

## MUSI – Multi-scale Urban Scenario Interface: development of a web-based software system for strategic low-CO2 energy planning

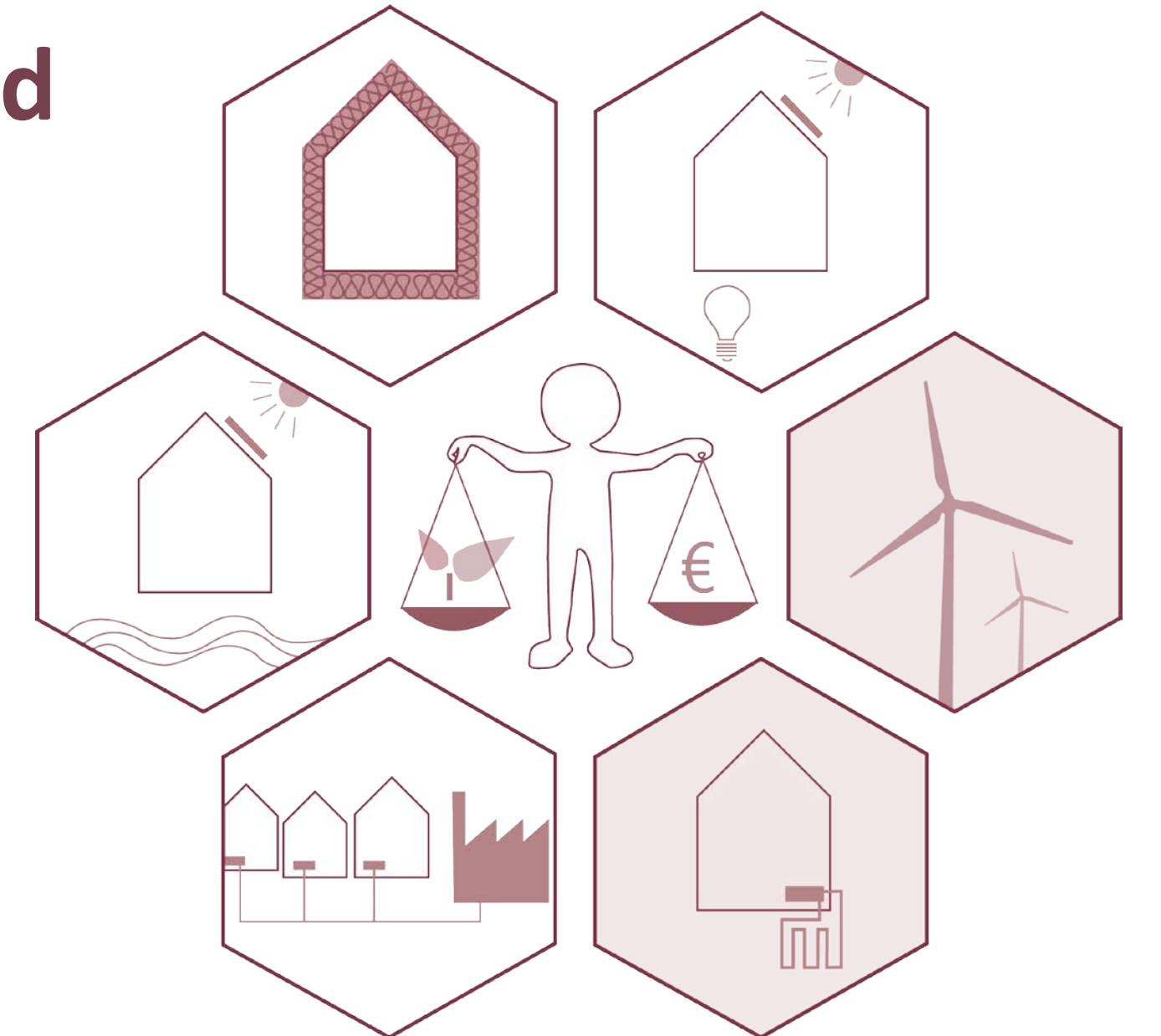
Field of Action 2: **Information platform and urban simulation systems**

Partner: **Explorative project without external project partner**

Duration: **01.01.2018 – 31.12.2020**

HFT Competence centres: Centre for Sustainable Energy Technology, Centre for Geodesy and Geoinformatics

