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

# REAMIT Project kick-off meeting

## 16 May 2019

## University of Bedfordshire, Luton

Professor Ram Ramanathan
University of Bedfordshire Business School, UK
E: ram.ramanathan@beds.ac.uk

# Housekeeping and Reminders

- Please handover original of the signed PA from your office to Ram

  – Not yet received from Levstone, SenX, Ulster University and Dunbia (NI)

- Please collect the original letter of project approval from Ram

- Remember to return the name badges for recycling/reuse

# REAMIT – The Challenge

- 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.
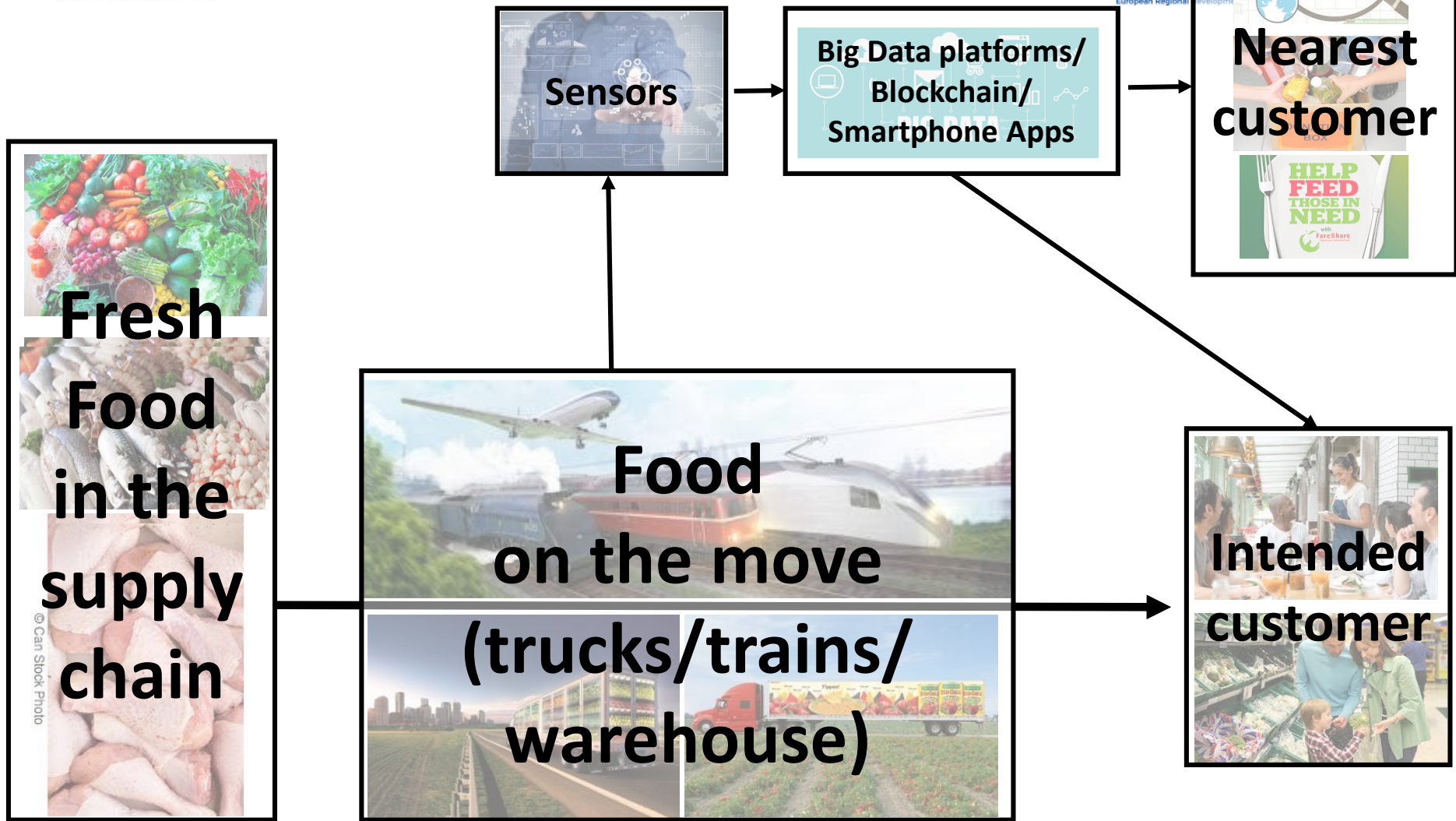
# Introduction to REAMIT – The Objectives

- 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**

# REAMIT – Approach

Fresh Food in the supply chain

Food on the move (trucks/trains/warehouse)

Sensors

Big Data platforms/ Blockchain/ Smartphone Apps

Nearest customer

Intended customer

# REAMIT – Approach

- 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 more Associate Partners across North West Europe

  – 6 Universities

  – 4SMEs 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

# **Introduction of project members**

- What do you bring to the consortium?

- What project activities have you already started?

- Your immediate activities in the next 6 months of the project.

(Only 3-4 minutes or 2-3 slides each please)

# *What do we bring ?*

- WP T1 Leader (**Adapting and pilot testing sensor technologies in agri-food supply chains**)

- Partners involved :

| Partner responsible | Images & Réseaux |
|---|---|
| Partners involved | University of Bedfordshire, BED. Role: LP |
| | Images & Réseaux, I&R. Role: PP |
| | National University of Ireland, Dublin, University College Dublin, UCD. Role:   PP |
| | University of Nantes, UoN. Role:  PP |
| | Levstone Ltd., Levstone. Role:  PP |
| | Nottingham Trent University, NTU. Role:  PP |
| | Whysor, Whysor. Role: PP |
| | Institute of Technology in Tralee, ITT. Role:  PP |
| | SenX, SenX. Role: PP |
| | Ulster University, UU. Role: PP |
| | Dunbia (Northern Ireland), DNI. Role: PP |

- Identify and find end users with our sub-partner Valorial

# *Activities already started*

- OPEN CALL preparation :

    – Open challenge text to be published on our website : 1st draft available

    – Expression of interest template (template to be filled by the applicant) : 1st draft available

    – Information guide for the applicant : 1st draft available

# *Activities in the next 6 months*

- Publish the OPEN CALL
  - End of MAY-2019
  - 4 companies (minimum) recruited through the Open Call
- Synthesis on sensors and big data integration
  - Workshop on sensors & big data : ~~Jun-2019~~ => Sept-2019 linked with the 1st RSC meeting
  - Test roadmap publication (output of the workshop): ~~Sept-2019~~ => Dec-2019

## N°1 *network*

devoted to agri-food innovation through a collaborative approach

## 2006

Launch of the competitiveness cluster

## *Our core mission*

To identify, set up and support collaborative and innovative R&D projects

## 1 team of facilitators
*who know their onions*

See pages 6 & 7

## An *extensive* work programme

Valorial®

**325 members** including 2/3 in industry

*representing*

**more than 600 organisations**

over **€3 billion** expected additional cumulative turnover*

*for projects approved since 2014

over **3,000 contacts & potential partners**

*Since 2006*

**404 innovative collaborative projects approved**

**€675 M invested in R&D**

**880 industry partners & researchers involved in projects**

**86 % industrial projects funded**

**194 projects completed**

over **1,300 new jobs expected***

Way to go!

*Key figures*

pole-valorial.fr

**30,000 visitors/year**

**100,000 pages viewed/year**

*At the heart of Europe's* N° **1** *agri-food region*

@Pole_Valorial

over **2,500 followers**

more than **1,850 tweets**

**Live***

*Newsletter* over **6,000 subscribers**

*Press coverage* over **500 mentions/year**

**in** 1 *LinkedIn* page

**Valorial**

**Water, Soil, Climat**

integrated approach to the preservation of terroirs

**sustainable plant and animal production**

new inputs, agro-ecological approach

**operational excellence of farms and factories**

deployment of new technologies

**full valorization of biomass**

potentiate co-products

**food offer to eat better**

healthy, safe and sustainable food

**innovative use and food service**

create value beyond the product

○ Food Quality & Safety

○ Production, processing & conservation technologies

○ Food - Nutrition - Health

○ Agri & Agri-Food Marketing

○ Functional ingredients

Valorial

What Valorial does in Reamit Project?

