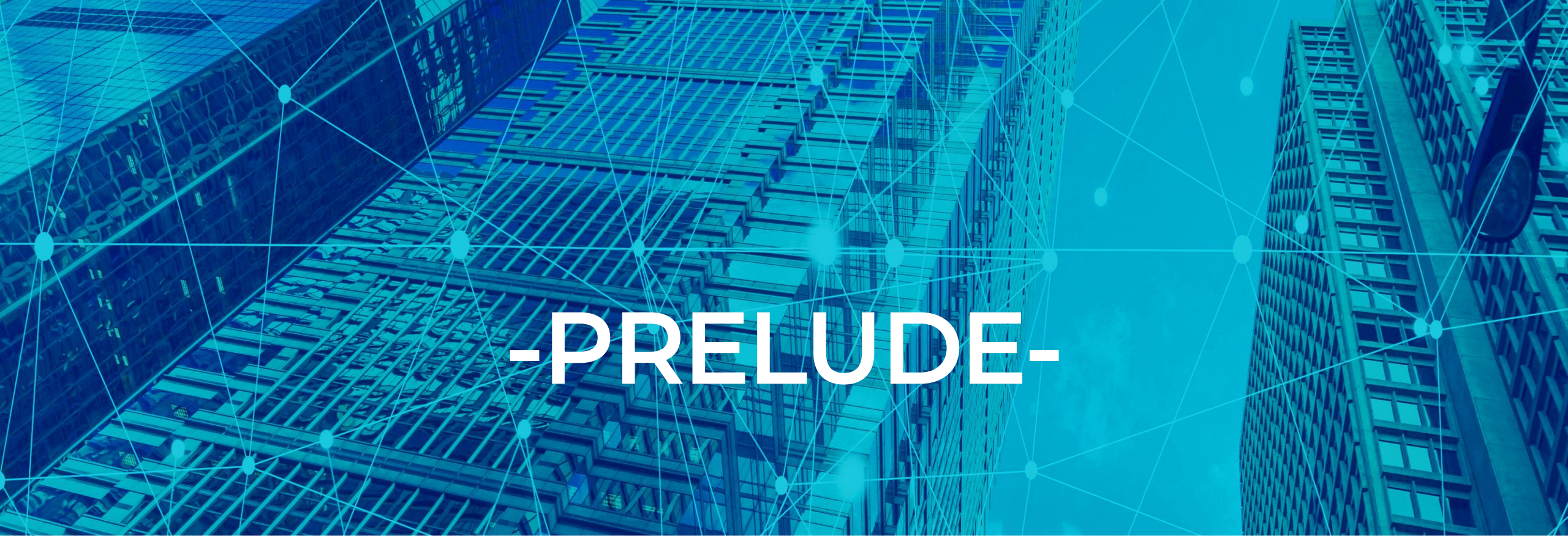


Prescient building Operation utilizing Real Time data for Energy Dynamic Optimization

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement N° **958345**

Introduction

PRELUDE represents the improvement of the buildings smartness through:

- minimization of energy utilization (cost saving solutions);
- maximization of self-consumption and Renewable Energy Sources investment and personalization;
- reduction of CO_2 footprint;
- improvement of comfortable and healthy indoor conditions.

This will be possible through the combination of innovative, smart, low-cost solutions and proactive optimization service.





