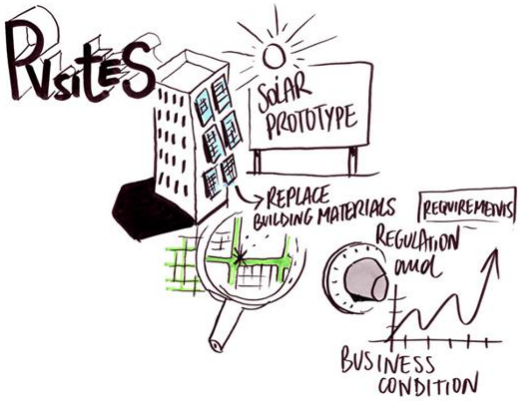


BUILDING-INTEGRATED PHOTOVOLTAIC TECHNOLOGIES AND SYSTEMS FOR LARGE SCALE MARKET DEPLOYMENT

Introduction PVSITES project

Eduardo ROMAN, TECNALIA

FD2, Stambruges, 26/11/2019

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement Nº 691768

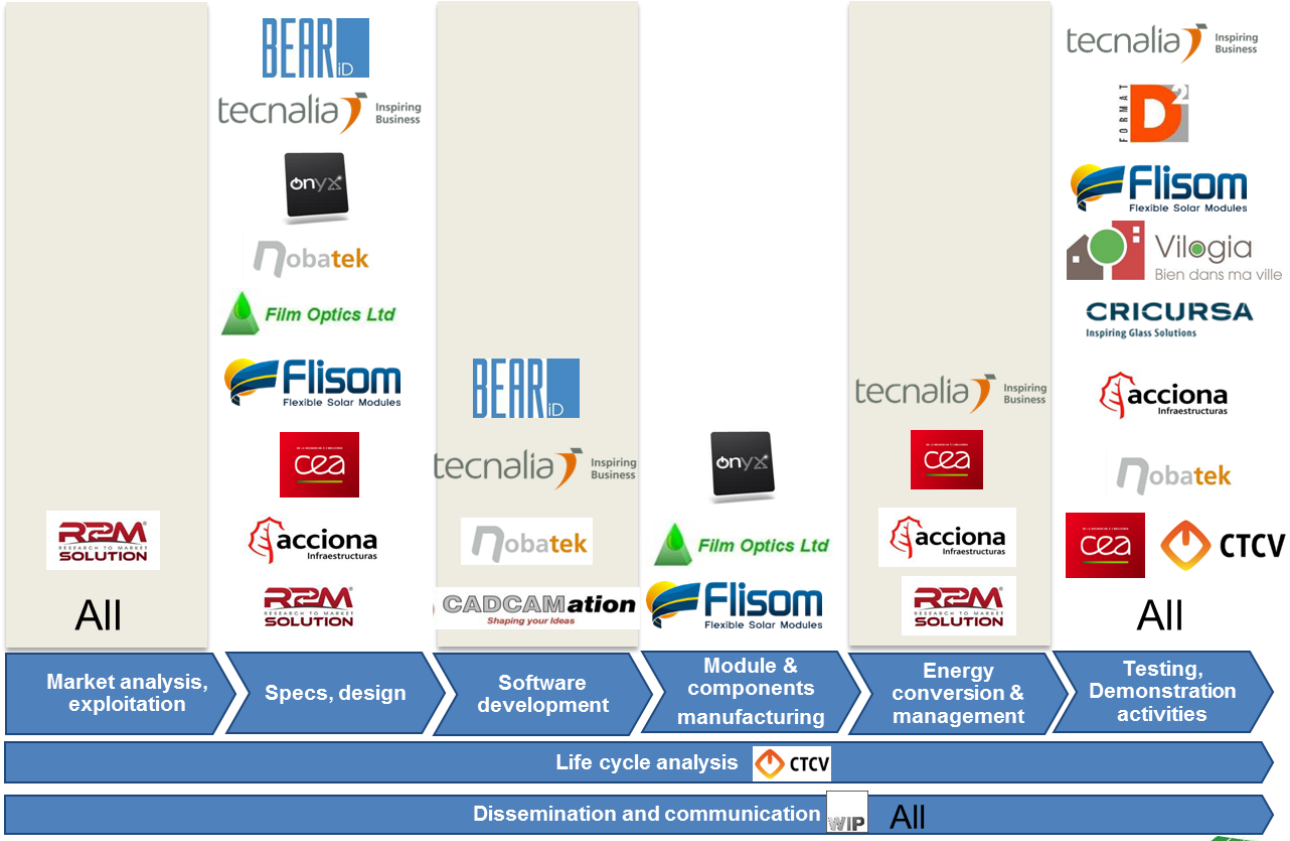
PVSITES: Quick facts

Funding EU: 5.47 M€ (+ 1.4 M€ Switzerland) 01/01/2016 – 30/06/2020

Contact: Dr. Eduardo Román – eduardo.roman@tecnalia.com

Coordinator: Tecnalia R&I
Website: www.pvsites.eu

15 partners
Spain (4)
France (3)
Switzerland (2)
Portugal (1)
Germany (1)
Italy (1)
Netherlands (1)
Belgium (1)
UK (1)



PVSITES: Objective and challenges

General objective: To drive BIPV technology to large market deployment led by EU industry

To be achieved by:

- Identifying and addressing BIPV market / business requirements
- Demonstrating in real buildings (TRL5 to TRL6-7) an **ambitious portfolio of BIPV solutions** in terms design and simulation, architectural integration, performance, cost-effectiveness, grid integration, energy management, LCA, training and awareness

