

SPHINX Project

Sustainable Photovoltaics Integration in buildings and
Infrastructure for multiple applications

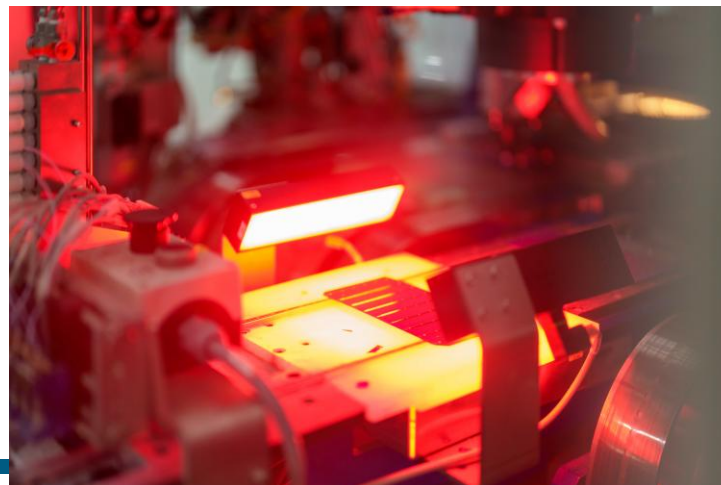
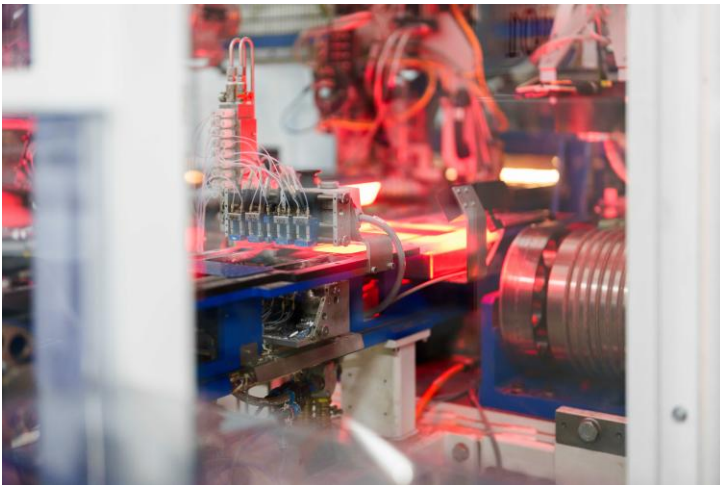


Mehdi SAHLI
Project coordinator
Voltec Solar

The map displays the region around Luxembourg, with labels for Pays-Bas, Belgique, Luxembourg, France, and Allemagne. Major cities like Amsterdam, Rotterdam, Paris, and Cologne are marked. A red pin labeled 'Voltec Solar' is located in Luxembourg. An inset image shows a modern, orange-colored building with a flat roof, likely the Voltec Solar facility.



- **Design of c-Si PV modules production lines**
 - TLS cell-cutting (TOPCon, HJT)
 - Soldering
 - Lamination (EVA, POE, TPO, SPO)
 - Characterisation tools : DSC, EL, IV, Peel-tester..





