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Investigating effects of IT functionalities of wearable devices on their users

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ABSTRACT (MAX. 200 WORDS):

Smart wearable technology devices have facilitated self-monitoring that enables control of health and fitness through various metrics that are based on the collected data. Although wearable technology devices can be beneficial for health and well-being, their current level of adoption and commercialisation is still in the early phase, and researchers are attempting to identify the factors that impact the adoption of these devices. The predominant focus in the available literature on the adoption and continuous use of wearable devices has been based on the overall view of such devices and did not consider specific IT functionalities that are available within them. In this study, eleven users of fitness trackers were interviewed to investigate how specific IT functionalities of wearable devices influence the usage of such devices. To investigate that two theoretical frameworks were integrated, the Unified Theory of Acceptance and Use of Technology 2 and the Health Information Technology Acceptance Model. The results show that the constructs of Effort Expectancy, Performance Expectancy, Hedonic Motivation, Facilitating Conditions, and Perceived Threat are confirmed to have an impact on the behavioural intention to adopt and use wearable devices, whereas there is no unambiguous confirmation for Social Influence and Habit.

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Abbreviations

AI - Artificial Intelligence

BRT - Behavioral Response Theory

DOI - Diffusion of Information

ECT - Expectation Confirmation Theory

GDPR - General Data Protection Regulation

HBM - Health Belief Model

HIPC - Health Information Privacy Concerns Model

HIS - Health Information Systems

HIT - Health Information Technology

HITAM - Health Information Technology Acceptance Model

HWD - Health Wearable Device

IS - Information Systems

ISE - Information Service Evaluation

ITSM - IT self-monitoring

PCT - Privacy Calculus Theory

PHI - Personal Health Information

PMT - Protection Motivation Theory

SM - Self-monitoring

TAM - Technology Acceptance Model

TPB - Theory of Planned Behaviour

TTF - Task-Technology Fit

UTAUT - Unified Theory of Acceptance and Use of Technology

1 Introduction

In recent years life expectancy increased as a result of considerable improvements in healthcare provided by technological advancements, which had a big impact on demography (Kitsios & Kapetaneas, 2022; Olszak & Batko, 2012). As a result of a longer lifespan and the rise of chronic diseases, healthcare expenses may increase greatly in the following years (Kitsios & Kapetaneas, 2022; Olszak & Batko, 2012). Therefore, it is crucial to leverage the potential of the newest health information systems (HIS) and wearable technology to improve the efficiency and effectiveness of healthcare institutions and enable personalised health treatment for people who could engage in Self-monitoring (SM). Wearable technology has allowed people to take more charge of and better control over their health, shifting the focus of the healthcare industry from reactive to proactive prevention-oriented interventions (Gopinath, Selvam & Narayanamurthy, 2022). According to Kitsios and Kapetaneas (2022), the development of HIS will pave the way for the emergence of *Hospital 4.0*, which will rely on Big Data, Cloud Computing, and Artificial Intelligence (AI) technologies to provide care that is personalised and real-time. However, the usage of data from smart wearable devices, such as fitness trackers, for health and well-being is still scarce, despite the potential benefits they could yield regarding treatment and disease prevention (Lee & Lee, 2018).

The concept of self-monitoring, which refers to the process of increasing one's awareness of one's own symptoms or physical sensations by regular measurements, records, and observations, can be particularly useful in preventing chronic diseases (McBain, Shipley & Newman, 2015; Wilde & Garvin, 2007). Health monitoring can be facilitated through the use of smart wearable systems, specifically health wearable devices (HWDs), which may consist of smart fabrics, sensors, power supplies, communication networks, processing units, software, and algorithms that handle the data collection, processing, and decision support (Chan et al., 2012). Such devices can collect relevant information in the context of treatment or disease prevention, including heart rate, blood oxygen saturation, arterial blood pressure and respiration rate, and, ultimately, leading to a healthier lifestyle in general because of the functionalities that they contain (Chan et al., 2012; Ghose et al., 2021; Lee & Lee, 2018). The two primary categories of HWDs used for SM that are currently available are fitness and medical wearable devices (Gao, Li & Luo, 2015). Fitness devices are very often used by consumers who are in good health and want to track their physical activities to reach specified goals. Fitness wearables collect data about step count, sleep cycle, or calories burnt (Gao, Li & Luo, 2015). On the other hand, medical wearable devices are often designed for users with health problems, aiding in the management of diseases such as diabetes (Gao, Li & Luo, 2015). Both kinds of the devices contain different IT functionalities that are available to users.

Various IT functionalities are available in HWDs that can be used for different purposes. The most basic one is data collection since it is a primary task of SM (Jiang & Cameron, 2020). The data capture can be both automatic and manual, obesity monitoring is an example of such a case where exercises are recorded manually, but dietary intake has to be entered manually (Jiang & Cameron, 2020). Data display, push messages, and gamification are functionalities that are designed to induce users to reflect and act (Jiang & Cameron, 2020). Data display is a

very common IT functionality that in the case of many devices is limited to only raw data that can be aggregated and displayed with descriptive statistics (Jiang & Cameron, 2020). Yet, more sophisticated devices also include data-driven tailored insights and recommendations. In recent years functionalities such as push notifications and gamification have become more popular (Jiang & Cameron, 2020). Time-based push notifications can be leveraged to remind the user about specific tasks that have to be completed like physical activity (Jiang & Cameron, 2020). Gamification is the use of game design principles outside of the gaming context that can facilitate the achievement of selected goals by users through competition and higher motivation (Deterding et al., 2011; Ilhan & Henkel, 2018). Modern HWDs also have functionalities that enable some form of social connection like peer-to-peer interaction (Jiang & Cameron, 2020). These and other IT functionalities can benefit potential users, but there are also challenges that are associated with them. Data inaccuracy is one of such challenges which can lead to undesirable consequences because of incorrect suggestions that could be created by algorithms (Wang et al., 2017; El-Amrawy & Nounou, 2015). User engagement is crucial for the success of gamification, and the systems must be designed to accommodate users with different qualities (Hamari, Koivisto & Sarsa, 2014). Nevertheless, these functionalities together constitute HWDs that in recent years seemingly have become more popular.

Although wearables have the potential to improve health and well-being, there are various obstacles that impede their widespread adoption by users, including high costs, weight, size, connectivity, privacy, security, and ethical concerns (Chan et al., 2012). According to a report published by Fortune Business Insights (2020), the international market for health wearable devices was valued at USD 29.76 billion in 2019 and is expected to reach USD 195.57 billion by 2027, growing at a rate of 26.4% per year between 2019 and 2027. Wearable technology consumer research conducted by PwC (2016) indicated that every other adult in the United States already owns wearable technology, and usage is expected to continue growing. However, the rate of HWDs use has also been low, and customer adoption of HWDs has proven challenging (Wang et al., 2020). The study presented by Accenture (2020) revealed a significant drop in HWDs usage from 31% to 17% between 2018 and 2020 in England, despite the adoption increasing steadily up until 2018. Additionally, some statistics show that up to 30% of fitness trackers and smartwatches are abandoned due to breakage, unusability, or lack of interest (Gartner Inc, 2016). These statistics highlight the need to investigate the factors that influence user acceptance and the continued use of HWDs, especially in the context of their use for health and well-being.

User acceptance of HWDs has been investigated by IS researchers in recent years, with studies focusing on factors that affect their adoption (Gopinath, Selvam & Narayanamurthy, 2022). However, many previous studies have not examined how specific IT functionalities of HWDs impact their usage and have instead taken a more holistic view, even though some of the functionalities could hinder further adoption of wearables (Gopinath, Selvam & Narayanamurthy, 2022; Jiang & Cameron, 2020). HWDs could contribute to the fitness and health of the population, and consequently improve healthcare in general. Therefore, it is crucial to increase the dissemination of HWDs, and in order to do so, the effects of specific IT functionalities of fitness wearable devices on the usage of such devices could be investigated to expand the current body of knowledge on user acceptance of wearable technology.

1.1 Problem

Due to the strain that longer life expectancy and growing healthcare costs are putting on governmental budgets, there is a growing need to enhance currently used health information systems (Kitsios & Kapetaneas, 2022; Olszak & Batko, 2012). The growing use of IT self-monitoring wearable technology, even the most disseminated and available devices such as fitness trackers, which can collect data on stress level, sleep cycle, heart rate, step count, and calories burnt, has the potential to improve patients' treatment and chronic disease prevention, particularly given the rapid expansion of the wearables market (Gopinath, Selvam & Narayanamurthy, 2022). Such data could be leveraged by physicians during consultations, but especially by patients to improve health by self-monitoring and acting upon recommendations of algorithms. It would help with relieving healthcare institutions which are becoming more and more overloaded. However, this will not happen until HWDs become more widely adopted, and the abandonment rate is significantly decreased among users.

To achieve that, it is of utmost importance to understand what lies at the bottom of wearable technology acceptance for health and wellbeing. IS researchers have contributed greatly to that by trying to explain the phenomenon of user acceptance of wearables and further advance the dissemination of such technology for health and well-being improvement (Gopinath, Selvam & Narayanamurthy, 2022). Until now, most of the studies investigated the factors affecting individual adoption using traditional technology acceptance theories, such as the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), from a holistic standpoint (Becker, 2018; Becker et al., 2017; Bianchi, Tuzovic & Kuppelwieser, 2022; Gao, Li & Luo, 2015; Gopinath, Selvam & Narayanamurthy, 2022; Ilhan & Henkel, 2018; Lee & Lee, 2018; Li et al., 2016; Matt et al., 2019; Paul, Scheibe & Nilakanta, 2020; Reith et al., 2020; Schomakers, Lidynia & Ziefle, 2022). The results of the previous studies mostly lead to similar conclusions with minor inconsistencies (Gopinath, Selvam & Narayanamurthy, 2022). However, these studies considered wearables as a whole and did not differentiate between specific, more advanced IT functionalities. This is a common practice, as IT self-monitoring (ITSM) is treated as a whole system (Gopinath, Selvam & Narayanamurthy, 2022; Jiang & Cameron, 2020). Hence, the current body of knowledge could benefit from investigating how specific IT functionalities of wearables influence the usage of such devices. Therefore, this study is going to endorse this perspective.

In general, studies assessing the usability of IT self-monitoring (ITSM) tools report favourable assessments if the system is considered as a whole (Jiang & Cameron, 2020). However, specific ITSM functionalities have been identified as potential hindrances to continuous use (Jiang & Cameron, 2020). These include unreadable and incomprehensible data displays, as well as inadequate implementations of gamification (Jiang & Cameron, 2020). Furthermore, cutting-edge technology may be considered an obstacle for some users, particularly the elderly, who may not be as tech-savvy as younger users (Jiang & Cameron, 2020). Therefore, it is important to establish whether more advanced functionalities, such as automatic data capture, could impact the continuous use of SM devices (Jiang & Cameron, 2020). As modern HWDs contain numerous IT functionalities, such as advanced data displays, insights, notifications, and gamification, each of these functionalities could impact usage patterns differently (Jiang & Cameron, 2020). Hence, research on HWDs technology acceptance and adoption could greatly benefit from considering the effects of specific IT functionalities, rather than treating the system as a whole. Moreover, users of wearable devices might have different motivations to use such devices and might consider some of the

functionalities redundant for a specific reason. Therefore, investigating specific IT functionalities can facilitate understanding what functionalities are important for different groups of users of HWDs. What is more, analysis from the perspective of specific IT functionalities has the potential to uncover effects that could not otherwise be identified, allowing researchers to assess in-depth the factors hindering HWDs adoption.

1.2 Research Purpose & Motivation

Previous literature indicates that specific IT functionalities of wearable devices could be investigated when it comes to the adoption of wearable devices, and HWDs specifically. The wider adoption of HWDs could contribute greatly to the health and fitness of the population in general, and therefore positively impact healthcare institutions. The proposed research is going to contribute to the explanation of the effect of specific IT functionalities of fitness wearable devices on the usage of such devices. The research has the potential to dive deeper into the users' perspectives by expanding previous research through the focus on specific functionalities that until now were not investigated. What is more, qualitative research methods will be used to uncover issues that could not be evident in the mostly quantitative previous research. The inconsistencies between studies also indicate the importance of further research. In addition to that, the research is going to focus more on IS in general and cover both the technological and social perspectives on the issue.

1.3 Research Question

The objective of this study is to investigate and gain deeper insight into the impact of specific IT functionalities, that are part of wearable devices, on the adoption and continuous use of these devices. Therefore, the following research question is posed:

How do specific IT functionalities of wearable devices influence the usage of such devices?

1.4 Delimitation

The research is going to focus on the users' perspective on HWDs' IT functionalities. The qualitative research method will be used. The interviews will be conducted to gain a detailed perspective on Polish HWDs users and to gain deeper insights than in previously conducted studies that incorporated quantitative methods. However, focusing only on the Polish population sets a limit on the potential ability to generalise to other nations based on these findings. Moreover, in this study, only fitness wearable devices will be studied because they are the most commonly used wearables, but do not contain more sophisticated metrics. Therefore, it might not be appropriate to generalise to the whole choice of HWDs, which are often designed to monitor specific diseases, such as diabetes, based on the findings from this research. In addition to that, the timeline for the research, approximately 3 months, was relatively short to conduct a greater amount of purposeful qualitative interviews and this might impact the ability to gather enough relevant data to draw significant conclusions that could corroborate or deny the findings from the literature. Moreover, in the case of qualitative

interviews, there is a possibility that the resulting interpretations will be impacted by the researcher's personal beliefs and ideals, which as result could bias the findings.

2 Theoretical background

In this section, the theoretical background on wearable devices is presented with a description of previous research on user acceptance and continuous use of wearables. The description is followed by an overview of two main theoretical frameworks that are used to conduct this research, the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by Venkatesh, Thong and Xu (2012) and the Health Information Technology Acceptance Model (HITAM) by Kim and Park (2012). At the end of the section, the research framework is presented.

2.1 Wearable devices

Wearable devices are small electronic devices that contain various sensors and advanced computing abilities that offer valuable information to users through their functionalities (Gopinath, Selvam & Narayanamurthy, 2022). Their rise in popularity was caused by rapid developments in information and communication technologies, which are driven by miniaturised sensors (Gopinath, Selvam & Narayanamurthy, 2022). Such devices can be conveniently worn by users on different parts of the body, e.g., on the wrist, and collect the data through sensors (Sergueeva, Shaw & Lee, 2020). They are capable of sensing, collecting, analysing, and distributing physiological data that facilitate maintaining a healthy lifestyle by their users (Gopinath, Selvam & Narayanamurthy, 2022). Moreover, these devices can collect important medical data such as heart rate, blood oxygen saturation, arterial blood pressure, and respiration rate, which can be useful for disease treatment and prevention (Chan et al., 2012). With such capabilities, wearable devices facilitate IT-enabled self-monitoring, which means measuring, documenting, and observing the user's own physical sensations or symptoms (Wilde & Garvin, 2007; McBain, Shipley & Newman, 2015). This can prove especially helpful for users who are struggling with chronic diseases because risk factors that are related to diseases, such as overweight, lack of exercise, and shortage of necessary nutrients in the diet, could be mitigated by the use of ITSM that is available through wearable devices (Jiang & Cameron, 2020). For this reason, wearable technology has managed to change the emphasis of the healthcare sector from reactive to proactive interventions that are prevention-oriented, enabling people to take more charge of and have better control over their health (Gopinath, Selvam & Narayanamurthy, 2022). With current capabilities and IT functionalities, wearable devices offer individuals the chance to increase their fitness, health, and well-being through self-monitoring and have the potential to disburden healthcare institutions.

2.1.1 *Types of wearable devices*

There are five main groups that commercial wearable technology can be divided into based on the location of sensing technology systems. These include wrist-worn devices like smartwatches and wristbands, head-mounted devices like smart eyewear and earbuds, e-

textiles or smart garments, e-patches, and smart jewellery (Seneviratne et al., 2017). In general, the popularity of wearable consumer products can be largely attributed to the widespread adoption of wrist-worn wearables. Both smartwatches and wristbands are worn on the wrist and have similar functionalities that include tracking capabilities (Seneviratne et al., 2017). What differentiates these devices is a touchscreen display that is available in smartwatches but is not built-in wrist bands that, by design, are supposed to focus on tracking a specific set of fitness and health activities. Spectacles or contact lenses with sensing and wireless communication are examples of smart eyewear, whereas headsets and ear plugs that are Bluetooth-enabled are examples of wearables that are put in the ear (Seneviratne et al., 2017). E-Textiles refer to clothing items such as smart shoes and smart clothes that have the added functionality of being able to monitor human physiological signals and biomechanics (Seneviratne et al., 2017). They are typically utilised in a variety of applications, including health and sports monitoring, ambient sensing for hazardous and military environments, and sensory or haptic therapy applications such as massages (Seneviratne et al., 2017). E-Patches are defined as patches that can be adhered to the skin that can be used to monitor physiological signals such as electrocardiography (Seneviratne et al., 2017). They can also provide relief to the user through functionalities like nerve stimulation through electric pulses (Seneviratne et al., 2017).

Additionally, wearable devices can be also divided based on their intended use into fitness and medical devices (Gao, Li & Luo, 2015). Fitness devices are more suitable for healthy consumers who want to pursue specific fitness and health-related, whereas medical devices are typically designed to monitor specific types of diseases and afflictions such as cancer and diabetes (Gao, Li & Luo, 2015). Medical wearable devices have proven useful in patient monitoring among all in the case of cardiovascular diseases, cancer, diabetes, respiratory diseases, renal diseases, posture and motion problems, and neurological disorders (Chan et al., 2012). Fitness trackers are a type of HWDs that people wear on their bodies to gather information about their physical activities and physiological data related to their fitness (Matt et al., 2019). Rather than actively detecting or preventing illnesses, these fitness trackers collect Personal Health Information (PHI) using sensors such as an oximeter or electrodermal sensors that can be used to measure stress levels (Matt et al., 2019). These devices offer the possibility to set individual fitness goals and contain GPS that can be used to track specific sports activities (Matt et al., 2019). Through the continuous gathering of PHI, they enable users to keep track of different medical risk factors in dedicated applications on mobile devices, tablets, and PCs (Matt et al., 2019). Such applications utilize sophisticated data analysis to generate insights about various aspects of a user's health condition without requiring the assistance of healthcare professionals (Matt et al., 2019). In this study fitness trackers that are wrist-worn devices will be investigated since they are the most popular group of wearable devices that contain many IT functionalities that can be used for health and well-being improvement by users.

2.1.2 IT Functionalities

IT functionalities are an inherent element of each modern wearable device. These functionalities enable the effective use of HWDs for health and well-being improvement. There are plenty of functionalities that are implemented in devices for this purpose such as data collection, data display, push messages, gamification, and social interaction. The data display IT functionality is chosen for investigation in this study because it is a key feature that enables interaction with collected data. Insights are investigated because this functionality is

AI-driven, and influences health-related decisions made by users. The last IT functionality that is included in the study is gamification which can encourage users to pursue health-related objectives. Below the functionalities that are chosen for investigation in this study are presented and described and Table 3 contains the summary about their potential applications.

Data Display

One of the IT functionalities that is commonly implemented in modern wearables is Data Display (Jiang & Cameron, 2020). It could be considered a key feature of each device because through this functionality users are able to see and monitor the data collected by a device in real time by using a user interface that is shown on a small screen on the wearable device or in the dedicated application for smartphones. The displayed information contains data about metrics relevant to health and fitness tracking such as heart rate, step counts, distance travelled, calories burned, and sleep quality (Gao, Li & Luo, 2015). The data can be displayed in various forms. Old and simple devices, such as old-fashioned glucometers, commonly display only basic statistics (Jiang & Cameron, 2020). However, newer devices can extract value from unprocessed data that can be aggregated and presented using descriptive statistics and more sophisticated visualisations like bar, line, and doughnut charts. Such statistics and visualisations help users make more informed decisions about their health and fitness because they can better understand health patterns (Jiang & Cameron, 2020). Moreover, this is an important part of the functionality that facilitate sense-making, which can be understood as the process of interpreting and making sense of complex information, from the vast amount of health-related data that is collected (Lycett, 2013). Furthermore, the data display provides visual real-time feedback and recommendations that are motivating and encourage users to stay active and reach their fitness goals. In Figure 1 below the example of Data Display functionality from Garmin device is presented.

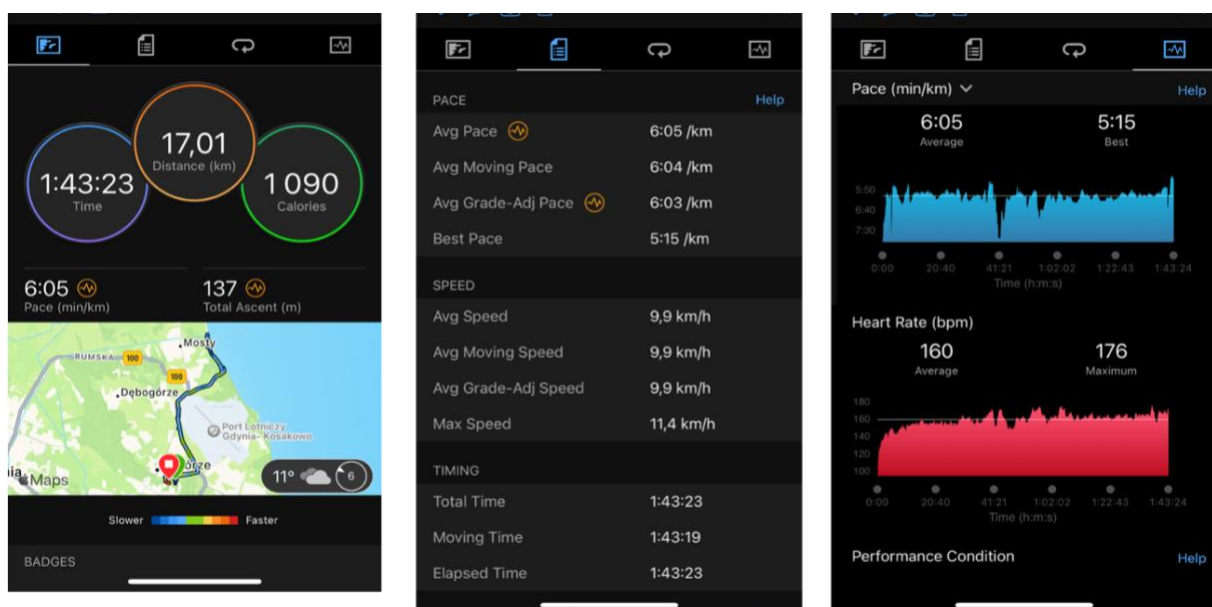


Figure 1: Example of Data Display IT Functionality

Insights

The next significant IT functionality, which is also supported by data display, are insights that are displayed to users. To enable that AI technology is used with advanced algorithms. This

feature analyses the user's data to create individualised advice based on the user's current habits and activity levels that can be used by users to make more informed decisions. By giving users a deeper grasp of their data, including patterns and trends that might be challenging to spot on their own, this IT functionality is intended to help users accomplish their health and fitness objectives. For example, it may provide insights into the user's sleep patterns, how much time it takes to fall asleep, the duration of each sleeping stage, and the number of times the user wakes up during the night. What is more, this feature can generate data-driven push notifications that contain reminders for users about particular activities they need to do like exercising (Jiang & Cameron, 2020). Moreover, such notifications can inform users about sudden health-related issues, such as abnormal heart rate, in real time. Therefore, insights constitute an important functionality of modern HWDs. Below, in Figure 2 the example of Insights functionality from Garmin device is presented.

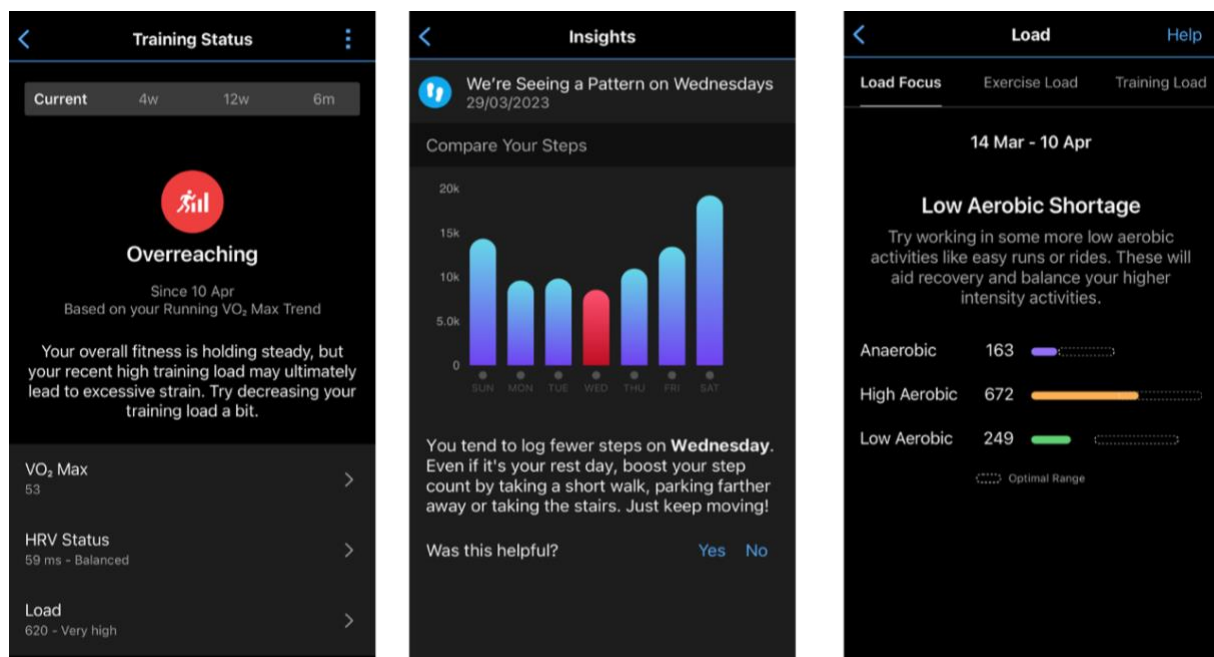


Figure 2: Example of Insights IT Functionality

Gamification

Gamification refers to the use of game design principles in non-gaming scenarios to encourage users to accomplish specific objectives by boosting their motivation through competition (Deterding et al., 2011; Ilhan & Henkel, 2018). In the case of fitness trackers, gamification elements can include challenges, rewards, achievements, and social sharing through leader boards. Challenges may be based on setting goals and competing against other users to achieve them. Users may be rewarded with virtual badges and points that motivate users to be active and participate in sports events. Achievements are given to users for completing specific tasks, such as running longer than a certain period or reaching a certain number of steps in a day. Furthermore, users are encouraged to share their progress with friends and family through social media or the fitness tracker app. Such features of gamification have proven to be an effective strategy for increasing user engagement in fitness trackers and are perceived as useful by users (Ilhan & Henkel, 2018). Below, in Figure 3 the example of Insights functionality from Garmin device is presented.

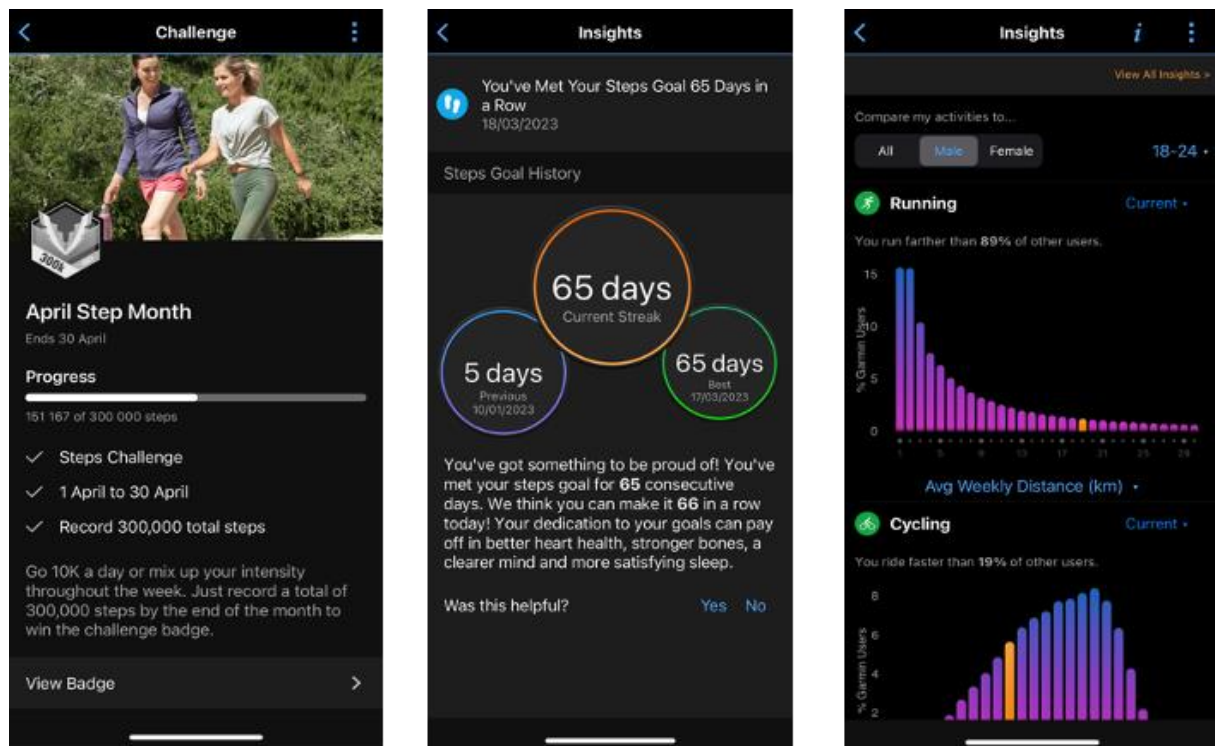


Figure 3: Example of Gamification IT Functionality

The summary of IT functionalities that are considered in this study is presented below in Table 1.

Table 1: IT Functionalities selected for the study.

Functionality	Description
Data Display	Data Display is a crucial functionality in wearables that enables users to monitor real-time health and fitness data via a user interface displayed on a small screen or smartphone application, providing descriptive statistics and visualizations that facilitate sense-making and informed decision-making (Jiang & Cameron, 2020; Gao, Li & Luo, 2015). This feature also provides real-time feedback and recommendations that motivate and encourage users to stay active and achieve their fitness goals.
Insights	Insights based on AI technology and advanced algorithms in wearables use individualized data analysis to enable self-monitoring and to provide users with deeper understanding of their health and fitness patterns, generating data-driven push notifications and reminders to encourage exercise and inform users of sudden health issues in real-time (Jiang & Cameron, 2020). This feature constitutes a significant IT functionality in modern HWDs, supporting users in achieving their health and fitness objectives.
Gamification	Gamification is the application of game design principles in non-gaming situations to motivate users by using elements

	such as challenges, rewards, achievements, and social sharing (Deterding et al., 2011; Ilhan & Henkel, 2018). In fitness trackers, gamification can increase user engagement through setting goals, competing with other users, earning virtual badges and points, and sharing progress through social media or the app.
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2.2 User acceptance and continuous use of wearables

User acceptance and continuous use of wearables have been studied by IS researchers in previous years. The Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) have been the most commonly used theories in studies to understand the factors that influence the adoption of wearable devices (Gopinath, Selvam & Narayanamurthy, 2022). These theories were often extended using the external and contextual factors from various theories such as Privacy Calculus Theory (PCT), Task-Technology Fit (TTF), Protection Motivation Theory (PMT), Diffusion of Information (DOI), Behavioral Response Theory (BRT), and Self-Efficacy theory (Gopinath, Selvam & Narayanamurthy, 2022).

A large part of the current research on wearables was conducted using quantitative research methods. Among the first researchers that examined individuals' adoption of HWDs were Gao, Li and Luo (2015), their research was based on the three theories that were integrated together, the UTAUT2 model, PCT, and PMT. The results showed that perceived benefit, adoption intention, and perceived privacy risk greatly impact the intentions to adopt HWDs (Gao, Li & Luo, 2015). Wang et al. (2020) integrated the TTF and UTAUT models, the results showed that task technology fit, effort expectancy, performance expectancy, facilitating conditions, and social influence, positively impact users' behavioural intention to use HWDs. The intention to adopt HWDs between the groups that are aware of the existence of fitness trackers and those that are not was investigated by Lee and Lee (2018). The analysis that examined factors such as self-efficacy, personal innovativeness, health interests, and perceived expensiveness suggests that the respondents who were already familiarized with fitness trackers have a stronger intention to adopt such devices (Lee & Lee, 2018). Ilhan and Henkel (2018) also focused on the differences between the two groups. The researchers investigated country-based differences in the service acceptance and quality of activity trackers between the United States and Germany using Information Service Evaluation (ISE) model and concluded that usefulness, impact, fun, and gamification contribute positively to the use of fitness trackers (Ilhan & Henkel, 2018). Moreover, users' opinions are largely favourable and notably different between German and US participants when it comes to supplying medical healthcare funds with collected data in return for lowering medical fees (Ilhan & Henkel, 2018). To identify the factors influencing the acceptance of HWDs in the medical environment Al-Marouf et al. (2021) used the TAM theory. Their findings, which were based on the sample of a team of medical centre administrators, nurses, and medical practitioners in the United Arab Emirates, demonstrated that the key model constructs contribute to HWDs acceptance in various ways indicating that perceived ease of use and perceived usefulness are closely related to content richness and innovativeness (Al-Marouf et al., 2021). Using the UTAUT2 framework Bianchi, Tuzovic and Kuppelwieser (2022) investigated nonuser intention to adopt fitness wearables for healthcare in Chile to expand the

research regarding less developed countries. Their results showed that in the Chilean population social influence, hedonic motivation, and perceived usefulness have the greatest impact on whether people in Chile intend to use fitness devices for healthcare (Bianchi, Tuzovic & Kuppelwieser, 2022).

To gain deeper insights into the impact of privacy perceptions in HWD adoption Li et al. (2016) investigated the issue from a PCT perspective indicating that individual risk-benefit analyses have an impact on decisions to adopt wearable devices for healthcare. The study indicated that perceived privacy risk is influenced by legislative protection, health information vulnerability, personal innovativeness, and perceived prestige, whereas perceived benefit is influenced by functional congruence and perceived informativeness (Li et al., 2016). Building on that Paul, Scheibe and Nilakanta (2020) investigated whether General Data Protection Regulation (GDPR) influences privacy concerns regarding fitness wearables and concluded that on average it reduces the privacy concerns of users. The present literature indicates that privacy aspects are relevant factors that influence the adoption of wearable devices among users.

Although the use of qualitative research methods is not as popular as the use of quantitative methods in the research on user acceptance and continuous use of wearables there are plenty of studies that leveraged such methods. To investigate health information privacy concerns for health wearables among users Becker (2018) conducted semi-structured focus groups and the results showed that users are concerned with the potential misuse of data and do not agree on its use for purposes that were not initially agreed on. Furthermore, the results indicate that companies should strive to lower the entry barriers for first-time users and clearly communicate the benefit that users could obtain from the usage of HWDs (Becker, 2018). Benbunan-Fich (2020) investigated user satisfaction with wearables through the quantitative and qualitative analysis of Internet customer reviews of a well-known fitness tracker. The findings showed that the degree of satisfaction depends on the quality of interaction, the significance of converting physical activities into digital form, and how much the informational feedback satisfies the users' requirements (Benbunan-Fich, 2020). Spil et al. (2017) also leveraged mixed methods and studied whether gamification could increase the adoption and continuous use of wearables for promoting a healthy lifestyle. The authors indicated that although wearable devices and gamification have sparked a lot of interest, consumers are still unsure of what value they contribute together (Spil et al., 2017). Factors that influence people's choices to keep using consumer health wearables were studied using qualitative semi-structured interviews that were grounded in UTAUT2, HITAM, and Health Information Privacy Concerns Model (HIPC) models by Matt et al. (2019). Perceived deficiency, perceived privacy, and perceived benefit were identified as the main determinants (Matt et al., 2019). The results indicated that the participants expressed concerns about the accuracy and reliability of the collected data, as well as the potential to become overloaded by received information (Matt et al., 2019). The abovementioned studies indicate that the ongoing research on user acceptance and continuous use of wearables yielded different results and conclusions. Furthermore, the studies mainly focused on the holistic view of such devices.

