



**SUSTAINABLE
PLACES 2025**

8-10 October 2025

Milano



TOPIC

WORKSHOP

From Risk to Resilience

Multi-Hazard Strategies for Communities to the Built Environment



**MINORITY
REPORT**



MULTICARE



multiclimact



RETIME



www.sustainableplaces.eu

CLIMRES in a Nutshell

Projects Title: Leadership for Climate resilient Buildings

Acronym: CLIMRES

Consortium: 21 partners from 10 countries

Pilots: 3 LSPs (**Spain:** Heatwave, **Greece:** Wildfires & Earthquakes, **Italy+Slovenia:**

Floods) + 1 Replicator (**France:** Multihazard)

Services: 8

CLIMRES will support the adaptation of vulnerable buildings to climate change by providing the following key results:

vulnerability assessment methodologies

Methodology for buildings vulnerability and risk analysis, considering the integrated analysis of different risks

an inventory hub for climate resilient buildings

Architectural solutions to address climate vulnerability

a decision support toolkit

supporting decisions at different levels (strategic, tactical, operational)



SingularLogic



FREDERICK RESEARCH CENTER

ECMWF

CIMNE UNIVERSITÀ POLITECNICA DELLE MARCHE

RINA mobics

IMZI Blue-green Infrastructure Institute nazka maps that matter

ecoserveis ICLEI Local Governments for Sustainability EUROPE

UNIVERZA LJUBLJANA Ajuntament de Barcelona

DEMO CONSULTANTS SUSTAINABLE CITY

picharchitects PICH-AGUIERA

linkcity BOUTIGUES CONSTRUCTION BUILDING FOR LIFE

Overall Service Map

Materials & design for Climate Resilient Buildings



s.2 Inventory
Hub for climate
resilient
buildings

Federated data exchange, tailored to Climate Resilient Buildings



s.3.1 Data
Management
Platform

Strategic Level Service



s.3.3 Strategic
Level DSS

Operation Level Service



s.3.4 Smart
Evacuation
Service

Tactical Level Services



s.3.3.a Urban
Heat Resilience
Service



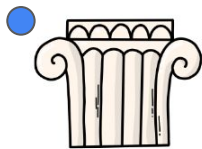
S.3.3.b Flood
Resilience
Service

s.3.3.c Structural
and Seismic
Resilience
Service



s.3.3.d Fire
Resilience
Service

Key Achievements



Kick-off Meeting
in Athens, Greece



Digital Catalogue
Heatwave: 42 Measures
Floods: 21 Measures
Wildfires: 25 Measures



Data Collections
from the Pilots



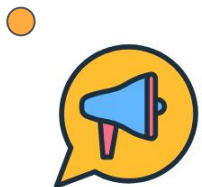
Technical
Requirements



List of hazards per pilot
based on historical
data



Participation in
3+ Events and
Conferences



Release of the
1st Wave of the
Services



VR prototypes for
flood/fire evacuation
training



Joined the
“Resilience for the
Built Environment”
Cluster



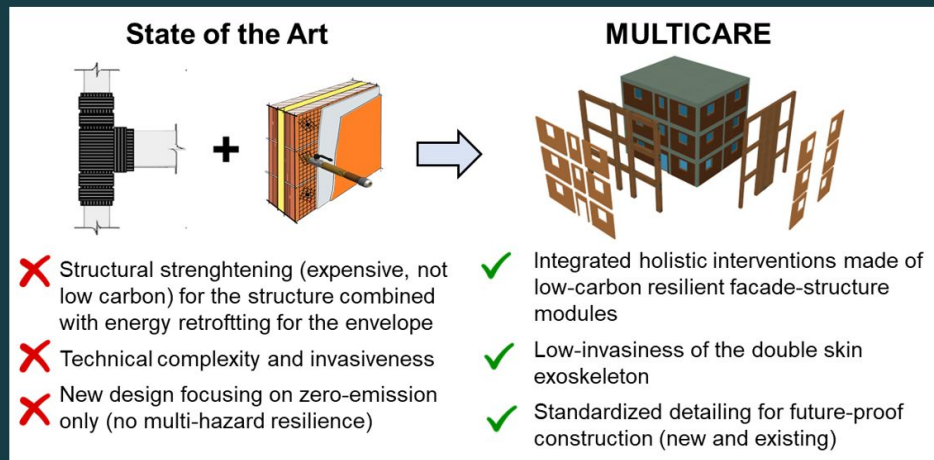
Beyond Energy Performance: improving resilience, preparedness & responsiveness



