

## PROJECT PURPOSE

Building-integrated photovoltaic (BIPV) technology has the potential to significantly contribute to the achievement of the demanding energy efficiency targets set by the EU, however, its market uptake has been hindered in the past years by the difficulties of the industry in providing holistic solutions complying with key demands from decision makers and end-users.

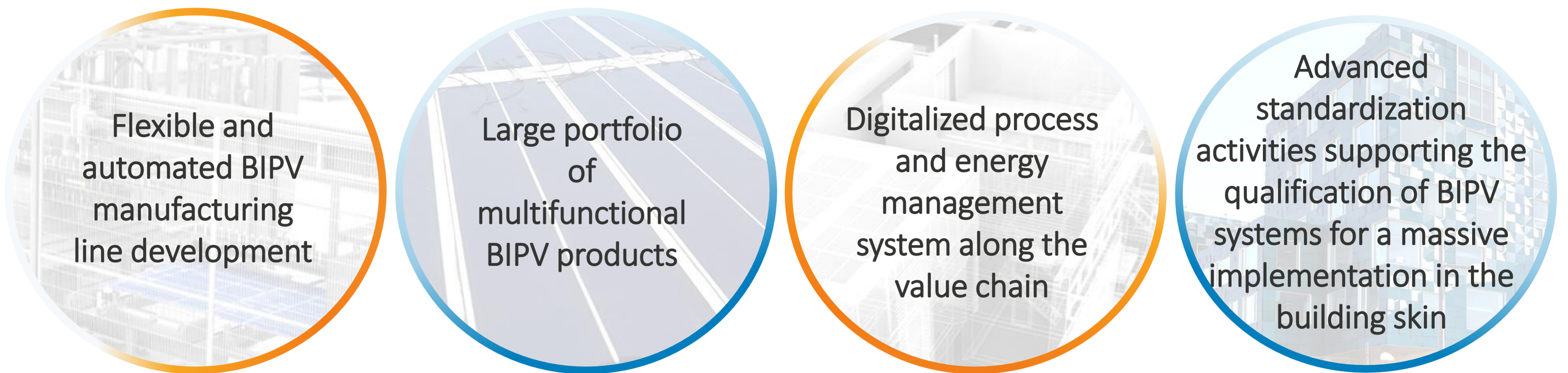
This market deployment depends critically on the achievement of ambitious targets in terms of significant cost reduction, flexibility of design, high performance, reliability in the long-term, aesthetics, standardization and compliance with legal regulations.

In this context:

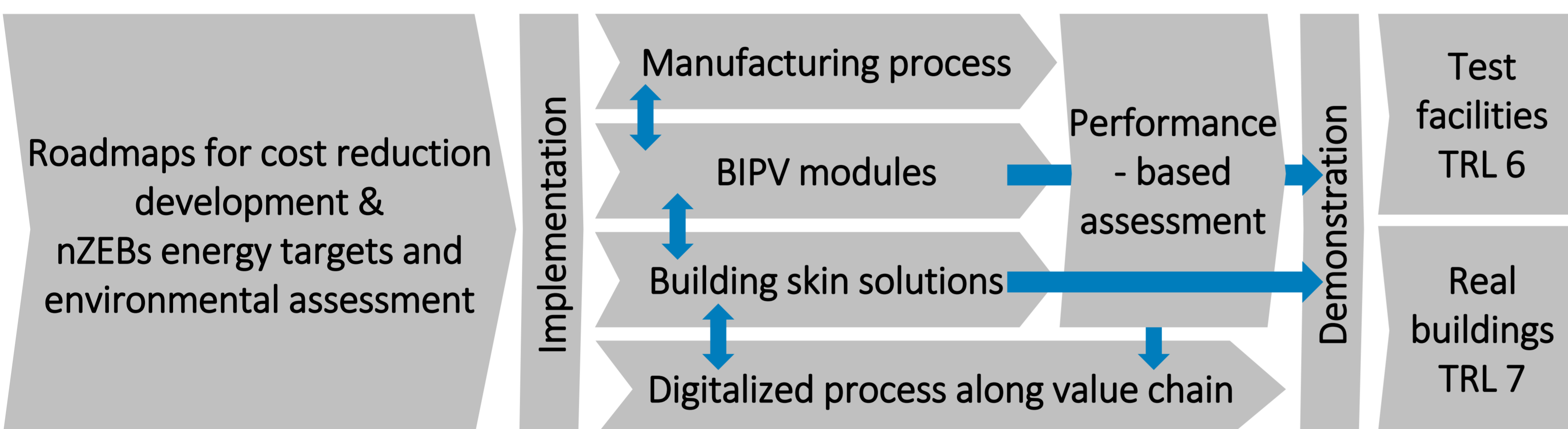
BIPVBOOST aims at bringing down the cost of multifunctional building-integrated photovoltaic (BIPV) systems, limiting the overcost with respect to traditional, non-PV, construction solutions and non-integrated PV modules, through an effective implementation of short and medium-term cost reduction roadmaps addressing the whole BIPV value chain and demonstration of the contribution of the technology towards mass realization of nearly Zero Energy Buildings.

## PROJECT SCOPE

BIPVBOOST will address these challenges by implementing short- and medium-term cost reduction roadmaps along the BIPV value chain, at 4 levels:



## METHODOLOGY



## EXPECTED IMPACT



50% reduction of additional cost of BIPV modules in 2020 and 75% reduction in 2030



From 15% to 25% in our high scenario, reaching an annual development of up to 3 GWp by 2025 and of 9.3 GWp by 2030



Workforce linked to BIPV could increase from 20% to 44% during the 2020-2030 decade

## PROPOSED INNOVATIONS

### Automated BIPV manufacturing line development

- Tabber-welding for c-Si,
- Tabber-welding for back-contact cells
- Self-configurable string lay-up equipment
- Semi-manual string interconnection station
- Automatic and self-configurable in-line electroluminescence quality control

### Multifunctional BIPV products

- Coloured c-Si based solutions for ventilated façades
- a-Si patterning solutions for skylights, ventilated façades and curtain walls
- Bifacial modules for balustrades
- Back-contact modules for walkable floors, curtain walls

### Building skin solutions

- Multifunctional BIPV opaque façade cladding solution
- Enhanced frameless façade systems with CIGS on metal modules
- Enhanced roof and façade systems with CIGS on metal modules
- Glass-glass plug&play façade systems

### Digitalized process

- BIM-based tool supporting process design, manufacturing and installation
- Cloud-based BEMS including demand response and storage management
- Fault detection and diagnosis tool
- Augmented reality app for pre-design stage

## DEMO SITES

### Demo 1: Puertollano, Spain

Balustrades based on glass-glass bifacial modules and walkable floors based on back-contact solar cells.



### Demo 2: Aretxabaleta, Spain

Building-integration of glass façade with c-Si technology and different configurations to demonstrate automated production in façade configuration.



### Demo 3: Saint-Denis, Belgium

Building integration of metal based roofing shingles in a residential single-dwelling building & passive house.



### Demo 4: Morbegno, Italy

Building integration of multifunctional BIPV opaque façade cladding systems in a residential multi-family dwelling with a twin building to support performance assessment.



## Consortium

