ENGINEERING INNOVATION

“Towards a common definition of Digital Agriculture”

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ENGINEERING

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  - The research activities and Labs
- **Engineering for Smart Agriculture**
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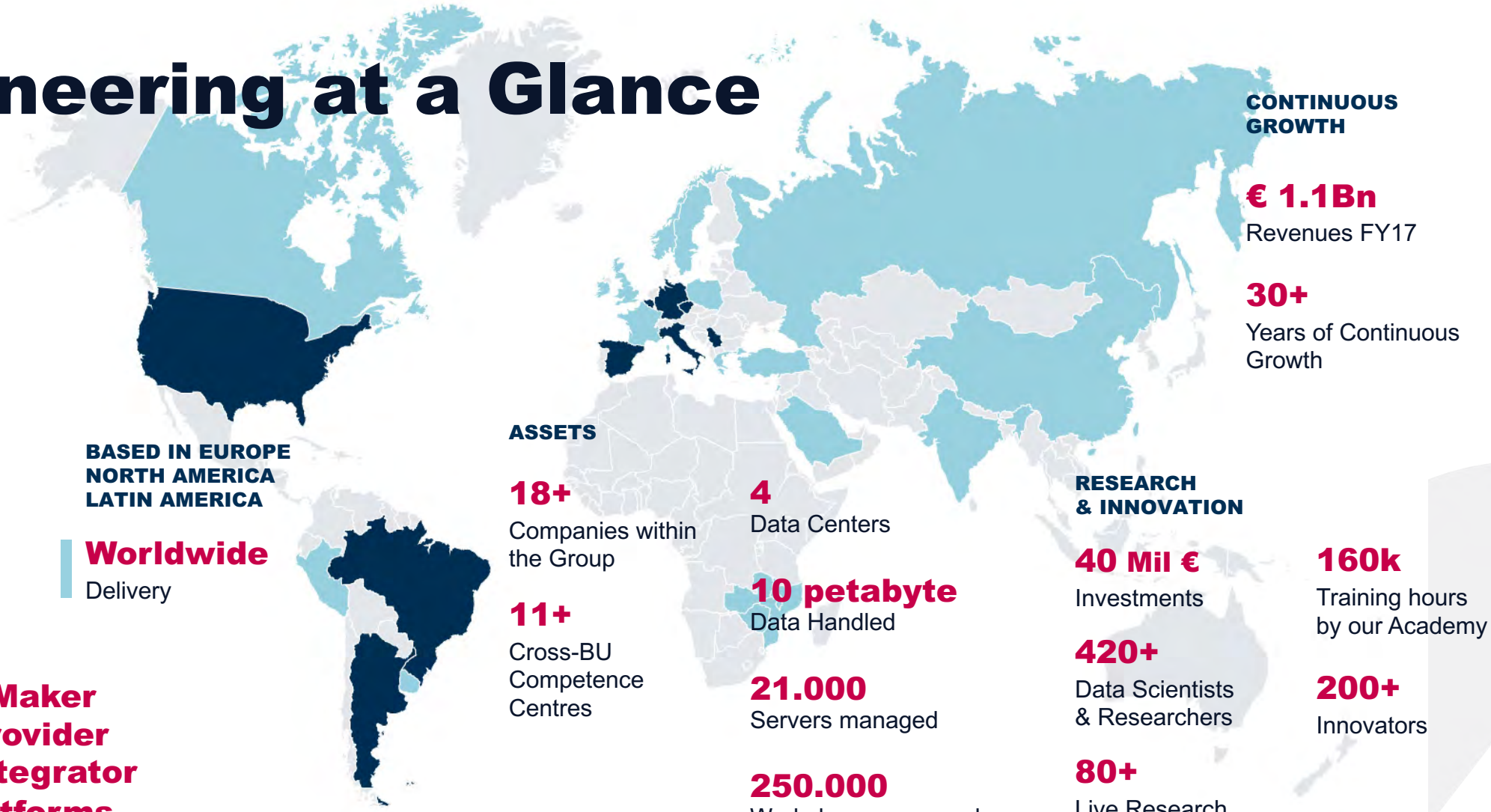
- **Focus on vineyards**
  - SAVE THE GRAPE

