

## Towards Automation of Model Execution from a Decision Support Environment MODSIM 2011, Perth, Australia

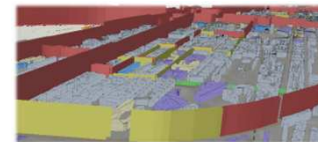
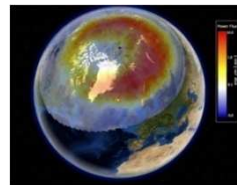
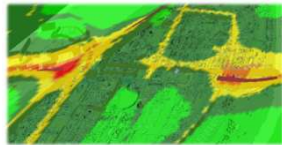
Ralf Denzer

## **Outline**

- Project objectives
- Users
- Approach
- Common Services
- Scenario Management System
- Conclusions

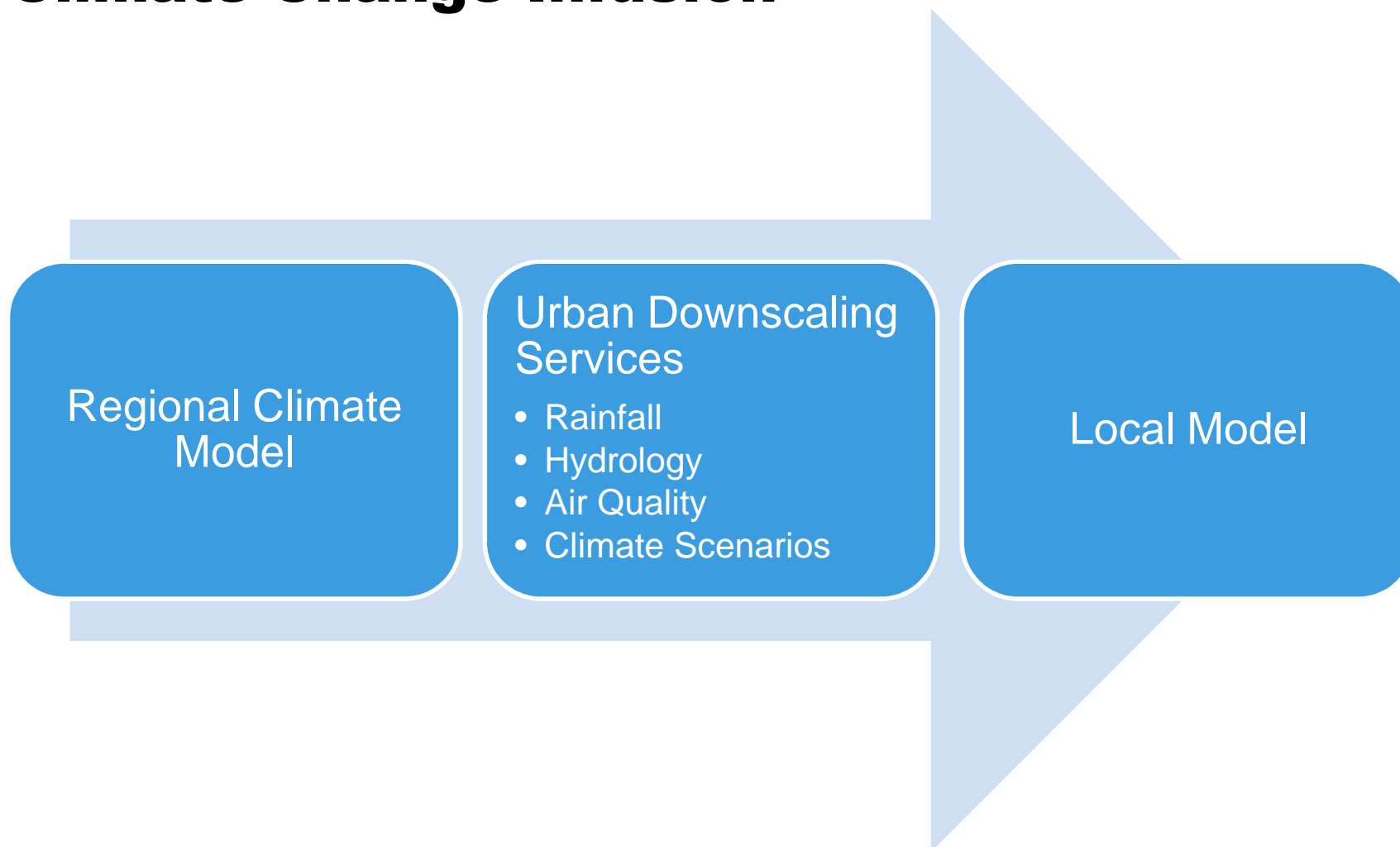
## Objectives

- Climate change
  - What are the impacts on cities?
  - How can urban planners consider the effects of climate change in their planning processes?