Market challenges

Enhanced flexibility of design, outstanding aesthetical value, multi-functionality and cost-effectiveness

Assistance to design phase through the joint simulation of BIPV products and building energy performance

More predictable, manageable, grid-friendly profitable BIPV generation

Demonstration of performance and reliability of BIPV solutions through effective incorporation onto real buildings

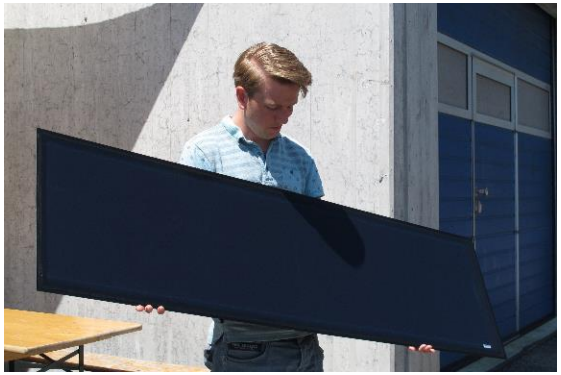
PVSITES: challenges

Challenge: Enhanced flexibility of design, outstanding aesthetical value, multifunctionality and increased performance

Solution: A wide portfolio of BIPV products based on c-Si and CIGS technologies complying with market requests

Glass–glass crystalline silicon based solutions (ONYXSolar), developed in PVSITES

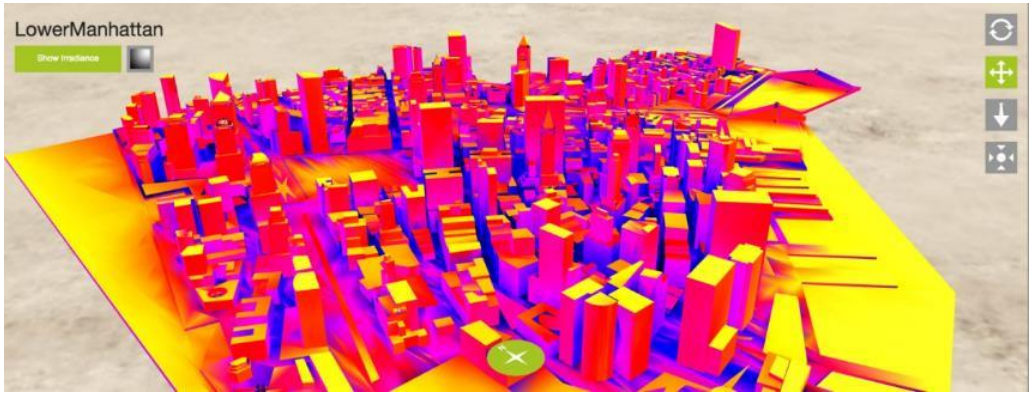
CIGS on metal BIPV modules (FLISOM), developed in PVSITES

