



# The challenge of big data for European EO services SME

A stunning opportunity or a death threat?

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M. Tondriaux



TerraNIS is an SME created in March 2014 specialized in the development and the commercialization of geoinformation services in agriculture and environment domains, based on Space images applications.

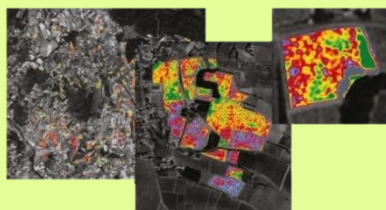
## Key figures – by end of 2017

- 17 employees (16 Fr, 1 Chili)
- ~50% of our activity abroad
- Revenues ~1000 k€
- 25% in R&D



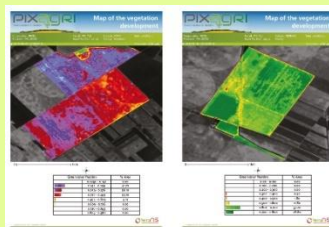
## ➤ Our sectors of activity:

### Viticulture



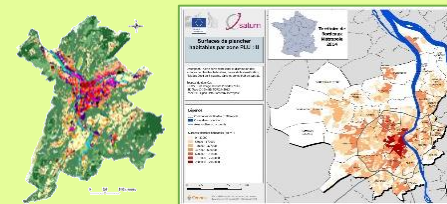
**œnoview®**

### Agriculture



**PIXAGRI**  
from precision to decision

### Environment



**TerraMAP**



# A partnering strategy



Association of european SMEs  
specialized in Earth Observation  
services



Experience in image  
processing and  
precision agriculture



Oenology and  
winegrowing  
techniques



French National  
center of expertise in  
environment and  
land use assessment





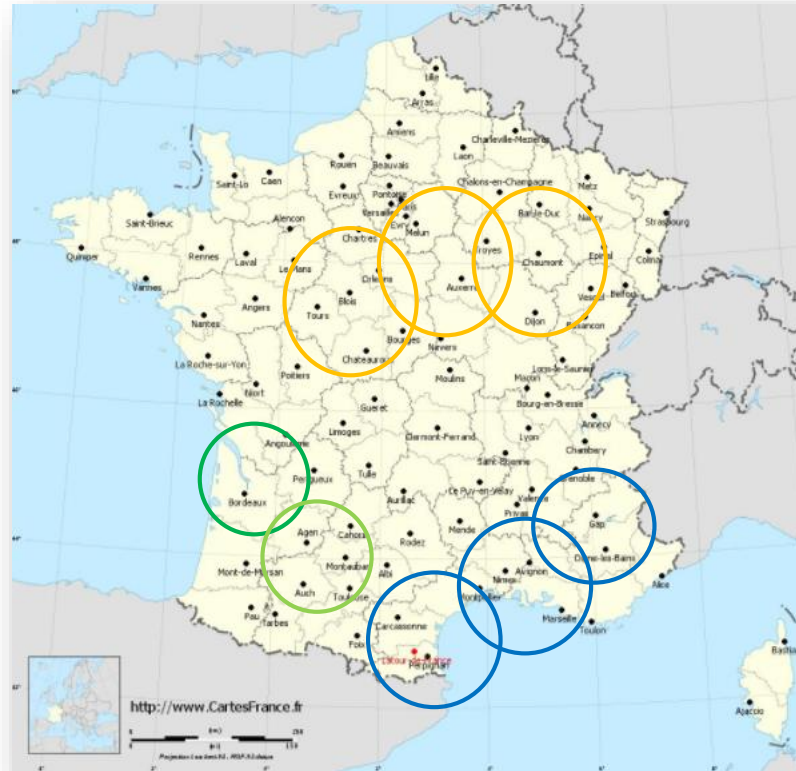
# Oenoview : some of our clients in France

