TOWARDS THE ORTHOPEDIC CARE JOURNEY OF THE FUTURE

A SERVICE ROADMAP DESIGN USING DIGITAL INNOVATION PROPOSALS FOR THE SMART CARE LAB

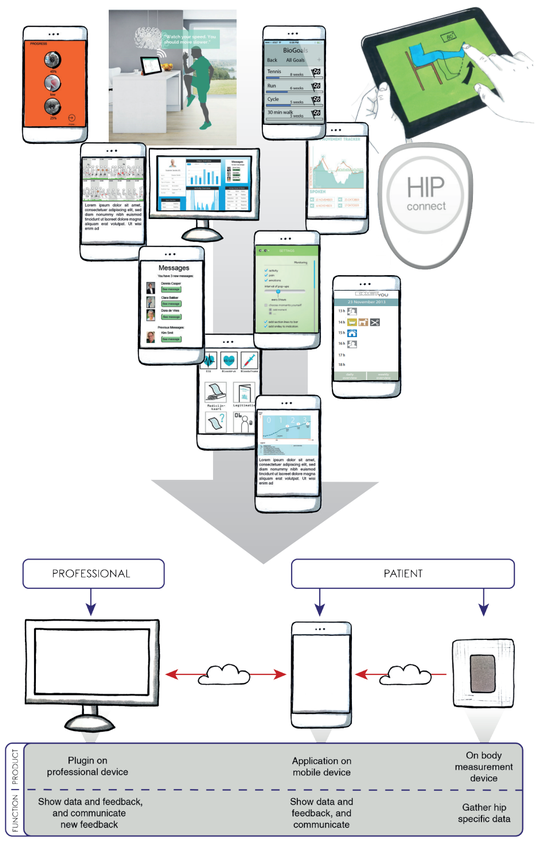
PROJECT BACKGROUND AND APPROACH

The implementation of digital innovations is becoming vital in the provision of healthcare. Only this way, issues concerning employee decline and increased demand for care can be tackled. Furthermore, it is seen as the key towards Person Centered Care, a concept where patients and health professionals act as partners in the treatment process. Many digital multi user innovations have already been developed to a conceptual level. However, the cohesion between these concepts and their future potential is yet under researched.
This projects aims to investigate both, with a new service model and service roadmap as a result. A service roadmap can be seen as a future timeline for the service model and its supporting elements. The project attempted to answer the following research question:

'How can service roadmapping enable an integrated service delivery using digital healthcare innovations?'

In this project, Orthopedic care was used as a case study, based on 41 concept demonstrators aimed at improving the orthopedic care journey with a special interest in hip Osteoarthritis. These concept demonstrators were developed by Integrated Product Design students under the umbrella of the 'HiPP project'; a collaborative effort between the TU Delft, Reinier de Graaf Gasthuis and Zimmer Biomet.

In executing this project, two main cycles can be distinguished; a research cycle and a design cycle. Within these cycles, there was moved back and fourth between certain topics in order to strengthen each other.



RESEARCH OUTCOMES

Within the research cycle, a back and forth analysis was performed between the concept demonstrators and the context of Orthopedic care.

The concept demonstrator analysis focused on the topics function, user and technology. This analysis showed that most concept demonstrators contained a service model focusing on achieving patient self-management, by obtaining insight, in the form of an app-wearable combination. The user analysis showed that the patient, General Practitioner, Orthopedic surgeon and the physiotherapist should be the multi user group. And finally, the tecnology analysis showed a need for technological enhancments in the concept demonstrator setup.