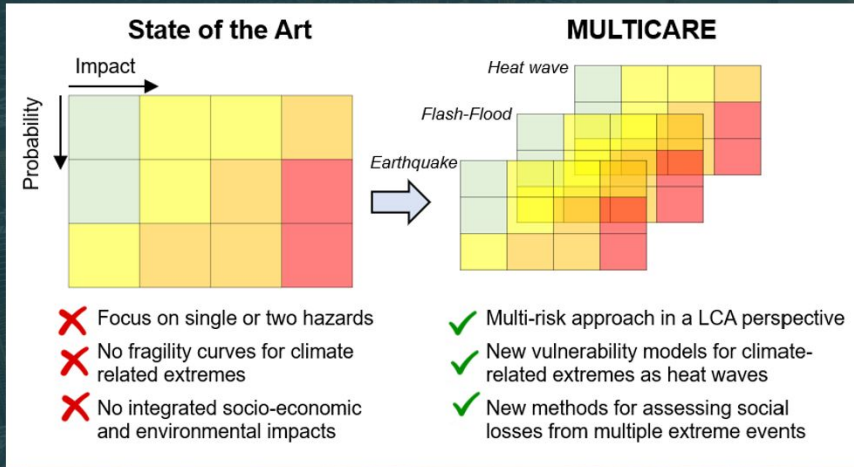
This project has received funding from the European Union under the Horizon Europe Research & Innovation Programme (Grant Agreement no. 101123467 MultiCare). Views and opinions expressed are however those of author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Development of Low-Carbon, Resilient Technologies

MULTICARE focuses on creating low-carbon, resilient solutions that cater to multiple hazards such as earthquakes, floods, and heat waves. These solutions are designed to be adaptable, scalable, and suitable for both new and existing buildings. The project emphasizes the use of **modular, plug & play systems** that are easy to install, reduce construction time, and minimize disruption during renovations.



Multi-Hazard Approach



A multi-hazard approach is central to the project's methodology, considering the various natural threats buildings face. MULTICARE develops solutions that ensure buildings can withstand and recover from multiple types of hazards, including **seismic activity** and **extreme weather conditions**. This holistic approach is expected to enhance the long-term durability and safety of buildings across different environmental scenarios.



This project has received funding from the European Union's Horizon Europe research and innovation programme under the grant agreement number 101147385. The European Union is not liable for any use that may be made of the information contained in this document, which is merely representing the authors' view.

Sustainable Places 2022

Dr Niall Buckley

IES



Horizon Europe Collaboration – Minority Report



Consortium Members

IES
Integrated Environmental Solutions Ltd.
Project lead: R&D division, Dublin
www.iesve.com/research

IES R&D
IRELAND

STAM
MASTERING EXCELLENCE

LASIA

UCL

PROSPER

E²ARC
Resilient cities for future cities

UC
UNIVERSITY OF CANTERBURY

URBAN INTELLIGENCE

UNIVERSITY OF PATRAS

THE UNIVERSITY OF AUCKLAND

Overview

- 16 Partners
- 3 City Municipalities
- 5 universities
- 8 Private companies

Social scientists, engineers, computer scientists, public reps, climatologists, and risk assessors

MINORITY REPORT – Resilience Project

Flooding



Earthquakes



Wildfires



Predict, Identify, and categorise the vulnerability of existing and future buildings and infrastructures towards reducing exposure to hazards using digital twin technologies



Ringsend Site



Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/NASA, USGS | Sources: Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, GEBCO, N Robinson, NCEAS, NLS, OS, NMA, Geodatastorelse... Powered by Esri