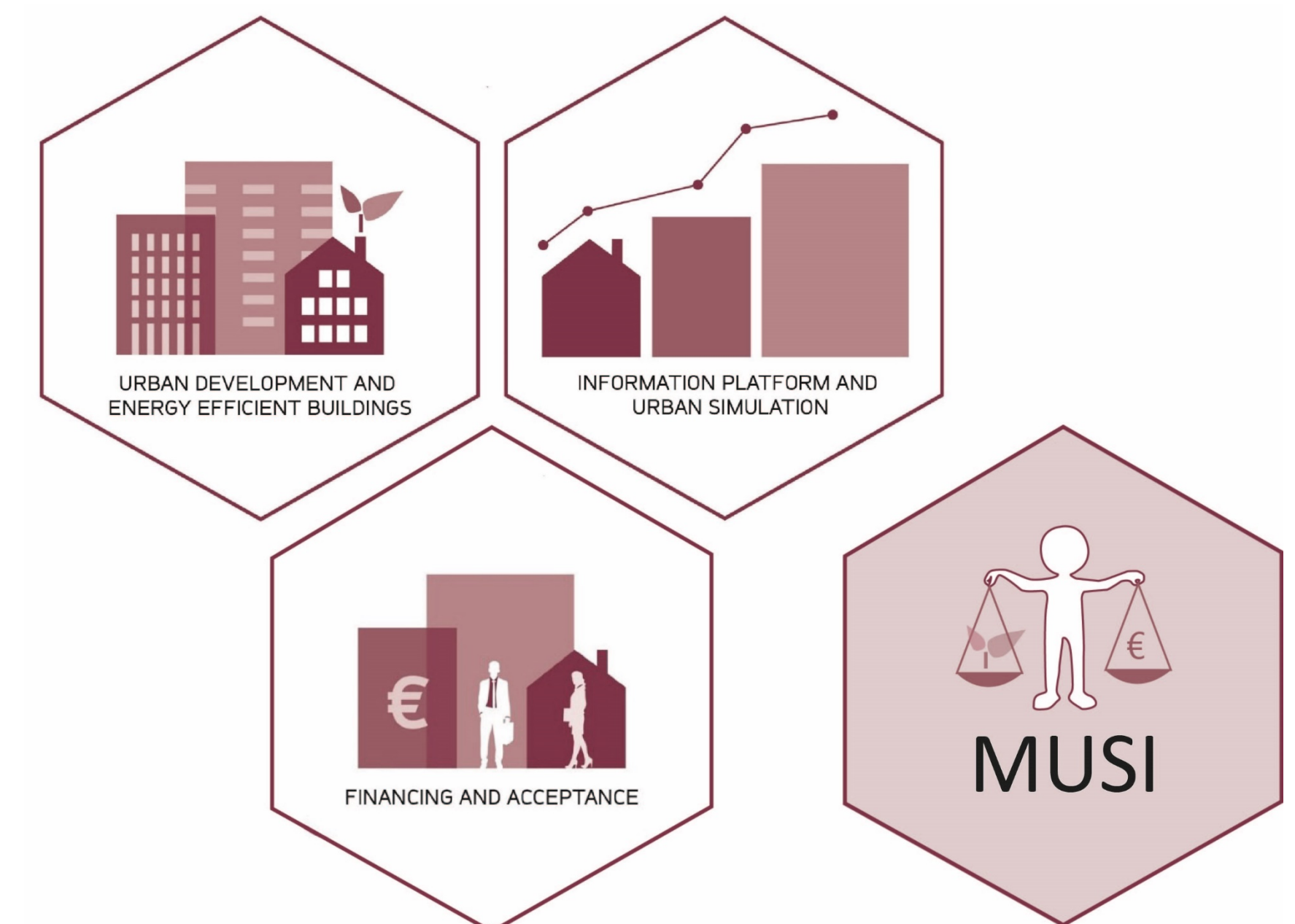
HFT project director: Prof. Dr. Bastian Schröter,  
Prof. Dr. Volker Coors, Prof. Dr. Ursula Eicker



### What is MUSI?

In order to be able to implement the energy transition locally, mechanisms and tools that enable a quantitative and neutral examination of feasibility, degree of goal achievement, and efficiency of neighborhood strategies and energy concepts, have to be developed further and improved.

The explorative research project MUSI addresses three of the six fields of action defined in i\_city and derived from the most important drivers and challenges for urban space: *Sustainable City Development and Energy Concepts for Urban Quarters*, *Information Platform and Urban Simulation Systems*, and *Financing and Acceptance*.