Engineering at a Glance



A GLOBAL COMPANY

12.000+
Associates

50+
Offices around the world

Global HQ
Rome, Italy

BASED IN EUROPE NORTH AMERICA LATIN AMERICA

Worldwide
Delivery

WHAT WE DO

Software Maker
Service Provider
System Integrator
Digital Platforms

ASSETS

18+
Companies within the Group

11+
Cross-BU Competence Centres

4
Data Centers

10 petabyte
Data Handled

21.000
Servers managed

250.000
Workplaces managed

Tier IV

CONTINUOUS GROWTH

€ 1.1Bn
Revenues FY17

30+
Years of Continuous Growth

RESEARCH & INNOVATION

40 Mil €
Investments

420+
Data Scientists & Researchers

80+
Live Research Projects

160k
Training hours by our Academy

200+
Innovators

Engineering and Digital Transformation

DIGITAL TRANSFORMATION is a **STRATEGY-DRIVEN** process of transforming, integrating and connecting processes within an organisation to **ENABLE NEW DIGITAL BUSINESS PARADIGMS** that produce **NEW VALUE**, **NEW REVENUES** and **ENHANCE CURRENT** opportunities.

A taste of what we are doing...

We are ENGINEERING INNOVATION in...

Augmented City
Smart City Platform

Digital Finance
Instant Digital Payments

Smart Transportation
Urban Transit Tracking System

Smart Energy & Utilities
Field Service Management via Virtual Reality

Smart Agriculture
Internet of Things (IoT) on the Vineyard

E-Health
Electronic Medical Record

Digital Industry
Predictive Maintenance in the Factory

Digital Media & Communication
Cloud Gaming

Digital Retail & Fashion
Virtual Showroom

Smart Government
Digital Citizenship

Digital Defence, Aerospace & Homeland Security
Marine Safety Systems

Research Activities/ General facts

Founded in **1987**

+80 **LIVE PROJECTS**

420 **RESEARCHERS**

Over **300** research projects, successfully completed

4 **LABORATORIES**

40M Euro investments in 2018

Research/The 4 Labs

Industry and Security

- Smart & collaborative industries
- Smart agrifood
- Transport, logistics, infrastructures
- Critical infrastructure protection
- Disaster resilience
- Digital security
- Fight against crime and terrorism
- Border Security & Defence
- Big data & artificial intelligence
- Blockchain

Digital Content and Energy

- Content, data & things
- Energy & green-it
- Digital media & creativity
- Culture & tourism

Open Public Service Innovation

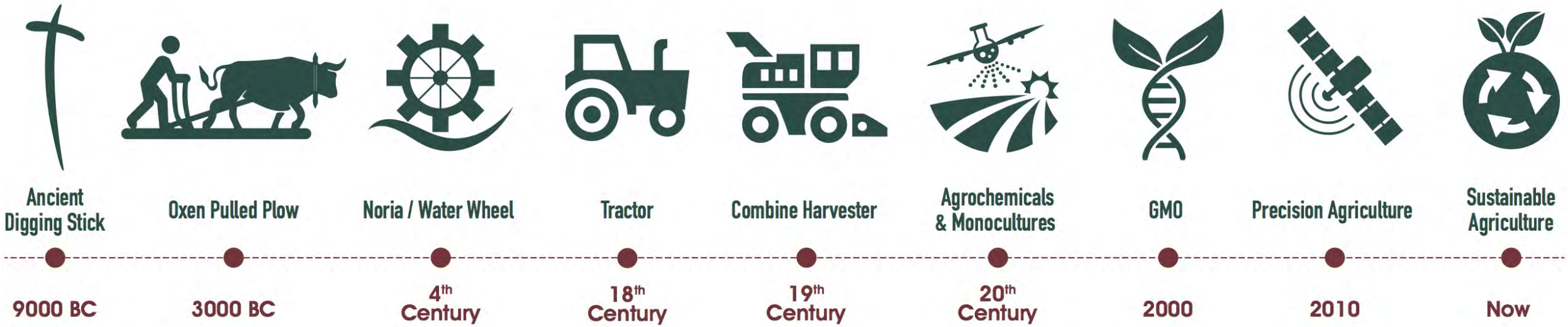
- PUBLIC SECTOR innovation
- Open government
- Open service innovation

