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TECHONEY

Development of a **blockchain-based ecosystem** that allows an **improved positioning of small producers of honey** on local and international markets

Christoph Stahl (LIST) - Research in Food Safety Conference 2022

1 Objectives

2 Living Lab participation

3 Work Packages and activities

FOOD FRAUD WITH HONEY PRODUCTS

TECHONEY

- Food fraud with adulterated honey of low quality is a serious problem for beekeepers, since they have to sell their authentic products for lower prices.
  - For consumers it is difficult to recognize fraud with honey.
- We aim to develop an ICT solution to
  - certify and trace authentic honey products along the supply chain
  - protect quality labels in local and international markets.

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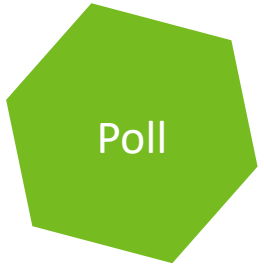

ICT SYSTEMS FOR HONEY TRACEABILITY

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- Recently, blockchain-based food production system have been proposed to offer transparency, traceability, trust and lower level of fraud.
- Deploying such a blockchain system is still at an early stage and facing two main challenges:
  - Data privacy of stakeholders in the supply chain
  - Scalability due to the increasing number of peers, transactions and channels in blockchain
- We will investigate how to increase trust among honey supply chain parties.

HONEY INNOVATION AND LEARNING COMMUNITY

Multi-stakeholder approach

- STAKEHOLDERS representing the honey supply chains will be invited for setting up **Living Labs** in six countries.
  - Represent 4 dimensions of a Quadruple helix innovation system (government, citizens, academia, industry)
- Once per year the stakeholders will be invited to a session.
- Further methods include deep interviews, online surveys, and questionnaires.

LUXEMBOURG LIVING LAB

We are looking for

- Beekeepers and associations
- Researcher (apiculture, digital supply chains)
- Authorities and experts in **food-quality and -safety**
- Retailer
- Restaurants / HORECA
- Industries

WP2 HONEY CHARACTERISATION

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- TECHONEY performs a full physical, chemical and sensory characterization of honey sampled from five participating countries in terms of contaminants and microbiological quality.
  - Safety, Microbiological quality, and sensory evaluation of sampled honey from different locations in Spain, Italy, Turkey, Tunisia, Morocco
  - Proline, Sugar Composition, Moisture, Conductivity, Acidity, Diastase, HMF, Pollen, Heavy metal, Pesticide analyzes will be done.

WP3 CONSUMER BEHAVIOR AND STAKEHOLDERS' ACCEPTANCE

Activities planned until Q2 2023

- Review of public policies
- Meta-analysis: consumer´s risk perception towards fraud
- Literature review about consumers', beekeepers' and retailers' attitudes and acceptance for traceability system, e-commerce, and digitalization tools