Project overview

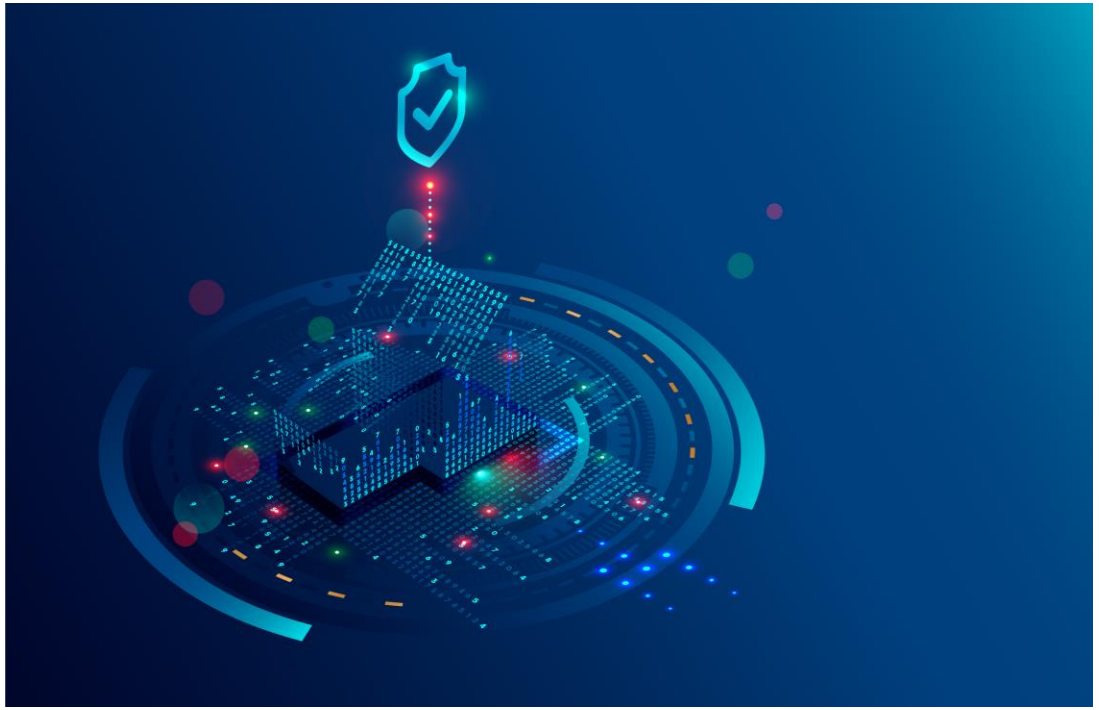
- Designed to be versatile and to adapt to the engagement, monitoring and automation level of the building.
- Passive solutions, such as natural ventilation and cooling, will be prioritized through a free running strategy.
- Predictive maintenance will be implemented to reduce costs, emphasizing RES (Renewable Energy Sources).
- Big data and advanced analytic tools will be used to facilitate flexible building side demand and ease the integration into district heating and electricity grids.
- Proactive optimization will be achieved through data predictive control.

PRELUDE

Impacts

- Maintenance cost reductions of at least 20%: equipment is maintained at a continuously high level of performance rather than waiting for something to fail.
- Significant decrease of energy use in buildings through application of technologies such as dynamic models, big data analytics, predictive analytics and ultimately artificial intelligence.
- Improved indoor environment quality and user satisfaction.