IT Systems for Health and Cloud/Edge computing

- Personalized Care
- Telemedicine
- Wellness and prevention
- Cloud Technologies
- IoT Platforms / FIWARE

Engineering for Smart Agriculture/ Focus on R&D activities

THE EVOLUTION OF AGRICULTURE



https://www.primordiales.com.mx/

Our Research Network

One of the main founders and active participants of FIWARE Foundation

Core partner of EIT Digital (Trento node of the European Institute of Innovation and Technology)

BDVA Member also for **Task Force 7 for the Applications in Agriculture**

Cofounder. IDSA aims to guarantee data sovereignty by an open, vendor-independent architecture for a peer-to-peer network which provides usage control of data from all domains

AGRIFOOD 2019 / Running Projects and projections

H2020 DT-ICT-08-2018 DEMETER:

Building an Interoperable, Data-Driven, Innovative and Sustainable European Agri-Food Sector

60 partners
20 pilots in 25 deployment sites
18 Countries involved

What:
Within a farmer centric interoperable smart farming-IoT based platforms DEMETER will demonstrate the real-life potential of advanced interoperability between IoT technologies by adapting and extending existing standards into an overarching Agricultural Information Model.

Sectors covered:
dairy, meat, vegetables, fruit and arable crops

The value: the creation of a secure, open and sustainable European IoT technology and business ecosystem

H2020 SFS-6-2018 IPM Decisions:

Stepping-up IPM decision support for crop protection

28 partners
Farmers organizations representing
12 Countries

What:
'one stop shop' delivering Decision Support System (DSS), data, tools and resources through a pan-European online Platform and an 'IPM Decisions Network'.

Sectors covered:
DSS for key pests of major outdoor crops

The value: Increase user access to DSS across Europe

PON MISE 2018 CiTrace:

Dal campo alla spremuta, la tracciabilità aumentata dell'Arancia.

3 partners
National project

What:
Will build a digital platform made of open standards technologies able to improve the supply chain traceability by a smarter use of data.

Sectors covered:
Traceability system for orange cultivation

The value: CiTrace aims at enhance the Digital Transformation alongside the supply chain allowing the creation of new added-value services.

SMART
AGRICULTURE

Key Enabling Technologies (KET) assets

AI & Advanced Analytics | Cloud | Cybersecurity | IOT | Robotic Process Automation | AR / VR / MR | Blockchain | Digital Twin