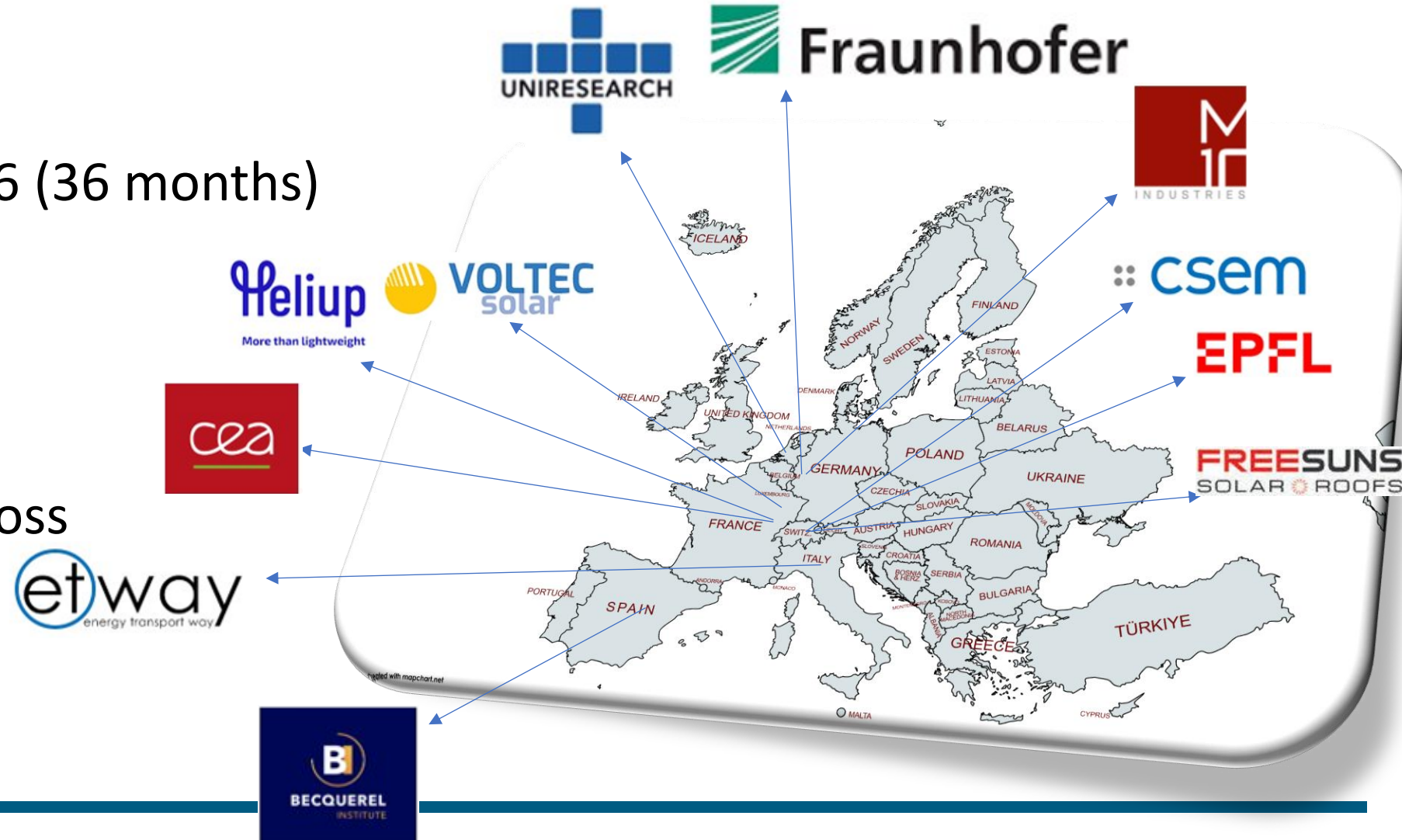
•Market knowledge & Wide range of products for different market segments

- Lightweight module (BELIGHT)
- Bifacial (Carport – Agrivoltaics)
- Full black & Coloured (Residential)
- Low Voltage – High current (Large rooftop – Utility scale)

