

Empowering Through Customization

System of Tools to Present NAVii® Protective Cover to Users and CPOs

Prosthetic limbs are devices that change users' lives in every aspect. They allow the wearer to live and be independent again. Nevertheless, despite the numerous benefits, they carry cultural stigmas, as well as physical and mental discomfort, along with various daily challenges. While the functionality and physical comfort of these devices can be objectively evaluated using instruments with differing levels of sophistication, assessing psychological well-being is highly subjective and challenging.

It is known that the aesthetic of prosthetic limbs can have a significant impact on the users' wellbeing. Research demonstrated that an aesthetically appealing prosthesis can improve user confidence and overall quality of life (Össur® systematic Review, 2022). It can promote a positive self-image and a more active involvement in society (Bekrater-Bodman, 2020), reduce the risk of anxiety, depression, and psychological distress and increase the frequency of use of the device (Lee et al., 2022). In this scenario customization emerges as a viable approach empowering prosthetic users to improve their life and the embodiment with their prosthetic limb.

This thesis has been conducted in collaboration with the prosthetic company Össur®. The project revolves around NAVii®, a new protective cover designed for the knee component of transfemoral prosthesis fig.1. For the first time, NAVii® users will be able to customize their prosthetic limb by choosing between five different colors and three available sizes.



Fig. 1: NAVi® protective cover

Össur® is now looking into the modalities by which these customization options can be presented to the market. The focus is on the main stakeholders: the prosthetic Users and the specialists CPOs (Certified Prosthetist/Orthotist) Fig. 2

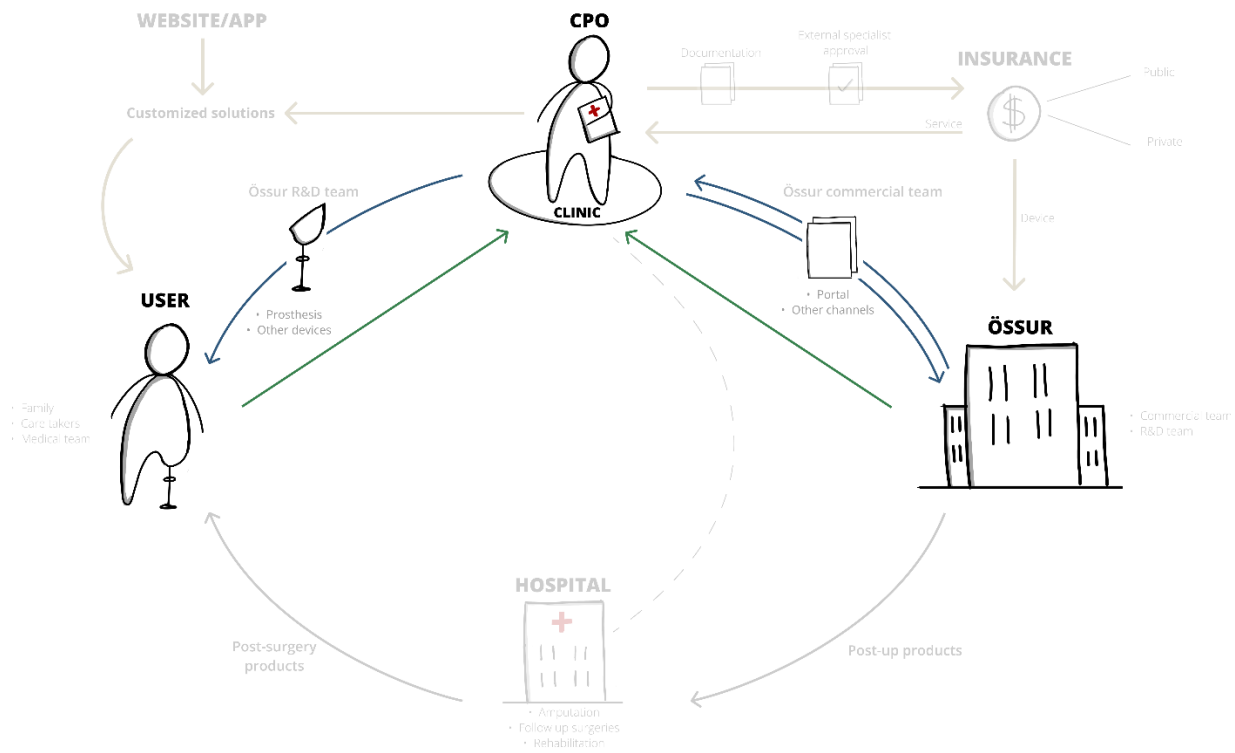


Fig. 2: Stakeholder of the system

The project takes a user-centered design approach that aims to a deep understanding of the users, the context, and the current system's dynamics. By applying qualitative research methods such as interviews, focus group and observation the goal is to improve the whole user experience during the selection of the additional NAVii® protective cover.

