



# ePANACEA



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## NEXT GENERATION BUILDING ENERGY RATING



**Smart European Energy Performance Assessment & Certification**



# ABOUT ePANACEA

ePANACEA develops an innovative, holistic, and flexible methodology for Energy Performance Assessment and Certification of buildings. The methodology will cover relevant technical building

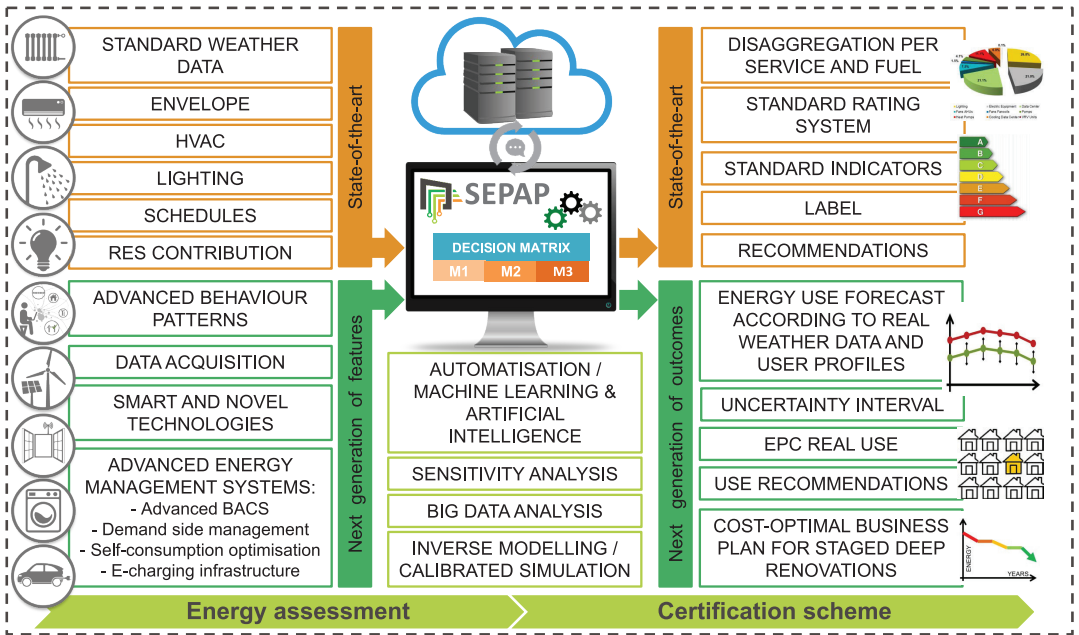
innovations and will be integrated in an online, self-calibrated Smart Energy Performance Assessment Platform.

## Next generation of building features:

- Improved consideration of user behaviour and occupant patterns.
- Inclusion of smart and novel technologies, e.g., on-site production of renewable energy, advanced energy management systems.
- Use of building monitoring data to increase accuracy and develop a standardised format for data acquisition from different sources.

## Updating the Energy Performance Certificates:

- Energy use forecasts according to real weather data and user profile.
- Recommendations related to user behaviour.
- Cost-optimal, individual business plan for deep renovation of buildings.



➤➤ The overall methodology concept aims to develop innovative approaches for both energy assessment and certification schemes, going beyond the state of the art. The SEPAP (Smart Energy Performance Assessment Platform), developed under the project, will integrate modular, flexible and customisable web based tools, incorporating innovative techniques such as inverse modelling and machine learning.

# Context

Under the Energy Performance of Buildings Directive (EPBD), all EU countries have established independent energy performance certification systems supported by independent mechanisms of control and verification. Energy Performance Certificates (EPCs) implemented under the EPBD provide valuable

information on the energy performance of buildings, and potential ways to improve it, to (prospective) building owners, tenants and investors. However, current practices and tools of energy performance assessment and certification applied across Europe face several challenges.

