Richfields WP9

Connecting with related RIs (Health and Food) data:
Aims and Tasks

Brussels, 8th April, 2016

Paul Finglas, Mark Roe, IFR

WP partners

Organisation	Partner No.	Role in WP
IFR (UK)	12	**WP Leader**, Task 9.1, Task 9.2, Task 9.5
DIL (DE)	2	All tasks
EUROFIR (BE)	3	Task 9.1, Task 9.2, Task 9.4, Task 9.5
JSI (SI)	4	Task 9.1, Task 9.2, Task 9.3, Task 9.4
AAU (DK)	8	Task 9.2, Task 9.3, Task 9.4, Task 9.5
ETHZ (CH)	10	Task 9.1
CENS (FR)	14	Task 9.3
AALTO (FI)	15	Task 9.4

+ GS1 (DK), LEI-WUR (NL)
+ IARC (FR) – sub-contractor to IFR

Objectives of WP 9

To identify, analyse and test the feasibility of implementing or linking with data and supporting information (both technical and content) from existing and new RIs that could be linked to, or enrich, the RI Consumer Data Platform.

- To analyse data on:
  - a) food composition and attributes;
  - b) a case on standardised dietary intake for population-based intake assessments;
  - c) clinical intervention studies;
  - d) diet, health and lifestyle
- To define the conceptual connection of these ongoing RIs towards the RI Consumer Data Platform in order to deliver data and supporting information in the future
- To conclude on gaps and needs, and to formulate recommendation for the RI Consumer Data Platform

Description of work

WP9 will explore the potential for delivering data and content to the RI Consumer Data Platform from five existing, or currently under development, RIs undertaken through four case studies.

Evaluation of case studies will be aligned to WP4 and will complement WP8 and 10, and results will include:

- assessment of raw data structures and content;
- Identification of gaps and/or needs for further standardisation and harmonisation with current standards (links to data integration (WP11)
- Identification of potential business data offerings (WP8);
- final recommendations from each case study for opportunities to deliver data to the RI Consumer Data Platform

Case Study 9.1: Food Composition

Food composition data and attributes:

Task Leader: IFR

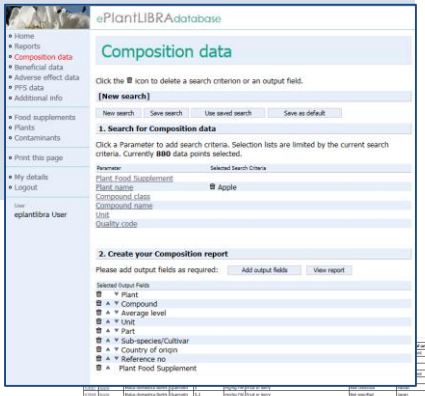
Tasks

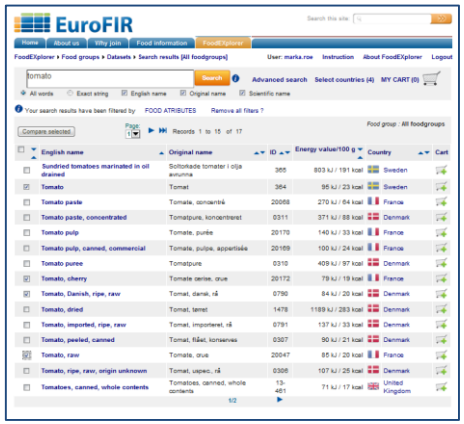
9.1.1 Evaluate possibilities for linking to existing food composition databases.

