OENOTRACE

ERA-NET COFUND ICT AGRI FOOD

From vineyard to bottle – trace sustainable practices in wine-growing under full transparency (2023 – 2026)

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Background

European winegrowers are experiencing increasing competitive pressure and challenges due to climate change. At the same time, consumers of wine demand more transparency regarding the environmental impact of viticulture. So far, ICT-based traceability solutions for the wine value chain have paid little attention to relevant processes in the vineyard, like the management of water, energy and chemicals as well as greenhouse gas fluxes.

Aim and Objectives

The overarching aim of the international Oenotrace project consortium is to provide a holistic digital approach to full transparency of sustainable growing practices in viticulture:

- Employment of growth models and sensors to monitor environmentally relevant processes at the vineyard
- Use of modern Digital Farming technology to implement Precision Viticulture practices and leverage machine data
- Development of a data platform to aggregate the data from an IoT network, incorporate relevant models and algorithms and provide interfaces for information exchange among different stakeholders
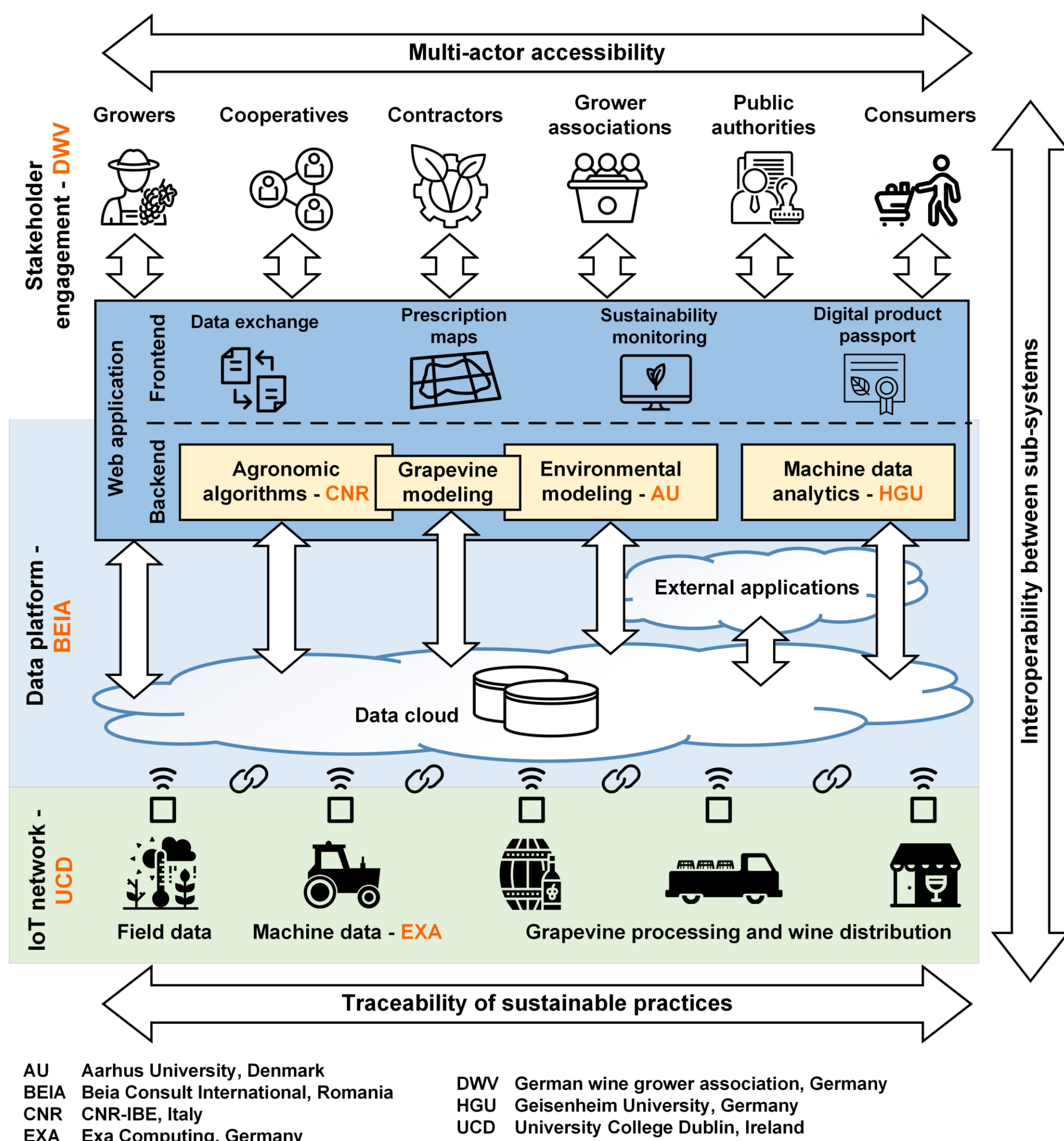