# Valorial project activity

→ **Subpartner of PP Images & Réseaux**

→ **Business support partner**

1 → As a business support partner : help Images & Réseaux to find some end-users

2 → Organize a network event (oct. or nov 2020)

Valorial

Régis DEL FRATE

Project manager

+33 (0)6 48 80 15 13

regis.delfrate@pole-valorial.fr

@Pole_Valorial

Cluster Management Excellence
BRONZE
STRIVING FOR CLUSTER EXCELLENCE

LES PÔLES DE COMPÉTITIVITÉ

F²Cinnovation

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Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
MINISTÈRE
DE L'AGRICULTURE
DE L'AGROALIMENTAIRE
ET DE LA FORÊT

Région
BRETAGNE

Région
PAYS DE LA LOIRE

RÉGION
NORMANDIE

METROPOLE
Rennes
vivre en intelligence

# Contribution of University College Dublin to the REAMIT Project

**Dr. Fionnuala Murphy**

**Assistant Professor**

**REAMIT UCD Team Lead**

**School of Biosystems & Engineering**

**College of Engineering & Architecture**

**University College Dublin**

**Ireland**

# UCD Life Cycle Assessment

**Embedded emissions in avoidable food waste**
**increase along the supply chain**

Energy
Fertiliser

↑ GHG Emissions

↑ GHG Emissions

↑ GHG Emissions

Fuel

**Fresh Food
in the
supply chain**

**Food
on the move
(trucks/trains/
warehouse)**

**Food
Waste**

© Can Stock Photo

# UCD Life Cycle Assessment

**Sensors** → **Big Data platforms/ Blockchain/ Smartphone Apps** → **Nearest customer**

**Food on the move (trucks/trains/ warehouse)**

✓

X (red) → **Food Waste**

↓ GHG Emissions

**LCA will be used to show the environmental benefits of reducing food waste using REAMIT technologies**

# Activities

- Recruitment of PhD student and Postdoctoral Researcher

- Irish Pilot via Open Call

# UCD Team Contact Details

- Dr Fionnuala Murphy
  - fionnuala.murphy@ucd.ie
  - +353 1 716 7317

- Professor Shane Ward
  - shane.ward@ucd.ie
  - +353 1 716 7364

# UMR GEPEA
# Laboratoire CBAC-TEAM
## Université de Nantes

# REAMIT project
## Luton, 16/05/2019

# One of the leading group in bioprocess ingeneering in France

Photobioreactors

210

Campus de Saint Nazaire

Mines Nantes

ONIRIS Géraudière

IUT Carquefou

IUT La Roche sur Yon

53 - MAYENNE
LAVAL
72 - SARTHE
LE MANS
44 - LOIRE-ATLANTIQUE
SAINTNAZAIRE
NANTES
ANGERS
49 - MAINE-ET-LOIRE
85 - VENDEE
LA ROCHE-SUR-YON

Air depollution

Food processing

**Five locations/ 5 teams**

2

# Control and analysis applied to the environment and food

Research topics:

Chemical risk assessment (detection / biodegradation)

Biological risk assessment

Bioprocess & quality control of food

2000

12 M€
67%
23%

20
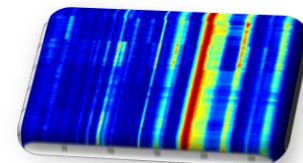
2 PR
2 MC (1HDR)
1 Agrégé
3 IR CDD/CDI
2 Tech CDD
1 Assist dir CDD
4 Doctorants
5 stagiaires

RIMAE

BIOSYS CAPACITÉS

MARs
Méthodes analytiques rapides
en agroalimentaire et en environnement

TRONICO VIGICELL

OUEST VALORISATION
Ressources d'innovation

UNIVERSITÉ DE NANTES

**Finding of contaminants in**

CHEESE
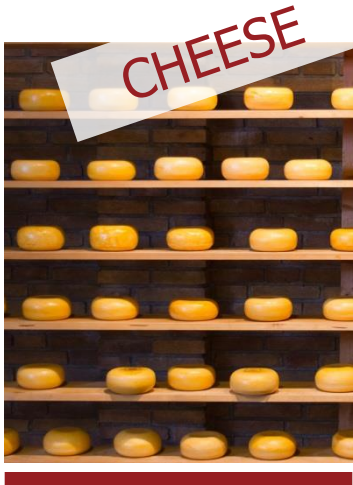
+ other: chicken, dairy products, water, …

**Distribution of lipids/proteins in**

MEAT

+ other: beef meat, bread, honey, …

**Monitoring of bioproduction**
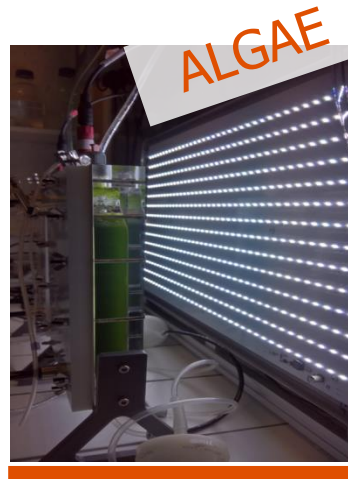
ALGAE

**Sexing of**

EGG
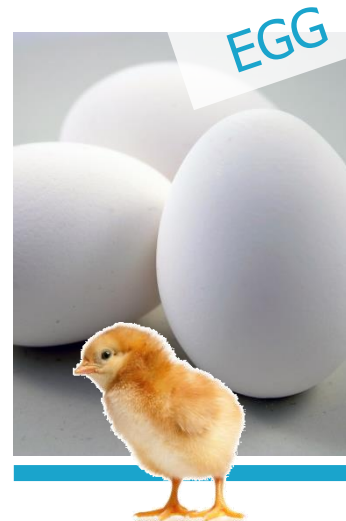
**Understanding the aging process of**

Wine

# REAMIT project

**UoN will perform the following activities in REAMIT:**

(i) Adapt their Raman Spectroscopy technology for monitoring food quality in the supply chain of a suitable French and German agribusiness SME

(ii) and send the sensor data to Big data platforms for further analytics;

(iii) Conduct technology testing and piloting

(iv) Help in project evaluation, technology evaluation, risk assessment, overall assessment, monitoring and dissemination.



Raman spectroscopy used in the GEPEA laboratory for food analysis.



Bruker Senterra



Renishaw RA100



Portable device

5

# People involved in the project

| | | | | Role & responsibilities in the project | H.M |
|---|---|---|---|---|---|
| *GEPEA : Univ. Nantes* | *THOUAND* | *Gérald* | *Pr* | • *Skills in microorganism's biology, and Raman spectroscopy.* | 2,12 |
| *GEPEA : Univ. Nantes* | *ASSAF* | *Ali* | *IR-Dr* | • *Skills in Raman spectroscopy, Fluorescence, IR, Food matrices, and chemometrics.* | 12 |
| *GEPEA : Univ. Nantes* | *JOUANNEAU* | *Sulivan* | *AP* | • *Skills in microorganism's biology, biosensor, CAD (computer aided design)* | 8 |
| *GEPEA : Univ. Nantes* | *LAHMAR* | *Jalil* | *Pr* | • *Skills in Optical instruments and surface treatment* | 5 |
| *GEPEA : Univ. Nantes* | *GRANGE* | *Emilie* | *AI* | • *Skills in Raman spectroscopy, Fluorescence and Food analysis* | 30 |
| *Pr=professor, IR=research engineer, AP=associate professor, AI=Assistant engineer* | | | | | |

6

Merci pour votre attention

# Some major programms
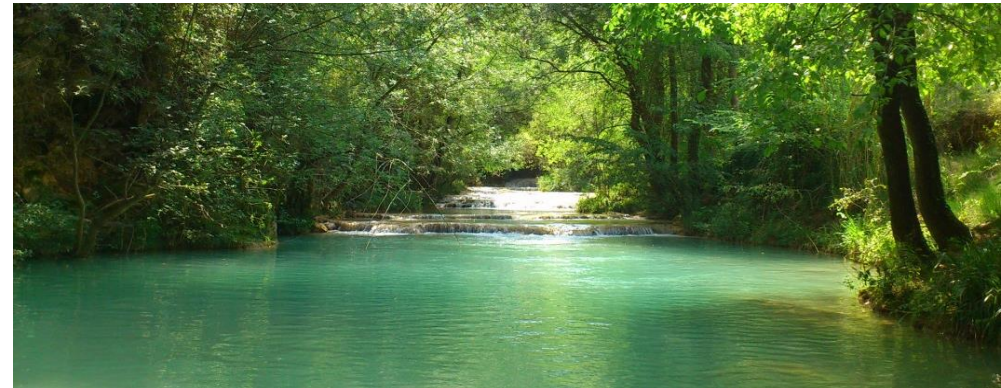




AGRIFOOD GPS    AGRIMER SOO    EVABIONORM    RIMAE    NanoPlastics



8 partenaires

UNIVERSITÉ DE NANTES
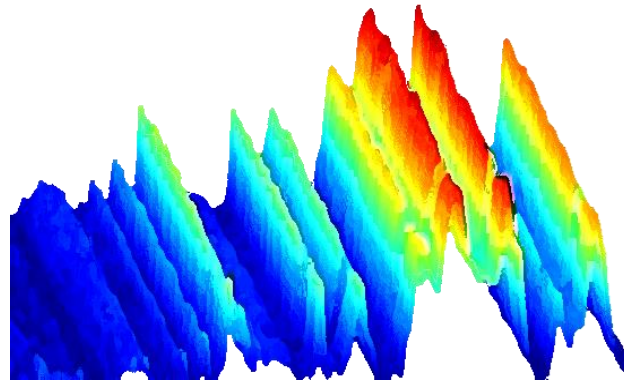
# PRINCIPLE OF RAMAN SPECTROSCOPY

Raman scattering (1/10$^9$ photons)



