Using Service Design to Facilitate Complex Healthcare Innovation

Abstract
In this position paper we contemplate the use of service design methods and artifacts in order to support and comprehend/oversee complex healthcare innovation projects. In order to do so, we first sketch the context of a Flemish research project called “GPS4IntegratedCare”. In such projects characterized by a high number of stakeholders, a complex healthcare situation, and complex technology in the background we feel that more traditional HCD methods such as Personas and Scenarios might not be sufficient. By providing a detailed account of the objects and objectives of the project, we will highlight for which aspects Service Design might aid us in addressing the research challenges in the “GPS4IntegratedCare” project.

Author Keywords
Healthcare; methodology; complexity; communication; collaboration; patient experience.

Introduction
This paper does not present new research data or a review of the literature. Instead, it presents a contemplation of the use of service design a research project that started in April, 2016. In its current state
we are preparing and conducting the first activities namely discussions among all the partners in the project and the set-up of the user research that we as a HCI group will perform. We believe that contemplating and envisioning the use of Experience Design for Multiple Customer (or Patient) Touchpoints is valuable because it will help us articulate what we need from such methods and formulate the circumstances in which it can be valuable.

We will first briefly explain the research project we are involved in. Then, we will highlight how service design methods might help us provide a unified patient experience across all touchpoints.

**Case: GPS4IntegratedCare**

The research project in which we are considering the use of Service Design methods is called GPS4IntegratedCare [1]. This Flemish research project aims to facilitate the care management of patients with complex profiles such as congestive heart failure, cancer or Parkinson. Currently, care workflows are designed for single care organizations. These workflows map all the possible actions that can and should be taken for one condition, and these are determined by the medical specialist related to the respective condition (e.g. recommended courses of action for congestive heart failure are prescribed by organizations of cardiologists based). Workflows can be visualized as a flow chart. Determining which step has to be taken determines on certain results – resembling an if-then-else structure.

A first challenge in the project is that we will not be working inside one organization, but that we will focus on the transition of the care of the patient from the hospital to his/her home environment. In many cases it is cheaper for society when the patient can be at home instead of in the hospital. Furthermore, patients usually enjoy being home a lot more compared to being in the hospital. The incorporation of multiple organizations complicates the situation, as it increases the number of involved stakeholders and procedures: a GP, one or more medical specialists (cardiologist, oncologist...), nursing staff in the hospital, nursing staff for home care etc. each of those stakeholders has their own responsibilities and tasks to complete. Each of these stakeholders will have their own context-of-use. Just merely comprehending this for all the stakeholders involved can be quite daunting.

A second challenge in the project is that we work with complex conditions such as heart failure. The patients we will be working with often suffer from multiple conditions instead of just a single one. Therefore, they need to be assisted by several specialists (for example, a dietitian, a psychologist, a cardiologist, a physiotherapist...). It is difficult to align the treatment or recommendations when different conditions are involved. Furthermore, in some cases the advice given by two specialists might be in contradiction. For example, heart failure patients are recommended to restrict their daily fluid intake, as too much fluids in the body will put a higher burden on their heart. However, some of those patients also suffer from kidney problems for which they are recommended to drink plenty of water each day. These are situations that cannot be solved directly, not even from a medical standpoint. Other difficulties include drug interactions that are typical of some of the complex patient profiles we consider in the project.
A third challenge is that the existing workflows start from a standard patient profile. In our project we intend to take into account the individual characteristics of each patient in order to provide a personalized care path, both for their medical treatment as for their experience of in this care path. This obviously increases the complexity.

**Considering Multiple Touchpoints**

As the patient moves from the hospital to the environment of his/her own home, and encounters different people (medical specialist, nursing staff, pharmacist, informal caregiver), the risk of being confused and having a bad healthcare experience is significant. This is something we cannot afford, as the patients are already suffering from serious conditions. The goal of our research project is to improve the patient experience, and also their actual medical condition via the use of dynamically generated and personalized care workflows. Therefore, a first benefit we envision for the use of multiple touchpoints in this case, is that it allows us to map the patient experience in every step from the hospital to the home environment (and back). When we have done this, we are able to identify possible problems and start working on improving those situations. Given their condition and the fact that we will be using dynamic workflows, patients will sometimes have sudden changes in their care path. Being able to anticipate this, and provide a proper communication and explanation of the need for such changes, is essential in order to a positive patient experience.

Existing HCD methods such as Personas [3] and Scenarios [2] are certainly valuable and we have plenty of experience with them in other projects. However, due to the scale of this project, we believe that these traditional HCD methods will not be able to help use oversee all the stakeholders and all the possible interactions or touchpoints in this instance. Even though we have not yet really started gathering data in this project, the mere discussion on the topic and the goals of the project itself was difficult because of the complexity, and because of the highly specialized disciplines involved. Therefore, the second benefit of using multiple touchpoints is that mapping all the stakeholders involved and their interactions helps all project partners in their communication about, and the coordination of, the project. Having an overview artifact will support us in gaining a shared understanding, and using it as a working tool throughout the project.

**An overview of the stakeholders**

The patient is the most important stakeholder around which the service should be organized. In our case we are talking about patients with a specific form of breast cancer and patients with Parkinson. Both conditions are complex to treat and cannot be considered to be one condition only. Mostly, several conditions occur (co-morbidity) and drug interactions can become a problem.

The patient should be offered a unified experience in the entire healthcare system. We foresee this from the moment of diagnosis and especially focus on the transition from hospital care to home care.

The home nursing staff is one of the healthcare stakeholders that provide immediate care for the patient. In our case this concerns paying regular visits at home, performing measurements (blood pressure for
example), checking medication intake, writing up reports about the patients’ condition etc.

The specialist (oncologist for example) is only involved at specific moments. Certainly the diagnosis comes to mind. Afterwards, the specialist should be able to remotely follow up the condition of the patient, and be notified in case a consultation is required.

The general practitioner (GP) is the first line of medical expertise available to the patient. The GP is more accessible. Regular contacts with the GP can take place without involving the specialist. One reason can be to provide new prescriptions. In case something critical is discovered, the GP can refer to the specialist for further investigation.

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References