Temp °C

1 of 12



Last update: 19 seconds ago

kWh/m²/year



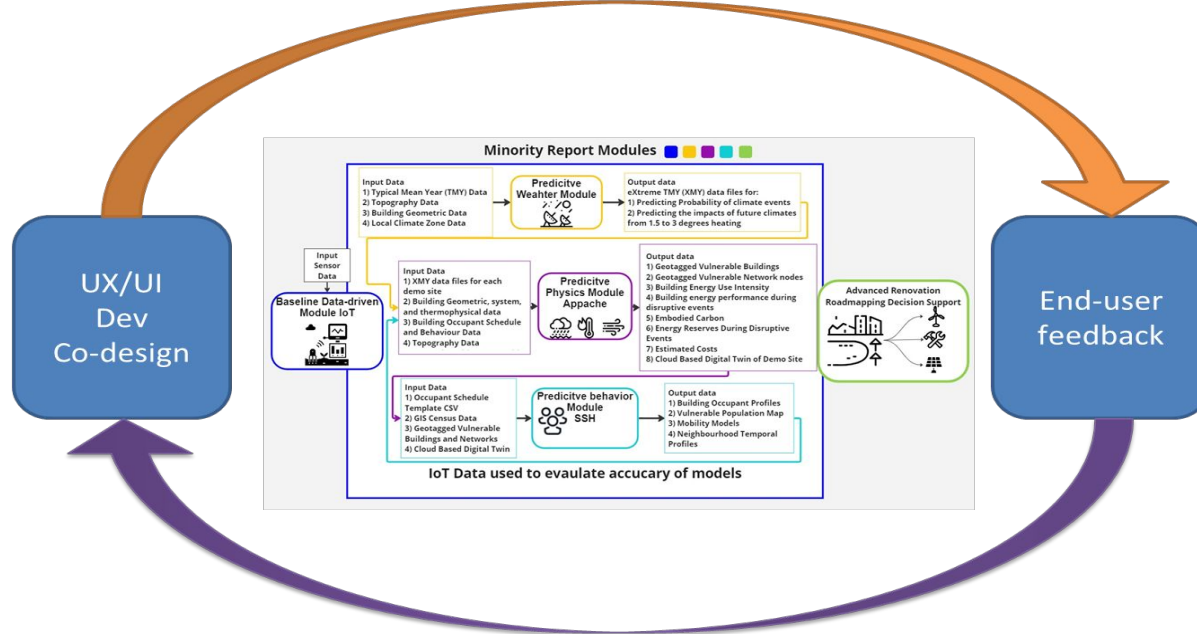
- 32.679036 - 223.867197
- 223.867198 - 277.999876
- 277.999877 - 317.280132
- 317.280133 - 345.132897
- 345.132898 - 371.594945
- 371.594946 - 399.097476
- 399.097477 - 919.101333

Average EUI Ringsend



kWh/m²/year

Tools designed to support people on the ground



Stock Images



Stock Images

MULTICLIMACT in a Nutshell

Safeguarding Europe's **built environment** against the increasing threats of natural and climatic hazards, through strategies tested across **four pilot** sites with *diverse climatic conditions*.