To synthesise the previous research, Gopinath, Selvam and Narayanamurthy (2022) conducted a meta-analytical study of 52 articles. It confirmed the core TAM constructs and relationships, indicating that one of the most powerful predictors of attitude and intention towards wearable devices is perceived usefulness (Gopinath, Selvam & Narayanamurthy, 2022). Moreover, perceived ease of use impacted perceived usefulness and attitude, and

attitude was designated as one of the most critical factors for the explanation of wearables adoption (Gopinath, Selvam & Narayanamurthy, 2022). Regarding UTAUT, all the original relationships were significant and behaviour intention was positively influenced by effort expectancy, performance expectancy, social influence, and facilitating condition (Gopinath, Selvam & Narayanamurthy, 2022). Such results were not common in previous studies (Gopinath, Selvam & Narayanamurthy, 2022). Gopinath, Selvam and Narayanamurthy (2022) concluded that both TAM and UTAUT are useful for investigating individuals' reasons to adopt wearable devices and that the utility of wearable devices for tracking health and fitness metrics and their capacity to help users achieve their health and fitness objectives become crucial for the widespread adoption of wearable technology. When it comes to the frequency of use of the theories, TAM was preferred to UTAUT in the investigated sample of 52 articles (Gopinath, Selvam & Narayanamurthy, 2022). However, even though IS researchers studied wearable technology acceptance from a holistic standpoint, that considers all of the components of the device together, limited research has been done on the effect of specific IT functionalities of fitness wearable devices on the usage of such devices (Jiang & Cameron, 2020). Therefore, to expand on the previous research, this study is going to focus on specific IT functionalities that are used in these devices, such as activity tracking, social interaction and gamification, and tailored insights with recommendations.

The table below relates the literature to the theories that were described in the text.

Table 2: Theories used in the literature on wearable devices.

Theory	Literature (used in)
Technology Acceptance Model (TAM)	Ilhan and Henkel (2018); Al-Marouf et al. (2021); Spil et al. (2017); Gopinath, Selvam and Narayanamurthy (2022)
Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)	Gao, Li and Luo (2015); Wang et al. (2020); Ilhan and Henkel (2018); Bianchi, Tuzovic and Kuppelwieser (2022); Matt et al. (2019); Gopinath, Selvam and Narayanamurthy (2022)
Health Information Technology Acceptance Model (HITAM)	Matt et al. (2019)
Privacy Calculus Theory (PCT)	Gao, Li and Luo (2015); Li et al. (2016); Paul, Scheibe and Nilakanta (2020); Schomakers, Lidynia & Ziefle (2022)
Protection Motivation Theory (PMT)	Gao, Li and Luo (2015)
Diffusion of Information (DOI)	Spil et al. (2017)
Task-Technology Fit (TTF)	Wang et al. (2020)
Health Information Privacy Concerns Model (HIPCC)	Becker (2018); Matt et al. (2019)
Affordance Theory	Benbunan-Fich (2020)
Expectation Confirmation Theory (ECT)	Benbunan-Fich (2020)

2.3 Frameworks

2.3.1 *Unified Theory of Acceptance and Use of Technology 2*

User acceptance and continuous use of technology model was first presented by Venkatesh et al. (2003), aiming to unify views presented by information technology acceptance research. This study leverages the second version, UTAUT2, as the framework to examine the acceptance and use of fitness wearable devices.

Venkatesh, Thong and Xu (2012) extended the model to include consumer context, making it into the new UTAUT2 model. As the study target, the smart wearable device, rooted in consumer nature, the UTAUT2 is incorporated to reflect a holistic assessment of its acceptance and use. The framework is constituted of 12 variables, including seven key constructs, three moderating constructs, and two outcome variables (Venkatesh, Thong & Xu, 2012).

Performance Expectancy

Performance expectancy refers to the extent to which consumers believe that using technology will offer advantages in carrying out specific activities (Venkatesh, Thong & Xu, 2012). This construct, which is linked to utility, has been consistently demonstrated as the most influential predictor of behavioural intention, as reported by Venkatesh et al. (2003). As the study's emphasis is on the functionalities of smart wearable devices, it is particularly important to assess whether the adopted devices meet the customers' performance expectations.

Take health data visualisation as an example. This single functionality might contribute to the urge of a health-aware customer to acquire a smart wearable device. The perceived benefit of acquiring the devices will, therefore, determine both their satisfaction and continued use of the devices.

Effort Expectancy

Effort expectancy refers to the level of ease associated with consumers using technology, leading to behavioural intention (Venkatesh, Thong & Xu, 2012). It could be addressed by the amount of time and effort required to get the desired outcome (Venkatesh, Thong & Xu, 2012). According to Davis (1989), external factors, including the system's functional characteristics, development methodologies, training and education, and user involvement in the design, can impact the ease of use of a system. Hence, this research will investigate the influence of functional factors on perceived ease of use.

Social Influence

Social influence refers to the degree to which consumers believe that important individuals in their lives, such as family and friends, endorse the use of a specific technology (Venkatesh, Thong & Xu, 2012). The functionalities that come along with the acquisition of smart

wearable devices could facilitate consumer social interaction among communities. The social influence will later on stoke in the behavioural intention.

A valid example is the smart wearable device in a working context. The effect comes in two folds. Firstly, individuals may be more likely to adopt a technology if they see that others in their office approve of the device or expect them to use it. Additionally, individuals might see it as a way to get involved in the community. The walking challenge, one of the most popular gamifications, is a good example in such a context. Colleagues who are cautious of long working hours and limited exercise find competing in the amount of walking a good way to stay healthy, as well as a common topic of strengthening inter-colleague relationships. Its effectiveness in social interaction could contribute to the satisfaction.

Facilitating Conditions

Facilitating conditions pertain to the perceptions of consumers regarding the available resources and support to execute a particular behaviour (Brown & Venkatesh, 2005; Venkatesh, Speier & Morris, 2002). Facilitating conditions can include a wide range of factors, such as the availability of technical support, the presence of training materials or resources, the availability of necessary equipment or software, and the ease of access to the technology. It could serve as the proxy for behavioural control and influence behaviour, as well as contribute to behavioural control and in-directly influence behaviour (Ajzen, 1991).

The facilitation available in the environment can significantly vary across application vendors, technology generations, mobile devices, and so on. Facilitating conditions act like perceived behavioural control in the theory of planned behaviour (TPB) and influence both intention and behaviour (Ajzen, 1991). Specifically, a consumer with access to a favourable set of facilitating conditions is more likely to have a higher intention to use the technology.

For instance, it was observed that senior women tend to rely more on external sources to assist them in using a specific technology during the initial stages of its adoption (Venkatesh, Thong & Xu, 2012). Therefore, one potential concern for such cohorts is whether they have acquaintances they can reach out to when they encounter any problem using the newly acquired devices.

Hedonic Motivation

Hedonic motivation is the pleasure or enjoyment derived from the use of technology, and studies have shown that it plays a significant role in determining technology acceptance and use (Brown & Venkatesh, 2005; Venkatesh, Thong & Xu, 2012). Moreover, in the consumer context, it has also been identified as an important determinant of technology acceptance and use (Brown & Venkatesh, 2005; Childers et al., 2001). Venkatesh, Thong and Xu (2012) study suggests that hedonic motivation is a critical determinant of behavioural intention.

For example, a young man who recently acquired a smart device expects that the purchase could bring constant surprises with new applications or function releases. However, if the device fails to provide enough sensation and proves unable to fulfil his hedonic expectations, it might lead to abandonment.

Price Value

The cost and pricing structure can significantly impact consumers' technology use (Venkatesh, Thong & Xu, 2012). In marketing research, the monetary cost or price is typically conceptualised along with product or service quality to determine the perceived value by consumers (Venkatesh, Thong & Xu, 2012). The price value is defined as the cognitive tradeoff by consumers between the perceived benefits of technology applications and the monetary cost of using them (Venkatesh, Thong & Xu, 2012). When the benefits are perceived to be greater than the cost, the price value is positive, and it has a positive impact on behavioural intention to use technology (Venkatesh, Thong & Xu, 2012). Therefore, price value is added as a predictor of behavioural intention to use technology (Venkatesh, Thong & Xu, 2012).

Venkatesh, Thong and Xu (2012) study on the monetary sacrifice of IT applications implies an interesting assessment orientation. Acquiring the device is not the only requirement for enabling the functionalities the customer is looking for. The subsequent expense, either through subscriptions or one-time purchases, after the first instalment of the device, could contribute to the balance of the tradeoff. Therefore, the price value could be a moving factor along the technology adoption process.

For instance, a customer could spend a fixed amount to purchase the device, expecting to have a good user experience in their fitness analysis. After playing around with the pre-installed functions for a while, if the functional expectations fall short, they may subscribe to more advanced applications. The unexpected subscription might tip over the balance between functionalities (perceived benefits of technology applications) and the monetary cost, leading to lower satisfaction.

Habit

The construct of habit focuses on intentionality as the overarching mechanism and key driver of behaviour (Venkatesh, Thong & Xu, 2012). The collection of works examining the role of habit, though operationalised differently in each of the papers, concludes that habit has a direct effect on technology use and/or habit weakens or limits the strength of the relationship between behavioural intention and technology use.

Integrating habit into the Unified Theory of Acceptance and Use of Technology (UTAUT) can complement the theory's focus on intentionality as the overarching mechanism and key driver of behaviour. Habit has been recognized as a key alternative mechanism, which has been lauded as a valuable next step in the Journal of the Association for Information Systems special issue on Technology Acceptance Model (TAM). The collection of works examining the role of habit, though operationalized differently in each of the papers, concludes that habit has a direct effect on technology use and/or habit weakens or limits the strength of the relationship between behavioural intention and technology use.

Habit is a perceptual construct that reflects the results of prior experiences (Venkatesh, Thong & Xu, 2012). It could influence the behaviour of a user who newly acquires wearable devices in two ways. Firstly, a person who has prior experience with related devices could have preconceptions before obtaining the device. They might judge the device based on their expectations from previous use of other devices in terms of functionality or effort. This could contribute to user satisfaction. Secondly, a person without a habit of wearing watches might forget to put on the device every once in a while, negatively impacting the collected data and leading to less effective functionalities, such as accurate recommendations and insights.

This work is expected to make important theoretical and managerial contributions. It sits at the confluence of several sub-streams related to technology acceptance and use research: TAM and UTAUT, extensions to TAM, questions and criticisms about TAM, technology use, and IS continuance and habit. By building on and extending prior work within this broad stream, we expect to make three key contributions. First, by incorporating two salient constructs into UTAUT, we expand the overall nomological network related to technology use. The integration of hedonic motivation, and habit brings new mechanisms (i.e., affect, and automaticity) tied to the new constructs into the largely cognition- and intention-based UTAUT.

The research framework is expanded by the three areas recommended by Venkatesh, Thong and Xu (2012). By examining the smart wearable devices (new technologies) used by consumers (new user populations) in Poland (new cultural settings), this study fully addresses the contextual extensions of the framework.

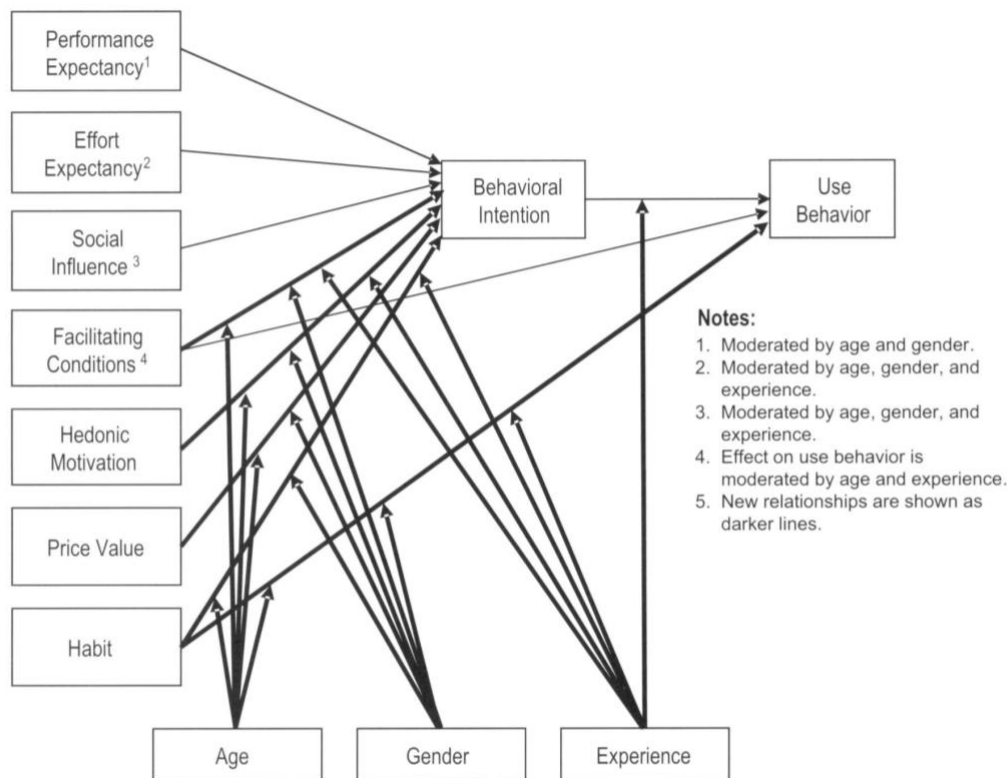


Figure 4: Unified Theory of Acceptance and Use of Technology 2 Model (Venkatesh, Thong & Xu, 2012)

2.3.2 Health Information Technology Acceptance Model

Health Information Technology Acceptance Model (HITAM) was designed by Kim and Park (2012) to explain how health customers will behave when using HIT in order to extend the extended Technology Acceptance Model in health care. The Technology Acceptance Model (TAM) was expanded to include more antecedents and mediating variables to increase its explanatory capacity and relevance to health consumers' behavioural intention (Kim & Park, 2012). The hypothetical model was augmented by incorporating additional antecedents and mediating variables from the Health Belief Model (HBM) and the Theory of Planned

Behaviour (TPB), in addition to the TAM, based on their theoretical significance (Kim & Park, 2012).

HITAM consists of three domains: health zone, information zone, and technology zone. These domains are based on TAM3, HBM, and TPH, respectively. Given that TAM3 and UTAUT2 both stem from the TAM model, the research model will exclude the constructs from the health zone in HITAM (Kim & Park, 2012; Venkatesh, Thong & Xu, 2012).

Perceived Threat

In terms of the information zone, the construct, perceived threat, describes how a person perceives the severity and likelihood of experiencing a particular health condition. This perception is based on their understanding of the condition. When someone perceives a higher threat, they are more likely to engage in behaviours that promote good health, which could be by means of acquiring fitness wearable devices.

Finally, regarding the technology zone, the underlying Theory of Planned Behavior (TPB) is a widely used social psychology model that aims to explain human behaviour (Ajzen, 1991). The model posits that behavioural intentions, which are influenced by attitudes, subjective norms, and perceived behavioural control, are the key determinants of behaviour. There are three main constructs of TPB.

Attitude

The first construct, attitude, refers to an individual's positive or negative evaluation of performing a particular behaviour (Ajzen, 1991). It is based on the beliefs an individual holds about the behaviour and the perceived outcomes of performing the behaviour (Ajzen, 1991).

Subjective Norm

The second construct, subjective norm, refers to an individual's perception of social pressure or influence to perform a particular behaviour (Ajzen, 1991). These norms are based on an individual's beliefs about what others think they should do and their motivation to comply with those beliefs (Ajzen, 1991).

Perceived Behavioural Control

The third construct, perceived behavioural control, refers to an individual's belief in their ability to perform the behaviour under different conditions (Ajzen, 1991). It takes into account factors that may facilitate or hinder the performance of the behaviour, such as resources, skills, and situational constraints (Ajzen, 1991).

In summary, the HITAM provides a useful framework for understanding the factors that influence healthcare providers' adoption and use of HIT systems. By considering these constructs, healthcare organisations can develop strategies to promote HIT adoption and use among their providers, ultimately improving customer outcomes and overall healthcare delivery.

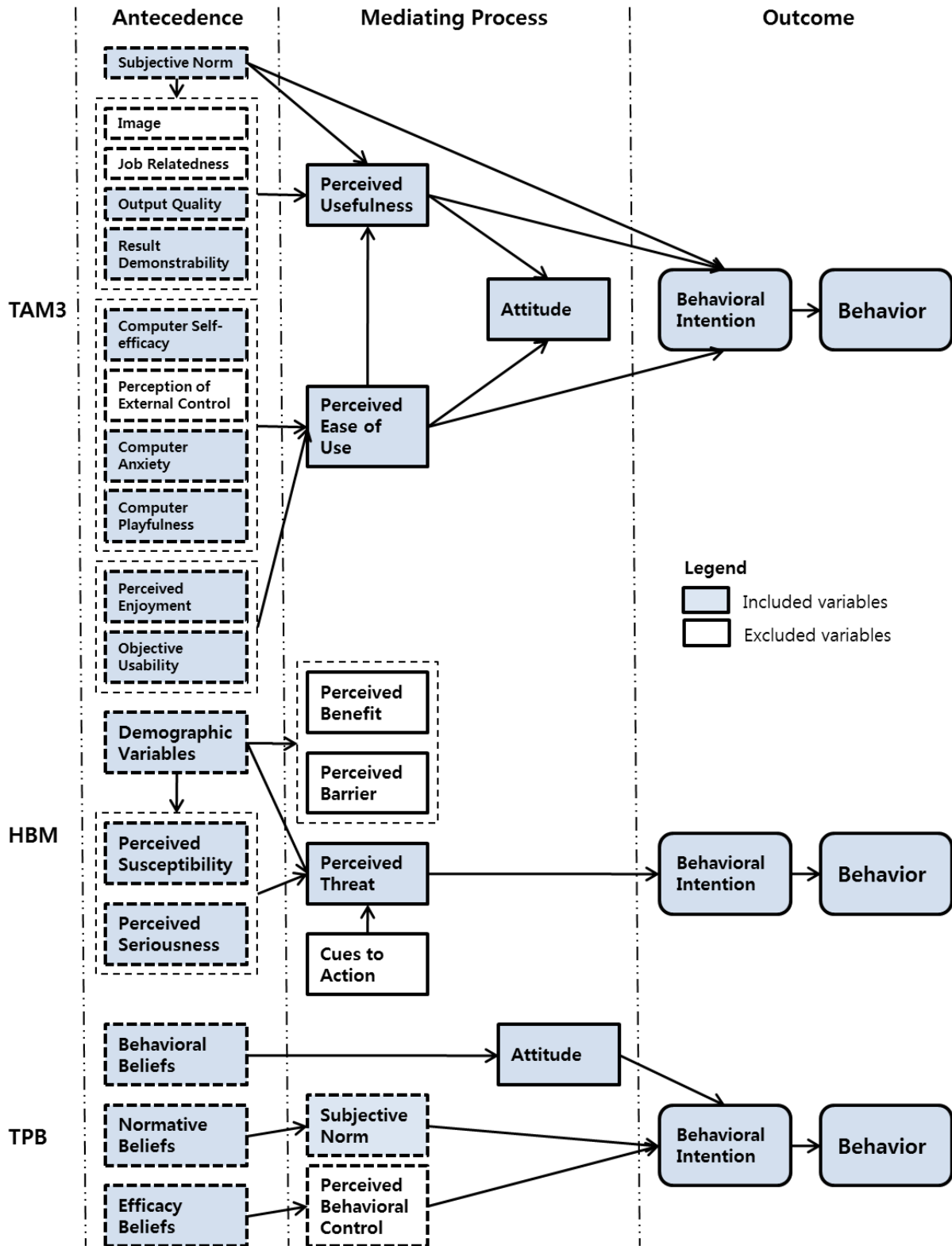


Figure 5: Health Information Technology Acceptance Model (Kim & Park, 2012)

2.3.3 Research Framework

In this section, the constructs from each model that are relevant to this study are presented. This research is following closely the methodology of the study conducted by Matt et al. (2019) that investigated the continuous use of consumer health wearables. In the study UTAUT2, HITAM, and HIPC models were integrated and constituted a theoretical background for conducting qualitative interviews with fitness trackers users (Matt et al., 2019).

However, since the purpose of this study is to understand the user perceptions of specific IT functionalities of wearables and their influence on the usage of such devices, appropriate adjustments are made to the used constructs to account for that. Moreover, since privacy aspects are not a primary concern of this study, the HIPC model is not considered. The proposed research framework is expected to have interdisciplinary applicability and serve as a comprehensive theoretical basis for conducting an exploratory qualitative study on users' perception of specific IT functionalities of wearables and the influence of these functionalities on the usage of wearable devices. The intention is to capture the multidimensionality of user interaction with fitness trackers, specifically its IT functionalities, through the development of an integrative model that incorporates both UTAUT2 and HITAM. Below the rationale for the inclusion of each construct is included, and the summary is presented in Table 3.

UTAUT2

The selected constructs from UTAUT2 designed by Venkatesh, Thong and Xu (2012) form the backbone of the research. Based on the methodological choices of Matt et al. (2019) the constructs that are chosen for this research are Performance Expectancy, Effort Expectancy, Habit, Hedonic Motivation, Social Influence and Facilitating Conditions.

Both Performance Expectancy and Effort Expectancy can be used to investigate individual motives for fitness tracker use (Matt et al., 2019). Specifically, in the case of this study Performance Expectancy is supposed to capture the extent to which users think that using specific IT functionalities that are built-in wearables will offer health and well-being-related advantages, whereas Effort Expectancy is supposed to capture the level of ease of use of specific IT functionalities that leads to behavioural intention to use them for health improvement. The Habit construct is supposed to capture whether users who have formed strong habits around a specific IT functionality of a wearable are more likely to continue using it. In the case of the Hedonic Motivation construct its aim is to capture the enjoyment or pleasure that users derived from the use of fitness trackers. Social Influence is supposed to capture the degree to which the user's important acquaintances and friends endorse the use of fitness wearables because they can be considered to be new and controversial technology (Matt et al., 2019). Hedonic Motivation and Social Influence constructs do not differentiate between specific IT functionalities in this research since they may not be applicable to all of them. Facilitating Conditions construct aims to capture whether users perceive technical support, training materials, and resources about specific IT functionalities that are provided by the manufacturer of owned wearable fitness trackers are satisfactory enough. These UTAUT2 constructs are incorporated to understand how specific IT functionalities of wearables influence the usage of such devices. However, it is acknowledged that current technology acceptance theories may not be entirely responsive to fitness wearable devices due to their specific characteristics (Matt et al., 2019). Therefore, the HITAM model is also integrated into the research framework to incorporate health-related aspects.

HITAM

The health status of users is considered in order to gain a more comprehensive understanding of their reasons and motivations to use a fitness tracker and its functionalities since these devices are often used in the medical context (Mercer et al., 2016; Matt et al., 2019).

Therefore, the construct from the HITAM model, which is a technology acceptance model that has been specifically designed for use in healthcare environments, is integrated into the research framework (Kim & Park, 2012).

From HITAM Perceived Threat construct is included to investigate the health status of users. In the research conducted by Matt et al. (2019), this involved examining whether users utilized fitness wearables to address pre-existing medical conditions or as a preventive measure. Therefore, in this study, this construct will be leveraged to capture whether interviewees use specific IT functionalities of wearables in order to counteract medical conditions and improve their health.

Table 3: Research Framework

Model	Construct	Definition	Level
UTAUT2 (Venkatesh et al., 2012)	Effort Expectancy	The level of ease of use of specific IT functionalities that leads to behavioural intention to use them for health improvement	Functionality
	Performance Expectancy	The extent to which users think that using specific IT functionalities that are built-in wearables will offer health and wellbeing-related advantages.	Functionality
	Habit	Defines if users who have formed strong habits around a specific IT functionality of a wearable are more likely to continue using it.	Functionality
	Hedonic Motivation	The enjoyment or pleasure that users derived from the use of fitness trackers	General
	Social Influence	The degree to which user's important acquaintances and friends endorse the use of fitness wearables	Functionality & General
	Facilitating Conditions	Defines whether technical support, training materials, and resources about specific IT functionalities that are provided by the manufacturer of owned wearable fitness tracker are satisfactory enough.	General

HITAM (Kim & Park, 2012)	Perceived Threat	The use of specific IT functionalities of wearables in order to counteract medical conditions and improve health.	Functionality
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3 Methodology

In this chapter, we present the methodological choices that were made to carry out this study. This section comprises a portrayal of the research strategy, the participants, and the ethical considerations.

3.1 Research Strategy

When contemplating the adoption of a research strategy, Recker (2013) asserts that the research question is the determining factor for selecting the appropriate research strategy. The selection of design investigation methods has a notable effect on the process of deriving conclusions using theoretical reasoning techniques (Tashakkori, Teddlie & Teddlie, 1998). To accomplish the goal of comprehensively grasping the influence of specific IT functionalities on wearable devices' usage patterns, this research opts for a qualitative research method with an interpretive and pragmatism research philosophy as its foundation. Interview with a two-cycle coding is incorporated to ensure information extraction and analysis from the interview.

A clear understanding of research philosophy ensures that the study is rigorous and insightful (Hassan, Mingers & Stahl, 2018). In this study, we utilised an interpretive approach and expanded the applicability of our research by incorporating different forms of pragmatist knowledge (Goldkuhl, 2012). An interpretive inquiry uncovers diverse perceptions and evaluations of meaning universes among the study subjects (Goldkuhl, 2012). It gathers not only factual data about observable public behaviour but also subjective data about the significance of that behaviour for the people involved (Lee, 1991). Additionally, the interpretive approach's capacity to provide a complete perspective from multiple organisational contexts meets the research needs of the given topic, which demands a comprehensive understanding from a broad range of stakeholders and field actors (Saunders, Lewis & Thornhill, 2009).

While interpretivism aims to comprehend qualitative research information that may be worth exploring, pragmatism focuses on knowledge that can be practically applied (Goldkuhl, 2012). Pragmatism provides both epistemological and ontological perspectives on the research matter, emphasising that knowledge is valuable when it can be used in practice (Mingers, 2004). Dewey (1938) shares this view and considers knowledge a result of resolving real-world problems, and the research's ultimate objective is to address acceptance issues in healthcare practices (Mingers, 2004; Dewey, 1938).

As interpretivism and pragmatism are well-suited to our research approach, a blended approach that combines the strengths of both methods can be employed. This approach would allow researchers to gain a deeper understanding of the subjective meanings and interpretations of social phenomena, while also emphasising the practical utility of the research findings in addressing real-world problems. Therefore, the choice of paradigms for this study raises the question of how to design an appropriate hybrid methodology. In order to create a suitable combination, it is important to recognise the methodological differences and identify which approach is dominant. According to Goldkuhl (2012), interpretivism values research for its own sake, while pragmatism values its instrumental contribution to practical application. To bridge this gap and considering that the research aims to generate practical

knowledge for further solution development, the study will be conducted with pragmatism as the primary epistemology and interpretivism as a supporting instrument.

The qualitative research method has been chosen as the tool to address our research question. This approach is well-suited for handling dynamic, complicated, and interrelated research issues (Patton, 2014). The assessment of wearable device acceptance involves multiple factors that are intertwined, making qualitative methods the ideal choice for extracting deeper insight. Furthermore, the majority of previous studies have focused on using quantitative research methods. Therefore, in order to extract a variety of viewpoints in a socio-technical discipline such as Information Systems, we aim to complement the existing studies with a qualitative research approach to establish a holistic view of the field (Tashakkori & Creswell, 2007; Venkatesh, Brown & Sullivan, 2016).

3.2 Conducting the Literature Review

In this subsection the methodology of the literature review that was conducted and described in the Theoretical Background (Chapter 2) is presented.

As soon as we decided to focus our study on wearable device acceptance, we conducted a literature review to browse the topic. A literature review allows us to assess the primary or original scholarship to review, critique, evaluate, and synthesise the existing knowledge (Cooper, 1988; Torraco, 2016). The literature review could focus not only on the research findings, but it could also contribute to the research methods and empirical practices, preparing a more comprehensive understanding of the research topic (Torraco, 2016). Therefore, we have conducted a literature review on the current wearable device market, as well as its use and effect in the healthcare system, to paint the field landscape and problematise the research question. By doing so, we also identify our research aim and consolidate motivation.

To determine the appropriate research approach, a review of existing literature is carried out to evaluate previous strategies used and their respective advantages and disadvantages. Lee (2004) expresses apprehension over the reluctance of information systems scholars to give research philosophy the same level of recognition and consideration as they give to research literature. The research methodology, as well as its underlying philosophy and strategy, are strongly correlated to the research outcome and its relevance. In this stage, we have identified that most of the existing research on wearable device acceptance incorporated a quantitative approach and is done to evaluate the device in a general view. Thus, our research has decided to choose a qualitative research method and dive deeper into the user perception of each functionality to contribute to the research community with a different point of view.

Last but not least, the research topic, as the emphasis of our literature review, is addressed conceptually in a cluster to identify the most prevailing research questions, framework, scope and limitation in our research topic, the wearable device user acceptance field (Cooper, 1988; Torraco, 2016). We assessed 17 relevant papers which encompass both qualitative and quantitative methods, focus on privacy, effectiveness, particular features or equally weighted on numerous factors, and were conducted in the US, Germany, South America, Chile, South Korea, or across the world. This pivotal stage ensures a good knowledge coverage of the field

scholarship before proceeding to the later-on study stages. We are aware that the timing of the research and chronological sequence could affect the validity of the literature (Cooper, 1988).

We utilised the subsequent search phrases on Google Scholar, Scopus and other academic search engines to locate the relevant literature:

- Wearable Device
- Health Wearable Device
- IS health monitoring
- Self-monitoring
- User Acceptance
- User perception of wearable technology
- Continuous Use
- UTAUT2
- TAM
- Gamification in Fitness Wearables

By systematically assessing the previous research on wearable device user acceptance, we outline the research emphasis and the framework they used (Cooper, 1988):

General Acceptance:

- TAM (Technology Acceptance Model; 1, 2&3)
- UTAUT (Unified Theory of Acceptance and Use of Technology; 1&2)
- HITAM (Health Information TAM)
- Integrated Conceptual Model
- Model of Adoption of Technology in Households
- Information Service Evaluation Model

Functional:

- Affordance Theory
- Expectation Confirmation Theory

Behavioural (Threat and Privacy):

- Privacy Calculus
- Antecedents Privacy Concerns Outcomes Model
- Personalisation Privacy Paradox
- Protection Motivation Theory
- Theory of Planned Behaviour
- Health Information Privacy Concerns
- Health Belief Model

After conducting a literature review, we built a conceptual framework to navigate the research in addressing our inquiry.

3.3 The Main Study

3.3.1 Data Collection

As a qualitative approach has been chosen for conducting a thorough investigation of the presented topic, the research team has decided to incorporate interviews to gather in-depth, subjective information, which could facilitate a more comprehensive understanding of the research question (Bhattacharjee, 2012). The effectiveness of interviews for gathering detailed descriptions of a phenomenon and understanding how it is perceived by respondents, as well as understanding the connections between concepts and real-world situations, aligns with the objectives of this study (Recker, 2013).

The research team has opted for semi-structured interviews as the interview type, which entails a combination of predetermined and open-ended questions and allows for follow-up questions, are chosen as the interview type (Recker, 2013). This approach has several advantages, such as promoting an interactive relationship between the researcher and the participants, enabling the interviewer to verify current knowledge and gain new insights, and encouraging the exchange of sensitive information in a more comfortable and conversational manner (Recker, 2013). This approach is considered to be more effective in eliciting detailed and comprehensive responses.

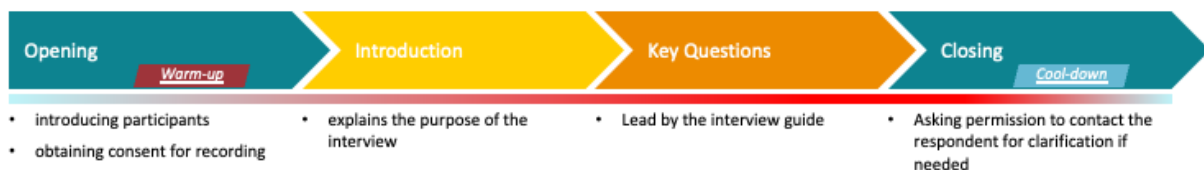


Figure 6: Interview Procedure

The interviews are structured using the framework provided by Myers and Newman (2007), consisting of four distinct steps: opening, introduction, key questions, and closing. To ensure the comfort of the interviewee throughout the process, the warm-up and cool-down phases are integrated into the procedure (Rogers, Sharp & Preece, 2001; Kurniawan, 2004). These two phases will not be installed as separate steps but rather be blended into the overall interview atmosphere that the interviewer will facilitate at the beginning and end of the interview. The opening consists of introducing all participants and obtaining informed consent for recording, while the introduction explains the purpose of the interview (Myers & Newman, 2007). The key questions session is navigated by the interview guide, and the closing includes asking for permission to contact the respondent for clarification if needed (Myers & Newman, 2007). The aim is to create a comfortable and seamless interview atmosphere to extract the most valuable information from the participants.

Furthermore, the interview recordings shall be transcribed and made available for proofread by the interviewees, who may point out any errors in the transcript. However, they are not allowed to alter their opinions or views, even if there are discrepancies between the original interview and the transcribed version.

3.3.2 Selection of Respondents

To design a suitable sampling strategy that can effectively address the research topics, we facilitate every step of the sampling process, including defining the population, sampling frame, and sampling technique (Bhattacharjee, 2012). Firstly, the research team selected Europe as the population for the sampling because previous research has extensively explored the topic in the United States and East Asia. Secondly, considering the timeframe and the fact that the team is using a qualitative approach, we anticipated an attainable sample size of eleven. As Poland is the accessible option among the underexplored European population, the research team decided to frame the sampling focus of our study to Poland. Nonetheless, we acknowledge that the data collected may be limited in its ability to generalise the findings to the broader European population.

Lastly, and most significantly, the sampling technique could contribute to the quality, generalisability, and reachability of the study. Recker (2013) suggests that, particularly for qualitative approaches, using purposive instead of a random selection of respondents ensures that the sample has relevant experience and knowledge of the research topic. Therefore, this study incorporates non-probability sampling as the sampling technique. The research team combined the strengths of quota sampling and convenience sampling to create a well-balanced approach (Bhattacharjee, 2012). The interviewee is drawn from wearable device users who are close to hand and readily available (Bhattacharjee, 2012). The research team acknowledges the limitation associated with incorporating non-probability sampling when attempting to generalise research findings.

Interview respondents are presented below in Table 4.

Table 4: Interview Respondents

Respondent Code	Age	Interview Language
Respondent 1 [INT1]	20-29	English
Respondent 2 [INT2]	20-29	English
Respondent 3 [INT3]	20-29	English
Respondent 4 [INT4]	30-40	English
Respondent 5 [INT5]	20-29	English
Respondent 6 [INT6]	30-40	English
Respondent 7 [INT7]	40-49	Polish
Respondent 8 [INT8]	50-59	Polish
Respondent 9 [INT9]	70-79	Polish
Respondent 10 [INT10]	50-59	Polish
Respondent 11 [INT11]	40-49	Polish

3.3.3 Interview Guide

To ensure a smooth interview, a structured list of topics and questions is created in the form of interview guide (Bell, Bryman & Harley, 2022). The incorporation of an interview guide is essential in qualitative research, as it facilitates the effective gathering of data, enabling researchers to address their research questions with a higher degree of accuracy (Bryman & Bell, 2015). The research team developed the interview guide through an extensive review of existing literature. We created our interview guide based on our conceptual model, which was inspired by the success frameworks, UTAUT2 and HITAM, developed by Venkatesh, Thong and Xu (2012) and Kim and Park (2012). The guide was structured around the research questions and aims, ensuring that it captured all relevant data from the interviewees.

The interview guide served as a valuable tool in collecting data that helped us to understand the participants' experiences, perspectives, and insights on the research topic. In this study, we relied on the preparatory steps provided by Bryman and Bell (2015) in the interview guide design. We organised the topic areas and questions to ensure that the interview flowed logically, and the questions were formulated in a way that allowed us to answer the research question without being too specific. Additionally, we used language that was relevant and comprehensible to the interview participants. By following these steps, we were able to create an interview guide that was accurate, effective, and relevant to our research question.

Refer to the interview guide in Appendix 1.

3.4 Data Analysis Methods

In order to address the research question, the data collected from the interviews will be analysed and interpreted in detail (Patton, 2014). This is an important step in understanding the relevant data and drawing meaningful conclusions from it. The semi-structured interview method is incorporated to accommodate more personal and conversational discussions of sensitive topics (Recker, 2013). However, semi-structured interviews also contain a greater degree of detail and nuance, which is why it is essential to transcribe both verbal and non-verbal messages from the interviews. Given that the topic brings up sensitive health-related behaviours, it may elicit strong emotions during the interviews. Therefore, it is crucial to record both types of data for further investigation. To manage the large volume of data expected from the interviews, the transcription process will utilise both "Pinpoint" and "Microsoft Teams" software to provide transcriptions of interviews. To ensure accuracy, a manual review will then be done to correct any mistakes and ensure accuracy.

An essential step in analysing data is to read it carefully to understand its content and develop initial ideas about its meaning and relationships (Kaplan & Maxwell, 2005). The initial interpretation and judgment generated in this step, along with the scholarship, are crucial in developing a coding framework that will be utilised to analyse the interviews (Kaplan & Maxwell, 2005). In this research, coding, one of the most common approaches in qualitative studies for data analysis, will be used as a data analysis technique to transform the qualitative data into meaningful information, facilitate comparison, and support the development of theory (Kaplan & Maxwell, 2005; Recker, 2013). Codes will be based on evaluation questions, existing theory, or prior knowledge, and may also be created during the data analysis (Kaplan & Maxwell, 2005).

