

Patient behavior as part of the intervention Real-World Data in Healthcare

Aristodemos Pnevmatikakis, R&D Director, Innovation Sprint

NGIoT Thematic Workshop: Health and Care, 18 May 2021



BLSI, Clos Chapelle-aux-Champs 30
1200 Bruxelles, Belgium



@Innovation Sprint



@innovSprint



@innovationsprint.eu

#iSprint

Real-World Data

Measurements from IoT devices



Behavioural data
(physical activity, sleep, etc.)



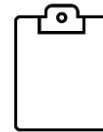
Physiological data
(heart rate, oxygen saturation, etc.)



Contextual data
(environmental data, etc.)



Subjective reports



Questionnaires on demand
(EQ-5D, SF-36, etc.)



Self-reported symptoms
(pain, shortness of breath, etc.)



Clinical exams
(blood samples, etc)



Social Interactions
(quantity and quality of interactions, etc)

Healthentia RWD

Healthentia ePRO/eCOA

- ✓ eClinical solution to capture Real World Data
- ✓ Class I medical device
- ✓ Validated for Good Clinical Practice
- ✓ Used by Top5 Pharma, hospitals, insurance companies
- ✓ Among the strongest ePRO/eCOA solutions in the market
- ✓ Supporting many studies in the therapeutic areas of oncology, infectious diseases and chronic conditions

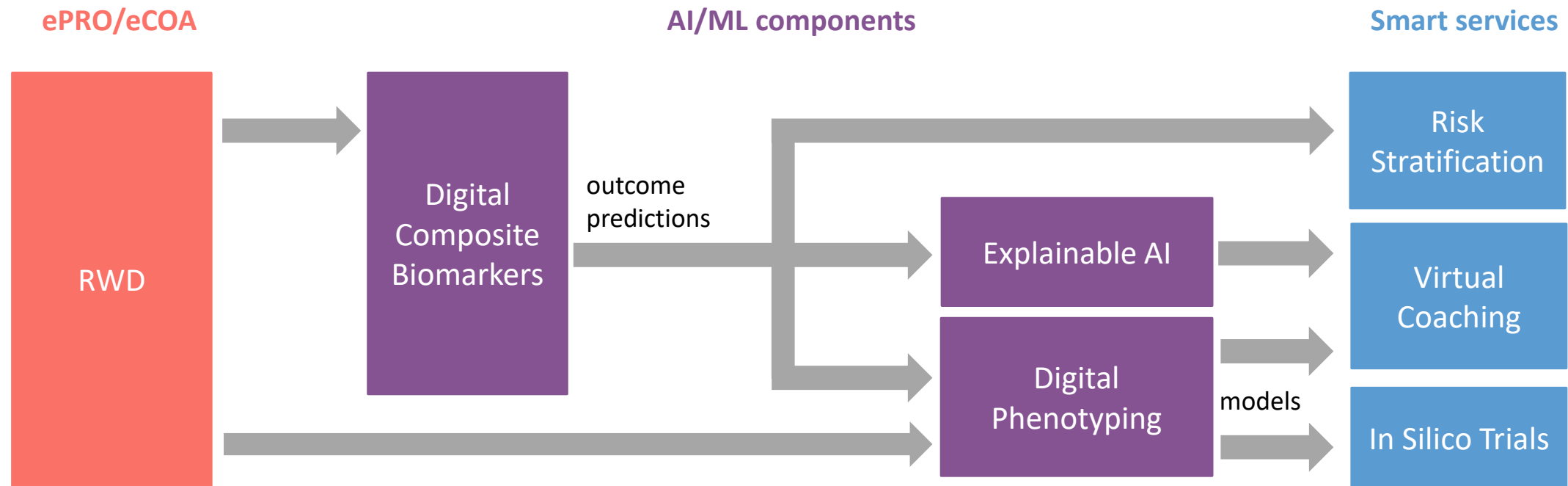


Medical Device Class I
ref. BE/CA01/1-72378



Healthentia AI & Smart Services

We collect **RWD** in clinical trials and eHealth/DTx applications and our aim is to unfold the potential of **AI processing** to extend the knowledge extracted and offer smart services.