Example of Raman spectra

$\lambda$ (Laser radiation)
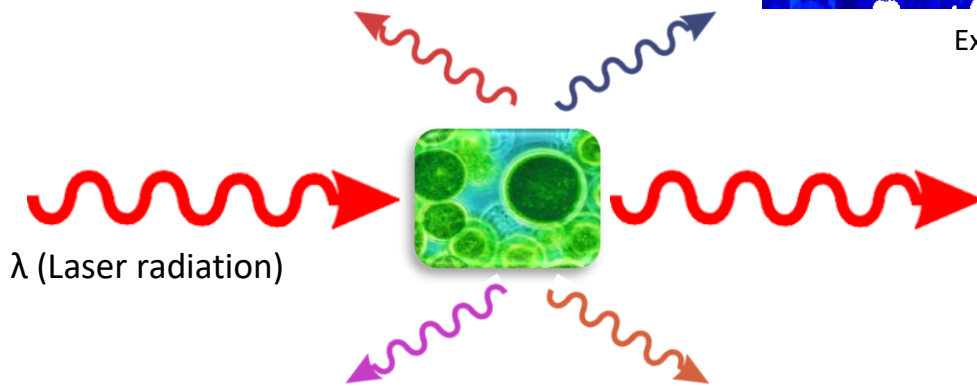
+ other emissions
(Fluorescence, phosphorescence, ….)



Virtual
energy
states

Vibrational
energy states

4
3
2
1
0

Infrared
absorption

Rayleigh
scattering

Stokes
Raman
scattering

Anti-Stokes
Raman
scattering
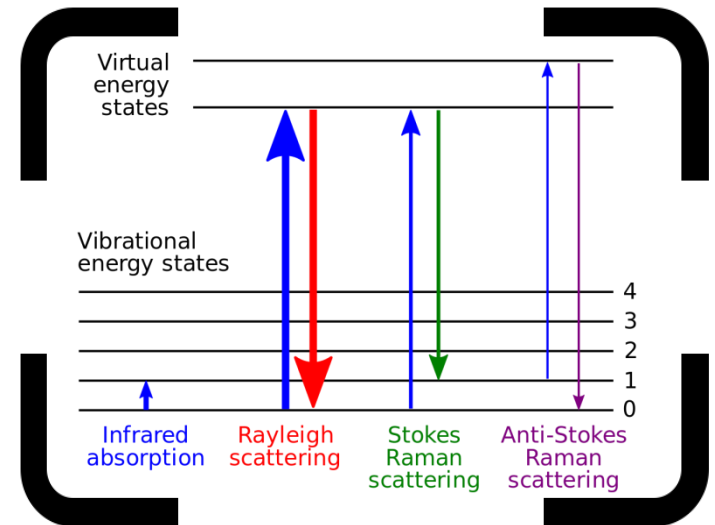
# PRINCIPLE OF RAMAN SPECTROSCOPY



Spectral fingerprint of Salmonella
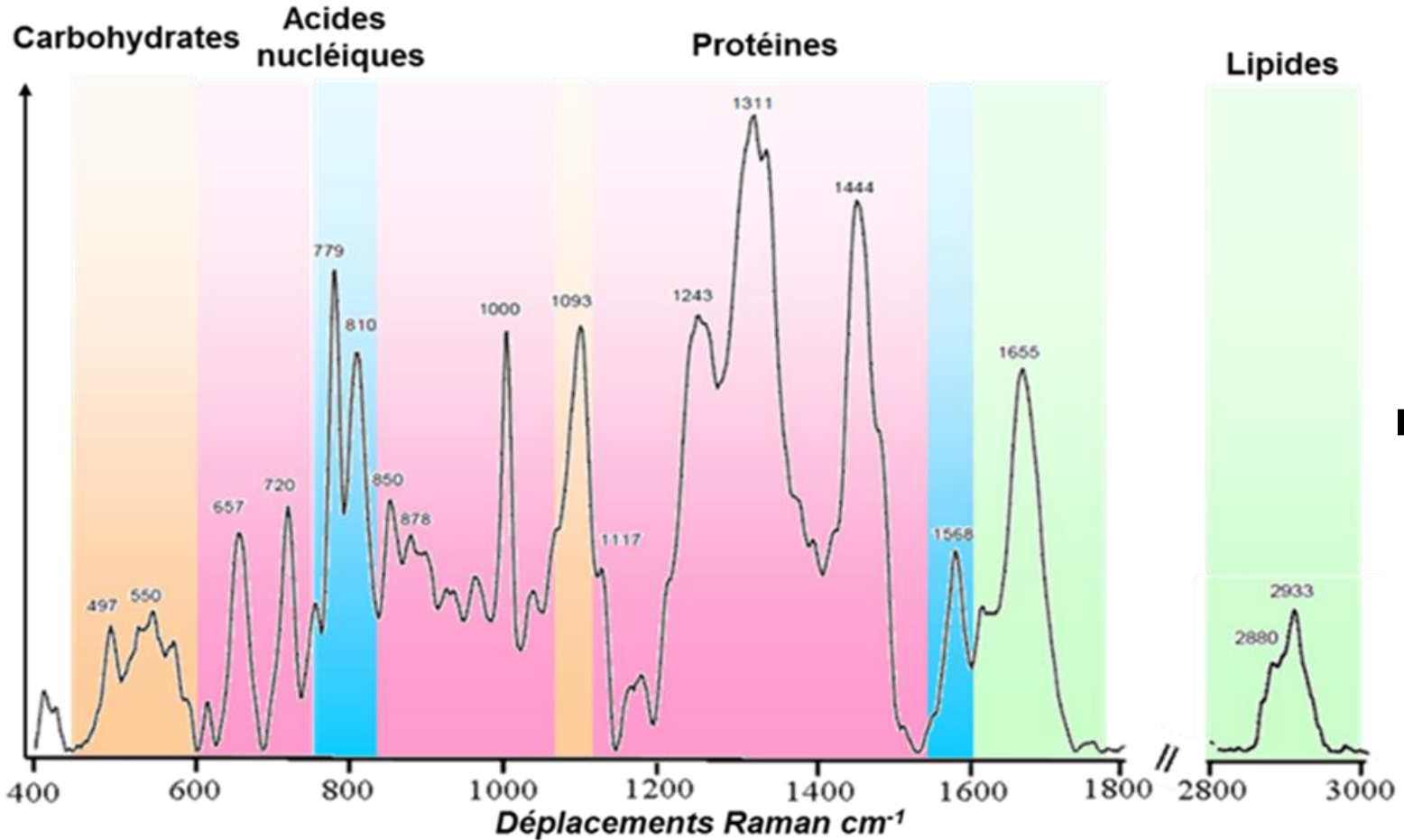
# OUR SOLUTIONS...

