Saturnalia

Know your Wine

Gianni Lisini
Ticinum Aerospace
Wine Market

Total market value in 2015

28.3 B€

fine wine has been recognised as a genuine alternative asset class

4.5 B€ exported from Italy alone, set to grow

Fine wine sales in the U.S. up 25% since 2004

Popularity of fine wine increased 234% in a decade

Alibaba launched a wine platform in 2016

4.5 B€

2004

234%

exported

from Italy alone, set to grow

Fine wine sales in the U.S. up 25% since 2004

Popularity of fine wine increased 234% in a decade

Alibaba launched a wine platform in 2016
Knowledge about wine quality translates into monetary value
Saturnalia automatically collect, aggregate and make wine quality indicators accessible when and where it matters.
Spin-off company of University of Pavia, Italy

- Extensive expertise in
  - EO image analysis
  - Data fusion
  - Machine learning
  - Hardware development
  - Geospatial software
Our Team

Daniele De Vecchi
Remote Sensing Specialist
Launcher of the Saturnalia concept

Daniel Aurelio Galeazzo
Front-end/Back-end Developer
Platform designer and DB expert

Gianni Cristian Iannelli
Machine Learning Specialist
Deep learning on wine quality proxies

Fabio Dell’Acqua
Professor of Earth Observation
Advice on EO data exploitation

Gianni Lisini
Hardware specialist
Ground-based sensing
How can we do that?

- Climate factors affect at least 80% of the vintage performance
- **Constant monitoring** gives excellent clues on what will come out of the canteen
- Provide values of each specific wine according to its previous performances
- **Most other factors** are incorporated into the average performance
How can we do that?

Combination of satellite and weather data

- **Copernicus** programme (e.g. S2A and S2B) and VHR multispectral data
- Tailored, *patent-based weather stations*
- Machine and deep learning
Weather data

- Need for flexibility and expandibility
- Lack of local storage for recorded parameters in case of connection failure
- Integration of data transmission techniques: GPRS and LoRa
Benefits

- Optical rain sensor
- Hail sensor
- Ultrasonic Anemometer (testing)
- No or less maintenance
- Long lifespan patented battery
- Automatic sensors values storage
**Multy-cycle Rechargeable Longlife Battery System** (Pat. US20170201120A1)

**Benefits**

- Excellent operating life in calendar, cycling and floating conditions
- Unrivalled operating temperature range from -40°C to +80°C
- High level of safety, compatible potentially explosive atmospheres
- Smaller environmental footprint than other technologies
- Customizable battery shape than other technologies

**Patented hybrid technology**

- Supercapacitor quota for daily energy consumption
- Longlife high energy VRLA battery for backup use
- Maintenance free
- No memory effects

**OVER 20 YEARS with NO MAINTENANCE**
Platform
Saturnalia

Know your Wine

Financial contribution to this work by the European Space Agency (ESA) through Contract No. 4000122245/17/NL/NR awarded in response to our “Saturnalia” proposal submitted to the AO/1-8872/17/NLCLOP “Food Security” call
Saturnalia

Know your Wine

Thank You!
What do we mean by wine quality?

- 100-point rating system created by Robert Parker
- A de facto standard scale, used by critics to rate each wine
- Each score is obviously attributed after tasting the final product