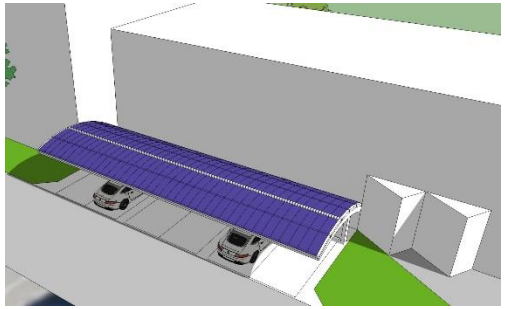


PVSITES: challenges

Challenge: Software tool for the joint simulation of BIPV products and building energy performance

Solution: An accurate, user-friendly, integrated SW tool for the simulation of BIPV products performance and their impact on building energy demands

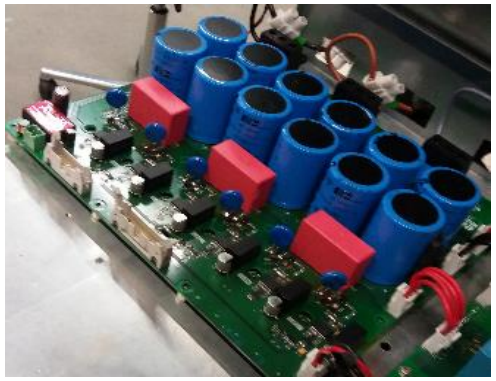




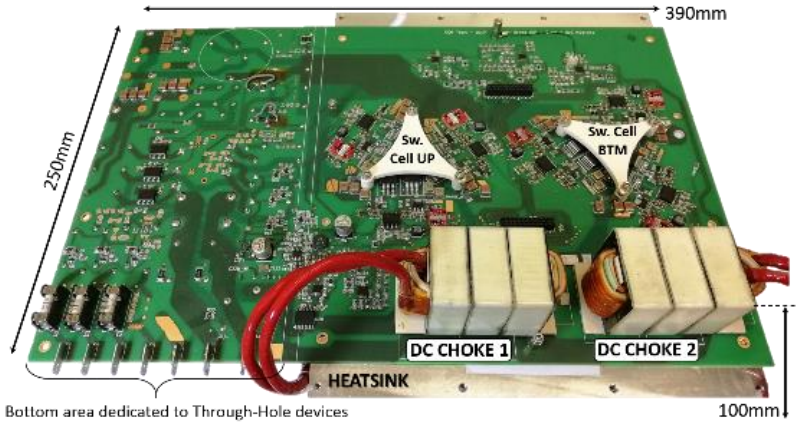
PVSITES: challenges

Challenge: More predictable, manageable, grid-friendly and profitable BIPV generation

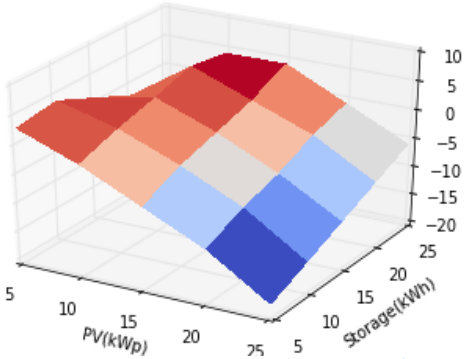
Solution: A combination of flexible and high efficiency grid interface for BIPV systems and new building energy management strategies.



DC/AC converter, TECNALIA



CEA's inverter printed circuit-board with surface-mounted electronic components



General Description

PVSITES: challenges

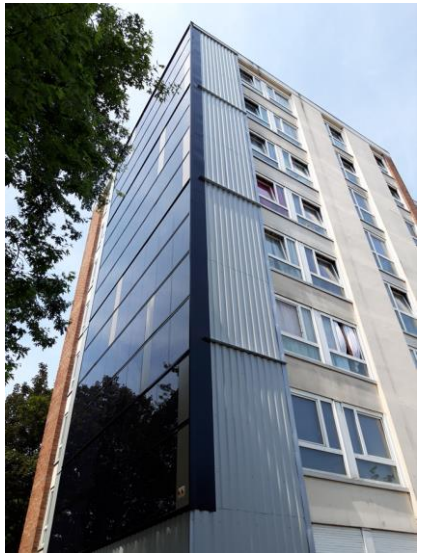
Challenge: To demonstrate reliability of advanced BIPV solutions through effective incorporation onto real buildings

Solution: High impact, replicable demonstrations and training activities in real buildings and experimental facilities throughout Europe