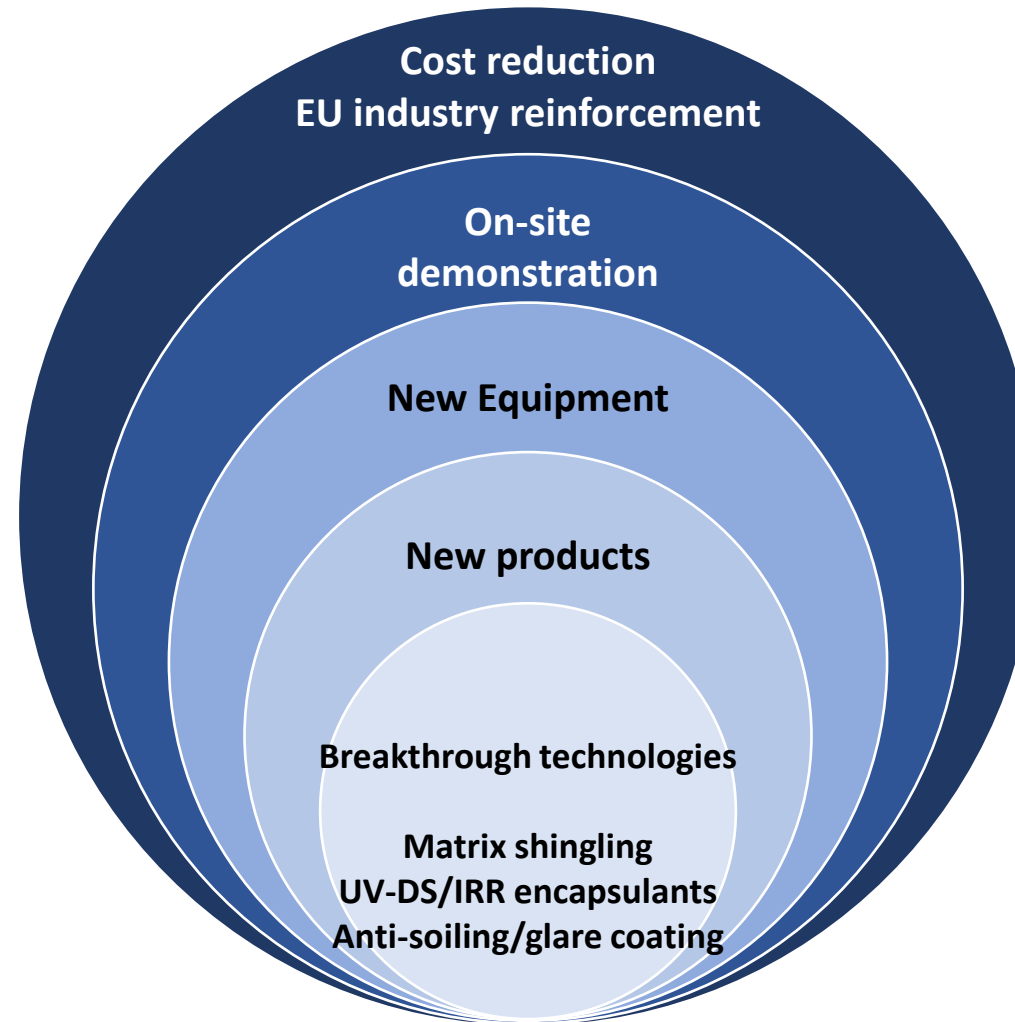


Description of the project

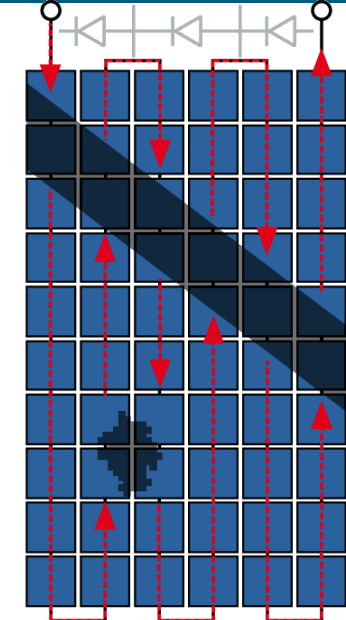
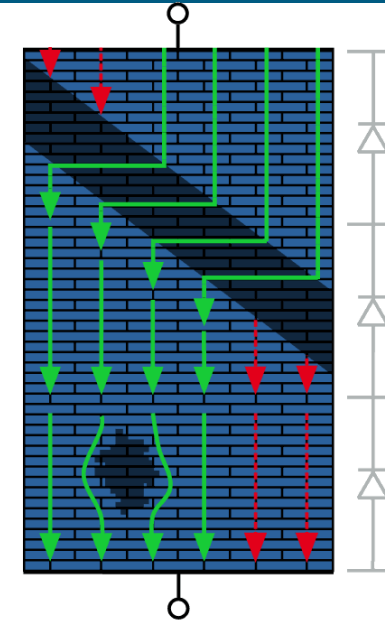
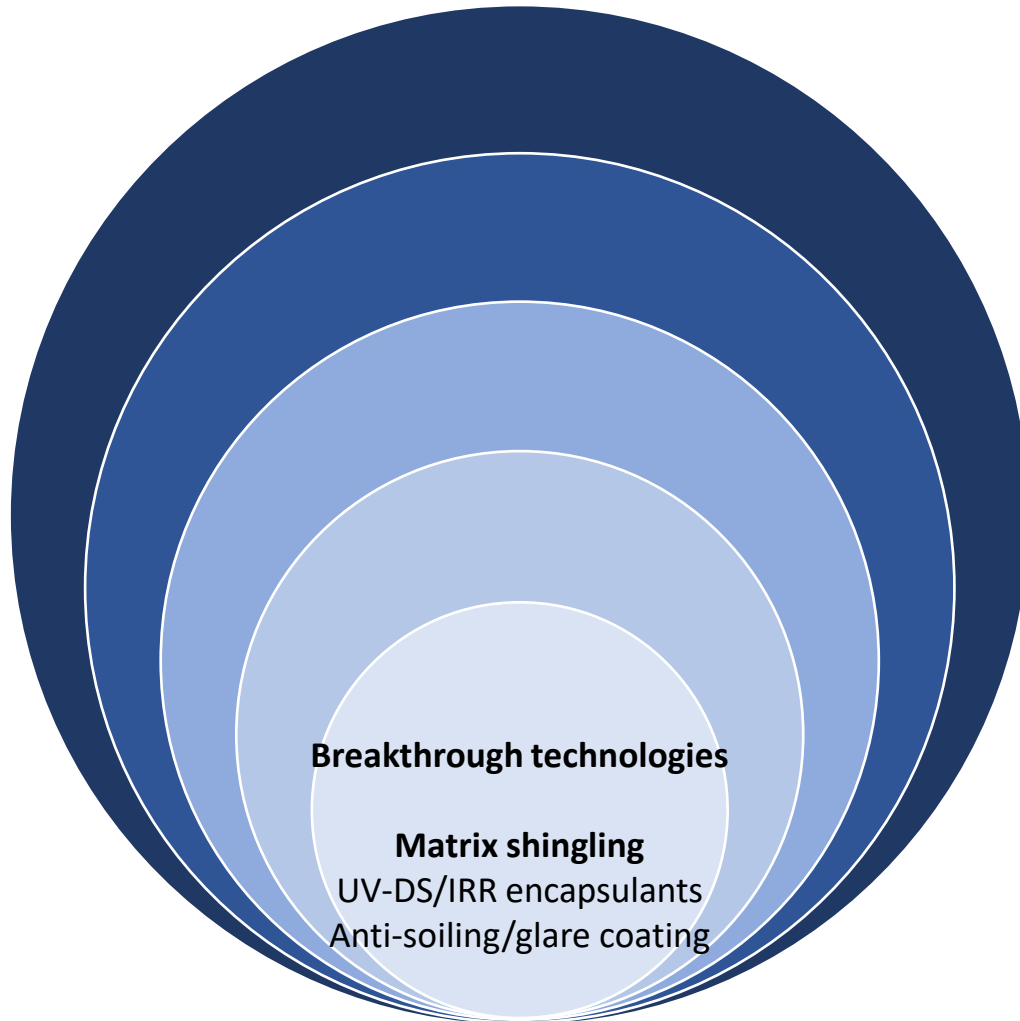
- Budget : 8,5 M€
- Nov 2023 – Nov 2026 (36 months)
- 11 partners
- 9 Demonstrators across Europe