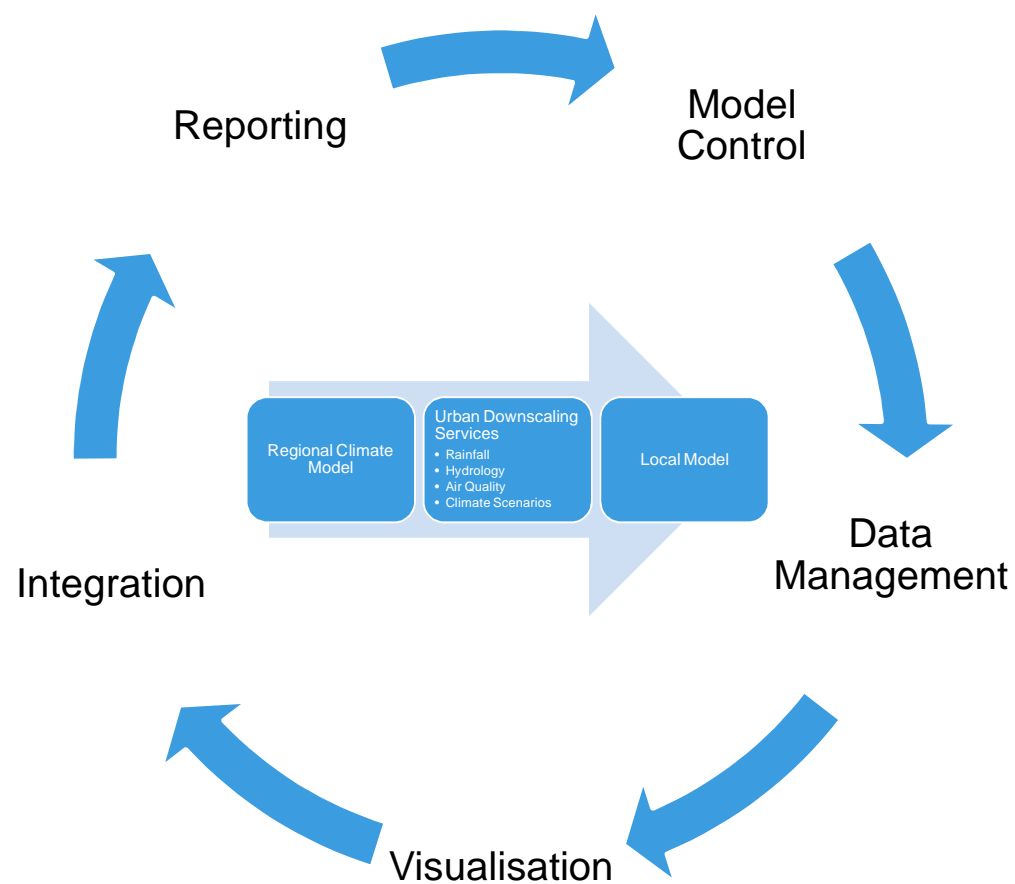


SUDPLAN is developing a 3D/4D web-based **planning, prediction and training tool** to support **long term urban planning** including the **effects of climate change**