Carport, Zürich (SW)

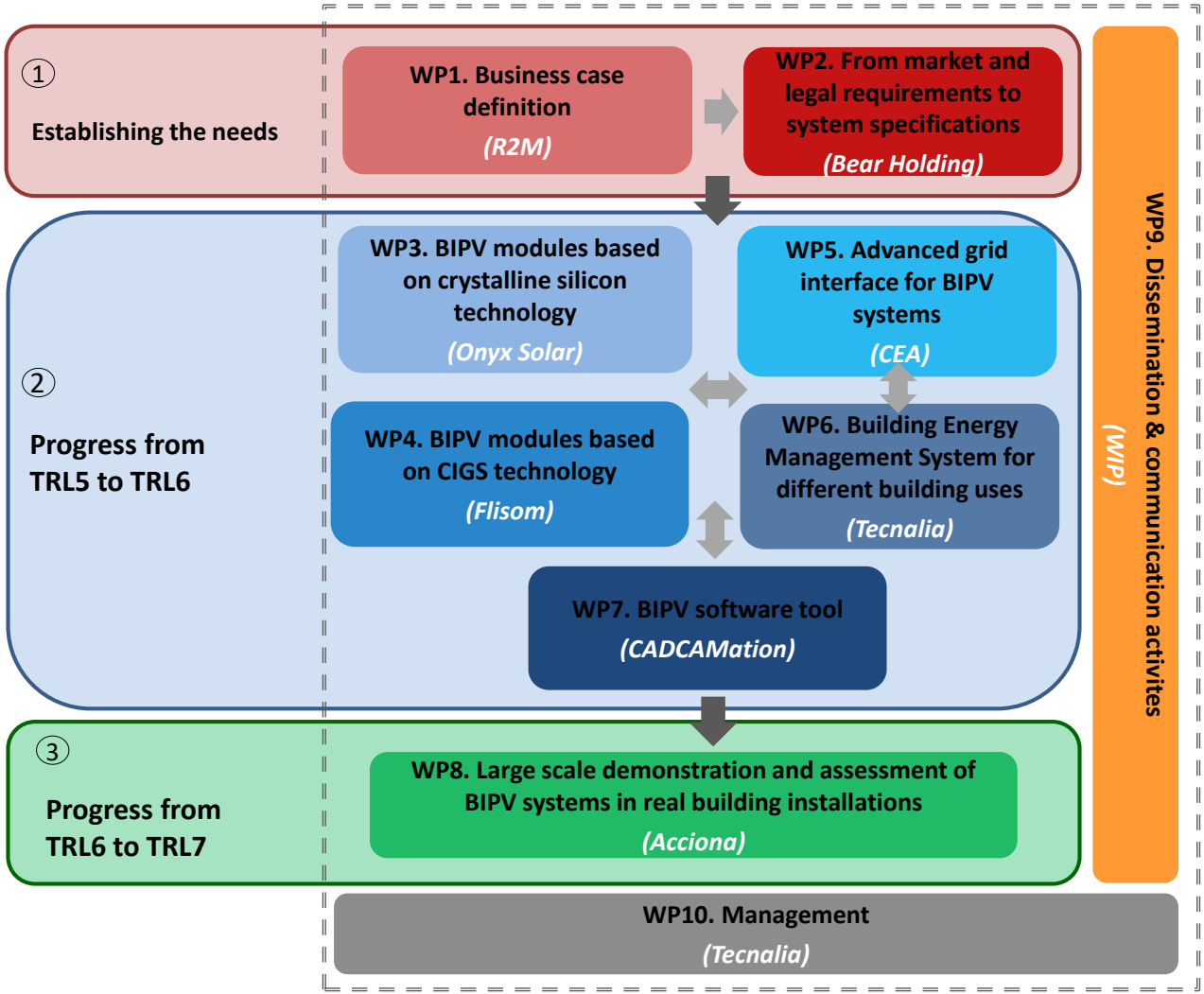
Roof, Stambruges (BE), residential

Opaque facade, Wattignies (FR), social housing



PVSITES: Implementation

WorkPlan



PVSITES: Achievements (PV techs)

Market related activities:

- Market and stakeholder analysis conducted.
- Assessment of regulatory framework
- Application of the new BIPV standard, EN 50583 (2016)
- Analysis of exploitable results (26 ERs, with commerc., IPR paths).
- Standardization needs for project results.
- Business models for BIPV.
- Global risk assessment.
- …