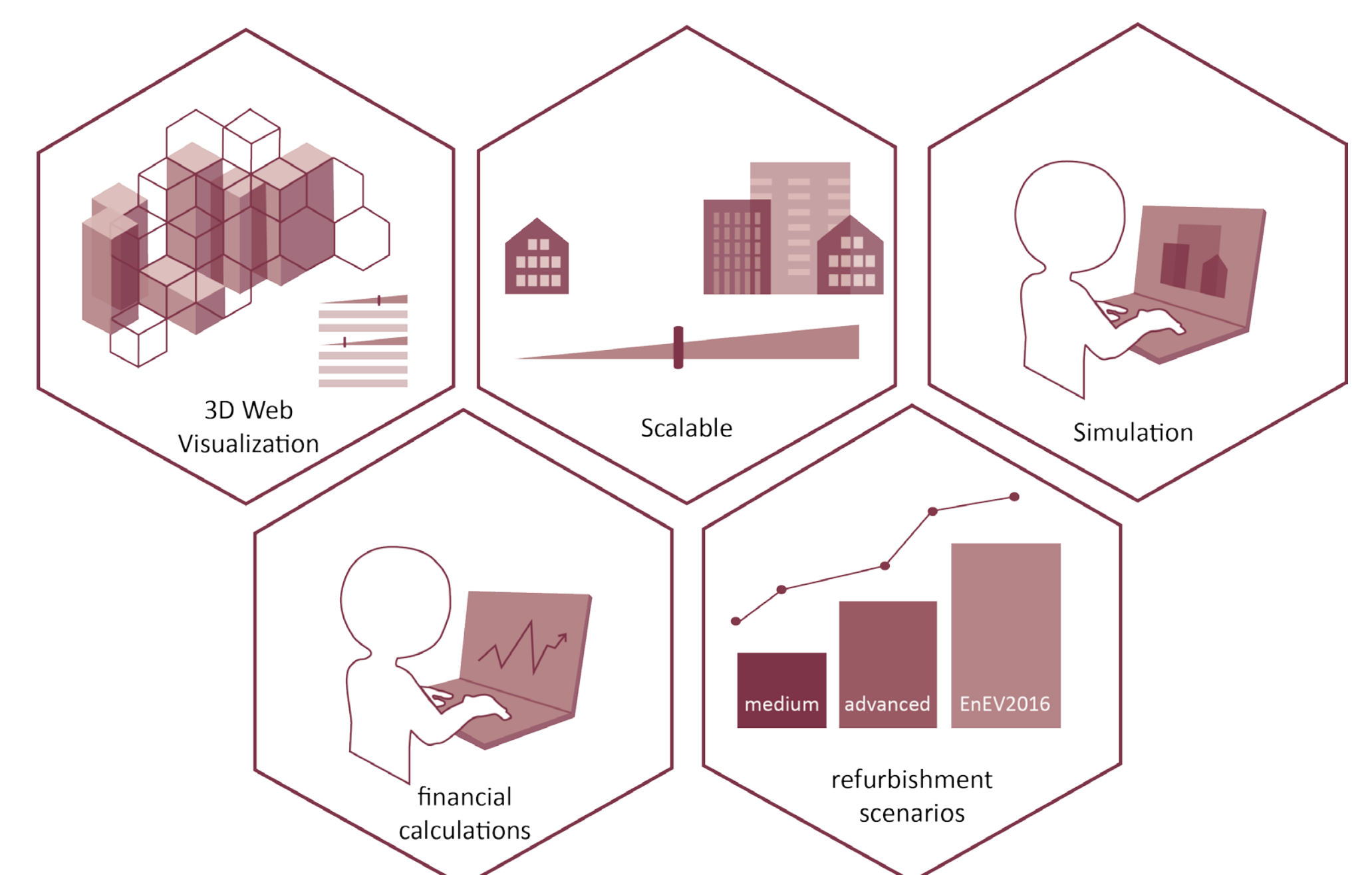


### The Objective

The aim of MUSI is the conception and development of an innovative, web-based and regionally usable software system for strategic low-CO2 energy planning.

MUSI combines 3D city models for the holistic planning of remediation strategies at district level with stationary and dynamic building and plant models and integrates them into a user-friendly platform for simple scenario calculation. The planned investigation methodology includes a parameter study with regard to energy efficiency, plant technology and economic efficiency. It illustrates the influence of individual parameters on heat demand, the potential for regenerative power and heat generation or the costs for building owners or municipalities.