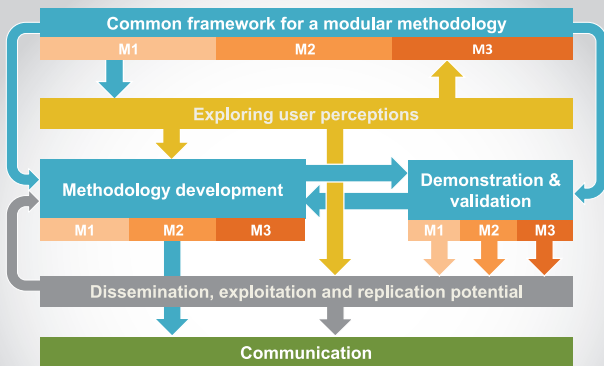
## Challenges

- Gap between calculation results and real consumption data.
- Lack of accuracy of the energy assessment results.
- Final building users are overstrained with the extensive amount of information found in the EPC.
- Increasing lack of convergence across the European Union (calculation intervals, ratings, reporting requirements, etc.).
- Lack of proper protocols for inclusion of smart and novel technologies.
- Lack of trust in the market regarding EPCs and difficulty to access financial support for building renovation.

There is a need to develop a new generation of EPCs which are more reliable, user-friendly and cost-effective in order to instil trust in the market and incite investments in energy efficient buildings. They have to increasingly reflect the smart dimension of buildings and at the same time, facilitate convergence of quality and reliability across the EU.

# Objectives of ePANACEA

- Demonstrate the potential for improvement of the effectiveness of energy performance assessment methods and certificates (EPC).
- Position end users in the centre of the methodology, providing them with understandable, user-friendly and targeted information.
- Increase accuracy of results by using innovative tools (big data analysis, simulation, machine learning, artificial intelligence).
- Generate trust in the market to stimulate investments in energy efficient buildings.
- Disseminate and facilitate the wide exploitation of the new energy assessment and certification scheme in the EU member states.



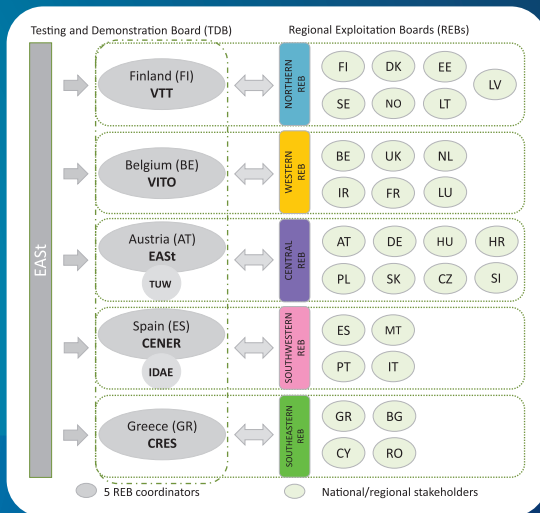
- M1** Method 1: Smart & performance data-driven building energy performance assessment
- M2** Method 2: Simplified method based on monthly calculation interval
- M3** Method 3: Advanced & automated simulation modeling (dynamic simulation)

# GET INVOLVED!

- 5 Regional Exploitation Boards comprising **European policy makers, certification bodies, consumer associations, professional associations and other relevant stakeholders** from EU-27+Norway+UK, involved in the definition and validation of the assessment methodology.



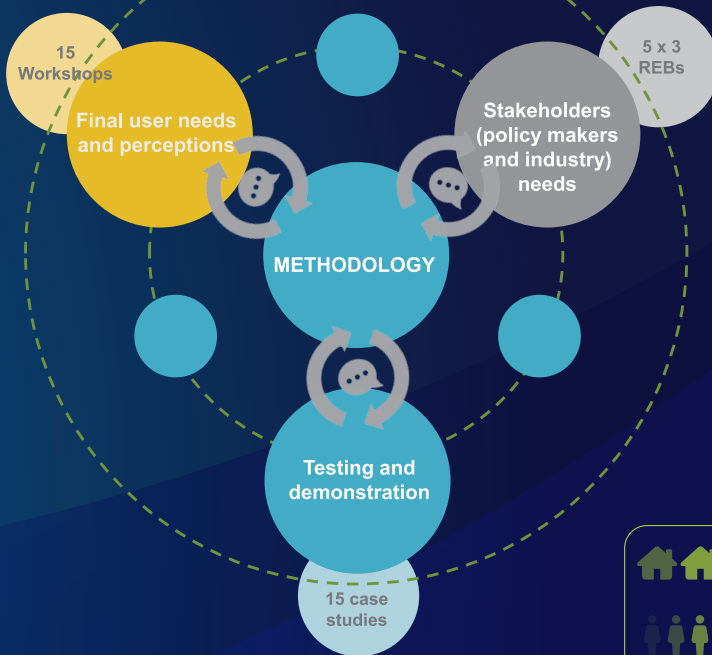
- Focus on integration of end-user perceptions, needs and feedback through **15 workshops**.