KNOWAGE
Business Intelligence Analytics

Digital Enabler
Engineering's Ecosystem Platform

FuSiOn
Farm Sensing framewOrk

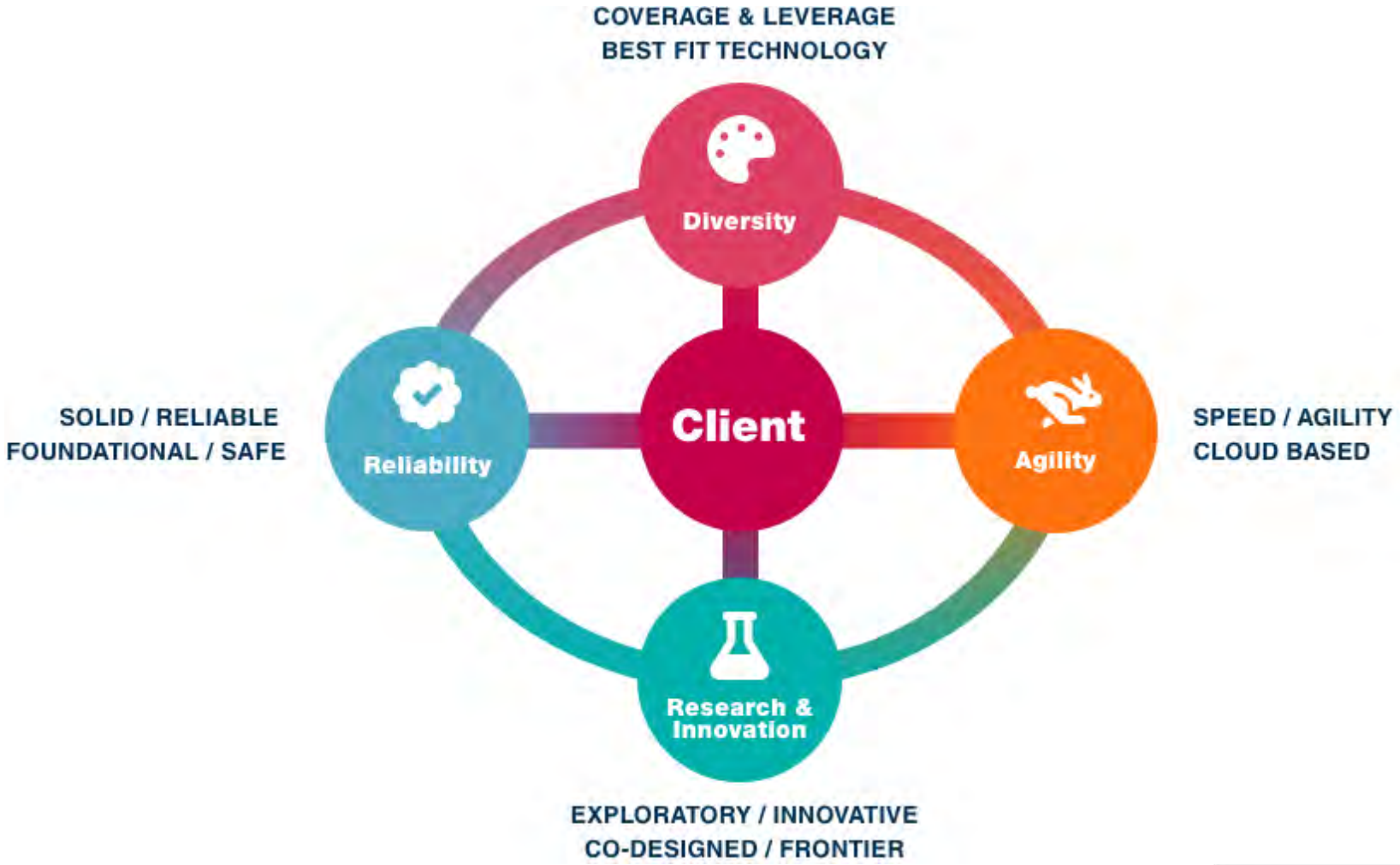
SPACE 1
Augmented, Mixed & Virtual Reality

DIVE
Digital Virtualization Experience

The Key Enabling technologies are the basis of Engineering innovation activities as our KET-based assets become cross drivers of innovation:

They support the implementation of highly customised solutions while enhancing the digital transformation in every sector in which they are implemented.

Engineering's Holistic Value Proposition



Engineering for Smart Agriculture/ Market and business offerings

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SAVE THE GRAPE

L'eccellenza incontra l'innovazione

D·HUB ENGINEERING

Anselmet
FAMILLE DE VIGNERONS

SAVE GRAPE

Advanced systems for vineyards monitoring

The solution at a glance

What: VIGNA 4.0 is the advanced monitoring system of the environmental and physiopathological conditions of the vineyard which is based on the constant collection of data. The micrometeorological data take a picture of the cultivation in real time and, once archived, allow long-term analysis.

