REAMIT Networking Symposium

9th January 2020
Crowne Plaza Nottingham, UK

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Introduction to the REAMIT Project
and the Symposium

REAMIT stands for:

Improving **R**esources **E**fficiency of **A**gribusiness supply chains by **M**inimizing waste using **I**nternet of **T**hings sensors

Follow us on Facebook, Twitter, Instagram & Linkedin for regular updates:
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Housekeeping and Reminders

- No scheduled fire alarms

- Fire assembly point

- Toilets

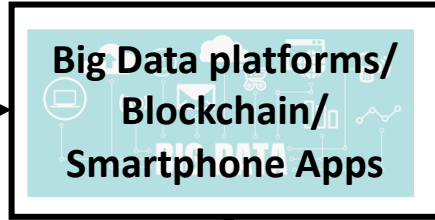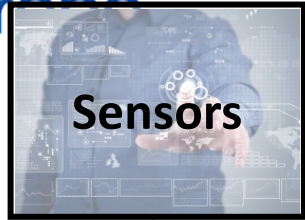- Remember to return the name badges for recycling/reuse

- Food waste is a global problem and is particularly high in the developed world (North West Europe)
  - 88M tons or € 143B wasted per year
  - 35% of food waste in EU-28 has occurred in agri-supply chains
- We focus on fresh food (fruits, vegetables, fish, meat)
- To demonstrate the power of IoT sensors and Big Data technologies in improving resource efficiency of agri supply chains.
  - To deploy IoT sensors for reducing waste and hence improving resource efficiency of the agribusiness supply chains (dairy products/meat/fish) until food is finally consumed.
  - To collect the data in the cloud and conduct big data analytics to identify sources and patterns of food waste with a view to tacking them.

- Reduce waste of fresh food in agri-supply chains of North West Europe by at least 10%
  - Save 1.8 Mt of food waste or €3B per year
  - Avoid 5.5 Mt/yr of CO_2 emissions
- Any reduction in food waste will increase productivity.
  - Due to the amount of resources (water, nutrients, fertilisers, etc.), food waste saved is much more than the value of waste and can have significant social and environmental benefits.
  - Link to CO_2 emissions above

REAMIT – Approach

Fresh Food in the supply chain → **Food on the move (trucks/trains/warehouse)** → **Intended customer**

Interreg North-West Europe
EUROPEAN UNION
REAMIT
European Regional Development Fund

Fresh Food in the supply chain

Sensors

Big Data platforms/ Blockchain/ Smartphone Apps

Nearest customer

Food on the move (trucks/trains/warehouse)

Intended customer

- Sensors will monitor and record food quality along the supply chain
  - Traditional temperature/humidity/etc.
  - Raman Spectroscopy
  - 3D Fluorescence
- Waste reduction is achieved by supporting owners of food at risk using :
  - Big Data Analytics
  - Artificial Intelligence
  - Decision Support Systems.

REAMIT – Approach

- Big Data Analytics
  - Identify patterns of food waste in NWE for supporting suitable policy actions
  - Identify "food at risk"

- Artificial Intelligence and Decision support systems
  - Decision support to food owners for making rapid decisions to save food including redistribution to nearby consumption points (local stores and food charities).
  - Optimisation of food delivery points based on real time food quality monitoring
  - Increased food shelf life using real time cold chain monitoring.

- Food owners, truck drivers and warehouse managers will be connected using a dedicated Smartphone APP.

REAMIT – Partners

- 11 Project Partners and 5 Associate Partners across North West Europe
  - 6 Universities
  - 4 SMEs working in sensors, big data, blockchain and analytics
  - 1 large logistics company to act as a user
- More end-users will be recruited using an open call
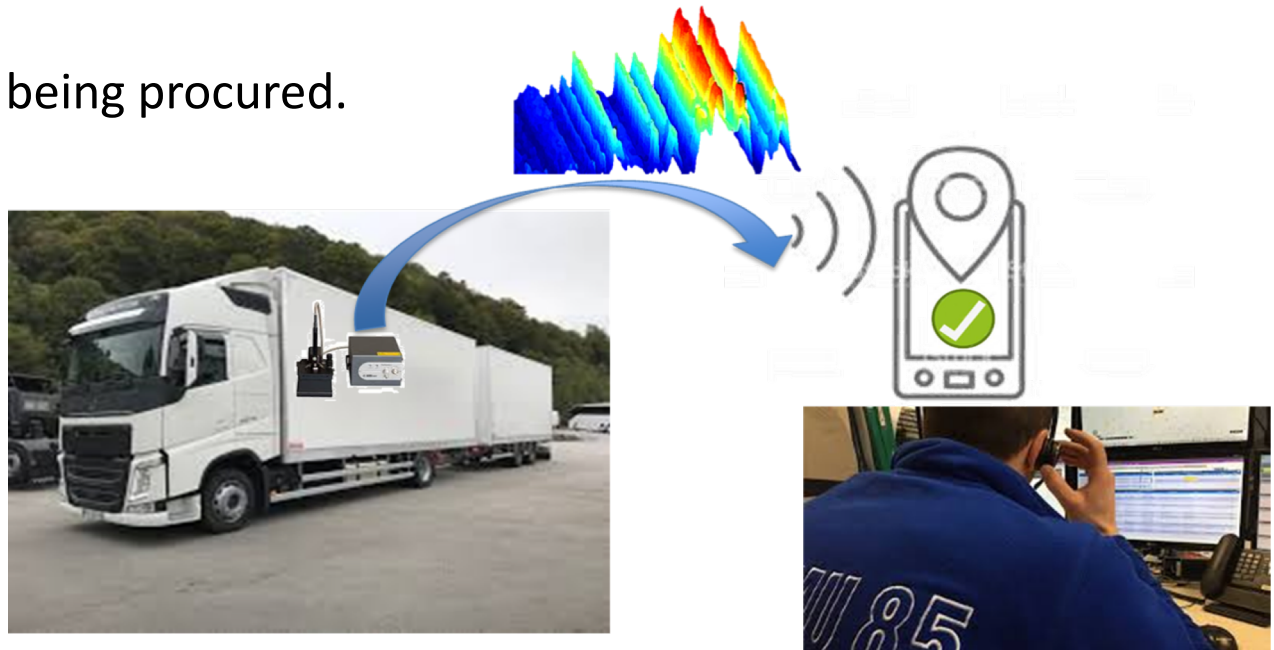
**REAMIT –
Work Packages**

