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ENERGY EFFICIENCY FOR EU HISTORIC DISTRICTS SUSTAINABILITY

EFFESUS DECISION SUPPORT SYSTEM

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What is the EFFESUS DSS

An open, multi-tier, flexible system

that supports

selecting and prioritizing energy efficiency interventions in historic districts.

Why do we need a DSS

Because the identification and classification of energy-related interventions is a complex process that involves a number of criteria which may often be conflicting:

- Compatibility with the architectural, historical, constructive and sustainable characteristics of the historic district.
- Energy savings
- Improvements of habitability and indoor environment quality
- Economical, technical and legislative feasibility

DSS can help us a lot to make structured decisions in such cases!

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EFFESUS DECISION SUPPORT SYSTEM

DSS Limitations

Decision support systems help us to make decisions, but we must know how to ask the questions and how to use the results of the analysis:

- A DSS assists in making a decision, as opposed to making the decision for you.
- The Power of a DSS is its ability to analyze information and its ease of use.
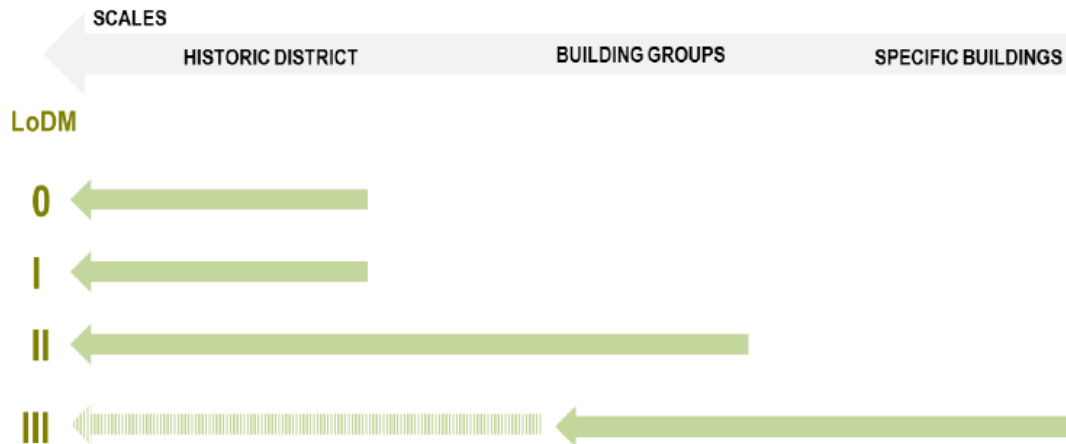
Target Audience

- Municipalities and urban managers responsible for improving the sustainability of the historic district and guiding the stakeholders in this process

- As explained before, a DSS is a good system for the problem owner, not for everyone involved in the problem. Therefore, the expected users are the technical staff of these organisations

- Architectural and engineering firms, possibly as subcontractors

Decision Making Elements

- Four levels of information availability – decision making
- Three phases (diagnosis, decision making and management)
- Two scales: building and district

About the levels of decision making

L0 Generic Information - solutions for energy savings, European national policies regarding energy and cultural heritage, data sources, general recommendations, best practices

L I simplified concept of modelling and current state identification to feed decision logic with baseline information about the historic district. It is intended to be used at an early stage of a planning process

L II "sample" buildings that represent the different "groups" of buildings of a historic district.

L III specific building groups and specific buildings.

About the scales

For the urban scale, the system will identify urban-scale actions (introduction of renewables, widespread use of solutions, urban energy storage)

For the building scale, the system will identify, select and implement energy-related improvement solutions in historic buildings with different levels of cultural significance and heritage protection.