## Bordeaux

CHÂTEAU PICHON-LONGUEVILLE  
GRAND CRU CLASSÉ EN 1855 - PAUILLAC



## Southwest



## Languedoc



## Loire Valley

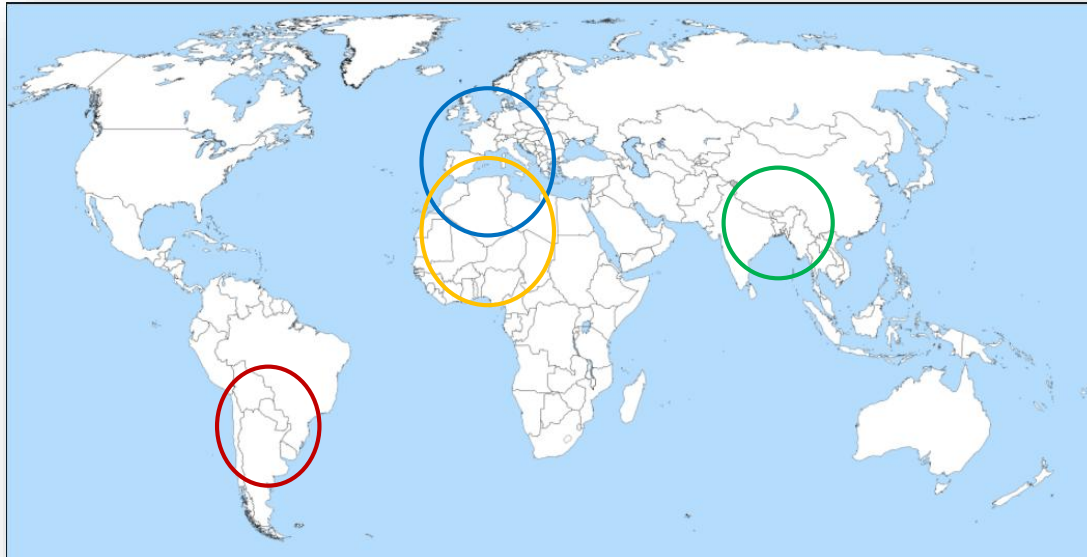


## Rhône Valley



## Europe

- Greece
- Italy
- Hungary
- Spain



## Asia

- China

## Latin America

**Chile** : *Commercial representation since 2017*



## Why big data technics are now key for EO services?

Three main evolutions in the past years:

1. The massive quantity of EO images made available:
  - for free by the EU funded Copernicus program ( the « Sentinel satellites »)
  - at prices always decreasing by private satellite operators.
2. The « clouds of computers » available through more and more attractive commercial offers
  - With an impressive increase of processing power and networking speed.
  - With capacities to « host » or « dockerize » some algorithms
3. The generalization of inter-operability standards (OGC) and of the « open databases » policy.



## What are the key new features in EO services?

These technical evolutions made possible the use of relatively « old » Artificial Intelligence, Cross Correlation and Analytics technics in the field of Earth Observation for the automatization of:

- Features change detection over a territory,
- Shapes and Objects identification
- Automatic classification of landcover and landuse, and evolution over the time
- Anomalies detection within an homogeneous landscapes,
- ...



The number of potential applications is continuously growing, like for:

- **Agriculture:**

- Optimization of nutrients and water use (only when the crop need it),
- Detection of anomalies to minimize use of pesticides (only at right times and places),
- Yielding prediction and harvested grain storage management,
- ...

- **Environmental monitoring:**

- Assessing and quantifying the consumption of agricultural areas,
- Quantifying the urbanization growth and soil impermeabilization rates,
- Monitoring the bio-diversity corridors over a region,
- Providing a set of periodically updated indicators coping with Sustainable Development Goals
- ...

- **Financial analytics:**

- Assessing the GDP trends over dedicated geographical areas,
- ...

