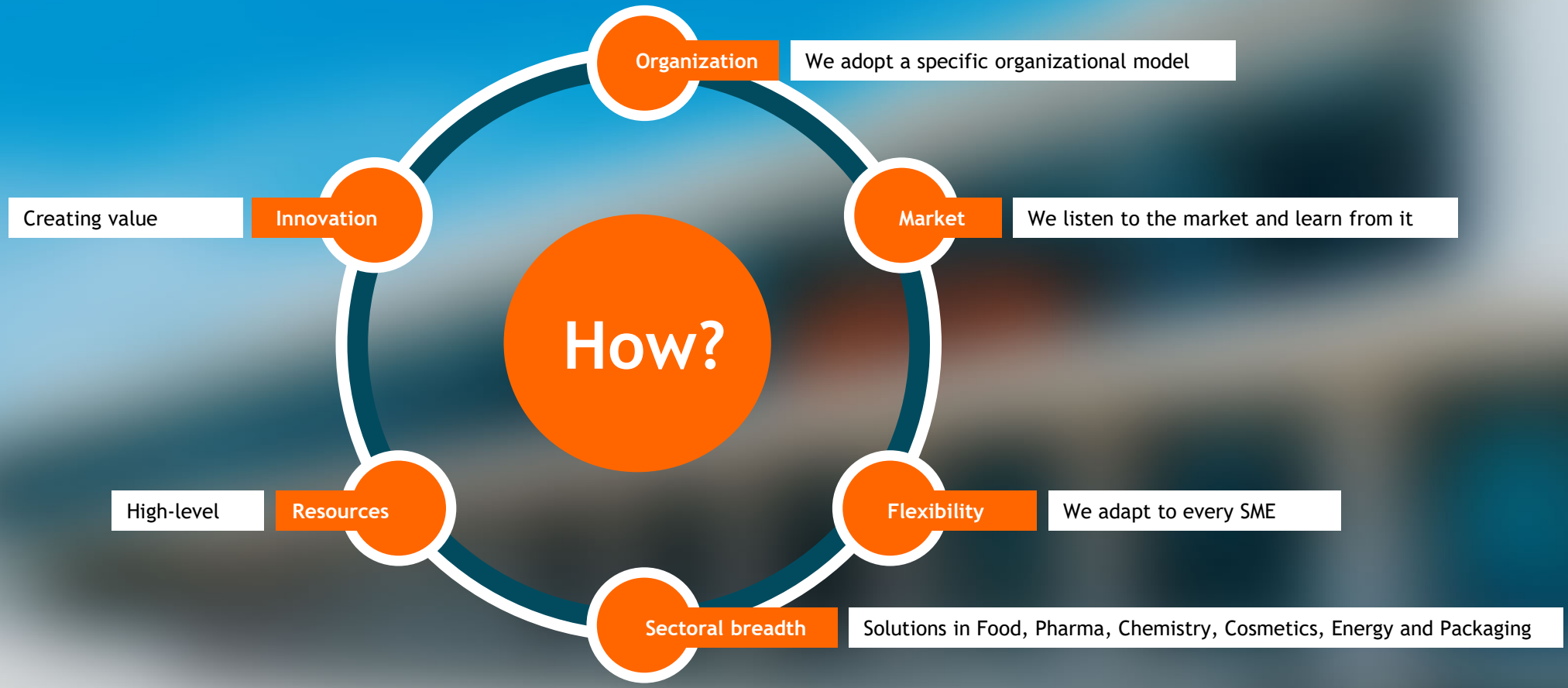
Applications of mobile robotics and high resolution remote sensing

smart agrifood industry

- Passionate about new technologies
- Personal purpose: to transform dreams into reality
- 20 years of experience in sensors and automation in the agrifood market
- 8 years of experience in precision farming
- Team or researchers in different fields

01. About us

Our model is flexible to adapt to the needs of the market and customers



03. Governing bodies

We are a private non profit association. Our governing bodies have high representation of the food industry.

