UNIVERSIDAD DE ALMERÍA

C-BIRD Final conference

Cooperative and innovative rural development – impact and practical implementation of academia-business collaborative approach

Pirot, Serbia

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Recent Scientific Results of the University of Almería

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MARIE CURIE ACTIONS

PEOPLE

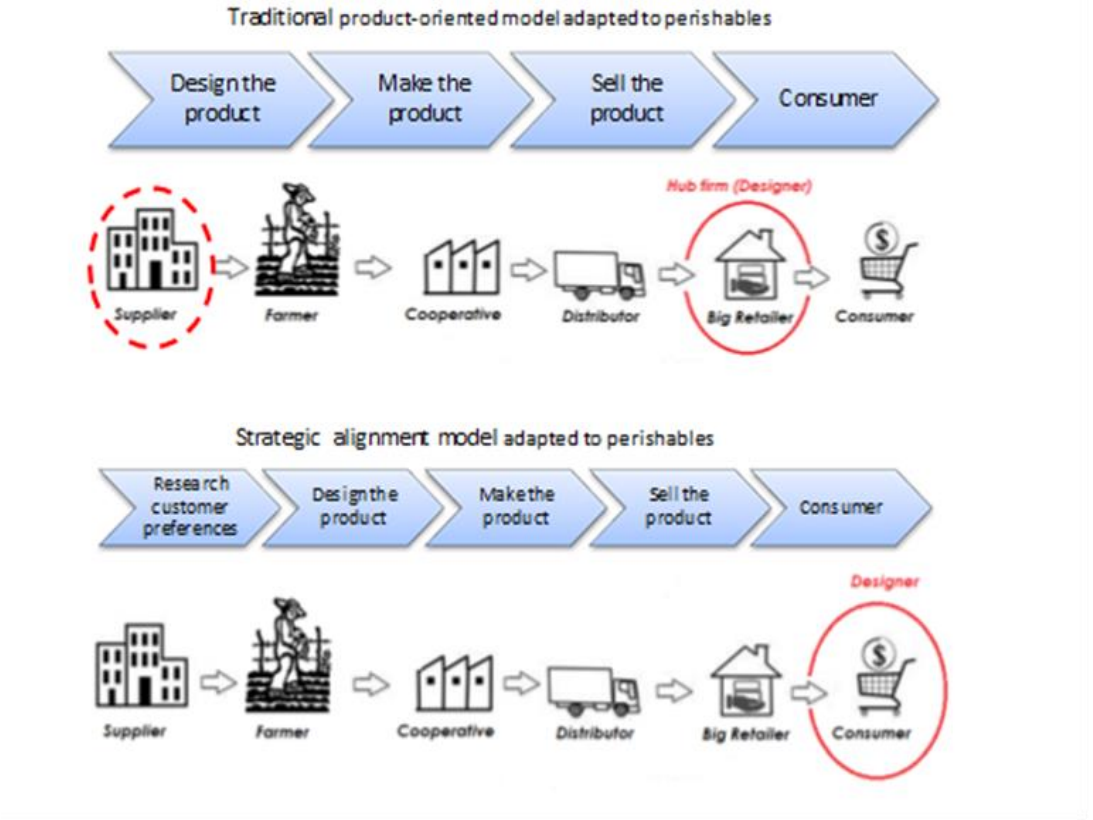
Recent Scientific Results:

The UAL team has focused on:

- **Rural Actors improving their participation in the supply and value chain, whether through closer relationships with their customers, or new technologies**
- **Use of scarce resources, such as water, and sustainabililty issues which affect small, family farmers.**
- **New Cooperative Business Models in IoT and agriculture and the use of such models to equitably share benefits of new technologies used in the rural areas.**
- **Importance of education and training for rural actors and the impact on sustainable practices.**

Jiménez-Guerrero, J.F.; **Perez-Mesa, J.C**; de Burgos-Jiménez, J.; Piedra Muñoz, L. (2017): **Considering the consumer in the design of a supply chain of perishables**. International Food and Agribusiness Management Review, in press;

- One of the most **important factors lacking in rural agriculture areas is the disconnection with the market and the final consumer.** This relationship is traditionally achieved through the intermediary (retailer). This article proposes a **new design of the supply chain for cooperatives in southern Spain that starts from the needs of the consumer and breaks the information asymmetry between production and consumption**.



