



MyHealthData

Scenarios for the Use of Health Data by Patients

As people are living longer than before and chronic disease is on the rise, traditional health systems are being pushed to their limits. Enabling patients to become more self-aware and in control over their health is key for a better, more sustainable healthcare worldwide. In order to achieve that medical stakeholders must allow citizens to easily access their personal health information and equip them with tools to gain insight into and better manage their lifestyles.

However, disclosing patients' health data comes with a number of constraints. On top of the legal and ethical issues – related to the privacy and security of citizens' personal health data –, medical stakeholders must also have a say on what people should access in their medical records. Close attention should also be given to how that information is displayed, taking into account usability, patients' needs and requests and proper data contextualization. Personal Health Records (PHR) solutions require patients' to manually input and maintain their data, which ultimately leads to a lack of motivation on the patient's side, in addition to potential data quality issues.

MyHealthData investigated possible scenarios for successful PHR applications, backed by medical information that is maintained by various stakeholders. The project focused on the requirements of such a platform from the perspectives of both patients' and caregivers, how such a platform might impact the interaction between patients and caregivers, and the underlying legal framework.

"The Federal Government has made it a priority to develop concrete solutions to enable patients to access their own medical records in a comprehensive way," states Marc Claesen, MyHealthData (imec - ESAT - STADIUS - KU Leuven). "During this project, we have conducted user research involving both patients

and general practitioners (GP). We applied generative techniques, explored the potential of this near-future technology through design fiction, and validated our findings through extensive surveys. We have analysed potentially interesting information from GP and mutual health expenditure databases, in order to understand what type of information is available and how it could be disclosed to patients. We've taken into account both the patients' needs and expectations, and the caregivers' concerns. We have been able to draw very interesting conclusions and develop solutions with great potential for future applications."

THE OUTCOMES

1. A solution for a comprehensive display of patients' health records

"By performing in-depth analyses on the primary care and health expenditure data that were available in the project, we gained insight into the possibilities and limitations of data-driven enrichment of patients' medical histories," explains Marc Claesen. "Afterwards, based on the interviews and surveys we conducted on both patients and caregivers, we developed a prototype of what the platform could look like – not only regarding what could be accessed, but also how to present the information in a concise, understandable and visually appealing way."

Additionally, the administrative information embedded in health expenditure databases maintained by mutual health insurers presents a valuable tool to inform patients about their healthcare costs and, most importantly, their reimbursements, often behind the scenes via third-party payments. "We focused on providing an intuitive, structured way of presenting these administrative records that is useful to patients," continues Marc Claesen. "To achieve this, reimbursement information is shown on different aggregation levels, ranging from high-level information – for

example on the number of consultations or hospital admissions – to comprehensive lists of individual medical interventions and drug purchases.

2. An automatic scheduling solution for patients' daily medication

It is dangerously common for elderly citizens to make mistakes when taking their medication. Wrong combination of pills or incorrect dosages are recurring issues which can potentially cause complications in these patients' already fragile health.

With that in mind, the MyHealthData consortium developed a solution to automate medication schedules. With the use of a simple camera, patients simply need to photograph all boxes of medication they are currently taking. The platform then analyses each drug's underlying features – such as posology and potential interaction with other drugs – and proposes schedule for medication intake.

NEXT STEPS

Several partners have shown interest in further pursuing the solutions developed and questions raised during the MyHealthData project, from both academic and industry perspectives.

"The key lessons we have learned during MyHealthData relate to how we can enable patients' to access their medical records without raising concerns amongst caregivers," states Pieter Baeyaert (Corilus). "Further research and prototyping is required, but we will certainly pick up the solution we have developed here and take it one step further."

AGENTSCHAP
INNOVEREN &
ONDERNEMEN



Vlaanderen
is ondernemen

The MyHealthData project was co-funded by imec (iMinds), with project support from Agentschap Innoveren & Ondernemen.

MyHealthData project partners:



MINDBYTES

health
CONNECT
ICT EXPERTISE THAT CARES



EBMPracticeNet

FACTS

NAME	MyHealthData
OBJECTIVE	Developing suitable solutions to unlock patients' health data
TECHNOLOGIES USED	Big Data, machine learning, Apache Spark
TYPE	imec.icon project
DURATION	01/01/2015 – 31/12/2016
PROJECT LEAD	Pieter Baeyaert, Corilus
RESEARCH LEAD	Marc Claesen, imec - ESAT - STADIUS - KU Leuven
BUDGET	2,109,624 euro
PROJECT PARTNERS	EBMPracticeNet, CEBAM, Corilus - HealthConnect, Landsbond Chistelijke Mutualiteiten (CM), MindBytes
IMEC RESEARCH GROUPS	HCI - KU Leuven, ICRI - KU Leuven, mintlab - KU Leuven, ESAT - STADIUS - KU Leuven, KU Leuven - Academic Centre for General Practice (ACGP)



WHAT IS AN IMEC.ICON PROJECT?

The imec.icon research program equals demand-driven, cooperative research. The driving force behind imec.icon projects are multidisciplinary teams of imec researchers, industry partners and / or social-profit organizations. Together, they lay the foundation of digital solutions which find their way into the product portfolios of the participating partners.

AMERICAS

raffaella.borzi@imec.be
T +1 408 386 8357

JAPAN

isao.kawata@imec.be
T +81 90 9367 8463

CHINA

timo.dong@imec-cn.cn
+86 13564515130

TAIWAN & SE-ASIA

mavis.ho@imec.be
T +886 989 837 678

EUROPE & ISRAEL

michel.windal@imec.be
+32 478 96 67 29

VIETNAM, BRAZIL, RUSSIA, MID EAST, INDIA

max.mirgoli@imec.be
T +1 415 480 4519

DISCLAIMER - This information is provided 'AS IS', without any representation or warranty. Imec is a registered trademark for the activities of IMEC International (a legal entity set up under Belgian law as a "stichting van openbaar nut"), imec Belgium (IMEC vzw supported by the Flemish Government), imec the Netherlands (Stichting IMEC Nederland, part of Holst Centre which is supported by the Dutch Government), imec Taiwan (IMEC Taiwan Co.) and imec China (IMEC Microelectronics (Shanghai) Co. Ltd.) and imec India (Imec India Private Limited), imec Florida (IMEC USA nanoelectronics design center).