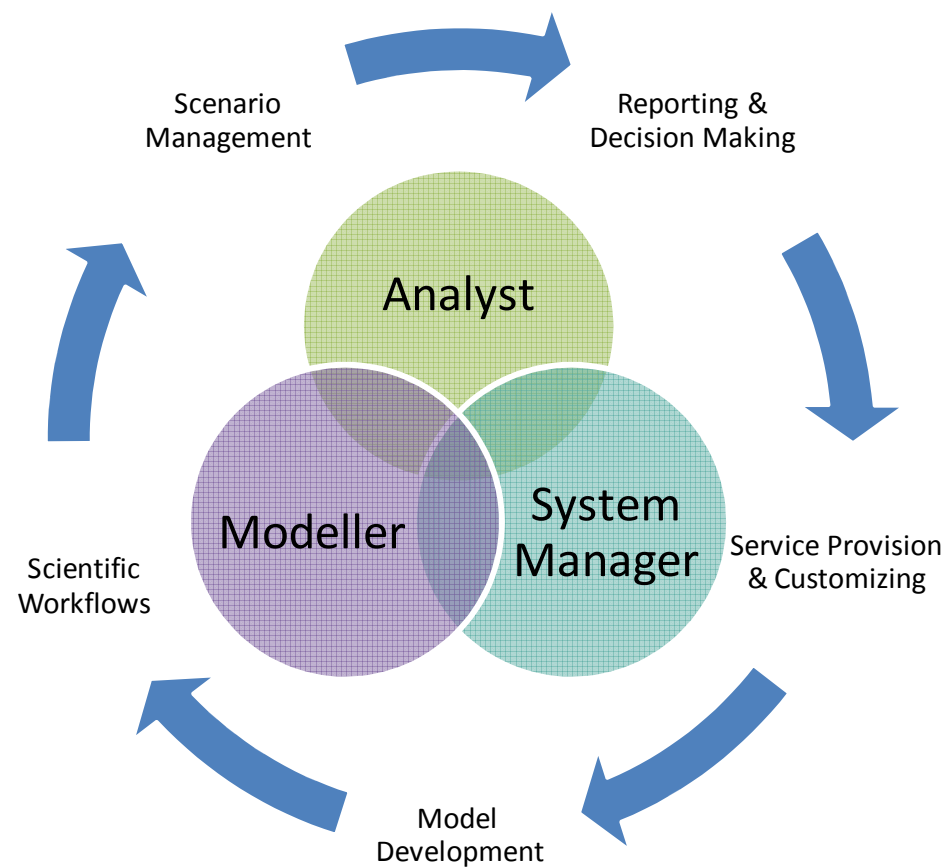
## Climate Change Infusion



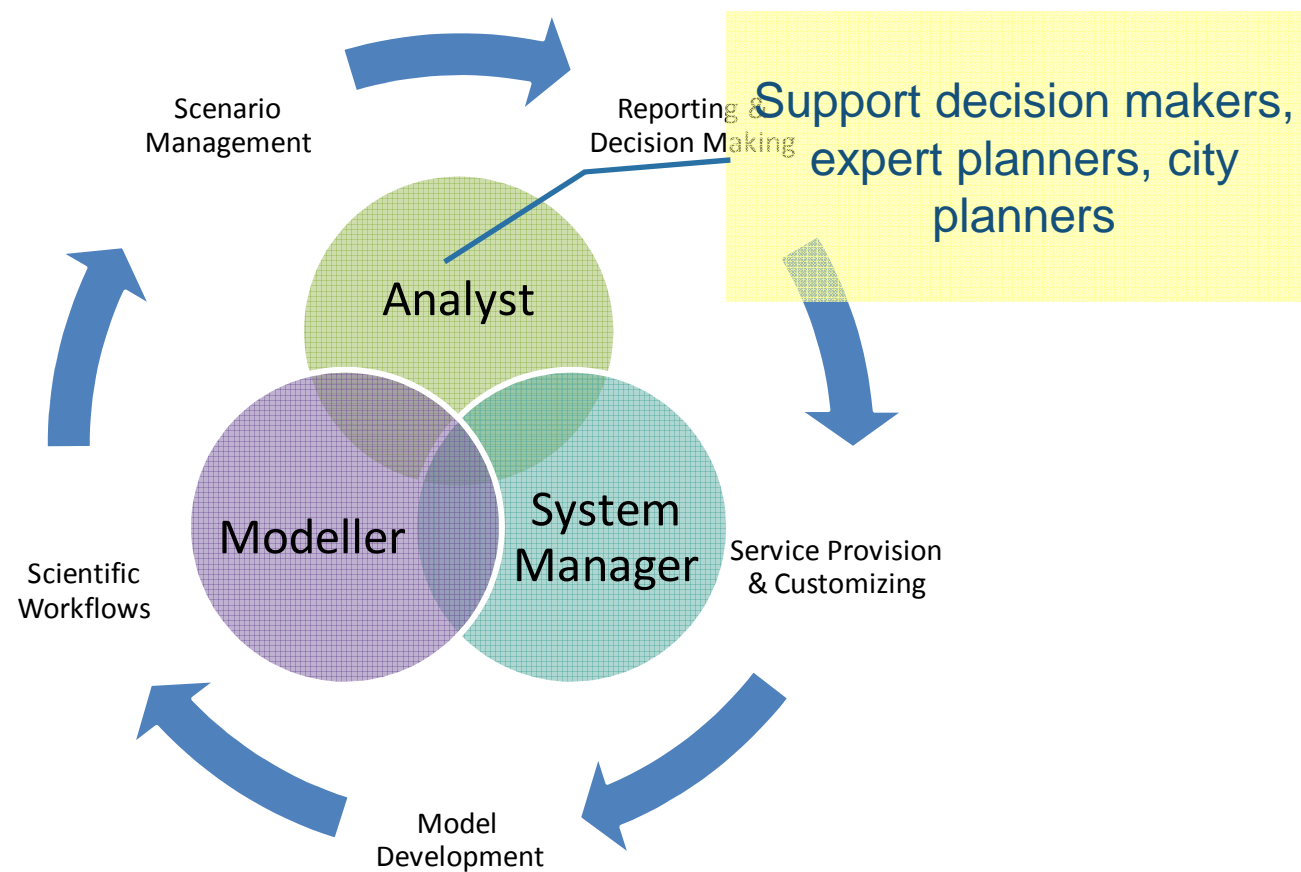
## Objectives of the EDSS



