



## ***Disavit – Intelligent decision support for smart viticulture***

### CONSORTIUM

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Soltel Group (Spain)

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### DISAVIT OBJECTIVE AND IMPACT

The goal of the project is the implementation of a decision support system for in-site specific vineyard management based on a cloud IoT end-to-end viticulture solution that will integrate various traditional and novel sensors (weather stations, Very High Resolution satellite (VHR), Unmanned Aerial Vehicle (UAV), portable biosensors).

It includes an advanced analytical engine, including cutting edge approach to artificial intelligence techniques and blockchain technologies, for the processing, modelling and securing of the collected data and their conversion in useful knowledge through the specific smart applications.

Corresponding web and mobile interfaces for the visualization of results and recommendations by viticulturist will be also generated keeping in mind an easy understanding and usability. GRAPE GROWERS AND WINE PRODUCER'S interests will be put at the centre of the development and co-creation approaches will be used for achieving it.

Disavit offers a low-cost, easy-to-use, fast-responding innovative IoT end-to-end solution for intelligent viticulture that covers the PHENOLOGICAL STAGES of vineyards and key strategic and operational applications: plant health, PESTICIDE DETECTION, resource efficiency, GRAPE QUALITY, MATURATION and global production.

This main objective could be a breakdown in the following SPECIFIC OBJECTIVES:

#### **Disavit – Specific objectives**

##### ***O.1 Implementation and integration of a multisensor platform including:***

- *Weather platform*
- *Novel biosensors to determine the health status of the grapes and the presence of pesticides*
- *VHR Satellite and UAV imagery for large scale mapping and real time predictions of vine and grape quality with remote sensing biophysical index and machine learning algorithms*
- *Farmland sensors*

##### ***O.2 Development of intelligent modules and software components to establish potential correlations between collected data and other data sets available online***

##### ***O.3 Development and validation of the IoT platform as intelligent decision support system by transferring knowledge and recommendations to farmers***

##### ***O.4 Development of Blockchain for traceability of vine products***

##### ***O.5 Final demonstration in real viticulture***

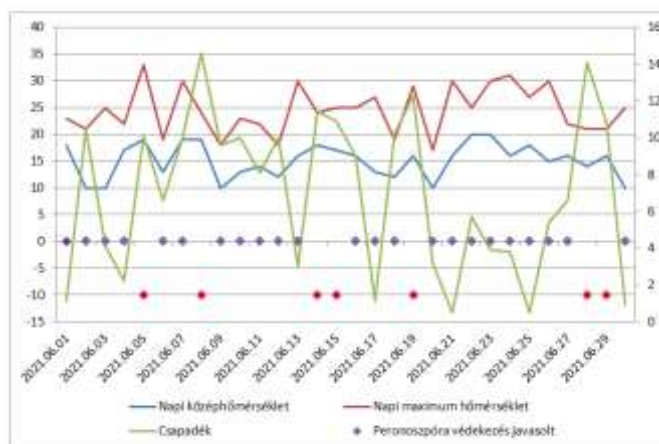


## Effective visualization methods

Modern analysis and visualization methods help to understand events and facilitate rapid interventions.

In contrast to the usual monitoring solutions, our development extends to modern methods of viticulture, measurement-based and visual tools, the environment, the observation and real-time signaling of the phenomena leading to the development of infections and the sending of alerts.

The complex graphs indicate the daily minimum and maximum temperature, the daily average temperature, the daily precipitation, the proposal for the control of downy mildew and for plant protection activity at the same time.



Another novelty of Disavit is a MAP-BASED PROFESSIONAL AND BUSINESS ANALYSIS SYSTEM which helps to understand and evaluate the viticulture processes by the given geographical distribution. Preferring the visibility and legibility the INFORMATION IS AVAILABLE AGGREGATED WAY IN A GRAPHICAL FORM instead of using the traditional listed or tabular views. So the details are manageable applying simple methods.

The DATA STORE LAYER OPTIMIZED FOR ANALYSIS is prepared for the viticulture. It provides this way the storage of the analysis aspects as geographical relation, device, sensor, farmer, grape variety, etc. and the measures as KPIs. The VISUALIZATION METHODS which are based on these aspects provide the interactive functionality concerning the analysis interfaces on EU level.

The INTELLIGENT MAP provides the right placing of the information.



Showing the location of each geographical units on the basic map there are two features available. The quantified data of the given business area is represented many ways (field-based coloring, circle, graph) and the specific analyzing functions (drilling down to smaller geographical units, looking the data and the details) can be performed starting from the displayed active forms.

The INTERACTIVE INTERFACE ensures looking further splitting, details either with graphical or tabular views behind the aggregated information.