Biomarkers in Healthentia

Composite biomarker: multiple measurements combined into a single metric via a predictive ML model used in disease diagnosis or outcome prediction

1. IDENTIFY CLINICAL OBJECTIVE



Domain experts select the **clinically significant outcomes** that need to be predicted by the biomarker(s) and the **lifestyle parameters** that will facilitate this prediction

2. COMPOSITE BIOMARKER DEFINITION & CUSTOMIZATION



Collaborative selection of the **most relevant attributes** for the composite biomarker between domain and technology experts

3. BIOMARKER DISCOVERY



Supervised **machine learning:** training of discriminative model. Select algorithm, train & tune its parameters, and evaluate its performance

4. OUTCOME PREDICTION



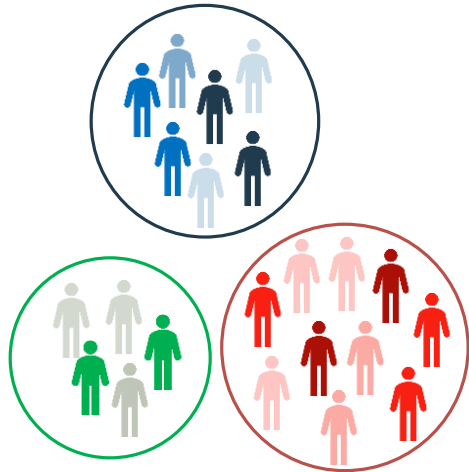
Online **prediction of outcomes** using the composite biomarker and **interpretation** of this predictions in terms of important attributes

Phenotyping in Healthentia

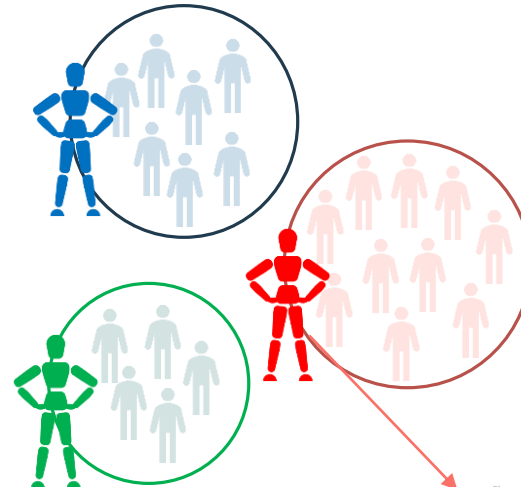
POPULATION



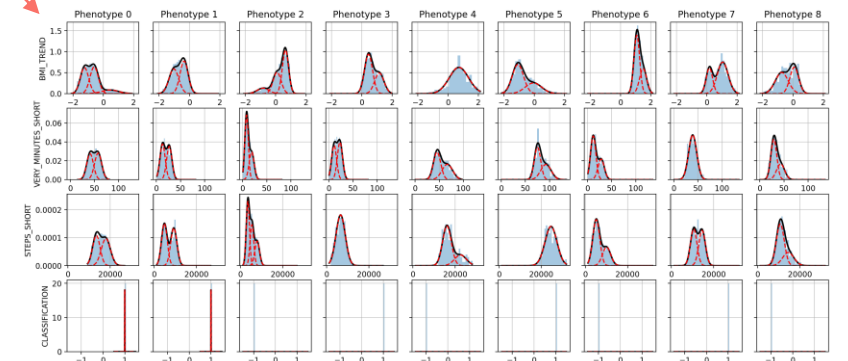
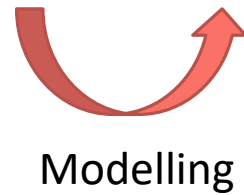
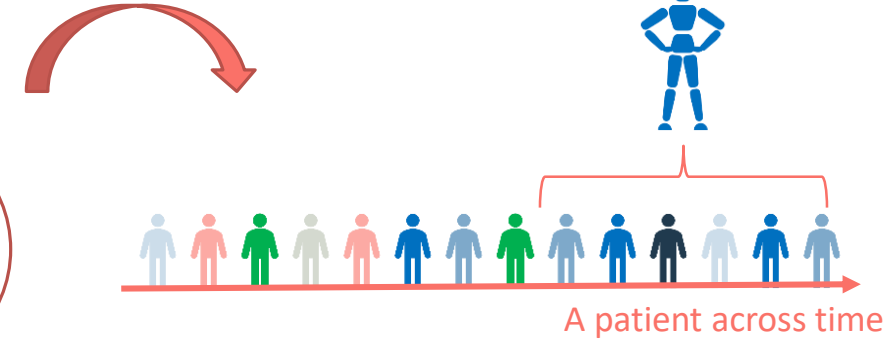
CLUSTERS