Description of the project



Technologies (WP3)



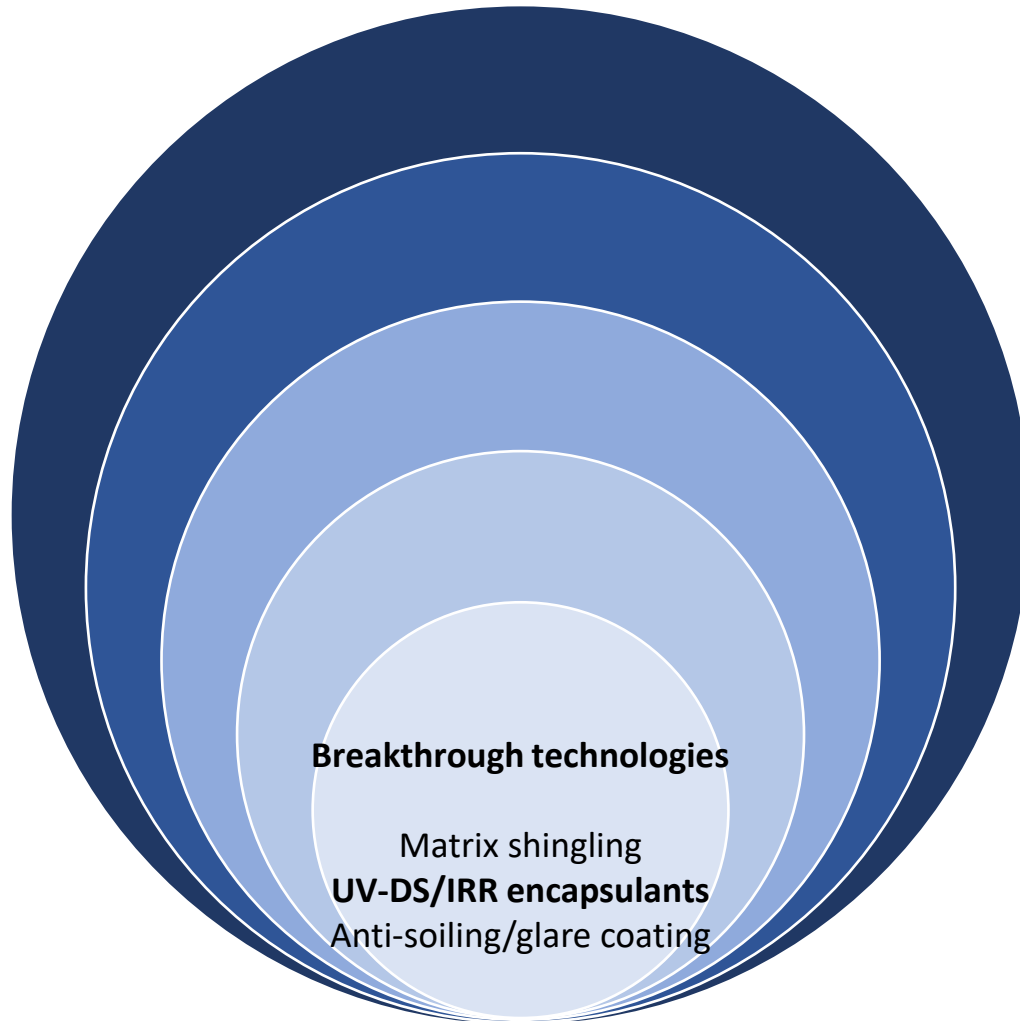
Homogeneous appearance

100% lead-free cell interconnection

Better shading resistance compared to conventional modules

