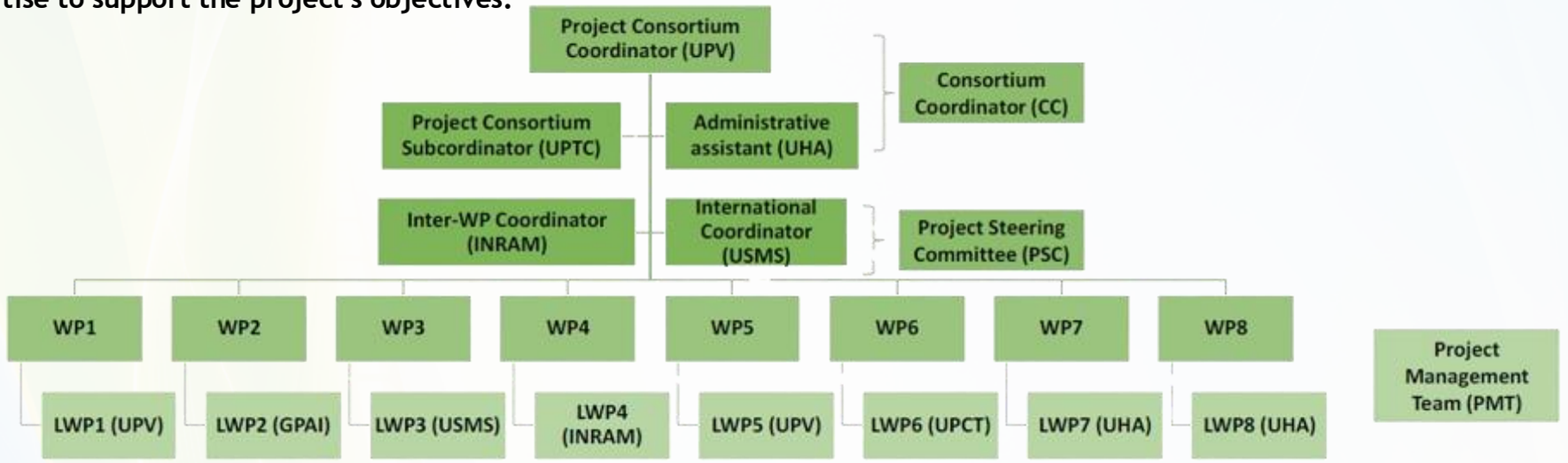
Consortium

The PAVER consortium brings together seven partner institutions and organisations from four countries: Spain, Morocco, France and Egypt. The consortium includes two Spanish universities, Universitat Politècnica de València (UPV) and Universidad Politécnica de Cartagena (UPCT); three Moroccan partners, Institut National de la Recherche Agronomique (INRA), University Sultan Moulay Slimane (USMS) and STE REOWA SARL (REOWA); Green Power for Agriculture and Irrigation (GPAI) from Egypt; and Université de Haute-Alsace (UHA) from France. This international collaboration combines academic, scientific and private-sector expertise to support the project's objectives.

PAVER

Precision AgriVoltaics for Carbon Neutrality Enhanced Production and Reduced Environmental Impact in Greenhouse



Partners

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Universidad Politécnica de Cartagena

UNIVERSITÉ HAUTE-ALSACE

Green Power for Agriculture & Irrigation Systems

National funding agencies

AGENCIA ESTATAL DE INVESTIGACIÓN

Ministry of Higher Education, Scientific Research and Innovation Kingdom of Morocco

anr agence nationale de la recherche

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PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

Objectives

PAVER aims to develop sustainable greenhouse systems by combining solar energy, hydroponics and digital technologies. Its main objectives are to:

Integrate photovoltaic panels into greenhouses to produce renewable energy.

Develop Digital Twin technologies to monitor and optimise greenhouse performance.

Introduce AIoT sensors for smart monitoring and management.

Improve water and nutrient recycling to reduce resource consumption.

Optimise energy use and reduce carbon emissions.



The challenge

Mediterranean agriculture faces increasing challenges related to water scarcity, climate change and rising energy costs. Traditional greenhouses depend on external energy sources and often experience inefficient water and nutrient use. Another challenge is balancing solar energy production with sufficient sunlight for crop growth, while making digital technologies accessible to farmers.

The Solution

PAVER proposes a smart agrivoltaic greenhouse integrating solar panels, cascade hydroponics, IoT sensors, artificial intelligence and Digital Twin technologies. The system will monitor environmental conditions, optimise irrigation and energy consumption, recycle water and nutrients, and improve crop productivity.