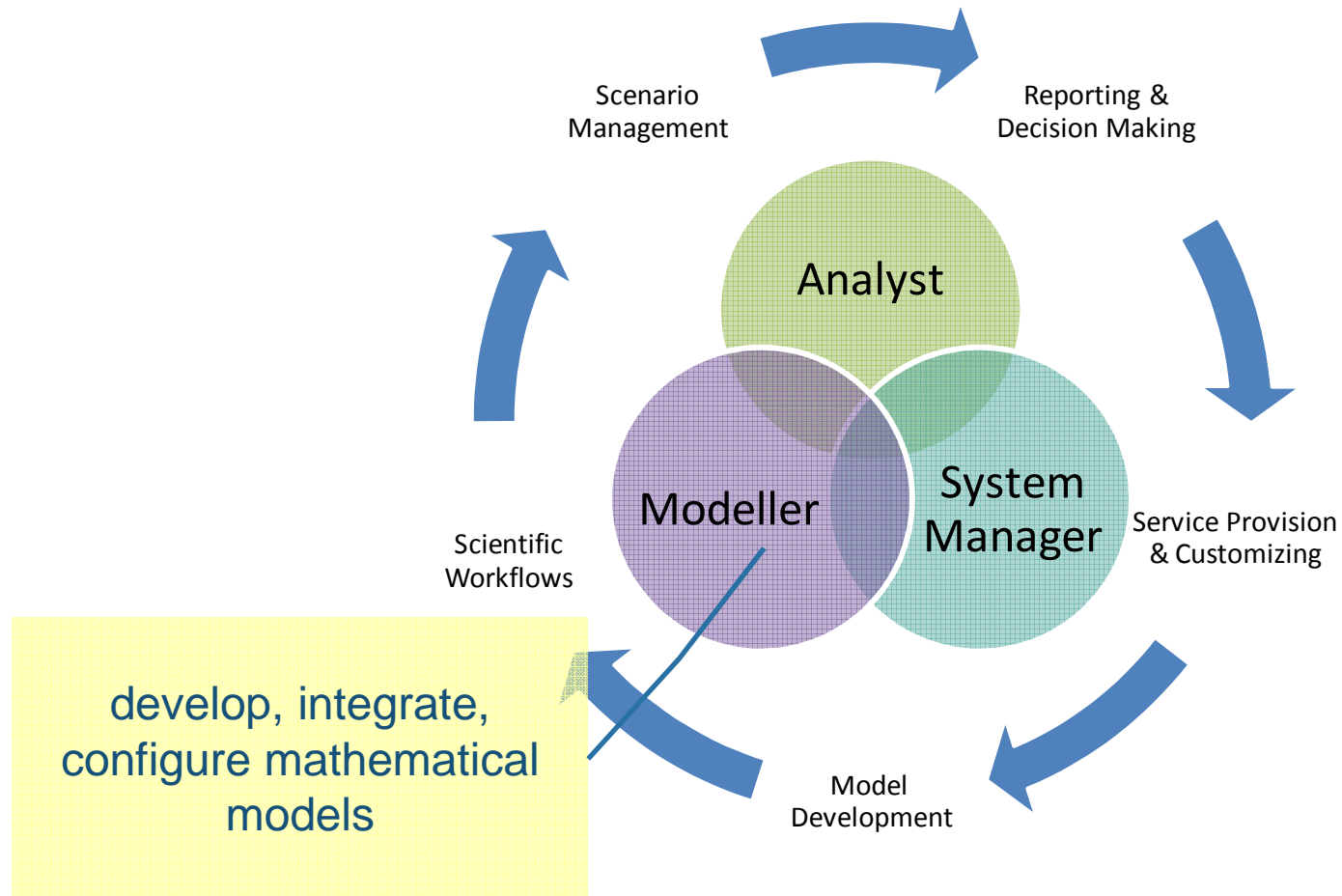
## User Categories



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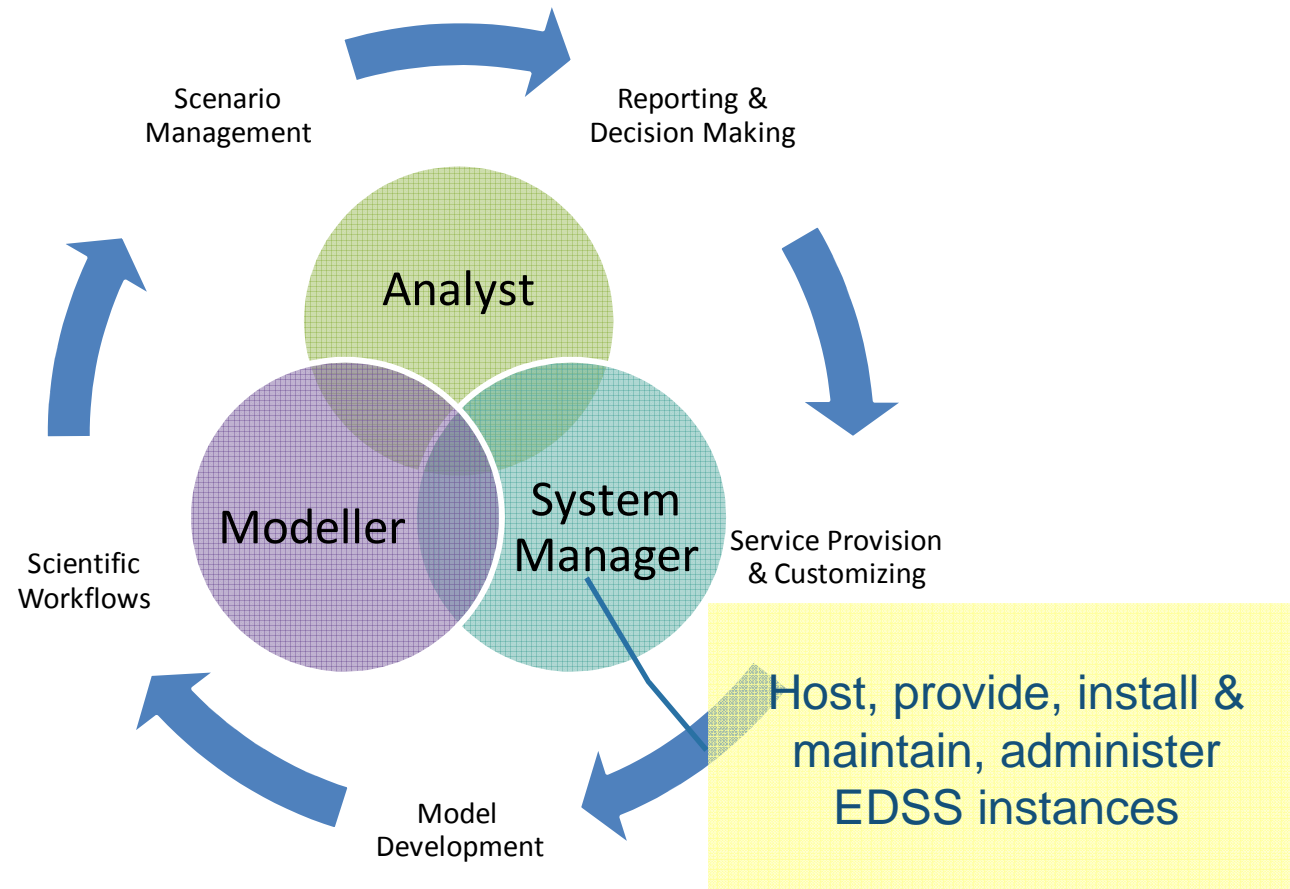