- **non invasive** & **non destructive** analysis : no sample preparation required

- A **small amount of sample** is needed (less than 1 mg)

- Analyze very **fast**  (a few seconds)

- Allow **simultaneous** check :
    presence/absence of pathogens
    Distribution of lipids/proteins/carbohydrates

- **3D mapping** useful for macromolecules localization

NON-DESTRUCTIVE ANALYSIS
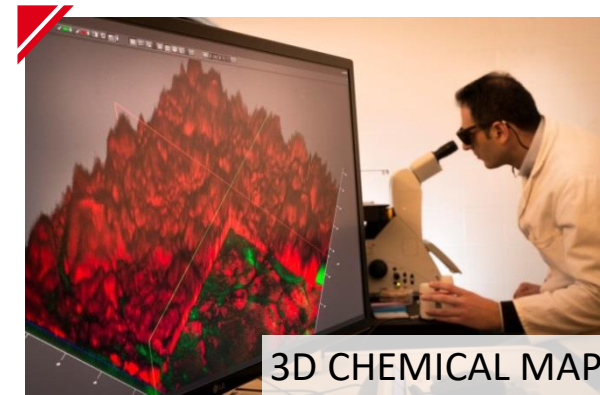
3D CHEMICAL MAPPING

# REAMIT: Project/Data Architecture Fundamentals for scoping



# Industrial solutions Software Engineering / IT

**Simon McGraw (Director)**      **Davinder Bola (Director)**

mcgraw@levstone.com                   dbola@levstone.com

LEVSTONE.com

# REAMIT - Levstone Capabilities

## Technology + Product

- Software developer – industrial interfaces (robust, resilient)
- Mobile app 'framework' - Fast to market. Secure. Resilient. Proven.
- Cloud + Big Data

## Project Expertise

- Project Management + Testing + Commissioning + Training
- User Requirements
- Systems Integration – Data Architecture - Security
- Risk Management

## Market Knowledge

- Transportation + Tracking
- Logistics + Warehouse + Yard (YMS)

LEVSTONE.com

# Project Activities

## WP T1 – IoT Sensor

- System Integration – Sensor Data Architecture*

- Connection (API) – develop sensor interface software

- Mobile app – User Interface*

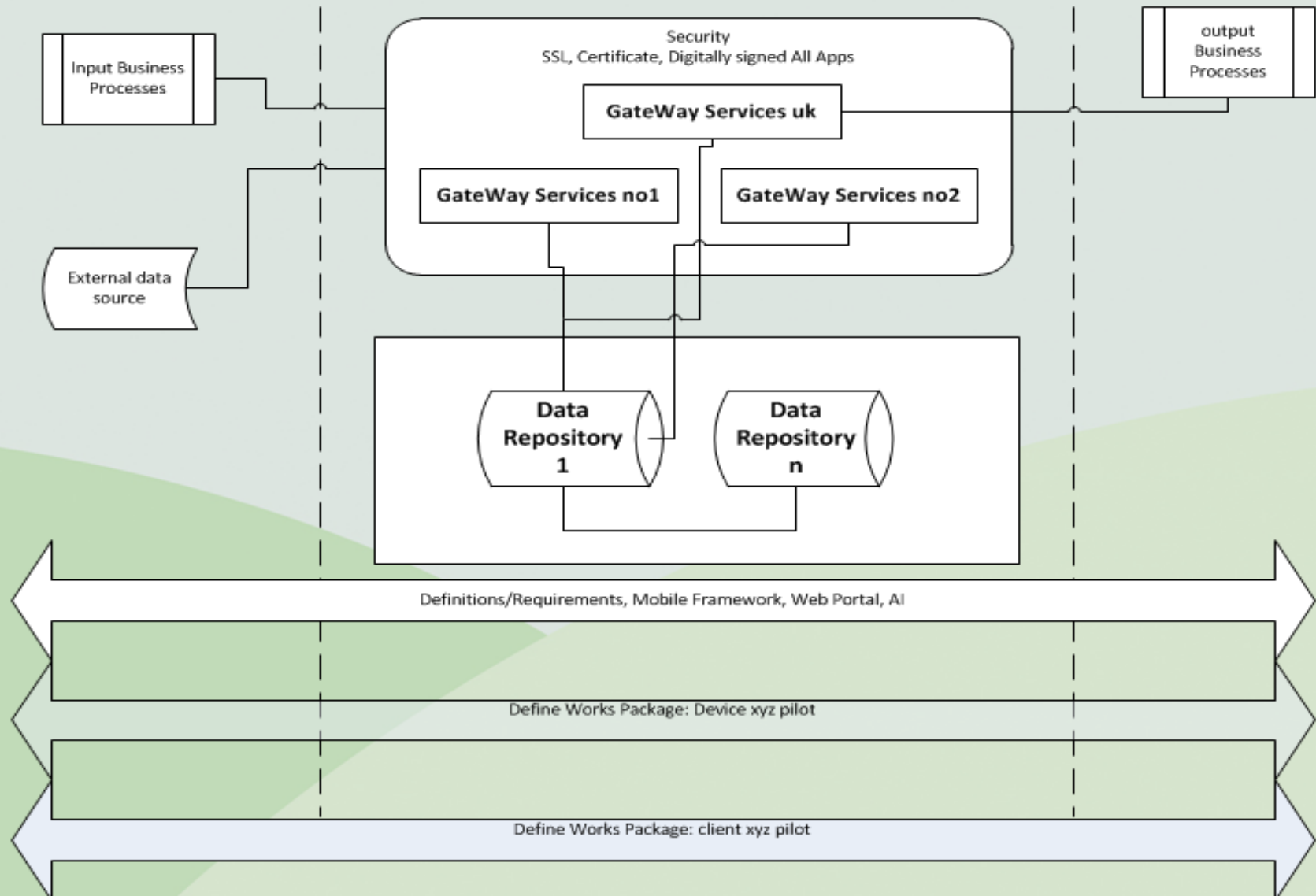- Pilot Testing (end-to-end data flows)

## WP T2 – Big Data

- Data Analysis + AI

- Supply chain – Big Data
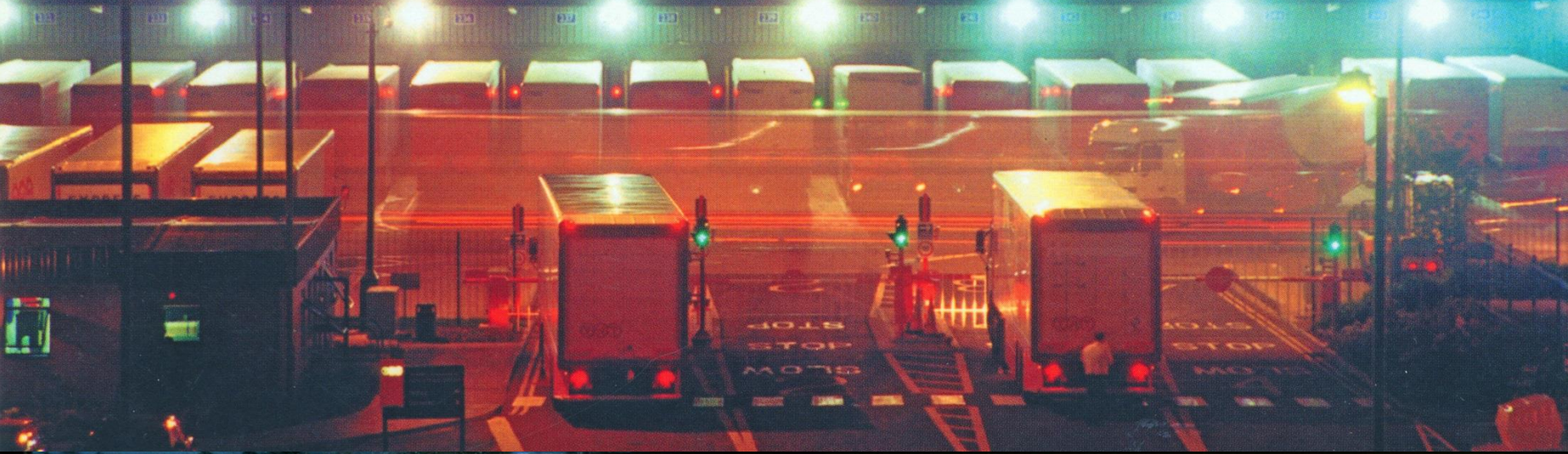
- Mobile App - Supplychain*