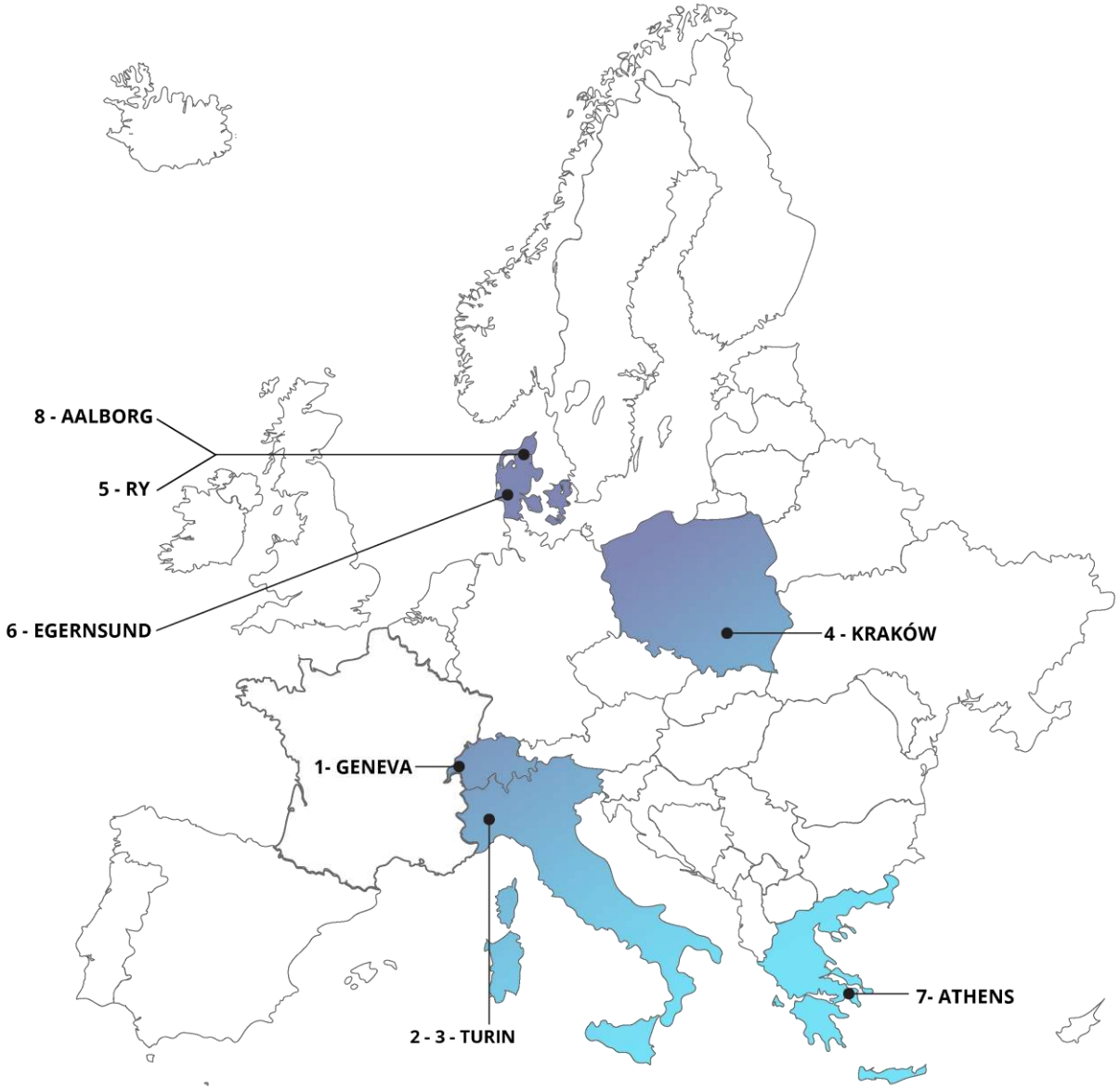




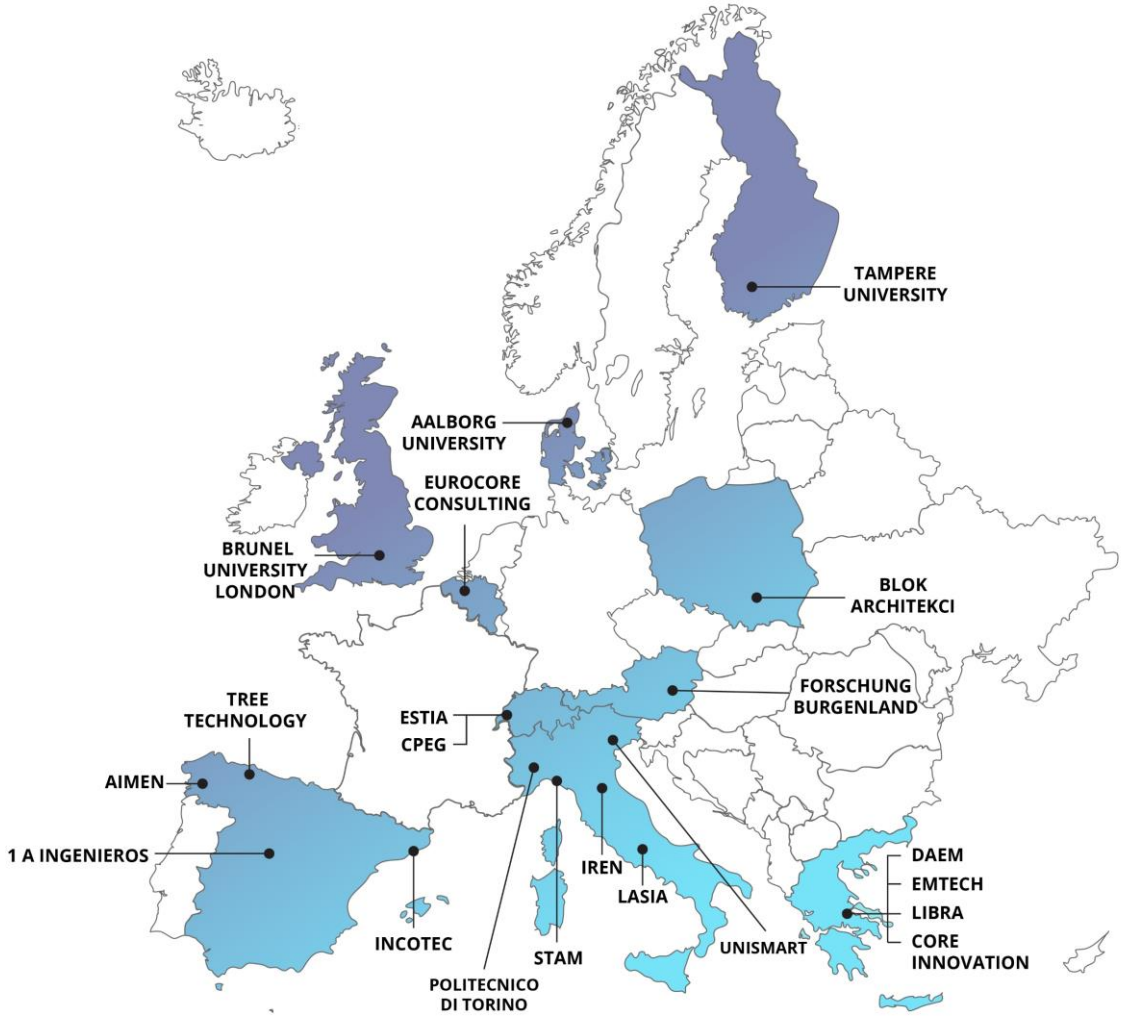
- High replication potential: by 2027, approximately 5.5 million m^2 of residential heated area will be optimized.
- Optimise the use of renewable energy resources used in buildings. PRELUDE is designed to increase the value of installed RES (Renewable Energy Sources), but also to motivate end users to invest in them.
- Contribution to standards, namely the establishment of a Smart Readiness Indicator.

Demo Cases

Location of the site	Partner
1. Geneva, Switzerland	CPEG / Estia
2. Turin, Italy	IREN / POLITO
3. Turin, Italy	IREN / POLITO
4. Kraków, Poland	BLOK ARCHITEKCI
5. Ry, Denmark	Aalborg University
6. Egernsund, Denmark	Aalborg University
7. Athenes, Greece	DAEM
8. Aalborg, Denmark	Aalborg University



Partners


TAMPERE UNIVERSITY
AALBORG UNIVERSITY
EUROCORE CONSULTING
BRUNEL UNIVERSITY LONDON
BLOK ARCHITEKCI
FORSCHUNG BURGENLAND
ESTIA
CPEG
TREE TECHNOLOGY
AIMEN
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INCOTEC
STAM
POLITECNICO DI TORINO
IREN
LASIA
UNISMART
DAEM
EMTECH
LIBRA
CORE INNOVATION

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