WP T1: Adapting and pilot testing sensor technologies in agri-food supply chains

WP T2: Big Data integration and applications to reduce food wastage.

WP T3: Business development of REAMIT technologies

WP LT: Long Term Activities

WP M: Project Management

WP C: Communication

REAMIT – Progress so far

- Project personnel have been appointed and some more are being recruited

- Technology demonstration pilots are in various stages of operation.
  - Dungannon, Northern Ireland
  - The Netherlands
  - Germany
  - France

- They use traditional as well as Raman spectroscopy sensors.

![Interreg North-West Europe — European Union, European Regional Development Fund. REAMIT.]

REAMIT – Progress so far

- A review of appropriate sensors for use with specific fruits/vegetables/meat/fish in trucks/warehouses is being carried out.

- A framework for measuring waste and avoided carbon emissions is being developed.

- A Big Data system is being procured.

The REAMIT Symposium

- An Activity under WP LT – Long Term work package.

- First of the three REAMIT Networking events.
  - Next Symposium will be held in France in December 2020
  - Last one will be held in Dublin in December 2021

- Objectives :
  - To roll out the REAMIT technologies so they can be used in other companies
  - To roll out the approach of REAMIT to other sectors
  - To further develop the network of partners to ensure continued synergy and joint working
  - To continue to develop the technology mix to ensure its ongoing currency

Programme

09:30 - 10:00	Registration & Coffee
10:00 - 10:05	Welcome by Prof. Usha Ramanathan NTU
10:05 - 10:20	Presentation on Interreg North West Europe Programme 2014 - 2020 and its projects by Gerry Bradley
10:20 - 10:45	Introduction to the REAMIT Project and the Symposium by Prof. Ram Ramanathan & Katarzyna Pelc
10:45 - 11:45	Presentations by REAMIT partners • Valorial, France - Making the agri-food sector of western France, the home of smarter food • Ulster University, Northern Ireland- Environmental sensors as an indicator of meat quality in cattle: A pilot study • Levstone, UK - Future Trends: Express Parcel Super Hubs • University of Nantes, France - Evaluation of the impact of bad storage (temperature) on the chicken meat quality by Raman Spectroscopy
11.45 - 12:10	Tackling supply chain food waste by Harriet Illman - Senior Sustainable Food Consultant, ADAS, UK
12:10 - 12:30	How IQRF wireless mesh network can help with waste management by Simon Chudoba of the IQRF Alliance, UK
12:30 - 13:30	Lunch & Exhibition

13:30 - 13:40	Welcome note and Introduction to Nottingham Business School by Prof. Alistair Bruce, Nottingham Trent University, UK
13:40 - 14:05	Quality control of fresh agro products with gas sensing technologies by Dr. Frans Harren, Radboud University, Netherlands
14:05 - 14:30	Motivation and achievements of the FoodHeroes project by Dr Chris Bishop- University of Lincoln, UK
14:30 - 14:50	Sustainable Agriculture through Innovative Vertical Farming by Prof Chungui Lu, Nottingham Trent University
14:50 - 15:20	Coffee and Exhibition
15:20 - 16:20	Presentations by more REAMIT partners • University of Bedfordshire, UK - Big Data and IoT research activities in Aquaculture • University College Dublin, Ireland - Life cycle assessment and the contribution of valorization to the sustainability of the food system • SenX, France - Time Series, the future of data in agrifood industry • Nottingham Trent University, UK - Can technology help building trusted relationships in agri-businesses?: A case study
16:20 - 16:30	Q&A
16:30 - 17:00	Q&A, Networking, exhibition and refreshments

Related Research Activities at the University of Bedfordshire

- **Big Data/IoT and Interreg NWE**

  - **TAF (UK-Institutional Fund, 2018-2020) -** Implementing technology solution for sustainable development of artisanal fisheries in Santa Catarina, C.£100K

  - **ADPAC (Innovate UK/BBSRC, 2019-2022) -** AQUACULTURE 4.0 - Advancing Digital Precision Aquaculture in China, £1.5 million

  - **RIVER (Interreg NW Europe, 2017-2020) -** Non-Carbon River Boat Powered by Combustion Engines, €3.2 million

- **Some more projects**

  - **CC INFINITE (Erasmus+, 2018-2022) -** Computing Competences. Innovative learning approach for non-IT students, €249K

  - **CCE (British Council Creative Spark, 2018-2020) -** Creating Creative Entrepreneurs, £80k.

  - **Gamification (Office for Students, 2019-2020) -** A gamification-informed approach to developing knowledge and professional practice, £32K

  - **LAND-MOBILITY (Erasmus +, 2019-2021)-** Innovative and digital training materials to foster land mobility initiatives, €280k