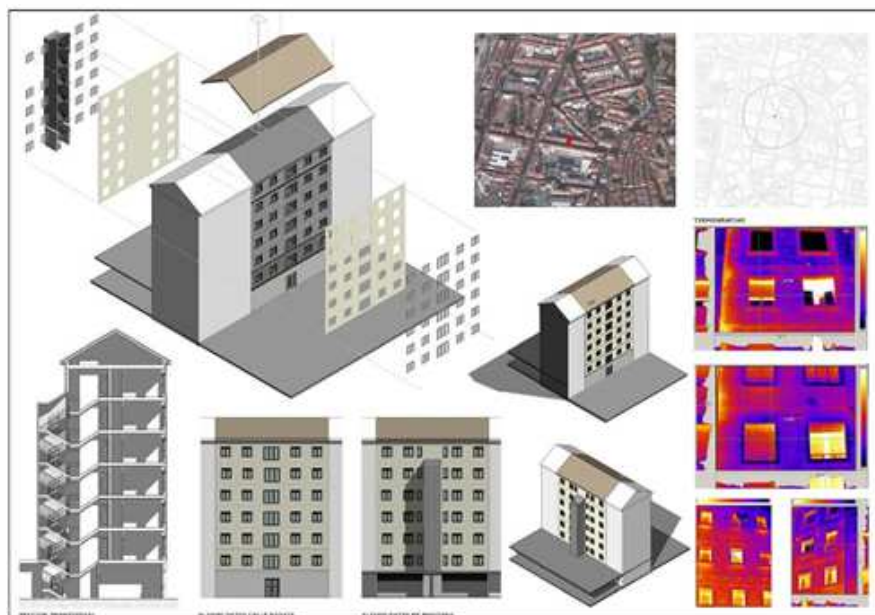


Retrofitting Package



Example of preliminary design project for building retrofitting

Main sector:

- District energy
- Smart buildings

Overview:

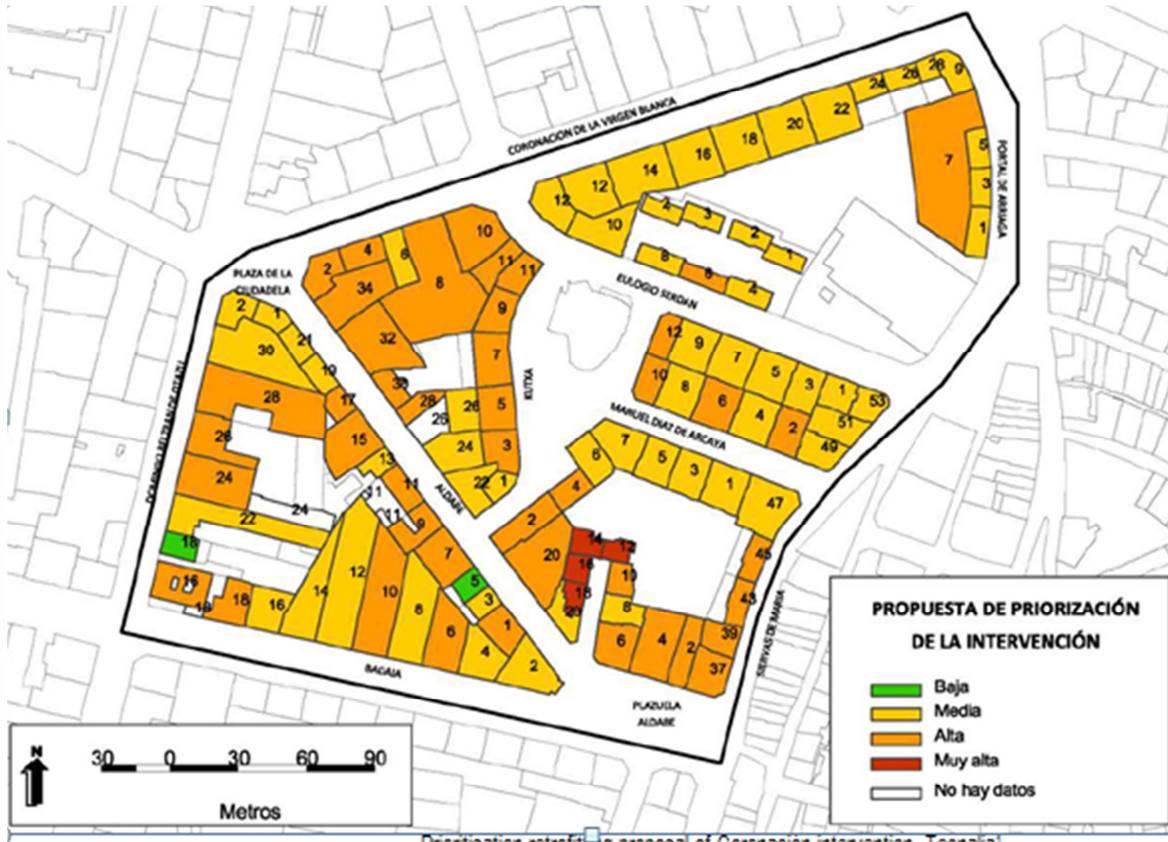
The building renovation intervention consists mainly of envelope retrofitting, which involves the intervention in the façade and cover, improving insulation and air tightness and installing new low-energy windows and doors, if needed. The Coronación neighbourhood was chosen for Vitoria for this intervention as it was identified as the city's most vulnerable neighbourhood in terms of social issues, stability, habitability, accessibility and energy efficiency. This district reflects the major challenges in terms of retrofitting and implementation of smart city concepts: very high density, low-medium income and relevant social dimension.