The process of coding, can be approached in two ways: inductively and deductively (Linneberg & Korsgaard, 2019). This research employed a blended approach of deductive and inductive coding, which is commonly used, where the initial coding framework is based on the literature review theory, and then modified according to the results of the interviews (Linneberg & Korsgaard, 2019). To fully capture the complexity of the data, a two-cycle coding approach will be adopted, which involves a circular refining process (Gioia, Corley & Hamilton, 2013). In the first cycle, the focus will be on the informant, while the second cycle will be more researcher-oriented, incorporating concepts and themes from existing theories to increase the level of abstraction (Gioia, Corley & Hamilton, 2013). This blended approach, along with two-cycle coding, will enable the researchers to extract and analyse as much knowledge as possible from the interviews. The data analysis tool, Atlas.ti, is incorporated in the coding process.

In terms of the initial coding, a coding scheme is established on the basis of the research framework, which is derived from the relevant research background (Gibbs, 2007). It is comprised of three layers, code, sub-code, and level. As the collected data contain information on both general levels and functionalities, an additional layer, level, is added to specify whether a general or functionalities to which the code refers. The sub-sub code is represented by four categories: "-GE" for general, "-DD" for data display, "-I" for insights, and "-G" for gamification. For instance, in PE-AFH-DD, "PE" denotes the code for performance expectancy, "AFHG" represents the sub-code for achieving fitness and health goals, and "DD" indicates the data display functionality. The code, sub-code, and level are presented in the following scheme:

Table 5: Coding Scheme

Code	Description	Level	Sub-codes	Description
EE	Effort Expectancy	Functionality	-	-
PE	Performance Expectancy	Functionality	PE-AFHG	Achieve Fitness and Health Goal
			PE-PS	Performance Satisfaction
			PE-AS	Accuracy Satisfaction
H	Habit	Functionality	-	-
SI	Social Influence	General/ Functionality	-	-
HM	Hedonic Motivation	Functionality	-	-
FC	Facilitating Conditions	Functionality	-	-
PT	Perceived Threat	Functionality	-	-

3.5 Ethical Considerations

When conducting qualitative research that involves interviews, it is crucial to consider ethical issues as personal information and opinions of interviewees are being investigated (Patton, 2014). To ensure ethical standards are met, the researchers will obtain consent from the interviewees during the opening step of the interview according to the Myers and Newman (2007) 4-step interview structure (Patton, 2014). Since the research topic is related to privacy and health-related information and habits, it is especially important to respect the confidentiality of the participants. Therefore, the names of the interviewees were not disclosed to ensure privacy. Wiles (2012) recommends that researchers avoid breaching confidentiality by anonymising the data, and this is the approach chosen in this study. This was achieved by replacing the name with a pseudonym chosen by the researchers, following the principle of selecting pseudonyms that do not reveal the interviewee's identity (Wiles, 2012).

The participants should also be informed that their participation is voluntary and that they can choose to withdraw from the study at any time without any negative consequences (Bhattacharjee, 2012). Moreover, the interviewees must be assured that whether they participate in the study or not, they will not be harmed in any way (Bhattacharjee, 2012). This information should be disclosed at the start of each interview. To ensure participants' rights to withdraw are respected, ongoing consent must be obtained throughout the study, and researchers must be attentive to expressions of reluctance or desire to opt out (Wiles, 2012). The research team should be prepared to use defined stop signals to allow participants to withdraw if they wish (Wiles, 2012). Moreover, it is crucial to cover the exit methods during the opening step to acknowledge participants' rights during the interview process.

Researchers have ethical responsibilities to the research community with respect to how they analyse and report data (Bhattacharjee, 2012). This means that any unexpected or negative findings should be disclosed, even if they may challenge the research design or the obtained results (Bhattacharjee, 2012). Furthermore, presenting data in a way that suggests it was deliberately collected to support a particular hypothesis or to manipulate the data to fit a desired outcome is unethical (Bhattacharjee, 2012). Researchers should also be careful not to group their data into different sections to corroborate or deny a hypothesis or misrepresent disputable claims as valid based on incorrect data analysis (Bhattacharjee, 2012). To advance the field of science, researchers must be transparent and truthful about the conducted study, and this includes any limitations or issues that may have occurred during the conducted study (Bhattacharjee, 2012). This enables the future research to learn from the experiences and prevent similar problems.

3.6 Scientific Quality

Regarding the development of research scientific quality is considered to be extremely important. Thus, in order to conduct well-grounded research, validity and reliability are both essential. Bhattacharjee (2012) provides an analogy of a shooting target to explain this concept. A measure that is valid and reliable at the same time would result in shots that are both correctly targeted and closely grouped together, similar to shots that are clustered in a small range close to the centre of the target (Bhattacharjee, 2012). However, a measure that is only valid would result in shots that are centred on the target but spread around it

(Bhattacharjee, 2012). A measure that is only reliable, on the other hand, would result in shots that are closely grouped together but not correctly targeted (Bhattacharjee, 2012). Therefore, in order to effectively measure the concepts being studied, both reliability and validity are required and are the ultimate goal of the researchers in this study (Bhattacharjee, 2012).

The significance of subjectivity in data collection and analysis is addressed by the validity of qualitative research (Kaplan & Maxwell, 2005). As the researchers act as the instrument in the research process, it is clear that they are influenced by their personal experiences and biases and must take measures to recognise and address this subjectivity in their research. These measures may include being transparent about their background and approach with study participants and the research community, but also using particular techniques that facilitate ensuring the validity of the research (Kaplan & Maxwell, 2005). Such techniques could include gathering a lot of data, taking into account many perspectives, and searching for evidence that may oppose the obtained findings (Kaplan & Maxwell, 2005).

Although the researcher's subjectivity may weaken the research's reliability, it can also help with increasing its validity through providing a more profound insight and comprehension of the research question (Kaplan & Maxwell, 2005). It is a common procedure for qualitative researchers to examine particular validity threats during data collection and analysis through comparing the data to existing data or data collected specifically for testing (Kaplan & Maxwell, 2005). The techniques for that include collecting rich data, triangulating data, obtaining feedback or member validation, and looking for both negative cases and discrepant evidence (Kaplan & Maxwell, 2005). Additionally, in this study the participating respondents will have complete transparency when it comes the information collected from them and how it will be used in the research, and both ethics and participant anonymity will be ensured. What is more, confirmability is an important component of research quality (Bhattacharjee, 2012).

Reliability pertains to the consistency or dependability of a measure (Bhattacharjee, 2012). This research achieved consistency by employing the same interview guide for all interviews and posing questions that are relevant to the respondents' area of expertise using simple language (Bhattacharjee, 2012). In social science research, there are various sources of unreliable observations that should be avoided, such as researcher or observer subjectivity, unclear or ambiguous questions, and questions about unfamiliar or unimportant topics to the respondents (Bhattacharjee, 2012). To enhance the interview's reliability, the interview guideline was created and ground rule to make all interviews consistent and less affected by the interviewer was established.

4 Findings

In this chapter empirical findings of the study are presented based on the conducted interviews. The interviews were coded according to the research framework presented in Table 3. Firstly, the profiles of the respondents are presented. Then, the findings about constructs that were analysed on the general level are presented, these are Hedonic Motivation, Social Influence, and Facilitating Conditions. This analysis is followed by the analysis of the constructs that were studied on the level of specific IT functionalities of wearable devices. In this part findings about each of the constructs, namely Performance Expectancy, Effort Expectancy, Habit, Social Influence, and Perceived Threat, are presented for each IT functionality.

4.1 Background of the Respondents

The background of respondents was asked about in the questions ID1 to ID5. The moderating factors are important part of the research framework that was incorporated in this research. The group of eleven respondents participated in the study. For consistency and homogeneity of the sample all of the participating respondents come from Poland. Six of the interviews were conducted in English. The remaining five were conducted in Polish on the grounds of the comfort of the respondents and their ease of expression. Followingly, these interviews were translated using DeepL translator and manually validated by a Polish native speaker.

The age distribution of the respondents is presented in Table 3. Four of the respondents were between 20-29 years old, two of the respondents were between 30-39 years old, two of the respondents were between 40-49 years old, two of the respondents were between 50-59 years old, and one of respondents was between 70-79 years old. Regarding gender, six women and five men participated in the study.

Regarding the devices that were used by the interviewees, eight out of eleven respondents used devices that were manufactured by Garmin, a company that focuses on wearable technology for sports activities, two respondents used Apple Watch device, that is manufactured by Apple that is computer and consumer electronics company, and 1 respondent used Samsung Watch, manufactured by Samsung that is also computer and consumer electronics company. Therefore, it can be said that the majority of the respondents used devices that are intended mainly for sports tracking. The length of usage of fitness trackers varied between the interviewees, some of the respondents had been using wearable devices for several years, whereas INT2 had been using the device only for three months at the point in time when the interview was conducted.

The respondents that used Garmin devices, eight from all the respondents, INT1, INT2, INT3, INT6 INT7, INT8, INT10, INT11, indicated that they are involved in some kind of sport activities, with running being the most common activity. Moreover, INT1 indicated that in addition to cardiovascular training he regularly practices strength training.

When it comes to the frequency of use and use habits, nine respondents indicated that they wear the devices all the time, even at night, and remove them only when they must be charged. In case of these respondents the HWDs are monitoring specific parameters and

gathering data continuously. However, INT9 indicated that the device is worn only during the day, because of discomfort that it causes at night. INT2 also uses the device only during the day, specifically during running activities, but did not specify why it is not worn by night. In the case of INT2 and INT9 the performance of functionalities of wearables could be limited because the data is not gathered continuously.

4.2 General Factors of User Acceptance

The study assesses the general factors of user acceptance under three relevant constructs, C4 hedonic motivation, C5 social influence, C6 facilitating conditions, with questions ID6 to ID8.

In general, when asked the main purpose of fitness tracker use, the interviewees provided varying answers. Besides the most basic use as a watch, the most common theme that was repeated across the interviews was activity tracking. The interviewees that train indicated that the trackers are useful during activities, INT6 even mentioned that one of the most important applications of the device is the availability of maps during workouts, and that gathered data helps them with analysing their workouts. However, even the interviewees that highlighted that they are not into sports, namely INT4, INT5, INT9, said that activity tracking through simple metrics, such as step count, helps them increase their overall activity level and it is a desirable goal for them. INT1, INT7, INT8, INT9 highlighted the importance of measuring and gathering fitness and health related data. INT9 singled out two metrics that are especially important for health monitoring, these are blood oxygen saturation and blood pressure. The respondents INT3, INT5, INT9 also indicated that push notifications are one of the main reasons to use fitness trackers, because it helps them be informed without using a smartphone all the time. INT3 and INT4 also mentioned that fitness trackers are used by them to listen to music.

When it comes to the motivations for buying a fitness tracker a few main reasons were present in the answers provided by the respondents. A main theme that is visible is buying a fitness wearable device to monitor all sorts of activities and metrics related to them. INT2 specifically mentioned that being able to track heart rate during running activities was the main reason to buy a tracker. Moreover, INT6 and INT10 mentioned that their decision was influenced by the functionality of displaying maps on their watches during hiking, biking, and running activities to navigate on the trail. INT1 who is an active user and analyses collected data frequently decided to upgrade from the previous watch because with it was not possible to track specific kind of activity:

“The previous one didn't have like those abilities the watch I have now has so basically I couldn't like record strength training which is really important to me as I can with this one.”
(INT1:10)

INT4, who is not into sports, indicated that a main reason to buy a new fitness tracker after losing a previous smart band was the fact that it could collect more data on daily basis and had the ability to track calories burnt:

“Of course, I could gather much more insight about my usual day, how I perform during the day or how many calories I lose during the specific type of activity.” (INT4:20)

The importance of measuring burnt calories was also mentioned by INT11 next to the activity measurement and persuasion of friends as reasons to buy a tracker. In addition to previously mentioned reasons INT3 highlighted the ability to listen to music during activity as a main reason to buy a wearable device:

“Sleep measurement, measurement of sport data, like tracking and notifications. And the music functionality I think that was a trigger that ‘Okay, it’s so cool. I have to buy it.’ This was the trigger that I don’t need to carry a phone during the run.” (INT3:60)

A functionality of push notifications was also highlighted. INT3 said that it is important that a phone does not have to be carried during running activities and that the distraction is reduced by notifications. INT5 also mentioned that with push notifications on the wearable it is easier to ignore irrelevant messages. Moreover, a few respondents were also motivated by other to buy wearable devices. INT2 and INT11 mentioned the influence of their friends and relatives in the decision to buy such device, and INT9 said that the decision was made by a relative and it was a gift. INT7 also mentioned that the design of the device was very attractive and feminine.

Hedonic Motivation

The construct of Hedonic Motivation is supposed to capture the enjoyment or pleasure that users derive from the use of fitness trackers. In general, all of the respondents stated that they are satisfied with their wearable devices. INT1, INT8, and INT11 indicated that after upgrading to the newer models they felt even more content with the watches because they provided new functionalities that they were missing and improved the quality of the ones that were available previously. However, even though satisfied, INT2 stated that one of the functionalities is missing. Two of the respondents, INT1 and INT5, suggested that the wearables in some way became part of their bodies. INT1 said that the tracker became unnoticeable after some time, whereas INT5 said that after breaking one watch the new one had to be bought because it was hard to live on without it. When it comes to the factors that negatively impacted the enjoyment of use INT3 complained about the performance of some functionalities:

“But some features are not well made. For example, there is a tracker of my VO2 max or something like fitness level in general. Even though I felt improvement in general in my condition, it showed regress. Probably because I bought it from the second hand. So someone was using that, and I don’t know. I think there is a synchronisation issue or something.” (INT3:68)

INT4 was very glad that the watch was bought but indicated that battery life could have been improved so it does not have to be recharged every day.

Social Influence

The construct of Social Influence is supposed to capture the degree to which user’s important acquaintances and friends endorse the use of fitness wearables. Only 3 respondents indicated that they did not feel influenced by others to adopt a wearable device. From these, INT5 said that opinions of friends were important, but had no influence, and INT8 said that it is rather him who encourages others to buy fitness trackers. The rest of the interviewees mentioned at least one person or group that had an impact on the adoption of wearables by them. Friends

were mentioned a few times, INT1 was encouraged by a friend who described how to make use of such devices, INT3 said that two of his friends who were runners encouraged him to buy a device, and his co-worker lent him a device for testing, INT10 got encouraged by the possibility to be able to compete with his friends and compare running results, and INT11 said that the friends had a huge impact because she is not tech-savvy and would not buy such device if not for them. INT2 and INT4 indicated that their partners influenced them. Moreover, INT4 and INT6 felt influenced to adopt a device by a sole fact that it is used by more and more people around them. INT6 also suggested that the external groups of people who are active on internet forums could have some impact on the decision:

“Many people are getting new smartwatches, smart bands. From there I started exploring this topic. I found a few forums where the people were saying about the functionalities that you can use for the activities that I'm doing in my free time.” (INT6:24)

Additionally, some of the respondents, INT6, INT7, INT8, INT10, INT11, indicated that these devices benefit their interactions with others. INT6 said that he and his friends give each other kudos for their activities on external application called Strava. INT8 also referred to that saying that it is possible to see how friends perform and discuss it, and INT10 said that it is a common thing for him and friends to exchange different insights about fitness trackers.

Facilitating Conditions

The construct of Facilitating Conditions defines whether technical support, training materials, and resources about specific IT functionalities that are provided by the manufacturer of owned wearable fitness tracker are satisfactory enough. In general, the respondents had no need to contact the manufacturers to obtain technical support. INT1, INT5, and INT8 indicated that the functionalities are described very thoroughly in the dedicated applications for the wearable trackers. INT3 said that if any question or problem arouse an answer could be found in the documentation provided by Garmin, INT11 indicated that solutions for most of the problems could be looked up on the internet. The only respondent who contacted the manufacturer is INT8 who thinks that even too much information is provided to the new users of fitness trackers:

“I think yes in terms of Garmin's support up to the user manual and so on it's very extensive, and I think a lot of new users are even intimidated by the amount of this material. So they don't get familiar with all these features... Although if I have a problem then I check in the manual to see if it's described, and I've even had the opportunity to contact Garmin support to explain the functionality.” (INT8:30)

The problems with the information at the beginning of journey with wearables were confirmed by INT4. However, INT4 stated that the problems stemmed from the lack of information, not its abundance:

“It's hard to answer that question because at the beginning I really struggled with how I should use it. There was only a short manual how to set up the device, but there was no mention about the specific functionalities. I had to look for it on the internet. For example, I was sure that on that device I could use a messenger... I found out that Messenger isn't compatible with that software. I was quite disappointed.” (INT4:34)

What was also highlighted by some interviewees is that when problems occur, they tend to contact their friends or family who could help them. INT9 said that if any help is needed, she contacts family members who own a device from the same manufacturer. The same approach was presented by INT10 and INT11 who contact their friends.

4.3 Data Display

The study assesses the functionality under five relevant constructs, C1 performance expectancy, C2 effort expectancy, C3 habit, C5 social influence, and C7 perceived threat, with questions ID9 to ID15, starting with a brief introduction of the functionality.

The data display functionality involves displaying data on various screens connected to wearable devices that collect and analyse the data. All of the respondents in this study used a smartwatch as their fitness tracker, instead of a wristband or any other screen-free device. Therefore, this discussion is based on the assumption that the smartwatch is the primary wearable device. The data can be displayed on the watch itself, dedicated apps, or even desktop apps or in a browser. Users adopt different devices to accommodate their needs in displaying their information. Among the eleven respondents, all used the dedicated mobile app and, by default, the smartwatch to view their data. Only one respondent reviewed their data on an in-browser webpage for more advanced data analysis. This finding was extracted with the above underlying context.

Effort Expectancy

Of the respondents in this study, nine found the data display functionality easy to use. Among all, customisation is a factor mentioned by two participants, INT3 and INT5. The former mentioned the customisability of the data display when asked about the ease of use, while INT5 viewed it as a drawback. INT5 addressed the issue of spending extra time to find a particular statistic and even having to do manual calculations regularly to figure out and track the desired information:

“You have, for example, the number of steps that you do daily, the average of steps monthly, yearly and all of that. But there is no option to see, for example, how many steps you did in one month. There is not the number. I have to add all of them together to see how much steps I did” (INT5:32)

Two respondents, INT4 and INT10, found the data display functionality not easy to use. INT4 did not agree with the way their device visualised the information and found it not intuitive and difficult to comprehend. On the other hand, INT10 addressed being unfamiliar with the chart type that the device is using. Furthermore, INT10 stated that the chart changes frequently, and finds it difficult to keep up, therefore, leaving no choice but to skip new ones to avoid feeling overwhelmed. Therefore, familiarity with the data presentation could contribute to the user's perception of ease of use.

Performance Expectancy

When asked if the data display functionality helped them reach their fitness or health goals, eight of the respondents responded positively, stating that the adoption of the statistics

displays successfully motivated them to work out or stay healthy, identify and address their problems, and, ultimately, improve their sports performance and health. The functionality motivated users in different ways. INT5 reported that visualising improvement further drove her motivation. INT6 said that the associated function automates target setting and encouraged him to go the extra mile, which was also agreed upon by INT4. INT11 addressed that the data display enabled his competition with himself and constantly improved his sports performance. On the other hand, the data display functionality could highlight problems with users' health or training. A special perspective is its effect on rest management, in which INT7 found a contribution to her objective with this functionality. INT5 stated that the visualisation and comparison of performance could both motivate or demotivate users, depending on how the data is presented:

“...It's really motivating to see, for example, when you have a good one, and how much more steps you did, for example, this month and then month in last year. There are all those trends stuff like that. This is fun, if it's in a good way. Because if it's like ‘Well, you did like and 10,000 steps more last year.’ I would say it might be unmotivating.” (INT5:34)

Three respondents did not believe that the data display functionality helped them reach their fitness or health objectives. INT10 reported confusion with the functionality and did not use it consistently. She also showed negativity towards the idea of one-fit-all and found that the underlying algorithm could not reflect personal situations. The other two respondents believed in the role of the function's assistance in such matters, but they took the data display functionality as a guide rather than the major driving force of their pursuit in fitness and health goals.

In terms of satisfaction with the functionality, all respondents expressed satisfaction with the data display on their devices, and one respondent did not use this functionality and, therefore, was excluded from the results. Respondents mentioned the availability of data, its effectiveness, clear presentation, and design. Three respondents indicated that they were satisfied with the functionality for their current needs as basic users but felt that the current devices were not suitable for professional usage, such as for athletes.

Regarding the accuracy of the data display, all respondents found it to be up to their expectations, and one respondent did not answer the question and was, therefore, excluded from the results. Two respondents, INT9 and INT11, validated the data generated in their devices. The former compared the data with results measured by other more advanced devices, while the latter validated the data with other people using another wearable device. Similar to the findings in the previous question, INT7 found the accuracy satisfactory for the moment but did not trust it in more advanced usage.

INT3 and INT7 mentioned the option of acquiring advanced gadgets, such as a chest strap or belt, to improve the accuracy of specific data. The cost-benefit analysis between measurement accuracy and cost is evident in INT3's decision-making process. He suggested:

“...But sometimes, I feel like the heart rate measurement isn't too precise. So, I was expensive, because it's €100, like considering buying this strap for chest, but for me, it's too half of the price of watch itself. Only small improvements in the precision of measurement....it's like a Pareto rule....” (INT3:127)

Habit

This study explores how often users access a particular function and why they do so. The data shows that users vary in their usage frequency, from not using the function at all to using it more than once a day. The frequency scale ranges from: don't use, once every few days, once a week, few times a week, daily, few times a day.

Among the four participants who elaborated more on using the function, three had a clear purpose for accessing the displayed data. They used it to review their instant performance statistics and share the generated information with friends. One reason for using the data display was to track step count. Additionally, INT3 reported using the function a few times a week, mainly during training sessions.

INT1 had developed a habit of using the data display function. The development of this habit depends on the characteristics of extensive usage of the function. He stated:

“I do share it with my friend, with you to just recognise some things that are happening during the workouts. I use it daily basically that's not even to monitor the workouts, but also to see how my sleep was and how many steps I've done and how many calories I have burned during the day.” (INT1:66)

Social Influence

Out of the participants six stated that they do not feel compelled to use the data display feature just because their peers are using it, while four find the influence of surroundings significant. One participant did not answer this question and was excluded from the survey. According to INT3 and INT11, social influence extends beyond the adoption of the functionality and is facilitated through the use of social media functions derived from the data display feature. INT3 even mentioned that positive interactions on social media motivated them to go for a run, not to outcompete his peers but to maintain his progress. INT8, on the other hand, mentioned urging his peers to make good use of the generated graphs.

Perceived Threat

Out of the eleven interviewees, two reported having chronic diseases, such as hypertension, joint problems, and obesity. When asked if they use the data display functionality on fitness trackers to counteract their conditions, INT9 had a positive response, while INT10 had a negative one, but expressed optimism about future device development in the area. Specifically, INT10 mentioned that the device's vision could alert users to potential issues before they become noticeable by continuously tracking stats like blood pressure and blood glucose.

Seven of the respondents believed that the data display functionality could be useful in disease prevention and treatment in the future, thanks to its ease of use, good accuracy, continuous monitoring, and responsiveness. INT3 described how during the COVID-19 pandemic, people were constantly checking their SpO2 oxygen saturation to monitor their health condition, which demonstrated the device's potential in countering disease at a macro level. INT3 also mentioned the device's ability to detect and take action during emergencies, such as falls, that could trigger an ambulance call and save lives, especially for the elderly. However, INT10 pointed out that users still expect a certain level of professional involvement when it comes to such critical matters and would appreciate someone explaining the device's purpose.

INT4 raised concerns about bringing the device up to a higher level from a liability perspective. She expressed doubts about the monitor's accuracy and battery life, which could be potential shortcomings of current fitness tracker designs:

“...Sometimes I'm not sure if it's calculate properly, because the data sometimes really ...s the reason. I assume that it could be connected with the fluctuate. I don't understand what I think that medical devices should have a much better battery. Sometimes I ...reservation. forget to recharge my smart watch and the battery died during a night and I don't have sleep. In my case, it doesn't matter in general. But for people suffering information about my for some kind of diseases, it could be really problematic. Cause it could impact on their health or even life.”
(INT4:72)

4.4 Insights

The study assesses the functionality under five relevant constructs, C1 performance expectancy, C2 effort expectancy, C3 habit, C5 social influence and C7 perceived threat, with questions ID16 to ID22, starting with a brief introduction of the functionality. The Insights functionality refers to individualised advice that is based on the data about user's current habits and activity levels and is created by AI-driven algorithms.

In this study the respondents used different fitness trackers, but all of them contained functionalities that can be classified under the umbrella term of Insights. From all of the respondents only INT2, INT5, and INT10 admitted that the functionality is not used by them very often, whereas INT11 indicated that insights might have negative effects on this person and that is why she does not take them into account:

“I don't particularly care about them (insights) in this case. I have a high heart rate indicator set up, and it just stresses me out... suggestion is suggestion, and my feelings are my feelings and I don't pay that much attention to it.” (INT11:66)

Effort Expectancy

When asked about the ease of use and understandability of the insights that are available in wearable devices all of the respondents who used them described them as easy to use and comprehend. INT1 suggested that it takes some time to be able to understand everything, but the process of learning is very straightforward:

“I do really find it not complicated. And it's pretty easy to use, and also the one important thing about the recommendations is that they are really described. You can just click on the question mark icon to get more insights of the values that are shown in the application. So I find it really useful.” (INT1:74)

INT4 described the insights that are produced by the owned device as intuitive and gave a metaphorical example that the watch uses to describe sleep patterns:

“It's quite intuitive. I gather insight about my type of sleeping. According to my device, I'm a lion type of sleeper, and it's a healthy type of sleep when you sleep from 9 to 10 hours a day.”
(INT4:76)

Moreover, INT8 described the insights that he receives as succinct and well-explained, INT7 added that the suggestions are transparent, and INT9 said that every insight is explained in a very simple way in the dedicated application.

Performance Expectancy

More than half of the interviewees, seven of them, indicated that Insights help them reach their health and fitness goals. INT3 described them as simple suggestions that he could act upon:

“Okay for me, it's great that, I have run and after it shows me, ‘Okay. You should regenerate for 30 hours.’ For me, it's a meaningful information. It's that simple. Okay, so I will schedule my next training in two days.” (INT3:197)

Both INT7 and INT8 also referred to positive impact of insights regarding physical training and recovery. INT8 gave an example of one time when he had not listened to the insights and regretted the decision afterwards:

“If it says there that I should rest and so on. Well. Then I consider resting. Although it happened to me a couple of times that I didn't listen to that suggestion and then a couple of days later it turned out that the body was really tired. It didn't have the strength anymore, and you had to do that rest anyway. Maybe if I had listened to that suggestion earlier and let go of that training or other activity, maybe the body wouldn't have been so overloaded, and I wouldn't have got sick of it later.” (INT8:65)

INT4 said that in general she tries to improve the quality of everyday life, and because of Insights she feels more motivated to act in a way that can facilitate achieving that. Moreover, INT6 highlighted that the watch sometimes gives him insights that he would not think of on his own. INT1 admitted that the insights are useful for achieving his fitness and health goals, but he would not depend on them if he was an athlete. On the other hand, INT10 and INT11 argued that insights are not helpful in achieving their goals. INT10 concluded that since everybody is different, he listens only to his own advice, whereas INT11 does not want to be guided by algorithms and does not want recommendations to be imposed on her.

Only INT1 indicated that Insights meet his expectations only partially. Besides these respondents, all of the respondents who use Insights stated that they meet their expectations. INT4 said that for her, an office worker who is not into sports, the insights contain all potential information that she would need. Similarly, INT9 said that nothing is missing in the insights that she has available in her device. However, INT3 indicated that even though his expectations are in general met, he does not understand what some of the insights are supposed to mean by giving an example of body battery metric that is supposed to measure energy level and is giving suggestions about activities based on that.

When it comes to the accuracy of produced insights the respondents were divided. More than half of the respondents said that they are satisfied with accuracy. INT3 gave an example of the insight that said that his sleep and regeneration were distorted, and the respondent associated it with alcohol consumption:

“When I drink, even two beers, I see that this body battery select my regeneration for sleep is... distorted. Yes. So that was very important insight for my life to actually reduce the alcohol consumption in my life.” (INT3:219; INT3:221)

For INT4 the accuracy is satisfactory because she only relies on basic insights, whereas INT6 states that he had not had any problems with accuracy of insights up to that moment. INT8 suggested that the accuracy is okay but did not feel in a position to judge whether there are any problems with it. Furthermore, INT9 thinks that the insights that she receives are accurate, and even validated metrics such as blood oxygenation with other medical devices. The other perspective was presented by INT7, who is not sure about the accuracy, but takes insights into account anyway because she believes that they are prepared by very competent people:

“Whether it's such accurate data, I'm not sure. But I always take it into account and try to adapt to it... And here I trust the people who created it, and I think someone has worked a lot on it and has maybe more experience with it.” (INT7:77; INT7:79)

On the other hand, INT1 and INT11 stated that they are not satisfied with the accuracy of insights. INT1 thinks that a lot could be improved when it comes to the accuracy, but insights are still useful despite problems with it because one can get an overall information about performance and health status. INT11 argued that the insights that she received about heart rate and overtraining were completely incorrect, and therefore she stopped worrying about them.

Social Influence

Regarding Social Influence the respondents almost unanimously answered that they do not feel, to any extent, inclined to use insights because their peers and colleagues use that functionality. INT5 even admitted that she probably has not ever discussed this functionality with anyone. However, INT7 said that the others have an impact of her usage of insights because she compares the insights with her husband and friends, even though they differ from person to person:

“Yes, as much as possible I always compare such suggestions also with my husband or with other friends, but you know that we are of different ages and you know that these suggestions can be different for each person, for each particular person, but we always compare and tell each other.” (INT7:83)

Habit

The interviewees differ when it comes to the usage habits of insights. INT1, INT3, INT6, INT8, and INT9 stated that this functionality is used by them on daily basis. INT8 listed the following insights that are checked by him daily:

“Mainly the sports ones, of course, the ones about sleep or there health I get acquainted with” (INT8:79)

INT4 and INT7 indicated that they use Insights 2-3 times a week, INT4 said that insights are usually checked by her in the evening to summarise the day:

“Maybe twice, three times a week. Usually in the evening, when I go to bed, I try to summarise the daily activity and check the insights also.” (INT4:90)

INT5, INT10, and INT11 said that they use insights very rarely. INT5 describes her use of this functionality as voluntary action that is conducted on the fly:

“Really rarely to be honest. It kind of appears every few weeks that I check it, and I'm just seeing how it works. But it's more of like checking it with something like that. It is not the sole purpose of me checking it. It's kind of like ohh, and let's see like how the insights are.” (INT5:58)

INT2 said that she does not use the insights at all.

Perceived Threat

Out of eleven respondents only one indicated that the insights are used by her to counteract some medical condition. INT4 said that the insights are helping her to reduce weight by proposing exercises that are supposed to facilitate reaching specific weight goal. INT9, who has problems with oxygenation of the body and hypertension, said that the watch is helpful by reminding her to take medication, but does not any specific insight to counteract these diseases. Most of the respondents who do not their wearable devices to counteract medical conditions think that they could be utilised in such way. INT1 suggested that the insights from such devices could be useful for medical purposes but would have to be consulted with physicians before they are applied. Similar stance was presented by INT6 who argued that with the amount of personal health data that is collected by wearable devices insights could be used for health and well-being improvement but would have to be consulted with medical staff beforehand. INT8 suggested that insights could be used to counteract diabetes and excessive blood pressure:

“I think with my state of health there's no need for that. But as I said before, in terms of diabetics or people with blood pressure problems, I think yes they would be helpful.” (INT8:86)

Even INT10, who is not a frequent user of insights, admitted that in case of health problems insights could be used by him as long as someone explained their meaning to him:

“If I felt that my health was declining badly and there was a suggestion and I could improve my health by listening to these whole algorithms, well, then I might be inclined. But the most important thing is that someone explains it to me and describes to me how it works and what I should pay attention to.” (INT10:84)

However, INT3 indicated that in his opinion insights from Garmin devices are not made for disease prevention, and he would seek other devices that could be used in treatment of specific diseases.

4.5 Gamification

The study assesses the functionality under five relevant constructs, C1 performance expectancy, C2 effort expectancy, C3 habit, C5 social influence and C7 perceived threat, with questions ID23 to ID29, starting with a brief introduction of the functionality.

Gamification involves utilising game design principles in non-gaming contexts to motivate users by incorporating elements such as challenges, rewards, achievements, and social sharing. Consequently, gamification can vary across different products, with device brands offering varying features and products equipped with different sets of sensors enabling different types of gamification.

In this study, eleven users were interviewed, but INT2 did not have any prior experience with the function and, therefore, the interviewee did not proceed to the following questions. Although INT3 expressed his personal view on the irrelevance of the functionality, he had experience using the function and provided insightful information, so his responses were included in the data analysis.

Effort Expectancy

All of the participants found the gamification features within their devices to be easy to engage with. One interviewee was excluded from the analysis as she did not participate in gamification. The respondents associated features such as intuitiveness, clarity, abundance, and variety with their positive responses.

When elaborating on their user experience, one interviewee, INT10, mentioned that gamification could be initiated by the app or users themselves, and found some games interesting and mood-boosting. Additionally, another interviewee, INT11, suggested that gamification could be motivating and even addictive. Social interaction was mentioned by both INT5 and INT7, who suggested that challenges could be given to friends, and this could boost motivation among friend groups. Two respondents spoke positively about the Garmin Badges feature. INT6 shared his personal experience with his Garmin watch, which awards extra badges for completing training in harsh weather. This is a good example of how the device can motivate users based on their current conditions:

“For example, do specific work for like 10 kilometers or something like that. You can get a badge. Or if you are doing a walk in the environment being on the temperature is below zero. You can get another badge. So, it's pretty easy because it's automatic when you achieve some kind of thresholds.” (INT6:76)

Performance Expectancy

Out of the ten respondents, eight believe that gamification helped them reach their fitness or health objectives, while two did not provide a clear response. One of these two respondents, INT3, mentioned that he stopped using gamification because he found the competition with other users irrelevant, given that different types and levels of runners were competing in the same playground, which made the ranking and game meaningless to him. Therefore, he does not have a specific opinion about the following two questions about performance expectancy with gamification. However, the positive responses of other participants showed that gamification benefited them by visualising their progress, encouraging them to compete with

themselves, constantly motivating and reminding themselves, and improving their social interaction. INT6 reflected that gamification could potentially limit its effects to those activities that were built into the function, overlooking other beneficial ones for the users. INT5 mentioned that gamification was the main reason for acquiring the device.

Out of the nine participants, eight are satisfied with the current functions. However, a Samsung user, INT4, found room for improvement in the user experience and the interactive function in her device and reported dissatisfaction. Participants found that such functions made good use of the data collected from the population. INT1 suggested that the function could be very useful for specific groups of people, and by knowing the mechanism working behind the device, he is satisfied with its performance. Two participants responded to the level threshold design in the game. INT6 suggested that it could be reduced to make the game more motivating, while INT1 found it well-designed.

Out of the nine participants, six found that the gamification accuracy met their expectations, whereas four stated that it was not significant to them. INT10 observed that the participants could cheat, but since there was no competition for a prize, she did not see any reason to be concerned about it:

“No, I think every company somewhere has their biases in there, because different watches count different data, it all depends on the company as well, but I think this is such a competition that here you're not competing for cash prizes or some kind of material prizes, you're competing for yourself after all.” (INT10:97)

Social Influence

Six of the interviewees stated that their usage of gamification is not influenced by their peers, whereas four claimed that their adoption of gamification is affected by their surroundings. When it comes to the social influence on gamification usage, most interviewees associate the social interaction within this functionality and provide some feedback on it. Social gamification includes challenges such as step tracking, running challenges, and swimming challenges. Although INT8 reports that there are fewer challenges available for competing with friends than competing with oneself, most participants still had the opportunity to play around with social gamification on their devices.

Half of the respondents reported that they only use gamification to compete with themselves rather than with others. This could be due to the segregation of product systems, which makes it impossible for people to compete with their peers using different brands of devices, or because users find the competition irrelevant. INT9, who is in her 70s, does not believe she has a chance to compete in the online community and therefore chooses not to participate. INT3 addressed that the professionalism of the game makes him feel incapable of competing and could be demotivating at times:

“There are some professional athletes on Strava and they also are included in this. Doesn't make any sense....I think comparing to others, you can even demotivate.... I'm so awful. You don't really take it seriously, but maybe...This is why I find it relevant to actually compare only to myself. This is the main principle in life...I have my own league, yes.” (INT3:280; INT3:282; INT3:284; INT3:286; INT3:288)

Habit

Gamification is a function that runs continuously in the background of the device, often only notifying users of important matters such as collected badges, achievements, or new challenge suggestions. Therefore, our assessment focuses on users' habits of using gamification, specifically how often they check the function.