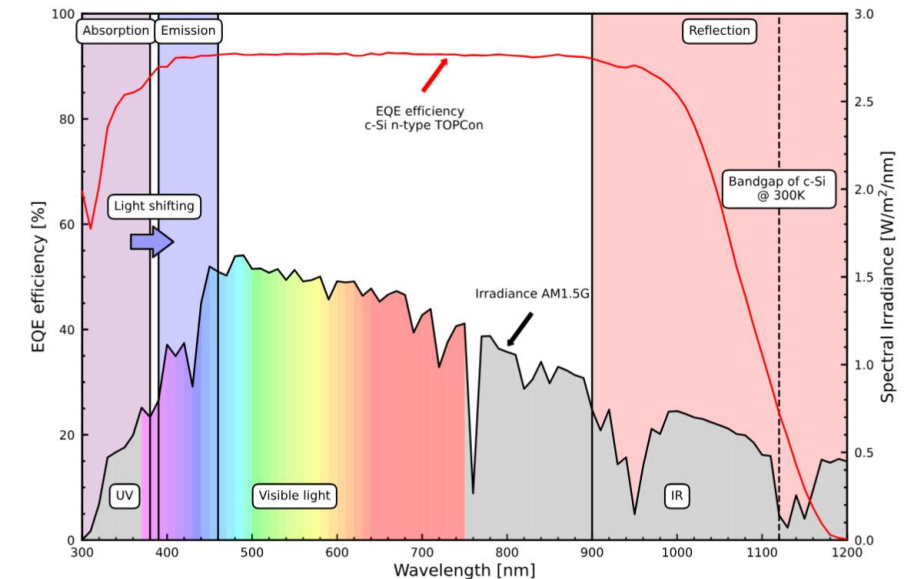
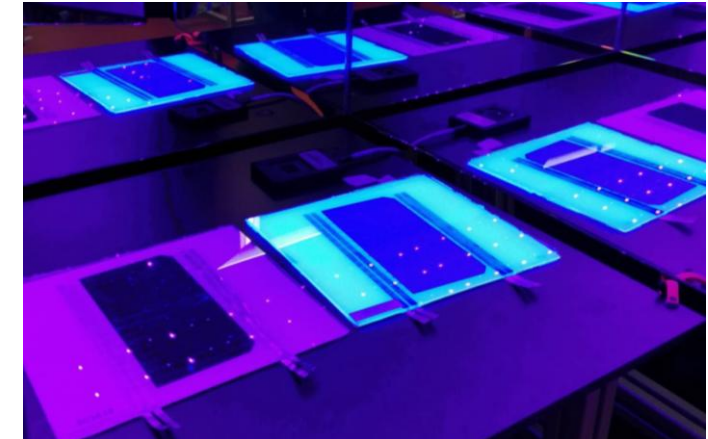
Suitable for main cell technologies

Technologies (WP3)



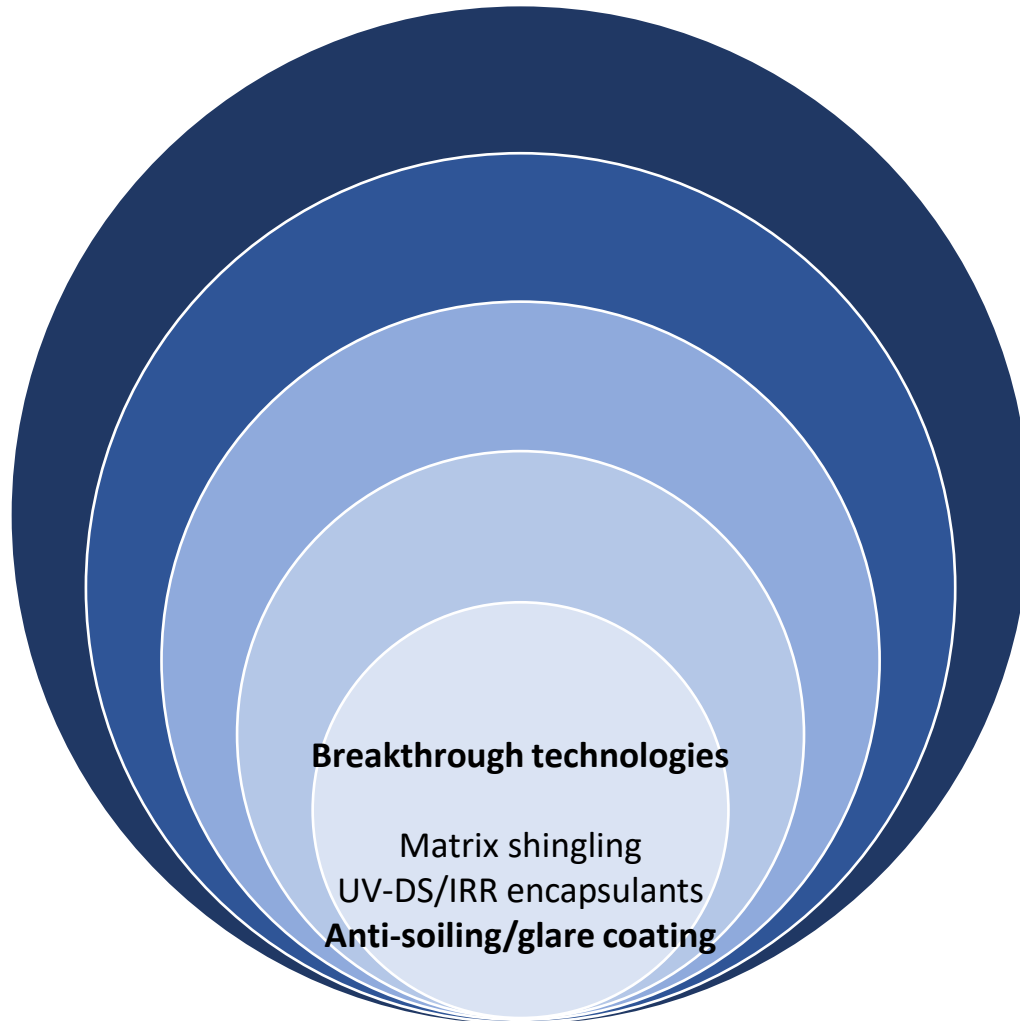
UV downshifting foil for energy boost and UV protection