PHENOTYPES



Exploring patient trajectory



In silico studies

Mode #1



Domain expertise



Configuration of attributes

Healthentia phenotypes

Behavioral RWD simulator



- Behavior (lifestyle) data
- Clinical outcomes

Mode #2



Legacy data from CTs



Configuration of attributes

Legacy data biomarker discovery

Legacy data phenotyping

Phenotypes as generative models



- Synthetic data for control arm in CTs under regulatory framework

Mode #3



Legacy data from CTs



Configuration of attributes

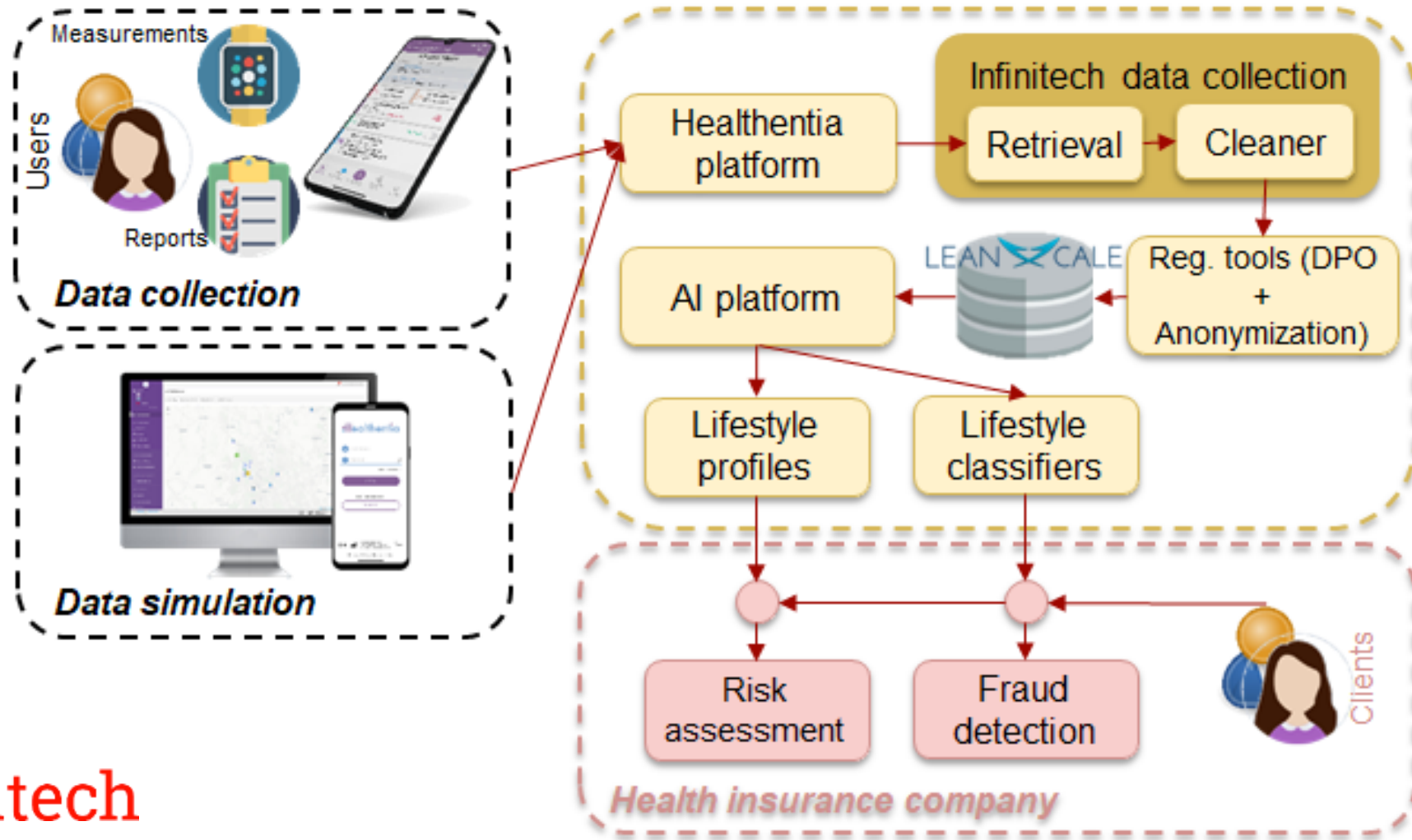
Healthentia phenotypes

Partial matching of new data to existing phenotypes

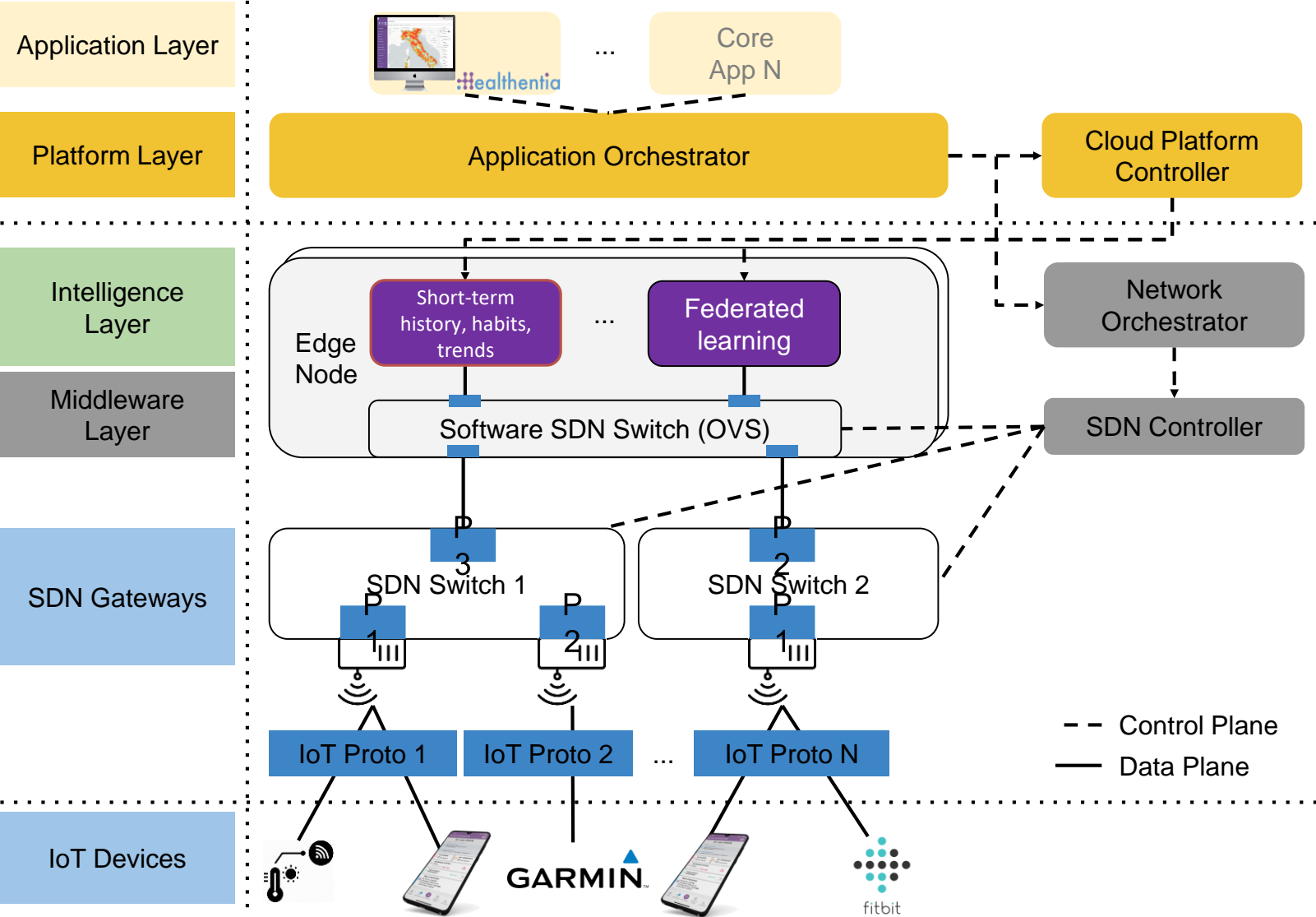