Governing council

29

Members

General assembly

718

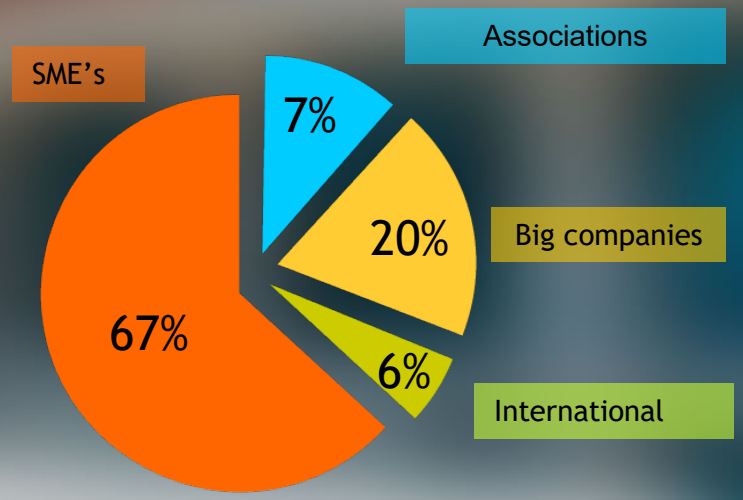
Associated companies

We work for more than 1500 clients per year, with a wide sectorial spectrum

Clients

+1.600

Companies



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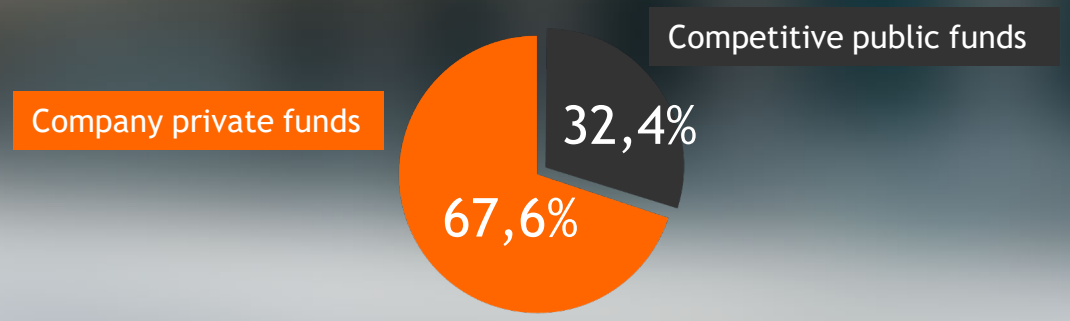
KPIs of our activity during 2019

R&D	Analysis	ALTEX	Training	Consumer	
210	230K	500	1.014	212	220
Projects	Assays	Tons	Hours	Studies	Professional staff