Proof of principle example – EuroFIR FoodExplorer tool

9.1.2 Evaluate linking to non-nutrient data sources.

Proof of principle example – eBASIS/ePlantLibra





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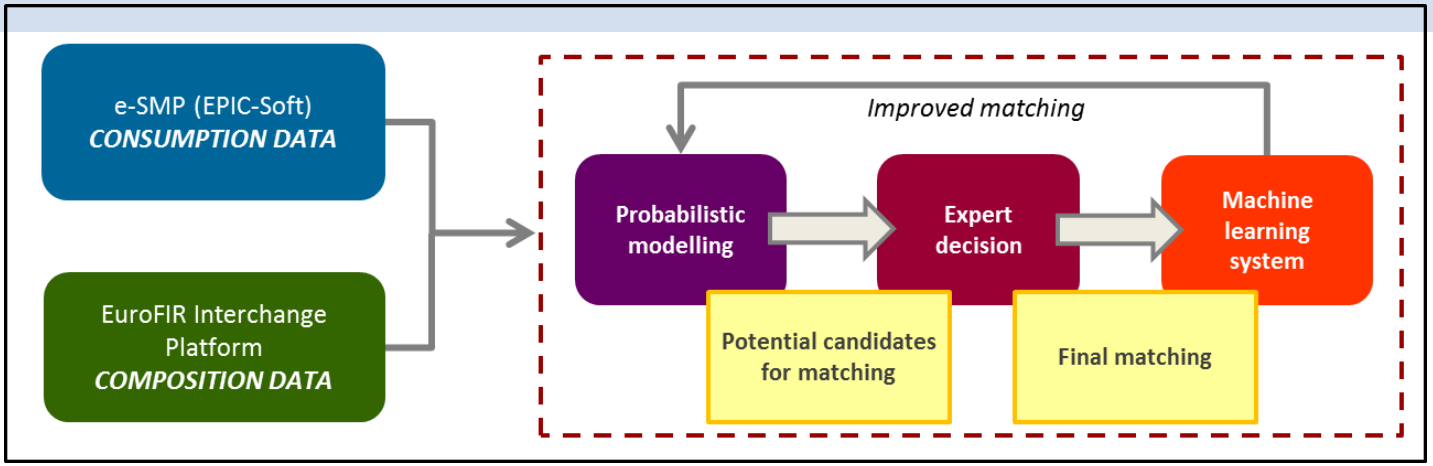
Case Study 9.1: Food Composition

Food composition data and attributes:

Tasks (continued)
9.1.3 Evaluate links to data for branded food products.
Proof of principle examples – UK, Slovenia

9.1.4 Evaluate food matching tools and food classification and description systems for linking composition data to other food information data (including intake, purchasing and preparation).



Case Study 9.1: Food Composition

Food composition data and attributes:

Tasks (continued)

9.1.5 Review available tools for capturing food portion size information, including pocket size Bluetooth weighing scales developed by JSI.

"Jožef Stefan" Institute

9.1.6 Evaluate use of Fake Food Buffet method data to validate data links between composition data and consumer behaviour data (e.g. consumption and preparation).

ETH zürich

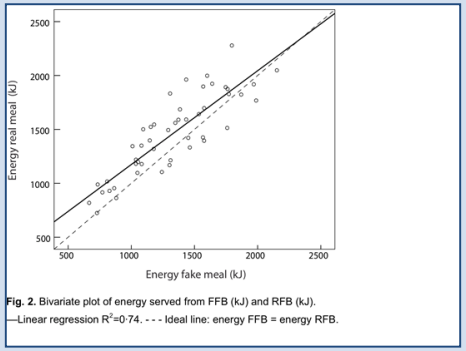


Fig. 2. Bivariate plot of energy served from FFB (kJ) and RFB (kJ). —Linear regression R^2=0·74. - - - Ideal line: energy FFB = energy RFB.

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Case Study 9.2: Dietary Intake

Focused on standardized dietary intake based on population intake assessments, the so-called “GloboDiet initiative” led by IARC-WHO.
Partners: IFR, AAU, EuroFIR, DIL and JSI

Task led by IFR, sub-contracted to IARC

International Agency for Research on Cancer
World Health Organization

Aims:

- systematically evaluate variables (metadata) from the available European GloboDiet versions in terms of relevance to consumer behaviour
- identify gaps and needs, and existing barriers to improve interfacing between the GloboDiet and RICHFIELDS platforms
- provide a comprehensive map of relevant variables used in dietary monitoring systems conducted across Europe

Case Study 9.3: Clinical Interventions

Task led by CENS (with AAU, DIL, and JSI)

Aim

Identify, analyze and implement data from clinical intervention studies that could be linked to the RICHFIELDS data platform or that would feed the RICHFIELD data platform.