Among the eleven respondents, eight use the gamification function regularly, two use it spontaneously, and one never uses it. The frequency of use ranges from a few times a month, a few times a week, daily, a few times a day, and often without specific elaboration. The distribution of frequency is quite even among these options. Users check the function to receive new game recommendations, track their performance, and check their friends' performance.

Perceived Threat

None of the respondents had participated in gamification to counteract any diseases. However, two respondents stated that gamification could help them overcome laziness and lead to a healthier lifestyle. Since laziness can lead to poor health, gamification could potentially prevent this bad habit from worsening into anything more serious.

When asked about their opinion on the potential of gamification in preventing or treating diseases, nine respondents had a positive view. Three participants mentioned motivation, which is a key benefit that gamification could provide to achieve positive results. Additionally, INT3 suggests that gamification could be effective in treating chronic and minor diseases by providing a continuous process of disease prevention and treatment. INT4 shared her personal experience in counteracting back problems with the gamification on her device. However, she still feels more comfortable turning to a doctor if she is dealing with something more severe. She said:

"...Maybe I start that stretching to improve my posture. Cause I have problem with my back. During the whole days in the office or in home office, sometimes I have a pain in my back. I thought that stretching activities and participating in gamification could be really great idea to reduce the pain." (INT4:110)

5 Discussion

This chapter examines and analyses the empirical findings in conjunction with the existing literature. The first paragraph introduces and discusses the identified themes, followed by a summary of each theme and its research implications. Finally, the chapter concludes by presenting the limitations of the study.

5.1 Continuous use and acceptance of fitness trackers

The data in this study was collected using a research framework consisting of seven constructs: Performance Expectancy, Effort Expectancy, Habit, Hedonic Motivation, Social Influence, Facilitating Conditions, and Perceived Threat. The empirical findings from the study are then examined and synthesised into three main themes: Perceived Benefit, Perceived Deficiency, and Perceived Threat.

5.1.1 *Perceived Benefit*

The theme of Perceived Benefit refers to the aspects of their fitness trackers that users valued and found beneficial to their use. This theme is corresponding to the study of Matt et al. (2019) that adheres to the findings outlined in the study of Yang et al. (2016). The findings of this study indicated that the perceived value strongly influences the intention to adopt wearable devices and that perceived benefit exerts a stronger influence on perceived value compared to perceived risk (Yang et al., 2016). We identified five main subthemes in the theme of Perceived Benefit that are directly connected to UTAUT2 theory by Venkatesh, Thong and Xu (2012). These are Ease of Use, Performance Expectancy, Enjoyment, Social Image, and Access to Support.

Ease of Use

The subtheme of Ease of Use refers directly to the Effort Expectancy construct from UTAUT2, defined as “the degree of ease associated with the use of the system” (Venkatesh et al., 2003, p. 450). In the case of this study, the subtheme captures the respondents’ perceptions of the ease of use of the IT functionalities that are available in their wearable devices.

In general, the interviewees were very positive about the ease of use of the studied functionalities. In both Insights and Gamification functionalities, users did not complain about it, and highlighted that functionalities are intuitive and well-described. However, it is important to mention that Data Display functionality was deemed not easy to use by two respondents who suggested that some visualisations are confusing and difficult to understand. Taking that into consideration, we indicate that effort expectancy positively impacts behavioural intention to use wearable devices.

These results confirm the findings of study by Matt et al. (2019), in which almost all participants perceived their fitness trackers as easy to use. Such findings are also consistent with the results of the meta-analysis conducted by Gopinath, Selvam and Narayanamurthy

(2022) regarding the construct of Effort Expectancy from UTAUT2. The fact that functionalities are perceived as easy to use is also beneficial because it is expected that the transition from early adopters with high innovativeness to individuals with lower levels of innovativeness will occur when it comes to wearable technology adoption (Gopinath, Selvam & Narayanamurthy, 2022). However, it has to be noted that some studies do not support this relationship, and some scholars state that well-designed devices and functionalities decrease the level of effort required from the users, whereas others argue that wearable devices do not require much effort since users most probably have prior experience with devices such as smartphones (Reyes-Mercado, 2018; Binyamin & Hoque, 2020; Gopinath, Selvam & Narayanamurthy, 2022; Bianchi, Tuzovic & Kuppelwieser, 2022).

Performance Expectancy

The subtheme of Performance Expectancy focuses on the concept derived from UTAUT2, which pertains to the extent to which utilising technology will offer advantages to users in accomplishing specific tasks (Venkatesh, Thong & Xu, 2012). In the context of this research, this subtheme encompasses participants' perspectives on the perceived usefulness of the IT functionalities accessible through their wearable devices.

During the interviews, participants reported a diverse range of extensive features that were deviated from the three main functionalities: Data Display, Insights, and Gamification. The perceived usefulness of the device encompassed various aspects, including tracking body and sports performance through Data Display, managing rest, sleep, and receiving sport-related recommendations through insights, as well as finding motivation and engaging in social interaction through gamification. For instance, INT3 highlighted the significant impact of the device on his sports performance and suggested that athlete runners who did not effectively utilise a fitness tracker for training had missed out on significant benefits. Furthermore, the integration of fitness trackers with multiple devices for different purposes further contributed to the perceived usefulness of the overall experience. Examples of such integrations include using a body-measuring belt or band to improve body measurement accuracy or accessing performance data through mobile and website displays. These experiences collectively generated a high level of agreement regarding the pivotal role of the three fitness tracker functionalities in achieving fitness and health objectives.

Moreover, considering the physical limitations of fitness trackers, such as their screen size, the customisation and prioritisation of displayed information become crucial. For example, a runner utilising the device for navigation purposes would prioritise seeing directional information on their screen over other body statistics. The screen size constraint emphasises the need for developers to focus on minimising the display of irrelevant data and maximising the visibility of essential information. By addressing this aspect, developers can enhance user satisfaction and provide a more tailored experience that aligns with individual preferences and specific use cases.

Regarding the perceived usefulness associated with the functionality, a noteworthy phenomenon in the adoption of fitness trackers is revealed: customers often purchase these devices for a single functionality they truly desire. For instance, INT3 mentioned that he bought his first Garmin Watch primarily for its music function, as he wanted to avoid carrying his mobile phone while running. This singular music feature allowed him to disconnect from the world and enjoy running without the burden of the phone's weight or distractions. Subsequently, the device's additional features, which proved useful for his running

performance, motivated him to continue using it. The specific feature that determines the acquisition of a fitness tracker may vary among customers, but it holds the potential to inject new perspectives into promotional strategy design.

Most participants report feeling satisfied with all of the functionalities, Data Display, Insights, and Gamification, and their accuracy. When it comes to the measurement accuracy that contributes to the data used by each functionality, users express their satisfaction based on their status as basic or non-professional users. This confirmation process, wherein users evaluate their level of satisfaction based on their expectations, suggests that higher expectations will need to be met when utilising these functionalities in more advanced healthcare settings (Benbunan-Fich, 2020).

In sum, the finding confirms the construct of performance expectancy in the adoption and continue use of wearable device (Bianchi, Tuzovic & Kuppelwieser, 2022; Gao, Li & Luo, 2015; Sergueeva, Shaw & Lee, 2020).

Enjoyment

This subtheme refers to the extent to which users found the use of their fitness trackers simply enjoyable. It refers to Hedonic Motivation from UTAUT2, that is defined as “the fun or pleasure derived from using a technology” (Venkatesh, Thong and Xu 2012, p. 161). In this study, this construct was investigated from a holistic point of view. Since the intention was to extract a broader view, analysing it on the level of functionality could distort that. Especially in the context of health and well-being, fitness trackers enable users to consistently monitor their physical well-being through measurements like daily steps, encouraging ongoing involvement and engagement (Bianchi, Tuzovic & Kuppelwieser, 2022).

Overall, every participant expressed their contentment with the wearable devices they used. In the case of three respondents, INT1, INT8, and INT11, the novelty effect was visible because the upgrade of devices made them even more content with their wearables. The results showed that wearable devices can become a crucial part of everyday life after some time. The responses of INT1 and INT5 suggested that the wearables metaphorically became an extension of themselves and were somehow integrated with their bodies. When it comes to the factors that negatively impact the user experience, the respondents mentioned problems with the performance of some functionalities and battery life. Based on the responses, we conclude that the devices fulfil the hedonic motivations of their users and that there is a positive relationship between hedonic motivation and the intention to adopt wearable technology. This confirms the findings of some studies that incorporated this construct in the research on the adoption of wearables (Bianchi, Tuzovic & Kuppelwieser, 2022; Gao, Li & Luo, 2015; Sergueeva, Shaw & Lee, 2020).

Social Image

The subtheme of Social Image refers to the degree to which participants used their trackers and their functionalities to gain endorsement from individuals whose opinions they considered important. Moreover, it captures the impact of other people on the decision to use fitness trackers. In UTAUT theory Social Influence is defined as “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh et al., 2003, p. 451). This construct was investigated both on the general level and on the functionality level to get to know if users were influenced by other individuals to adopt and

utilise a fitness tracker in general and to understand if others influenced respondents to use specific functionalities.

Out of all the respondents, only three mentioned that they did not feel any influence from others to adopt a fitness tracker. The respondents who were influenced in some way mentioned that friends, coworkers, family, and even unknown users of internet forums were among those who encouraged them to start using wearable devices. This suggests that for the majority of respondents, the opinions of others regarding the use of trackers are important, and they take them into account. These findings are consistent with the previous research that has shown that social influence has a positive impact on users' intentions to adopt wearable devices for health and well-being (Bianchi, Tuzovic & Kuppelwieser, 2022; Gao, Li & Luo, 2015; Sergueeva, Shaw & Lee, 2020; Yang et al., 2016). However, the results of the investigation on the level of functionality yielded differing results.

Most of the respondents indicated that they did not feel inclined to use the Data Display functionality because it is used by others. Very similar results were found for the Insights functionality. In the case of the Gamification functionality the respondents were almost divided in half, and six of them stated that there is no influence from other individuals. Those that were influenced by others to use this functionality highlighted the role of social interaction within this functionality. Taking this into consideration, based on the analysis of each functionality, it is not possible to conclude that social influence has a positive impact on users' intentions to use specific functionalities of wearables. Therefore, the analysis on general and functionality levels yields inconsistent results.

Access to Support

The subtheme of Access to Support describe whether users have enough technical support. Heinze and Matt (2018) have demonstrated that sufficient support is crucial for customers, particularly when it comes to modern products that are distributed digitally. Such support can be available to users as technological services, e.g. documentation, but also in the form of standard human-to-human communication (Heinze & Matt, 2018). In this study, respondents were asked whether manufacturers offer enough technical support and training materials or resources regarding each IT functionality. In general, most of the respondents had no need to contact manufacturers' support services and indicated that dedicated applications provide comprehensive descriptions of the functionalities. Only INT8 admitted that he contacted the support after searching all the available sources, and received information that was needed. This positive tendency was rejected by INT4, who indicated could not easily find enough information at the begging of the tracker use. Moreover, what was discovered is that users, specifically this was mentioned by INT9, INT10, and INT11, tend to ask people in their social circles for help and advice regarding technical issues.

Such findings suggest that greater access to support has a positive impact on the usage of wearable devices and aligns with the construct of Facilitating Conditions from UTAUT2 theory by Venkatesh, Thong and Xu (2012). However, these findings challenge the results of the study conducted by Matt et al. (2019) because, in their research, users expressed a sense of insufficient technological support when facing issues with their trackers, along with a perceived absence of social support from others regarding the usage of their trackers.

5.1.2 *Perceived Deficiency*

The theme of Perceived Deficiency captures the deficiency that users experience during fitness tracker use. In this theme, Functional Constraints, and Insufficient Reliability were identified as subthemes.

Functional Constraints

All sorts of functional constraints can inhibit the desired use of wearable devices (Matt et al., 2019). Moreover, potential users may decide not to buy a device or opt for a different one if they are uncertain about whether the product will meet their needs (Matt & Hess, 2016). In the case of fitness trackers the perceived lack of functionalities and perceived complexity of available functionalities could be considered (Matt et al., 2019).

In this study, a few respondents underlined the role of specific functionalities in their decisions to buy and use fitness trackers. INT3 said in the interview that the functionality that make it possible for him to listen to music during activities was a final trigger to buy a tracker. Both INT6 and INT10 highlighted the role of access to maps during activities in their decisions to acquire a tracker. Therefore, it is clear that for some users the fact that the device contains one particular functionality can be a pivotal factor when it comes to buying and using a wearable device, and its absence could lead to abandonment or lack of adoption of devices.

When it comes to the complexity of using functionalities in this study, the interviewees almost unanimously stated that the functionalities are easy to use. However, INT4 stated that at the beginning of use, it was, in general, problematic to use the device and additional explanation was needed. Moreover, INT5 indicated that accessing historical data was very complicated for her, and eventually, she could not achieve it. Hence, the complexity of some functionalities might negatively affect the overall user experience.

Furthermore, the lack of comfort can negatively impact usage patterns. In this study, all but one of the respondents did not complain about the comfort of device wearing. However, INT9 indicated that the strap on the device is uncomfortable, which leads the user to refrain from wearing it at night. This limitation affects the consistent collection of data and consequently diminishes the reliability of self-monitoring. As a result, the ability to generate reliable insights may decrease.

Insufficient Reliability

This subtheme describes problems that stem from inaccurate measurements and other technical flaws. When asked about the accuracy of specific IT functionalities, the answers varied between functionalities. Most of the respondents indicated that Data Display functionality is accurate, INT9 and INT11 even validated some of the displayed information with other devices. However, INT3 indicated that there is some room for improvement. Regarding the accuracy of the generated Insights, the participants had differing opinions, with a majority of the participants expressing satisfaction with the level of accuracy. INT7 expressed doubts about accuracy, whereas INT1 and INT11 indicated that it is not satisfactory enough. This suggests that for some users Insights present only limited reliability. The accuracy of Gamification was in general satisfactory but also downplayed by some users.

However, in the case of Gamification, compatibility concerns were voiced by some users. INT5 indicated that it is not possible to participate in some gamified elements with friends because they own different devices that do not share a common platform. In conclusion, problems with reliability are visible, but were significant only for some users, and it was stated that devices and functionalities are useful despite problems with accuracy which suggest that the level of accuracy that was already achieved by manufacturers is relatively high. The issues with limited reliability of fitness trackers were also highlighted in the study conducted by Matt et al. (2019). Such findings connect directly to the Performance Expectancy, which refers to the degree to which individuals perceive that utilising technology will provide benefits or advantages in performing particular activities because if users did not consider the functionalities useful, despite problems with accuracy, they would not think about any benefits that could be extracted from them (Venkatesh, Thong & Xu, 2012).

5.1.3 *Perceived Threat*

The theme of Perceived Threat encompasses how individuals perceive the intensity and likelihood of encountering a specific health condition. This theme aligns with the research conducted by Matt et al. (2019) and is supported by the findings presented in the study by Kim and Park (2012). The concept of perceived threat plays a significant role in shaping an individual's behaviours and decisions related to health. When individuals perceive a heightened threat, they are more inclined to adopt health-improving behaviours, which may involve the use of wearable devices as a means to prevent or counteract those conditions. This theme section explores the relationship between perceived threat and the adoption or continued use of fitness trackers, highlighting three key areas where these devices can contribute to individuals' perception of threat and motivation: well-being, chronic disease, and emergency.

Well-being

Exercise plays a pivotal role in fostering well-being, supporting healthy ageing, and preventing and managing chronic non-communicable diseases and stress conditions (Lucini & Pagani, 2021). Out of the eleven interview participants, eight revealed that they have a regular exercise routine. When discussing each of the device functionalities that assist users in achieving their health and fitness goals, including Data Display, Insights, and Gamification, each received positive responses from eight respondents. Moreover, during the interview with INT4, the participant consistently linked her lack of sportiness with her perceived lack of relevance to fitness trackers. This suggests a strong association between being sporty and the use of such devices in public perception.

The public perception of the association between fitness trackers and being sporty could impact individual adoption of these devices. As a result, certain groups, such as non-sporty individuals and older adults, are less likely to adopt fitness trackers despite potentially benefiting from their features even more than already healthy individuals. The name of the device, the "fitness" tracker, and the advertising strategies employed contribute to a specific group of people adopting the device, while it could be more effective in terms of overall well-being if targeting the vulnerable group currently missing out. Its effects came in two folds.

Firstly, fitness trackers offer real-time data visualisation of health and fitness metrics, providing users with a heightened awareness of their current physical state and potential

health risks. This increased awareness can contribute to the perception of threat, as individuals become more conscious of the need to address their health conditions. Monitoring body stats like heart rate, sleep patterns, and activity levels serves as valuable indicators, prompting vulnerable individuals to take action and improve their health. While these features are currently beneficial for healthy individuals, they have the potential to be even more effective and have a significantly positive impact on vulnerable individuals.

Secondly, the motivational feedback provided through insights and gamification, coupled with the ability to set personal health goals, is another area where fitness trackers can be highly effective for vulnerable groups. These devices offer tangible evidence of progress, reinforcing individuals' perception of threats by highlighting areas for improvement. By tracking body stats, users can gauge their efforts and stay motivated to continue or increase their health-enhancing behaviours. The interviews revealed a strong emphasis on the keyword "motivation," indicating the device's capability to motivate individuals to pursue a healthier lifestyle or achieve their fitness goals. The value of this motivation can be even more significant for vulnerable groups who may have less inherent motivation to take action and improve their health conditions.

The research indicates strong potential of fitness trackers in improving the well-being of users, which will be even more significant in those vulnerable individuals who are not currently the main target in the market.

Chronic Diseases

Out of the eleven interview participants, two disclosed that they currently have a chronic disease, and one participant, INT4, reported being diagnosed with diabetes by her fitness tracker. The aforementioned features of functionalities, including enhanced awareness and monitoring, as well as motivational feedback and goal setting, have the potential to be extended in managing chronic diseases. However, only one participant mentioned utilising Data Display and Insights to counteract her medical condition. In contrast, during the interviews, seven participants expressed optimism about the future effectiveness of Data Display in disease prevention, while four participants believed Insights could contribute to better treatment, and nine participants saw the potential in Gamification. This highlights the disparity between users' expectations and the current utilisation of these functionalities.

The interviewees recognise the potential of fitness trackers in continuous monitoring, responsive Data Display, constructive Insights from population data, and motivation through Gamification. They believe that fitness trackers can be toolkits in disease prevention and treatment. However, while most interview participants acknowledge this potential, they stress the necessity of involving medical practitioners in utilising these device functions in healthcare scenarios.

One interviewee shared her experience of being diagnosed with diabetes through her fitness tracker, which prompted her to take action. Although the validity of device diagnosis is debatable, it can still serve as a precautionary measure, alerting users to the possibility of developing certain chronic diseases if no action is taken. However, the potential for false diagnoses and associated negative effects should be further discussed. Nonetheless, this example highlights the potential functionality of fitness trackers in predicting or discovering conditions before they are diagnosed or got worsen.

Undiagnosed diseases are prevalent and have a significant impact on the healthcare system at large (Spillmann et al., 2017). They encompass a wide range of conditions, including rare disorders that are challenging to identify, atypical presentations of common disorders, and newly emerging or unexplained conditions (Spillmann et al., 2017). Traditional diagnostic approaches often fall short in these cases, resulting in repeated clinical consultations and extensive laboratory testing. Interviewees report that fitness trackers provide insights into undetectable bodily developments and improvements in sports performance through visualisation, offering valuable advice based on this information. The aforementioned features can all contribute to mitigating the issues associated with undiagnosed diseases.

Currently, a significant number of patients with hidden chronic diseases or poor health conditions may miss out on the optimal time for taking action. Individuals without an exercise habit, those who are indifferent to their physical condition, and older adults are more likely to overlook their conditions. Given the current promotion and advertising strategies of fitness trackers, the most effective group comprising these vulnerable groups could potentially enhance the overall well-being of the population.

Emergency

Finally, fitness trackers can act as a safety net, providing individuals with a sense of security and risk mitigation. Almost all respondents reported wearing their fitness trackers consistently, even removing them only during showers. By continuously monitoring health metrics and activity levels, these devices can detect abnormalities or sudden changes, alerting individuals to potential health risks. These risks could range from acute diseases like heart attacks to accidental falls. These features respond to users' perception of threat, as individuals recognise the importance of remaining vigilant and taking proactive measures to prevent or address any emerging health issues. The safety net aspect of fitness wearables contributes to individuals' motivation to adopt and continue using these devices as a means of mitigating perceived threats and maintaining overall well-being.

In conclusion, the results validate the concept of perceived threat in relation to the adoption and continued usage of wearable devices (Bianchi, Tuzovic & Kuppelwieser, 2022; Gao, Li & Luo, 2015; Sergueeva, Shaw & Lee, 2020).

5.2 Summary and Research Implications

Throughout the interview analysis, three key themes emerged, namely Perceived Benefit, Perceived Deficiency, and Perceived Threat. The themes are presented below in Figure 7.

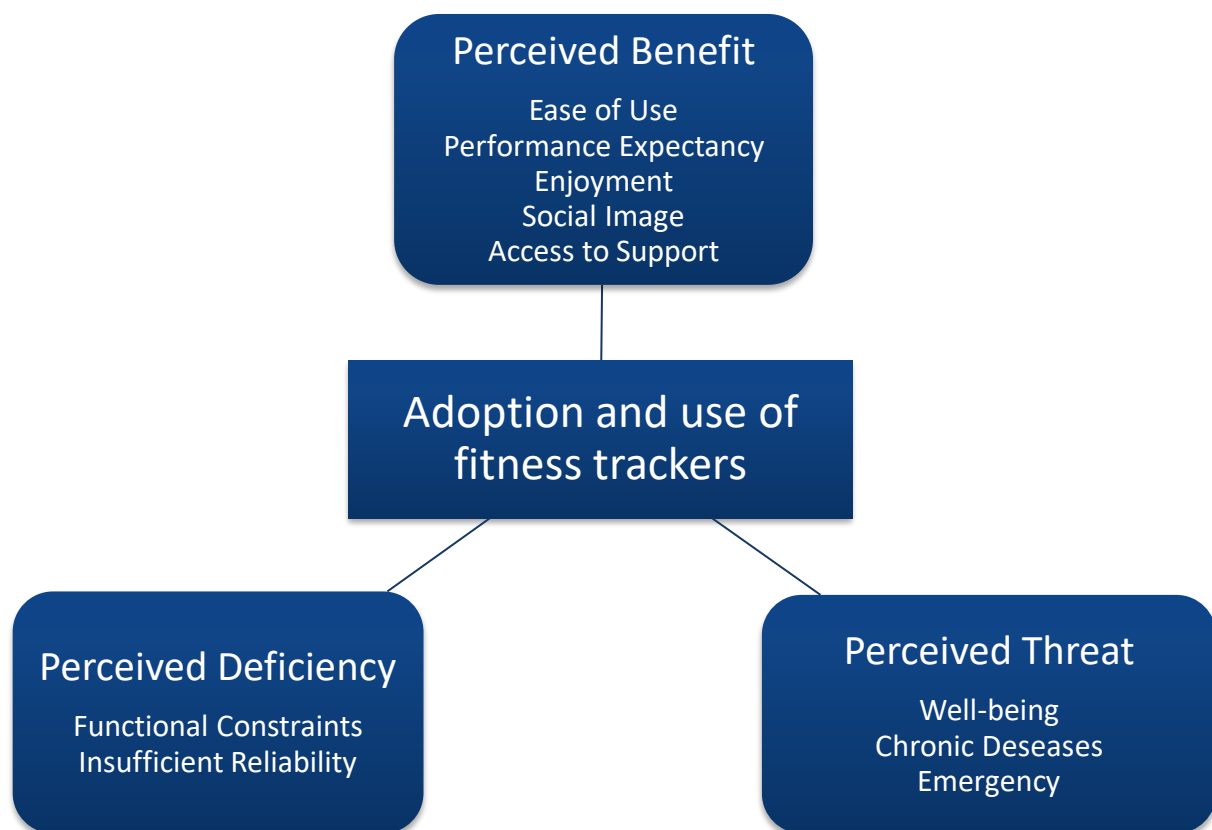


Figure 7: Map of themes.

The study found that users perceive fitness trackers to be beneficial and valuable, with positive perceptions of the ease of use of Insights and Gamification functionalities. However, some users found the Data Display confusing. Effort expectancy significantly influenced the intention to use wearable devices. Users highly valued functionalities, Data Display, Insights, and Gamification, for tracking performance, receiving recommendations, and staying motivated. Users often purchase fitness trackers for specific desired functionalities, which impacts their continued usage. Participants were generally satisfied with the accuracy of the functionalities but expected better performance in advanced healthcare settings. They also derived satisfaction and pleasure from using fitness trackers, considering them as extensions of themselves. Social influence played a role in users' decision to adopt fitness trackers, but its impact on specific functionalities was inconsistent. Access to support, technical assistance, and training materials positively influenced wearable device usage.

Various functional constraints and perceived deficiencies can impede the intended use of wearable devices, potentially prompting users to seek alternative devices or refrain from purchasing altogether. Specific functionalities play a critical role in users' decisions to adopt and utilise fitness trackers, and the absence or complexity of certain functionalities can result in device abandonment or lack of adoption. While most participants found the Data Display functionality accurate, there were some suggestions for improvement. The accuracy of generated Insights was met with mixed opinions, indicating limited reliability for some users. Gamification functionality was generally satisfactory, but compatibility concerns were raised by some users. Despite these reliability issues, the overall usefulness of devices and functionalities remained high, connecting to the construct of Performance Expectancy in terms of perceiving benefits despite accuracy problems.

Fitness trackers have a significant role in promoting well-being, healthy ageing, and managing chronic diseases, with positive responses from interview participants regarding device functionalities. However, the association between fitness trackers and being sporty may hinder adoption among non-sporty individuals and older adults, highlighting the need to target vulnerable groups. Fitness trackers' real-time data visualisation and motivational feedback can increase individuals' awareness of health risks and provide motivation to improve their health, making them particularly beneficial for vulnerable groups in terms of overall well-being. Fitness trackers have the potential to assist in managing chronic diseases. While interviewees expressed optimism about the future effectiveness of functionalities like Data Display, Insights, and Gamification in disease prevention and treatment, highlighting the need for medical practitioners' involvement. However, the current utilisation of these functionalities does not align with users' expectations, and there is a need to address potential false diagnoses and involve vulnerable groups who may overlook their health conditions. Moreover, fitness trackers serve as a safety net, continuously monitoring health metrics and activity levels to detect abnormalities and alert individuals to potential health risks, contributing to their motivation to adopt and use these devices as a proactive measure to mitigate threats and maintain overall well-being.

Considering the research framework and the constructs that were derived from UTAUT2 by Venkatesh, Thong and Xu (2012) and HITAM by Kim and Park (2012) theories, it can be noted that the constructs of Effort Expectancy, Performance Expectancy, Hedonic Motivation, Facilitating Conditions, and Perceived Threat are confirmed to have an impact on the behavioural intention to adopt and use wearable devices. It was discovered that Social Influence is confirmed at the general level of adoption, but when examining at the level of functionality, inconsistent results were obtained. Regarding the construct of Habit, the results are considered insignificant since the respondents had differing use patterns of the functionalities. Moreover, since the interviewees very often adopt wearables for one specific functionality, it may not be appropriate to treat the usage patterns of all functionalities equally. This is because the habits developed in relation to the functionality that holds the most significance to the user can have a significantly greater impact on the behavioural intention to use a fitness tracker. Considering the constructs that come only from the first UTAUT framework by Venkatesh et al. (2003), Performance Expectancy, Effort Expectancy, and Facilitating Condition significantly influenced behaviour intention, whereas as stated above Social Influence yielded inconsistent results. These findings are partially consistent with IS literature that compared studies that used this framework using meta-analysis and confirmed the significance of every original UTAUT construct.

5.3 Limitations

Despite the insights gained from this research, it is important to acknowledge certain limitations that should be mentioned. Firstly, all the respondents in the study are from Poland, which may restrict the generalisability of the findings to other nations, particularly those with different cultural settings. Additionally, in the collected sample, eight out of 11 respondents admitted that they are engaged in some kind of sports activity. This could introduce bias to the findings, as active individuals generally tend to be healthier overall. Furthermore, the sample was predominantly composed of users of Garmin devices, which specialise in activity tracking. This narrow focus on a specific brand could limit the applicability of the findings to a broader range of wearable device users.

Regarding the sample selection, this study solely considered actual users of trackers due to their knowledge of the specific IT functionalities available in these devices. However, the perspectives of non-users could also provide valuable insights in this type of research. Additionally, it is important to note that while fitness trackers are categorised as HWD, they are not certified medical devices. Although they can be effectively used for self-monitoring, it may not be appropriate to generalise these findings to the entire range of HWDs, which are often designed to address specific diseases.

Future research can address these aforementioned limitations and build upon this study to further enhance understanding of the influence of specific IT functionalities on wearable device usage.

6 Conclusion

The purpose of this study was to investigate the specific IT functionalities that are embedded within wearable devices and their impact on the adoption and continuous use of these devices. Ultimately this contribution could lead to a higher level of adoption, and the findings could be effectively utilised in the future development of devices to promote well-being and mitigate disease and emergencies. Furthermore, the rapid advancements in wearable technology have introduced lots of innovative functionalities that extend beyond sole data collection. This study extended the investigation on the influence of selected IT functionalities, Data Display, Insights, and Gamification, on the adoption and usage of fitness trackers. This led us to the following research question:

How do specific IT functionalities of wearable devices influence the usage of such devices?

By exploring the relationships between these functionalities and user behaviour, this research has contributed to a deeper understanding of the factors influencing technology acceptance and the continuous use of wearable devices. The research question was answered through empirical research, which was grounded in an extensive literature review and supported by qualitative interviews. The literature review encompassed a comprehensive evaluation of the implications of information technologies, psychological and practical factors on the adoption and continuous use, and relevant frameworks commonly used to assess the subject matter. The outcomes of the literature review served as the basis for the development of the blended research frameworks, UTAUT2 and HITAM, which guided our data collection process. Based on the findings from eleven interviews conducted with Polish fitness tracker users, we validated five out of seven constructs related to the functionalities of fitness trackers.

6.1 Key Findings

The implications of this research are significant for both academia and the wearable device industry. From the perspective of academia, this study contributes to the existing body of knowledge by providing empirical evidence and theoretical insights into the impact of specific IT functionalities on the continuous use of wearable devices. The identified relationships between the constructs and behavioural intention to adopt and use wearables can serve as a foundation for future research in understanding user behaviour and designing effective interventions to promote the continuous adoption of information systems.

From a practical standpoint, the findings of this study have several implications for industry professionals and wearable device manufacturers. The identification of key IT functionalities that positively influence continuous use can serve as a guideline for the design and development of future wearable devices. By integrating personalised feedback mechanisms, facilitating social interactions, improving gamification elements, and adapting to contextual data and events, user experience can be enhanced, ensuring the long-term usage of wearable devices. Moreover, emphasising user experience and intuitive interface design can contribute to positive user perceptions and longer device usage.

The study confirmed five out of seven constructs in the research framework and identified three main themes: Perceived Benefit, Perceived Deficiency, and Perceived Threat. Users

found fitness trackers to be beneficial with an acceptable investment of effort, particularly valuing the three functionalities of tracking body statistics, improving sports performance, receiving insights, and staying motivated. Most users rarely require assistance. They find answers to their issues through in-app guidance and assistance from friends, only occasionally relying on official support. However, some users found the Data Display confusing and suggested improvements in accuracy and battery life, especially for professional or medical use. Furthermore, while most users are influenced by their surroundings when deciding to adopt the device, they are less influenced when using each functionality. The investigation of the social aspect of Gamification extends beyond the influence of using the functionality itself and encompasses the social interaction and community it fosters.

The research also found out that customers often adopted wearables for specific functionalities, and the confirmation of these functionalities' expectations affects their continued usage. Additionally, users evaluate these devices based on their basic, non-professional usage, or non-medical purposes. In this context, users tend to have lower expectations, making it easier to meet their expectations. However, as the device is used for more advanced purposes, confirming each expectation for functionalities becomes more challenging. Fitness trackers were generally agreed upon by the interviewees to be useful in promoting well-being, healthy ageing, and managing chronic diseases. The study identified areas for improvement, such as measurement accuracy, black box issue, customisability, integration between brands and wearing comfort.

Given the specificity of the industry of fitness trackers, they are often associated with improving well-being and supporting sport-related activities, which is strongly connected to the implication of perceived threat, referring to individual conditions that could occur. The perceived threat can be mitigated by utilising a device that offers perceived benefits through all three research functionalities. Customers may acquire such a device for a variety of reasons, including maintaining good habits, improving sports performance, and monitoring body statistics (Spil et al., 2017). Regardless of the specific reason, all these contribute to the health and well-being of individuals, which can lead to the continuous use of fitness trackers. The current promotion strategies for fitness trackers and the device name may both make people from vulnerable groups feel irrelevant. As these groups often have lower sensitivity to perceived threats, they may not be aware of or not take action to mitigate those threats. However, these groups can benefit greatly if they adopt fitness trackers, as they are the target audience that could be more effective in utilising them.

In conclusion, the research framework confirmed most constructs from UTAUT2 and HITAM theories, highlighting the significance of Effort Expectancy, Performance Expectancy, Hedonic Motivation, Facilitating Conditions, and Perceived Threat. The role of Habit was deemed insignificant, given the varying usage patterns among respondents, and a discrepancy is discovered between general and functionality levels in the Social Influence.

6.2 Future Research

Building upon the findings of this study, there are several areas that could be further explored. Firstly, as this study focused on a specific set of IT functionalities, future research could explore additional functionalities or combinations of functionalities to gain a more comprehensive understanding of their impact on the continuous use and adoption of wearable

devices. Furthermore, it could be valuable for future studies to focus on a particular manufacturer, as IT functionalities can differ between manufacturers, and also explore specific types of wearable medical devices designed for particular diseases.

Moreover, future studies could examine specific age groups, particularly older individuals who could potentially benefit greatly from health self-monitoring through wearable devices. Additionally, research could delve into the differences in the intended use of wearable technology, such as when it is employed for health-related purposes compared to non-health purposes like fashion. It would be insightful to explore differences between groups of users and non-users of wearable devices as well.

Appendix 1 Interview Guide

Opening

- Introduction: We're Master Students in Information Systems at Lund University. We're conducting this study to examine how specific IT functionalities of wearable devices influence the usage of such devices.
- As you know as a user, fitness trackers have many different functionalities that facilitate self-monitoring. The examples of IT functionalities are data collection, data display, push messages, gamification, or social interaction.
- In this study we're going to focus on data display, insights, and gamification. We recognize that some of the functionalities are intertwined and complement each other.
- Before we begin, I'd like to inform you that none of your personal details will be disclosed and if you feel uncomfortable with any of the questions, we ask you have every right to abstain from answering and abort the interview.
- We will start with more general questions and then move to specific IT functionalities.
- Do you have any questions?

General Questions

ID	Main Questions	Elaborative Questions
1	What kind of wearable do you have?	
2	How long have you been using your fitness wearable tracker?	If discontinued: Did you stop using the device because of problems with any specific IT functionality?
3	Do you wear the fitness tracker all the time or during specific activities?	
4	What do you use your fitness wearable for?	Which functionalities do you use on daily basis? Do you use a tracker with a dedicated smartphone application?
5	Why did you decide to acquire a fitness tracker?	Did you buy it for any specific functionalities?
6	How do you feel about using your fitness tracker? Are you satisfied with it?	
7	Did you feel somehow influenced by other people to adopt and use a fitness tracker? How does your social environment react to your tracker use?	Do you assess how they react? Do you view your fitness tracker as a symbol of your lifestyle? Does it benefit your interaction with your friends?
8	Do you think that the manufacturer offers enough technical support and training materials or resources regarding each IT functionality and why?	Are there any communities that centre around the fitness trackers that could help you with potential issues? e.g. Facebook or Whatsapp groups

Data display

Through this functionality users can see and monitor the data collected by a device in real time by using a user interface to interact with data displayed in the form of statistics and charts.

ID	Main Questions	Elaborative Questions
9	How do you feel about the ease of use and interaction with data display?	If dissatisfied: why?
10	Does data display functionality help you reach your fitness and health objectives?	If yes: how does it help you? If no: why do you think it is not helpful?
11	Are you satisfied with the performance of data display functionality? / Did data display functionality live up to your expectations?	If No: what was this caused by?
12	How satisfied are you with the accuracy of data display?	If not satisfied: do you think the functionality is useful despite low accuracy?
13	To what extent do you feel inclined to use data display because it is used by your peers and colleagues?	
14	How often do you use data display functionality?	
15	Do you use data display in order to counteract your medical condition?	If Yes: what is the medical condition? If No: Do you think that the functionality could be used by you in disease prevention and treatment and how?