Giagnocavo C, Bienvenido F, Li M, Zhao Y R, Sanchez-Molina J A, Yang X T. **Agricultural cooperatives and the role of organisational models in new intelligent traceability systems and big data analysis.** Int J Agric & Biol Eng, 2017; 10(5): 115–125.

- Currently, the appearance of **new technologies such as IoT and Big Data Analysis leads to a new generation of more functional, but complex, traceability and supply chain systems**. Organisational models based on cooperation of **multiple small/medium size agents, for example of small/family farming cooperatives**, play an important role in high standard agricultural production and commercialization processes. These function as both **social and economic networks, with high social and economic impact in the rural areas.**
- As an example, the actual traceability systems in the Almeria model were studied, taking account of the different networked agents and their interrelation. This study includes two main parts: a) analysis of the **net-chains that constitute the food supply chains and their different relationships**, and b) actual traceability. The next step studied how the **net-chain model, including many diverse agents, may be applied to develop a new generation of supply chain and traceability systems based of IoT and Big Data**.

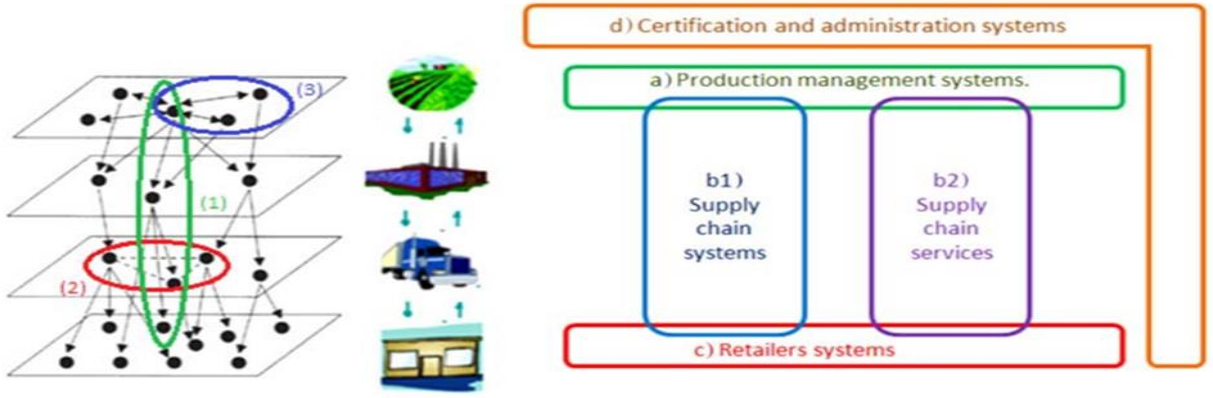
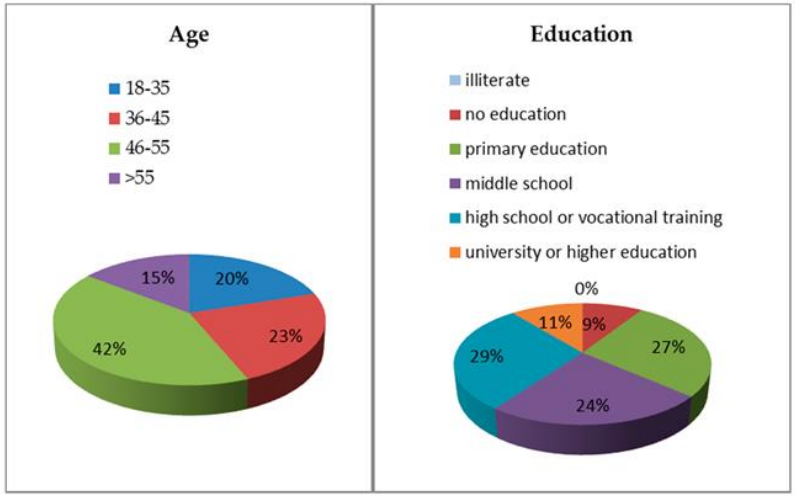