## WP

- LT (Long Term), M (Mangement), C (Communication), T3, T4

# REAMIT: ioT Pilot- Architecture Fundamental Components
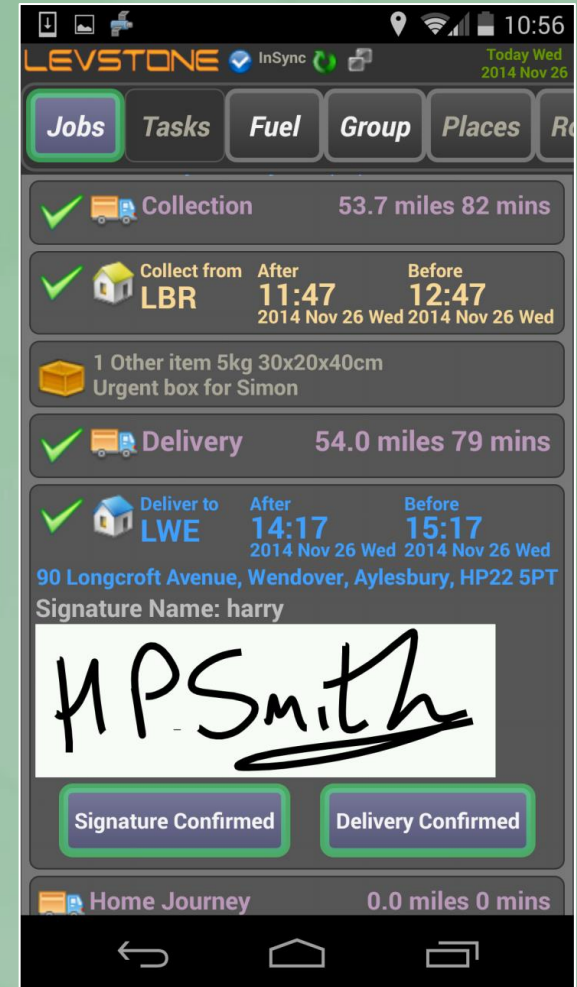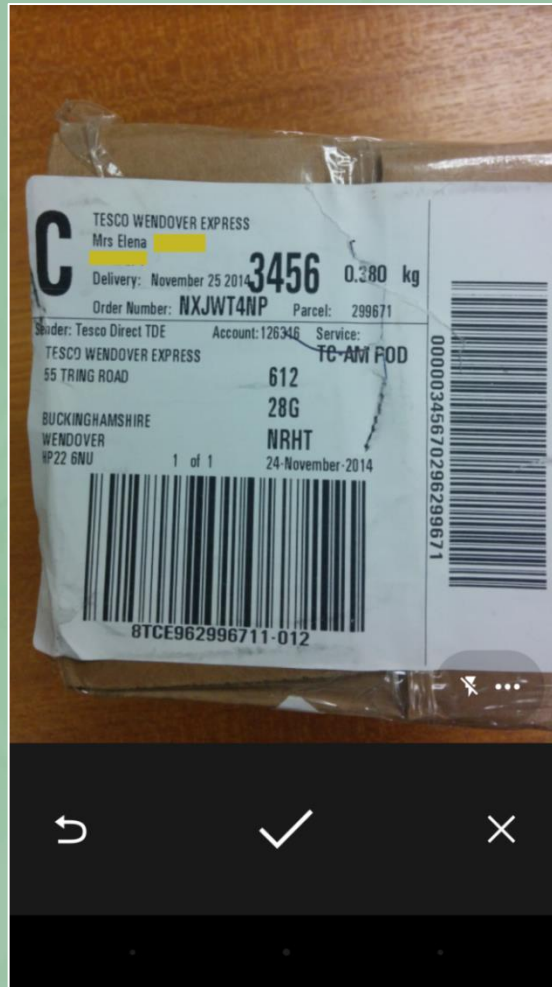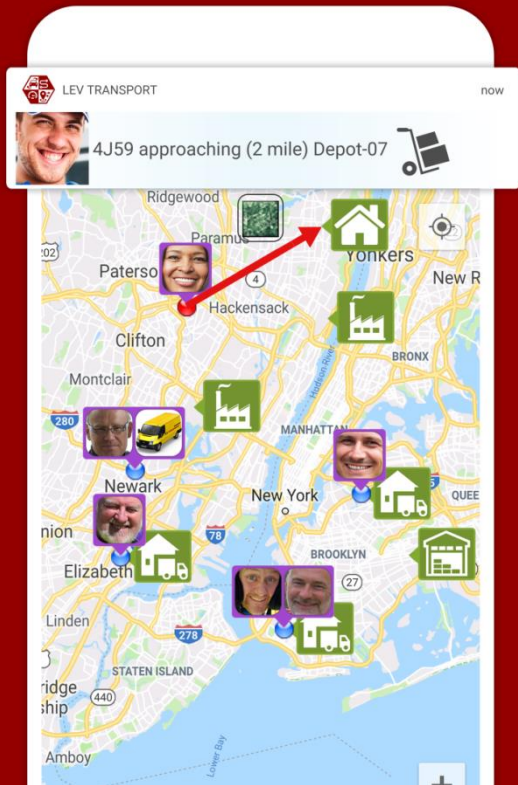


REAMIT: iPo - Input Process Output

Input Business Processes

External data source

Security
SSL, Certificate, Digitally signed All Apps

GateWay Services uk

GateWay Services no1

GateWay Services no2

output Business Processes

Data Repository 1

Data Repository n

Definitions/Requirements, Mobile Framework, Web Portal, AI

Define Works Package: Device xyz pilot

Define Works Package: client xyz pilot

**LEVSTONE software**
**Truck Management**
**Paris, France**

# Transport + Tracking

LEVSTONE's mobile "Framework" software
(i) Truck destination (Go to arrow)  (ii) Camera (proof-of-delivery (iii) Signature capture

LEVSTONE.com

**Levstone's mobile "Framework" software**

LEVSTONE.com

Improving Resources Efficiency of Agribusiness supply chains by Minimizing waste using Internet of Things sensors (REAMIT)

Work Package C – Communication

Dr Usha Ramanathan
Professor of Sustainability and Supply Chains

# Staffs from NTU and main objectives

- Usha Ramanathan – Project Partner

- Communication Manager

**Main objectives of WP-C are to:**

- Influence agribusinesses to decrease amount of food waste in food supply chains by 10% by 2021

- Raise awareness of the potential from combined technologies

- Convince agribusiness users of the value of REAMIT's technologies (aimed at reducing Risk) and increase knowledge

- All partners will be involved in the Communication ..

- **REAMIT communication vision, strategy and story will be developed jointly, led by NTU**.

- The Communications strategy will outline external communication to inform stakeholders

- The target groups are (i) actors in the food supply chain (e.g. food producers, food distribution & logistic companies, retailers and wholesalers), (ii) policy and support agencies (e.g. local authority, business support organisations, policy makers), and (iii) knowledge institutions and technology firms (e.g. laboratories, universities, firms that develop IoT and big data technologies).

# Our role in the project (activities started and on-going)

- Coordinating the process of designing the project's communication strategy in close cooperation with the Project Coordinator/Lead Partner and project partners

- Coordinating the implementation of communication activities

- **Managing REAMIT's web space and social media**

- Liaising with JS on project/programme communication.

- Several ways of communication will be used in engaging the target groups:
  - Installing project banners and signboard
  - Project webspace, discussion forum in websites and social media – to connect industries with academics and general public
  - Exhibitions, flyers and posters in Industrial and academic

30

- New email account:
  - We plan to use this email (reamit4nwe@gmail.com) as a repository for important communication in the project.
  - Also please use our new twitter account with hashtag #reamit4nwe
  - and also visit our facebook page reamit nwe: https://www.facebook.com/usha.ramanathan.1000
- To update our webpage with recent information, if there is any
- Developing an exclusive webpage with links to all partners independently – is it necessary?
- Exploring other options – communication manager will initiate this asap.

