

# Future trends: business view and high tech

Area 1 – SPA Overview  
Lesson 1 – Introduction to SPA  
Sequence ID – 6

UEVORA



# Information about the teachers



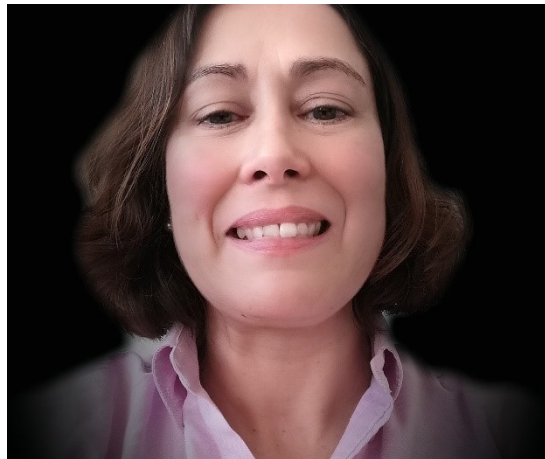
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## DISCLAIMER

### A1.L1.T6 Future trends: business view and high tech:

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# Future trends: business view and high-tech

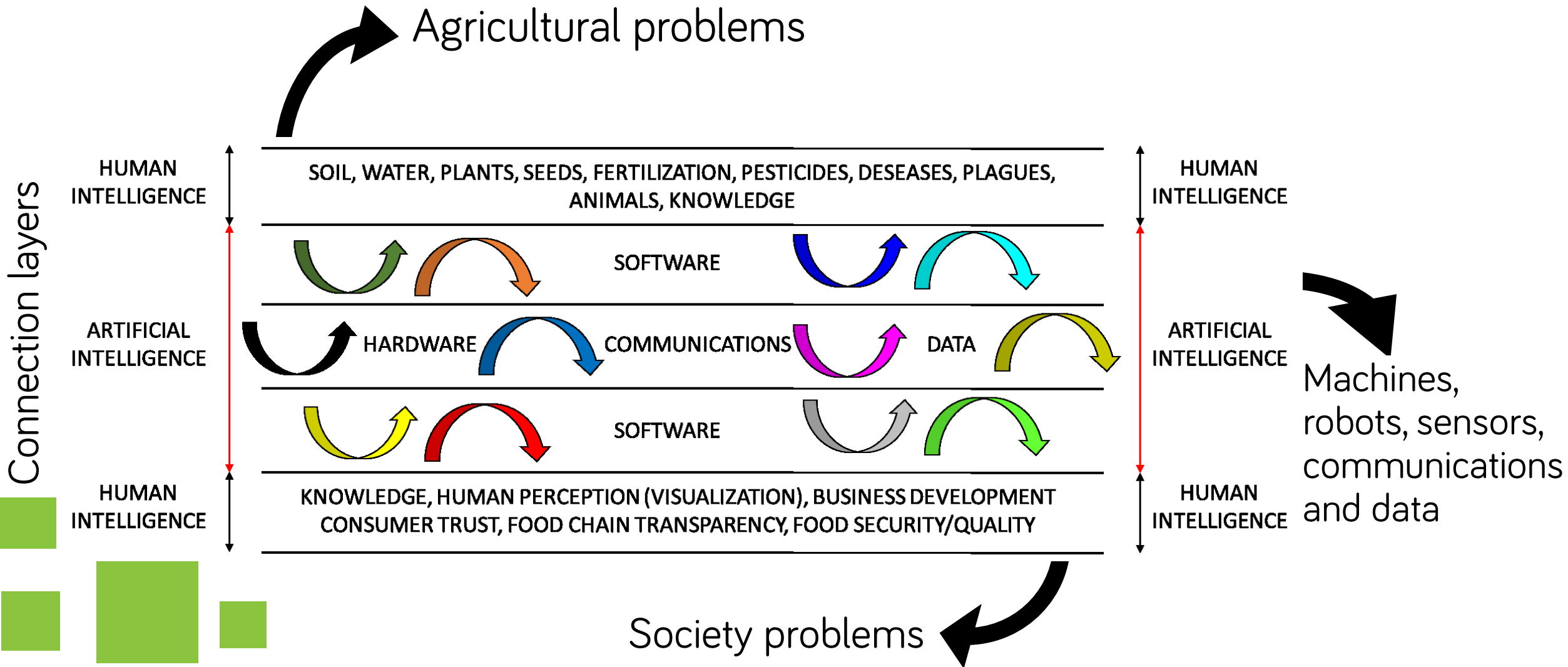


## Objectives:

- To identify the decision making elements in SPA;
- To enumerate some of the most important technologies identified as future trends in SPA application to arable crops and vineyards



