

# Setting up a winning EU project proposal:

## BERTIM

**Nagore Tellado**

Sustainable Construction Division

**TECNALIA is a PRIVATE non-profit research center.**

**Our mission is “To transform knowledge into GDP”.**



**1.350**

People on the staff  
200 of whom are PhD

120 people in the Sustainable  
Construction Division

## SEVENTH FRAMEWORK PROGRAMME

395

Participated  
projects

84

Projects led by  
TECNALIA

## HORIZON 2020

37

Participated  
projects

8

Projects led by  
TECNALIA

4

Projects led by  
TECNALIA-Sustainable  
Construction Division

## Research & Innovation objectives



EUROPEAN  
COMMISSION

- Europe needs **cutting edge research and innovation**
- Essential to ensure **competitiveness, growth and jobs**
- Vital to tackle pressing **societal challenges** (climate change, energy security, demographic change,...)
- **3% of GDP** invested in R&D: headline target of Europe 2020
- But: Europe's performance **lags behind** USA and JP, BRIC countries rapidly catching up

➔ **Coordinated action** needed at EU level  
**EU Budget can make the difference!**



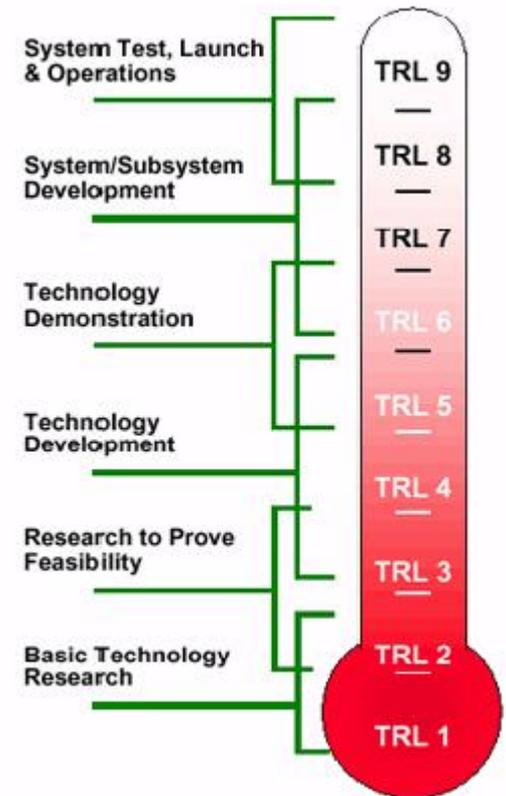
# HORIZON 2020



**Investing in science & innovation  
to make the economy grow**

## What do we need? - The idea

- ❑ Excellence: Innovative products, beyond the state of the art
- ❑ Sustainable, cost-effective, answering the challenges of the society



## What do we need? - The Consortium



## What do we need? - The Consortium

- ❑ **Industry** willing to innovate, to develop new products, more performing, more sustainable and more cost-effective
- ❑ **Specialized** technological partners supporting the research of the industry
- ❑ **End-users**, demonstrating the viability of the proposed solution

Geographically well balanced consortium with a leadership of Industry (SME-s)

## What do we need? - Impact on the market

- Impact assesment
  - Replication potential across Europe
  - Business plan from the beginning
  - Creating new added-value jobs in Europe
- Industrial property agreement
- Dissemination for exploitation

# Winning EU project proposal: BERTIM

## HORIZON 2020- 2014

### EE1 Topic: Manufacturing of prefabricated modules for renovation of building

#### Societal Challenge: ENERGY

##### Expected impact:

- . Reduction in total buildings (primary) energy consumption by at least a factor of 2 with respect to the current situation, and a cost-level better than traditional renovation activities.
- . Significant reduction of renovation operations while ensuring low intrusiveness and impact for users.
- . Reduction in installation time by at least 30%, compared to a typical renovation process for the building type.
- . Better quality standard and performance guarantee for the installed prefabricated modules and their integrated components, while enhancing indoor air quality.
- . Demonstration of the replicability potential.
- . A maximum return on investment below 10 years for end-users.
- . Generation of new high-tech SMEs specialised in renovation with prefabricated modules.
- . High-skill jobs for workers that could master innovative construction tools