Insights

This feature analyses the user's data with AI-driven algorithms to create individualised advice based on the user's current habits and activity levels that can be used by users to make more informed decisions.

ID	Main Questions	Elaborative Questions
16	How do you feel about the ease of use and interaction with insights produced by the device?	If dissatisfied: why?
17	Do insights help you reach your fitness and health objectives?	If yes: how does it help you? If no: why do you think it is not helpful?
18	Are you satisfied with the performance of insights? / Did insights live up to your expectations?	If No: what was this caused by?
19	How satisfied are you with the accuracy of insights produced by the device?	If No: do you think the functionality is useful despite low accuracy?

20	To what extent do you feel inclined to use insights because it is used by your peers and colleagues?	
21	How often do you use insights functionality?	
22	Do you use insights to counteract your medical condition?	If Yes: what is the medical condition? If No: Do you think that the functionality could be used by you in disease prevention and treatment and how?

Gamification

Gamification refers to the use of game design principles in non-gaming scenarios to encourage users to accomplish specific objectives by boosting their motivation through competition, in the case of fitness trackers, gamification elements can include challenges, rewards, achievements, and social sharing through leader boards.

ID	Main Questions	Elaborative Questions
23	How do you feel about ease of participation in gamification?	If dissatisfied: why?
24	Does gamification help you reach your fitness and health objectives?	If yes: how does it help you? If no: why do you think it is not helpful?
25	Are you satisfied with the performance of gamification? / Did gamification live up to your expectations?	If No: what was this caused by?
26	How satisfied are you with the accuracy of gamification?	If No: do you think the functionality is useful despite low accuracy?
27	Do you feel inclined to use gamification because it is used by your peers and colleagues?	
28	How often do you use gamification functionality?	
29	Do you use gamification in order to counteract your medical condition?	If Yes: what is the medical condition? If No: Do you think that the functionality could be used by you in disease prevention and treatment and how?

Appendix 2 - Interview 1 (INT1)

Date: April 11th, 2023

Interview Length: 42 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES1	Okay. So, we are glad to have you here. As you know, we are master students in Information Systems at Lund University and we are conducting this study to examine how specific IT functionalities of wearable devices influence the usage of such devices. As you know as the user, fitness trackers have many different IT functionalities that facilitate self-monitoring. And the examples of such functionalities are data collection, data display, push messages, gamification, social interaction and in this study, we are going to specifically focus on data display, recommendations and insights that these devices produced, and also gamification. Do you have any questions so far?	
2		INT1	Not really.	
3		RES1	Okay. So before we begin with, I'd like to inform you that none of your personal details will be disclosed and if you feel uncomfortable with any of the questions we ask, you have every right to abstain from answering here about the interview.	
4		INT1	You can skip the disclaimer.	
5	ID2	RES1	Okay. So we'll start with more general questions and then move to specific IT functionalities. How long have you been using your fitness wearable tracker?	
6		INT1	For one year. Yes, that's one year and one month probably. So over a year.	
7	ID4	RES1	Okay. Tell me what for do you use fitness tracker?	

8		INT1	[unintelligible] purpose is mostly fitness. But I really enjoy useable informations, like the data gathering, and after that, you get the display and some informations about your fitness, age, your progress and so on. So basically I use it daily for my like steps tracking. That's the first usage. Second one is monitoring my workouts, my strength workouts and my endurance workouts. So basically I use it for any type of sport I perform. I use it to track the the performance. That's one thing. But the second is to really get the broader view of the performance that I really did [unintelligible] on. So how my VO2 Max gets, improves or decreases? How much loads did I really have during the one week period for instance and also the most important thing- the reason I really switched from the previous Garmin to the one I have right now is sleep monitoring and sleep tracking, and that was the primary reason for me to do the upgrade cause I really do think that this sleep trackers, even though they are not that accurate. Yes, they can really provide with really nice data and insights about the processes that happen in your body, not only during the sleep, during the recovery but afterwards as well.	step count, sport, sleep
9		RES1	Okay. As I understand, you had a fitness tracker previously and to get more functionalities, you decided to buy a new one.	
10		INT1	Yes, exactly. I will just specify I was using the Forerunner 245. The previous one didn't have like those abilities the watch I have now has so basically I couldn't like record strength training which is really important to me as I can with this one.	non-first acquisition
11		RES1	Okay. do you use any dedicated smartphone application with your device?	
12		INT1	Yes, I'm using the Garmin one.	
13	ID5	RES1	Okay. So this is a dedicated application to you.	
14		INT1	Yes, exactly.	
15		RES1	I think that you partially explained that but could you elaborate a little bit more on why did you decide to acquire a fitness tracker?	

16		INT1	Okay. It's not really vivid. I mean there is not a particular one thing that really encouraged me to do that. It was combination of small things like as I said, the sleep tracking and so on. That's really hard question to me cause I like when I bought the first one- I won't go into the details about that one, but when I bought the first one, I think it wasn't really thinking about my primary goal was to, you know, to track some things, to gather some data. And I wasn't really thinking about the outcome that I can get from that.	
17		RES1	Okay. Could you say that you bought the device for any specific functionalities?	
18		INT1	Yes. I mean I just bought the watch and then tried to explore. It was more like an exploration for me. So, basically I get the device, and afterwards, I just hopped into the rabbit hole and digged about the special functionalities it has. So it wasn't really like the purpose-oriented purchase. It was-	
19	ID6	RES1	Okay. In general, how do you feel about using your fitness tracker?	
20		INT1	To be honest, after some time, I can say that about the previous one. But I can say for sure with the one I have right now. It's like it just grows into you. So basically I just use it. Right now I don't feel like I have it on my hands. So basically it just me right now.	HM-GE
21	ID7	RES1	Okay. Let's now move a little bit and talk about your social environment, your friends. So how does your social environment and your friends, your close ones, react to your tracker use?	
22		INT1	Can I have more specific information?	
23		RES1	Do you feel somehow influenced by other people when it comes to the usage of such device?	
24		INT1	Well, I would say I got encouraged by my friend, whom I'm speaking to right now. But yes, he was the primary influencer. Like. But besides that, there was no one that really- Czarek was the one that showed me that you can really make a nice use of those devices. But there was no one else. And if it comes to people around me, I don't really mind other people and I don't feel like when it comes to things like judging cause my otherfriends and family don't use such devices. So basically, I'm the only one from my group of friends and family using that and I don't really mind what they say and I just am really used to	SI-GE

			right now to using it daily and not bother about someone else talking something.	
25		RES1	Okay. It's good. Do you view your fitness tracker as a symbol of your lifestyle?	
26		INT1	No. I mean I wouldn't say it. It's not really the way I perceive it. It's more of some usability that really broadens myself. So if I said straight, it's something that it's really your phone nowadays. Cause without your phone, you can't really function as well as you do with it. When you just get rid of your phone, I mean smartphone, the functions and it provides you just really make yourself you just kind of cut yourself off some really- Like it's really you right now. Cause when you try to not like- I don't know. It's really hard for me to explain, but it's not the lifestyle I get from the device and the perception of lifestyle. It's more of a perception and broaden. It's more of a making yourself like "Wow." I'm getting closed within my thoughts.	SI-GE
27		RES1	Someone like expression of yourself? Something like that.	
28		INT1	Yes. It's like more of maybe not even expression. Because it's not really you. You don't transparent through the device who you are. You are making yourself. Oh like- Come on-	
29		RES2	You're just using the device.	
30		INT1	Yes.	
31		RES2	You're not branding yourself by the device. You're simply using the device.	
32		INT1	Yes, but it's not because of the device itself. It's because of the improvement that device makes to myself.	
33		RES2	Right.	
34		INT1	I don't know if that's clear.	
35		RES2	Yes, But the perceived usefulness of the device that makes you keep using it.	

36		INT1	Yes, it's the same story as I brought it a few moments ago with smartphones. So basically, smartphone nowadays is a device that you can't really get rid of because somehow, it's part of yourself. Because of the functionality. Because of the data that is gathered by your smartphone, everything like photos and so on, like the memories, everything on your smartphone is it's- Oh. That's the word I was looking for. It's the extension of yourself.	
37	ID8	RES1	Okay. Do you think that the manufacturer offers enough technical support and training materials? Or resources regarding each IT functionality that you have in the device.	
38		INT1	Could you paraphrase that?	
39		RES1	So, well, I think that if I had to wrap it up, I'd say if you are using the device and you know specific functionalities, do you feel if you don't understand something you can just look up it somewhere in the manual or [unintelligible] that are provided by the manufacturer. For example, if you cannot find any answer, you can contact the Technical Support and someone will help you.	
40		INT1	Okay, I get it. From the technical part like the algorithm things that account like the different measures like for instance the VO2 Max and so on. I feel it's really hard- First thing off, I've never had an situation when I really needed to contact the manufacturer. But I do really think that Garmin, in this case, provide the user with really good knowledge of the functions that are provided with the device. Even though it's really broad, and you could get a lot of information out of it, it really also encourages you to go down to the rabbit hole and to read about like the specifics of those measurements in-depth. But not on the Garmin sides part in the related papers that Garmin provides as a reference. I don't know if that's was the question.	FC-GE
41		RES1	Yes. So, just to clarify this little bit. You as a user, do you think that this is easily accessible? If you want to get to know something you said that Garmin provides some information and you can access that, and that's where you can find explanation, right?	

42		INT1	Okay, I get it. Yes, I I would say it's not really hard. But you know me, and you know if there is any hard, like there is, you can find many ways to get out of the hard situation. Basically, if you can't find it on Garmin side, you can just look it up somewhere else. But in this case, like the algorithm and so on, I think it's really nice described on the side of gun.	in-app guidance
43		RES1	Okay. So now, let's move to the first specific functionality. I would like to talk about data display right now. For this functionality, users can see and monitor the data collected by device in real time by using user interface to interact with data displayed in the form of statistics and charts. This could be simple charts like which display your pace throughout the run on the timeline or something like that, or your heart rate, then basic statistics. Maybe this could be a map where you can track when, where you were running in the faster space. So this is this functionality. Is this clear to you-	
44		INT1	Yes.	
45		RES1	-what this functionality represents?	
46		INT1	Yes.	
47	ID9	RES1	Okay. How do you feel about the ease of use and interaction with data display functionality in your device?	
48		INT1	It wasn't really a hard time getting used to it. So basically it was really like [unintelligible] lesson cause the user experience is really nice of the application. I find some usabilityes really hard from the outside. So basically, even though you can adjust application to yourself when we speak about Garmin, sometimes it's really hard to find out some informations about- I feel like it's hard to find some informations about your progress and so on. Especially when you really want to dig deeper into details or into the data gathered some time ago, for instance, six months ago and so on, it's not really that intuitive to get the archived data. [unintelligible]	EE-DD, black box
49		RES1	Okay. So you would say that you have some problems with accessing the historical data	
50		INT1	Exactly.	
51	ID10	RES1	Okay. Do you think data display functionality help you reach fitness and health objectives?	

52		INT1	I wouldn't say that. I feel like it's more to monitor and stay on track with your fitness and the data is not always that accurate and sometimes it can mislead you. For instance, there is a problem with heart rate variability monitor during your sleep. So basically sometimes you get your score lower or higher than it really is. I think it's not the application problem, but the monitor, the sensor built in the device. But I find it really useful to just know if- I don't really use it for specific calls, but I use it as a guide, the microsphere as a guide to see if there is something about happening with my body for instance. I found it really useful when I got sick the first time during that one-year period. I had the device so I saw a dramatic change in some data output from the sensors. It was before I really got sick. I could see that something was happening to my body and it was really insightful. I feel data- this when you really want to find something odd and something that is varies from your norm. It's really useful to use that device for great-	PE-AFHG-DD
53		RES1	As I understand, we are using different charts and metrics. So we are analysing these metrics on different charts. For example, heart variation as you have just mentioned, I think that this could be a line chart. So we are analysing that and this is helpful to you. However, you recognise that there are some problems with accuracy of the sensors.	
54		INT1	exactly.	
55	ID11	RES1	The reported data might not be accurate. Okay. Are you satisfied with the performance of data display functionality?	
56		INT1	Yes, of course. I'm satisfied, but to some extent. As you said it, I wouldn't use if I was an athlete performing [unintelligible] and I was trying to get prepared to any event that I'm like preparing for. I wouldn't really stick to the charts and to the outputs that the applications provides to recognise my goals. More of I would use it as a base tool, the background of what might happen with my body. But it's not really accurate so to that extent, I'm satisfied with my- to recognise what you are using the device for. So from my perspective, I'm really satisfied with it.	
57		RES1	Okay, but putting the accuracy of data aside-	
58		INT1	Yes.	accuracy

59		RES1	-would you say that the interaction with the different charts that you have?	
60		INT1	Yes, I find it really really useful, and I enjoy.	PE-PS-DD
61	ID12	RES1	Okay. So, I think that you also at some point elaborated on that already. But let me ask you about this. Specifically, how satisfied are you with the accuracy of data display?	
62		INT1	I will just sum up it with one sentence. I know it's getting better and I'm really looking forward to some improvements to the sensors cause. It's mostly the thing and to the extents of the possibilities that the current devices can provide us is really satisfying.	PE-AS-DD
63	ID13	RES1	Do you feel, up to any extent, inclined to use this data display functionality because it is used by your peers and colleagues?	
64		INT1	Not really. It's just me, myself.	SI-DD
65	ID14	RES1	Okay. How often do you use this functionality?	
66		INT1	Okay. Mostly everyday cause I do train every day. I will follow up a bit the previous question, cause sometimes, I do share it with my friend, with you to just recognise some things that are happening during the workouts. I use it daily basically that's not even to monitor the workouts, but also to see how my sleep was and how many steps I've done and how many calories I have burned during the day.	social interaction, sleep, step count
67	ID15	RES1	Great. Do you use data display in order to counteract any medical condition that you could have?	
68		INT1	Not really.	PT-DD
69		RES1	Okay. So this hasn't happened yet. Do you think that this functionality could be used in this prevention in the future in your case?	
70		INT1	It might, and I really stand with the idea that the devices are for sure getting better and will get. Somethings like pre-heart attack stats you can just catch it and send to the doctor immediately. I think something that it's really useful and in the future, it might be a real thing.	PT-DD, heart attack

71		RES1	Let's now move to recommendations and insights. This feature analyses the user's data with AI-driven algorithms to create individualised advice based on the user's current habits and activity levels that can be used by users to make more informed decisions. You're Garmin user. So, you know that you can find training status in Garmin device or just insight about your steps patterns and things like that. Is it clear to you what is this functionality?	
72		INT1	Yes, of course.	
73	ID16	RES1	Okay. How do you feel about the ease of use and the interaction with recommendations and insights that are available in your device?	
74		INT1	Okay. As I said, you need some time, but not really much to get used to it. It's like going through a book. You basically open it. You just read some pages and you really get used to the things that are in the the application. I do really find it not complicated. And it's pretty easy to use, and also the one important thing about the recommendations is that they are really described. You can just click on the question mark icon to get more insights of the values that are shown in the application. So I find it really useful.	EE-I, in-app guidance
75	ID17	RES1	Okay. Do you think that recommendations and insights help you reach your fitness and health objectives?	
76		INT1	Okay, that's a hard question. Because you have to keep in mind that there are some downsides. As I previously mentioned to the sensors, they are not really that accurate. So, if I were an athlete, I wouldn't depend on that that much. But for now, I find it really, really useful. The best thing out of it is the general one, about how well-rested I am and how my body is really ready to get another challenge going on. So that's like primarily goal.	PE-AFHG-I, rest
77	ID18	RES1	Okay. Are you satisfied with the performance of these recommendations that you receive?	
78		INT1	I mean moderately. They could be better, they could be more accurate though. As I said, I wouldn't like if my life was dependent on that. No, not really.	PE-PS-I
79		RES1	Okay, so-	
80		INT1	I wouldn't depend my life on it.	
81	ID19	RES1	Did accuracy of recommendations functionality live up to your expectations?	

82		INT1	Exactly. It like there is a lot of room to improvement.	PE-AS-I
83		RES1	Okay. So you think that this functionality definitely could be improved?	
84		INT1	Exactly.	
85		RES1	Okay. But do you think that it is useful despite low accuracy?	
86		INT1	Of course. As you said, if you really are looking for like you're not getting really into this specificity that the data provides, you just try to get the broader picture of your general, how are you training, optimisation and so on, It's really useful. But if you really want to train for a marathon and so on, it might be misleading sometimes.	
87	ID20	RES1	Okay. Do you feel, to any extent, inclined to use recommendations because your peers and colleagues use that?	
88		INT1	I wouldn't say so.	SI-I
89	ID21	RES1	Okay. How often do you use this functionality?	
90		INT1	It's more of a fun game for me to check up on the recommendation side every time I finish my workout to see, as I said a few moments ago, the training load, the progress, the VO2 Max statistics. So I check it daily basis.	H-I
91	ID22	RES1	Okay. Do you use this functionality to counteract your any medical condition?	
92		INT1	No, not really.	PT-I
93		RES1	Okay. Do you think that it could be useful in counteracting medical conditions in the future?	
94		INT1	Of course it might. But it's it's more of a performance data, right? So I think that the medical stuff. If you're not using your doctor to prepare for something, like for big sport, even it wouldn't be that relevant, I guess maybe. When do you think about the VO2 Max, it might just show your medical doctor that you really need to improve your fitness. If it's too low and below the norm for the moment of light, and the gender you are.	PT-I
95		RES1	You think that such recommendations are useful for you when it comes to your fitness level-	
96		INT1	Yes.	

97		RES1	-fitness in general. But when it comes to medical conditions and health related recommendations, do you think that there could be some issues with that?	
98		INT1	Yes, I would say that it's great for monitoring and sending the data to the MD. But not really to get yourself MD recommendations, if you know what I mean.	Professional Personnel
99		RES1	Yes, sure.	
100		RES2	Can can I just add a question on the- Let's revisit the question 17, because we focus on data accuracy. But apart from data accuracy, we assume that sometimes data is not accurate. So that's why it makes recommendation not valuable. What's your take on the recommendation? The algorithm will possibly be built by the medical practitioners or any other personnel. Are you satisfied with the the recommendation, apart from like low accuracy?	
101		INT1	Yes, I do really like- I did my research about the algorithm. I read in the papers behind the statistics.com in provides and I'm really satisfied with that. Even though they are not that accurate, but they are well described and that the strong side of it and despite the description you get from the government side, you also get papers, references size. As I said previously, I find it really useful and I really do enjoy that. I don't know if that is what- What was your question about?	
102		RES2	It's more on because it seems like most that the threshold is the data accuracy. But we would like to explore if the recommendation inside algorithm is in place.	
103		INT1	Okay, I get. Okay. Yes. I would say this to to just conclude that.	
104		RES2	Right. Okay.	
105		RES1	Okay. Let's now move to gamification. In general, it refers to the use of game design principles in non-gaming scenarios to encourage user to accomplish their specific objectives. In the case of fitness trackers, you could talk about gamification elements like challenges, rewards, badges, different achievements, and social sharing through leaderboards and things like that. Is it clear what this functionality?	
106		INT1	Yes, of course.	

107	ID23	RES1	Okay. Do you use gamification? Oh. Sorry. How do you feel about the ease of use of gamification in your device?	
108		INT1	Yes, it's a really intuitive when it comes to Garmin. You get the- Yes, everything is pretty clear. So, yes.	EE-G
109	ID24	RES1	Okay. Do you think that gamification is helping you reach your fitness and health objectives?	
110		INT1	Well. It's really hard to say, and do you really want to go deeper into the rabbit hole because of the [unintelligible], circuit and the mechanisms that stands behind gamification. But I do really find like, for instance, the badges. It's really nice cause you can get a reward for the things you really do. Despite getting better with your fitness call, you also get those badges so you see that you even though you can determine your progress that well because it's more like a long-term goal-oriented. You get those small rewards within the path you go through your fitness. So, yes.	progress, level threshold
111	ID25	RES1	Okay. Are you satisfied? Did gamification live up to your expectations?	
112		INT1	Well. You can't say it does or it doesn't. When you don't have any, so I-	
113		RES1	That's right. Although, would you say that you're like satisfied with what this-	
114		INT1	Yes. I'm good with that. I wouldn't say that they are great. Because knowing that mechanism standing behind the gamification. But I really do think that they are useful and for some group of people, there really really useful.	PE-PS-G
115	ID26	RES1	Okay. Are you satisfied with the accuracy of the gamified aspects that you see in your wearable device?	
116		INT1	Yes, of course.	PE-AS-G
117	ID27	RES1	Okay. Do you feel inclined to use gamification because your friends and colleagues used it?	
118		INT1	Not really, but it's really fun to see progress of your friends, for instance, during the runs and their progress. I do really enjoy the more of a social aspect of the-	SI-G, social interaction
119		RES1	Okay. So you sometimes compare yourself to other people?	
120		INT1	No, I wouldn't say compare. I just checking up on them.	

121	ID28	RES1	Okay. How often do you use this functionality?	
122		INT1	When it comes to badges, I do like- Okay. So maybe let's say, once every three days, something like that to just summarise the badges, the social side and the community.	H-G, social interaction, awards
123	ID29	RES1	Okay. So, once a few days you use these functionalities to check up on your current challenges that you're undertaking, and you're looking at your peers, how they are doing and things like that. Okay. Do you think that some aspects of gamification could be used to counteract medical conditions? Maybe let me rephrase this little bit. Let me ask you do you use it to counteract any medical condition?	
124		INT1	No. I don't. I just for the fitness calls itself.	PT-G
125		RES1	Okay. Let me ask again, do you think that it could be used to do that?	
126		INT1	Okay. Well. I think if you improve the mechanism, it could be really useful. Cause you can use gamification- The society will use gamification for multi purpose and they are not that novel as the medical like monitoring and so on is so. Basically, I would say for some people in particular, it would be very useful. Especially for whom it's really hard to get to move, to start the fitness journey so on. It might show them the small rewards after every hard, for instance, exercise. It would be really nice for you. There is a potential.	PT-G
127		RES1	Okay, great. Oh. Jack, do you have any questions?	
128		RES2	I would just like to add a final general question. Do you have anything that you wanna share by using the device?	
129		INT1	Okay. So that's really general. Okay. Well, I think there's nothing much I cannot. Despite the things I've already said. It's really hard to find anything else.	
130		RES1	Yes. You know if you don't have anything else to add, we can wrap it up.	
131		RES2	Yes.	

132		RES1	Thank you very much for your participation and if you want to receive the final report and the thesis we are going to produce based on the interviews that we are conducting right now, please let us know. Thank you very much.	
133		INT1	Thank you.	
134		RES2	Hang on. We will have to inform Peter that like we will send out the transcript of the interview, and if there's any error you could take the chance to point it out. So that's it from me.	
135		RES1	Yes.	
136		INT1	I got it. Yes. Thank you.	
137		RES1	Thank you very much. How can I stop this right now.	
138		INT1	you need to stop the recording.	

Appendix 3 - Interview 2 (INT2)

Date: April 14th, 2023

Interview Length: 23 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES	<p>As you know, I'm master students in Information Systems at Lund University. We are conducting this study to examine how specific IT functionalities of wearable devices influence the usage of such devices. As you know, as a user, fitness trackers have many different functionalities that facilitate self-monitoring. The examples of IT functionalities are automatic data collection, data display, push messages, gamification, or social interaction. In this study, we are going to focus on data display, insights and gamification. We recognise that some of these functionalities are intertwined together and complement each other. However, I'll do my best to make sure that you understand about what functionality we are talking about. Before we begin, I'd like to inform you that none of your personal details will be disclosed, and if you feel uncomfortable with any of the questions I'm going to ask, you have every right to abstain from answering and aborting the interview. I will start with more general questions and then move to specific IT functionalities. Do you have any questions so far?</p>	
2		INT2	No, we can start.	
3	ID1	RES	Okay. So, tell me, what kind of wearable do you have right now?	
4		INT2	Wearable. What do you mean?	
5		RES	I mean the fitness tracker. What's the brand of your fitness tracker that you are using right now?	
6		INT2	What do you mean like smartwatch or-	
7		RES	Yes, that's right. I mean the smartwatch that you are using.	
8		INT2	Okay.	

9		RES	What's the brand of this model?	
10		INT2	Garmin.	
11	ID2	RES	Okay. And how long have you been using your fitness wearable tracker?	
12		INT2	For about three months.	
13	ID4	RES	Okay. What for do you use your fitness wearable for?	
14		INT2	I'm using it every day and when I'm running.	sport
15		RES	Okay. Do you record any other activities? or just running?	
16		INT2	No, just running.	
17	ID5	RES	Okay. Why did you decide to get a fitness tracker?	
18		INT2	Because my boyfriend told me to. Oh. But seriously, I wanted to my heart rate when I'm running and to monitor. Yes. To enter my run and how fast I am and stuff like that.	heart rate
19		RES	Okay. So I wanted to ask if you bought it for any specific functionalities. As I understand you bought it because you wanted to track your heart rate. So you wanted some data collection done throughout your run. Did you decide to acquire this trucker because of any other functionalities that are included in such device?	
20		INT2	Yes, the [unintelligible] is something I'm interested to so- Yes.	
21	ID6	RES	Okay. Tell me, how do you feel right now about using your fitness tracker? Are you satisfied with it?	
22		INT2	Yes, I'm satisfied.	HM-GE
23		RES	Could you elaborate a little bit more on that?	
24		INT2	I don't know what to say more.	
25		RES	Did it live up to your expectations in general?	
26		INT2	Yes, in general, yes. But I thought that I have a training plan. And this smart watch and I don't have so-	
27		RES	Okay. So there are some functionality that you are right now missing in the device that you have, right?	
28		INT2	Yes.	
29	ID7	RES	Okay. Did you feel somehow influenced by other people to adopt and use of fitness tracker. You mentioned before that your boyfriend somehow influenced you?	
30		INT2	Yes.	

31		RES	Okay. Does your social environment somehow react to your fitness tracker use?	
32		INT2	Could you repeat the question?	
33		RES	Yes. So, how does your social environment react to your tracker use? So what I mean by this is whether you want to use the device because others use it.	
34		INT2	No, I wanted to use it for myself and then look at other people.	SI-GE
35	ID8	RES	Okay. In general, do you think that the manufacturer, in this case that would be Garmin Company, offers enough technical support and training materials or resources regarding the functionalities that you have in this device?	
36		INT2	You have to repeat because there was a-	
37		RES	Yes, sure. Do you think that the manufacturer offers enough technical support and training materials about IT functionalities that are available in your device?	
38		INT2	Now I have some training plans for riding a bike, but I need something for running so this is not enough for me.	
39		RES	Okay. But what I mean is if you have some trouble. For example, you don't understand some kind of metric that is available in your device. Whether you see any training materials about that or technical support that you could ask about this specific matrix.	
40		INT2	I didn't search it. So actually, I don't know. I didn't need it.	FC-GE
41		RES	Okay. Great. So, right now, let's move to the data display functionality. Through this functionality, users can see and monitor the data collected by a device in real-time by using a user interface to interact with data displayed in the form of statistics and charts. Let me just show you the examples of this. Can you see my screen right now?	
42		INT2	Yes.	

43		RES	Okay. What we mean by data display is for example, this is a record of running exercise. So as you can see, the data about this one is displayed here in form of descriptive statistics. We see some summary of the distance, time, calories. This is presented and displayed in these circles, we can see a map where pace is displayed. Here we have only statistics, so we have descriptive statistics. This is nothing complex and on the right hand side, we can see that we have some charts which are describing the pace in time and heart rate in time. So, in general, when it comes to data display, we mean how did data is displayed in your device in the dedicated application. Is this clear to you?	
44		INT2	Yes.	
45	ID9	RES	Okay. Tell me, how do you feel about the ease of use and interaction with data display?	
46		INT2	This is very user-friendly I think. Yes.	
47		RES	Yeah, but so you think that it's easy to use?	
48		INT2	Yes.	EE-DD
49		RES	Did you come across any problems with the data that is displayed?	
50		INT2	No, I didn't have any problems.	
51	ID10	RES	Okay. Does data display functionality help you reach your fitness and health objectives?	
52		INT2	Could you repeat?	
53		RES	Does data display functionality help you reach your fitness and health objectives?	
54		INT2	Yes. I think so.	PE-AFHG-DD
55		RES	How does it help you?	
56		INT2	Yes, I can compare my records.	
57		RES	You can use somehow analysing the data based on the chart that you see for example?	
58		INT2	Hmm. Yes.	
59	ID11	RES	Okay. Are you satisfied with the performance of data display functionality?	
60		INT2	Yes, I am satisfied.	PE-PS-DD

61	ID12	RES	Okay. How satisfied are you with the accuracy of the data display?	
62		INT2	What do you mean by accuracy?	
63		RES	So, when the data is being displayed, do you think that this is accurate? Are you- For example, you said that you are running, so if you take a look at these statistics and the charts, do you think that what is being displayed is accurate?	
64		INT2	Yes, I think so. I don't know how to check it so-	PE-AS-DD
65		RES	You mean how to check accuracy or?	
66		INT2	Yes.	
67	ID13	RES	Okay. Tell me, to what extent do you feel inclined to use data display because it is used by other people, your peers or colleagues?	
68		INT2	Please repeat the question.	
69		RES	To what extent do you feel inclined to use data display because it is used by your peers and colleagues? Do you use it because other people use it?	
70		INT2	I am using this because [unintelligible] my friends told me that this is a good brand so this is why I'm using it.	
71		RES	No, but I mean data display functionality specifically.	
72		INT2	Sorry, I don't understand.	
73		RES	Do you use this functionality, data display functionality because others use it.	
74		INT2	No.	SI-DD
75	ID14	RES	Okay. How often do you use data display functionality? Do you use it daily or once a week or something like that?	
76		INT2	Yes, maybe once a week.	H-DD
77	ID15	RES	Do you use data display in order to counteract your medical condition, if you have one?	
78		INT2	No.	PT-DD
79		RES	OK. Do you think that this functionality could be used by you in disease prevention and treatment in the future?	
80		INT2	No, I don't think so.	PT-DD
81		RES	So you don't think that it would be helpful like your health and potential diseases prevention?	

82		INT2	I don't think so. Maybe if I would have heart problems, maybe, but I don't know what else it could be.	
83		RES	Okay. So, let's now move to insights. Let me again share this screen. Can you see it?	
84		INT2	Yes, I see it.	
85		RES	In general, this feature analyses the user's data with algorithms that are driven by artificial intelligence to create individualised advice based on the user's current habits. As you can see, this is also an example of what Garmin device can produce. For example, you can produce some training status information and insights about this. In here, it says that the person is overreaching. So he's training much in [unintelligible] and it suggests that the person should decrease the training load. The other insights that is visible in the centre, is that the person is log in fewer steps on Wednesday in comparison with the other days. The others about training load. It suggests what kind of runs the person should do. Do you understand what this functionality of insights is about?	
86		INT2	Yes.	
87	ID16	RES	How do you feel about the ease of use and interaction with insights that are produced by your fitness tracker?	
88		INT2	Repeat the question.	
89		RES	How do you feel about the ease of use and interaction with insights that are produced by the fitness tracker?	
90		INT2	I don't understand your question.	
91		RES	Is it easy to use the insights that are available in this device?	
92		INT2	Could you repeat?	
93		RES	I'm asking whether it's easy to use the insights for you that are produced in these devices device.	
94		INT2	I don't use them very much, so it's hard to tell.	
95		RES	Okay. But do you think that it's easy to use it or not?	
96		INT2	I think it is easy to use.	EE-I
97	ID17	RES	Okay. You said that you don't use them very much, but I'll ask you this, do insights help you reach your fitness and health objectives or not?	
98		INT2	No, I don't think so.	PE-AFHG-I

99		RES	Okay. Why do you think that they are not helpful?	
100		INT2	It's hard to tell because I don't use them so-	
101		RES	Okay.	
102		INT2	I can't tell you much about this.	
103		RES	Okay. So I think that we can move to the gamification part. In general, gamification refers to the use of game design principles in non-gaming scenarios to encourage users to accomplish specific objectives by boosting their motivation through competition. In the case of fitness trackers, the gamification elements could include some challenges. rewards such as badges, achievements, and social sharing through, for example, leaderboards and rankings. Do you understand what this functionality is about?	
104		INT2	Yes.	
105	ID23	RES	Okay. How do you feel about the ease of use of participation in gamification elements in your device?	
106		INT2	I don't use it, so it's hard to tell because it's not important to me so I don't know.	
107		RES	So you don't use any of the gamified elements that are available in your device?	
108		INT2	Yes.	
109		RES	Okay. Do you have anything else that you would like to add to this study?	
110		INT2	No, I don't think so.	
111		RES	Okay. So thank you very much for participation.	
112		INT2	Thanks.	

Appendix 4 - Interview 3 (INT3)

Date: April 15th, 2023

Interview Length: 1 hour 6 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES1	As you know, we are master students in Information Systems in Lund University. We are conducting this study to examine how specific functionalities of wearable devices influence the usage of such devices. So, you know that fitness trackers have many different functionalities that facilitate self-monitoring and IT functionalities are, for example, automatic data collection, push messages, gamification or social...	
2		INT3	Push messages meaning?	
3		RES1	Push messages. So, these are the notifications that you received from the-	
4		INT3	Okay. So I just wanted to be sure. Yes.	
5		RES1	Yes. In this study we are going to focus on data display insights and gamification. We recognise that some of these functionalities are intertwined and complement each other. However, we will try to be as much specific as we can when we talk about these functionalities. So, before we begin, I'd like to inform you that none of your personal details will be disclosed. If you feel uncomfortable with any of the questions, you have every right to abstain from answering and about the interview. So, first, we'll start with more general questions and then move to specific IT functionalities. Do you have any questions so far?	
6		INT3	No. Would it be like that formal or can we laugh sometimes?	
7		RES1	Yes, you definitely-	
8		INT3	Okay, these are just for my-	
9	ID1	RES1	Okay. So, tell me what kind of wearable do you have?	
10		INT3	I have Garmin watch for under 245.	
11		RES1	Okay.	
12		INT3	I used to have the music version, but I lost it.	
13		RES1	Okay.	

14		INT3	Now I have 245, which I bought like by the accident. Actually, I thought it's 245 music version but it doesn't have this functionality of music right now.	
15		RES1	This is your second smartwatch.	
16		INT3	Yes. What I would say it's the same. It was the same model, basically. Yes. But should I answer about my usage of this previous device or this one? I would say it didn't change so much. But yes, right now, this music functionality is lacking.	non-first acquisition
17		RES1	Okay. No, no, no. I think that it's totally fine that you treat them together.	
18		INT3	Mm-hmm (positive)	
19	ID2	RES1	So tell me how long have you been using your fitness tracker?	
20		INT3	I bought mine end of January 2022 so-	
21		RES1	One year in the House.	
22		INT3	One year and three months, yes.	
23	ID3	RES1	Okay. Do you wear the tracker all the time or only-	
24		INT3	Yes, even during the night. Yes.	use continuously
25		RES1	Okay, so you use it-	
26		INT3	Well, yes.	
27		RES1	-,well, 24?	
28		INT3	It's a little bit uncomfortable because the bands is plastic. It's not good for my skin-	confortability
29		RES1	Okay.	
30		INT3	-in general. So, I would like to have another band for normal usage. Maybe it's better because it doesn't take the sweat. You can see my wrist. Skin is dry.	
31	ID4	RES1	Yes. Tell me what for do you use your fitness tracker?	
32		INT3	I use it as selector regular smartwatch, functionality, to connect it with my phone and receive the notification. But I bought it not mainly for this. My main trigger to buy it was actually improving my running results, to have the assistance from the Garmin watch with data tracking, heart rate measurement, everything does like sports-centric to improve my running. I was preparing for a marathon. I felt like, okay, I will buy it. So, we run this marathon.	mobile, sport
33		RES1	Okay.	

34		INT3	Yes. Okay. I don't know. What was the question once again in general?	
35		RES1	What for do you use your fitness tracker?	
36		INT3	Okay. Yes. Because I was distracted a little bit. Yes. I use it for notification. So, I don't have to look at the phone during a lecture and social meeting, for example. I can just take a look at my number of notifications. So, I know if anymore messages arrived or not. And, I use it sometimes for changing the music. Because it has- When the watch is connected with the phone, I can change the music or pause it, for example. It's nice. And even before when I used to have this Garmin music version, I listened to the music from the watch and to listen to the podcasts books. It was very convenient for the rounds. Now, I don't have this. I carry phone when I'm running but it's alright to like and isn't really complain about it.	music
37		RES1	Okay.	
38		INT3	Yes. So, this. What else can be the usage? What other ways of usage can be there? Cause-	
39		RES1	I mean, I think that you already described it pretty well, because whatever comes to your mind at first-	
40		INT3	Yes, I mean, yes, this sports stuff. Yes. So, measuring the data, comparing my results and looking at the ratio, at the heart rate. Also. Yes.	body
41		RES1	Do you use a tracker with a dedicated application?	
42		INT3	Dedicated application, meaning Garmin Connect in this case.	
43		RES1	Yes.	
44		INT3	I use- Okay. It changed in the time I would say. When I was preparing for this marathon like first, yes. Okay. And then, I used to run also, and I used both like Strava, external app, and the Garmin Connect which is dedicated app.	
45		RES1	Okay.	
46		INT3	There are more interesting functionalities in Strava. I would say There are some features that are better developed. For example, looking at the results is more detailed in Garmin app.	
47		RES1	Okay.	
48		INT3	So, the dedicated app is better. And, now it's no longer true, but last year, I used to log in to a computer, desktop version of these apps and the web browser.	
49		RES1	Okay. Yes.	