Colored IR reflecting layer for bifacial boost, temperature management and improved aesthetics



© CSEM

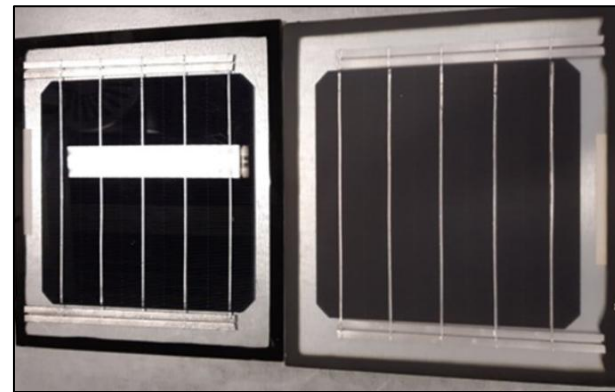
Technologies (WP3)



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ANTI-SOILING

Mitigation of power losses over time by decrease impact of soiling (self-cleaning)



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ANTI-GLARE

Mitigation undesired reflection by increasing haziness and give a pleasant coloration aspect

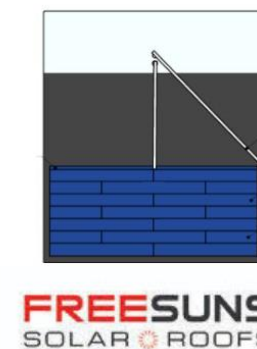
Products



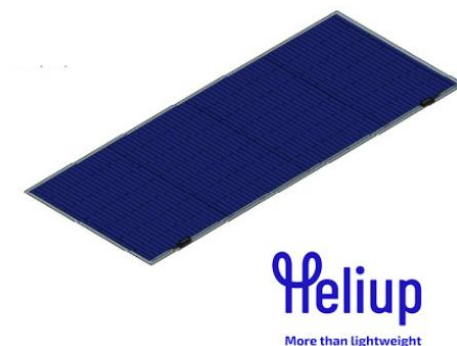
Semi-transparent PV modules with glass



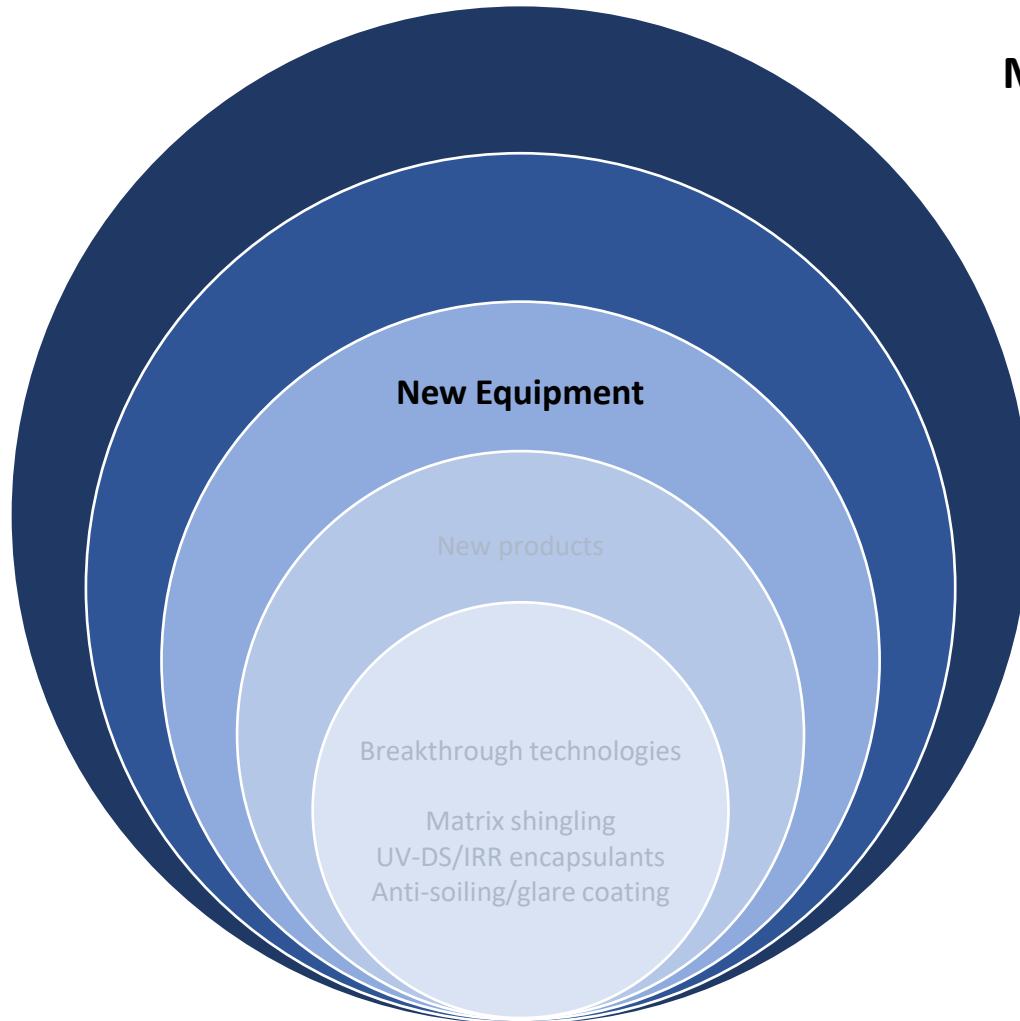
New tiles with matrix interconnection



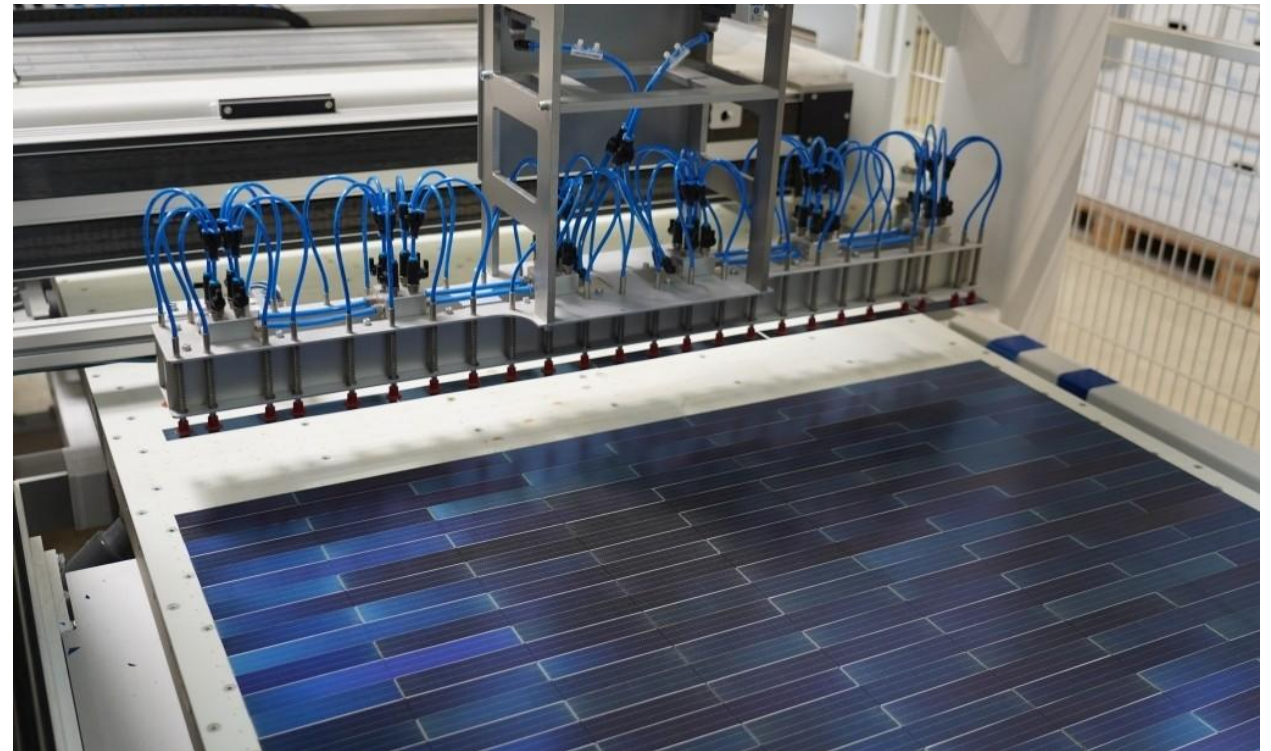
Lightweight PV modules



New Equipments (WP4)

