www.lifana.eu

Lifelong Food and Nutrition Assistance

LiFANA

The LIFANA Nutrition Solution helps elderly people maintaining a healthy BMI as their metabolism is changing with age and their eating habits eventually need to be reconsidered. The core of LIFANA is a recommender system that creates personalized meal plans that help users to prevent malnutrition and muscle loss, targeting the total daily calories and proteins consumed.

LIFANA follows **WHO recommendations on food and nutrition** based on height, weight, gender and age. Users simply follow weekly plans that maintain a balance between fish, meat and plant-based dishes, ingredient variety, and macro-nutrients. Furthermore, users can specify food restrictions in their profile to exclude certain ingredients and meals, e.g. no pork meat. Healthy dietary patterns protect elderly against many chronic non-communicable diseases (NCDs) and decrease the risk of malnutrition. The LIFANA approach is complementary to existing food logging apps, which require manual interaction to keep a meal diary. The recommendations are based on regional recipe databases, annotated with references to relevant national food composition databases (FCDBs).

The project LIFANA adopted a **user-centered design** (UCD) process. To facilitate understanding of the user's needs, 17 seniors aged 80+, health professionals and caregivers participated to speak about the nutrition behavior of the target group. The app prototype has then been implemented and evaluated in four field trials in Portugal (14 months) and The Netherlands (3 months), two countries of very different socio-economic and cultural background, with a focus on acceptance and user friendliness, as well as changes of health-related aspects. Anthropometric measures have been taken (height, weight, (BMI), waist-hip circumferences, and partially (due to COVID restrictions) body fat, body water and also blood pressure) to observe major effects on health status. In total, for Portugal and the Netherlands combined, 292 (NL: 196, Pt: 96) users have originally participated, of which 55 (32 NL, 33 PT) completed the trials and from whom final responses were collected. While no significant anthropometric and blood pressure changes were observed, participants kept stable parameters (despite Covid-19), and questionnaires revealed that a market-relevant number of persons would consider using LIFANA in the future (30% in Portugal, 4.3% in the Netherlands).
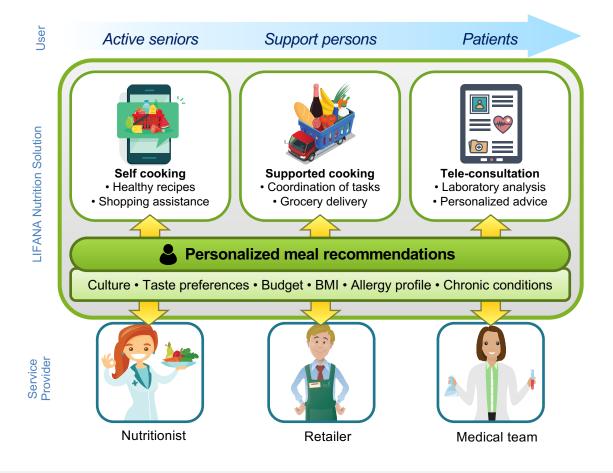
The strategy behind LIFANA's consortium is to support users during all phases of ageing. For active users (60+) the solution measures **physical activity level** to balance caloric intake using the GoLive wearable clip from partner Gociety Solutions.

For users with limited mobility, LIFANA conveniently integrates a digital shopping list with **grocery home-delivery services** provided by our Portuguese retail business partner SONAE to streamline the whole process of planning meals and acquiring food products. The retailer considers providing the LIFANA solution to their customers as part of the Continente app to promotes the practice of a healthy and balanced diet, adapted to the specific needs of the user. For SONAE it is important to evaluate the solution with more diverse types of customers and different age groups, so the expected time to market is two years.

Swiss partner Cereneo's key activites were aimed to integrate the LIFANA application in an interdisciplinary **tele-service approach** to enable a personal connection to stroke patients, coming from a sub-acute stroke rehabilitation program in the Cereneo clinic. Individual nutritional counseling is important as the health circumstances of the patients differ greatly regarding the severity of the illness and the course of therapy. Personalized nutritional advice will help to minimize preparation time for a nutrition expert by allowing easy access to relevant nutrient information of consumed meals. Besides, nutritional guidance is crucial for patients for reasons of secondary prevention and preventing malnutrition.