50		INT3	I think it's important point because it's easier to see the statistics-	
51		RES1	Okay.	
52		INT3	-on the monitor. Yes.	
53		RES1	Okay, great.	
54		INT3	Once again, this question. Maybe I have something to add.	
55		RES1	No, I think that you described it pretty well. So, as I understand you use your dedicated application, but you also using an application from external vendor.	
56		INT3	Yes. Actually, for example, now I run 2-3 times a week. Okay, 2 times- And, I only look at the stats in Strava. I don't open my Garmin connect.	
57		RES1	Okay.	
58		INT3	I don't even know where is it on my phone right now. And, of course, I am forced to use it in some way. Because it is the main software that actually connects the phone with the watch. But I don't really open it.	
59	ID5	RES1	I think that you partially already talked about this. But can you briefly tell me why did you decide to acquire a fitness tracker?	
60		INT3	Sleep measurement, measurement of sport data, like tracking and notifications. And the music functionality, I think that was a trigger that "Okay, it's so cool. I have to buy it." This was the trigger that I don't need to carry a phone during the run. The weight a lot, actually, and they're pretty disturbing. But now I have pretty good clothes for it, so it doesn't matter. But still, you know, when you run, you want to cut off the world in general. Yes. So you want to have a relief from this rushy words. So carrying a phone- Okay. And, I know that you can compare these results and you can probably more easily achieve your-	sleep
61		RES1	Fitness goals.	
62		INT3	Fitness goals. Yes.	
63		RES1	Okay.	
64		INT3	Yes. I was looking for a general words. So, yes. Yes.	
65	ID6	RES1	Okay. Tell me in general how do you feel about using your fitness tracker. Are you satisfied with it?	
66		INT3	Eight out of ten.	HM-GE
67		RES1	Okay.	

68	INT3	Yes, I know, I know. Yes. But I mean everything is very good. All these features. I would say that I don't imagine being a runner without the watch that is dedicated for running. I don't. Now, I would say people are missing a lot if they don't have the dedicated watch. But some features are not well made. For example, there is a tracker of my VO2 max or some-thing like fitness level in general. Even though I felt improvement in general in my condition, it showed regress. Probably because I bought it from the second hand. So someone was using that, and I don't know. I think there is a synchronisation issue or something. So maybe my opinions a little bit biassed, because of that. But it also say something about Garmin services. I think it's a great balance because, for example, this watch can- I have five to six, seven days of buttery time. Regular smart watch like Apple- How is it called? Apple Watch? It is?
69	RES1	Yes.
70	INT3	Apple Watch. I know Samsung, etcetera. They last two days, I guess. So it's *****. it's starting pretty quickly too? So, yes. I am satisfied I would say.
71	RES2	Do you mean that fitness level you just mentioned is affected by the history data?
72	INT3	Yes. This measurement is based on your workout load.
73	RES2	Right.
74	INT3	Workout load?
75	RES1	Yes.
76	INT3	How is it? I think it's that.
77	RES1	Yes, training load and generally. Yes. And other statistics.
78	RES2	Would you be able to reset your watch or?
79	INT3	Yeah I did it.
80	RES2	You did it. But-
81	INT3	I did it.
82	RES2	-you still feel like it affects.
83	INT3	Yes. Now I have fitness level 54. No, no, no. For sure I have higher level. For sure I am at the level higher than I started running for serious. When I bought it in January, Garmin indicated that I have like 63 or something. And now I'm like 54. What the ****?
84	RES1	Okay. That's pretty strange.

85		INT3	Yes. And I just forget about this. I only take a look at my workload. So if I am to sore or not. This important point that it helps me to plan my training. I take a look. Okay. I still need some regeneration. For example, I had a bad sleep, and it and it says me, "You should stay at home."	plan
86	ID7	RES1	Okay. Did you feel somehow influenced by other people, for example, your friends, to adopt and use a fitness tracker?	
87		INT3	Yes, definitely. My boss. He was [inaudible]freak. He borrowed me his own watch that he wasn't using. I just checked it out, like how does it work. I was very interested in these statistics, of course. I am data analysts, so you know, guys. Every number is happiness for me so. So, yes, exactly. It was influenced by ideas like two people or three that are regular runners. I know their opinion and I was influenced by this. They motivated me. But I don't feel anything- For example, some people buy some products to feel as they are belonging to something, to some social group. I'm not really that type of person. I only was, I made this purchase like from practical reasons.	SI-GE
88		RES1	Okay. So-	
89		INT3	Probably unconsciously it influenced me to have a watch.	
90		RES1	Do you view your smart watch as a symbol of your lifestyle?	
91		INT3	Symbol of my lifestyle?	
92		RES1	Yes.	
93		INT3	I wasn't considering that before. But for example, I came here so I met a lot of new people are in a like of [inaudible] and someone saw like, "Oh, you have a Garmin watch. You were doing some sport or something." It's like a new topic. Yes. So-	
94		RES1	Does it benefit your interaction with your friend or another?	
95		INT3	Oh my God. It's awkward. I think, yes, it can be a trigger. Yes. I agree. Yes.	social interaction
96	ID8	RES1	Okay. Do you think that the manufacturer, so in this case, Garmin, offers enough technical support and training materials about IT functionalities that you have in the device?	

97		INT3	Yes. Actually I found any answer that I had in my history. I found in a Garmin documentation. But I have this issue with the fitness level so- Okay. Yes. But, you know, I didn't take too many actions apart from resetting this two times. So maybe maybe this is my fault, but-	FC-GE
98		RES2	There's a limit of dedication we wanna put in to make something work in your watch. That's what you mean, right?	
99		INT3	Yes.	
100		RES1	Okay. So I think that's right now we can move to specific IT functionalities. What we would like to start with is data display functionality. For this functionality, you-	
101		INT3	Ohh yes. This app is awful. How does it look like? They are like "is it 2010 or something?" you know.	
102		RES1	Okay.	
103		INT3	That was my first observation when I saw that somebody is using Garmin. The data display isn't too pleasant to look at. In Strava, external app, it is totally different. I would say that not only you take a look at your stats, but you also want to observe how your other fitness friends are doing. So no, it's not in this direction.	
104		RES1	We'll talk about this later.	
105		INT3	Okay, sure.	
106	ID9	RES1	But tell me, how do you feel, in general, about ease of use and interaction with data display.	
107		INT3	With dedicated app? In the-	
108		RES1	Yes. Let's think about the dedicated app for now at least.	
109		INT3	Can I take a look, okay?	
110		RES1	Yes, no problem.	
111		INT3	Because as I told you, I don't use it right now so-	
112		RES1	Based on your previous experience?	
113		INT3	I mean it's pretty fun that you have like this additional app that you can like install some stuff is dedicated to your work. Like this. You know what I'm saying? Yes. So this is good.	
114		RES2	Do do you mean on the on the Garmin app?	
115		INT3	Yes. There is a connect IQ something and you can-	
116		RES2	They have different package? Or what do you mean?	

117		INT3	For example, when you have a run, you can have different displays and you can make some adjustments in the app. What is the [unintelligible] here? But also, you can add additional apps. Data screens it is called I guess. Moment. Doesn't work.	
118		RES1	Screens, applications.	
119		INT3	For example, this is from the external app. It is not default from the Garmin. This is very practical. Users can and make a lot of modifications, adjust it to their needs.	customisation
120		RES1	Yes. So going back to the to the data display, do you think that it's like easy to use and interact with?	
121		INT3	Okay, let's take a look at for example. In general, I am satisfied. For example- another functionalities, in like setting times for interval training. Yes, so specific training plans, but I don't mean training plans like for three months or something, but training plans for certain particular training.	EE-DD
122		RES2	In the training like a sprint bracket that you have to run faster.	
123		INT3	Yes and it works very well. Of course, it's functionality of only the watch itself, but you can easily set up the training in the app. And I would say like I remember there was like an external app, Endomondo. It was very popular in Poland. That was the predecessor of Strava. There it was very troublesome to actually set up the training. Here it is very easy and you can also use predefined settings. I find it very useful and also there is a pretty fun functionality for the route recommendation, like which type you should follow. I would say that Strava is much better at this point. But there is something like this in in Garmin and I think a couple of time I used it. But since I have like this premium subscription in Strava, it is at least in this area, top notch in this complex. Because it's very easy to use. Like "Yeah, wow. I I was impressed how easy it is."	
124	ID10	RES1	Does the data display functionality help you reach your fitness and health objectives? So, for example, does analysing discharge and different things that you have displayed in the application somehow help you reach your health and fitness objectives?	

125		INT3	Yes. The most basic thing is looking at paces at certain kilometres. For example, if I take a look and I see that I was running faster at the beginning. It means that I I ***** **. Because it should be another way around. Yeah. So then, I make an adjustment. Okay, you need to slow down at the beginning and then, when your body will adjust itself to the workload, like to the running. Then, I can actually accelerate. So this is very basic one. And here. Because there are additional parameters. For example, it is not super easy here in the phone to look at these heart rates at certain kilometres. But- Yes. But it's useful. So yes, I use it.	PE-AFHG-DD
126	ID11	RES1	Okay. In general, are you satisfied with these data display functionality? So would you say that it leaves up to your expectations or not really?	
127		INT3	As far as I know, yes I am. I would say that in this data, any question and answer can be provided. But sometimes, I feel like the heart rate measurement isn't too precise. So, I was considering buying this strap for chest, but for me, it's too expensive, because it's ?100, like half of the price of watch itself. Only small improvements in the precision of measurement.	PE-PS-DD, extensive equipment
128	ID12	RES1	How satisfied are you with the accuracy of data display? Here we are talking about the accuracy of the display data, but it connects directly to the accuracy of the measurement.	
129		INT3	So speed, the road, geographical information is very precise. And it became even more precise when I changed in the options to have this precise measurement. Probably you know it. And I looked at the map, and I saw that sometimes it cuts a little corners. Sometimes it does actually. It's like statistical error. But from my experience, for example, maybe my heart rate was really at this level, but at my marathon, it was displayed that I had heart rate of 170 hold around or even sometimes small, which is probably not true for sure. Yes. I'm 100% sure it is not true because I cannot maintain this level of heart rate for three hours, you know. Usually, I have 170 when I run like 4 minutes 10 seconds per kilometre. But here at the Marthon-	error, heart rate
130		RES1	I assume that this is a high effort for you.	
131		INT3	Yes.	
132		RES1	Okay.	

133		INT3	This is my high effort, and this means that- I run marathon 4 minutes 30 seconds per kilometer and usually I was expecting 150 of the heart rate. In the measurement app I had 170, so I find totally irrelevant. This measurement failed of the most important date for me. So, this sucks. So maybe this is the thing with this optical measurement systems. Because it takes from the wrist. This is why I was considering this chest measurement.	
134		RES1	Do you think that this functionality like data display is useful despite low accuracy?	
135		INT3	Yes, I would say. You know, it's like a Pareto rule.	
136		RES1	Okay.	
137		INT3	And I like this. Yes.	
138	ID13	RES1	To what extent do you feel inclined to use data display because it is used by your friends?	
139		INT3	Once again, sorry.	
140		RES1	To what extent do you feel inclined to use data display because it is used by your friends?	
141		INT3	This is very interesting point. I think I'm very very influenced. Because Strava is- Okay, Garmin has also like this social media functionality. You can have friends there. But no one's there. It's like [Polish]. Sorry. So, it's like Myspace. I would say no one is there. On Strava, I have some friends. After each run, I take a look how are they doing. We give Kudos between each other. So it's nice thing. Actually it motivates you and you can have comments at the runs. This is a social pressure. That's, you know, like-	SD-DD, social interaction, awards
142		RES2	Do you think that could spur your performance of your running?	
143		INT3	Once again.	
144		RES2	Do you think that could stimulates your performance? If you want to have a better performance in the community, have a better-	
145		INT3	I don't know if it's stimulates my performance. Rather motivates me to just go for a run. Rather this. So it doesn't matter if you did a great training or not. It motivates you to just do it because it is the most important thing to just move and it's not stay in bed.	motivating
146		RES2	You mentioned that the data display on Garmin app is is awful. Do you think-	

147		INT3	Okay. Maybe it's very useful, as the functionality is very advanced. But the aesthetics are their drawback here.	
148		RES2	I'm just thinking if you like Strava more is because that there is a community or is just- More about community instead of the data display. like which one would you put-	
149		INT3	Okay. So. It was a fart or something. Garmin watches are farting guys. Yes. This is because- The trigger for using Strava is this social thing. And the data display functionalities are good enough. I find there is one functionality that is in the Strava, and it is not that developed in Garmin app. It's fitness level score. You can take a look that if you are improving everyday.	index
150	ID14	RES1	I think that will come to that later. But tell me, how often do you use data display functionality?	
151		INT3	Think I opened it three times a week.	H-DD
152		RES1	Okay.	
153		INT3	After trains. Just after trains.	
154		RES1	OK, so only after trains.	
155		INT3	Okay. I used to use it also in different situations.	
156		RES2	What's this different situations? When?	
157		INT3	For example, we were talking together at the office with my boss as a runner or a running freak. I showed him like "Oh. yes. I made today this run." Then he was like "Oh. yes. Nice." It's like this.	social interaction
158		RES1	Okay. Do you use data display in order-	
159		INT3	Oh. OK. Maybe not after the runs, but sometimes before. Now I just have like my favourite track [unintelligible]. So I didn't really use it, but I think I used to- Yes, I use it a couple of times to draw route that I want to take on my run. And then I used this. This is interesting. On the Strava, there is this route planner. It automatically pops up in Garmin database so they are like connected. It works like like this. I can transfer this map to my watch and I can display it on my watch. So I know where to run according to this road. I was like, "OK. Yes. This is something that I can for this type of stuff, I can pay like 200 Euros." Yes.	
160	ID15	RES1	Do you use data display to counteract any medical condition?	
161		INT3	Medical condition meaning?	
162		RES1	Meaning the disease, for example.	
163		INT3	What disease could? Can it show me that I have cancer or not. I'm kidding.	

164		RES1	[unintelligible] with the heart rate, elevated pressure.	
165		INT3	I'm not that knowledgeable to draw this type of conclusions from the graphs. So, not really.	PT-DD
166		RES1	So you you are not using that?	
167		INT3	But for example, I can- Because I haven't still like on my wrist like 24 hours. Okay. Yesterday I was Helsingkrona. Today, have a hangover and at the morning, I got notification that "Your sleep was bad." You should take a rest today.	
168		RES1	Okay, I will get to that-	
169		INT3	The sleeping behaviour.	
170		RES1	Okay. But do you think that this functionality could be used by you in disease prevention and treatment?	
171		INT3	I don't see that. Oh. I get- Okay. When there was a COVID, so in COVID times, there is a SpO2. How is called? You know like this, [in Polish]?	PT-DD
172		RES1	Yes. I think it's called [in Polish], something like that.	
173		INT3	[in Polish] Something like this.	
174		RES1	It's oxygen saturation, right?	
175		RES2	I think there is this.	
176		RES1	Yes, for example. I think that is-	
177		INT3	Yes, you know. Before COVID, I didn't know that this type of metric exists. But I checked that couple of times during COVID. Of course, it was at good level. But- Yes. So I checked that. So maybe like for- Okay. I am healthy person, but some people can find it useful. But I would say it is pretty limited that Garmin- I heard that some other watches have more advanced measurement systems, like Apple Watch I guess. This more advanced, but there is something like accident, like you have an accident and like you fall. There is a detection that there was an accident.	measurement, accident detection
178		RES1	Yes.	
179		INT3	Fortunately, I didn't have anything like this. But you never know.	
180		RES1	Okay, so-	
181		INT3	And there is like- I think, for example, if I fall and if I faint, maybe if it detects, it can send the notification to my family, our friends. So, yes.	

182		RES1	Okay. Let's now move to the insights. So you're already referred to that a couple of times. This feature analyses the user's data with AI-driven algorithms. It's just create some individual advice based on that and the user can use that advice in some scenarios.	
183		INT3	Okay, I think that I am like a huge exception here.	
184		RES1	Okay.	
185		INT3	Because for one of my projects to Lund University, actually I scraped the data from Garmin and I visualise it in [unintelligible]. I think it's pretty exceptional. Yes, that's-	
186	ID16	RES1	Yes, probably. Like in general, how do you feel about the ease of use and interaction with the insights that are produced by your device?	
187		INT3	So, you already mentioned some sleeping insights, right? There was something like body battery. Yes. And there was like a body battery index that- It shows me if I'm tired or not.	
188		RES1	Is it like easy to understand for you. What-	
189		INT3	Yes. You know, you use it, stuff that you understand. So, I kinda understand it. And beneath interesting like when I wake up and I see the number, to what extent my sleep was good or not.	EE-I
190	ID17	RES1	Okay. And do such insights help you reach your fitness and health objectives?	
191		INT3	Maybe I know more about- If I make actions, it's a different story, yes? So-	
192		RES1	What do you mean by that?	
193		INT3	I mean- Okay. I see. But for me, this Garmin software and this insights from there. Yes, Maybe I don't have an opinion, but I'm not really aware, right now, what's there?	
194		RES1	Hmm, I think that you mentioned at least two things. So one-	
195		INT3	You mean this insights?	
196		RES1	No, we mean insights in general. So you mentioned some insights about sleep that you might be not rested today, because of some friend, you mentioned, also whether you should train or not on a specific day something like this?	

197		INT3	Yes. So like- People. Okay for me, it's great that, I have run and after it shows me, "Okay. You should regenerate for 30 hours." For me, it's a meaningful information. It's that simple. Okay, so I will schedule my next training in two days. So I will be fully regenerated. Like I use it.	
198		RES1	Yes. Just based on that, would you say that insights help you reach your fitness and health objectives?	
199		INT3	Exactly.	PE-AFHG-I
200		RES1	Okay.	
201		INT3	I can come here. Yes.	
202	ID18	RES1	Are you satisfied with the performance of the produced insights? Do they live up to your expectations?	
203		INT3	Performance of insight. What does it mean? Performance of insight.	
204		RES1	So, for example, you received an insight. And-	
205		INT3	Is it you feel relevant or not?	
206		RES1	Yeah. For example,	
207		INT3	because I-	
208		RES1	Whether it is relevant for you.	
209		INT3	I can reject it or not. Yes?	
210		RES1	That's right.	
211		INT3	Of course. It comes with- For example- I mean, "Yes. They are, I think like, these numbers for regeneration etcetera are relevant. After, for example, it tells me, "Okay. You need to rest for 50 hours.", if I had like a heavier training. And yes, I see after this 50 hours, "Okay. Now I feel that I am regenerated. Yes." So, actually, yes, I find it that it follows my fitness level and my ability to regenerate. It follows exactly for me like this regeneration thing is the most important and this body battery. I don't know why, but this level goes down. And like in the midnight, I have like pretty close to zero, but it stops at five. It doesn't go, you know. Sometimes I'm at a party and I still have some energy I didn't like- For me, when I have zero, I should die or something.	PE-PS-I
212	ID19	RES1	Yes. I think that's in here, we can move to the next question. How satisfied are you with the accuracy of these insights?	
213		INT3	How satisfied the accuracy-	
214		RES1	Yes, that's right.	

215		RES2	That is like it suggest you rest for 30 hours, but after 30 hours you went for training still feel like you're not yet ready for the next session.	
216		RES1	Or for example, you mentioned-	
217		INT3	It didn't happen to me. Usually, they add some surplus. So additional hours to actually be sure about that you regenerated. So, I would say that it's good.	
218		RES1	What about that body battery?	
219		INT3	Body battery. I think it's funny, you know? Even this name is funny for me. Body battery. What the ****? Are we living in the 23rd century or something? But yes. For example, today you know this is the insights that when I drink, even two beers, I see that this body battery select my regeneration for sleep is- Okay, I forgot the word.	
220		RES1	Distorted.	
221		INT3	Distorted. Yes. So that was very important insight for my life to actually reduce the alcohol consumption in my life.	
222		RES1	Okay.	
223		INT3	Did I take actions? Not really. You know, I will not. Yeah. OK,	
224		RES1	You assume that the insights are pretty accurate.	
225		INT3	Yes. Okay. Yes, I can say it.	PE-AS-I
226	ID20	RES1	Do you feel somehow inclined to use the insights because your	
227		INT3	[unintelligible], you mean persuaded?	
228		RES1	Yes. Persuaded to use them because your friends use them.	
229		INT3	What is that?	
230		RES1	So just to give you an example, if I were using, for example, the insights to go to sleep at 1000 PM to rest.	
231		INT3	Yes, because I have a friend who is like a soldier,	
232		RES1	Okay.	
233		INT3	He's like a soldier. Yes. [in Polish] Okay, Okay, it's true. I found out. But I mean, like my friend Czarak is very strict and he's very organised person. So, here he inspire me to make some improvements in my life. But-	
234		RES1	But he's like, using these insights and-	
235		INT3	But I don't know if this stuff is driven by the usage of watch. I'm not sure. I wouldn't say so.	
236		RES1	Okay. How-	
237		INT3	Probably not. Let's say, probably not.	

238	ID21	RES1	Okay, how often do you use the insights from your tracker?	
239		INT3	Weekly. I take a look five times a week, I guess.	H-I
240		RES1	Okay. So that would be almost daily.	
241		INT3	Almost daily. Okay. Almost.	
242		RES1	Sometimes you skip it. But-	
243		INT3	Yes.	
244	ID22	RES1	Okay. Do you use them to counteract your any medical condition?	
245		INT3	Not really.	PT-I
246		RES1	Okay. Do you think that this functionality could be used by you in disease prevention and treatment?	
247		INT3	Yes. As I told you, I think that these Garmin watches are not made for disease prevention. Because they're for active person people who are in general healthy. Yes. So maybe there are other devices that could be better in this role. But- Not really.	PT-I
248		RES1	Okay. I think that we can move to the last functionality. This is gamification. This refers, in general, to the use of game design principles in non-gaming scenarios. So, for example, in Garmin, that would be some challenges that you can take part in weekly leaderboards, comparing yourself to other, to like whole male population in your age, comparing for example VO2 Max scores with others-	
249		INT3	That is biased.	
250	ID23	RES1	#NAME?	
251		INT3	First of all, you have these badges. But like I have a notification that it was- But it's mostly on Strava, right? Yes, but-	rewards
252		RES1	Okay, so-	
253		INT3	I'm thinking about at the moment.	
254		RES1	Yeah, I think that you mentioned that you participate, use Strava a lot. And you mentioned social interaction in Strava-	
255		INT3	There is something like segments on Strava. So there are some, you know, like, it's called segments, so like short routes. You can see how you perform versus others. But I don't really follow it. Rather, I compare to my previous maybe.	
256		RES1	Okay.	
257		INT3	But-	
258		RES1	Would you say that-	
259		INT3	There are some challenges? Okay.	

260		RES1	Okay.	
261		INT3	I think I signed up couple of times, like, let's run 200 kilometres in June or something. I think I've made it maybe two or three times in my life. You have made it, it's fun, but you know.	
262		RES1	But would you say that it's requires an effort from you to participating these things. So for example, if you want to sign up for any challenge, is it easy for you to do that?	
263		INT3	Yes. In Strava, yes. In Garmin, I don't know. If something like this exist even.	EE-G
264		RES1	Okay.	
265		INT3	Because I know these challenges on Strava of course. But I don't know if they are- But, well, I didn't want to use it because I don't have any friends there.	
266		RES1	Okay. So-	
267		INT3	Even if there would be such functionality, I wouldn't use it because I cannot [in Polish]	
268		RES1	Boost.	
269		INT3	Boost. Yes.	
270		RES1	Okay.	
271		RES2	So if your motivation is by interacting with the community instead of just with the lighter goal set up by the app.	
272		INT3	Yes, but to these goals, your friends can also join. So you see if they, for example, completed some challenge or not. This is like a motivation, trigger.	
273	ID24	RES1	Would you say that gamification help your fitness and health objectives? You mentioned some segments on Strava. Do you think that- If you take a look at this segment like how the other people perform on that. Do you feel like motivated to beat them? Do you feel motivated to beat your score?	irrelevant competition
274		INT3	I am motivated to beat my score. Because you can take a look at the segment and you are at 150 position. Because people, for example, doing intervals, they are, and you don't. And also, I am long-distance runner. For me, speed is not that important. At certain short segments, yes. So it's not important for me here.	
275	ID25	RES1	Okay. Would you say that you are satisfied with the performance of gamification? Considering what you have just said, you say that you have a distance that someone, for example, is running in a very fast pace because he's doing some other type of exercise.	

276		INT3	Yes he's [unintelligible] or something I don't know.	
277		RES1	Yeah, for example.	
278		INT3	So I don't care like, you know-	
279		RES1	So in this case, you cannot-	
280		INT3	There are some professional athletes on Strava and they also are included in this. Doesn't make any sense.	
281		RES1	Okay. And-	
282		INT3	I think comparing to others, you can even demotivate.	
283		RES2	Yes, you'll never reach that level.	
284		INT3	Yes, I'm so awful. You don't really take it seriously, but maybe-	
285		RES2	If they differentiate them into different leagues and you-	
286		INT3	Yes. This is why I find it relevant to actually compare only to myself. This is the main principle in life.	
287		RES2	Play Good in your league and-	
288		INT3	Yes, I have my own league, yes.	
289	ID26	RES1	Are you satisfied with the accuracy of gamified elements?	
290		INT3	Can I see? Like, I think it's easy. Yes. Ohh, how can it be not precise?	
291		RES1	So it's like, for example, let's say that you are enrolled in some running competition. And let's say that you know that's, for example, some people are just walking and for some reason, there are counted as people who are running. So it's not-	
292		INT3	There is a guy who takes a bike.	
293		RES1	Something like that. So then you would say that these metrics are not accurate and you cannot compete without people like this.	
294		INT3	I saw some challenges, you know. And you see that guy, like people around, sometimes 200 kilometres a week. What the hell like? But they're professional athletes and you cannot compare yourself with these.	
295		RES1	Okay.	
296		INT3	But I think still, it's not the matter of precision of this measurements. I have a belief that people are not cheating here. Yes. I believe it.	
297		RES1	Yes. That's the assumption.	
298		INT3	This my assumption. Yes. But as I told you, I don't compare to first places because it doesn't make any sense for me.	

299	ID27	RES1	Do you use gamified elements because your friends use it?	
300		INT3	Yes, I think this is the only trigger, but it's trigger not to participate in challenges. Because my friends are participating in them, it's rather trigger in terms that someone reminded me about this functionality. I can pick the goal that is suitable for me.	SI-G
301	ID28	RES1	Okay, definitely. How often do you use gamification functionality?	
302		INT3	I think the last time was in December.	H-G
303		RES1	Okay. Yes.	
304		INT3	Sorry.	
305		RES1	It's been-	
306		INT3	Four months ago.	
307		RES1	Four months, right?	
308		INT3	Okay, I think no. I think I signed up for 100 kilometres in February, but I didn't have mood for running, so I didn't.	
309	ID29	RES1	Okay. Tell me, to use gamification to counteract your any medical condition?	
310		INT3	Totally not.	
311		RES1	Okay. Do you think that this gamified elements could be used to do that for disease prevention and health improvement?	
312		INT3	For healthy provement, yes. Because people participate in the chat and I think can be good at trigger for older people, like 40s, 50s. [unintelligible] like this. Okay, whatever. And you know that. Yeah, I have a challenge to [unintelligible] There is the steps measurement. This is important. I forgot about it. So I think it also be connected to the previous question that was like ten question ago.	PT-G
313		RES1	Okay.	
314		INT3	Ten questions ago yes. I used this steps. I'm not really triggered by them. But for me, it's fun that I have a day of 10,000 of steps. And in the app, I guess you can set your goal, your minimum level that you want to achieve with this steps. This is a trigger to make a movement-	
315		RES1	Okay.	
316		INT3	-go for a walk or something. And I guess, this is important for me but not that much as for other people that I was observing.	
317		RES1	Okay.	

318		INT3	You know, I'm pretty active. I wish I would be better in it. But for some people, I imagine that this steps counter can be important functionality. And I heard these stories that I have a challenge to have 10,000 of steps daily and I do it everyday. so I think this is good for in this health improvement but not for preventing diseases, Maybe preventing diseases, I think that it's done by every day, by lifestyle.	
319		RES1	Like continuous process.	
320		INT3	Yes. So maybe in this sense it can be regarded as a disease prevention thing. But you know, like people not proactive in general.	
321		RES1	Okay, Janik. Do you have anything else that you would like to add?	
322		INT3	Maybe you remember some stuff that I told you when we were walking here. Okay. Yes. Understandable.	
323		RES1	Okay. So if you don't have anything else to add, thank you for your participation.	

Appendix 5 - Interview 4 (INT4)

Date: April 17th, 2023

Interview Length: 45 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES	<p>Okay. Welcome. I'm very glad that you are here. As you know or you may not know that I'm a master's student in Information Systems at Lund university. Together with my friend, we are conducting this study to examine how specific IT functionality software wearable devices influence the usage of such devices. Probably as a user, you know that fitness trackers have many different functionalities that can facilitate self-monitoring. The example of IT functionalities are data collection, data display, push messages, gamification or social interaction. In this study, we are going to focus on three functionalities, data display insights and gamification. We recognise that some of the functionalities are intertwined together and complement each other. However, I will try to make sure that we stay on track and that you know about what functionality we are talking about at the moment. Before we begin, I'd like to inform you that none of your personal details will be disclosed and if you feel uncomfortable with any of the questions, you have every right to abstain from answering and abort the interview. So do you have any questions?</p>	
2		INT4	<p>No I haven't. I would like to add that I'm really happy that I could be a part of that research and maybe I put my own mark on that research, and I will be a part of that study.</p>	
3		RES	<p>That's great. I'm very happy to hear that. Okay. We'll start with more general questions, and then we'll move to these specific functionalities that I mentioned.</p>	
4		INT4	<p>Sure.</p>	
5	ID1	RES	<p>Okay, So what kind of wearable do you have currently?</p>	
6		INT4	<p>I have a Samsung Galaxy Watch5, the normal one, not Pro.</p>	

7	ID2	RES	Okay. How long have you been using your fitness wearable tracker?	
8		INT4	Since last November, previously I use a Mi Band 4. But I replace it with the Samsung Galaxy.	upgrade
9		RES	Okay. but Mi Band, is it like a wristband?	
10		INT4	Wristband, yes. It wasn't the smartwatch.	
11	ID3	RES	Okay. Do you wear the fitness tracker all the time or only during specific activities?	
12		INT4	All time. During my day as well in the night.	use continuously
13	ID4	RES	Okay. Please tell me what for do you use your fitness wearable.	
14		INT4	It's hard to say. Well, I'm not a really sporty person. But thanks for that smartwatch, I try to increase the number of daily steps I take. That's the main goal I bought that smartwatch. And as I said previously, I'm not sporty person, and I usually use that device to pay for my shopping or as I mentioned previously, counting steps and try to be more healthy to increase the daily amount of activity so nothing specific. Just normal using during the day.	motivating, step count, payment
15		RES	Okay, I think that you mentioned some of these, but what functionalities of these device do you use on daily basis?	
16		INT4	On daily basis, paying by shopping and listen to-I'm really fan of Spotify. I change music on my watch when I walking and I don't have my smartphone in hand. I prefer using a smartwatch to change music, to selecting the new song. What else? I use that functionality to check the body structure. There is a possibility to check how much body fat I have. So I try to use it once a week to have a information how my body changed. Recently I tried to lose some body weight, so it's really nice addition to that. Not only the weight but also the body structure. So that's the main three functionalities I use regularly. Maybe not everyday but regularly.	music, body
17		RES	Okay, thank you. Do you use your tracker with any dedicated smartphone application?	
18		INT4	Yeah, there is the Samsung dedication application, and I use it every day almost. There is a possibility to add the meals you eat during the day. You could check how your sleep goals, the every day and etcetera. I use it every day.	sleep, diet

19	ID5	RES	Okay. Great. Please tell me why did you decide to buy a fitness tracker?	
20		INT4	Cause the first main reason was that I lose my Mii Band, my previous wristband. It it was my second wristband, which I lose in that way. So I thought that buying classical smartwatch will be better idea. And what's more important. I have ability to pay buy that device. Of course I could gather much more insight about my usual day, how I perform during the day or how many calories I lose during the specific type of activity. And I really like the Samsung devices so I thought that buying it is a good idea. So, that's all. Nothing specific connected to the to the sport. More practical reasons.	affordable, branding
21		RES	Okay. When you were buying the Samsung device, did you choose this specific device for any functionalities that it has?	
22		INT4	No, I choose the newest one.	
23		RES	Okay.	
24		INT4	I chose that one cause it was quite pretty. It is in the Violet colour. I really like that colour. That's the main reasons.	design
25	ID6	RES	Okay. So, tell me. Are you satisfied with your tracker? This smart phones that you have currently?	
26		INT4	Yes, I'm rather satisfied. But I have only one- I saw the one disadvantage. It's the battery. I think that it could be better. Cause I have to recharge that device almost every day. It could be better. But apart from that, I'm really happy that I decided on that device.	HM-GE, battery life
27	ID7	RES	Okay. Did you feel somehow influenced by others to buy and adopt a fitness tracker?	
28		INT4	Yes, I saw fitness trackers that almost everyone nowadays wears fitness tracker, and it's take a huge part in my decision about buying that. I saw my boyfriend has a Garmin, and I saw that he use it in the stores, shops. It's really convenient to use it. So I made a decision that maybe good solution for me also.	SI-GE
29		RES	Okay. And do you somehow view your fitness tracker as a symbol of your lifestyle?	
30		INT4	Maybe not. I rather not. It's cause I'm not sporty type and that's my case.	SI-GE
31		RES	Okay. So I see that you somehow associate smartwatches with healthy lifestyle and people who are involved in certain sports.	

32		INT4	Yes, I think that many of people buy that devices to track their activity. For example, the cycling activities or running and they even published their achievement on the internet using Strava or something like that. In my opinion, that's the main audience for that devices. But as I mentioned previously there is much more functionalities which could be used by the smartwatch.	
33	ID8	RES	Yes, definitely. Okay. Generally, would you say that the manufacturer of your device, so, in this case, Samsung offers enough technical support and training materials resources regarding the functionalities that you have in the device?	
34		INT4	It's hard to answer that question because at the beginning I really struggled with how I should use it. There was only a short manual how to set up the device, but there was no mention about the specific functionalities. I had to look for it on the internet. For example, I was sure that on that device I could use a messenger. I spend a lot of time to find out how to install that in application online device because I use the messenger on my phone. But after that, I found out that Messenger isn't compatible with that software. I was quite disappointed. But as I said, there wasn't the list of application which are available to install, and I have to make a research to find out about that.	FC-GE
35		RES	Okay. You found this information on the?	
36		INT4	On some kind of forum.	
37		RES	Okay.	
38		INT4	It wasn't in the official website.	
39	ID9	RES	Okay. I think that right now we can move to the specific IT functionalities. We'll start with data display. In general, for this functionality users can see and monitor the data that is collected by the device and analyse it. When it's displayed in the form of some statistics and charts. Tell me how do you feel about the ease of use and interaction with data display in general?	

40		INT4	Sometimes I really struggle with that. Cause for example, I have a daily target of my daily steps. I take the daily calories during the activity and daily time of activity. It's present in very specific way, cause it's a kind of heart, which I don't even how to explain that. But it's a heart, and you see the part of- The whole heart is your target. During the day, you see that the target realisation. But, for example, my daily target of daily activity is 90 minutes. Sometimes I walking by the 100 minute and my daily realisation is bigger than the target. It displayed very confusing way, cause it starts its duplicate. In my opinion, it's not the best way to view visualise the target.	EE-DD, visualisation
41		RES	Okay. So it's like this visualisation, when it's complete, your target is complete, then it's duplicated. And it feels like you did not reach your target, right?	
42		INT4	It's not. Maybe I show you what I mean. Do you see my screen?	
43		RES	You would have to make it higher, I mean default. No, I cannot see it.	
44		INT4	I made a screenshot, and sends you.	
45		RES	Sure.	
46		INT4	Because it's really hard to explain how it even could be explain, cause it's really strange way to visualise that kind of data. Frankly speaking, it was my first time when I saw that kind of visualisation for target. I sent it via e-mail.	
47		RES	Okay, I see. That's interesting.	
48		INT4	It's hard to understand that visualisation.	
49		RES	Yes, I would say that it's not really intuitive. But that's my opinion.	
50		INT4	I totally agree. The first time when I saw it, when I achieve a goal, daily target and try to analyse that data. It was "Ohh, I'm not sure how it's the best way to present that kind of data." It works on the day I don't achieve a target. It's better on that days. But I could say that we could find definitely much more intuitive and understandable type of chart for that kind of data.	
51		RES	Okay. Yes. What about the other charts or metrics that are available?	
52		INT4	The another one much more better. Cause they mostly use barchart, so it's not. I'm really familiar with that kind of chart so it's quite easy to understand and analyse.	

