**Objectives**

BACCHUS intelligent robotic platform promises to fully reproduce grapes hand-harvesting operation, while at the same time take the manual legwork out by autonomously operating in three different levels: i) collecting timed and geo-referenced data (precision viticulture) through embedded sensorial system; ii) advanced decision making based on ripeness (sugars of grapes and acids level), iii) harvesting operation with the finesse needed and robot navigation with of quality performance guarantee.

**Concept**

The BACCHUS project aims to develop a modular, bi-manual, multi-sensor robotic inspection and harvesting system with cloud-based information-processing and decision-making capabilities. As a proof-of-concept use case, it will be tailored for use in the context of knowledge-based agriculture production systems, designed especially for open-air high-value crops, grapes in our case – although applications in other domains will be also possible. The core of BACCHUS concept will be a lightweight dual manual modular mobile ground unit which will carry a prototype multi-sensor fusion sensing system, installed on the one arm of the robot along with a scissor, which will play the role of the end-effector and a gripper installed on the other arm able to collect the grape, after cutting (with the scissor) it from the stem.

**Project Partners**

![BACCHUS Concept](image)

**Vision**

- A dynamic global farming robotic ecosystem
- Embed innovative tailored services
- With self-organising capabilities
- Based on international standards and interoperable protocols
- Where integrates a set of soft and hard tools with business needs and the crop qualitative patterns
- Enter the crop life cycle, from farmers up to the final consumer

**Methodology**

![BACCHUS Methodology](image)

**Use Cases**

The BACCHUS solution will be demonstrated and validated under real operating conditions in 2 pilot sites (through 6 use cases) in 2 European countries as described in the paragraphs below. Prior to these demonstrations the project technologies will be tested in controlled environments in 4 countries that will function as test beds.

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