Multi hazards



EARTHQUAKES



EXTREME WEATHER



FLOODS



HEATWAVES

Multi Scale

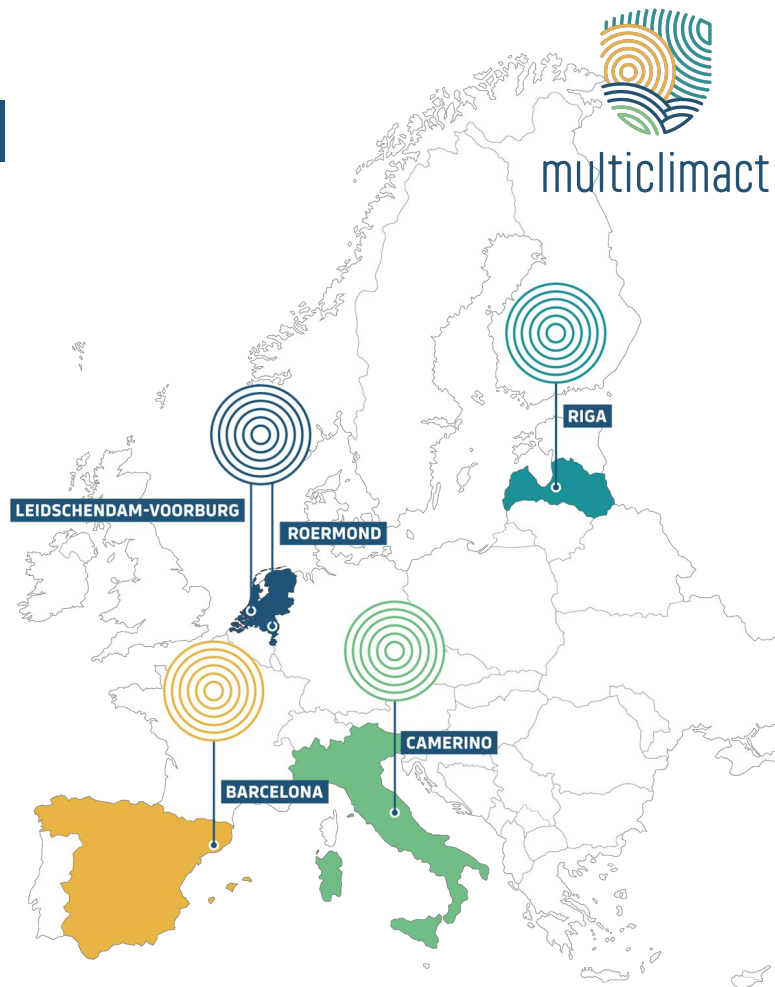


BUILDINGS



URBAN AREAS

TERRITORIES



CREMA Tool



CREMA
CLIMATE RESILIENCE
MATURITY ASSESSMENT



MULTICLIMACT Resilience framework

Multi-hazard

Multi-scale

develop 18 design methods

6 Design Ideas

7 Materials

5 Digital Solutions

CREMA TOOL

Tool to assess the AS-IS and TO-BE resilience of
buildings, urban areas and territories

Climate RESilience Maturity Assessment (CREMA) Tool:

A decision-support framework that enable **decision-makers** to evaluate and implement **resilience-enhancing interventions** and **investments**, which assess the **AS-IS** and **TO-BE** resilience of buildings, urban areas and territories

How it works – Process flow

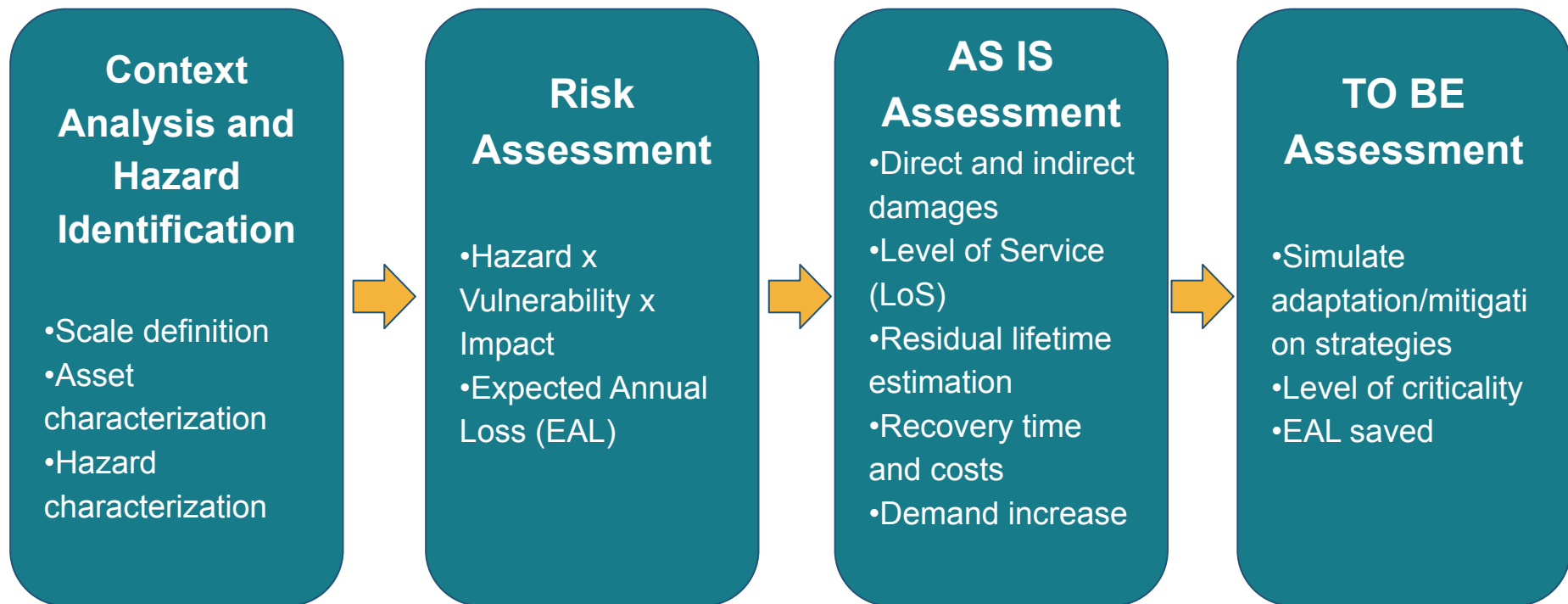


CREMA
CLIMATE RESILIENCE
MATURITY ASSESSMENT



multiclimact

Comprehensive methodology to evaluate the current level of resilience (AS IS), simulate future climate-related scenarios (TO BE), and guide the selection of cost-effective adaptation and mitigation strategies.



