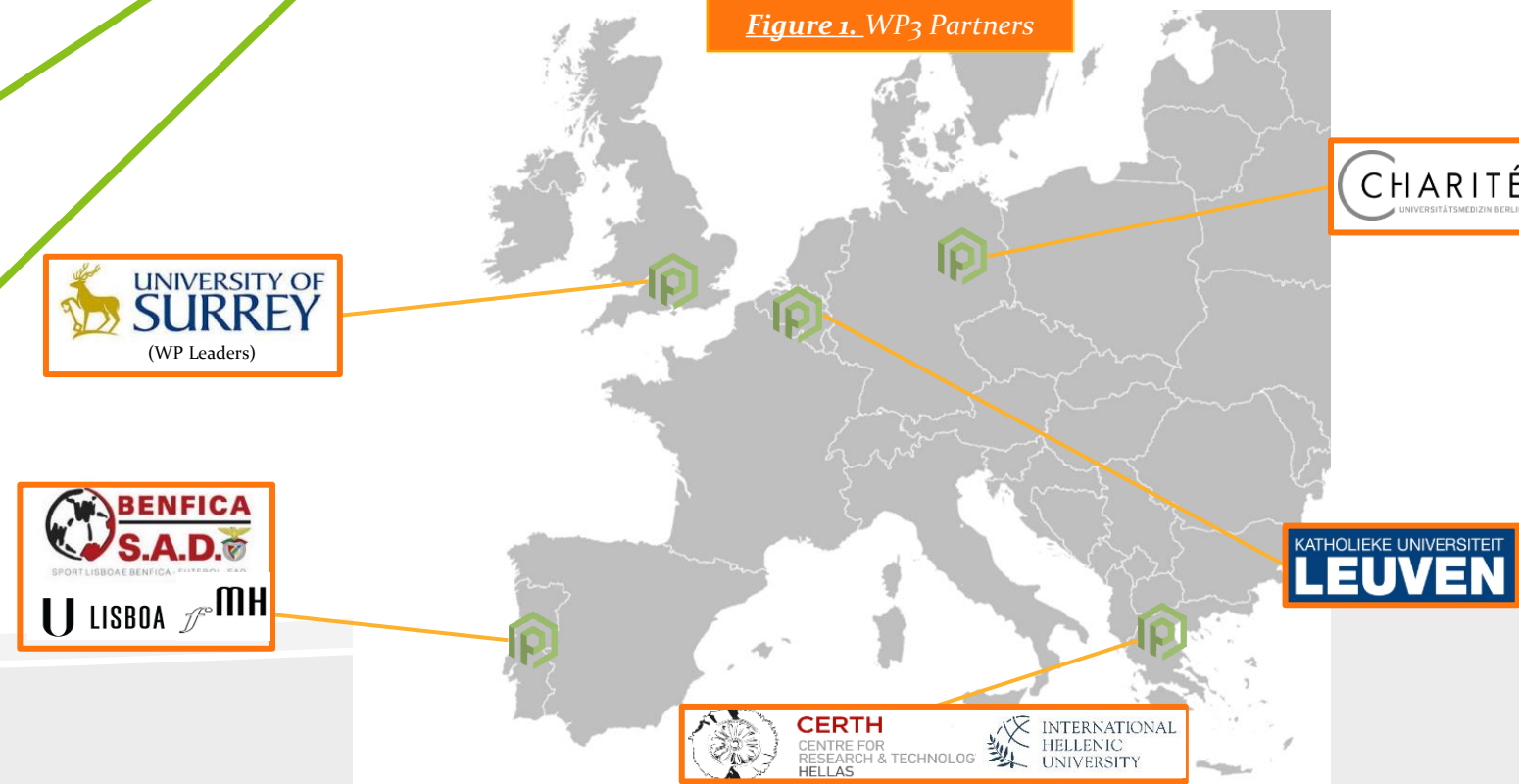


# WP3 Experts Knowledge Models



Figure 1. WP3 Partners



## Task 3.1: Modelling of Expert's Knowledge

Development of evidence-based, *expert approved conceptual 'rules'* to produce a database of user-group specific nutrition/physical activity recommendations, presented below.

### Diet

- Total Energy Intake (kcal)
- Carbohydrate (% EI)
- Protein (g/kg/BW)
- Fat (% EI)
- Saturated Fat (g)
- N-3 Fatty Acid (g)
- Sugar (% EI)
- Salt (g)
- Fibre (g)
- Vegetables (portion)
- Fruit (portion)
- Iron (mg)
- Calcium (mg)
- Vitamin D (µg)
- Vitamin C (mg)
- Alcohol (g/wk)

### Anthropometrics

- BMI (kg/m<sup>2</sup>)
- Waist Circumference (cm)
- Hip Circumference (cm)
- Waist: Hip Ratio

### Physiological

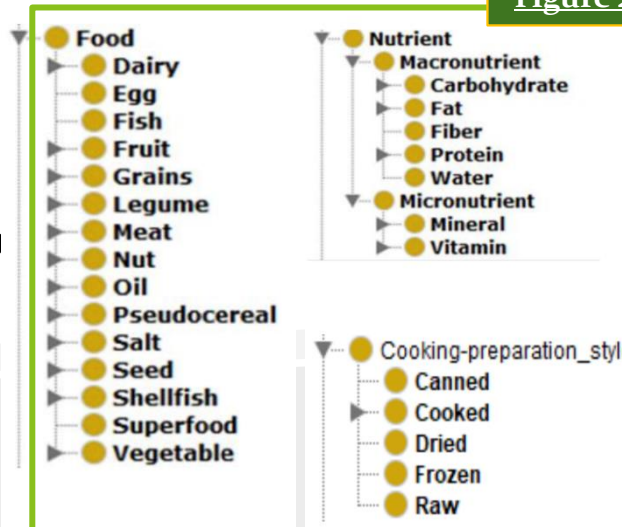
- Blood glucose (mmol/L)
- LDL-C (mmol/L)
- HDL-C (mmol/L)
- TAG (mmol/L)
- Resting heart rate (bpm)
- Sleep (hr/ night)

### Physical Activity

- Frequency (d/week)
- Duration (min)
- Intensity  
(light/ moderate/  
vigorous)

**Notes:** BW: body weight; EI: energy intake; n-3: omega-3; wk: week; BMI: body mass index; LDL-C: low-density lipoprotein cholesterol; HDL-C: high-density lipoprotein cholesterol; TAG: triacylglycerol; bpm: beats per minute.

Figure 2. Nutrition & Physical Activity Ontology Process



## Task 3.2: Knowledge Base Engineering

This focuses on transcoding the knowledge developed in Task 3.1 into a *machine-understandable formalization* as a nutrition & physical activity *ontology*.

## Task 3.3: User Profile Modelling

User profiles of all user groups for integration into the PROTEIN mobile application will be generated by experts based on:



## Task 3.4: Genetic Information (DNA) Analysis

## Task 3.5: Gut Microbiome Profiling

These tasks aim to investigate the potential for genetic, **blood-based biomarkers** and **gut microbiome data** to create individual nutritional recommendations, through the recruitment of a diverse sample of representative EU adults.

250 participants with NCDs (CVD, obesity, T2D)

25 healthy controls

