Quarterly Meeting
April 7, 2022

The meeting starts at

11:30

Agenda

11:30-11:40	Welcome & introduction to EPI
11:40-12:40	Conference speakers: - Rosanne Turner - Saba Amiri - Milen Girma Kebede - Jamila Kassem - Tim Müller - Corinne Allaart
12:40-12:55	EPI PoC – collaboration UMCU & St. Antonius
12:55-13:00	Any other business
13:00	Closure

Who are we? - research institutions, healthcare providers and the private sector working together

Research institutions

vrije Universiteit

CWI

Universiteit van Amsterdam

Healthcare providers

St Antonius ziekenhuis

Prinses Máxima Centrum kinderoncologie

UMC Utrecht

Parnassia groep – Specialist in geestelijke gezondheid

Private sector

SURF

KPMG

Philips

Ministerie van Economische Zaken

Commit 2 Data – connecting business and science

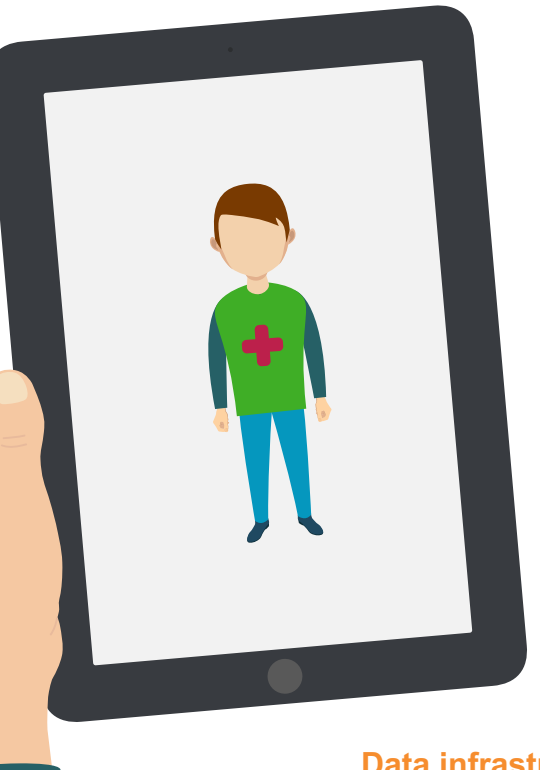
santeon

white box

ZonMw

NWO

Our research objective: designing, distributing and saving adaptive data in a secure infrastructure



The outcome of the EPI project is a digital health twin for self-join management

- All data will be collected of a patient
- Inform health decisions and avoiding unnecessary treatment
  Empower self/joint management of disease
- Able to perform with data gathered from different sources
- Deal with the variability, ownership, data protection and privacy issues

Distribution of Data & Algorithm
Making accurate predictions while preserving privacy constraints of remote data sources

Regulatory constraints and data governance
Automating the process of data sharing with different legal constraints

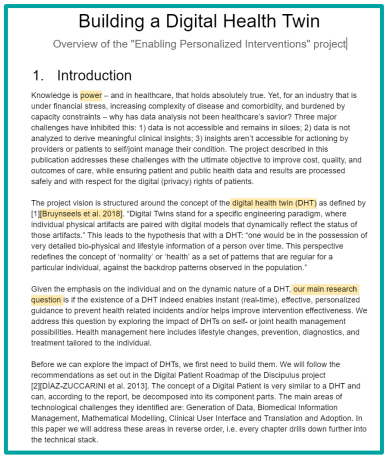
Data infrastructure
Design an architecture for the data from different sources

Adaptive health diagnosis
The models should be able to keep learning from new data and treatments

Analyzing interventions
Develop models that can predict the effectiveness interventions

