PROGRESS REPORT (January 2020)

WP2: Implementation of innovations in food traceability

BACKGROUND

The overall objective of WP2 is to address the concern that, in traditional traceability solutions, there is little that connects the physical reality of the food or drink products, and the digital record in the system. Whether this is through process failures or malicious intention, the result is the same – there is a perceived lack of trust in the underlying supply chain.

WP2 is investigating the use of innovative techniques and technologies to test the veracity of traceability solutions. These various approaches include the use of a blockchain network as well as a system to detect inconsistencies through supply chain mapping and analysis.

OBJECTIVES

- **Development of digitised DNA technology system for traceability:** The aim is the development of a cutting edge, digital DNA system for traceability. With traditional traceability tools proving to be cumbersome and no longer fit for purpose in many instances, this project seeks to demonstrate the effectiveness of the use of new technology, including blockchain, along with cost effective DNA techniques, in the advancement of the state of the art.
- **Development of risk-based traceability management tools:** WP2 aims to assess the requirements for, and develop, and early warning system for wine and pork supply chains. Task seeks to identify key points of risk and provide tools to warn when risks develop and mechanisms to maintain the integrity of the mapped chains.
- **Development of Pro-active Traceability Alerting tools:** WP2 is a direct extension of the work done during the development of the blockchain traceability solution in 2.1 It will provide an alerts and notification system that surfaces events that don't comply with the established ruleset of the mapped supply chain.
- **Value chain mapping and analysis for wine chains:**
  (i) Evaluation of data quality for wine chains: Tasks approach the issue of the disconnection between physical product and digital data using a method based on detecting inconsistencies in recorded claims by undertaking value chain mapping and analysis.
  (ii) Specification of an alert system to guide further checks and analysis for wine chains: WP2 focusses on the identification of risks leading to opportunities for fraud in wine supply chains. It will provide for a specification against which alerting systems can set their metrics including identification and categorisation of risk factors, as well as recommendations for mitigation steps to reduce them.

PROGRESS ACHIEVED SO FAR

- **Development of digitised DNA technology system for traceability:** This work how now been completed. The pigs were tracked from parent DNA through to delivery in China. We had to adjust our original plan of having the DNA sampled in China due to lab incopatability issues, however, samples were taken by CAIQ and tested at an alternate lab site to confirm end-to-end traceability.
- **Development of risk-based traceability management tools:** Risk Trace software solution is nearing completion having delivered a successful demo at the end of last year.
- **Development of Pro-active Traceability Alerting tools:** Alerting tools are near complete based upon a real dataset gathered in the DNA traceability system. An email notification system has been brought in to enable live updates to a curated list of addresses.
- **Value chain mapping and analysis for wine chains:**
  (i) Evaluation of data quality for wine chains: Report on "Mapping the local-global wine chain from Europe to China" have been delivered. The main purpose was to identify and highlight points of weakness in the wine supply chain. The report contains trends and figures of the wine market in China and in Europe. Various actors and stakeholders have been interviewed and both social and economic perspectives have been studied.

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(ii) Specification of an alert system to guide further checks and analysis for wine chains: Literature and legal sources have been collected and reviewed. The outline for the task has been slightly adjusted based on the outcomes of the work done in (i) above which has consequently delayed the delivery of this task, however, it's on track for delivery by the end of this quarter.

SUCCESS STORY COMING SOON

We continue to explore viable markets for our food traceability solution with some commercial success in providing operational tracking and management in the beverages sector, notably for Scotch Whisky and some global wine products. Interested has also been shown in a variety of non-drinks sectors such as honey products (which have a significant fraud issue similar to pork going into China), Olive Oil, and CBD. Interest in the tool has also come from outside the food and drink sector entirely from areas as wide as car manufacture and forestry.

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