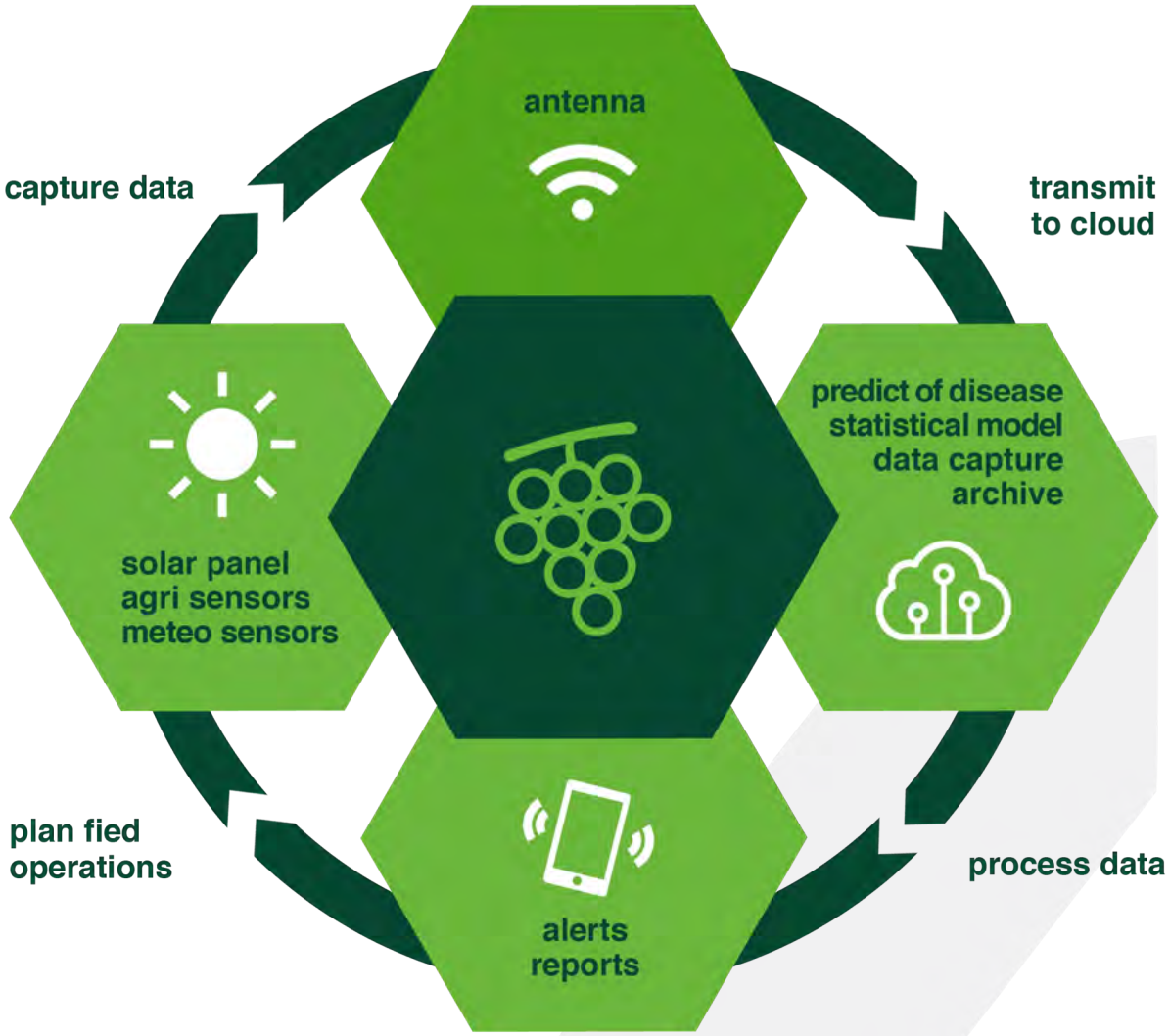
Mushrooms, molds, parasites and morphology: we take only the best from the data!

Who:

- Farmers of every dimension,
- Consortium of farmers

VIGNA 4.0 workflow:

- A set of **sensors located in the field** which send data to a Central Unit (EC, thermohygrometer, humidity sensors, StringMeter, diameter meters, leaf wetness, luxmetro, UV sensors
- Engineering D.HUB's datacentre receives the data from the **Central Unit; these data** are processed and, upon the occurrence of pre-established events, the management software is able to automate the sending of alerts via SMS or email
- The system is **energy self-sufficient** (by power grid or solar panel) and data can be continuous transferred via **GSM, GPRS, 3G, LoraWan, WI-FI, WI-MAX** and are available on the farmers device.



