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Data-as-a-service platform
for healthy lifestyle and
preventive medicine

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PRECIOUS Imperial College Sept 2016

GA 610440

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The PROBLEM!

- **Patients with obesity-related disease** are told by their doctor/health care professionals to improve their physical activity, reduce their sedentary behaviour and improve their diets.
- A common problem with such treatments is ensuring that patients maintain develop and maintain improved health behaviour between appointments.
- Need to enhance **motivation** …
- … and provide greater **patient-empowerment** over their own treatment

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Use wearable technology

- to give patients more awareness of their behaviour
- to give feedback on their change in behaviour
- to communicate to their health care professionals between appointments

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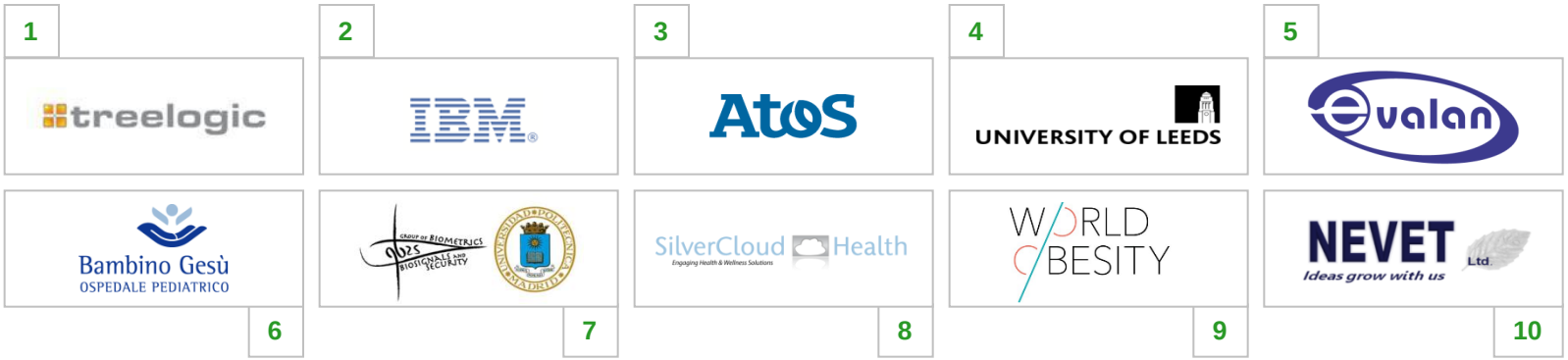
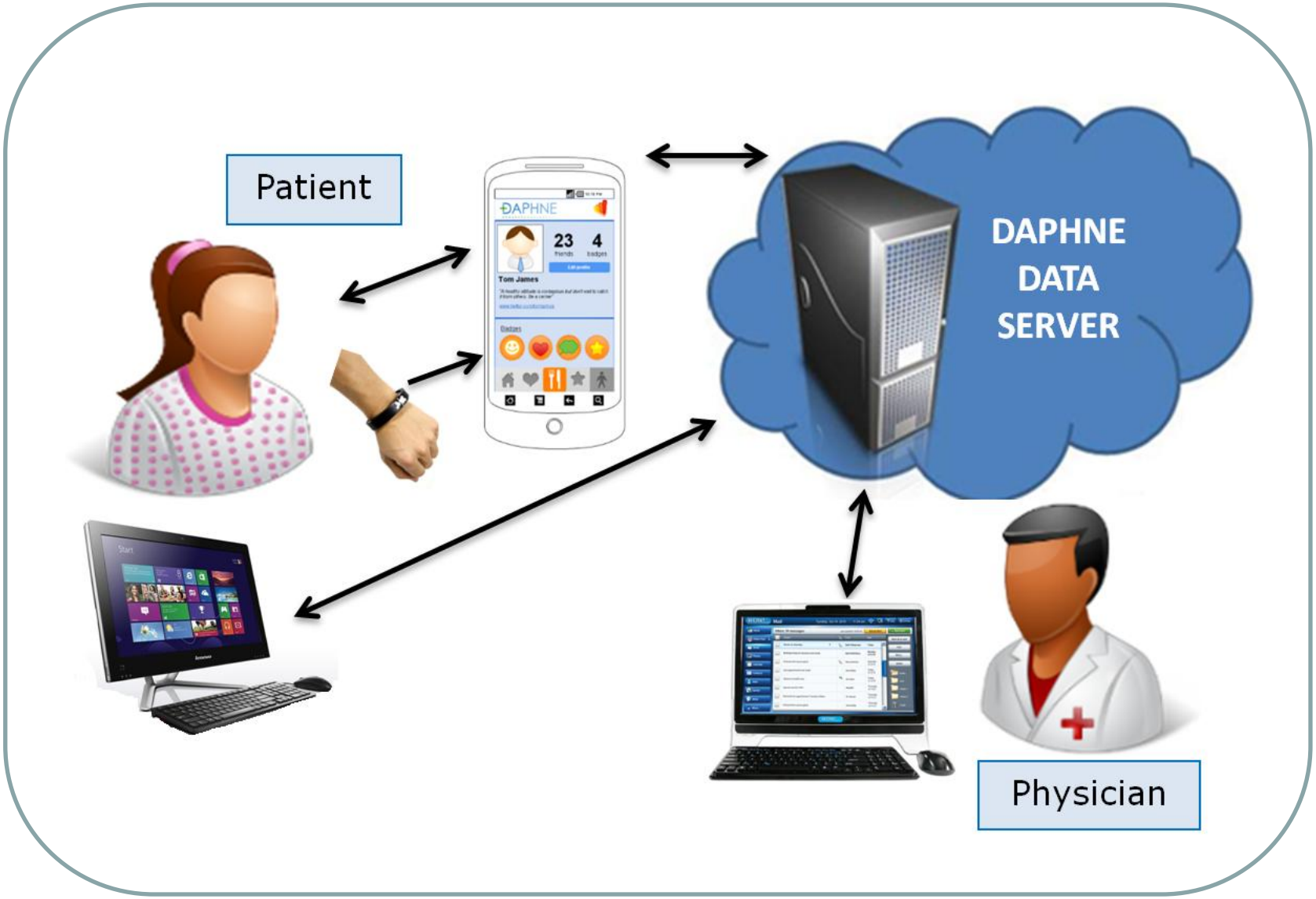
CONSORTIUM

