für Künstliche Intelligenz (DFK), featuring the letters 'DFK' in a large, blue, sans-serif font, with 'Deutsches Forschungszentrum für Künstliche Intelligenz GmbH' in a smaller, black, sans-serif font to the right.The logo for the Stockholm Uppsala Air Quality Management Association (LF), featuring the letters 'LF' in a large, blue, sans-serif font, with 'STOCKHOLMS OCH UPPSALA LÄNS LUFTVÅRDSFÖRBUND' in a smaller, black, sans-serif font to the right.The logo for the City of Wuppertal, featuring a stylized black 'W' icon to the left of the word 'Wuppertal' in a black, sans-serif font.The logo for the Technische Universität Graz, featuring a stylized red 'TU' icon to the left of the word 'Graz' in a black, sans-serif font.