Visit us: http://www.nweurope.eu/projects/project-search/reamit-improving-resource-efficiency-of-agribusiness-supply-chains-by-minimising-waste-using-big-data-and-internet-of-things-sensors/

WHYSOR

# What do you bring to the consortium?

- Technological expertise in the field of data collection, visualization, alarming and analytics
- Connection with the logistical hotspot of Venlo (Agrofood region)

# What project activities have you already started?

- Contacted a lot of logistic companies, small selection:
    - Van Osch Groenteproducties
    - Laarakker
    - Weyers GmbH
    - Kempen Transport

- Contacted universities
    - Fontys (south) and Windesheim (east)
    - Lectorate in logistics and technology
    - More than 100 studies in the past year focused on the Rotterdam-Venlo route
    - Interested in helping REAMIT gain traction in The Netherlands, Belgium and Germany

# Our immediate activities in the next 6 months of the project

- Selection of logistical partners
- Connecting Fontys and Windesheim with the University of Bedfordshire
- Provide advice on sensor selection
- Work with partner(s) creating/providing sensors to get the data flowing from the trucks to the cloud
- Attending the IoT expo in Amsterdam

# Institute of Technology Tralee

Dr Gerard Corkery

Dr Pat Doody

# What we bring to the consortium

- Through the IMaR Centre [www.imar.ie](www.imar.ie)
  - Track record & core expertise in electronic and mechanical hardware, software, IoT and data analytics
  - Concentrating in the areas of manufacturing, agriculture and food sectors
- Previously developed sensor platforms for environmental monitoring and analysis in the food supply chain
  - *Freshbox* - improve the sustainability of the distribution of fresh produce to create a more competitive sector that can offer better products to the final consumer.
  - [http://fresh-box.info/en/](http://fresh-box.info/en/)

# Project activities

- Identifying personnel ….. Initiating process
- Identifying the pilots / timelines to get best value
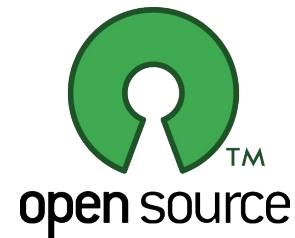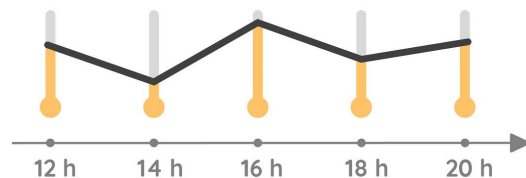
# Activities for the next 6 months

- Hiring!
- Linking up with other partners as appropriate
- Technology Development, Assessment and Implementation in WP T1 (Pilots) and Big Data WP T2.

- IT Tralee will work with technology partners in collecting sensor data to the cloud, clean the data, and conduct big data analytics to identify patterns of food waste in NWE.

- If data identifies that food items are at risk of becoming waste, along with other partners in Big Data Analytics, IT Tralee will identify nearest demand point for the food and provide decision support to the owners by providing suggestions to save the food at risk. It will be involved in assessment of REAMIT technologies.
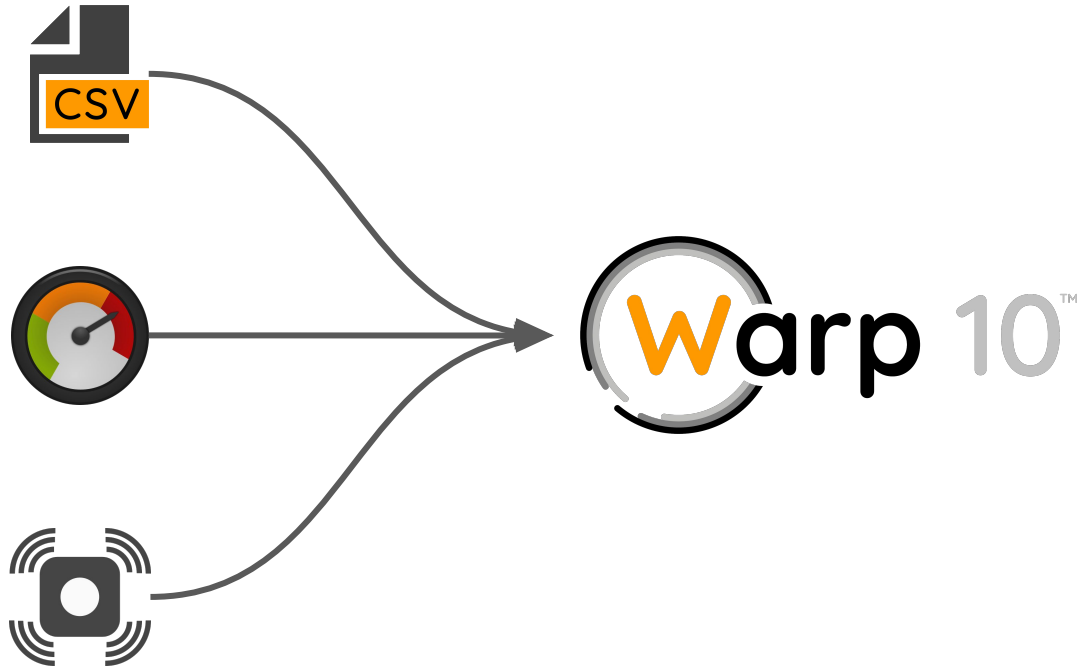
# REAMIT
# Kick-Off

Fabien Tencé - **Senior Software Engineer** - Fabien.Tence@**senx**.io

# Contribution

# Activities in the next 6 months

# Ulster University - Expertise



- **Technology** (School of Computing, Engineering & Intelligent Systems):
  - Sensor Technology
  - Computer Vision
  - Data Analytics and Machine Learning
  - Cloud Computing

- **Business and Management** (School of Business)

- **Research Experience**
  - INTERREG and H2020 projects
  - Research and innovation at regional, national and international levels.
  - Business-facing experience.

# REAMIT Contributions

- Pilot Testing with Argibusiness users (WP T1)

- Deploying Sensors in Trucks and connect outputs to Cloud
  - Pilot Testing
  - Big Data Analytics & Information Extraction

- Lead Work Package T3 (Business Development)
  - business development and assessment of technologies for reducing food waste
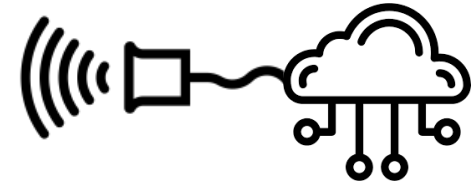
# Next 6 Months

- Assist with publication and selection of agribusiness users/companies through the open challenge call.

- Assist with working prototypes using sensor technology
  - Develop User Manual and report on each pilot test

- Assist with Big Data integration and applications to reduce food wastage
  - Assist with interface and big data platform.

# Project seminar in Lille

- Use of EMS for all project management activities

- Use Programme Manual Version 9

- Risk log is an obligatory tool

    - Use the Excel template provided

    - Start with the three risks specified in the AF and add more

    - Submit with progress report No. 1

    - Should be a default item on the agenda of partnership meetings

- Next reporting deadline will be 30th September 2019 by LP to JS but early submissions (say before August) is encouraged.

- The procedure for appointing FLC varies for different countries.

# Project seminar in Lille

- Timing of Reports
  - Period 1.1: January 2019 – June 2019.
  - Period 1.2: July 2019 – December 2019.
  - Report the activities in the six month period within three months after the end of the period. Thus,
    - Report 1.1: End Sep 2019
    - Report 1.2: End March 2020

- LP will get the funds from ERDC and pay to all individual PPs.
  - All PPs should send their bank details to LP for payment
  - Not yet received from: Dunbia (NI)

- Sharing Preparatory costs
  - 50% of the 30,000 Euro will be shared among the 10 project partners (1,500 Euro for each partner)

# Project seminar in Lille

- If needed, the first progress report can be moved to March 2020 but this is not recommended.

- All partners should submit financial forecasts (estimate) for the next period (6 months).

- PPs are registered as users in eMS by LP

- Visit REAMIT website periodically and provide suggestions to improve it.

# **Personnel Recruitment**

- BED – PM and Hub Coordinator

- NTU – Communication Manager

- UCD – PhD student and Post-Doctoral Researcher.

  – The eligibility to recruit a PhD student needs to be verified.

- Others partners?

# Finance Training

- by Charmaine Guyo, BED
  - Please see a separate document

# Project seminar in Lille

- Finance matters

    – eMS should be used for reimbursement claims

    – Use only one list of expenditure (LoE) per invoice

    – Exchange rate is valid on the date you first send the details to FLC.

    – JS does not want to see invoices, timesheets, etc.; send them to FLCs; send them to JS only if JS asks for them.

    – One invoice = one line. Do not split a single invoice or group multiple invoices.

    – Claim expenses in accordance with the AF.

    – Only report eligible expenditure. These are:

        - Incurred, Paid, Within the eligibility period (duration of the project) and Justified by supporting documents.

    – Only staff in the payroll is eligible.

# Project seminar in Lille

- Finance matters Contd.

  – Do not charge telephone ills, bank transfer fees, office supplies etc. as they are part of office & administration, which are automatically included as 15% of staff costs.

  – Payment for travel of associated partners should go under external expertise.

  – **APs are:**

    - **GIQS, Oost NL, Radboud Universiteit (associated to BED)**

    - **Terre d'essais (associated to I&R)**

    - **JEAN ROUTHIAU and Société Des Transports Européens Frigorifiques (STEF) (associated to Nantes)**

    - **Biosearch NI (associated to Ulster)**

    - **Cottagequinn Farms LLP (associated to Dunbia NI).**

  – If an equipment is purchased with funds from another ERDF grant, they cannot be double claimed in this project.

