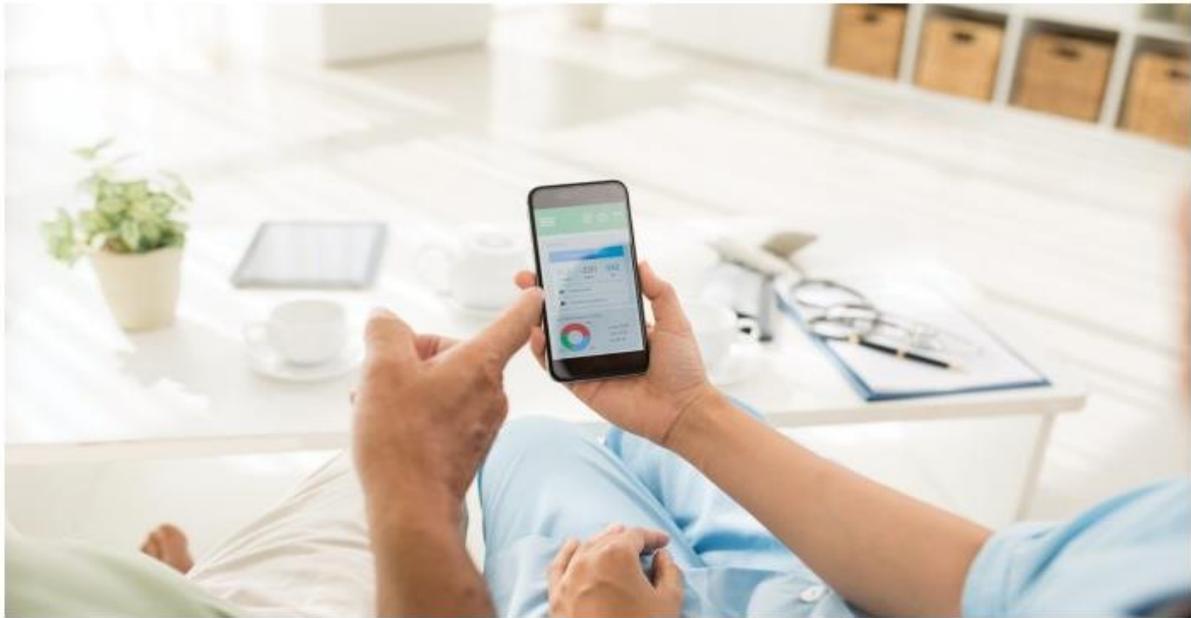# DMCoach: helping Type 2 diabetes patients to take charge of their health

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DMCoach is able to collect data from any off-the-shelf activity tracker which exports its API in standard format.

Matteo Melideo, from the EIT Digital-supported DM Coach app project, explains how the new app can provide personalised guidance to people with Type 2 diabetes.

Diabetes Mellitus is a disease that affects 60 million people in Europe, with 87-91% having Type 2 diabetes. They are treated by clinicians in traditional ways, such as medical examinations, in-person training in dedicated centres and ad hoc information and advice.

The DMCoach team is developing a solution that supports Type 2 diabetes (T2DM) patients with personalised guidance. It helps people to understand how to manage their diabetes better, supports their communication with their clinican, monitors key disease parameters and keeps them informed about recommended healthy behaviour for them and what to avoid.

SciTech Europa spoke to Matteo Melideo, the project's Activity/Business Champion lead and Research & Innovation Manager at Engineering Ingegneria Informatica SpA, about the new app and how it can help Type 2 diabetes patients.

To begin, perhaps you could outline the current landscape? If there are some 1,100 diabetes apps available for iOS and Android in 27 countries, but only 1.2% of patients with diabetes that have a smartphone use a diabetes app, what are the biggest barriers?

When considering the biggest barriers to the wider use of such apps, we should at least consider the following:

- Most of these apps are not designed to address the patients' profile and needs, and they are designed to be 'one size fits all';
- Most of these apps still rely to a great extent on manual input, making them boring and not easy to use;
- Only a few diabetes apps take care of the important motivational and behavioral aspects; and
- Only a few of them, and mostly for Type 1 diabetes, foresee an interaction with doctors.

How important is an enhanced level of patient engagement? How can this be achieved?

Patients' engagement is mandatory if you want to be sure they will accept the app. However, more than this is it is also important that the doctors accept it; if the doctors support the app, then the patients will definitely be keener to use it. This can be achieved by the so call 'co-design', which implies an involvement of the patients directly in the design of the app's user experience and functionalities.

Pratically speaking, it is a matter of organising focus groups, conducting questionnaires, and collecting important feedback from the literature and lessons learned.

What makes the DMCoach app different? How will you try to ensure it is continued to be used?

We aim to guarantee long term use of the app by addressing all the seven widely accepted best practices for diabetes apps. These are:

- Personalisation: metrics based on the user's lifestyle;
- Feedback: real-time and personalised feedbacks;
- Feature coverage: includes features to keep diabetes under control;
- Integration: multiple wearable devices;
- Motivational system: behaviour change;
- Ease of data input: automatic and manual data input;
- Design and user experience: fun to use;
- Provide psychological and clinically-verified advice; and
- Personal Coach feedback, as the patients will never be left alone but will be aware of the presence of his/her doctor as they monitor the collected data and, if needed, customise his/her goals and motivational feedbacks.

What would you say have been the biggest benefits of EIT Digital's support for the project?

Other than financially, EIT Digital is also supporting us in increasing the DMCoach visibility, counselling us, and creating awareness towards stakeholders.

2018 will see you finalise the patient app suite, complete user testing and clinical validation.What challenges do you anticipate, and do you have any longer-term ambitions?

The challenges are many in such a competitive market, but the most relevant one is to breach the cultural barriers that still exist in many individuals and healthcare organisations, and to try to capture their actual needs and expectations. The long-term ambition is to scale up the market, to embrace other sectors (e.g. workplace health promotion), as well as to extend coaching to all the other relevant chronic diseases (e.g. CVD and COPD, above all).

Physical activity is an important tool in the management of diabetes. How does the DMCoach app link to other devices designed to monitor this? Does the app have any other interaction with a patient's physical activity levels?

Other than the fact that it is designed to be integrated with the Chill+Band device offered by IMEC, DMCoach is able to collect data from any off-the-shelf activity tracker which exports its API in standard format. It is also able to retrieve this data by interacting with the Apple HealthKit or Android GoogleFit. This means that to collect basic data about physical activity it is sufficient to have a DMCoach downloaded onto a smartphone, which is also a way we hope to be able to convince members of the elderly population to use the app as, traditionally, this segment of the population can be reluctant to wear many devices, and so may be more likely to use the smartphone, as this is a more passive way.

Matteo Melideo

Activity/Business Champion lead

DMCoach app project

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