- Testing and validation of ePANACEA methodology with building owners

## 1 Case study preparation

- 15 real case studies (3 in each of the pilot countries Austria, Belgium, Greece, Spain and Finland) selected based on their characteristics (climate zone, size, economic and technical characteristics, use type, data availability, etc.)
- Commitment from and cooperation with 15 building owners, covering more than 7000 different buildings.



- User-friendliness
- Clarity of information
- Enhanced user awareness of energy efficiency
- Occupant Behaviour patterns
- Instil trust in the market
- Mobilise investments
- Reduce energy consumption
- Reduce CO<sub>2</sub>
- Meet objective 2050
- Quantitative impacts
- Building renovation roadmaps and building passport
- Technical perspective
- Accuracy
- Cost-effectiveness
- Training



**Support from 15 building owners and managers** Building stock > 7.000



**48 institutions; 52 representatives; 23 countries**

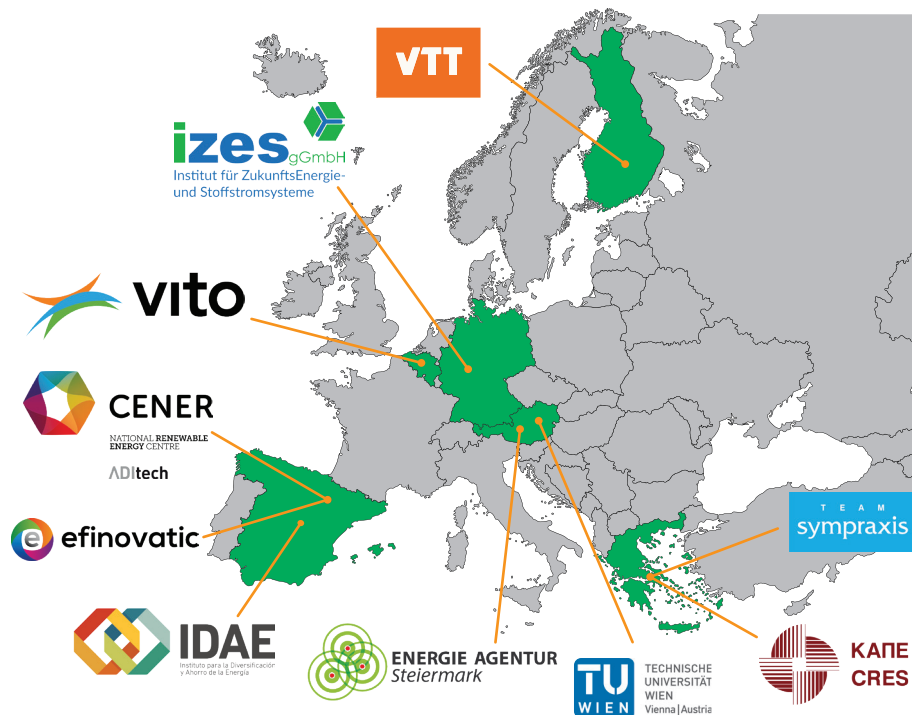
## 2 Case study plan of activities and reporting

- Development of a detailed implementation plan (activity schedule, description of case studies, milestones, etc.)
- Monitoring and reporting of implementation process.

## 3 Demonstration and validation of energy assessment and certification methodology

- Implementation and testing of proposed methodology on the case studies according to implementation plan.
- Validation results fed back into Smart Energy Performance Assessment Platform – SEPAP.

# TEAM



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[WWW.EPANACEA.EU](http://WWW.EPANACEA.EU)