# Vision of SPA in the near future



# «Big Data»



No internet connection

## IoT Transforms Data into Wisdom

Wisdom (Scenario Planning)



Knowledge



Information



Data

01010100101010101010101010101010101  
010101010100010101001010101010101  
01110101010101010101

More Important

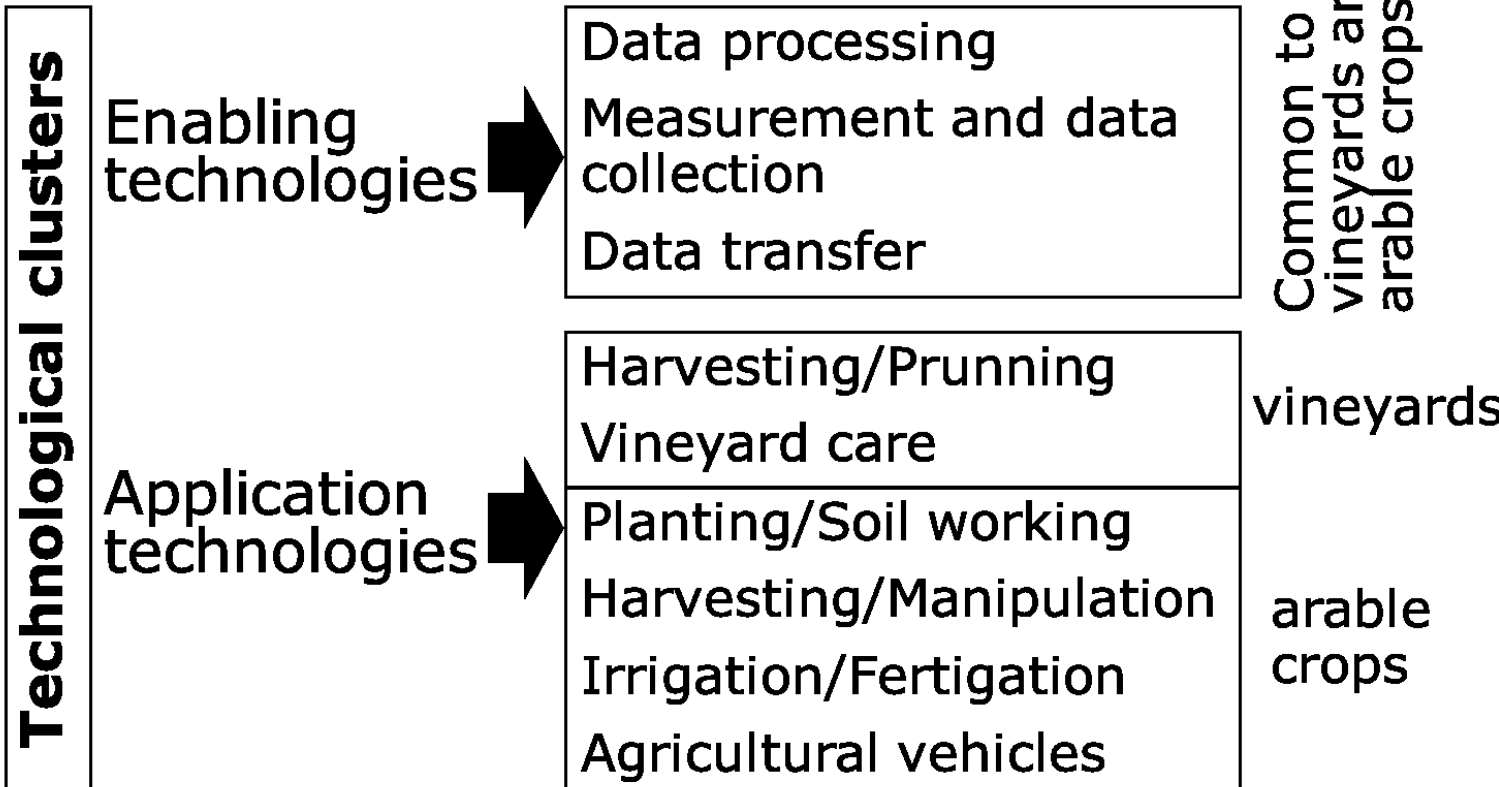
Business Benefit

Less Important

Big Data becomes Open Data for Customers, Consumers to Use



# Technological clusters identified in the Foresight Analysis for Arable crops and Vineyards



Patents and papers produced from 1985 to 2018 were analysed to determine the major technological trends of SPA in Arable crops and Vineyards.

In the examples of the next slides, the dimension of the tags is proportional to their frequency.