2018 Revenue

17,35M €

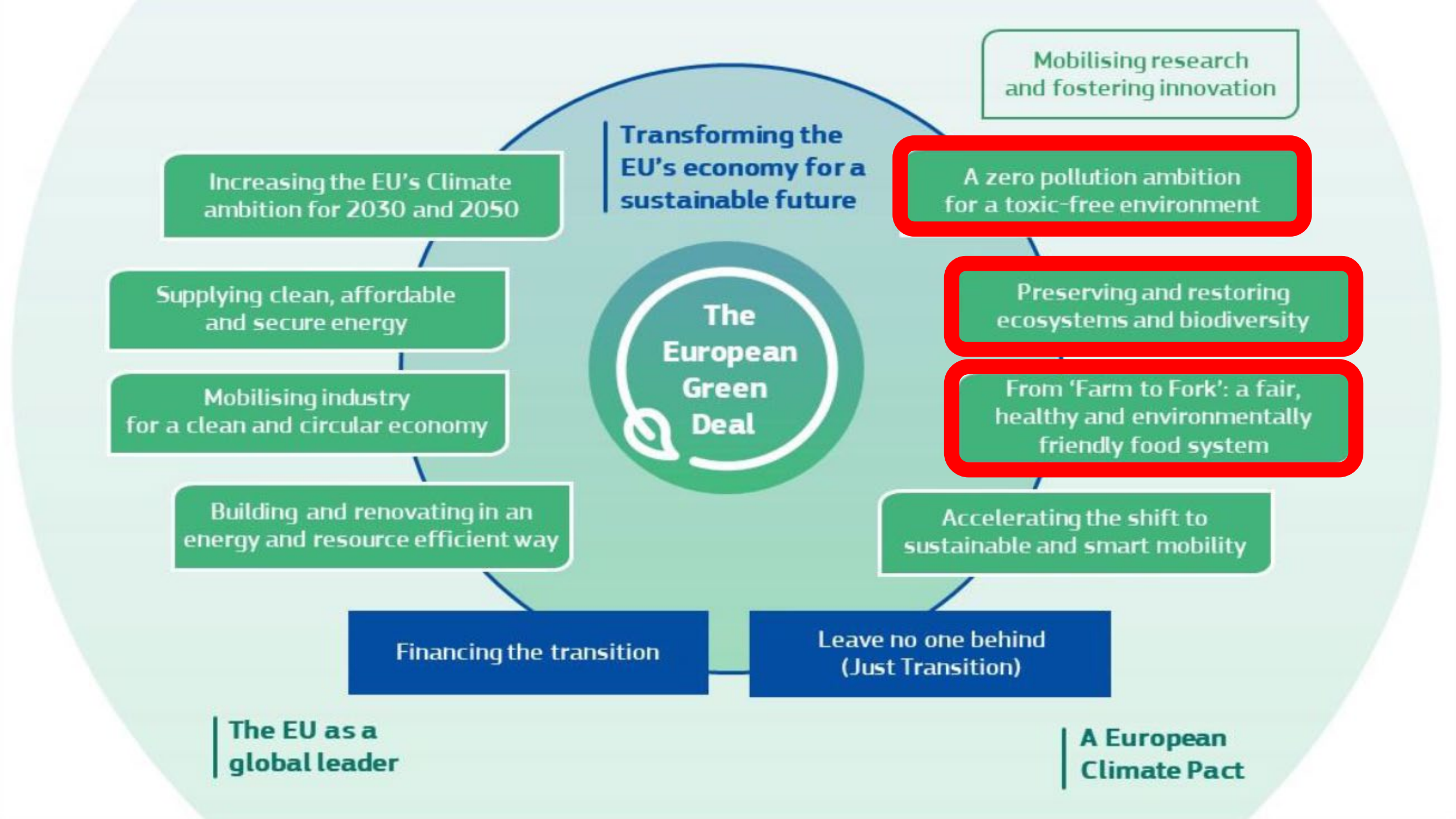


Index

- The great challenges
- Technologies to help us
- Applications in agriculture 4.0
- Success stories

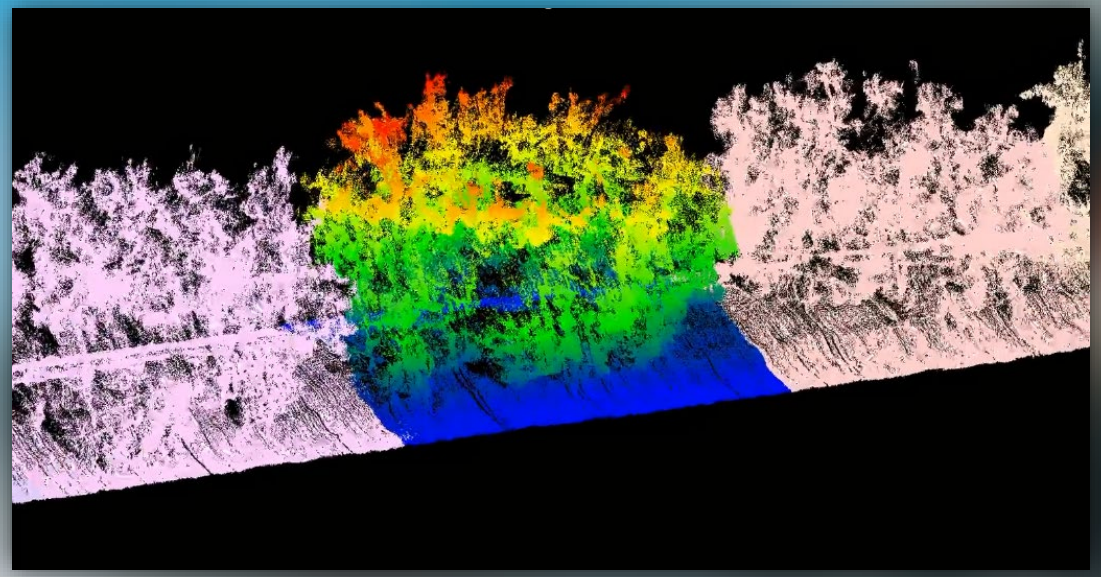
The great challenges

- 9.700 million people in 2050
- Demand for enough food to supply the world's population
- Limited resources: water, farmable land…
- Achieve balanced nutrition for all people
- Eradicate hunger and reduce inequality

