**PROJECT ID**

- **Duration:** 42 months (September 2015 – February 2019)
- **Partners:** 13 partners from 8 countries (France, Germany, Greece, Ireland, Italy, Spain, Sweden, Turkey), coordinated by Fundación CARTIF
- **Funding:** OptEEmAL receives funding from the European Union’s Horizon 2020 research and innovation programme.
  
  **Call identifier:** H2020-EeB-2014-2015 / H2020-EeB-2015
  
  **Topic:** EeB-05-2015 Innovative design tools for refurbishment at building and district level

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OptEEmAL, a project funded under the European Union’s Horizon 2020 research and innovation programme, will develop an Optimised Energy Efficient Design Platform able to provide a set of solutions that are based on different energy conservation measures to improve the energy behaviour of a district. This will lead to the reduction of costs during the design and operation phases of projects at different levels, including technical, operational, maintenance, and environmental aspects.

### Main Objectives

1. Developing a holistic and effective services platform for District Energy Efficient Retrofitting Design, which integrates interoperable modules and tools that are able to provide services for diagnosis and optimise scenarios (according to stakeholder priorities) on criteria such as energy, cost, environment or social evaluation for data export.

2. Reinforcing the commitment of all involved stakeholders through an Integrated Project Delivery approach that allows them to articulate their needs through a collaborative and value-based process to deliver high-quality outcomes.

3. Creating an integrated ontology-based District Data Model that will contain key information in the fields of energy, comfort, environment, economic, social wellbeing and urban morphology.

4. Cataloguing Energy Conservation Measures including technical, operational, maintenance and cost information providing valuable and consistent outputs to the design and district operation and maintenance stages.

5. Developing a bio-inspired optimisation module based on evolutionary computing with the aim of automating the decision making process to obtain the optimal design for an energy efficient retrofitting plan at district level.

6. Externally connecting the OptEEmAL Platform to relevant entities (i.e. existing tools enabling the calculation of indicators to generate and optimise the retrofitting scenarios).

7. Strategic dissemination, training, exploitation and market deployment of the project’s developments and results.

### Expected Impacts

- **Economic impact**: The costs of the operational phase are reduced by 25% by promoting holistic solutions, leading to a higher Return on Investment.

- **Economic growth**: The performance, usefulness and user-friendliness of the tool for developing Integrated District Energy Efficient Retrofitting Plans in real environments.

- **Social impact**: A higher level of user satisfaction improves user acceptance of the activities carried out and will finally lead to an improvement of social wellbeing.

- **Fostering the dissemination of the new knowledge at professional level**: The platform will increase the visibility and awareness of the project’s developments and results.

- **Growth of the European construction sector**: The creation of new jobs and strengthening SMEs in the sector.

In order to validate the OptEEmAL platform, two steps are required:

1. **Deployment of the platform prototype**: By using innovative EU-wide initiatives at district level, in a wide spectrum of cases will be carried out, ensuring performance is tested under different conditions including climate aspects, boundary conditions, uses, building typologies, levels of intervention, conservation conditions, existence of specific barriers, consideration of historical buildings, etc.

   - Six case studies have been pre-selected so far in four different countries with others expected to join:
     - **Sweden**
     - **Turkey**
     - **United Kingdom**
     - **Spain** (three different case studies with different uses, typologies and climatic conditions).

2. **In an ambitious final stage for the validation procedure**: OptEEmAL will carry out several demo cases. Three different stakeholders in charge of designing retrofitting projects at district level are essential to become testbeds for validation: A municipality, a private consortium of technical offices and a municipal company. Each will head the demonstration of the performance, usefulness and user-friendliness of the tool for developing Integrated District Energy Efficient Retrofitting Plans in real environments.

The results of the demonstration will focus on the generation of intervention plans, however the real implementation and execution will not take place in the scope of the OptEEmAL project.