Data and features

Predictivity

Pathogens development likelihood estimation

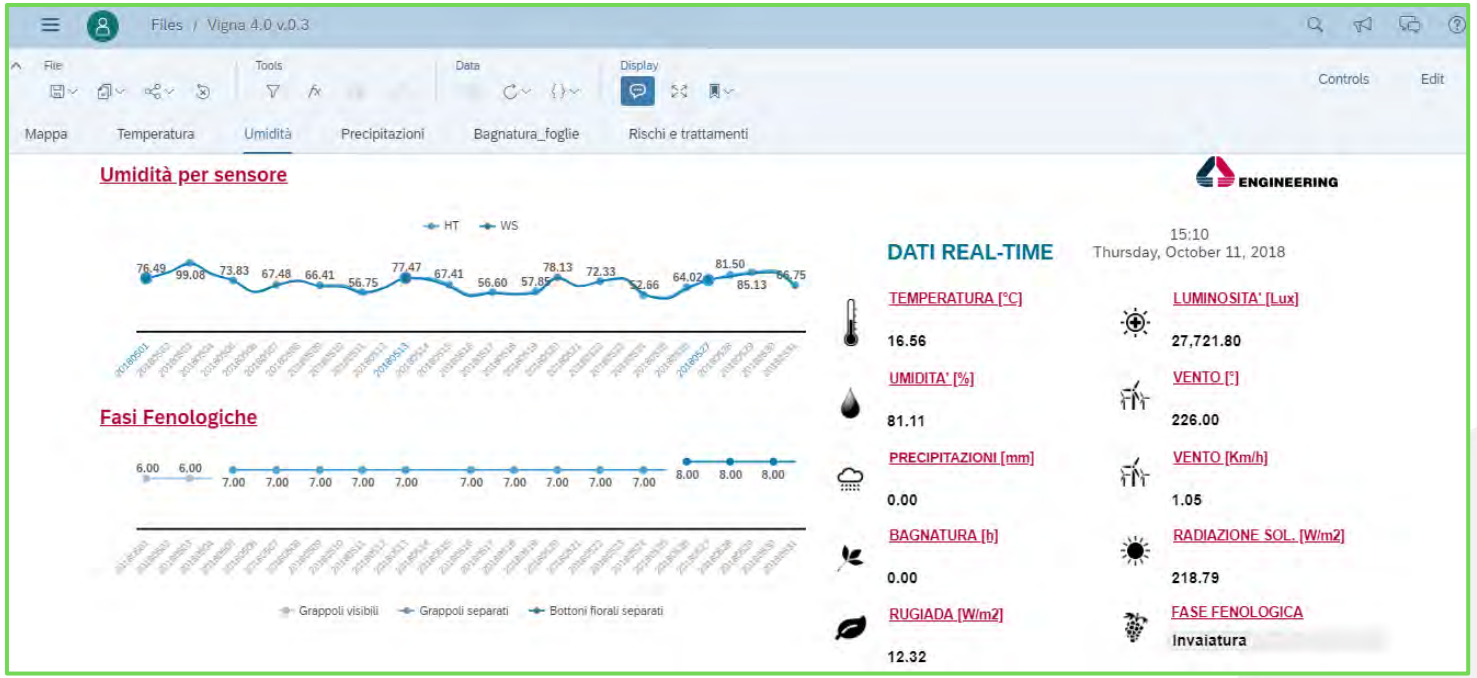
MODELS

Forecast models based on phenological stage of the vine.

MONITORING

Microclimate condition control:

temperature and humidity rate monitoring in real-time; allowing possible irrigation actions even at night



IRRIGATION

Irrigation control and level of humidity at different depths of the soil

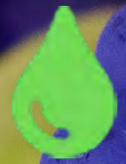
MANAGEMENT

Servomotors remote control

Results

Less working hours

Lower impacts



Less chemicals

Higher quality

Costs saving

- 50% of treatments

Business model: Vigne 4.0 as a Service

For farmers: This model of offering allows the farmer to write off the cost of the investments from 3 to 5 years (the hardware MTBF is high)

For Consortia of farmers: allow the Consortium to have an high level picture of aggregated data as synthesis of each associated company's results to share part of the sensors investment and network

THANK YOU

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