## Users Categories





## Users Categories



## Approach

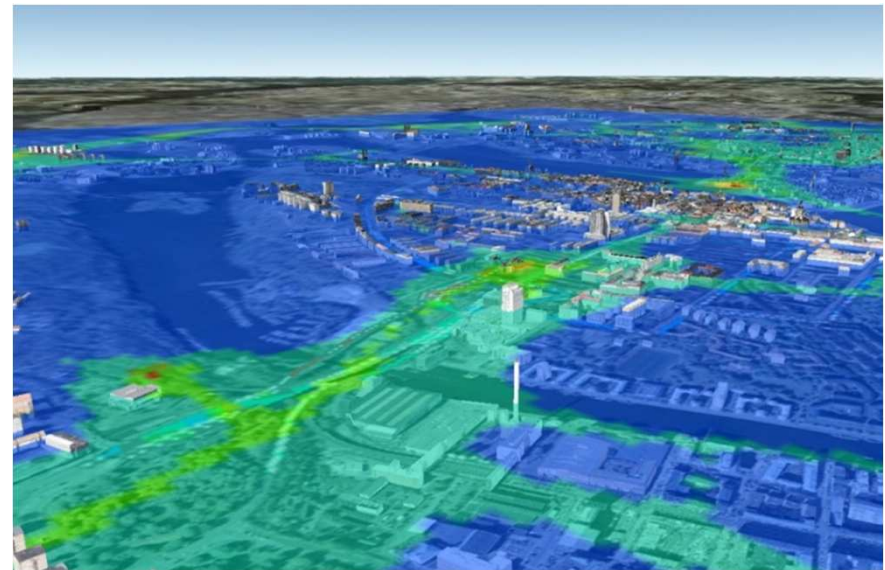
Provide 2 Building Blocks

- Services providing climate change information on an urban scale

→ Common Services

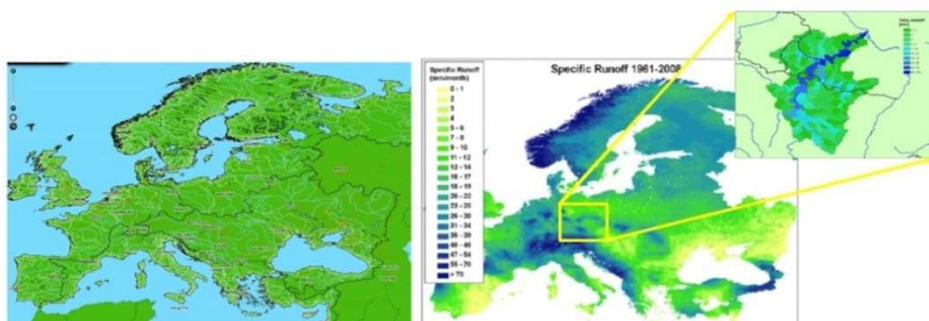
- Scenario Management Platform to support tasks involved in urban planning

→ Scenario Management System



## Common Services

- Provide climate scenario data on a European scale, available for every city. 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

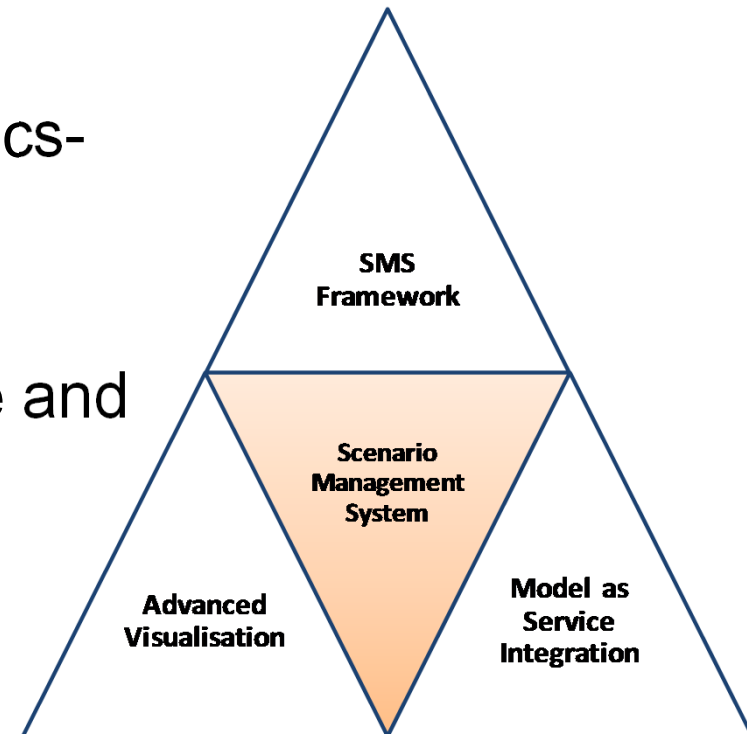


## Functionality

- Rainfall time series and IDF downscaling
- Storm water generator
- Hydrological conditions and runoff downscaling
- Air quality downscaling

## Scenario Management System

- Highly interactive, 3D/4D graphics-based, DSS-environment
- Users define, manage, execute and explore different decisions and simulate decision scenarios
- Visualisation, comparison and documentation of different decisions