Tasks

9.3.1 Identify and map RI data related to food intake and consumer behaviour that could be collected in the frame of clinical interventions taking into account: Type of data, type and design of studies, type of patients or populations and clinical outcomes

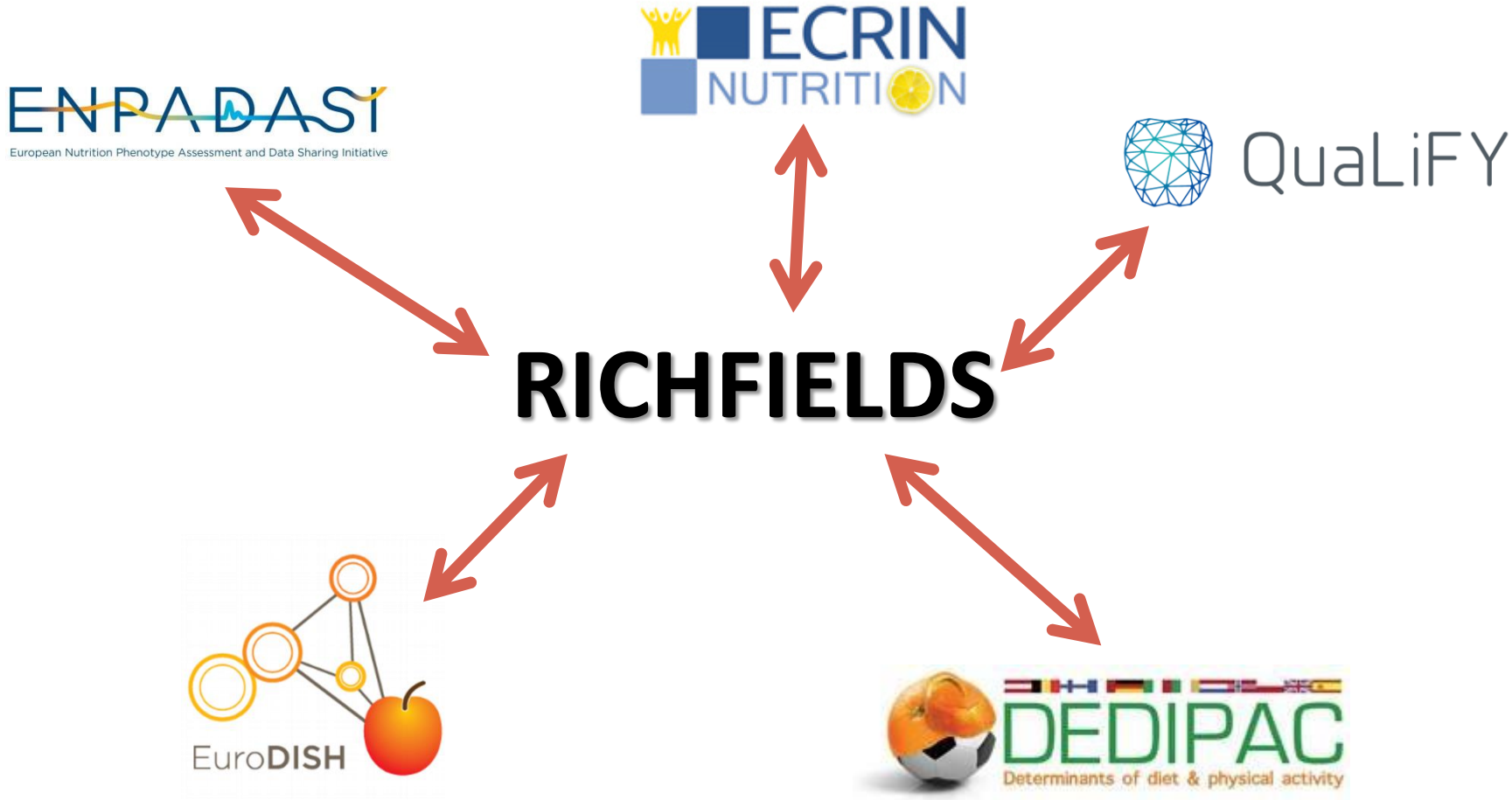
9.3.2 Identify relevant large European clinical trials and perform a case study data extraction for 1 or 2 identified trials