Decision Making Technologies

Analytical Hierarchy Planning for decision making based on criteria
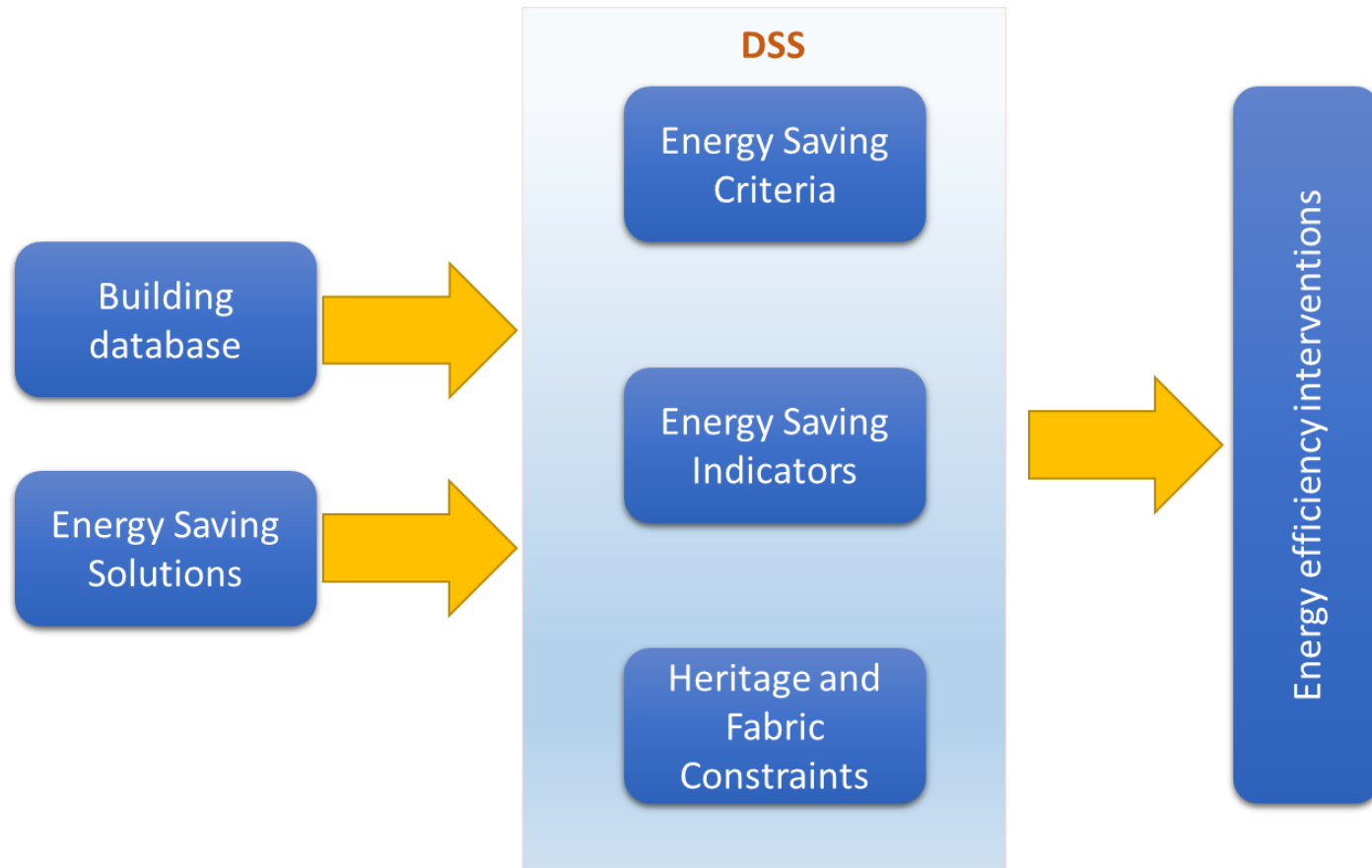
- Thermal Comfort
- IAQ
- Energy Saving
- Cost
- Low impact solutions

Data Base Driven DSS for decision making based on restrictions

- Historical Significance / Impact on Historical Significance
- Fabric Compatibility / Impact on Fabric

System Overview

Prototype demonstration