53	ID10	RES	Okay. Tell me, does data display functionality help you reach your fitness and health objectives?	
54		INT4	Yes, cause when I saw that, for example, there is only 1000 steps to achieve the goal. I try to achieve it, and I usually go on the short walk or something like that just to achieve a goal.	PE-AFHG-DD, motivating
55	ID11	RES	Okay. Are you satisfied with the performance of data display functionality? So in the other words, does it live up to your expectations?	
56		INT4	Yes, in general, I'm rather satisfied. Of course, there could be some additional features, and I would like, for example, to see the average speed I walk or maybe even heart ratio. It could be quite interesting to see how my performance is during work or due during any activity. What is quite confusing. I I saw that statistic on my watch during that activity. But I couldn't find them after that on my phone. It could be also included in that mobile application.	PE-PS-DD, mobile synchronisation
57		RES	Yes, definitely. Especially with that, it's somehow being collected by the device, right?	
58		INT4	Yes. Fun fact. During our trip to Italy, I almost have a stroke. My heart rate was almost 200 beat per minute. I saw the information about it on my watch, but after that I couldn't find it on my mobile phone and show other people that I could die during that tracking trip with Piotr and Gosia.	
59		RES	Apparently the watch sent you a message, but somehow it does not store this messages to history.	
60		INT4	No.	black box
61	ID12	RES	Okay. So can you tell me how satisfied are you with the accuracy of data display functionality?	
62		INT4	I'm rather satisfied. The accuracy of data is rather good. I have a accuracy of 100 metres if we talk about the walking. I think that's quite good at my level cause I don't want to know the specific distance I go during the day with accuracy to 1 centimetre. It doesn't make sense in that case. And, the same with the burnt calories. I think that there is 10 calories accuracy, so I'm fine with that for my purpose. I'm satisfied with that.	PE-AS-DD
63	ID13	RES	Did you feel inclined to use this functionality because it is used by your peers or colleagues?	
64		INT4	No, it's rather for me. No.	SI-DD
65	ID14	RES	How often do you use data display functionality?	

66		INT4	Almost every day. I checked the statistics. Maybe I'm not doing sport activities every day. But I check how many steps I take every day, especially when I go to the office. Cause I made much more steps when on my office day in comparison to the days I stay at home. So it's really nice to saw that. That I actually I go even if I spend the day in the office.	H-DD, step count, visualisation
67	ID15	RES	Okay. Do you use data display functionality to counteract any medical condition?	
68		INT4	Yes, I checked the saturation of oxygen, polls, my heart rate and the third one, my body structure.	
69		RES	Okay. But is it connected to any disease or medical condition that you have?	
70		INT4	No, no, no, no. I'm rather healthy. So I don't have any specific medical condition. It's all just for me- But maybe according to my smart watch, I have obesity cause my body fat is too high. I try to lose it.	PT-DD, diagnose
71		RES	Okay. Do you think that's this functionality that you mention and other functionalities that are available in your device could be used in disease prevention and treatment?	
72		INT4	I'm not sure cause for example, the measure of the body fat. Sometimes I'm not sure if it's calculated properly, because the data sometimes really fluctuate. I don't understand what's the reason. I assume that it could be connected with the reservation. But sometimes, it's really, really strange, and I'm not sure if the accuracy of such accuracy. [in Polish] I think that medical devices should have a much better battery. Sometimes I forget to recharge my smart watch and the battery died during a night and I don't have information about my sleep. In my case, it doesn't matter in general. But for people suffering for some kind of diseases, it could be really problematic. Cause it could impact on their health or even life.	PT-DD, accuracy, battery life
73		RES	So there's a problem with reliability of these devices?	
74		INT4	Yes.	reliability
75	ID16	RES	Okay, I think that we can move to the insights right now. In general, this feature analyses the user's data with AI-driven algorithm and creates individualised advice that is available to the user. How do you feel about the ease of use and interaction with insights that are generated by your device?	

76		INT4	It's quite intuitive. I gather insight about my type of sleeping. According to my device, I'm a lion type of sleeper, and it's a healthy type of sleep. When you sleep from 9 to 10 hours a day. I participate in sleep training to improve the quality of my sleeping. What's it's really interesting, there is a feature which allow to understand how your previous night went. For example, I receive a score about my physical and mental relaxation. That's score usually is really compatible with my feeling. For example, if it says that your mental relaxation wasn't good enough. I feel rather bad. And to avoid the effect of placebo, even if I don't know the score- For example, I feel bad today and, with curiosity, I checked the score, and it usually is low when I feel bad. That result is based on the algorithm which was developed according to your sleep in the night.	EE-I, sleep, accuracy
77	ID17	RES	Okay. Do insights help you reach your fitness and health objectives?	
78		INT4	Could you repeat?	
79		RES	Do these insights that are produced by the device help you reach your fitness and health objectives?	
80		INT4	Yes. I think it's rather, yes.	PE-AFHG-I
81		RES	And in any particular way?	
82		INT4	I try to improve my health score, my quality of the day. I try to mobilise me to get some physical activity everyday. So in that case.	motivating
83	ID18	RES	Okay. Great. And are you satisfied with the performance of the insights that you get?	
84		INT4	Yes. When I think about that, I saw that it makes sense. Usually if someone ask me about my activity type or my usual performance during the day, I could I could say that it works, and usually it's rather similar- If you ask me about my overall performance, I could say that I'm rather lazy person. According to that insights, it's quite similar. Cause my daily level of activities is low, I have a office work, there is no a lot of space to special kind of activities. So, I think that kind of insights are quite relevant in my case.	PE-PS-I
85	ID19	RES	OK. Are you satisfied with the accuracy of these insights?	

86		INT4	Yes. As I said previously, I don't use that device to generate any high-accuracy insight to help me prepare for some kind of marathons or some kind of sport competition. It's just for me to gather the basic insights. As a basic user I'm really fine with the accuracy. I don't need more specific information.	PE-AS-I
87	ID20	RES	Okay. To what extent do you feel inclined to use insides because other people use them?	
88		INT4	Maybe insights about the- I think the people like to compete with each other. So maybe some kind of that. Maybe complete with your friend or something like that. I think that I don't have such a feature and it could be nice to have one.	
89	ID21	RES	Okay. How often do you use insights functionality?	
90		INT4	Maybe twice, three times a week. Usually in the evening, when I go to bed, I try to summarise the daily activity and check the insights also. About that.	H-I
91	ID22	RES	Do you use insights to counteract any medical condition?	
92		INT4	Only about the body structure, how many exercise should I do to achieve my weight goal. Only for that. Nothing specific.	
93		RES	Okay. Let's move to gamification. These functionalities refer to the use of game design principles in non-gaming scenarios to encourage users to accomplish specific objectives by boosting the motivation in general.	
94		INT4	Unfortunately not. There is only information about how I perform in comparison to the people wearing that similar device. In my group age and the other so I saw only that three statistic, my score, my group age and the other users. So there is no any specific gamification features at all. Or maybe I don't discover them.	
95		RES	Okay, but do you have, for example, any challenges that you can start with something like that?	
96		INT4	Yes. For example, I could add the specific challenge and I'm sure that I mentioned previously that I participate in the sleeping challenge, training of sleep. So it was a kind of challenge. When I have to complete four steps, the daily steps which include a specific time of activity, reducing stress or something like that. There were also question about the power naps during the day and using alcohol or any drugs. That kind of information.	sleep

97	ID23	RES	Well, how do you feel about the ease of use and participation in gamification in your device?	
98		INT4	It was quite easy. I have to check in every day and mark the- select specific situation which occur during the day and that's all. After four week I receive a information that I passed the competition and my quality of sleeping should be much more better. I don't saw that, but maybe there is a difference.	EE-G
99	ID24	RES	Would you say that gamification in your device help you reach your fitness and health objectives?	
100		INT4	In general, yes. But I'm not really competitive person. Especially I don't like to comparison with the others. It's sometimes could impact on my performance, when I saw that someone made three or four time more than me. It helps- I really like to competitive with myself and I do during the game. Thanks for gamification I'm much more focused on achieving my own goals. Maybe not compared with the others, but to be the best version of myself, and I try to achieve my own goals.	PE-AFHG-G
101	ID25	RES	Okay. Would you say that gamification live up to your expectations or not? The gamified aspects that you have available right now in your device.	
102		INT4	I think it could be better. Cause it's maybe not so interactive and there could be some changes to improve the the experience of gamification. But it also could be worse so I'm rather neutral for that.	PE-PS-G
103	ID26	RES	Are you satisfied with the accuracy of gamified elements?	
104		INT4	Yes, it doesn't matter for me.	PE-AS-G
105	ID27	RES	Do you feel inclined to use gamification because it is used by others?	
106		INT4	No, it doesn't play any significant role in my daily rituals.	
107	ID28	RES	Okay. How often do you use gamification?	
108		INT4	I use it once by 4 weeks in that sleeping challenge, and I finish it. I also start two challenges, yoga challenge and stretching challenge. But it was interrupted by the trip to Italy. After that trip, I couldn't find motivation to start it again. Especially that during the last month, I have a lot of trips. And there is a Easter there. There is no time for additional activities. But I promised myself that I started again and maybe in the maybe next week. Maybe I find time for it next week.	SI-G

109	ID29	RES	Okay. Do you use a gamification to counteract any medical condition?	
110		INT4	No. It's just for fun. Maybe I start that stretching to improve my posture. Cause I have problem with my back. During the whole days in the office or in home office, sometimes I have a pain in my back. I thought that stretching activities and participating in gamification could be really great idea to reduce the pain.	PT-G
111		RES	Yes, I think that definitely applies. But would you say that this functionality could be used by you in disease prevention and treatment? For example, as you mentioned in the problems with your back.	
112		INT4	Yes, but it play minor roles I think. Of course if it's it's nothing serious and it's only the pain in our back caused by the fact that we spend all day sitting in the office. Okay, it's fine, but if it's something more serious, I recommend go to the doctor and check out of on that.	PT-G
113		RES	Okay. Is there anything that you would like to add to this study?	
114		INT4	No. I think that we cover everything, and the the questions are quite specific. I don't think is that it could be so- It would refer to sport aspect of that. Cause as in my case I use a smartphone. I use it rather than I use it as a smartwatch, not a sport device, accessory.	
115		RES	Okay, so, in this case, thank you very much for the participation.	

Appendix 6 - Interview 5 (INT5)

Date: April 18th, 2023

Interview Length: 25 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES	Welcome. I'm a student at Lund University. I'm studying Information Systems. Together with my friend, I'm conducting this study to examine how specific IT functionalities of wearable devices influence the usage of such devices. So you, as a fitness tractor user, know that these tractors have many different functionalities from, for example, data collection, data display, push messages, gamification or social interaction. In this study, we are going to focus on data display, insights and gamification. Although we recognise that some of these functionalities are intertwined and complement each??? other, I will do my best to keep us on track when we talk about these functionalities separately.??	
2		INT5	Okay.	
3		RES	Before we begin, I'd like to inform you that none of your personal details will be disclosed, and if you feel uncomfortable with any of the questions you have every right to abstain from answering and about the interview.	
4		INT5	Okay. Thank you.	
5		RES	OK. First, we'll start with more general questions and then move to specific IT functionalities. Do you have any questions so far?	
6		INT5	No. So far, so good.	
7	ID1	RES	Okay, so let's go. Tell me what kind of wearable do you have right now?	
8		INT5	Okay, so I have Apple Watch SE. This is actually the second one that I got after I destroyed my first one. This is like the model that I do have.	non-first acquisition
9		RES	The first one was also from Apple?	
10		INT5	Yeah, it was the same one, but like the versions of that is like kind of newer, but still the SE. There are not a lot of differences between that.	

11	ID2	RES	Okay. How long have you been using your fitness wearable tracker or maybe, in general, these two trackers, so when you get the first one?	
12		INT5	In all around one and a half year. Yes, I would like that. Yeah, I got it for Christmas like. What this one, with the last ones. So yeah, around one and a half year.	
13	ID3	RES	Okay. Do you wear the fitness tracker all the time or only during specific activities?	
14		INT5	No. All the time except for the times that I do have to charge it. Then every time that I leave the house, or even when I am inside, I always wear it.	use continuously
15	ID4	RES	Okay. What for do you use your fitness wearable?	
16		INT5	I think the most the thing that I use is actually for push notifications. So this way when I'm at work, or I'm doing anything, I can always see what's happening, and I don't have to take out my phone. Another thing is fitness tracking. So, for example, the number of steps and then on Apple Watch, you have those circles that you have to close, like your fitness goals and all. And this is the second thing that I use it for the most. So kind of like trucking how many steps a day I do or how, lost the word in English, fast I go in specific time and stuff like that?	notification, step count, visualisation
17		RES	Okay. The pace, right?	
18		INT5	Yes, exactly. The pace. That's the word.	
19		RES	Okay. And do you use your tracker with any dedicated application for smartphone?	
20		INT5	Only with the like Watch, the Apple Watch app. I don't have any like Endomondo or something like that. There is like Watch and there is like fitness something like that. But it is specifically connected with Apple Watch. This is not like any additional like and the Endomondo or any like running the device.	
21	ID5	RES	Okay. Why did you decide to acquire a fitness tracker?	

22		INT5	Why. Okay. One of the things was that I need like exterior motivation, and with this kind of device, it shows you currently, for example, how many steps a day you actually do. So with the phone, when I had like a slower day, it was like 100 steps a day even though that I know that I was walking more. So, I would say the most to kind of like track and to motivate me more the kind of like just move to be honest. And then, additional thing was that this way, I could have had my phone in my bag and then still be able to see what was happening and to check, for example, while work. If this is important thing, or is this just another Pizza Hut.	motivating, notification
23	ID6	RES	Okay. And how do you feel, in general, about using your fitness tracker? Are you satisfied with it?	
24		INT5	Yes, I really am satisfied. I've broken my first watch. And then, I last like around one week before buying a new one because I got so used to it, even like checking the time or checking what's going on, and then I also don't feel the need to check my phone as much. kind of because during that week that I didn't have the watch, I was looking at my phone if something appeared or something like that. Whenever I have my watch on, I don't have this need. Because I know that there's something's gonna happen, then I will see that on the watch, and it's not so important. So my screen time is actually less when I have my watch.	HM-GE, screen time
25	ID7	RES	Yes, I think so. Okay. Did you feel somehow influenced by other people to adopt and use a fitness tracker?	
26		INT5	I've talked with few people that had the fitness tracker before buying it just like to have some kind of opinions from people that actually do use it. So I wouldn't say influence, but I did take into account like positive opinions because they were mostly positive from friends and colleagues.	SI-GE
27		RES	Okay. And would you say that you view your fitness tracker as a symbol of your lifestyle?	
28		INT5	I wouldn't say so. Much like I feel that my usage of fitness tracker is not as big as it can be. For example, I didn't go for runs at all, and I feel like that would be maybe more. But maybe it helps my lifestyle. It helps to maintain the lifestyle that I would like to have. So like moving more, maybe.	SI-GE

29	ID8	RES	Okay. Do you think that the manufacturer, so in this case, Apple offers enough technical support and training materials about the resources that you have available in your device?	
30		INT5	I would say so. There is like a good amount of information that you can see. Mostly it's easier to see them or read through them on the app, on the phone as it's kind of like a lot of information. But yes, I never had a problem that I couldn't have found the answer in the informations that were given by Apple. Yes, I would say so.	FC-GE
31	ID9	RES	Okay, great. So let's now move to data display functionality. For this functionality, users can see and monitor the data that is collected by your device. Through this functionality, you are able to analyse this data through some sort of statistics and charts. How do you feel about the ease of use and interaction with data display functionality?	
32		INT5	It is really easy I would say. All the informations that you would like to have are available with the model of the watch that I do have. It's easy. Okay, except for one thing. Because this is actually something that I've been checking few times. You have, for example, the number of steps that you do daily, the average of steps monthly and yearly and all of that. But there is no option to see, for example, how many steps you did in one month. There is not the number. I have add all of them together to see how much steps I did, for example, in March or something like that. This is something that I think would be like nice. Because sometimes you're talking and I'm like "how many steps?" and I'm adding every literally every day. But it's kind of easy. You can find it all on the app or on the watch.	EE-DD, customisation
33	ID10	RES	Okay. Do you think that data display functionality helps you reach your fitness and health objectives?	
34		INT5	I would say so. It's really motivating to see, for example, when you have a good one, and how much more steps you did, for example, this month and then month in last year. There are all those trends and stuff like that. This is fun, if it's in a good way. Because if it's like "Well, you did like 10,000 steps more last year." I would say it might be unmotivating. But most of the time, yes, I would say that it's kind of like a good motivation to continue or to a bigger progress.	PE-AFHG-DD, motivating, visualisation

35	ID11	RES	Okay. Are you satisfied with the performance of this functionality? So, in general, would you say that data display functionality lives up to your expectations?	
36		INT5	I would say so. Yes, as a really basic user. I would say that it does.	PE-PS-DD
37	ID12	RES	Okay. Are you satisfied with the accuracy of data display? In this case, it's of course depends on the data that could be inaccurate because of the sensors. But, in general, what I'm asking about is whether the charts that you can see in the app are accurate.	
38		INT5	Yes, I would say so. Yes.	PE-AS-DD
39	ID13	RES	Okay. Do you feel, to any extent, inclined to use this functionality because it is used by your friends?	
40		INT5	Maybe because of the possibility that you can like- But this is more of a gamification. I think so. I don't know how much I should answer about that. If you want to compare yourself, then yes, kind of. I would say that you have to see how much steps, or how many kilometres, or what is your pace, or what are your like beats per minutes like poles, ranges and all of that.	SI-DD
41	ID14	RES	Okay. How often do you use data display functionality?	
42		INT5	Once every few days, I would say.	H-DD
43	ID15	RES	Okay. Do you use data display functionality to counteract any medical condition?	
44		INT5	No, no. For now, not.	PT-DD
45		RES	Okay. Do you think that, in your case, this functionality could be used in disease prevention and treatment in the future?	
46		INT5	Yes, I would say so. That this way, you have, for example, even your poles that you can check pretty easily, and most of the time, it is kind of accurate. For example, when I'm stressed or when I'm just like going for a quicker walk or something like that, it is kind of accurate. So, I would say that it might help with preventing. Or, like getting to know that my ranges are not high enough. Yes, I would say.	accuracy, PT-DD
47		RES	Okay. I think that right now, we can move to insights. This feature analyses user's data with AI-driven algorithm to create some sort of individualised advice that is based on your data, current habits and activity levels. Is it clear to you what this functionality is about?	

48		INT5	Yes.	
49	ID16	RES	Okay, so how do you feel about the ease of use interaction with insights that are generated by your device?	
50		INT5	So this is nice to see, because then it actually shows you how you individually, how your progress or lack of progress is. And then what are the ranges that you should be in, for example, that based on your age and your height and etcetera. For example, your pole should be lower at this rate of walking or something like that. I don't use it as often, to be honest. It's also connected with that it has to be over like longer time. Because they have to have a data to compare. But I would say that it's okay. As a basic user, I would say that it is accurate and I am okay with how it works.	accuracy
51	ID17	RES	Okay. Do you think that insight helps you reach your fitness and health objectives?	
52		INT5	They might I don't feel that they help me as much, but they are an important information that I can take to look at. I don't think it does like, I. but I do think that this is because of me, not because of the insights.	PE-AFHG-I
53	ID18	RES	Okay. Are you satisfied with the performance of degenerated insights?	
54		INT5	Yeah, I would say so. They are kind of accurate and yet they are actually connected with how I do perform or I don't perform.	accuracy, PE-PS-I
55	ID20	RES	Okay. Did you feel, to any extent, inclined to use insights because they are used by your colleagues and friends?	
56		INT5	No, no, for sure. I don't think I've ever talked with anyone about that, to be honest. So, no.	SI-I
57	ID21	RES	Okay. I think that you already mentioned it, but how often do you use insights functionality?	
58		INT5	Really rarely to me honest. It kind of appears every few weeks that I check it, and I'm just seeing how it works. But it's more of like checking it with something like that. It is not the sole purpose of me checking it. It's kind of like ohh, and let's see like how the insights are.	H-I
59		RES	Okay. Yes, I think that it totally make sense since there are produced next to some other functional piece that you are using, right?	
60		INT5	Yes.	
61	ID22	RES	Okay. Do you use insights to counteract any medical condition?	

62		INT5	No.	PT-I
63		RES	Do you think that these insights that are generated by your device could somehow be used in disease prevention and treatment?	
64		INT5	Yes, maybe. because they are individual's. So, it is like you personally, how you can like maybe not be healthier but be more in the range that you should be based on your weight, age, height and all of that. So probably it could.	PT-I, personalised
65		RES	Okay. Let's now move to gamification. So, in general, it refers to the use of game design principles in non-gaming scenarios to encourage users to stay on track and stay motivated through some sort of competition. In the case of fitness trackers, these gamified elements could include some challenges that you can take part in. Also, some badges that you can get achievements, rewards, social sharing through leaderboards and things like that. Is it clear to you what this functionality is about?	
66		INT5	Yes, it is clear.	
67	ID23	RES	Okay, so how do you feel about ease of use of participation in gamification in your device?	
68		INT5	It is really easy. I feel that there are a lot of challenges that you can do every day. For example, in the year that you did this and this, or like 7 trainings in a week, or there are also monthly challenges. Then also the gamification aspect like connected with other people. This is also really easy to just give challenges to other people. For example, in Apple Watch, there's circles that you have to close. So on closing the circles, the circles for me are really, really, really motivating to actually close it. Yesterday I've had like 10 left calories to do. I was actually walking around my room to just close the circles, so I would say that it works for me I am like a child. I have to have them closed it is really satisfying.	EE-G, social interaction, visualisation, motivating
69	ID24	RES	Okay. It leads us to the next question. Do you think that gamification helps you reach your fitness or health objectives?	
70		INT5	Yes, it does. It does. It is part of why I bought the watch because it really, really helps me to stay motivated, and to actually do your goals, to close the goals, to attain the goal.	PE-AFHG-G
71		RES	Reach your goals.	
72		INT5	Reach your goals. Yes, exactly.	

73	ID25	RES	All right. Okay. So would you say that gamification lives up to your expectations?	
74		INT5	Yes, I would say so.	PE-PS-G
75	ID26	RES	Okay. What about the accuracy? Are you satisfied with the accuracy?	
76		INT5	Yes.	PE-AS-G
77		RES	Something like elements.	
78		INT5	Yes, I would say that they are comparing with other people using it and all. I would say that they do are accurate.	population data
79	ID27	RES	Okay. Do you feel inclined, to an extent, to use gamification because it is used by your friends and colleagues?	
80		INT5	In a way. But it is also something that is maybe not so fun. Because of different watches, different producer, different firms that. It is really difficult to, for example, have the gamification aspect between products like Apple Watches, Xiaomi, this and that. I feel that this is something because I know like three people that do have Apple Watch in my close circle and there are a lot of people that also use other devices that I would love to have gamification aspect with. But it's not as easy. So I would say that I inclined maybe not to have. But let's say yes. My answer to the question is "Yes".	SI-GE
81	ID28	RES	Okay. How often do you use gamification functionality?	
82		INT5	Every day. Yeah, every day. Few times a day, yes.	H-G
83		RES	Okay. You use it daily, but how do you use it daily? Like what?	
84		INT5	For example, I check how many minutes of something, or how to get another challenge done, or when they're monthly challenges then, how many days left I do have to, or I check on people that I have challenges with, so other users'. That's that.	social interaction
85	ID29	RES	Do you use gamification in order to counteract any medical condition?	
86		INT5	No, just laziness. But it doesn't come. It's not good.	PT-G
87		RES	Okay. Do you feel that this functionality could be used by you in disease prevention and treatment?	
88		INT5	Yes, maybe. For motivational reasons, than, yes. Or to give to compare with people that like are in a normal health situation. If I had health problems maybe I would say so.	PT-G, motivating, awareness
89		RES	Okay. do you have anything that you would like to add to this study?	

90		INT5	I don't think so. I think I said everything that I wanted to. But it's really interesting topic. That's what I cannot. It's like fun too to look at it from another perspective.	
91		RES	Okay. So in this case, thank you very much for the participation.	
92		INT5	Thank you for choosing me to your Apple Watch user.	

Appendix 7 - Interview 6 (INT6)

Date: April 19th, 2023

Interview Length: 23 minutes

Language: English

No.	ID	Person	Transcription	Code
1		RES	I'm glad that you are here today. As you know, I'm master student in Information Systems at Lund University. Together with my friend, we are conducting this study to examine how specific IT functionalities of wearable devices influence the usage of such devices. Fitness trackers have many different functionalities that are used for self-monitoring. In this study, we are going to only focus on three of such functionalities, data display, insights and gamification. We recognise that some of these functionalities are intertwined and complement each other. However, I will do my best to keep us on track when we discuss specific functionalities. Before we begin, I'd like to inform you that none of your personal details will be disclosed, and if you feel uncomfortable with any of the question questions you have every right to abstain from answering and aboard the interview. Okay, do you have any questions so far?	
2		INT6	No, we can go ahead.	
3	ID1	RES	Okay. So what kind of wearable do you have right now?	
4		INT6	So I have a smartwatch. It's Garmin Fenix 6 Pro.	
5	ID2	RES	Okay. How long have you been using your fitness wearable tractor? Any previous trackers that you had previously?	
6		INT6	Okay. This is the first one that I use, and I have it for a year and a half.	
7	ID3	RES	Okay. And do you wear the fitness tracker all the time or only during specific activities?	
8		INT6	All the time.	use continuously
9		RES	Okay. That's included in your sleep, right?	

10		INT6	Yes.	
11	ID4	RES	Okay. What do you use your fitness wearable for?	
12		INT6	Once again. If you could repeat the question.	
13		RES	What for do you use your fitness wearable?	
14		INT6	Okay. First of all, to keep track of the steps. This is the first thing. Checking the hours, the current time. But, I'm mostly using it in the hiking trips. For example, I can navigate using the smartwatch. I can upload to the smart board, the GPX track, and I can be guided through it. It's the same for hiking, for the bike riding. This is the main usage for me for the watch.	step count, clock, sport
15		RES	Okay. Do use any specific functionalities on daily basis?	
16		INT6	On the daily basis, I'm mostly looking on the steps, and I'm checking on the app. Let's say, my stats for a day. If I have a longer walk during the day and if I start recording, start tracking the specific, let's say walk, then I'm also checking the stats for that longer walk.	
17		RES	Okay. As I understand, you use your fitness tracker with a dedicated smartphone application.	
18		INT6	Yes, that's correct.	
19	ID5	RES	Okay. And why did you decide to buy a fitness tracker?	
20		INT6	The main reason that I bought this tractor, this model is that he has the features regarding the maps and the navigation because I like to hike, outdoors things, and these kind of stuff. So that was my biggest reason to buy a smartwatch. For example, in my smartwatch, I don't have any notifications from my phone because I don't use it for that purpose.	
21	ID6	RES	Okay. In general, how do you feel about using your fitness tracker? Are you satisfied with it?	
22		INT6	Yes. I like it a lot.	HM-GE
23	ID7	RES	OK, and did you feel somehow influenced by other people to buy and to adopt a fitness tracker?	
24		INT6	Yes. Little bit because I saw that generally in the market there. It's more the people are more interested in this kind of wearables that from year to year. Many people are getting new smartwatches, smart bands. From there I started exploring this topic. I found a few forums where the people were saying about the functionalities that you can use for the activities that I'm doing in my free time. So. Yes.	SI-GE

25		RES	Okay. Would you say that fitness tracker is benefiting your interaction with other people? Your friends, for example.	
26		INT6	Yes. A little bit because I'm also sending my results from my hikes from my bike rides to Strava. On Strava, I have like few friends, so we gave each other kudos so. We can say that.	social interaction
27		RES	So you're also using an external application, right? So not only the application from the vendor, but also Strava, yeah, application, which is something external, right?	
28		INT6	Yes.	
29	ID8	RES	Okay. And do you think that the manufacturer, so, in this case, Garmin offers enough technical support and training materials for resources regarding each of the functionalities that you have in the device?	
30		INT6	For the ones that I use, I believe that it's enough. But probably I'm not using all the functionalities that I have in my smartwatch.	FC-GE
31	ID9	RES	Okay. Let's move to data display functionality. For this functionality, users can see and monitor the data that is collected by the device. And they can analyse it and interact with it. It is despite in various forms, for example, in form of some descriptive statistics and charts. How do you feel about the ease of use and interaction with data display?	
32		INT6	I think that in Garmin, it is pretty good. When I use on the daily basics, the app it's showing me the main stats about the distance that I walk through the day. How many steps it's giving me some indicators about the quality of my sleep and my body battery. I also like when I track a activity, and then after the tracking activity, I'm getting the report on that activity. It also has a lot of interesting informations.	EE-DD, index, sleep
33	ID10	RES	Okay. Would you say that data display functionality is helping you reach your fitness and health objectives?	
34		INT6	It motivates me to be more active. For example, the Garmin, this steps right? I know that in the other, smartbands for example, you gave yourself target for a day. But Garmin actually, more advanced way, and he basically by himself set your goals for the steps for a day, and it sometimes motivates me to make additional activity to go on a walk to get to the targeted number of steps for the day.	PE-AFHG-DD, motivating

35	ID11	RES	Okay. Are you satisfied with the performance of data display functionality? Here I'm not talking specifically about the accuracy of the data because it might be influenced by some sensors that might be not working perfectly. But in general about how data is displayed and whether it is accurate in the way it is displayed. So, in general, does data display live up to your expectations?	
36		INT6	Yes, I believe so. I'm really satisfied with the information that the app is presenting. so, yes.	PE-PS-DD
37	ID12	RES	OK. And are you satisfied with the accuracy?	
38		INT6	Generally, yes, there are sometimes problem with the GPS. But something may be different. For other stats, I assume yes because even if I looking on the body battery, this indicator which I have in the app. It's often, let's say it's almost always accurate with my actual feeling about how I feel during the day.	PE-AS-DD, index
39	ID13	RES	Okay. Do you, to any extent, feel inclined to use data display functionality because it is used by other people?	
40		INT6	No, I wouldn't say so.	SI-DD
41	ID14	RES	Okay. How often do you use this functionality?	
42		INT6	To see, to look on my stats?	
43		RES	I mean the data displayed. General, how often do you use that?	
44		INT6	Yes. So basically on the daily basic, so which day I'm tracking how I performed during the day?	H-DD
45	ID15	RES	Okay. Do you use data display in order to counteract any medical condition?	
46		INT6	no.	PT-DD
47		RES	Okay. Would you say that, in your case, this functionality of data display could be used in disease prevention and treatment in the future, for example?	
48		INT6	It could be because if that smartwatch is monitoring my body 24 hours a day. So, probably it could say, let's say, blood pressure is not okay or something like that. So, potentially yes.	PT-DD
49	ID16	RES	Okay. Great. Let's now move to the insights. This feature analyses the user's data with AI-driven algorithms to create individual advice based on the user's current habits. How do you feel about the ease of use and interaction with insights that are generated by your device?	

50		INT6	It's pretty pretty easy to use. Because the main thing that I'm using which is driven by the device. I believe it's the number of steps that we should be doing on the daily basics. I don't use any other functionality, if I'm aware of it.	EE-I, step count
51		RES	Okay. So you mean by the steps you mean the steps that the Garmin devices suggesting you that you should do?	
52		INT6	Yes.	
53	ID17	RES	Okay. So do you think that insights can help you reach your fitness and health objectives?	
54		INT6	Yes, I think so. Because sometimes you don't even have the knowledge that you didn't move enough during the day, right? But when you look on the smartwatch or on the app you can see that the number of steps suggesting that you are pretty whole day sitting without enough of movement.	PE-AFHG-I
55	ID18	RES	Okay. Are you satisfied with the performance of the generated insights?	
56		INT6	Yes, I believe that they are good.	PE-PS-I
57	ID19	RES	Are you satisfied with the accuracy of the insights that are generated?	
58		INT6	Yes, they also seems to be pretty accurate.	PE-AS-I
59		RES	And have you had any problems with the accuracy before or not?	
60		INT6	No, I don't remember of any problems with that.	
61	ID20	RES	Okay. Do you feel, to any extent, inclined to use insights because they are used by your peers and colleagues?	
62		INT6	No, not really. I'm not focusing on that.	SI-I
63	ID21	RES	Okay. How often do you use insights functionality?	
64		INT6	Yes. So on daily basis in terms of those steps, this is the one that I'm using and-	H-I
65		RES	Okay.	
66		INT6	-Some very basic.	
67	ID22	RES	And do you use insights to contract and medical condition?	
68		INT6	No.	PT-I
69		RES	Do you think that such insights that are generated by the device could be used in disease prevention and treatment somehow?	
70		INT6	Yes, I believe so, yes.	PT-I
71		RES	Why do you think that?	

72		INT6	Because we are giving for the device so many information about in the way how we live. I believe that the same informations are gathered through the entire population. So based on that, the device the application could generate some insights about the healthcare. Well, the health of the body and this kind of information.	population data
73		RES	Okay. Do you think that it should be somehow consulted with the physicians, but you before you applied to such insights, or would you say, would you believe the insights like straight away?	
74		INT6	No. I would need to consult with some expert, like a doctor.	professional personnel
75	ID23	RES	Okay. We can move to gamification right now. In general, it refers to the use of game design principles in non-gaming scenarios to encourage users to accomplish specific objectives by boosting their motivation through competition and indicates of fitness trackers. This means some challenges, leaderboards, and comparing some specific scores with other people. How do you feel in general about the ease of participation in gamification in your device?	
76		INT6	It's pretty easy because in Garmin there's something called badges, so if you, for example, do specific work for like 10 kilometres or something like that. You can get a badge. Or if you are doing a walk in the environment being on the temperature is below zero. You can get another badge. So it's pretty easy because it's automatic when you achieve some kind of thresholds.	EE-G, awards, motivating
77	ID24	RES	Okay. Would you say that gamification is helping you reach your fitness and health objectives?	
78		INT6	General, yes, maybe not so often, because those the way how I use it, I only focusing on those badges. So I don't do any other activities. So sometimes when I want to achieve the badge, I'm even want to spend more time, for example, to walk longer distance to achieve specific threshold. So in that way, then yes, it's motivating to do an extra activity.	PE-AFHG-G
79	ID25	RES	And are you satisfied with the performance of gamification? Does live up to your expectations?	
80		INT6	It's pretty good, but I would like to have more levels to accomplish. Maybe they should be not to increase so much. But they could be like a smaller ones when you can get them more often.	PE-PS-G, level threshold

81	ID26	RES	Okay. Do you think that gamified elements are accurate? So what I mean by this is whether, for example, when you are trying to complete the challenge. And, let's say this is a running challenge and you are only walking. And still you can manage to complete this. So that would be an example of accuracy in this case.	
82		INT6	Okay, so I didn't check it in such way, so it's hard to me to. Or let's put like this. In my case, I always get the badge for the activity that I already did. So for me, it was never wrongly given.	
83	ID27	RES	Okay. Do you use gamification because it is used by your friends or colleagues?	
84		INT6	Not really, it's I'm using it basically because the application. Have it. It's suggesting it by itself.	SI-G
85		RES	Okay. And you mentioned Strava at the beginning. Are you uploading your data and then comparing it to the other people on Strava, for example?	
86		INT6	No. I'm only publishing, but I'm not comparing to any other people.	
87	ID28	RES	Okay. How often do you use gamification functionality?	
88		INT6	It's whenever the application told me that there is something to do or that I did already. So it's not often.	
89		RES	Okay, so like once a week, a few days a week somewhere like that?	
90		INT6	Once per two weeks like that, something like that.	H-G
91	ID29	RES	Okay. Are you using gamification to counteract any medical condition right now?	
92		INT6	No.	PT-G
93		RES	Do you think that this functionality could be used to do that? So in prevention and in treatment?	
94		INT6	I can imagine. That you can have like a badges for increased activity or something like that, or do accomplish some activity goals.	PT-G, motivating
95		RES	Okay. So you think that maybe you could use the gamified elements if you had some problems health problems that could be somehow solved by increased, for example, activity, right?	
96		INT6	Yes.	
97		RES	Okay. great. So do you have anything else that you would like to add to this study?	
98		INT6	I don't know. I believe that I told you them the most cases, how I'm using the the device. So, if you have anymore questions just. Happy to help.	