Fig. 1: Conceptual structure and information flow for the Oenotrace project
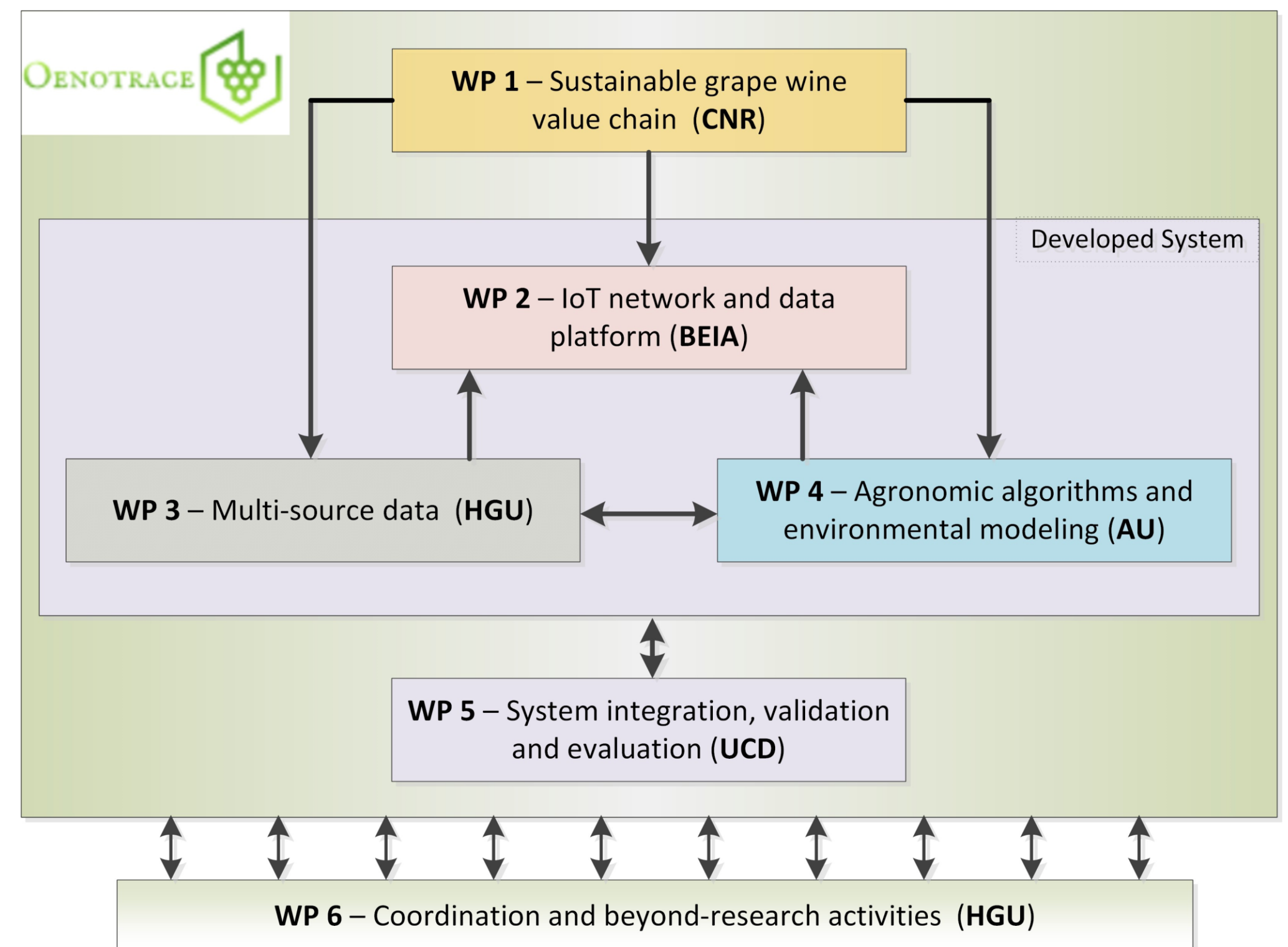
AU	Aarhus University, Denmark
BEIA	Beia Consult International, Romania
CNR	CNR-IBE, Italy
EXA	Exa Computing, Germany
DWV	German wine grower association, Germany
HGU	Geisenheim University, Germany
UCD	University College Dublin, Ireland

Fig. 2: PERT diagram, showing the Oenotrace work packages and their interrelation

Materials and Methods

The requirements and system definition, including the draft for a digital product passport will be completed in workshops and expert discussions (WP1). The IoT sensors defined in WP2 will be installed in a use case networked with the data platform under consideration of interoperability mechanisms. Sensor technology will be used to conduct data collection campaigns on experimental plots in Germany and Italy during WP3, where also machine data will be recorded. WP4 will employ these data to provide the necessary input for e.g. site-specific spraying, as well as information on relevant fluxes in the vineyard. System integration, validation and evaluation will be done with the help of technical tests and agronomic trials (WP5). WP6 will boost the technology take-off by using various dissemination channels.

Expected Results and Impact

Oenotrace will provide new ICT-enabled means to winegrowers to improve their operational, as well as environmental performance, while satisfying consumers' demand for more insight in the production and potentially achieving higher revenues. In a long term, the results could lead to the development of new, data-driven incentive/ reward systems or more targeted subsidy programs.

Acknowledgements

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