Figure 6 Traceability information systems in a complex Almeria type net-chain organisation

Piedra-Muñoz, L.; Godoy-Durán, Á.; **Giagnocavo, C.**
How to Improve Water Usage Efficiency? Characterization of Family Farms in A Semi-Arid Area.
Water 2017, 9, 785

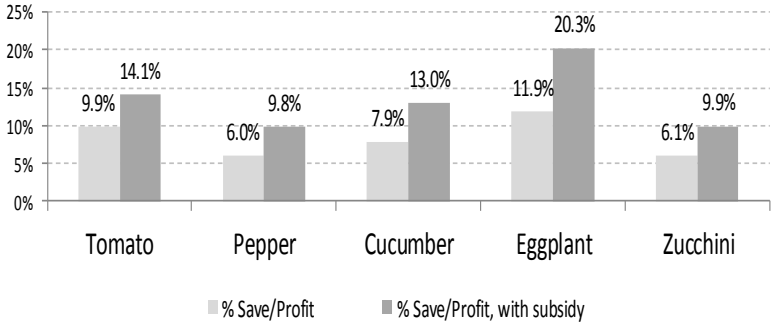


Water scarcity in Spain is partly due to poor management of this resource in the agricultural sector. The main aim of this study is to present the major factors related to water usage efficiency in farming. It focuses on the Almería coast, southeast Spain, which is one of the most arid areas of the country, and in particular, on **family farms as the main direct managers of water use in this zone**. Many of these farms are among the most water efficient in Spanish agriculture but this efficiency is not generalized throughout the sector. This work conducts a comprehensive assessment of water performance in this area, **using on-farm water-use, structural, socio-economic, and environmental information**. The **most water efficient farms are characterized by more educated farmers, a greater degree of innovation, new irrigation technology, and an awareness of water issues and environmental sustainability.** The findings of this study can be extended to farms in similar arid and semi-arid areas and contribute to fostering appropriate policies to improve the efficiency of water usage in the agricultural sector.

Carreño-Ortega, A., **Galdeano-Gómez, E., Pérez-Mesa, J. C.**; Galera-Quiles, M.C.

Policy and Environmental Implications of Photovoltaic Systems in Farming in southeast Spain: Can Greenhouses Reduce the Greenhouse Effect?

Energies 2017, 10, 761



- Solar photovoltaic (PV) systems have grown in popularity in the farming sector, primarily because **land area and farm structures themselves, such as greenhouses, can be exploited for this purpose, and, moreover, because farms tend to be located in rural areas far from energy production plants**. This study proposes the installation of PV systems on greenhouses in southeast Spain, the location with the highest concentration of greenhouses in Europe. Following a sensitivity analysis, it is estimated that the utilization of this technology in the self-consumption scenario at farm level produces increased profitability for farms, which can range from 0.88% (worst scenario) to 52.78% (most favorable scenario**). It would have considerable effects on the regional socioeconomy, with increases in job creation and contribution to gross domestic product (GDP)/R&D (Research and Development),** allowing greater profitability in agrifood activities throughout the entire region.

Subsequent Projects obtained during CBIRD

Internet of Food and Farm IoF2020 https://www.iof2020.eu/

H2020 Large Scale Pilots. Role of UAL: New Business Models in IoT,

Involving family farmers and cooperatives and sharing value

Equitably between rural actors.Leader of Vegetable Trials. (Began 1 January 2017)

NEFERTITI Networking European Farms to Enhance Cross Fertilisation and Innovation Uptake through Demonstration (begins 1 January 2018)

Creating added value from the exchange of knowledge, actors, farmers and technical content over the networks in order to boost innovation uptake, to improve peer to peer learning and network connectivity between farms actors across Europe, thus contributing to a more competitive, sustainable and climate-smart agriculture