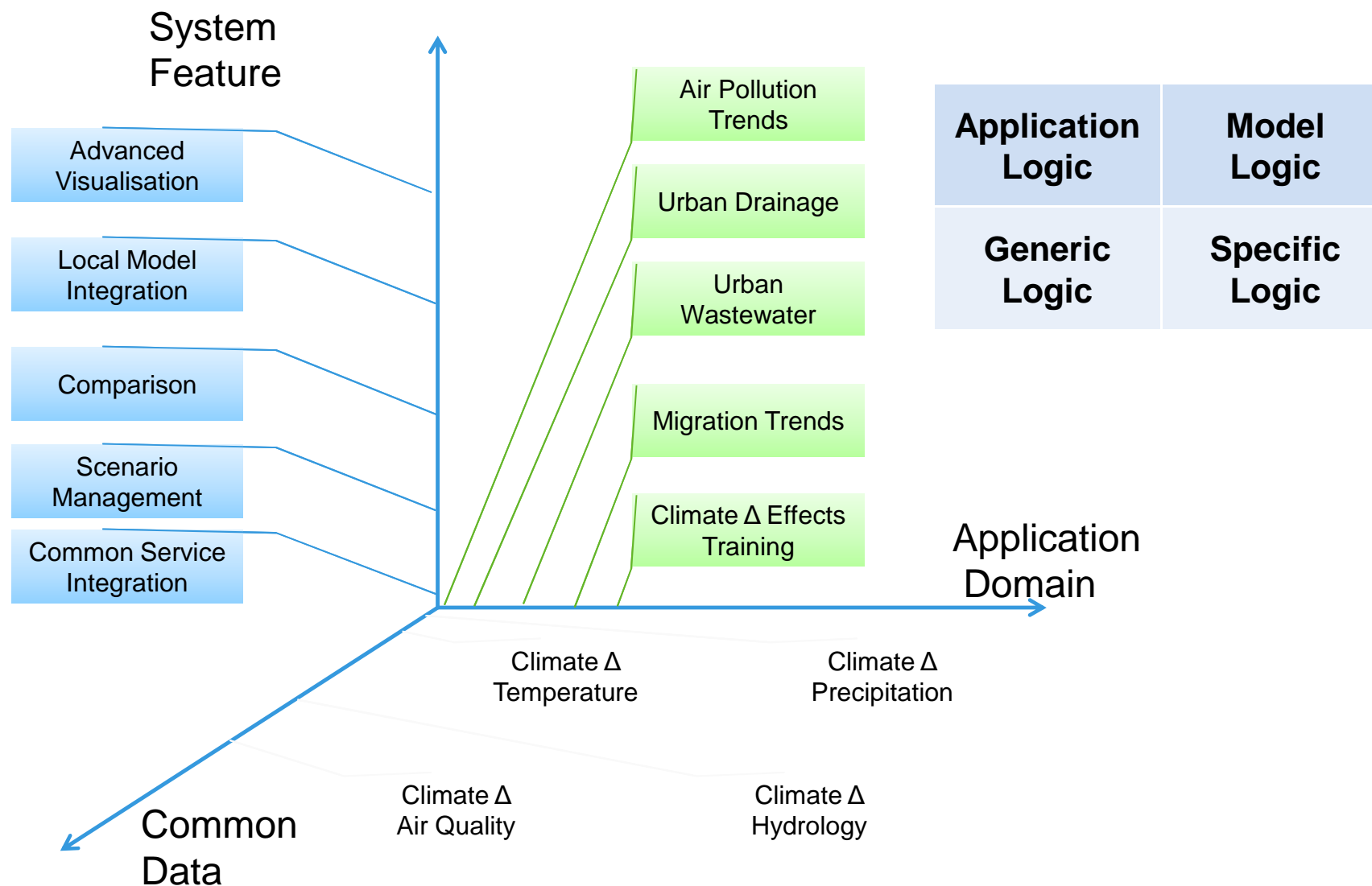
## **Requirements for the SMS**

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

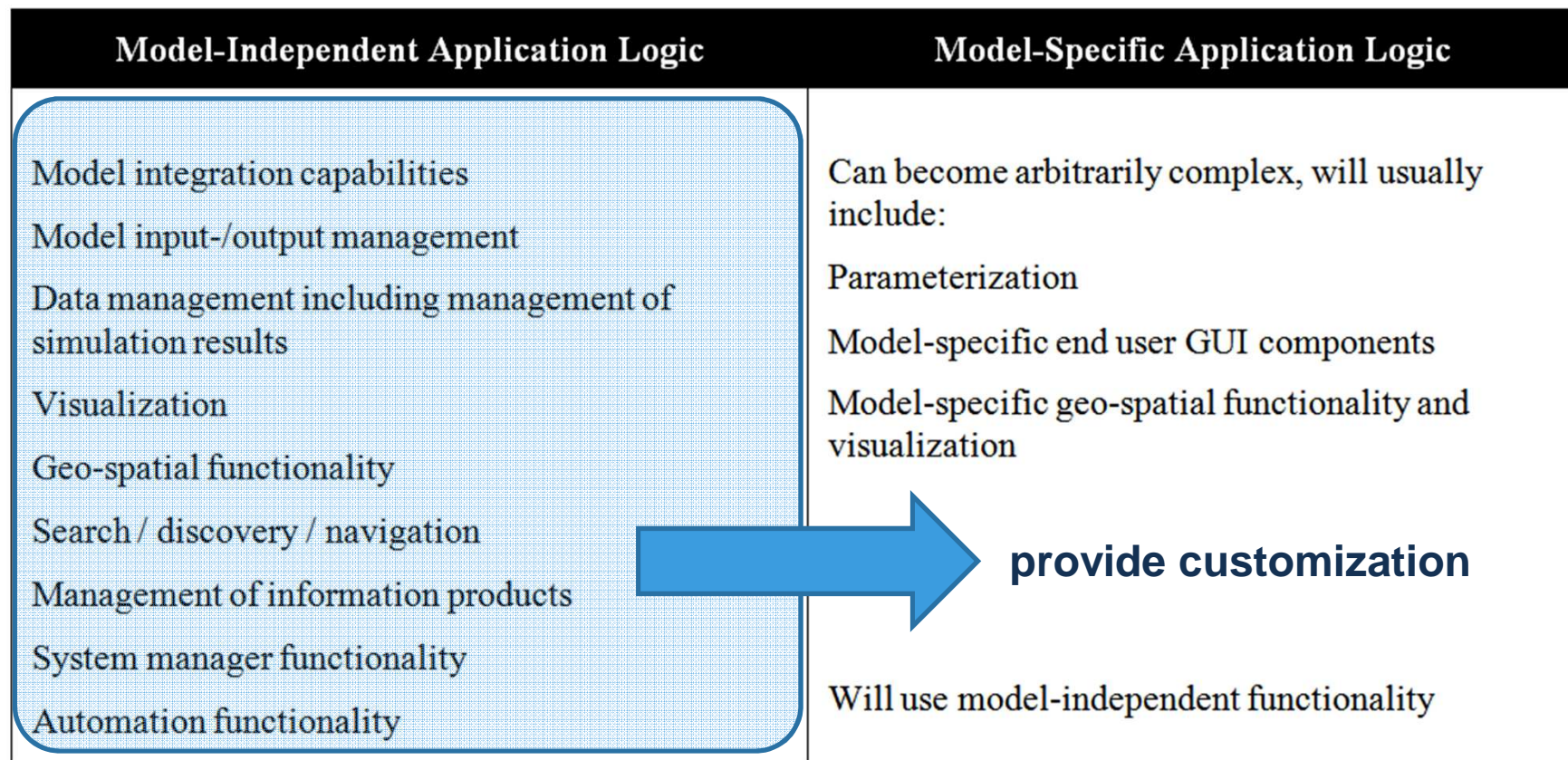
See:

Schlobinski et al. in ISESS-2011,  
SUDPLAN Deliverable D3.1.1 Requirements Specification

## SUDPLAN Dimensions



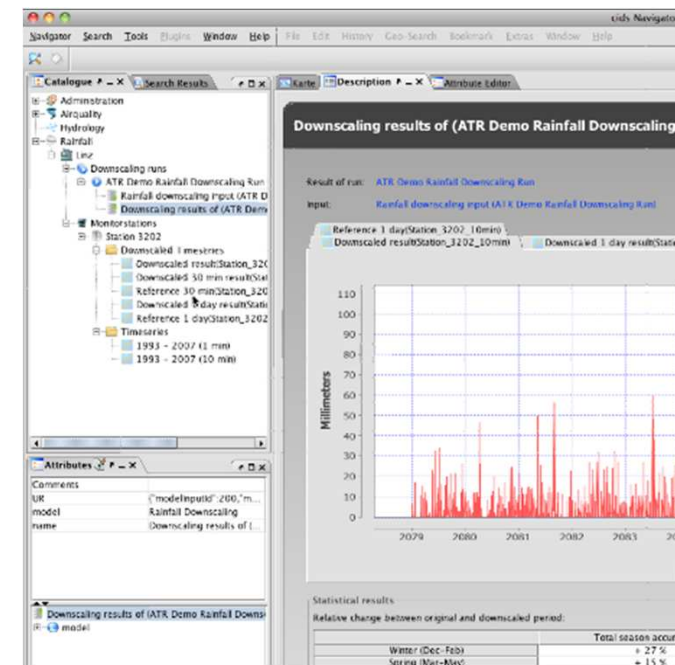
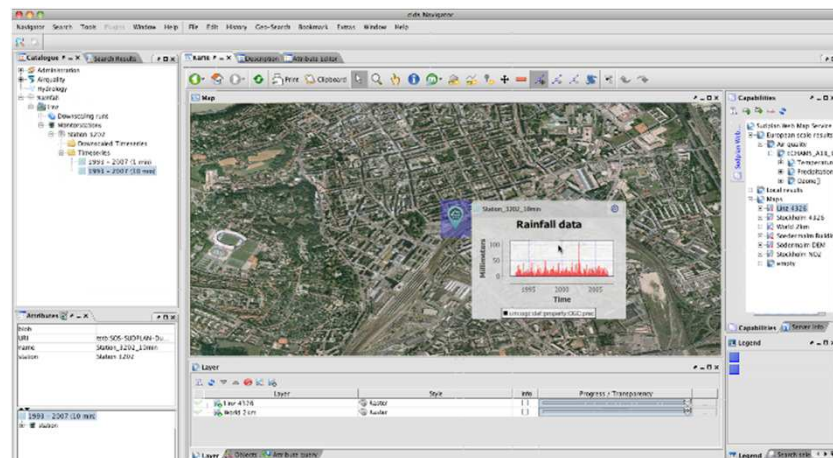
## Extension and Customisation Mechanisms



**generic functionality**

## Realisation Status

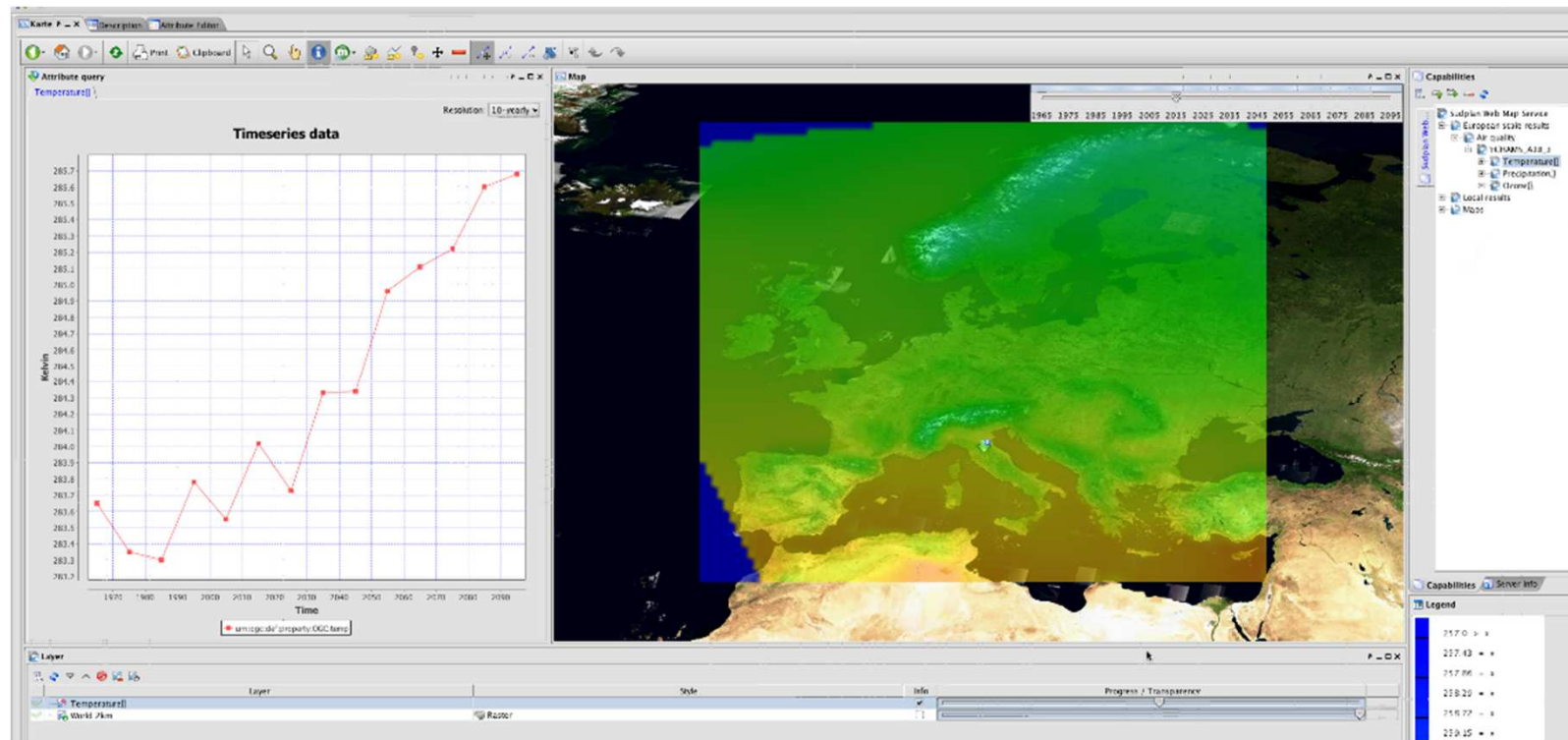
- Model management (for Common Services) including management and basic visualisation of model input and output data (2D)