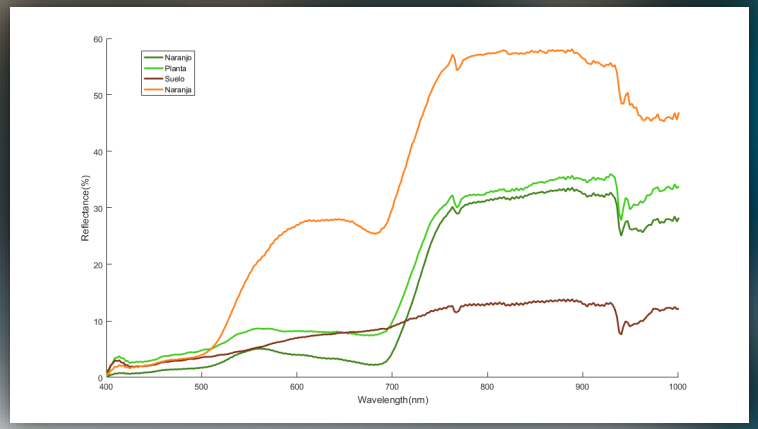

Mobilising research and fostering innovation
Transforming the EU's economy for a sustainable future
Increasing the EU's Climate ambition for 2030 and 2050
A zero pollution ambition for a toxic-free environment
Supplying clean, affordable and secure energy
Preserving and restoring ecosystems and biodiversity
The European Green Deal
Mobilising industry for a clean and circular economy
From 'Farm to Fork': a fair, healthy and environmentally friendly food system
Building and renovating in an energy and resource efficient way
Accelerating the shift to sustainable and smart mobility
Financing the transition
Leave no one behind (Just Transition)
The EU as a global leader
A European Climate Pact

Technologies to help us

- LIDAR: Laser Imaging Detection and Ranging



- Hyperspectral sensors: capturing the spectral signature



- Robotization: task automation using collaborative robots, AGVs, drones/UAVs…

Aerial mobile robotic platform based on a hexacopter

Weigh 24,9 kg

Payload8 kg

Speed 10 m/s

Autonomy 25 minutes

Autopilot based on GPS/Galileo

Sensing unit mounted in a anti-vibration frame with a hyperspectral sensor, LIDAR, termal sensor and a spectroradiometer

Processing Unit on board for real time processing and communication with base station

Land mobile robotic platform with 4 motors based on AGV SUMMIT XL from ROBOTNIK

Weigh 50 kg

Payload 20 kg

Speed 3 m/s

Autonomy: 5 hours

Autopilot based on GPS/Galileo & LIDAR

Sensing unit mounted in a gimbal with a hyperspectral sensor and a LIDAR

Processing Unit on board for real time processing and communication with base station