# **BERTIM- Building Energy Renovation Through Timber prefabricated Modules**

**H2020 PROJECT**

**4 year project**

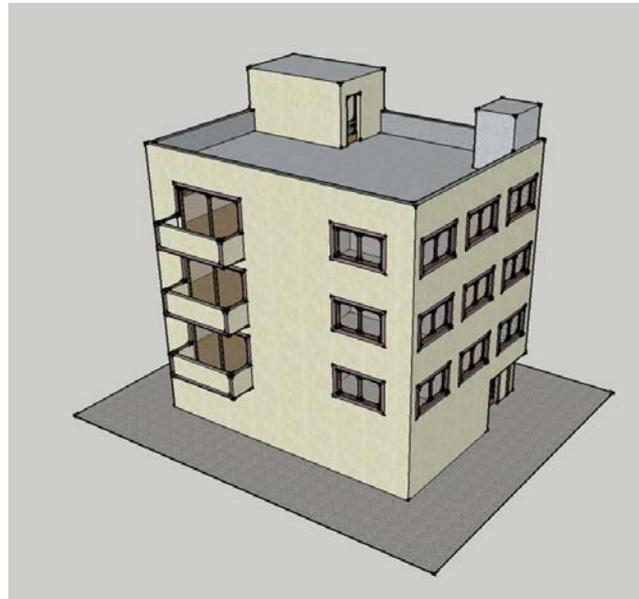
**Nearly 5 million Euro Budget**

# Objectives

- ❑ To design a family of very **energy efficient timber envelope prefabricated modules** for building renovation in the different climatic zones in Europe.
- ❑ To improve the mass manufacturing processes of the prefabricated modules from the design phase to the installation phase of the project.

# Idea- Timber prefabricated modules for renovation

Reduce the energy consumption 60% of inefficient buildings with lower cost than traditional renovation



