

# Digital communication of polygenic risk for breast cancer to female recipients

## A service design approach

Technological advancements in genomic analysis have enabled the use of polygenic risk scores (PRS) to determine an individual's genetic predisposition to various diseases. The Estonian Health Insurance Fund (EHIF) is planning to introduce a service where 40-year-old women in Estonia can receive an indicator of their polygenic risk for breast cancer (BC). If a high PRS is detected, the individual is enrolled in the breast cancer screening program to identify potential cancer earlier.

Although PRS itself does not pose a direct health threat, its communication may cause worry and lead recipients to seek support from healthcare professionals, adding strain to the healthcare system. Therefore, EHIF aims to convey PRS results through a digital channel that helps recipients understand their results without causing undue worry or prompting unnecessary consultations. This graduation project focuses on the digital communication of BC PRS, aiming to provide recipients with peace of mind regarding their genetic risk by utilizing insights about genetic counseling methods (Figure 1). A literature review was conducted to analyze genetic risk, existing PRS services, and the informational and social support needs of recipients. To further understand the needs of 40-year-old women in Estonia, the target group for this service, 15 user and expert interviews were conducted.

Based on the insights from the interview studies and the literature reviews, the following aspects from genetic counseling are highlighted for creating a peace of mind for recipients receiving a BC PRS result:

- Use of empathic statements,
- reflective interaction with the recipients and clarification of PRS information,
- use of analogies,
- providing a sense of control to the recipient,
- framing genetic risk as a small change, and
- highlighting the value of PRS communication as an early warning.

As part of the conceptualization phase, a service blueprint and two roadmaps were developed.

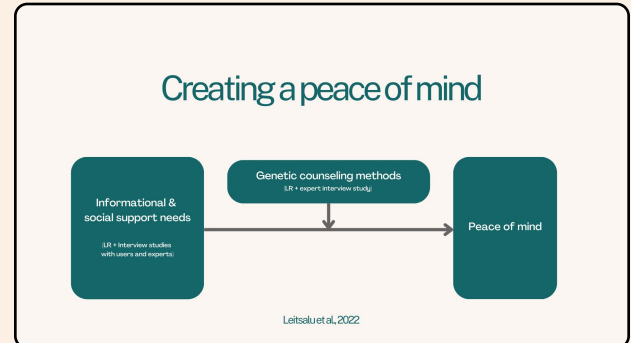


Figure 1: A schematic showing the approach to creating a peace of mind for PRS recipients by responding to informational and social support needs by utilizing genetic counseling methods (Leitsalu et al., 2022).

The service blueprint proposes the My Genetic Mirror concept, aiming to create an identity-focused perception of the service, simplify the PRS result using a fire safety metaphor, spread out information delivery to prevent overwhelming communication, and provide resources for follow-up questions.

To ensure the future development of the service concept, both a strategic (Figure 2) and a tactical roadmap were formulated. The future vision for 2030 of these roadmaps focuses on creating emotionally reassuring yet cost-efficient genetic health management for a peace of mind.

A preliminary evaluation of the service concept was conducted with four design students. The thesis concludes by highlighting contributions to new knowledge, identifying limitations, providing recommendations, and offering a personal reflection.

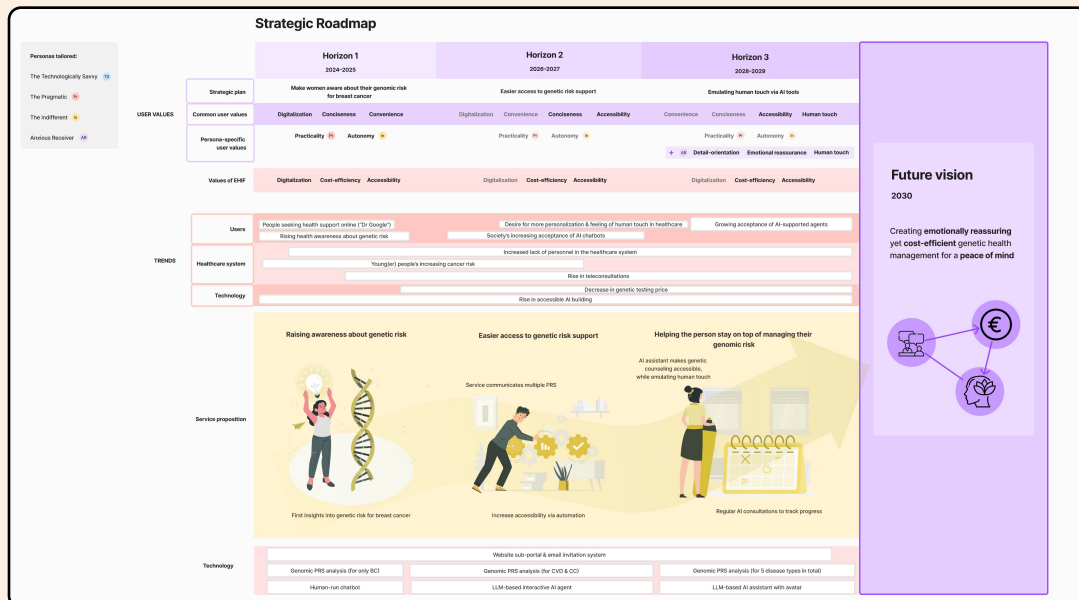


Figure 2: The strategic roadmap for the My Genetic Mirror concept.