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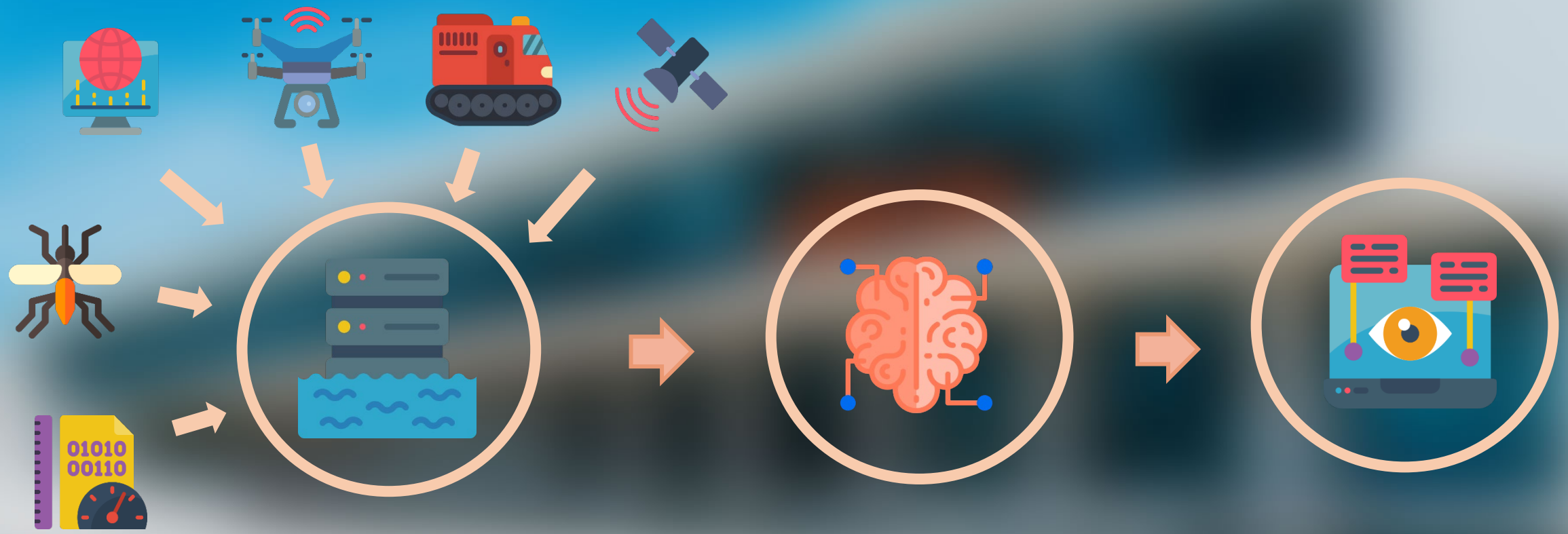
- Artificial Intelligence: smart analysis of millions of data to help farmers in the decision support process

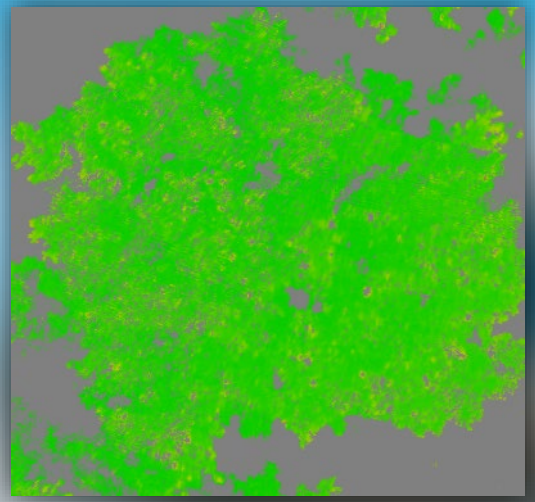


- Digitalization

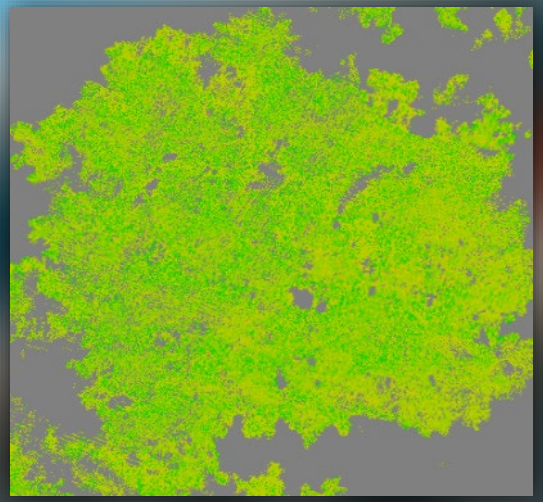
Sensorized tractor (1) and harvester (2), weather station (3) and soil sensors, drone (4) to do selective crop sampling accurately, satellite (5) with global information of the whole plot and Tablet (6) or mobile phone with the monitoring application that shows status reports from analysis of information in the cloud.

