Agri-Food Value Chain Digitalisation for Resource Efficiency

PROJECT

BBTWINS

Digital twins for the optimization of agrifood value chain processes and the supply of quality biomass for bio-processing

BBTWINS is developing and validating digital twins for meat and fruit production in Spain and Greece, integrating processing steps, adopting a multi-actor approach, and including holistic assessments.

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INNOVATION

13	**8**	**€5 M**	**4**
PARTNERS	COUNTRIES	TOTAL BUDGET	YEARS

BBTWINS

EN UN CLICK

Coordinador	**Programa**	**Fechas**
CTIC-CITA	Horizon2020	2021-2025
Sector	**Web**	
Biomaterials	www.bbtwins.eu	

01
Challenge

With approximately USD 93 billion in losses in crop and livestock production due to natural hazards and disasters in developing countries between 2005 and 2014, there is a pressing need to address inefficiencies in the food system. The global agricultural dry biomass consumed as food is just 6%, with the highest rates of loss associated with livestock production. The EU agri-food sector faces challenges such as a decade-long income stagnation, an unbalanced value chain, and increasing societal expectations for environmental protection and the provision of secure, nutritional, and healthy food.

02
Solution

BBTWINS will develop and validate two digital twins for meat and fruit production, integrating the entire agri-food value chain and feedstock in a single scheme. The project aims to enhance bio-processing operations by creating a realistic digital simulation model using IoT, AI, machine learning, and spatial information, coupled with blockchain and logistic solutions. The digital twins will predict optimal pre-treatment and paths for feedstock based on varying conditions, optimizing operations year-round.

03
Impacts

BBTWINS' Digital Twins, combined with advanced and innovative enabling technologies, will: (i) enhance biomass availability, resource efficiency, and sustainability in the bio-based industry, (ii) reduce biomass losses during the processing stages of the value chain, and (iii) enable a longer storage time before processing through more efficient pre-treatment steps and storage methods, thereby preserving valuable components more effectively.