9.3.3 Identify gaps and needs for clinical data linkages and evaluate feasibility of data exchange from clinical sources

9.3.4 Link with other existing European RIs for legal and ethical constraints and data management

Research Infrastructures Linking to Clinical Data

Task 9.3



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YOUR EXPERTS IN NUTRITION

Case Study 9.4: Consumer diet, health and lifestyle

Task led by AALTO (with AAU, DIL, and JSI)

Aalto University
School of Science
and Technology

Aims:

- Collect data related to food intake in addition to information about physical activity (including exercise), stress and sleep behaviour. Data collection based on platform designed and implemented in PRECIOUS project.
- Utilise collected information to identify consumer behaviour, taking into account the type of patients and populations identified in WP4
- Ensure clinical outcomes are in line with the RI Consumer Data Platform

- Physical activity tracker.
  - Detect walking, running and biking.
  - Sleep time estimation.
  - Count steps.
  - Fully functional.
- Weight estimation.
  - Face recognition and face size calculation.
  - Functional, needs minor improves.
- Food recognition.
  - Four ways of implementation.
  - Semi-functional, needs major improves.
- Motivational games.
  - In stand-by for now.

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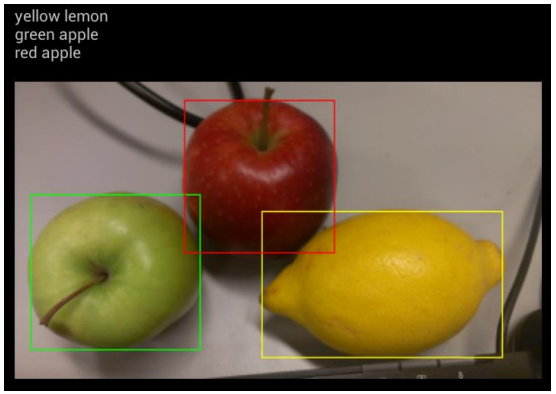
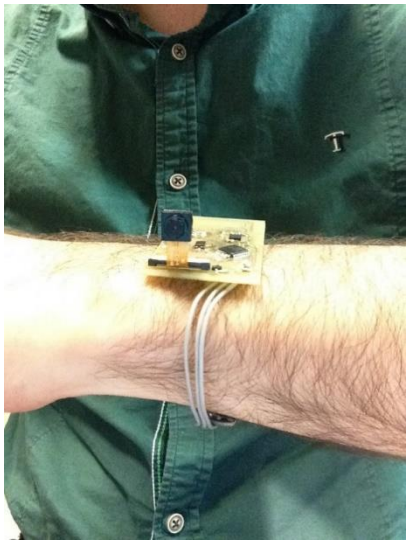
Food intake recognition tools

- Taking a photo of the food
- Scanning a barcode
  - Barcode Scanner app offers open source solution
  - Extract nutritional information from product's barcode
- Manual input
  - Filter food based on time (breakfast, lunch, dinner)
  - Write food name (autocomplete)
  - Filter food by tapping (i.e. meat –> chicken –> nuggets)
- Using a wristband
  - In development



Smart wristband current design status

- Physical activity
  - Accelerometer
  - Accurate sleep monitoring
- Food intake
  - Activity detection
    - Gyroscope
  - Food recognition
    - Camera
- Heartrate monitoring
  - Optical sensor
  - Problem: bad location
- Communication with Smartphone
  - Bluetooth module



WP Deliverables

D9.1: Integrated report on four case studies and proposed data outputs for RI Consumer Data Platform (M15)

D9.2: Final report with recommendations for a new framework for future collaboration and interfacing between existing RIs and the RI Consumer Data Platform (M24)

D9.3: Scientific manuscript on overall case study outcomes and future framework (M24)

Links to WP11

Clear links to 4 main WP11 tasks

- Evaluate available RIs and platforms (M18-M23; JSI, GS1, AAU, EuroFIR, AALTO, IFR)
- Design a semantic data model (M18-M30; JSI, SP, AAU, GS1, AALTO)
- Explore standardisation requirements (M18-M30; JSI, SP, AAU, GS1, AALTO)
- Prepare a roadmap to ICT implementation (M30-M35 or M34?; JSI, GS1, AAU, EuroFIR, AALTO, IFR)