For more details, see:

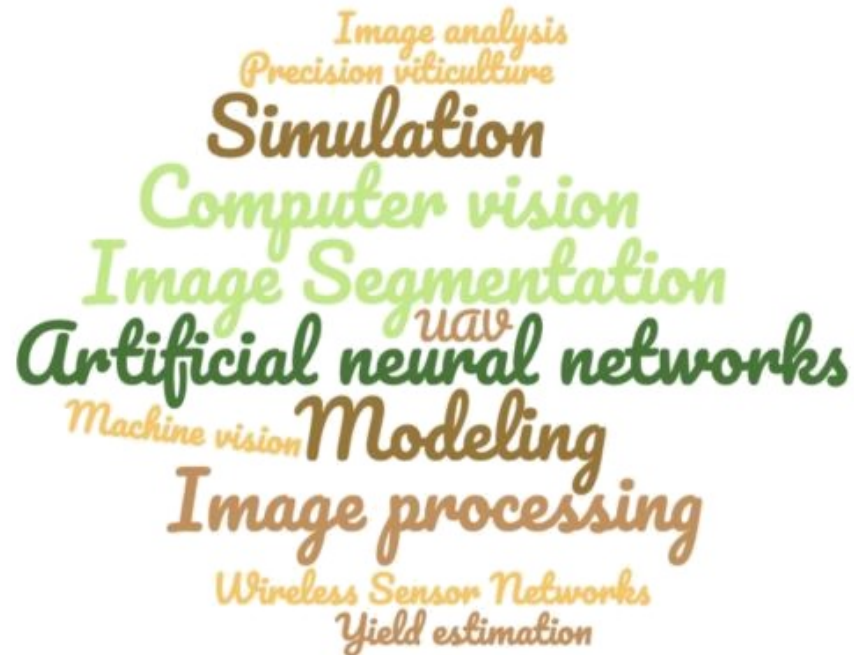
ErreQuadro. (2019). *SPARKLE Report 2.2 Results of the Foresight Analysis*.

<http://sparkle-project.eu/>

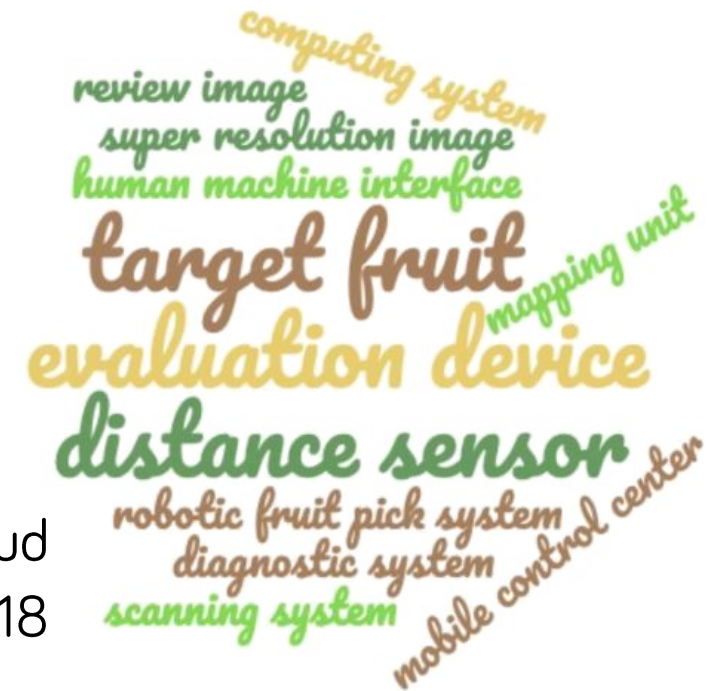
# Foresight Analysis for data processing technologies in Vineyards



Patents' analysis from 2011-2018 show, that the focus refers to human machine interface, diagnostic systems and image analysis.