# Project seminar in Lille

- Finance matters -Public procurement

  – If there are different rules at programme level, organisation level, national level, etc., then the stricter rules will apply.

  – For contracts above €5K (excl. VAT), ask for 3 quotes. Failure will lead to 25% flat rate correction by the FLC.

  – Ask for 3 quotes. Even if you think there is only one company that can provide the services, send emails to at least two more companies that provide similar service.

  – JS will not check whether you received response from all the three companies for your quotes, and it is not bothered on how you choose from the three quotes. Only the proof of sending three emails asking for quote is sufficient.

# Technology Demonstration

- IoT Technology by Keith Rogers and Tom Wright from Gateway (https://www.gatewaycando.com/iot/)

# REAMIT in Social Media

- Twitter, Facebook and Email
  - Available in a separate presentation by NTU.

# REAMIT Steering Committee (RSC)

- One member from each partner

- I think we should allow substitutions in extraordinary circumstances

- Terms of reference is specified in the Partnership Agreement.

| PP1 | BED | Ram Ramanathan (Chair) |
|---|---|---|
| PP2 | I&R | Gael Maugis |
| PP3 | UCD | Fionnuala Murphy |
| PP4 | UoN | Gerald Thouand |
| PP5 | Levstone | Simon McGraw |
| PP6 | NTU | Usha Ramanathan |
| PP7 | Whysor | Luuk Rijnbende |
| PP9 | ITT | Gerard Corkery |
| PP10 | SenX | Hervé Rannou |
| PP11 | UU | Daniel Kelly until Joan Condell returns from maternity leave |
| PP12 | DNI | Colin Potts |

# REAMIT Advisory Committee (RAC)

- One representative from each associated partner

| Associated Partner | Invitation Responsibility |
| --- | --- |
| GIQS | BED |
| Oost NL | BED |
| Radboud Universiteit | BED |
| Terre d'essais | I&R |
| JEAN ROUTHIAU | UoN |
| Société Des Transports Européens Frigorifiques (STEF) | UoN |
| Biosearch NI | UU |
| Cottagequinn Farms LLP | DNI |

# Dates for RSC+WP+RAC meetings

- First meeting based on Doodle Poll
  - From 11 am on Sep. 11th Wednesday until 4 pm on Sep. 12th Thursday
  - In Luton.
  - **Please note in your diaries.**

- The REAMIT Advisory Committee (RAC) meeting, comprising all associated partners and project partners, will be held in the morning of the first day (11 am – 1 pm)

- REAMIT Work Package (WP) meetings, chaired by WP leads and participated by all partners and sub partners, will be held during 2 – 6pm.

- The REAMIT Steering Committee (RSC) meeting, with all project partners, will be held during 9 am – 1 pm on the second day. I have provided for time up to 4 pm in case we need to discuss more details on that day.

- If needed, the workshop on sensors and big data will be held in the afternoon but Ram has asked for volunteers (especially from technology partners) for hosting it.

# Dates for RSC+WP+RAC meetings

- Meetings to be held in every six months. Next meeting dates are:
    - 15 and 16 January 2020 (to be hosted by I&R)
    - 08 and 09 July 2020 (to be hosted by UCD)
    - 20 and 21 January 2021 (to be hosted by Whysor)
    - 07 and 08 July 2021 (to be hosted by Ulster)
    - 19 and 20 January 2022 (to be hosted by NTU)
    - 23 and 24 March 2022 (to be hosted by BED)

- All are Wednesdays and Thursdays in third week of January or second week of July to enable to submit the progress reports on time (except for the last meeting).

- Prepare progress reports at the end of the meetings, complete FLC process and submit to BED by the second week of August or by the second week of February. BED will strive to submit the claims by the second week of September or by the second week of March.

# Dates for REAMIT Network Events

- Conference style meetings to be held in every year showcasing REAMIT technologies.

- 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

- Exact dates to be decided by the organising partner.
    - January 2020 (to be hosted by NTU)
    - October – December 2020 (to be hosted by I&R/Valorial)
    - October – December 2021 (to be hosted by UCD)

- Targeting more end-users to reduce Risk 2 and technology firms/users to reduce Risk 3.

# REAMIT Pilot Tests

- We need to conduct Pilot Tests in all the five countries.

- As leader of WPT1 Pilot Tests, Gael is leading the preparation of the open challenge call.

- UU will conduct the first pilot test with DNI
  - Installation of sensors to be completed during Sep.-Dec. 2019
  - Linking to cloud and data analytics to start in December 2019.

- More tests are required. End-user has to be recruited using open challenge call. The following is a tentative schedule;
  - January 2020 (France – STEF?)
  - April 2020 (Ireland – end-user to be recruited)
  - July 2020 (Netherlands – Whysor to help in recruiting the end user)
  - Oct. 2020 (Germany – Whysor to help in recruiting the end user)
  - More can be tried depending on interest of end-users

- Role of technology partners
  - Whysor, Levstone, SenX and ITT may have similar expertise. Their responsibilities should be clarified.

# Project Management Issues

- Development of Project Handbook and internal management systems

- Suggestions for best practices for project management

- Key control register for Project Management

# Project Management Issues

- Risk register on key project risks & mitigation actions for each.

  – Risk 1: Technological risk linked to adapting sensor and big data technologies

  – Risk 2: Lack of companies participating in tests

  – Risk 3: Lack of roll-out potential

- Assignment of risk-ownership among partners

- Any other risks anticipated?

- Risk Log?

- Any other business

# Reamit Project – Finance

Charmaine Guyo

Management Accountant (UOB)

16.05.19

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# First Level Controller (FLC)

**Why do we need them?**

- Before submission to the Joint Secretariat, each progress report must be verified and validated by an independent controller.

**Who are they?**

- Usually Auditors or Certified Public Accountants.

**What is their role?**

- To verify that the expenditure incurred to implement the project complied with the relevant EU, national, regional, institutional and programme rules as well as with the provisions of the subsidy contract and the approved application form.

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# Designation of an FLC

In principle, there are 3 general models:

1.  **Centralised control at Member State level**.

2.  **Decentralised control through controllers selected from a central shortlist.**

3.  **Decentralised control through an internal or external controller** selected by the project partner and approved at Member State level by the approbation body.

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# FLC Requirements

- **Requirements to be a first level controller**
1. Professional Qualification
2. Independence
- **An FLC engagement letter should include:**
- Budget
- Approach and Methodology
- Location of work
- Fees
- Commencement
- Duration
- Award

# FLC Designations by Country

| Decentralised | Centralised |
|---|---|
| • United Kingdom<br>• Belgium (Flanders)<br>• France<br>• Germany<br>• Netherlands | • Belgium (Brussels)<br>• Belgium (Wallonia)<br>• Ireland<br>• Luxembourg |

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# EMS

# EMS – What does it do?
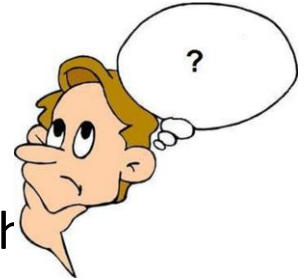
1. Automatically aggregates the claimed amounts and puts th[...] list

2. Automatically applies the exchange rate for foreign currencies

3. Transfers the reports from the partners to their First Level Controllers (FLC), to the LP, who, with their FLC, endorses the amounts and transfers the report to the JS.