Applications in Agriculture

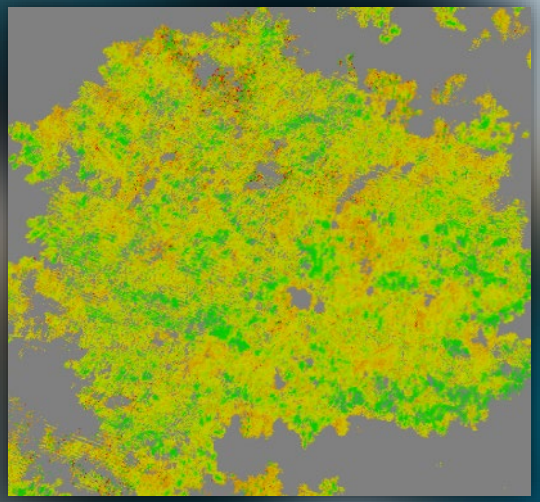
- Optimization of nutrients supply (vegetation index monitoring and water stress control)



NDVI

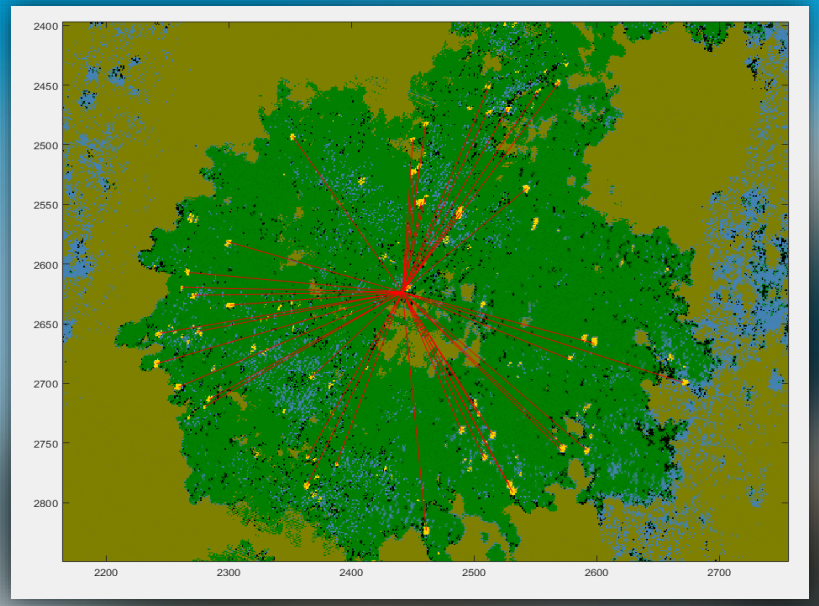