EPI conference speakers

Research



Building a Digital Health Twin

Overview of the "Enabling Personalized Interventions" project

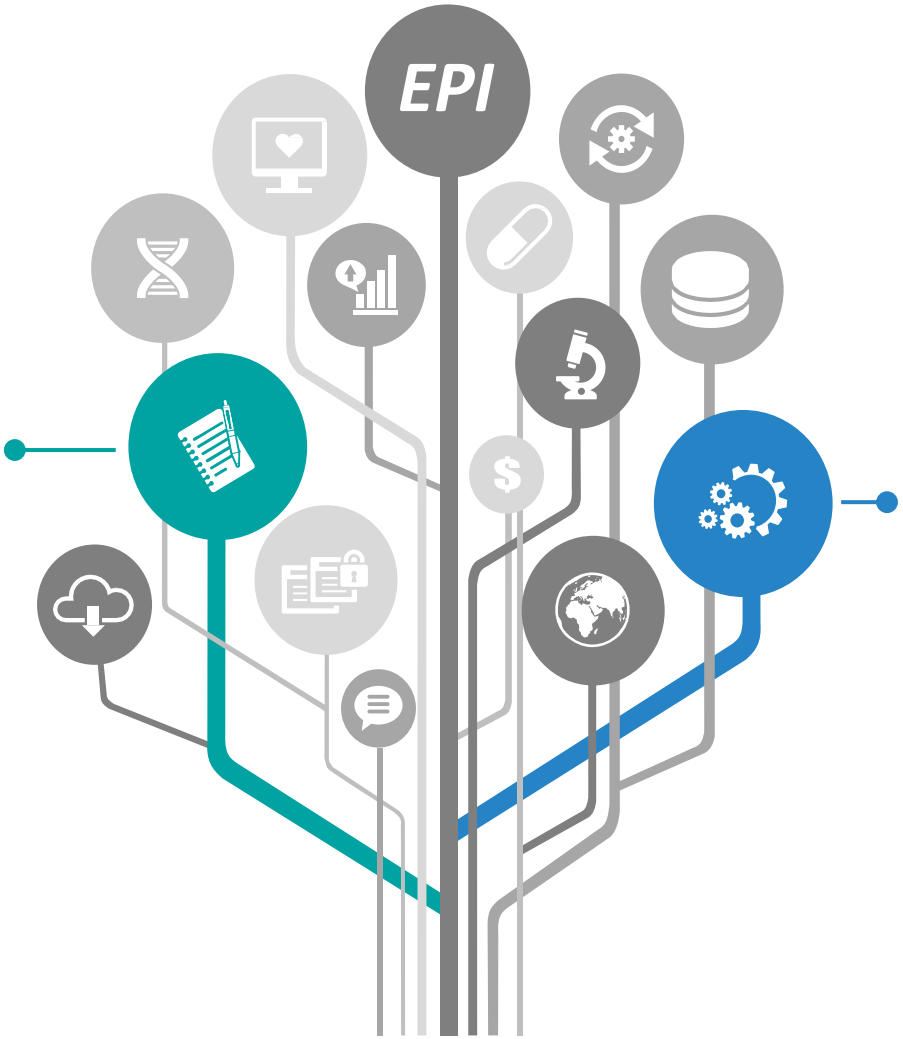
1. Introduction

Knowledge is power – and in healthcare, that holds absolutely true. Yet, for an industry that is under financial stress, increasing complexity of disease and comorbidity, and burdened by capacity constraints – why has data analysis not been healthcare's savior? Three major challenges have inhibited this: 1) data is not accessible and remains in silices; 2) data is not analyzed to derive meaningful clinical insights; 3) insights aren't accessible for actioning by providers or patients to self/joint manage their condition. The project described in this publication addresses these challenges with the ultimate objective to improve cost, quality, and outcomes of care, while ensuring patient and public health data and results are processed safely and with respect for the digital (privacy) rights of patients.

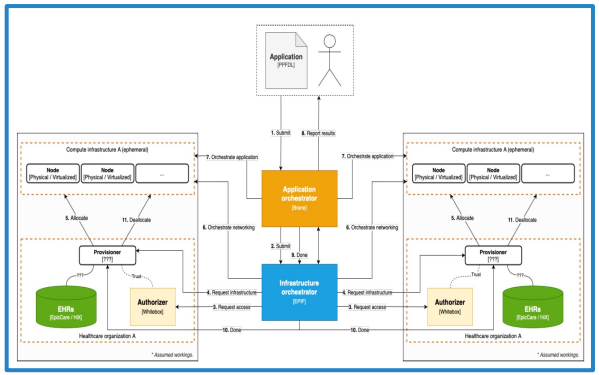
The project vision is structured around the concept of the digital health twin (DHT) as defined by [1][Bruynseels et al. 2018]. "Digital Twins stand for a specific engineering paradigm, where individual physical artifacts are paired with digital models that dynamically reflect the status of those artifacts.' This leads to the hypothesis that with a DHT: "one would be in the possession of very detailed bio-physical and lifestyle information of a person over time. This perspective redefines the concept of 'normality' or 'health' as a set of patterns that are regular for a particular individual, against the backdrop patterns observed in the population."

Given the emphasis on the individual and on the dynamic nature of a DHT, our main research question is if the existence of a DHT indeed enables instant (real-time), effective, personalized guidance to prevent health related incidents and/or helps improve intervention effectiveness. We address this question by exploring the impact of DHTs on self- or joint health management possibilities. Health management here includes lifestyle changes, prevention, diagnostics, and treatment tailored to the individual.

Before we can explore the impact of DHTs, we first need to build them. We will follow the recommendations as set out in the Digital Patient Roadmap of the Discipulus project [2][DÍAZ-ZUCCARINI et al. 2013]. The concept of a Digital Patient is very similar to a DHT and can, according to the report, be decomposed into its component parts. The main areas of technological challenges they identified are: Generation of Data, Biomedical Information Management, Mathematical Modelling, Clinical User Interface and Translation and Adoption. In this paper we will address these areas in reverse order, i.e. every chapter drills down further into the technical stack.



Technology



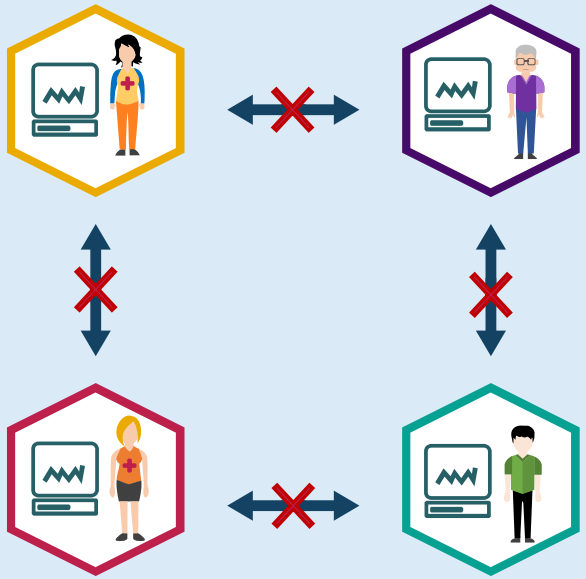
Pilot UMCU & St. Antonius

ST ANTONIUS
een santeon ziekenhuis

UMC Utrecht

A distributed method for the creation of prediction models for CVA patients

Develop and train a recommender to predict the best treatment for individual patients, while not sharing any data



Any other business

Join our **LinkedIn** group to stay informed about the developments of the EPI project !

EPI LinkedIn group:
Enabling Personalized Interventions (EPI)

For more information please contact:
Eline van Dulm
vandulm.eline@kpmg.nl
+31 6 236 332 14

Thank you!

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