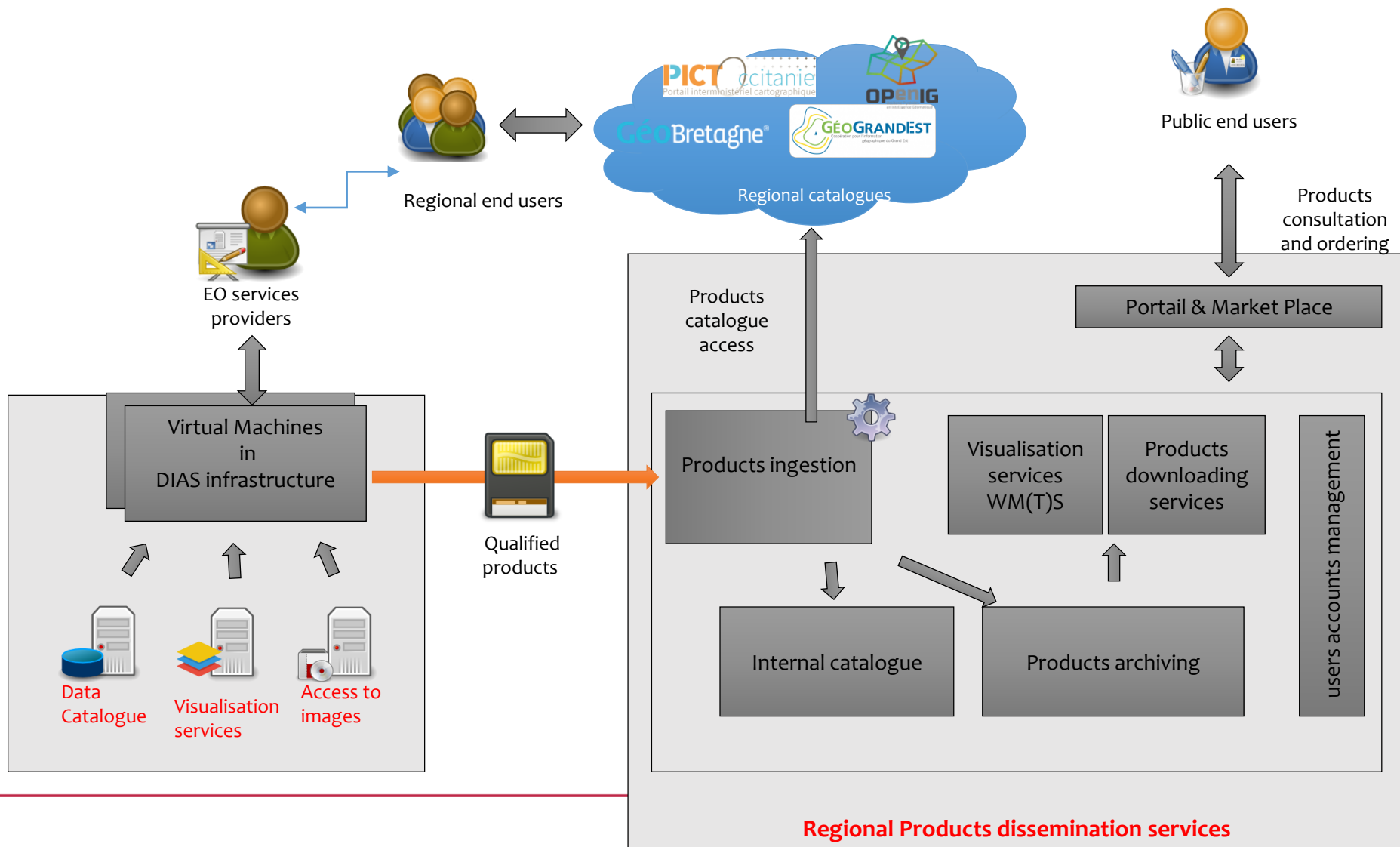
- **Defense and Security:**

- We let you imagine...





# An example of implementation for regional users...



## And where is the threat ?

### Let's have a nightmare...

Let's assume that the big worldwide « cloud leaders » from US or China take the hand over this eco-system

- They can get access to all images accessible worldwide for free (including from satellites paid by the European tax payers),
- They can implement the IA based automatic processing algorithms in their own computers cloud,
- They can provide access to the resulting added value products directly to the end users through subscription accounts (at a given price or free of access, since paid by avertising or others).



## But this nightmare will never become reality...

- Because European SMEs, Big companies and Universities or Agencies will (surely...) work more and more together rather than competing to combine their strengths and develop together a local and global market,
- Because the European data policy will (probably...)
  - ask for reciprocity of data access from non European countries
  - and make a difference between the European end users and services providers for which the free data policy shall continue to apply and the IT world players archiving these data for making business through providing access to it,
- Because the European institutional end users will (perhaps...) give preference to certified products proposed by local services providers through a kind of European Business Act...



*Eugenius gathers diverse SMEs business skills in **Earth Observation** to form a **powerful network** of european partners to provide **user-focused services** in each region*



3 founding principles :

➤ **Regional platforms**

Gathering and broadcasting local data

➤ **Management tools**

Processing local data and generating added-value products

➤ **Business rules and principles**

Allowing each partner to develop itself within a contractually determined context



## 5 operational platforms

Deployed in 5 European regions  
in the frame of the H2020 project and another one being implemented ...  
in Chile



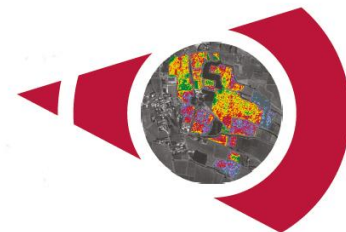
- 30 pilot tests run in 2017 and 2018 with regional end users
- 12 EUGENIUS association members in 10 different regions



*Eugenius partners have been awarded a H2020 EO1 project in oct 2016 to start implementing the concept*



**Thank You!**



**info@terranis.fr**

**TerraNIS web site : <http://www.terranis.fr>**

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