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