PVSITES in the market

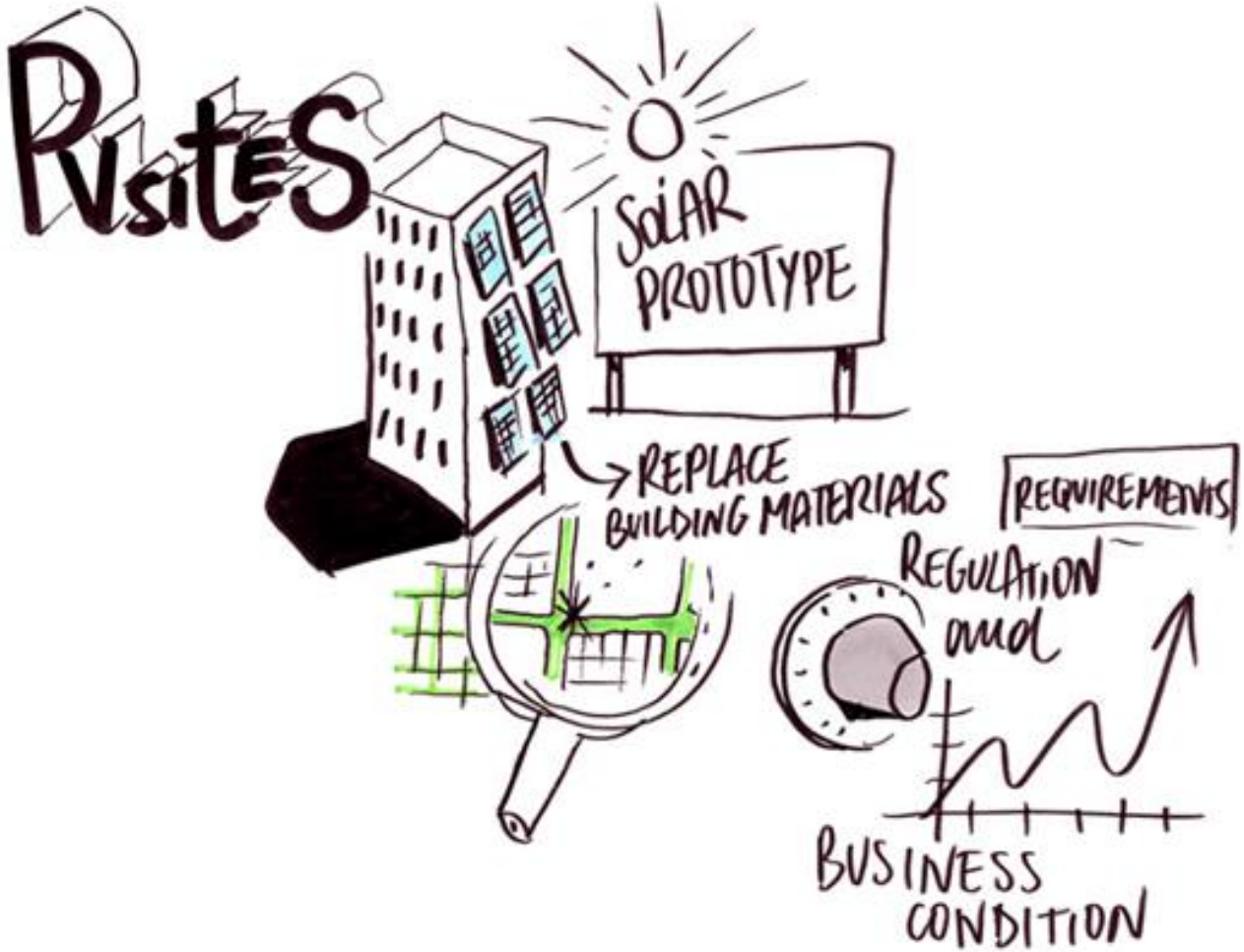
PVSITES in the market – CIGS products

250 kW installation of e Flex CIGS product (FLISOM)
in a flowers market in Johannesburg (SA)

PVSITES in the market

PVSITES in the market – c-Si products

Black frit PVSITES modules in Atic in Castle Lane Street, close to Buckingham Palace, London (Onyx Solar)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