FASUDIR

Friendly and Affordable Sustainable Urban Districts Retrofitting

The FASUDIR project

The traditional approach to the building energy efficient retrofitting brings poor results in relation to the urban sustainability, resource efficiency and economic return. Although the district retrofitting approach is frequently the most sustainable and cost-effective, the complexity of decision making grows exponentially when the intervention targets larger scale, even more when considering the fragmentation of the construction sector.

The FASUDIR project was born to develop new business models and financial supporting tools, to support the necessary building-retrofitting market mobilization in Europe to fulfill EU-targets in 2020 and 2050. The key instrument will be the *Integrated Decision Support Tool (IDST)*, developed to help decision makers to select the best energy retrofitting strategy to increase the sustainability of the whole district.

With stakeholder feedback loops, training, and validation in three diverse urban areas, the IDST will ensure robustness and applicability in the entire value chain.

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SEVENTH FRAMEWORK PROGRAMME

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Decision making

The IDST will be based on a decision making methodology, designed to select and prioritise energy efficiency retrofitting interventions. It will implement existing and new cost-effective solutions, for significant sustainable improvements in the rehabilitation of urban districts.

Taking into account the different European urban typologies and the priorities of the decision makers, the methodology will support retrofitting actions that are deployed as a unique intervention, but also scheduling sequential interventions in the most cost-effective way.

This methodology will focus on the initial stage of the retrofitting process at district level, in which the retrofitting framework is established, with the definition of strategies and technological solutions.

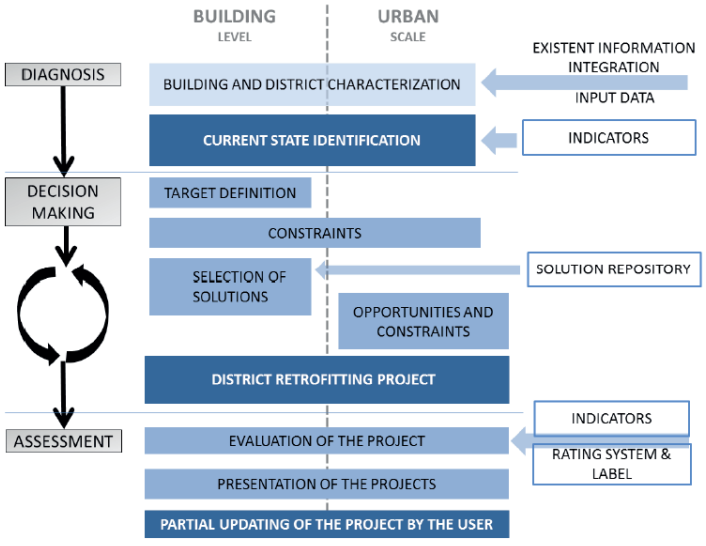
Ultimately, the IDST will allow selecting the optimal, off-the-shelf technologies and strategies for each specific energy retrofitting project in terms of sustainability as a whole (environmental, economic and social).

Technological development

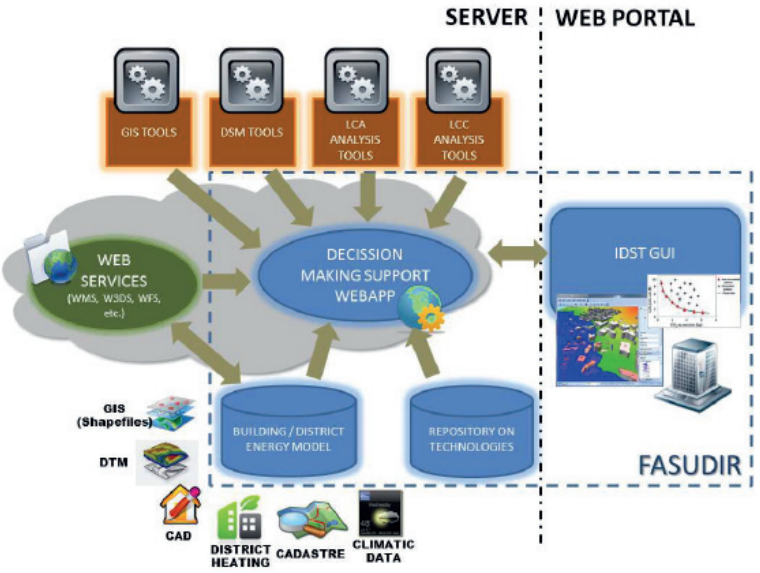
To ensure usability and effectiveness, the IDST will contain a collection of sustainable retrofitting strategies and technical solutions at building and district level. Each strategy will be characterized according to different aspects, such as adequacy, costs, technical properties, environmental parameters, and so on.