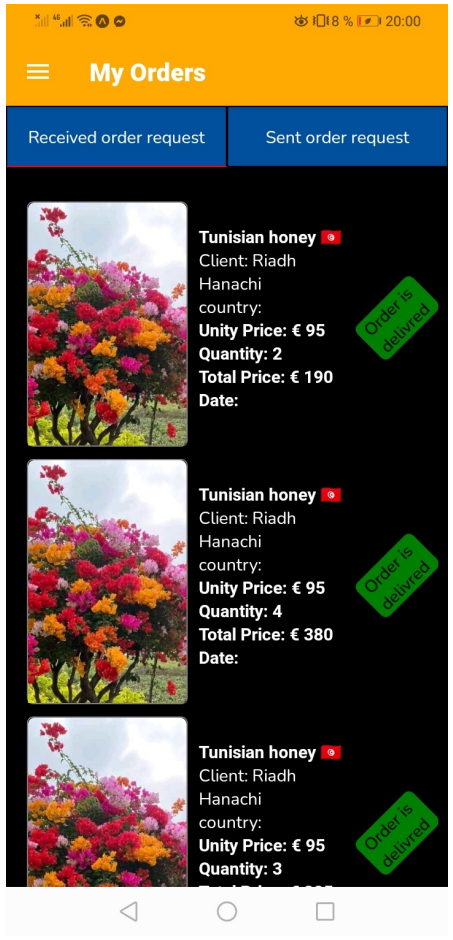
WP4 BLOCKCHAIN

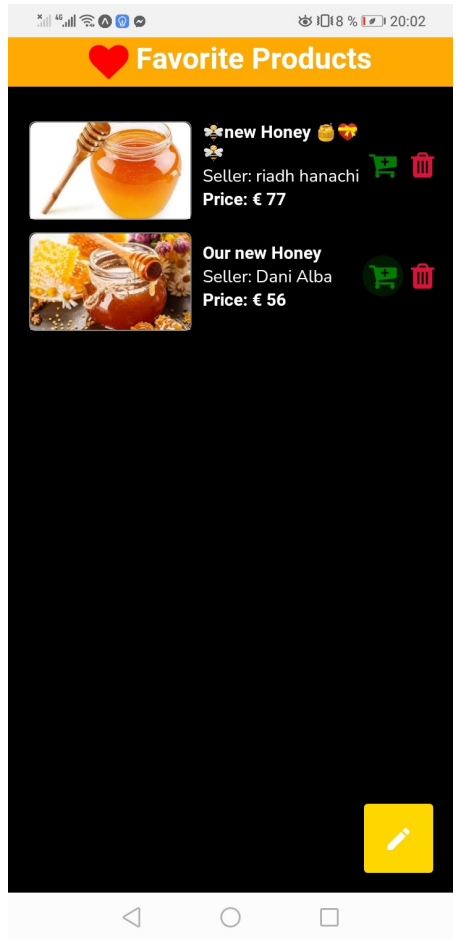
Current activities

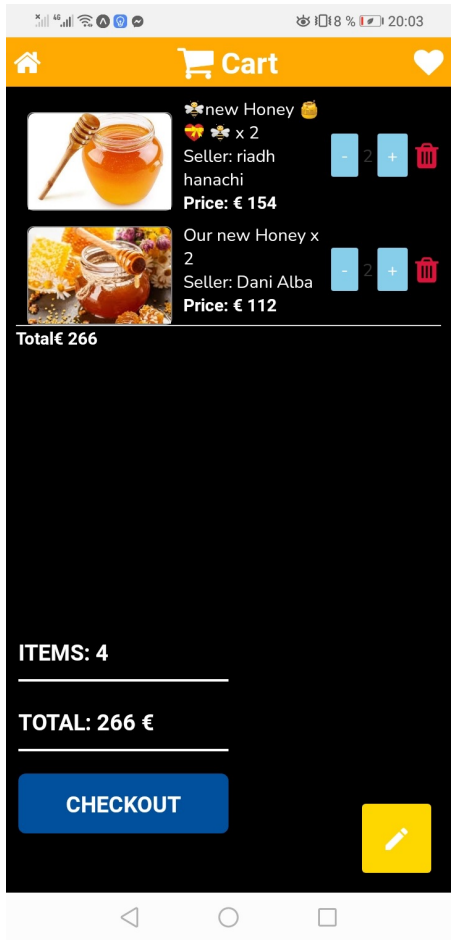
- Survey on agri-food supply chains using blockchain technology in real world or in research
  - Study the specifications and evaluate the performance
    - ✓ Type of the managed goods
    - ✓ Identification of the goods
    - ✓ Supply chain and the involved stakeholder
    - ✓ Goal of the solution
    - ✓ Idea to reach the goal
    - ✓ Use of blockchain
    - ✓ On-chain/off-chain storage of data
    - ✓ Use of smart contracts

WP4 BLOCKCHAIN

Designing a digital market place







WP5 OPTIMIZED AND SUSTAINABLE BUSINESS MODELS

TECHONEY

- Market studies and marketing strategies.
- Definition of marketing strategies to scale up the case studies
- Business and policy recommendations

THANK YOU

Please contact me to join our Living Lab as expert

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