1. Treelogic (*Coordinator)*
2. IBM Israel Science and Technology Ltd.
3. ATOS Spain S.A.U.
4. University of Leeds
5. Evalan BV.
6. Ospedale Pediatrico Bambino Gesú
7. Universidad Politécnica de Madrid
8. SilverCloud Health Ltd.
9. World Obesity Federation
10. Nevet Ltd.




Patient
ÐAPHNE
23
4
Tom James
DAPHNE
DATA
SERVER
Physician

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OBJECTIVES OF THE PROJECT

O1. Design **data-collection models** (physiological and psychological) and **intelligent algorithms** to recognise behavior associated with obesity and sedentarism.

O2. Design and develop **sensor devices to collect** physiological and psychological parameters of the user.

O3. Design and develop a **Data cloud** to hold this information and retrieve it for the final user.

O4. Design and develop **security models and services**, that enable the implementation of the platform in a secure and ethical way.

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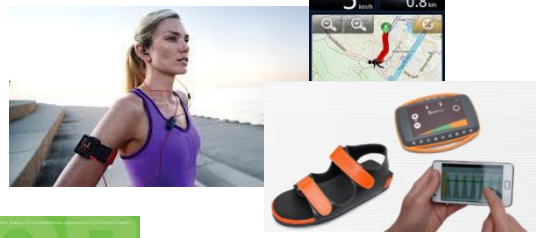
OBJECTIVES OF THE PROJECT

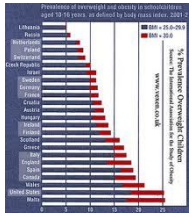
O5. Demonstrate potential **specific services** that can use the data: e.g. for health care, for health promotion and fitness, for mass data collection:

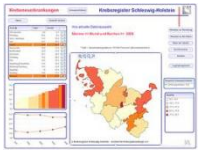
- **Improve clinical services for patients**

- **Develop for other purposes:** fitness training, athletics and sports professionals

- **Research services** (e.g. big data applications for health service managers)





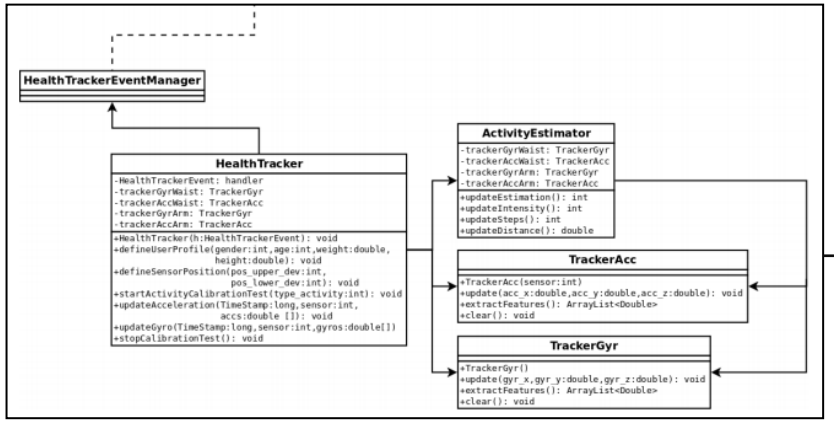


Sensor device

Innovative devices

- Heart rate
- Skin / ambient temperature
- Galvanic Skin Response (GSR)
- Accelerometers / gyroscopes

Buffers data and sends to bluetooth i-phone, and on to the Cloud



Intelligent Data processing

- Stress detection
- Activity recognition
- Energy expenditure
- Health risk detection / behaviour recognition

