



Introducing innovation
in rural economy:

30th September 2016

ARCO SOLUTIONS

case study: Arco Solutions



- Spin off Company of Dep. of Chemical & Pharmaceutical Sciences of University of Trieste

Development of innovative technologies and services for environmental sustainability and compliance with international regulations. Development and customisation of chemical-analytical solutions for the environmental, food, petrochemical and energy sectors.



- Resident at Techno Area Gorizia
- Innovation for rural economy, **projects:**
 1. «Wine faults» and cork stoppers
 2. Chemical ID Card of Karst products

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1. Problem

- Cork taint is the most common “**wine faults**”
- Due to fungal reaction with chlorine (cleaner) or bromophenols (fungicide), chemically termed as 2,4,6-trichloroanisole (TCA)
- Low levels of **TCA** in wine will make it worthless by destroying its aroma and flavor
- A corky wine smells like musty, damp cellar or like a wet newspaper which renders it bad for drinking



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1. At the moment

1. The most common solution is the detection of contaminated **cork stoppers** in the manufacturing plant.
2. However, cork stoppers that successfully pass the **quality controls** can get re-contaminated at the bottling line.
3. The problem leads to great **economic losses** and affects the competitiveness of SMEs in the whole wine production chain: cork producers, wine bottlers and winemakers.

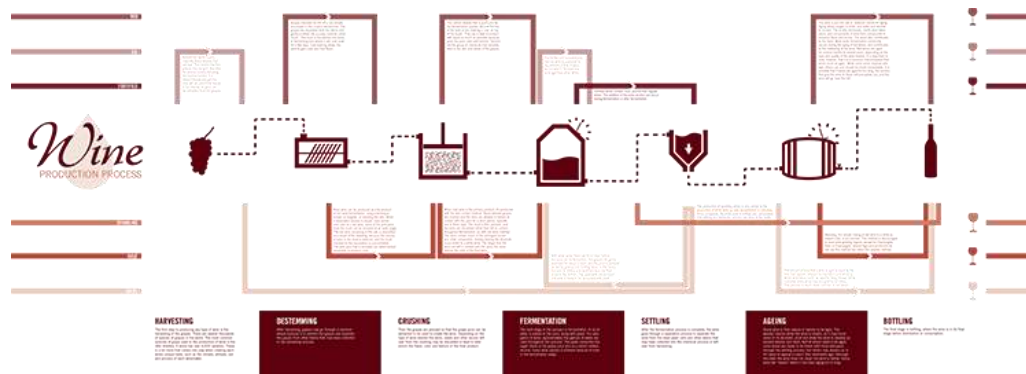


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1. Solution

1. The main goal of the project is to develop a solution to detect TCA in wine bottling facilities by using a **non-invasive sensing device** known as an **electronic-nose** for the fast detection of TCA
2. The problem leads to great economic losses and affects the competitiveness in the whole **wine production chain**: cork producers, wine bottlers and winemakers.

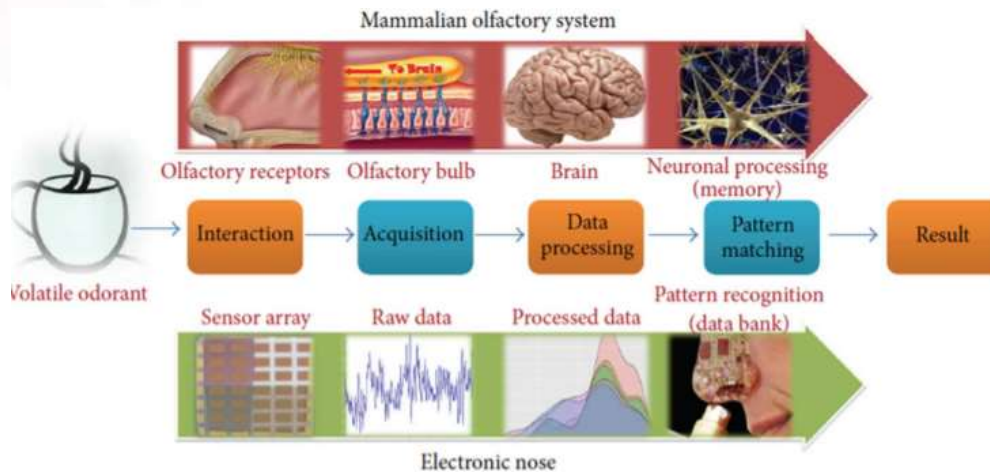


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Electronic Noses

An electronic nose can be defined as “an instrument which comprises an **array of electronic chemical sensors** with partial specificity and an appropriate **pattern recognition system**, capable of recognising simple or complex odours (and other gaseous mixtures).” Gardner and Bartlett, 1994



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2. Chemical ID Card of Karst products

1. Identify features able to:
 - Evaluate variations across seasons and crops
 - Strictly connect the products to the origin area
 - Define hedonic and qualitative characteristics
2. Develop portable multisensory instruments able, after a proper training, to:
 - Evaluate qualitative characteristics of the products (raw and finished)
 - Identify the best processing technique for the single crop