Papers' tag cloud  
1985-2018



Patents' tag cloud  
2011-2018

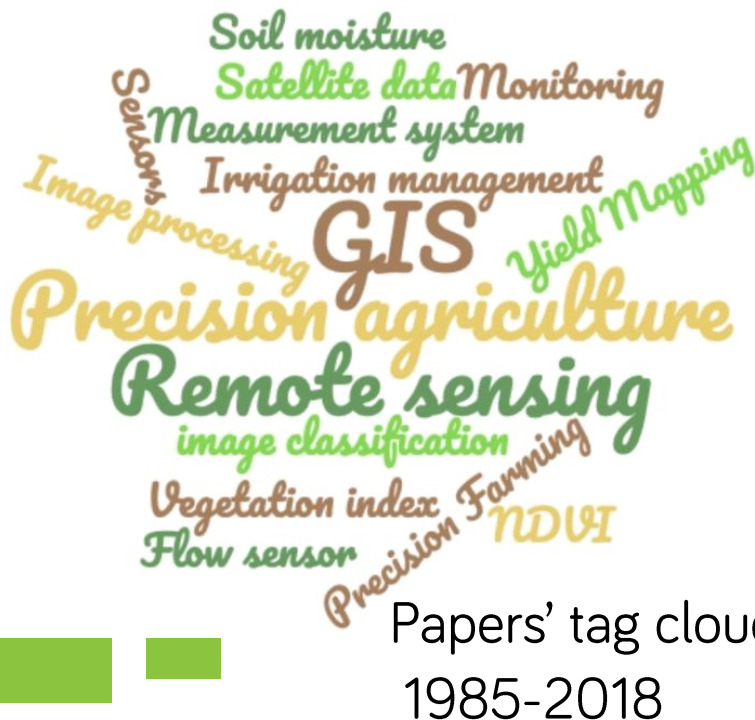
The main tags for papers from 1985 to 2018 are referred to image processing and also to wireless sensors networks and neural networks.



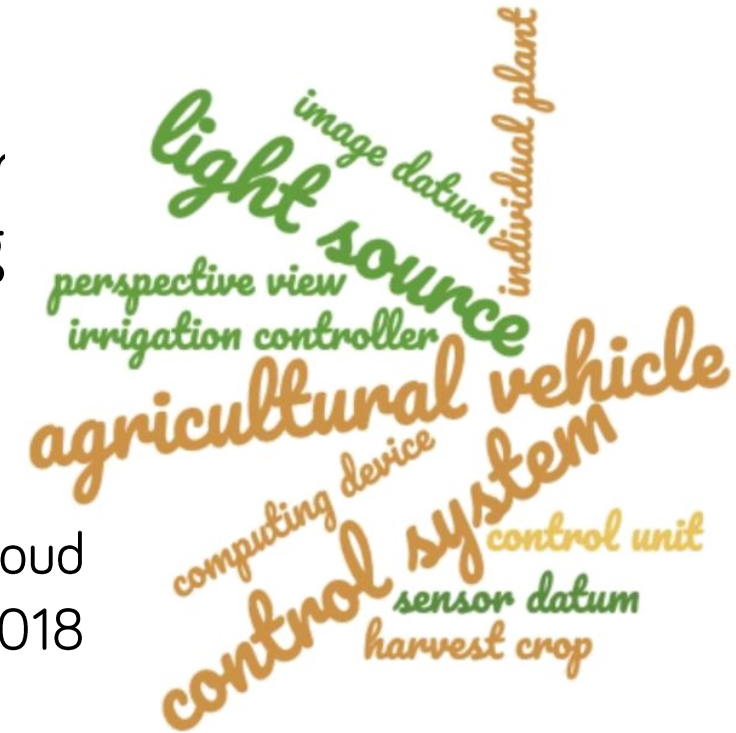
# Foresight Analysis for measurement and data collection in Arable crops



Patents' analysis from 2011-2018 contains many expressions about irrigation and control systems; other references to optical systems and vehicles, comprising aerial vehicles, are present.



Patents' tag cloud  
2011-2018



The main tags for papers from 1985 to 2018 are referred to image analysis but also to GIS, NDVI and satellite imagery.

# Foresight Analysis

Synthetic view of the most frequent technologies across the analysed clusters.



The most important trends are related to:

1. Control systems
2. Image processing
3. Sensing systems
4. Optical systems

	Cluster	Technology				
Viticulture	Data processing	Control Systems	Image Processing	Navigation		
	Measurement	Control Systems	Image Processing	Optical Systems	Remote Sensing	
	Data transfer	Optical Systems	Sensing Systems	Navigation	Satellite Technology	
	Harvesting / Pruning	Robotics	Sensing Systems	Image Processing		
	Vineyard Care	Irrigation	Optical Systems	Aerial Vehicle	Sensing Systems	
Arable Crops	Data processing	Image Processing	Optical Systems			
	Measurement	Control Systems	Optical Systems	Aerial Vehicle	Image Processing	Satellite Technology
	Data transfer	Control Systems	Sensing Systems			
	Harvesting / Manipulation	Control Systems	Manipulators	Robotics		
	Planting / Soil Working	Control Systems	Autonomous Vehicles	Navigation		
	Agricultural Vehicles	Control Systems	Autonomous Vehicles	Aerial Vehicle	Remote Sensing	Image Processing
	Irrigation / Fertilization	Control Systems	Sensing Systems	Efficiency		



## Bibliography and links

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