- Enrich legacy data with lifestyle information

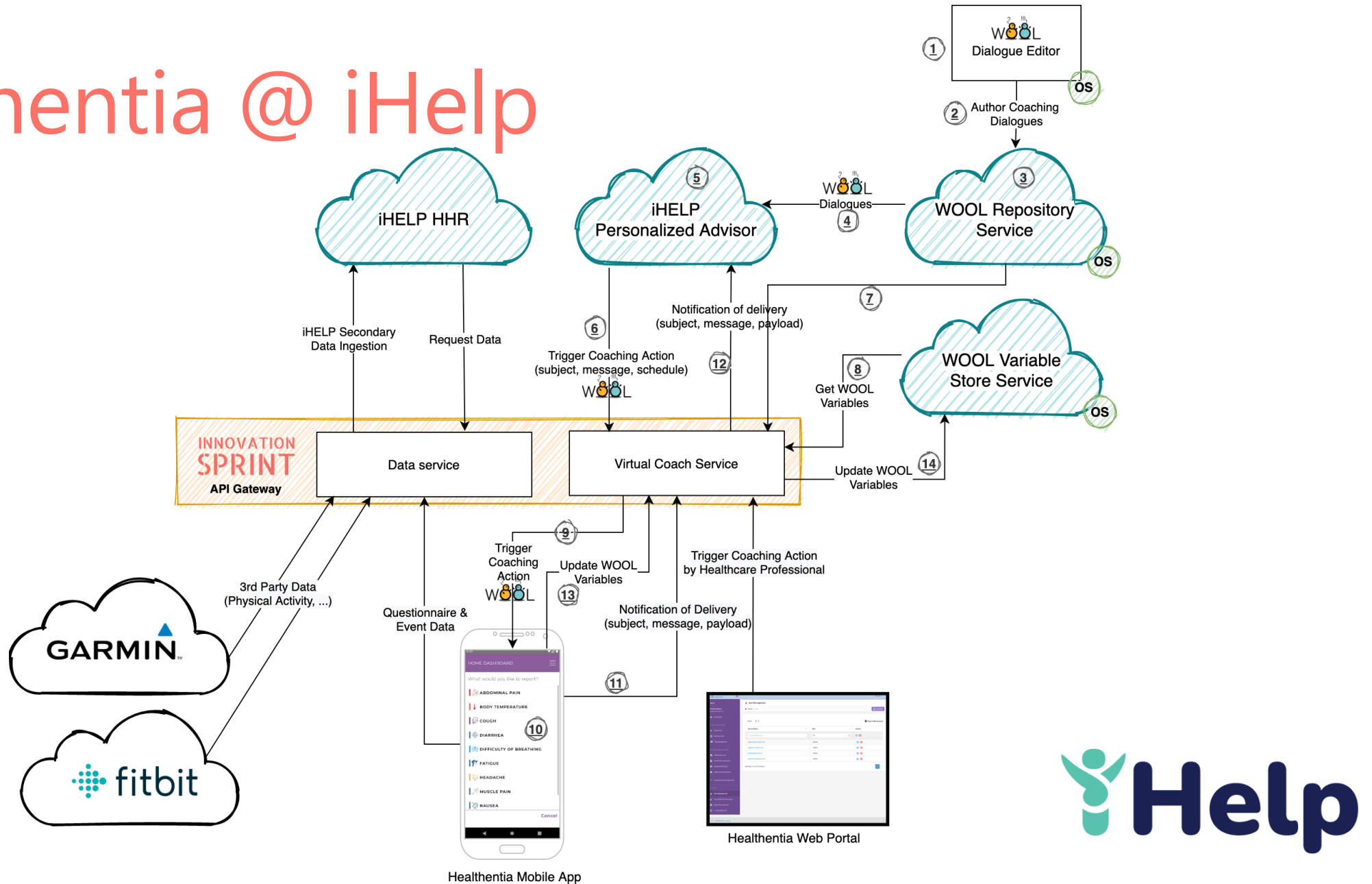
Heathentia @ INFINITECH



Healthentia @ TERMINET



Healthentia @ iHelp



innovationsprint.eu



BLSI, Clos Chapelle-aux-Champs 30
1200 Bruxelles, Belgium



@Innovation Sprint



@innovSprint



@innovationsprint.eu

#iSprint