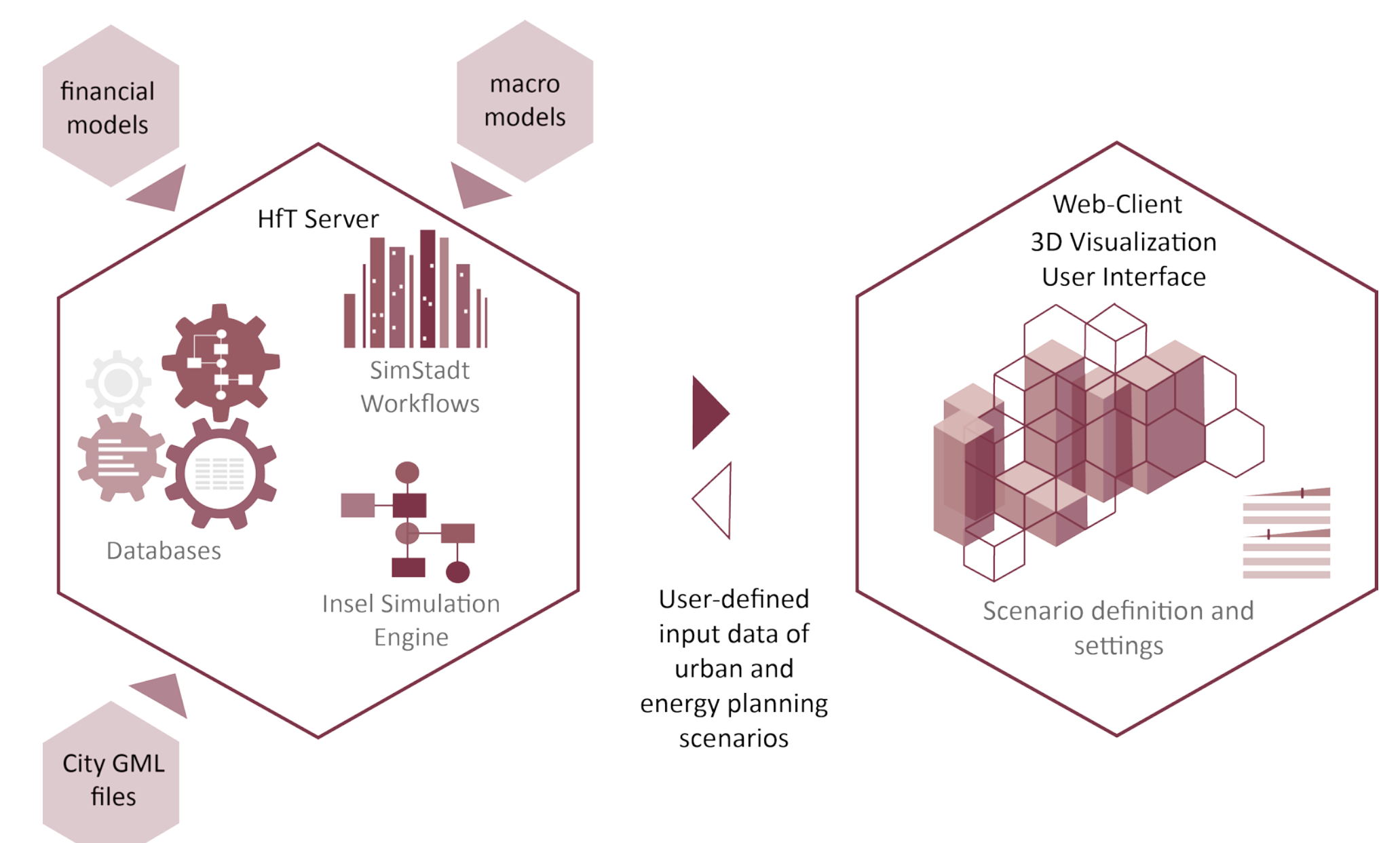
By adding economic parameters to an existing modeling environment and building a browser application, the extended SimStadt becomes accessible to a larger and potentially new group of users.



### The Approach

A 3D city model serves as the data basis, which analyses the feasibility of energy efficiency and building refurbishment measures on the one hand and the integration of renewable energies including their grid-connected distribution on the other hand and offers new simulation and visualization possibilities.

The advantage of this interdisciplinary approach, which is developed by architects, geoinformaticians and infrastructure managers, lies in the scalability of the application through a database based on 3D city models: Any number of project diversions can be selected, from a single house view to the simulation of entire districts or cities, without having to accept losses in terms of calculation accuracy.



Visit the **i\_city** website:  
[i\\_city.hft-stuttgart.de](http://i_city.hft-stuttgart.de)

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