4. Warns you if a mistake is detected, or blocks you.

# EMS

# Reporting Expenditure

- Spend according to the application form

- Report Costs on EMS, ( List of expenditure)

- Each invoice is allocated to one of the 6 Budget lines and attributed to one work package

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# Reporting Expenditure Rules

1.  Claim according to your application form.

2.  Only report on <span style="color:red">ELIGIBLE EXPENDITURE!</span>

3.  One invoice = One line, 100 invoice = 100 lines : <span style="color:red">DO NOT SPLIT AN INVOICE</span>

4.  You can alternate the allocation of WP, for example,  if a member of staff is working on several WPs.

5.   Office and Administration is calculated <span style="color:red">AUTOMATICALLY.</span>

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# What is Eligible Expenditure?
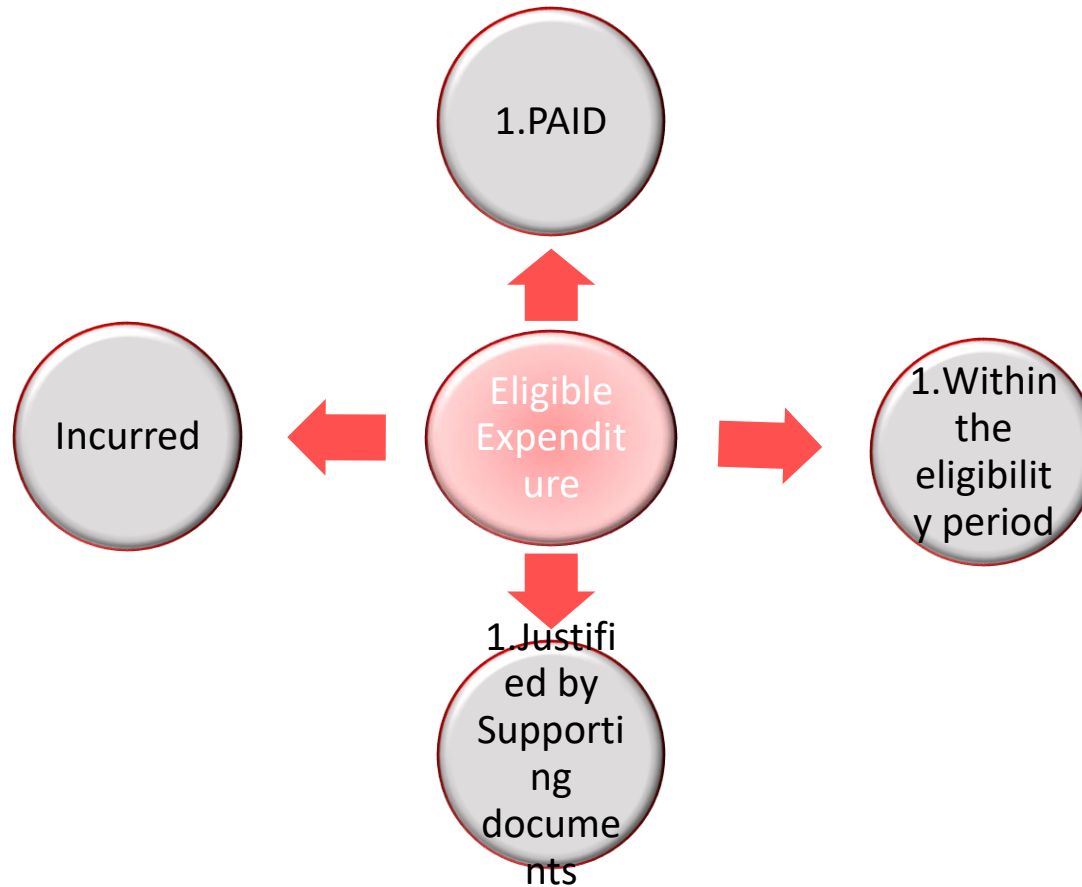
# Budget Line

- Staff Costs

- Office & Administration

- Travel & Accommodation

- External Expertise & Services

- Equipment

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**Interreg**
**North-West Europe**

*river*   NWE553 Application form version 1   Show more   **Partner report 1 UoB Period 3 List of expenditures**   Welcome Charmaine Guyo!

Partner report   List of expenditure   Forecast and contribution   Attachments   Personal data attachments

SAVE

Partner

Check s

Applicat

Supplem

Print re

Delete r

**Edit expenditure**
**Partner report 1 UoB Period 3 List of expenditures**                                                 ✕

| | | |
|---|---|---|
| **PP** | Budget line | --- ▼ |
| | WP | --- ▼ |

Please describe the expenditure. In the case of staff costs, please indicate the applied method (cf. programme manual section 5.2.I)

2000 Remaining characters

| --- |
| LT Long term |
| M Project management |
| T1 Designing and Developing the technologies |
| T2 Business case and Policies |
| I1 Installing and testing engines in an operational environment |
| C Communication |

Internal ref. no

Invoice no

Invoice date

Payment date *

ther description, if needed

2000 Remaining characters

tner comment

2000 Remaining characters

Currency                    EUR - EURO ▼

Conversion rate                              (1)

Total value of item in original currency

VAT

Declared amount in the original currency

Declared amount in EUR

Expenditure outside the Programme area?   ☐

In kind                                    ☐

⊕ **Upload**

**Uploaded**

No records found

⊕ Add

Help

Genera

Contact

Logout

EN

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# Staff Costs

Methods of claiming staff expenditure.

| OPTION A | OPTION B |
|---|---|
| <u>Flat Rate</u><br><br>Method A: Flat rate 20%<br><br>20% of direct costs (all costs other than staff, and office and administration costs) => no need for documentation. | <u>Real Costs</u><br><br>1. Full time<br><br>2. Fixed percentage<br><br>3a. Flexible percentage –contractual hours<br><br>3b. Flexible percentage –1,720 hours<br><br>4. Hourly basis<br><br>5. Country specific (Flanders, NL, LU) |

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# Staff Costs

You can apply any of these methods, however, A or B should be used throughout the project duration.

**If you chose Option A - Flat rate:**

- Applies to all staff members at partner level
- Less administrative work but watch for mistakes in other budget lines
- Only need to Plan your cashflow.

**If you chose Option B - Real costs:**

- Several methods are available
- You can choose a different one for each staff member and change method if need be (within option B).

# Choosing a method

For each staff member, do you work on the project in the same capacity each month?

**Method 1:**

- Full time = the full gross employment cost is eligible.

✖    No timesheets required

**Method 2**

- Part-time = a fixed percentage of gross employment costs is eligible

✔    Timesheets required

An hourly rate will be calculated (method 3a, 3b) or defined in a contract (method 4).

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# Timesheets

- The NWE template is on our website.
- Please record 100% of the working time.
- Other EU funded projects should be clearly visible in order to avoid double funding.
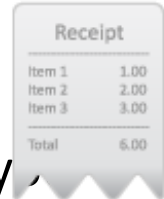- Timesheets should always be signed by the employee and the line manager.

**Please note:**
- ONLY staff on the payroll is eligible
- Secondment is not eligible
- Dividends are not eligible
- The FLC and external auditors will need access to payroll records, with the name and salary details, to validate the expenditure.

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# Necessary Documents

- For methods 1, 2 and 3 : the <span style="color:red">gross employment costs</span>

- B.1 (Full time) : a document (e.g. work contract) specifying that 100% of time is worked on the project

- B.2 (Fixed %) : a document specifying the percentage of time to be worked on the project

- B.4 (Hourly basis): a document (e.g. contract) specifying contractual hourly rate

# Office & Administration

- You cannot see this budget line in the List of Expenditure, but you will see it in the claim.

- Calculated automatically when you claim staff costs.

- 15% flat rate.

- Do not charge office and administrative costs (telephone bills, bank transfer fees, office supplies, etc.) under other lines. *Those are all already covered by the 15% flat rate.*

# Travel & Accommodation

- **Covers only the partner staff for:**

a. Travel

b. Meals

c. Accommodation

d. Visa

e. Daily allowances

- Any item listed in points (a) to (d) covered by a daily allowance will not be reimbursed in addition to the daily allowance.

- Internal rules apply (thresholds, class, etc.).

# External Expertise and Services

• Tasks that partners cannot carry out themselves

Examples of expenses include:

• External experts (e.g. for performing studies)

• Travel and accommodation for experts

• Promotion, communication and publicity costs

• Services related to the organisation of meetings and events (e.g. interpreters, room rental, catering, registration fees, etc.)

• Financial / legal consultancy costs

• First Level Control costs (if applicable)

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# Equipment

- Purchased new or second hand, rented, leased
- Not already funded by EU

Examples include:

- Office equipment (not office supplies)
- IT hardware and software
- Laboratory equipment
- Machines and instruments
- Other specific equipment needed for operations

# Public Procurement

- **NWE Programme rule:**

- For all contracts above € 5,000 (excl. VAT) project partners need to have documented proof that three quotes have been asked for. In the event that the partner must comply with other, stricter rules (e.g. internal rules), these stricter rules must apply.

- **The violation of this rule will lead to a 25% flat rate correction by the FLC.**

# Tips

- Good record keeping is <span style="color:red">KEY</span>

Project – Contract

Staff Costs - Contracts, payslips, Gross pay Details, Timesheets, pay Calculations

Non-pay costs – Quotes, Contracts, Invoice, receipts.

Proof of payment – Bank statement, payroll records

Meeting Note or proof of attendance

Publicity – Website, Banner

Equipment – Pictures, physically available