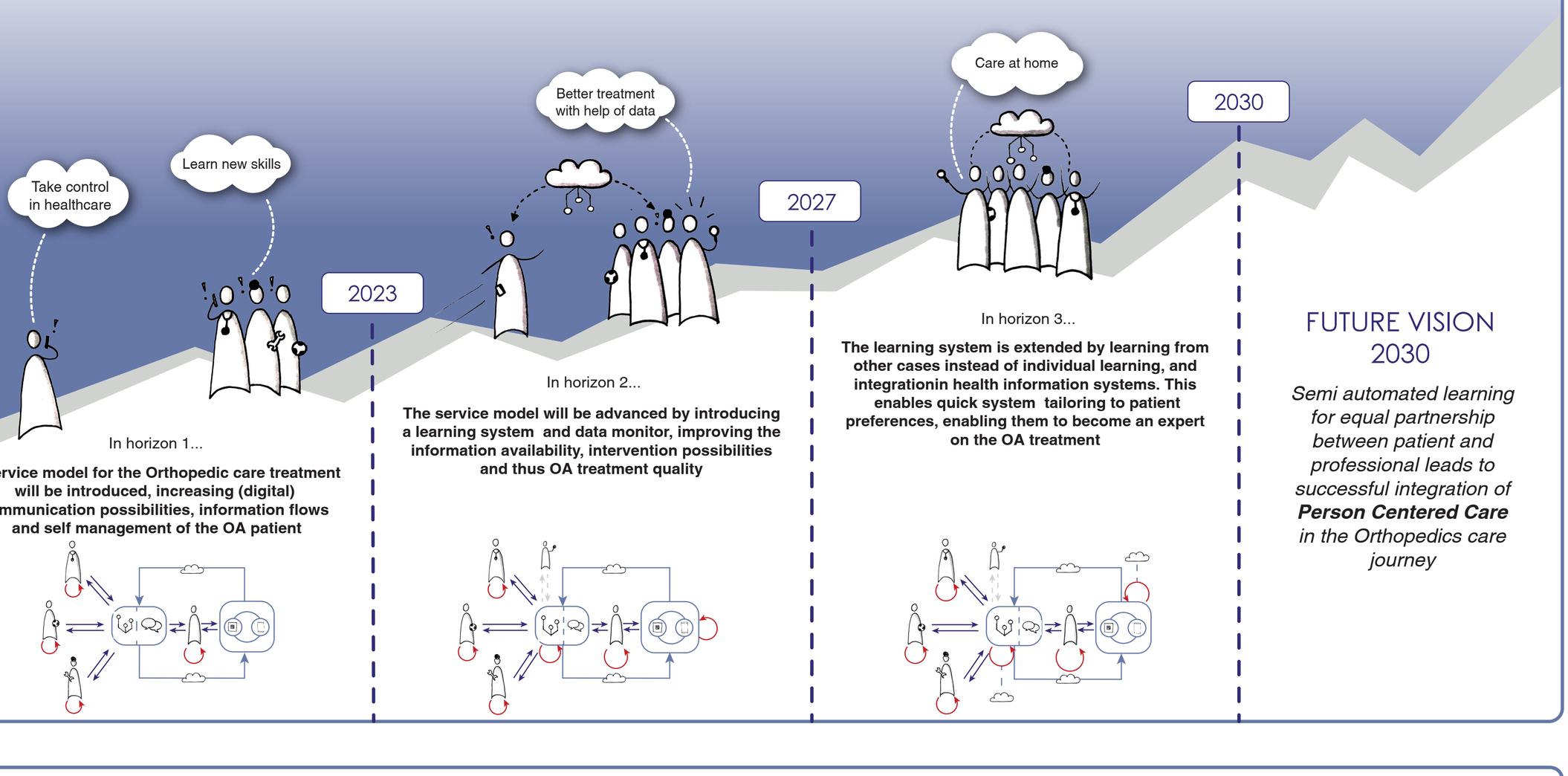
Next to the concept research, research on the Orthopedic care context was performed, with special interest in treating hip Osteoarthritis. The context research was focused on stakeholder explorations; both desk research and performing interviews in the field. Additionally, a trend research in both the socio-cultural and technological area was performed. This research highlighted the need for a shared learning aspect; both for the service users and the service itself. Furthermore, a need for enhanced personalization, information and communication was found, with the preservation of the 'human' aspect characterising the healthcare sector.

SERVICE ROADMAP

HORIZON 1
Making shared learning accessible and efficient

HORIZON 2
Making shared learning two sided for quality improvement

HORIZON 3
Semi automated shared learning for equal partnership between patient and professional



In horizon 1...

A service model for the Orthopedic care treatment will be introduced, increasing (digital) communication possibilities, information flows and self management of the OA patient

In horizon 2...

The service model will be advanced by introducing a learning system and data monitor, improving the information availability, intervention possibilities and thus OA treatment quality

In horizon 3...

The learning system is extended by learning from other cases instead of individual learning, and integrationin health information systems. This enables quick system tailoring to patient preferences, enabling them to become an expert on the OA treatment

FUTURE VISION 2030

*Semi automated learning for equal partnership between patient and professional leads to successful integration of **Person Centered Care** in the Orthopedics care journey*

SERVICE MODEL

Based on this research as a whole, three visions were created, next to a selection of 13 concept features from the concept demonstrators. These form the basis of the service model; one of the designs created for this project. It consists of an patient app, on body wearable and a plugin for health professionals, making it a multi user service. The service model will focus on providing information and feedback to all users in a personalized manner, about the patient status within the Osteoarthritis treatment. Furthermore, it allows for digital communication to occur. Future adjustments are primarily focused on improving the back end of the service, by adopting shared learning with help of Artificial Intelligence. This allows for minimal adjustments in workflow, but great improvements in learning activities. Ultimately, patient and health professional become partners in the Osteoarthritis treatment. In this way, Person Centered Care is achieved.

SERVICE ROADMAP IMPACT

To summarize both the drivers for innovation, the service model setup and the back-end enablers in the context of time, a service roadmap was developed. Both a strategic one to act as a summary and an in depth tactical version were created. These service roadmaps are perfect fit for a comprehensive overview of the future and an innovation To-Do list for all relevant stakeholders. Furthermore, it enables the presentation of an integrated service delivery, by allowing for a multi user setup and showing both the front and back end of the service delivery.

These roadmaps can be used by the Smart Care lab of the TU Delft to start further dialogue with stakeholders in orthopedic care, as well as a starting point for new projects focusing on user interactions of the service model, algorithms development and an implementation plan.

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