Title of the challenge: Big Data and AI for wearables' data analysis and personalised health recommendations generation

Name of the healthcare provider: Eligimosalud (Sanitas group)

Looking for:

We are looking for Big Data and AI solutions for data analysis, insights and health recommendation generation, based on data collected by Sanitas Connected Health Programme where we monitor customers with the help of IoT, with the goal to scale up the service and reach a much larger number of customers in a more personalised way.

What you are looking for (longer description)

Our Connected Health Programme has been running for some time now and we would like to go a step further. We currently monitor customers with the help of IoT and then health professionals give them recommendations to help them reach their goals. We are now looking for **Data and AI solutions**, which based on the data obtained from our customers' wearables and other sources, allow us to:

1. **Analyse this data**, establish templates, **understand value** and provide expertise in **data "Crunch"**
2. Establish processes that allow to **cross feed data with internal + external sources** to establish health opportunities, next best action schemes, etc.
3. Design solutions to provide **next best actions/ propositions/ value for the customer**, maximising health outcomes for those that share their data with us

We would like this to be an **automatic process**, that would **continuously** ingest our data, continuously obtain insights and continuously generate recommendations, which would mainly benefit two groups of stakeholders:

1. It would help our **health professionals** in their diagnosis and decision-making processes, at the same time it generates automatic alerts and recommendations for customers
2. This would improve the digital solutions we offer our **health insurance customers**, with more personalised and precise ways of looking after them, and allow us to scale up our services and reach more people

Target group:

This tool should be able to discover new insights and unknown relations between different indicators or sets of data, so the **main users** would be the **health professionals** guiding and accompanying our customers, as it would help them make better decisions.

However, this would mainly **benefit** our Connected Health's target audience; people who want to live a **healthier life** and **use devices to measure data**, such as physical activity and sleep quality, and therefore are used to a certain level of technology use.

Description of the challenge

A few years ago, we launched our **Connected Health Programme**, where customers share with us **data collected by their different wearables** and connected devices (smart watches, connected scales, blood pressure monitors, pulse oximeters…), so that we can help them live **healthier lives**. In a videoconsultation with a health professional (doctor, nurse, psychologist…), they establish the customer's health goals, set objectives and normal ranges for the different indicators and the active monitoring begins. From this point on, customers and health professionals have different touch points, where based on the data collected, they'll see if the former is achieving these goals, if they should be modified… If at any point any of the indicators is out of the established limits, an alarm is triggered and the health professional contacts the customer to see if he needs any type of help.

At present the doctor follows up and **"manually" analyses the customer's data** in order to make different health recommendations. However, we would like to move to the next level, as we know that we can do great things with the huge amounts of data we manage. We are sure that with the help of **AI** we should be able to **discover new relations between different indicators**, that would allow us to offer more **sophisticated and personalised recommendations** that would be more valuable for our customers, maximising their health outcomes and building towards our objective of a more personalised and precise healthcare.

Today **4.000 customers** are part of our Connected Health Programme, but we would like to reach a higher number. However, we currently have a great **dependency on the health professionals**, that "manually" analyse the data and set the recommendations. A tool that could analyse this data for us, obtain insights and automatically generate health recommendations would allow us **to scale up our service** and reach more customers.

We are currently looking for different AI solutions but haven't tested any for the moment.

3. Describe in depth which kind of solution you are looking for.

Since we launched our Connected Health Programme, we have gathered **great amounts of data** from our customers' that we aren't exploiting as successfully as we could. We are sure there are relations between different sets of data that are unknown to us today and that having this knowledge would help us find patterns we could lean on to offer services that are **more tailored** to our customers.

This is why we would like to find an **AI solution** that is able to **analyse these great amounts of data** (providing expertise in data "crunch"), be able to **cross feed** this data with other internal and external sources (such as EHR, demographic, geographic data…) obtain insights

and finally **generate individual health recommendations** for each customer, based on the learnings obtained from the collective data.

Ideally this **process should be continuous**, which means that the data should be constantly analysed, to obtain new insights and updated health recommendations for customers.

We could start analysing a smaller number of indicators, and slowly add more sources of data to sophisticate our outcomes. Our aim is to have this **available**, or at least an MVP, by the **end of 2022**. More information in the document attached.

Challenge template

Title of the challenge: Autonomous hospital cleaning solutions

Name of the healthcare provider: Tartu University Hospital
Contact person: project manager Richard Jalakas richard.jalakas@kliinikum.ee

What are you looking for(short description of the solution/product/technology you are looking for):

We are looking for innovative, creative and environmentally friendly autonomous cleaning solutions that could be used for cleaning hospital wards and patient rooms. We are interested in robotic devices, but also other products that could assist humans in the hospital rooms cleaning and disinfection process.

What are you looking for (longer description):

We are in shortage of nursing staff and therefore we are looking for solutions that could reduce the amount of time the nursing staff puts into all sorts of cleaning (floors, beds, toilets etc) and disinfecting related duties to ensure best possible hygiene. In addition since 2019 we decided to implement EU Eco-Management and Audit Scheme (EMAS) with the aim to become more environmentally friendly. Therefore we are very open to sustainable and creative solutions - it can be a robotic device, but it can also be something else. We have not tested any autonomous cleaning solutions, but we are part of a pilot projects, where we test robotic devices that carry lab tests between intensive care ward and the lab. The solution will be used by the nursing staff. We are open to test the solution in various environments that are in a traditional university hospital, such intensive care departments, isolated patient rooms, regular stationary departments, ambulatory departments, hallways etc.

Target group:

Our main end users is the nursing staff (nurses and care takers) and dedicated cleaners.

Description of the challenge

In total there is 95000 m² of cleanable space in our hospital. Cleaning and disinfecting hospital rooms is time-consuming and requires extra knowledge. Sometimes we also pay for external cleaning company, which is extra cost for us. Also there are multiple guidelines for the nursing staff about cleaning processes and there are various cleaning equipments, which have different purposes.

And it has been well said by Peters et al. (2018)[1] that „*The best cleaning substance in the world is useless if not applied correctly, and the best-trained personnel are useless if the product they are using is not effective against the particular pathogen that needs to be removed or killed*".

Therefore we are especially open-minded to creative autonomous solutions that have multiple functionalities, but the proposed solution could also do one thing good – such as floor cleaning.

Regards floor cleaning we currently use traditional floor cleaning machines operated by humans, but we have seen in the news that there are many autonomous robotic cleaning devices operating in hospitals, some of which even also know how to tell jokes. Our ideal solution does not have to know how to tell local jokes, but it would be nice if the product is good looking (appealing to health care professionals and patients) , is easy to use and is environmentally friendly. The solution should be able to manouver in tight spaces (such as under the patient bed), wet and dry clean and also disinfect different surfaces (e.g patient room floor, patient room toilet floor, patient bed frame, windows etc). The solution itself also should be disinfectable. In general we are open-minded about the solution and ready for co-creation.

References:

1. Peters, A., Otter, J., Moldovan, A. et al. Keeping hospitals clean and safe without breaking the bank; summary of the Healthcare Cleaning Forum 2018. Antimicrob Resist Infect Control 7, 132 (2018). https://doi.org/10.1186/s13756-018-0420-3.