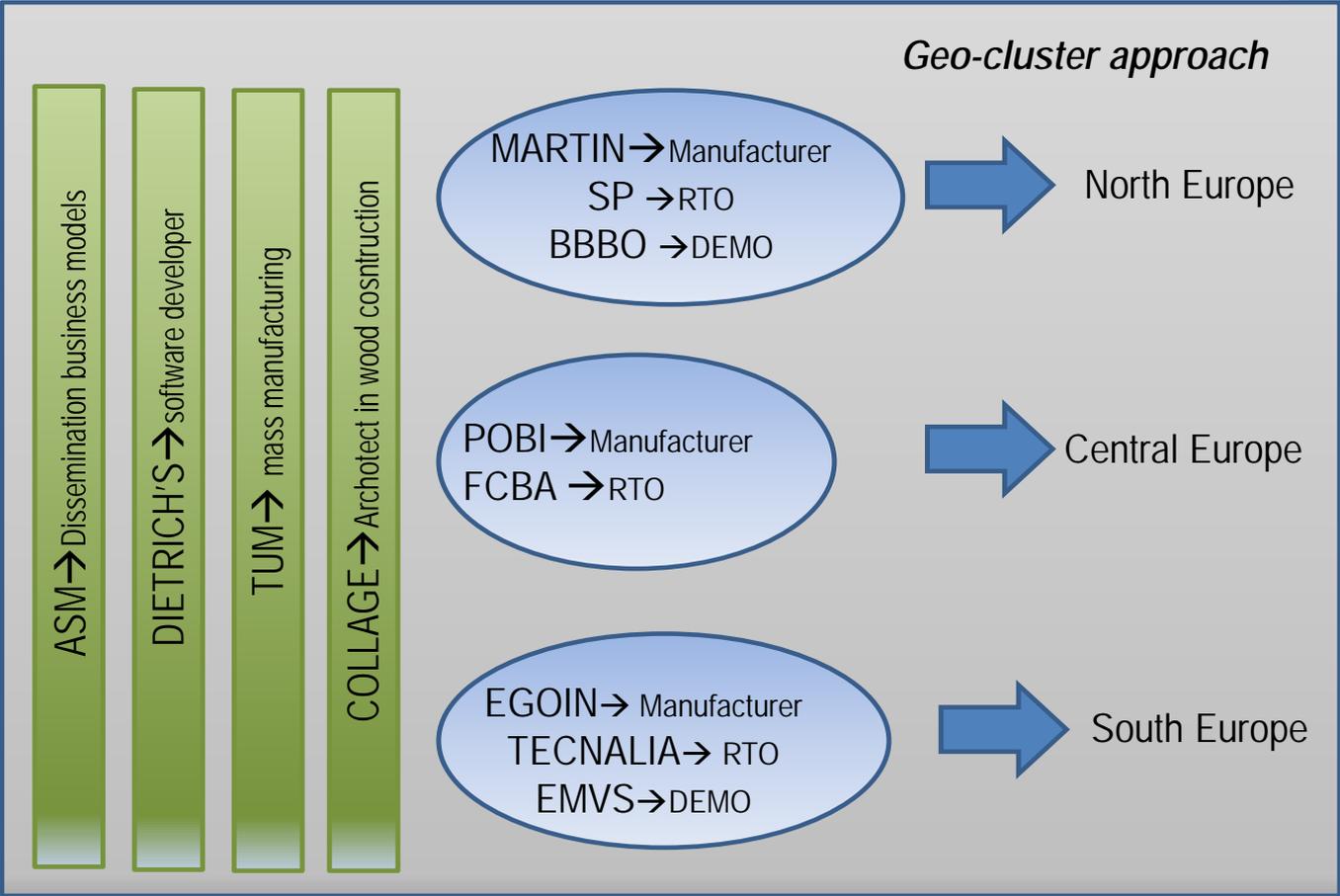
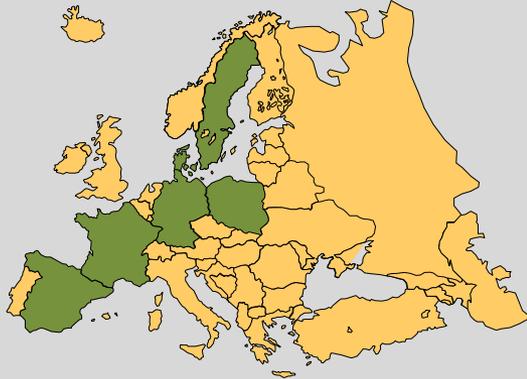
## Idea- Mass manufacturing

To developed a **software tool to implement the methodology** for the holistic building energy efficient renovation process.

The tool will be **based in a BIM** (Building Information Model) and will allow

- the generation of a 3D model of the existing building
- the design of the renovation project with the BERTIM prefabricated modules,
- the connection to the CNC manufacturing for the manufacturing orders.

## Consortium



## Impact- Demonstration of prefabricated modules

KUBIK By Tecnia



KUBIK by Tecnia is research infrastructure of 3 floors + cellar that is located in Spain, at Tecnia's facilities in Bilbao. This building is fully monitored (energy consumption and comfort conditions) and allows a full assessment of installation procedures and energy performance of components in real conditions.

Residential Building (Madrid)



Linear block of 5 floors located in Madrid (Spain). The structure consist of 3 concrete load wearing walls with no insulation and individual heating systems, varying from non-existing, gas or electric. There isn't any RES installed.

Residential building (Denmark)



The building was built in 1998 and consists of 3-storey blocks. Even though, it is a fairly new department there are thermal bridges partly due to lack of adequate isolation. Moreover there isn't any mechanical ventilation system.

## Impact- Demostration of mass manufacturing processes

EGOIN-Timber manufacturer (Spain)



They design and suggest a structural timber solution conforming to the project specifications. They transport the structure and assemble it on-site. The CNC software used by Egoin is Cadwork

POBI-Timber manufacturer (France)



They design timber structures and building components for the timber construction sector. They manufacture but don't install the components. The CNC software used by POBI is Dietrich's.

MARTINSONS -Timber manufacturer (Sweden)



They design timber structures and building components for the timber construction sector. The CNC software used by MARTINSONS is Tekla.

[www.tecnalia.com](http://www.tecnalia.com)

**Thank you for your attention**

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