RETIME in a Nutshell

Projects Title: Urban Adaptation and Alert Solutions for a TIMEly (re)Action

Acronym: RETIME

Partners: 18 partners from 8 countries

Pilots: 3 pilots

Solutions: 4



RETIME combines advanced tech with thorough socio-environmental analysis to build hazard exposure resiliency and informed urban environments for all.



RETIME intends to meet citizens' real-time needs while supporting monitoring and decision-making processes

CONSORTIUM

iscte
— Conhecimento e Inovação

Portugal

UNIVERSITY
OF ŽILINA

Slovakia

DTU

Denmark

one team

Italy

TUJ

Portugal

PORTO
FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

Portugal

Technology
Arts Sciences
TH Köln

Germany

ŽILINA
SELF-GOVERNING
REGION

Slovakia

LISBOA

Portugal

WEC

Luxembourg

JO

Slovakia

ICONS

Italy

LUXEMBOURG
INSTITUTE OF POLICE
AND TECHNOLOGY

Luxembourg

tecnal:a
MEMBER OF AASQUE RESEARCH
& TECHNOLOGY ALLIANCE

Spain

Deusto
Universidad de Deusto

Spain

Institute
of Baltic
Studies

Estonia

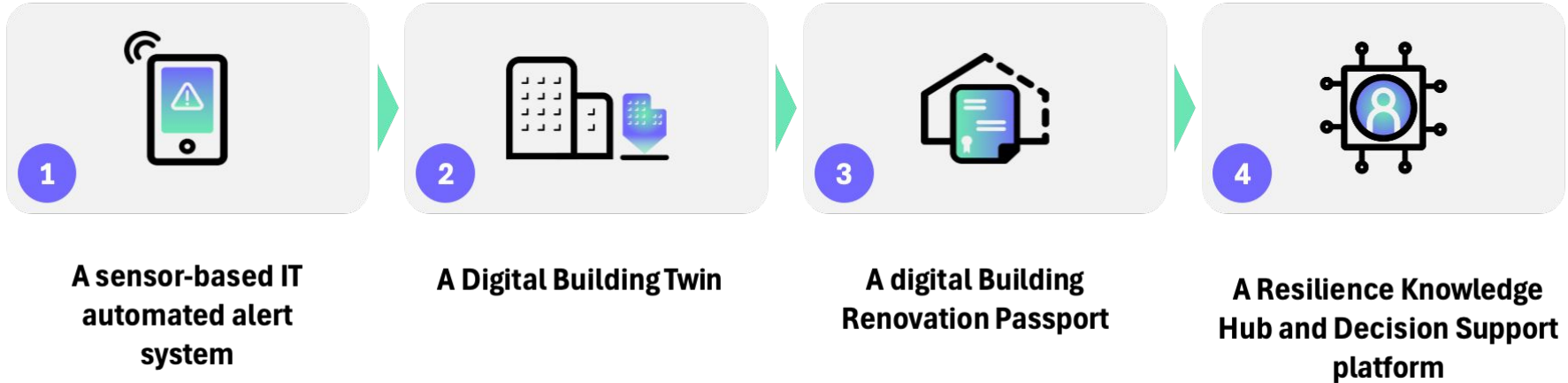
team
group engineering
consulting

Spain

VELTIS
First Real Estate Rating Agency

Spain

Digital Solutions for urban adaptation and risk reduction



Key Target Groups: Vulnerable groups



AFRO-DESCENDANT,
INDIGENOUS AND
MIGRANT
COMMUNITIES



CHILDREN



DISABLED PEOPLE OR
PEOPLE WITH SPECIAL
NEEDS



LOCAL
INHABITANTS
OF RETIME
PILOT SITES



OLDER PEOPLE,
PENSIONERS



PEOPLE WITH
DISABILITIES, THEIR
PARENTS, AND
GUARDIANS



UKRAINIAN WAR
REFUGEES OR
NEWCOMERS TO
SLOVAKIA AND ESTONIA



LOW-INCOME POPULATION
OR PEOPLE IN AN UNFAVOURABLE
SOCIAL SITUATION (e.g., suffering
from violence and social troubles)

1

Societal and Scientific impact



RETIME strives to create a more resilient, informed, and prepared built environment and social fabric:



- **Resilient** – Strengthening the capacity of cities to withstand and recover from climate-related challenges
- **Informed** – Promoting access to data and knowledge for better and transparent decision-making
- **Prepared** – Enhancing readiness to proactively address future risks and emergencies



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