This research highlighted the impact of the different CPOs on the journey of each patient. Even though every user goes through a subjective amputation experience, it is possible to identify common touch points throughout the prosthetic acquisition process. Fig. 3

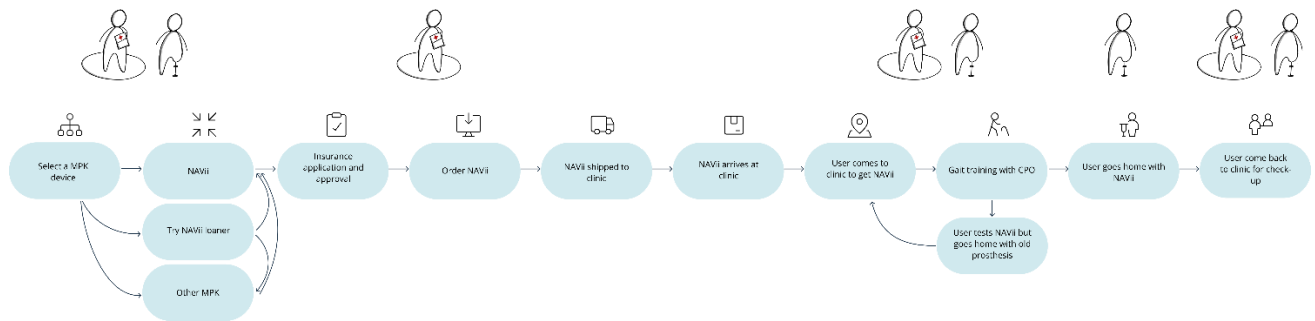


Fig. 3: Standard prosthetic acquisition process

The final design is the result of an iterative process of concepts prototyping and testing Fig. 4.

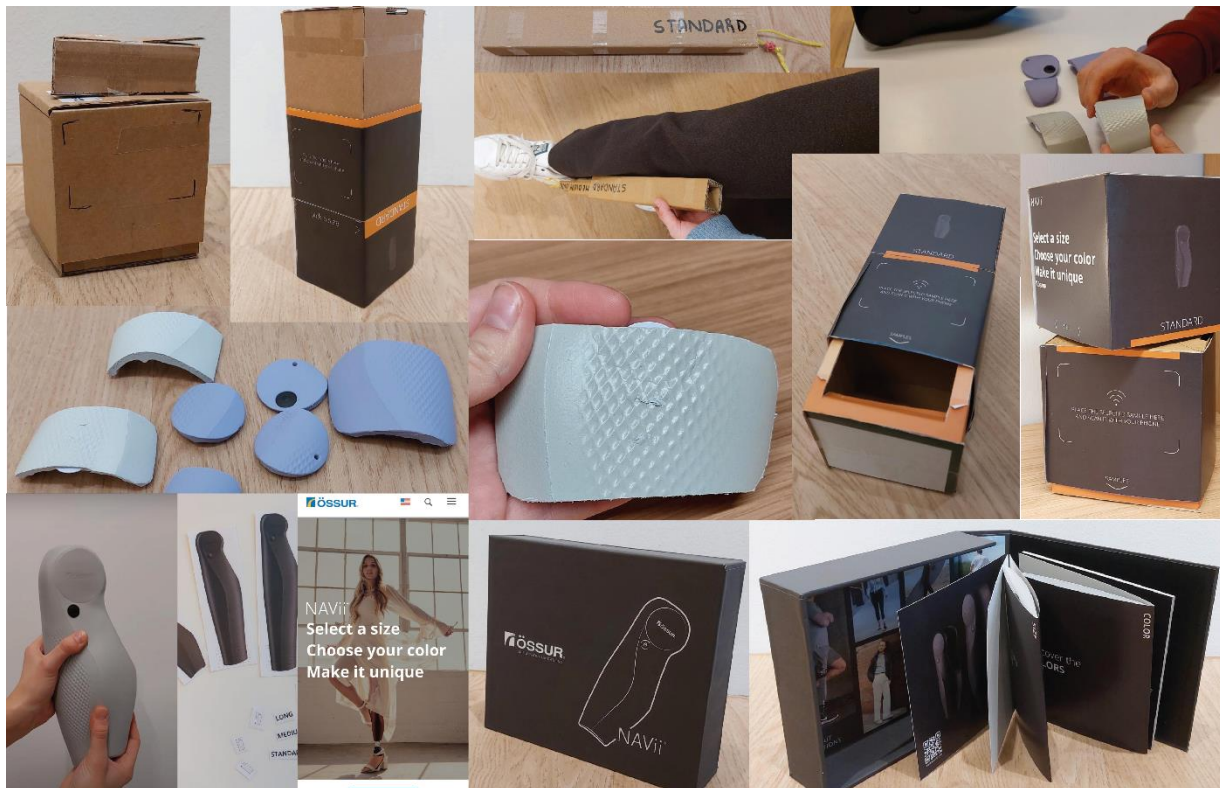


Fig. 4: Prototypes iteration

The findings obtained from the testing lead to the development of a system of tools that aim to support the CPOs and the users in the selection of the NAVii® protective cover. This new design system, fig. 5, can suit diverse user's needs. The design outcome yielded positive impacts on the user's psychological empowerment, consequently enhancing the CPO-User relationship.



Fig. 5: Design system, NAVii® presentation tools