Following the diagnosis of the residential buildings in the demo area (1,913 dwellings), six main typologies (from the energy point of view) have been identified. The refurbishment of up to 750 homes is co-financed by the SmartEnCity project, and the Basque Country Government has agreed to co-finance in the same way for any other houses in the demo area, if this number is exceeded. Preliminary design projects for building retrofitting have been developed for a sample building of each typology, aiming for ambitious energy savings.

According to the technical specifications required to comply with the energy refurbishment of the buildings, as well as the connection to the biomass district heating, it is essential to have teams of designers (architects and technical architects) with experience and technical competence that guarantees the success of the solutions. Due to the terms of the Public Sector Contracting Law and with the technical solvency in mind, Visesa agreed, with the support of COAVN and COATA (official colleges of architects and surveyors), a basis for the tender for a framework agreement that would allow for a stock of teams with guaranteed technical solvency. In October 2016, the tender was published and an agreement with 55 selected teams meeting the specified requirements was signed. In May 2017 and June 2018, two-day training sessions were held with 105 professionals from the agreement list, explaining the technical conditions of the rehabilitation projects, the characteristics



of the connection to the district heating, as well as general explanations on energy-efficient refurbishment and good practices. As separate contracts with the neighbours are signed, the projects will be tendered within the list of 55 teams with which the agreement has been signed.



Prioritisation retrofitting proposal of Coronación intervention. Tecnalia

In July 2018 a major milestone was reached with the beginning of the first retrofitting works on the two communities catalogued as early adopters.



Retrofitting works on early adopters' communities: past / actual / future



Business model

The estimated costs for the retrofitting interventions are 21,000 EUR on average, including the connection to the district heating network. There are some buildings where the costs are higher because of its initial characteristics (more complex interventions due to existing walls). The final price for the house owners, after discounting the H2020, Basque Government and Vitoria Gasteiz Municipality grants, is 9,600 EUR on average. In addition, the Basque Government and Vitoria Gasteiz Municipality have created a guarantee fund for those who cannot afford this investment.

The current heating and hot water costs per house are estimated to be around 600 EUR/year on average, corresponding to about 5,000 kWh for room heating and 1,300 kWh for hot water. In the case of Vitoria Gasteiz, as part of the intervention, the neighbours must change from individual heating systems to the district heating system. It is expected that the costs of district heating will be substantially lower than those related to actual costs, including maintenance and substitution of individual systems. The payback period for the intervention, purely based on recovering the investment from the savings on the operation and taxes on the buildings, is about 30 years. Additional benefits to the building which are not included in this calculation are for example the increased value on the property or the health and comfort benefit for the residents.

Citizen engagement

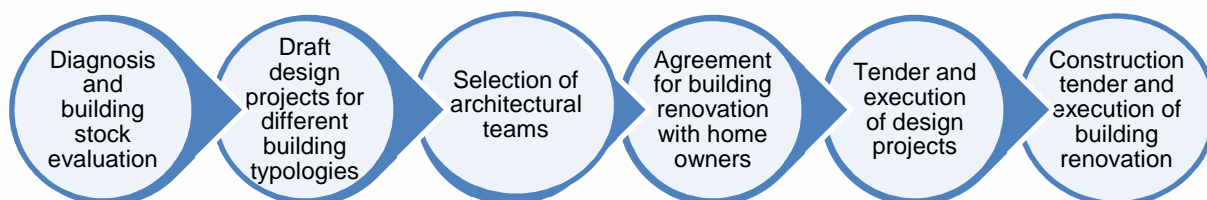
Community involvement and citizen engagement is particularly relevant due to the nature of the building retrofitting interventions. The interventions are carried out in private houses and the residents' opinion is decisive. In Spain, if the majority of a building's residents do not agree with the intervention, this might be an insurmountable barrier for the action.

Various agents are involved in the discussions about building refurbishment in Coronación District, including *Errota Zaharra* and *Bizilagun* neighbours' associations, *Aparejuel*, *Nagusilan*, *Ekologistak Martxan* and *Gaden* associations, Coronación church, Coronación mosque, Health Centre, Elderly People Sociocultural Centre, foreign people collectives, and *SEA Catering* and *Gasteiz On* commercial associations. This degree of involvement shows that citizens are the foundation of the project. They have been engaged in the definition process and will be involved in co-creation workshops to design the neighbourhood intervention.

In the beginning of the project, flyers were distributed to the neighbours and a municipal website was set up in order to make the main information accessible to all inhabitants interested in the project in Vitoria-Gasteiz. A communication plan was also developed, including actions such as workshops and other awareness actions, which are carried out throughout the project. An office was opened in 2017 in the heart of the neighbourhood to inform all the people interested, working as the communication hub between neighbours and the project consortium. An Information and Consultation Strategy was also launched in September 2016 to consult citizens about different alternatives related to district renovation and urban planning.



Process



Benefits

- Increased property values
- Increased health and quality of life
- Increased energy efficiency
- Reduction of energy bills
- Reduction of carbon emissions
- Increased comfort
- Social integration
- Job creation
- Behavioral change

Stakeholders

Owner of the solution	VIESA
Service/technology provider	Architectural teams, construction companies
Users	Home owners s
Investors	Home owners, public funding

Investment/Finance

ca. 15 million €

Potential for replication

With many cities in Europe having serious problems with thermal performance in a significant part of their building stock, opportunities for replicating energy efficiency related renovation solutions are plentiful. The management of these renovation processes, including involvement of public and private sectors, citizen engagement practices and regulatory and contracting practices that have been implemented within the SmartEnCity project in Vitoria-Gasteiz can serve as a good basis for replication in many other cities.



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