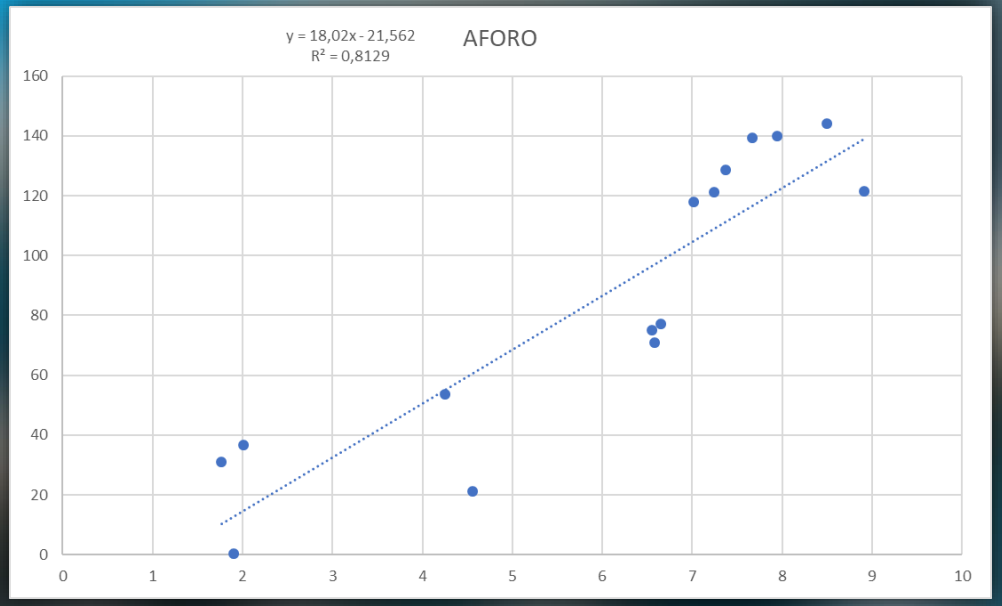
Water stress



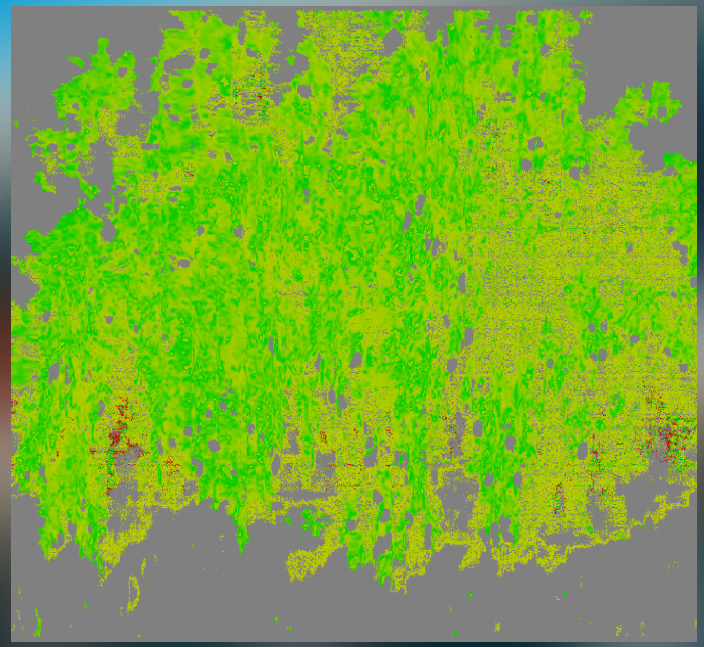
Chlorophyll

- Production estimation and harvest planning





- Detection of pests and diseases

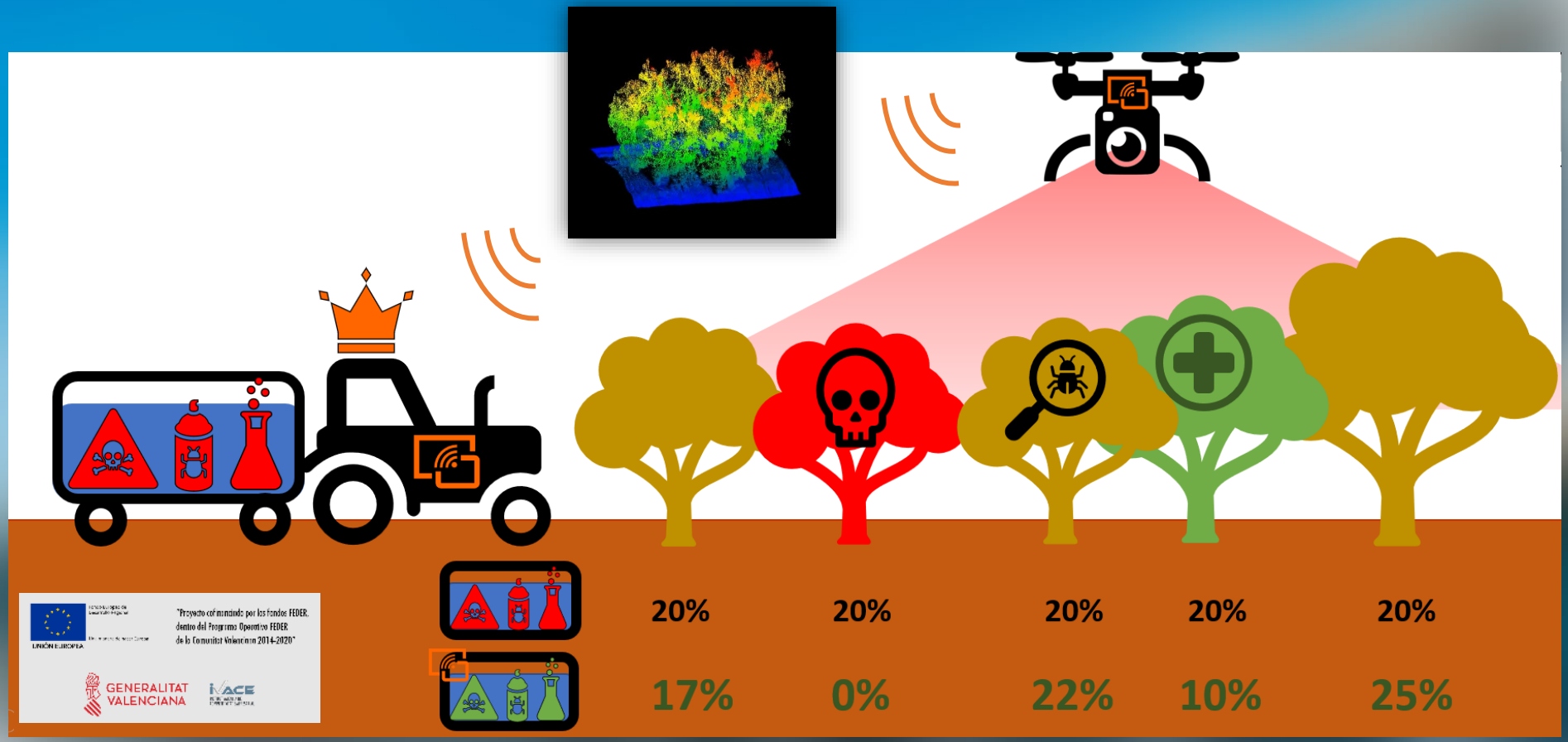