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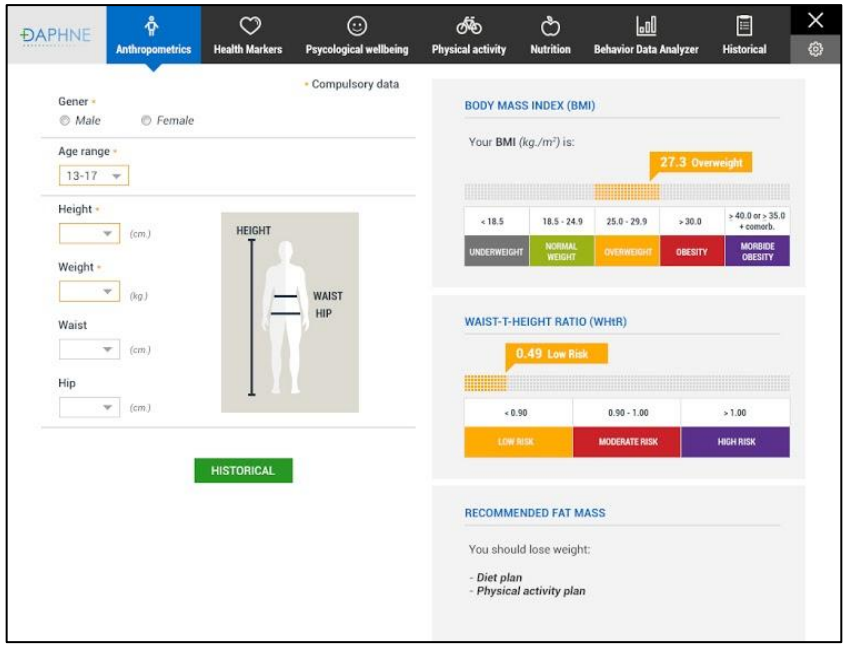
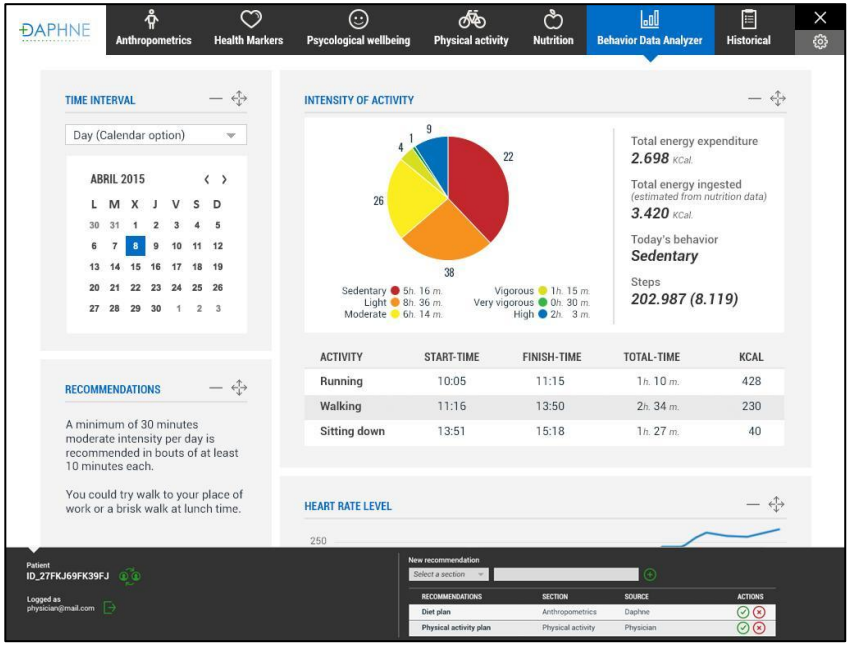
Personalised services



For the patient



For the physician

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Anthropometrics | Health Markers | Psycological wellbeing | Physical activity | Nutrition | Behavior Data Analyzer | Historical

TIME INTERVAL

Day (Calendar option)

ABRIL 2015

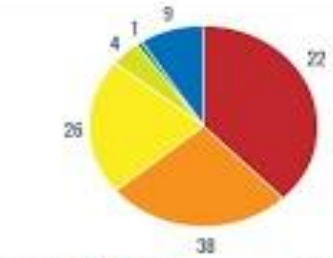
L	M	X	J	V	S	D
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

RECOMMENDATIONS

A minimum of 30 minutes moderate intensity per day is recommended in bouts of at least 10 minutes each.

You could try walk to your place of work or a brisk walk at lunch time.

INTENSITY OF ACTIVITY



Total energy expenditure
2.698 KCal

Total energy ingested
(estimated from nutrition data)
3.420 KCal

Today's behavior
Sedentary

Steps
202.987 (8.119)

ACTIVITY	START-TIME	FINISH-TIME	TOTAL-TIME	KCAL
Running	10:05	11:15	1h. 10 m.	428
Walking	11:16	13:50	2h. 34 m.	230
Sitting down	13:51	15:18	1h. 27 m.	40

HEART RATE LEVEL

STRESS LEVEL

SWEATTING LEVEL

- **Validation cycles**

  Cycle 1 focused on sensor devices and intelligent algorithms

  Cycle 2 focused on testing the complete platform

  Cycle 3 clinical testing carried out in two hospitals
  - adults in Nevet, Haifa
  - children in OPBG, Rome

Thank you!

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http://www.daphne-fp7.eu/