The software will enable modelling the district and building with an adequate level of definition, in such a way that evaluation results will be precise enough, but the input data to define the retrofitting project will be easily supplied. The IDST will feature a 3D graphical user interface, in order to facilitate the interaction between the multiple stakeholders involved in the decision making process.

The users will be able to select the most promising sustainable retrofitting strategies and technical solutions at building and district level, by choosing from a ranked list of possible scenarios proposed by the IDST.



Methodological approach for IDST



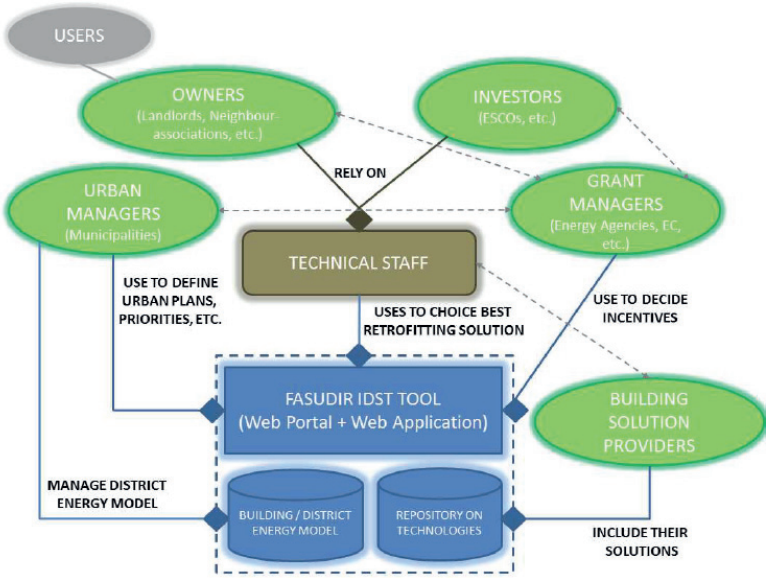
Proposed server architecture

Training and awareness

The variety of stakeholders involved in the process of urban retrofitting will require a strong effort to raise awareness and disseminate results. In order to do so, the main actors will be invited to participate in Local Project Committees (LPC) that will be established in each region as users of the results. The LPC participants, as leading experts in the field of urban sustainable renovation, will offer feedback on the expectations from the IDST, on the methodology during its development, and will evaluate the beta version of the software.

The results of the FASUDIR project will be broadcast as an ongoing process, via the website, social networks, and through dissemination events such as workshops and conferences, both at local and international level. After the IDST development phase, the website will collect seminars to offer e-training on the software's usage.

All the main outcomes of the project will be described in thematic booklets, which will be collected in a final publication.



Interaction between the FASUDIR results and the main actors involved in the retrofitting projects at urban scale

Case studies

The IDST shall be validated in three different European urban developments that are representative of different district typologies that are common in Europe, and especially in need of energy retrofitting initiatives:

Cultural heritage districts: historic city quarter of Santiago de Compostela, Spain (founded in the XIII century)

Communist era district from the XX century: Residential district with public buildings in Budapest, Hungary

Residential districts built up on the 1970's decade of the 20th century: Heinricht-Lübke-Siedlung in Frankfurt, Germany

Wherever possible, the validation will be carried out against real data, to compare the results that are provided by the tool with the ones that were achieved by the real retrofitting project.

The case studies will be crucial to improve the global functionality and the application process of the IDST.

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