27% affected by Eutetranychus banksii

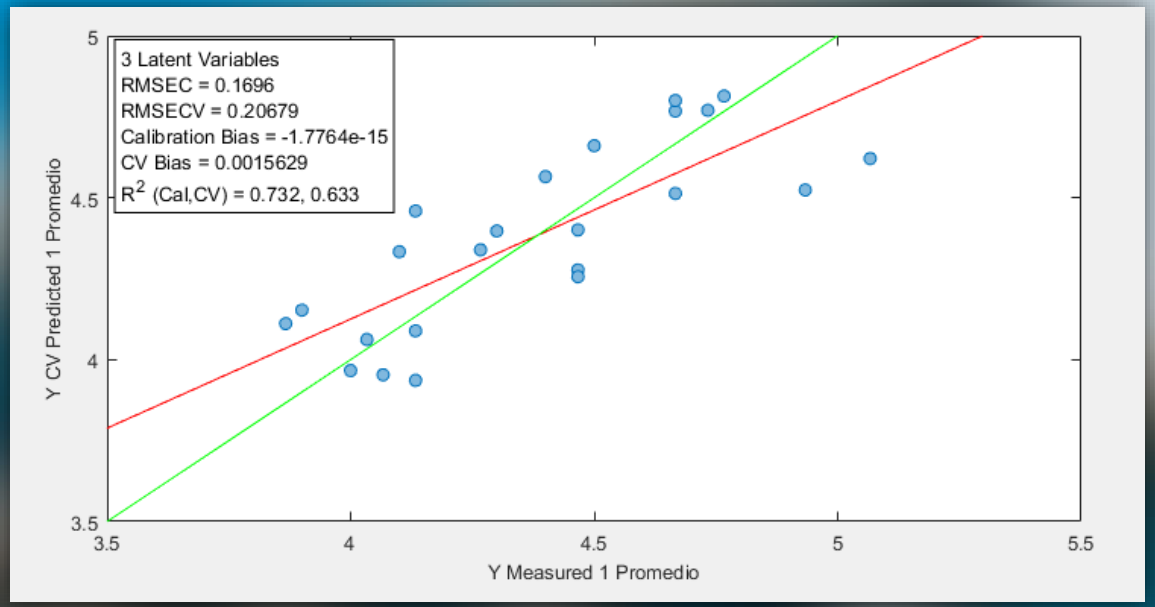
Success stories

- iDRONE project

- CERES project



- ROBOPREDICT



Thanks for your attention

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