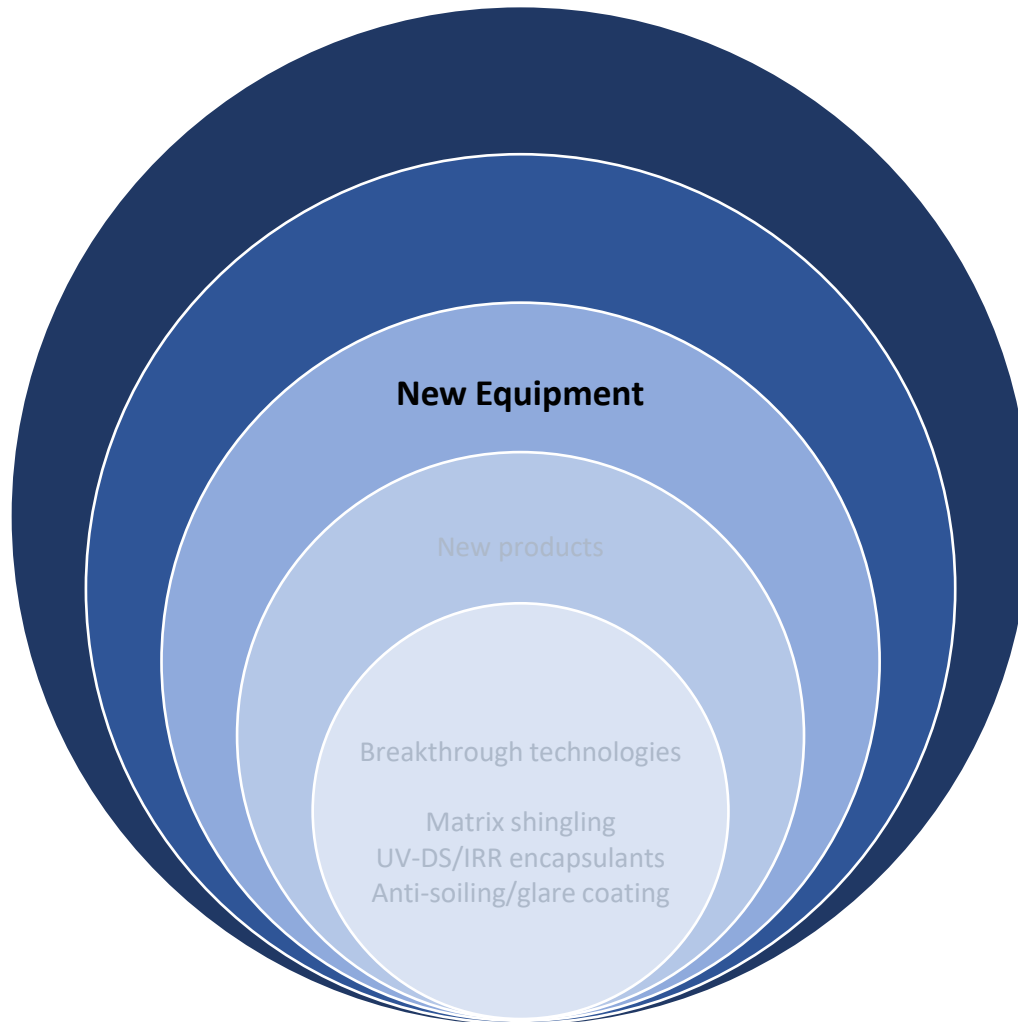


Matrix-shingle stringer connection with lead-free, conductive adhesive.



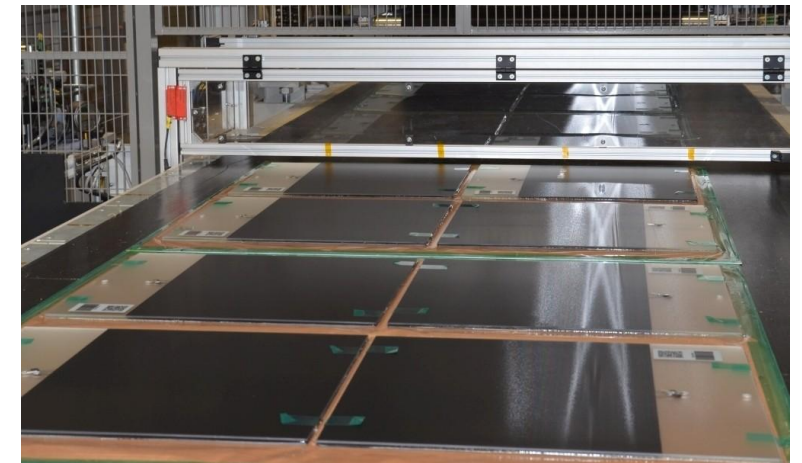
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New Equipments (WP4)



Semi-automated pilot line

Lamination in an industrial scale laminator



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Demonstrators for Integrated PV (WP5)



EPFL :: csem

Fraunhofer

Heliup

VOLTEC solar

Industrial Buildings Renovation



Infrastructure PV Integration :
**Carport
Noise barrier**

Heritage buildings & Renovation

FREE SUNS
SOLAR ROOFS

Monitoring + Energy Yield + maintenance prediction



etway
energy transport way

Breakthrough technologies
Matrix shingling
UV-DS/IRR encapsulants
Anti-soiling/glare coating

On-site demonstration

New Equipment

New products

Acknowledgment / Disclaimer



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