

# STARGATE



## Resilient farming by adaptive microclimate management

### Problem

Agriculture is perhaps the most weather /climate dependent sector of the economy, and changes in the weather/climatic patterns are strongly affecting it, in terms of the productivity, risk assessment /management, and environmental preservation. From the other, the current farm practices are producing the 1/4<sup>th</sup> of the global greenhouse gas emissions annually, contributing and further enhancing the climate change, retaining a continuous cycle of altering the climate and impacting the food production system.

### Project aims

**STARGATE** aspires to develop a breakthrough, multiscale and holistic climate smart agriculture methodology, capitalizing innovations in the field of microclimate and weather risk management, as well as in the field of landscape design. It is based on Earth Observation, weather/climate intelligence and IoT technologies to support a more effective farm/parcel management and related options for adaptation on climatic changes, local and regional policy formulation leading to better landscape management, protection against climatic risks and implementation related to mitigation on microclimate changes.

### Objectives

- To develop a state of affairs and a detailed requirement analysis for CSA.
- To shape a stakeholder community and establish Living Labs.
- To develop observational data infrastructure and data management framework.
- To develop and provide climate services and agro-climatic indicators.
- To evaluate the STARGATE, methodology and DSS in real condition pilots.
- To develop an outreach plan to maximize the society impact of STARGATE.
- To develop an exploitation plan to maximize the business potential of STARGATE.

**STARGATE** aims at developing, testing, implementing and showcasing a framework that will improve the resilience of farming systems, to variable climatic conditions and extreme weather events, while will deliver scientific sound results to guide policymakers in landscape planning and long-term adaptation of the modern agriculture to climate change.



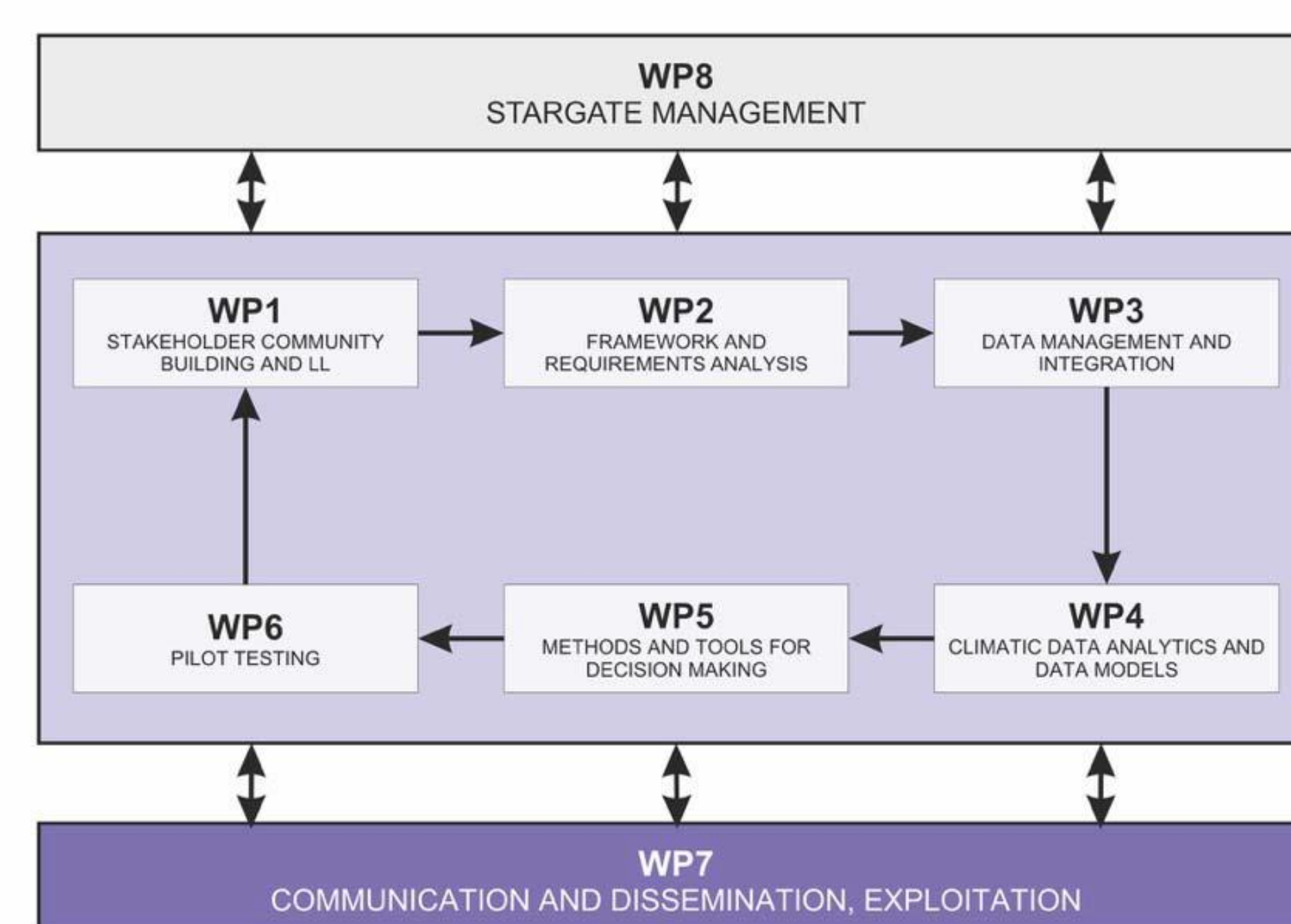
Technical Activities of STARGATE

To achieve this, **STARGATE** will:

1. Build its knowledge foundation, both theoretical and practical, through the following mechanisms: Existing programmes and initiatives from the European Union / European Commission
2. Participate actively in the networks to which partners of the project's consortium belong to and
3. Establish synergies with ongoing CSA projects.

### Implementation

The **STARGATE** is organised into eight Work Packages (WPs) designed to address the STARGATE's technical objectives, plus WP8 (STARGATE Management) and WP7 (Dissemination and Communications, Exploitation). A Living Lab bases 'collaborative networking' approach is taken in order to quickly produce demonstrable results and innovations, utilising the rich knowledge base and network of the consortium as outlined previously but also local stakeholders group. Development and experimentation run in 2 cycles to guarantee user community feedback to research and development. This cycle include Framework and Requirements Analysis.



STARGATE Word Packages connection

### Impact

**STARGATE** meets the impacts expected as follows:

- Deliver effective solutions for ensuring the highest level of implementation on the farm and landscape scale regarding climate-smart and resilient systems and provide decision support systems adapted to mixed farming and agroforestry systems in heterogeneous landscapes
- Unlock and improve viability and replicability of efficient and resilient farming systems and propose different transition scenarios leading to the development of modern land use systems, value chains and infrastructures
- Reduce the environmental impact of farming and contribute towards mitigation and adaptation to climate change
- Provide ecosystem services through integrated and small-scale land management
- In the longer term funded activities will help to foster the synergies between agricultural production, climate change mitigation and adaptation. They will allow the farming sector to continue fulfilling its multiple functions under predicted, more challenging abiotic conditions.

### Project Partners



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