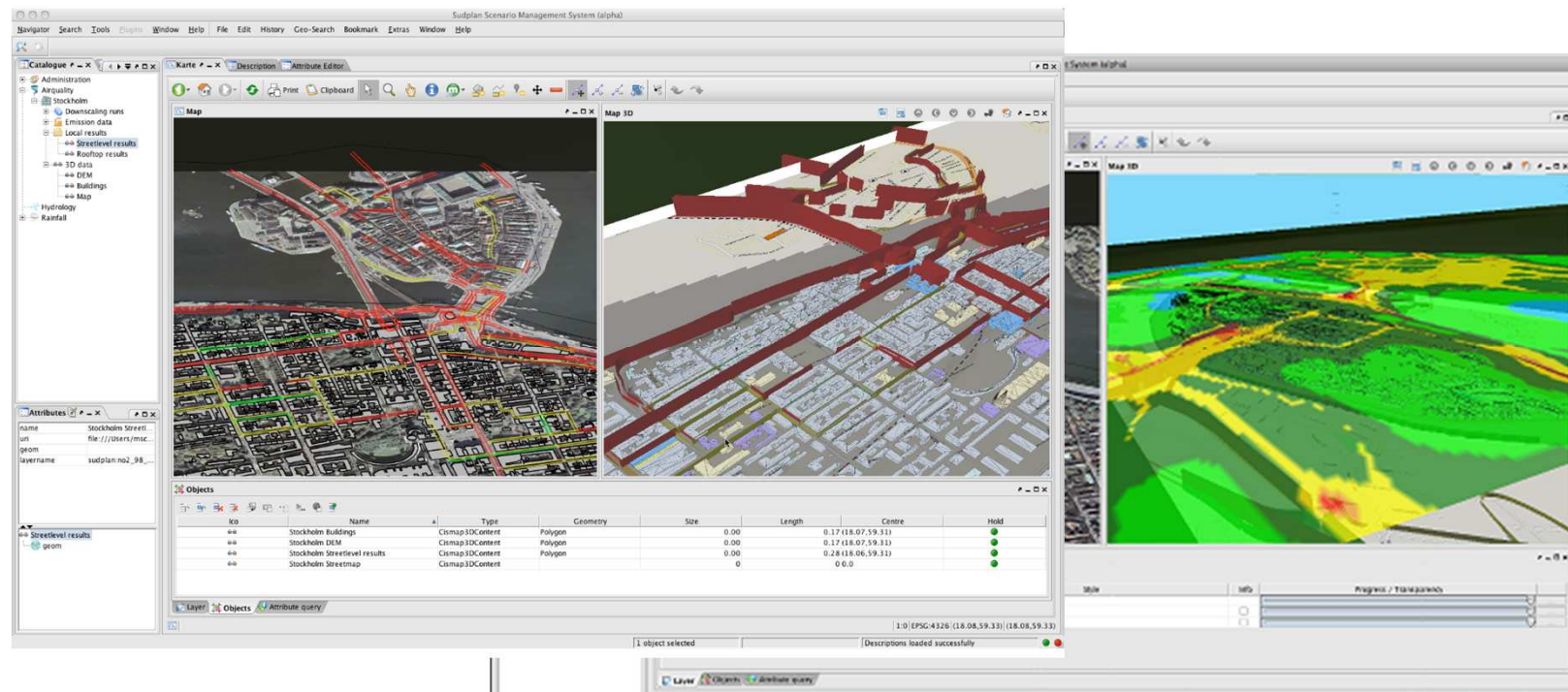
## Realisation Status

- Interactive visualisation of spatio-temporal data



## Realisation Status

- 3D visualisation of the terrain model and gridded results from local air pollution model



## Benefits (Common Services)

- Urban planners can easily include climate aspects in their planning processes
- Using the models they are using anyway
- Without the need to develop a specific model

*cost(integration) << cost(development of specific model)*

## Benefits (SMS)

- Platform for EDSS that supports a large number of tasks

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

- Can be transferred to other applications
- Comes with integrated Common Services

## Summary

We aim to ...

Improve the integration of climate change  
into urban planning decisions

Improve the link between climate change research, local  
modelling and urban planning

Increase the efficiency of systems development

## Contact

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