99		RES	No, that's actually everything. I'd like to thank you for your participation.	
100		INT6	Okay, my pleasure.	

Appendix 8 - Interview 7 (INT7)

Date: April 20th, 2023

Interview Length: 28 minutes

Language: Polish

No.	ID	Person	Transcription	Code
1		RES	<p>Then as you know I'm a Master's student in Information Systems at Lund University and together with a friend of mine we're doing this study to investigate how the different functions of smartwatches and physical activity measuring devices affect the use of such devices. In the course of this study I will use these names interchangeably and as you know smartwatches have many different functionalities that facilitate the measurement of various parameters about one's health and training, examples of such functionalities include basic automatic data collection displaying this data, various notifications, gamification, or interaction with friends. In this study, we will focus on data display, algorithm-generated suggestions and gamification. Some of these functionalities are strongly interconnected and complement each other, but I will try to talk in such a way that we always know exactly what is going on, so to speak. Before we start I would like to inform you that none of your personal information will be disclosed and if you feel uncomfortable with any of the questions and you have every right to refrain from answering and stop this conversation. Do you have any questions so far?</p>	
2		INT7	No, we can get started.	
3	ID1	RES	<p>Okay in that case we'll start with more general questions and then we'll move on to these specific functionalities. What kind of watch do you currently own?</p>	
4		INT7	Garmin 6S	
5	ID2	RES	Okay, and how long have you been using Smartwatches?	

6		INT7	I've been using smartwatches for at least five years, even more than five years.	
7	ID3	RES	And do you wear your watch, which you currently own, all the time or only during certain activities?	
8		INT7	No, I wear it all the time, I always have it with me, I only take it off for charging.	use continuously
9	ID4	RES	Okay, and tell me what do you use your Smartwatch for?	
10		INT7	I use my Smartwatch primarily, I measure my steps with it I can always see how many I have, of course the time is standard, I look at my workout status, how much I can exercise, it always tells me and it's always a suggestion to me how much rest I should get. I think that's it.	step count, clock, sport, rest
11	ID5	RES	Okay, and why did you decide to buy a Smartwatch?	
12		INT7	Because I like to walk, I generally run it always measures my distance and my steps, and above all it has a very nice design. So feminine it is, this model of course.	design
13		RES	Okay and you bought this model for any specific functionality?	
14		INT7	No	
15	ID6	RES	Okay, and tell me how do you use your Smartwatch, are you generally happy with it?	
16		INT7	Yes I'm very satisfied, it's quite clear, it has clear functions and I don't have any reservations for it.	HM-GE
17	ID7	RES	Okay, and tell me did other people around you for example friends, acquaintances have any influence on you starting to use the Smartwatch?	
18		INT7	No, they didn't have any influence on it It was my choice and only my choice.	SI-GE
19		RES	Okay, and do you see your Smartwatch as a symbol of your lifestyle?	
20		INT7	I think so and it's like that all the time with me, I rarely ever take it off although for bathing I do take it off. I know a lot of my friends even take baths with them, I don't, but yes Yes as much as possible it sets goals somewhere in there.	SI-GE
21		RES	Would you say it has a positive effect on your relationships with your friends?	

22		INT7	I think it does. I think it does, generally we also talk a lot about smartwatches, when someone buys a new smartwatch we always talk about it too and somewhere it always translates that maybe they've just bought themselves a newer model, but generally it's good. I think it's good it's a very good model for me So that's it.	social interaction
23	ID8	RES	And in your opinion, does Garmin offer enough technical support and training material for the functionality that you have on your watch?	
24		INT7	As far as I'm concerned, yes. I think Garmin also has more advanced models where you can use them, for me exactly this model is sufficient I don't need a bigger watch or a watch that for example charges by solar or has some other features.	
25		RES]	What I mean here is if you have I don't know you see a functionality and you don't understand what it is about Do you think the manufacturer offers technical support and training material that you could use to understand what the functionality is about.	
26		INT7	I've never had any trouble with it, trouble understanding it.	
27		RES	Okay, then let's move on to the data display function. Generally with this functionality, users can see and monitor the data that is collected by the device usually in a dedicated application and that data is displayed in the form of various statistics and graphs and other visualisations, for example it could be just a simple line graph, it could be some kind of map, some kind of summaries and that kind of thing. Is it clear to you what this in these functionalities is about?	
28		INT7	Yes	
29	ID9	RES	Okay then tell me what you think about the ease of use and the interaction with the data that's displayed as statistics and graphs on your device?	
30		INT7	I don't know if I understood the question correctly, you mean all the statistics that are there?	
31		RES	Yes, do you find it easy to use as you see how they are displayed? So do you have any graphs and stats, for example post-run summaries, when you look at that do you find the interaction with that and the ease of use easy to say or not?	

32		INT7	I don't have a problem with that either, everything is always clear after the run for me, visually the same, it's well done I think. I say I don't have a problem with it.	EE-DD
33	ID10	RES	Would you say that this data display feature, all these graphs and stats that you can then analyse help you achieve your fitness and health goals?	
34		INT7	Definitely yes, definitely yes, I know when I need to stop, so to speak, stop my workouts, for example, because somewhere my health doesn't allow me to do it. In the same way, the Garmin tells me when I'm running too much, I'm exercising too much or there's not enough exercise for example, somewhere I need to put more on something. I look at it as much as possible and it helps me a lot.	PE-AFHG-DD, rest
35	ID11	RES	Are you happy with the data display feature, in other words, are all those graphs and stats that you see on the garmin meeting your expectations?	
36		INT7	Yes, they meet my expectations.	PE-PS-DD
37		RES	Can you elaborate a little bit more on that?	
38		INT7	Statistics help me to achieve my goals, so I always look at them and they are very transparent to me Well, and I say, I don't have any trouble to read it and they are very important to me these graphs.	
39	ID12	RES	And are you happy with the accuracy of the data displayed?	
40		INT7	I've never thought about it maybe a lot, but what Garmin gives us is enough for me at the moment, so to speak.	PE-AS-DD
41		RES	So the accuracy that's in the garmin in terms of the data that's collected and displayed is tp enough for you at the moment and you don't see any problems with it yes?	
42		INT7	Yes, well I don't run with an extra belt, maybe if I ran with a belt it would be even more accurate yes. The belt reading, but we're talking about the watch all the time as well.	extensive equipment
43	ID13	RES	Do you feel inclined to use this data display functionality because it is used by your friends?	
44		INT7	One more question please.	
45		RES	Does the fact that your friends, for example, are using this data display functionality, that is, for example, analysing these graphs , looking at these graphs of statistics make you also willing to do that and use this functionality for that?	

46		INT7	I mean I've always looked at those statistics like that and I always look after a run whenever I finish a run, the first thing is I go in and look at how you ran, what your heart rate was, your fitness threshold. Those are very important things for me, I pay very close attention to that	
47	ID14	RES	I think you've answered this a little bit already, but how often do you use the stats and graph display function?	
48		INT7	Always after a run yes, which is I don't know twice a week now.	H-DD
49		RES	And outside of running do you look at what your watch is generating?	
50		INT7	I look because sometimes it tells me that I need to rest longer for example so that I haven't slept enough for example and I still need to extend my recovery for example.	
51		RES	Okay in this context you're also looking at some specific charts?	
52		INT7	I don't look at charts, I just look at as much as he tells me or I check that for example Actually there was more stress somewhere then I know that I actually need to lengthen my recovery.	
53		RES	Okay and that stress is displayed on some sort of graphs?	
54		INT7	Yes it is.	
55		RES	So you're suggesting what's shown on the graph?	
56		INT7	Yes.	
57	ID15	RES	And do you use the statistics and charts that are shown to counteract any specific diseases and improve your health?	
58		INT7	Yeah, I use that as much as possible. Like I said, the Garmin prompts if I'm doing too much exercise for example I'm running too much and it's like the same kind of monotonous runs all the time for example and he says it's for example too much of this I've got it all over the top.	
59		RES	I think these are suggestions And I'm referring to the stats and graphs displayed. Are you using these statistics graphs to counteract any diseases?	
60		INT7	No, no.	PT-DD
61		RES	Okay, and do you think that this functionality i.e. this display of data in different forms can be used by you in the prevention and treatment of diseases in the future?	

62		INT7	I think yes, I think yes. I would have to maybe go into it more and I think I would use it.	PT-DD
63		RES	Okay then let's move on to the suggestions that I think you've alluded to a couple of times already is in general this feature analyses user data using artificial intelligence based algorithms to create personalised advice that is based on the user's current habits and activity level and these can be further used by you to make more informed decisions	
64	ID16	RES	Then what do you think of the ease of use and interaction with the suggestions generated by your Smartwatch?	
65		INT7	I don't really understand the question now, that it's also about these graphs, like it shows me them or not?	
66		RES	No, no, now I'm referring to these suggestions and recommendations that Garmin generates for you based on your various stats, I don't know for example your sleep, your physical activity and I'm asking if it's how this data is shown and given to you and how you access it or for you this ease of use of what's offered by Garmin. What do you think about the ease of use of that?	
67		INT7	I think it's very transparent well everything is nicely and beautifully described and displayed. If someone by the way, also there are descriptions yes, if we have for example a recovery he is Garmin describes you can go in and he describes everything I think if someone needs something more, maybe they should, I don't know, maybe there are some more advanced, I don't know if it's depending on the watch and the level what data it contains ,because not every watch has the same functions and every model also has different functions. So I think what I have on my watch is very clear. And when I don't know, I reach out for advice as much as possible.	EE-I, in-app guidance
68	ID17	RES	Do you feel that these recommendations that are produced by your watch help you achieve your fitness and health goals?	
69		INT7	Yes, as much as possible, I try to stick to it but I also still look at my body.	PE-AFHG-I
70		RES	How does that help you, these suggestions and recommendations?	
71		INT7	The suggestions and recommendations I always just look at them, I look at how they interact with my health and my body, how I feel on any given day.	

72		RES	Okay, and that helps you make decisions in some way?	
73		INT7	Yes, yes it helps me to make a decision, whether I need to prolong this recovery for example, or whether I can continue though, whether I can for example speed up and go out I don't know whether to go take more steps or go for a further run though.	plan
74	ID18	RES	And are you happy overall with these suggestions, with the performance of these suggestions that you're getting? Are they generally meeting your expectations?	
75		INT7	Yes, they meet my expectations.	PE-PS-I
76	ID19	RES	OK and how satisfied are you with the accuracy of the suggestions that are generated by the Smartwatch?	
77		INT7	Whether it's such accurate data I'm not sure, but I always take it into account and try to adapt to it.	
78		RES	And I don't know if you're stating that it's not accurate then do you think that this functionality i.e. these suggestions, are useful despite the sometimes low accuracy?	
79		INT7	I think it is and here I trust the people who created it and I think someone has worked a lot on it and has maybe more experience with it, also as much as possible.	
80	ID20	RES	Are you inclined to use this suggestion more because they are also used by your relatives and friends?	
81		INT7	I think yes. Yes, as much as possible. Yes.	SI-I
82		RES	Can you elaborate more? Your close family use them And do you compare it in any way or what does it look like?	
83		INT7	Yes as much as possible I always compare such suggestions also with my husband or with other friends, but you know that we are of different ages and you know that these suggestions can be different for each person, for each particular person, but we always compare and tell each other.	
84	ID21	RES	Okay and how often do you use these suggestions generated by the watch? Once a week, every day, or what does it look like for you?	
85		INT7	I think yes 2-3 times a week. Obviously two three times a week.	H-I
86	ID22	RES	Okay, and do you use these suggestions to counteract any diseases and improve your health?	

87		INT7	I always take it into account, but first of all I take into account at a given moment how I feel and then I decide whether I go out to train or whether I stay at home.	actual feeling
88		RES	But do you use these suggestions to counteract any illnesses?	
89		INT7	No	PT-I
90		RES	And do you think that these functions this functionality of these suggestions and recommendations could be used by you in the prevention and treatment of diseases?	
91		INT7	I don't know I can't answer that.	PT-I
92		RES	Okay then let's move on to gamification. Gamification generally refers to the use of principles used in games in such non-game scenarios. That is, generally to encourage users to achieve certain goals by increasing their motivation and in the case of yyy smartwatches, these are often some kind of challenges of prizes that can be won and competition with your friends	
93	ID23	RES	Then tell me what you think about the ease of participation in gamification that is offered by your Smartwatch?	
94		INT7	I think it is very cool. When I can I join such a competition and quite often I look in to see how others are competing	social interaction
95		RES	Okay but do you find it easy to use?	
96		INT7	Yes, yes, very easy.	EE-G
97	ID24	RES	In your case, do you feel that these gamification elements of, for example, taking part in different challenges and competing with other friends helps you to achieve your fitness and health goals?	
98		INT7	I think they do, although I'm not the kind of person who, so to speak, non-stop sits around and looks oh this one took more steps today than I need to go and do that too not so no.	PE-AFHG-G
99		RES	And in terms of, for example, challenges when you're competing against yourself?	
100		INT7	Well when I'm competing with myself I definitely put more of a spin on it and try to do it.	
101		RES	Okay do you think it has a positive effect on your fitness and health goals or does it help you actually achieve them?	
102		INT7	Yes, it definitely helps me.	

103	ID25	RES	And are you generally happy with the gamification and those gamification elements that are available on your watch?	
104		INT7	Yes I am satisfied.	PE-PS-G
105		RES	Is there anything that bothers you about it or you think it could be improved?	
106		INT7	I haven't really delved that much into what the Garmin gives me.	
107	ID26	RES	Are you happy with the accuracy of the gamification, that is, for example, is everything properly counted when you take part in some kind of challenge?	
108		INT7	I've never had a problem but I've also never really delved into it so to speak I always take what the Garmin gives me in this competition If that's what it tells me then I think that's what it was.	PE-AS-G
109	ID27	RES	And do you feel more inclined to use gamification because it's used by your friends?	
110		INT7	No, I join different competitions.	SI-G
111		RES	OK so the fact that your friends, for example, are taking part in some kind of challenge doesn't matter to you and you don't compare yourself?	
112		INT7	No	
113	ID28	RES	OK and how often do you use the gamification feature on your watch?	
114		INT7	Quite often, the gamification is also enabled you know that period so from to for example, and generally they are enabled all the time and all the time generally you can join a competition so.	H-G
115	ID29	RES	And do you use gamification elements to counteract specific diseases?	
116		INT7	No.	PT-G
117		RES	Okay, and do you think this feature could have been used by you in the future for disease prevention and treatment?	
118		INT7	I think in the future yes.	PT-G
119		RES	And in what way?	
120		INT7	Well I don't know yet, I think I'd have to think about it a little bit, how does this gamification affect me a lot, maybe sometimes it would be worth letting go just for the sake of health.	
121		RES	Okay is there anything else you would like to add to this study?	
122		INT7	No, thank you very much.	
123		RES	Okay in that case thank you very much for participating in this study.	

Appendix 9 - Interview 8 (INT8)

Date: April 20th, 2023

Interview Length: 31 minutes

Language: Polish

No.	ID	Person	Transcription	Code
1		RES	I'm very happy that you're here today and as you know I'm a master's student in information systems at Lund University and together with a friend of mine we're doing this study to investigate how the different functions of smartwatches and physical activity devices affect the use of such devices. I will use these names interchangeably throughout this study. As a user, you know that smartwatches have various functionalities that facilitate the monitoring of different parameters on health and training status. Examples of such functionalities include, for example, the automatic collection of data, the display of this data, the notifications you receive, suggestions, gamification or social interactions you can use. In this study, we will focus on data display, suggestions and gamification. We know that some of these functionalities are strongly interconnected and complement each other, but I will try to speak in such a way that it is always clear which functionality we are talking about. Before we start I would like to inform you that none of your personal information will be disclosed and if you feel uncomfortable with any of the questions I ask you have the right to refrain from answering and stop the conversation. Do you have any questions so far?	
2		INT8	No, I don't.	
3	ID1	RES	Okay then we'll start with more general questions and then move on to specific functionality. Tell me, what kind of watch do you currently own?	
4		INT8	Garmin, two, one model is the Instinct 2 and the other model is the Forerunner 945.	
5		RES	Okay, so at this point you're using two watches yes two SmartWatches?	
6		INT8	Yes, yes.	
7	ID2	RES	Okay, and how long have you been using smartwatches so generally?	
8		INT8	Generally it's about five years of which Garmin for about four. Four, it'll be four years in December.	

9	ID3	RES	Do you wear your watch, or watches, all the time only or only during certain activities?	
10		INT8	All the time, just one of course, but all the time.	use continuously
11	ID4	RES	Okay, tell me what you use your Smartwatch for?	
12		INT8	Almost for everything, it's hard to say what I don't use it for. I use it for physical activity, to monitor health data, to measure the time of doing certain activities, I practically use it non-stop for something.	sport
13		RES	And what physical activities do you use it for?	
14		INT8	Running, swimming, cycling, walking, hiking, basically any kind of activity. If I'm kayaking it's also for canoeing. For any kind of activity I do.	
15	ID5	RES	Why did you decide to buy your first Smartwatch, hereafter SmartWatches?	
16		INT8	Smartwatch is for being able to measure your pace while running. Mainly for that, because as a Smartwatch you know such reading of messages and so on I also use it, well but I bought the first one because of the activity and each subsequent one because of the development of the technology of these activities.	running pace
17		RES	Okay, and did you buy your current Smartwatch for any specific functionality?	
18		INT8	I bought this latest Instinct 2 because I like the look of it and because of the latest technology especially the heart rate measurement. And also because of the length of time this watch lasts without charging.	design, heart rate, battery life
19		RES	And do you use any dedicated app for your Smartwatch?	
20		INT8	With the current one I practically don't, I practically just use what's built into the watch unless it's the Garmin Connect app which collects data and images it on the phone then yes, of course.	
21	ID6	RES	Okay and tell me how you use your Smartwatch in general, are you happy with it?	
22		INT8	I'm using it very well it's definitely better, it works better than previous versions and it's getting more reliable.	HM-GE
23	ID7	RES	And did other people around you, for example your friends, family, acquaintances, did they have any influence on you starting to use and buying a smartwatch, that is, starting to use it?	
24		INT8	No, it's me influencing my family to buy watches rather than my family influencing my preferences.	SI-GE

25		RES	And do you see your Smartwatch as a symbol of your lifestyle	
26		INT8	It's hard to say, no, I rather haven't thought about it. Although you could say that it does have some sort of lifestyle impact there, because getting through the steps, the floors and so on, it's more of just the watch just letting me know that, well I try to do that every day.	SI-GE
27		RES	And does your watch have any positive effect on your relationships with others, with your friends or family for example?	
28		INT8	I haven't thought about that either, but rather yes, because we can see each other's activities and so on so it definitely has some effect on the relationship.	social interaction
29	ID8	RES	And in your opinion, does the manufacturer of your Smartwatch, which in this case is Garmin, offer enough technical support and training material for each of the functionalities that you have available on the watch?	
30		INT8	I think yes in terms of Garmin's support up to the user manual and so on it's very extensive and I think a lot of new users are even intimidated by the amount of this material and so they don't get familiar with all these features.	FC-GE
31		RES	So I take it you've had the opportunity to use these various materials and technical support?	
32		INT8	Yes yes, and technical support and materials, especially on the first watches, because on subsequent watches it's so repetitive that there's no need for that. Although if I have a problem then I check in the manual to see if it's described, and I've even had the opportunity to contact Garmin support to explain the functionality.	
33	ID9	RES	Okay, let's now move on to the data display functionality. With this functionality, users can see and monitor the data that is collected by the device and this functionality actually allows you to interact with this data by displaying it in the form of various statistics, graphs and other visualisations. Tell me, what do you think in general about the ease of use and the interaction with the data displayed as graph statistics?	
34		INT8	Yes, I think they're quite well done, quite well visualised and that contributes to the ease of reading the data.	EE-DD
35		RES	And in what cases, for example, do you use these functionalities?	

36		INT8	In cases for example, How many steps a day have I taken or sleep status, stress, heart rate, those are the main ones that I use on a daily basis.	sleep, stress, heart rate
37	ID10	RES	And would you say that the data display feature helps you achieve your fitness and health goals?	
38		INT8	Does it help you achieve? I wouldn't call it that way, it's more to monitor and so to speak to see if my wellbeing agrees with what the watch is monitoring, which is heart rate, stress.	PE-AFHG-DD
39	ID11	RES	Overall, are you happy with the data display function or does it meet your expectations?	
40		INT8	Yes I am satisfied, it meets my expectations. I think the data is presented clearly enough that there's no problem there.	PE-PS-DD
41	ID12	RES	Okay, and are you satisfied with the accuracy of the data displayed?	
42		INT8	Yes I'm satisfied, I use other Garmin sensors as well, but generally so for everyday use what's built into the watch is sufficient.	PE-AS-DD
43	ID13	RES	Do you feel in any way inclined to use this data display functionality because your friends are using it, that is, for example, the fact that your friends are analysing this data in these graphs makes you want to do it?	
44		INT8	Rather, it's me urging my friends to use the graphs data, not the other way around.	SI-DD
45	ID14	RES	And tell me how often do you use the functions of the chart statistics displayed?	
46		INT8	Several times a day	H-DD
47	ID15	RES	Okay, and do you use the displayed statistics and charts to counteract any particular disease?	
48		INT8	Yes, yes, I certainly do. You know, the data on heart rate variability as well as stress, in my experience shows us earlier, before we even start to feel it, that something is going wrong in the body.	
49		RES	Okay, but it's my understanding that in your case you were using it to counteract some kind of heart rate related illness, hypertension for example?	
50		INT8	No, when I had problems with hypertension I didn't have the Smartwatch yet, but any colds, COVID, it was quicker to see on the watch that something was going on than to feel it.	PT-DD, hypertension

51		RES	Okay, so my understanding is that on a day-to-day basis with this, you don't use this particular functionality of the statistics displayed to counteract a particular illness, but when you were going through some illnesses for example, a coronavirus or a common cold, based on the graphs you were able to tell that what was something was wrong with your body. Do I understand that correctly?	
52		INT8	Yes you understand correctly, that's what I meant.	
53		RES	And do you think in general that this functionality could be used by you in the prevention and treatment of some diseases in the future?	
54		INT8	I think yes, well in the case of people who have problems with hypertension and so on, it's as advisable as possible. And from what I've heard the latest Garmin models are supposed to have blood pressure measurement as well, also here it will be very good. I know that there are also smartwatches that can measure the state of sugar in the body, so for diabetics such a thing is most advisable in prevention now.	PT-DD, blood pressure, blood glucose
55	ID16	RES	Okay then, let's move on to the suggestion and recommendation function. This function generally analyses user data using algorithms that are based on artificial intelligence and from this they create personalised advice that can be used by users to make more informed decisions. Tell me what you think of the ease of use and interaction with the suggestions that are generated by your Smartwatch?	
56		INT8	I don't understand the question	
57		RES	Are the suggestions and recommendations that are generated by your Smartwatch clear to you, do you have easy access to them and do you always understand what they are about?	
58		INT8	When it comes to, the only thing I can think of is the state of the body's load after a workout then yes, I take into account what is displayed there. However, it doesn't affect, it's not a major factor in how I'm going to complete the workout. Whereas when it comes to sleep characteristics and what the AI shows then yes, I take that in, but it's also not some kind of determinant that I should do that.	
60		RES	Okay but in general do you think it's easy to use?	
61		INT8	Yes yes I think the messages are succinct and explained enough that it's not likely to be a problem here.	EE-I

62	ID17	RES	And do you think the suggestions help you achieve your fitness and healthy goals?	
63		INT8	They help, but they're not some kind of core guidance that I follow	PE-AFHG-I
64		RES	And how do they help you?	
65		INT8	For example, let's go back to that training load again. If it says there that I should rest and so on. Well. Then I consider resting. Although it happened to me a couple of times that I didn't listen to that suggestion and then a couple of days later it turned out that the body was really tired. It didn't have the strength anymore, and you had to do that rest anyway. Maybe if I had listened to that suggestion earlier and let go of that training or other activity, maybe the body wouldn't have been so overloaded, and I wouldn't have got sick of it later.	
66	ID18	RES	Okay and are you generally satisfied with the performance of these suggestions that you're getting? Are they meeting your expectations?	
67		INT8	Yeah, they're more like this. Well you know these are just suggestions and what I do is still up to me and my competition or training plan.	PE-PS-I
68	ID19	RES	Okay, and are you happy with their accuracy?	
69		INT8	With the accuracy it's hard for me to discuss here because I'm not some kind of training or other expert to be able to challenge them, so to speak, with some of my experiences.	PE-AS-I
70		RES	And if you were to make a subjective comment on that, for example? That is, for example, if the Smartwatch suggested to you that you should rest, and you knew that you were feeling very well and that you were able to do a workout today, for example. Have you had a situation like this?	
71		INT8	Yes, like I said I had such a situation or that I had such a plan, he said I was overloaded, that I should rest, and yet I did two days in a row of consecutive activities, but I say after a couple of days I even couldn't, it was difficult for me to do the simplest activities, let alone those, those medium activities. Also the suggestions were there, but I didn't listen to them.	
72		RES	Okay, so that means if I understand sometimes they work in your case and sometimes they don't?	
73		INT8	I mean not really that they don't work because like I said I didn't listen to the suggestions, I did my own thing and then I was really overloaded.	

74		RES	But are there any examples where they don't work in your opinion?	
75		INT8	I mean I say some of the suggestions I'm just familiarising myself with, but somehow I don't refer to them. When it comes to sleep, for example, if it says I'm not getting enough of a certain type of sleep I can't somehow influence it. That is, for me it is information that I acknowledge, but it does not cause me, for example, to go to bed at a different time than scheduled.	
76	ID20	RES	Tell me do you feel in any way inclined to use these generated suggestions because your friends are doing it?	
77		INT8	No, friends don't have any influence of any kind in terms of using these suggestions or not using them.	SI-I
78	ID21	RES	Okay and how often do you use these suggestions and recommendations that are generated by your watch?	
79		INT8	On a daily basis. Mainly the sports ones of course, the ones about sleep or there health I get acquainted with, but somehow I don't use them in any depth.	H-I
81	ID22	RES	I see, and do you use these suggestions to counteract any particular illness?	
82		INT8	I think it's been said, it's hard to make suggestions.	
83		RES	Different, because earlier I was asking specifically about this data display and now I'm asking about these suggestions. Are there any of these suggestions that help you, for example, to fight a disease?	
84		INT8	No, I don't recognise any such suggestions from the watch when it comes to illness, just by analysing just what we were talking about earlier, stress, heart rate and so on I know that something is wrong with the body, but the watch doesn't give me any suggestions that I should do anything differently when it comes to counteracting illness.	PT-I
85		RES	And do you think that this functionality i.e. these different suggestions and recommendations, could be used by you sometime in the future for disease prevention and treatment for example if there were some new suggestions added?	
86		INT8	Well at the moment I think with my state of health there's no need for that, but as I said before, in terms of diabetics or people with blood pressure problems I think yes they would be helpful. Anyway, blood pressure testing would be a cool feature because it's every healthy person should be testing their blood pressure.	PT-I

87		RES	Okay, then let's move on to the last functionality which is gamification. Gamification generally refers to the use of game rules in non-game scenarios to encourage users to achieve certain goals by increasing their motivation mainly through competition. In the case of watches and smartwatches, such elements of gamification could be, for example, various challenges, rewards and achievements that can be earned and generally competing with friends by comparing oneself in various rankings.	
88	ID23	RES	Tell me what you think about the ease of participating in gamification that is offered on your watch?	
89		INT8	They are very easy to use as well as to compare data, it is very well put together.	EE-G
90	ID24	RES	And do you think the gamification elements help you achieve your fitness and health goals?	
91		INT8	Yes, because I do those challenges that Garmin gives, but in the groups that I'm in also every month some sort of competition is done, so yeah. Whether it's in the form of having fun or competing with each other .	PE-AFHG-G
92		RES	Okay, how does it help you that you take part in these different challenges?	
93		INT8	To achieve a given goal that's left in a given challenge. Of course, yes, to compete, so to speak, with your friends in a given challenge also in the form of fun, or in the form of competition so that you feel more motivated. If I didn't have such a challenge I often wouldn't do an activity at that time and I do it just to pass the challenge.	social interaction, motivating
94	ID25	RES	Okay I understand, and are you generally happy with gamification? Is it meeting your expectations?	
95		INT8	Yes. I think the thresholds are set enough that everyone can meet them. They're not somehow excessive so that someone can't do it.	level threshold, PE-PS-G
96	ID26	RES	And are you happy with the accuracy and the gamification, for example, if you take part in any challenges is everything counted appropriately?	

97		INT8	I mean I don't have any reason to question what I displayed there, if someone wears the watch, uses it, Well you know it's counted and unless there are some software bugs it's counted. There were cases where Garmin had a problem with their server, they were attacked, well then there was a problem there, you know. So I have no reason to doubt that.	PE-AS-G
98	ID27	RES	And do you use rivalry because it's used by your friends, does that have any effect on it?	
99		INT8	Rather less, because those challenges done with friends are less than the ones done there by Garmin itself.	SI-G
100	ID28	RES	And how often do you use this gamification feature?	
101		INT8	I think a couple of times a week. When I'm looking at something in the app there I'll always go in and see, especially you know at the end of the month and the beginning of the month then when the new challenges show up.	H-G
102	ID29	RES	I understand, and do you use gamification elements to counteract any particular disease?	
103		INT8	No.	PT-G
104		RES	Okay, do you think gamification could be used by you in the prevention and treatment of diseases in the future?	
105		INT8	It's hard for me to answer that question, I don't see any such application of gamification regarding prevention and treatment of diseases. I don't know maybe someone has found such an application but I somehow haven't come across it.	
106		RES	Okay I understand that what it could be, for example, if someone has a chronic illness, for example they have some kind of back problem, and for example different challenges could really motivate them to get moving and in this way in some way they could participate in some kind of prevention of that illness so and its treatment by simply being motivated by gamification.	chronic illness, motivating
107		INT8	Well it could be that. If someone would have such a group, so to speak, that would compete on these principles then yes, by all means.	PT-G.
108		RES	Okay, do you have anything else you would like to add to this study?	
109		INT8	No.	
110		RES	Okay. In that case thank you for taking part in this study.	

Appendix 10 - Interview 9 (INT9)

Date: April 22nd, 2023

Interview Length: 23 minutes

Language: Polish

No.	ID	Person	Transcription	Code
1		RES	<p>I'm a master's student at Lund University in the field of information systems and I'm doing this study with a friend of mine To investigate what impact the different functionalities that you have in your smartwatch in how they affect the use of such devices in general mmm And as you know smartwatches have a lot of different functionalities that generally facilitate the monitoring of different parameters about the health and also the workout of the body and this for example is the display of data some notifications that you receive maybe it's gamification, some social interaction, that sort of thing and we are focusing in this study on the data display, these suggestions that are generated and gamification.</p> <p>Before we start I would like to let you know that none of your personal information will be disclosed and if you feel uncomfortable with any of the questions I ask you have every right to refrain from answering and stop this conversation. Do you have any questions so far?</p>	
2		INT9	No.	
3	ID1	RES	Okay, then tell me what watch do you currently own?	
4		INT9	Apple Watch .	
5	ID2	RES	How long have you been using it?	
6		INT9	Two years.	
7	ID3	RES	And you wear it all the time?	
8		INT9	Yeah, I mean he takes it off at night.	
9	ID4	RES	Okay meaning you take the watch off at night. What do you use your Smartwatch for in general?	

10		INT9	<p>I use it on a day-to-day basis, for example to check the dollar exchange rates, to check the temperature, it notifies me of important events, because I have connected you here to the phone information service and for example all important events are displayed to me immediately.</p> <p>I use it to measure my steps, to measure my time and how long I've been active on a given day and to compare during the week how it looks, to measure my blood oxidation for example, to measure my blood pressure.</p> <p>It reminds me when I'm supposed to take my medication because I've got it typed in what time I'm supposed to, and by the way, if something were to happen to me it just senses if I fall over or asks what's wrong with me and asks if I should call for help.</p>	continuously use, notification, mobile synchronisation, step count, monitoring, blood oxygen level, blood pressure, medicament reminder, emergency
11		RES	And do you use a dedicated app on your phone with your watch? That is, do you look at any things on your phone?	
12		INT9	Yes, sometimes I look, but it just reminds me once in a while on my watch to turn on the app and there, for example, so that when you change the programme that you need connectivity to your phone to update.	
13	ID5	RES	Okay, why did you decide to buy a Smartwatch?	
14		INT9	I didn't decide, I got it from my son.	
15	ID6	RES	Tell me how do you use your Smartwatch in general? Are you happy with it?	
16		INT9	Yes I am satisfied .	HM-GE
17	ID7	RES	And have other people around you caused you to start using this Smartwatch?	
18		INT9	I was just encouraged by my son. I just see that I have hypertension because I'm an older person and if something were to happen to me well the watch at that time can notify the people who are designated as contacts on the phone.	SI-GE, hpyertension
19		RES	Okay, and do you think the fact that you have this watch has a positive effect on your relationships with others, with your relatives for example?	
20		INT9	I don't see any difference.	

21	ID8	RES	Do you feel that the manufacturer, which in this case is Apple, offers enough technical support and training material for the functionality that you have on this watch?	
22		INT9	Yes. I don't really use that much of what Apple offers because it's just that in our family five people have these watches and each one passes information to the other.	FC-GE
23		RES	Okay meaning usually if you have any technical problems then potentially family members are able to help you.	
24		INT9	Yes, but I never have any problems with Apple.	
25		RES	Okay then let's move on to the first functionality and the first functionality is going to be the data display and with this functionality users can see and monitor the data that's being collected by your watch so for example it could be some sort of heart rate graph over time.	
26		INT9	A graph of steps walked, a graph of those steps, a graph of floors climbed in a given day, a graph of I mean there's data there of how much exercise I'm doing, because it's also over time. I just set myself limits, the calories burned are there.	
27	ID9	RES	Exactly right, that's exactly the point. And tell me what you think about the ease of use of interacting with that data in the form of graphs and statistics?	
28		INT9	These are very, very simple things to read and to set up, there's nothing complicated there.	EE-DD
29	ID10	RES	And do you think that this function of displaying the data and the fact that you can analyse these graphs has a positive impact on your fitness and health goals?	
30		INT9	I think it does, because recently with the COVID it's what made me notice that I had poor blood oxygenation, because it monitors me instantly for that oxygenation and tells me what kind of oxygenation I have and it just warns me if there's something wrong.	PE-AFHG-DD, blood oxygen level
31		RES	Okay then I think that's the other function, that's the function of these suggestions whereas the fact that you, for example, can analyse these graphs and you can look at them for example, does that help you in any way?	
32		INT10	Well it helps at the time, but it motivates me to move more.	motivating

33	ID11	RES	And are you generally satisfied with this function, that is, this displayed data? Do they meet your expectations?	
34		INT9	Rather yes, I don't have any comments.	PE-PS-DD
35	ID12	RES	And are you satisfied with the accuracy of this data that is displayed?	
36		INT9	I for one think they are accurate, because I've been comparing with other devices. For example, when I had just this hypoxic blood pressure I immediately tested on another device and it was actually confirmed. The same with hypertension, if it shows that I have too high a blood pressure then I just test on a second device whether it is indeed an abnormal pressure.	PE-AS-DD
37	ID13	RES	Okay and tell me do you to any extent feel inclined to use these charts because your other relatives are using it?	
38		INT9	Relatives, but mainly for their own health. At this age, over 70, I think it's worth to pay attention to your health.	SI-DD
39	ID14	RES	Do you use this function often? Do you often look at these graphs and statistics?	
40		INT9	At least like three or four times a day I look, sometimes more often.	H-DD
41	ID15	RES	And do you use these displayed statistics and graphs to counteract any particular disease?	
42		INT9	I mean I have hypertension, I have joint problems and I'm an obese person, so I have to look at how to prevent my health from deteriorating.	hypertension, joint problem, obesity, PT-DD
43		RES	So, for example, do you look at the number of steps you take?	
44		INT9	Yes, I look at the number of those steps, I look at how many calories I've burned. Well just things like that, the same as far as blood pressure, my head hurts then I look to see if my blood pressure has gone up.	step count
45		RES	Okay let's move on to suggestions now. Generally this function, this group of functions, analyses your data and through an algorithm is able to generate some suggestions that are based on artificial intelligence. You, based on that, can make more informed decisions.	

46	ID16	RES	And tell me, what do you think about the ease of use and interaction with these suggestions that are generated by your smartwatch?	
47		INT9	You just have to go on the app simply, everywhere in the apps it's explained quite simply, also I don't have any problems.	EE-I
48		RES	Okay so that means for example when it suggests something to you you always understand what it's about?	
49		INT9	Yes, yes.	
50	ID17	RES	And do these suggestions help you achieve your fitness and health goals?	
51		INT9	I mean they definitely help to some extent, they're not things for me to catch up with sometimes unfortunately, but it motivates me in some way.	PE-AFHG-I, motivating
52	ID18	RES	And in general, do the insights that you have now and get meet your expectations? Are you missing anything there?	
53		INT9	No, rather not.	PE-PS-I
54	ID19	RES	Okay, and are you satisfied with the accuracy of these suggestions?	
55		INT9	Yes, yes because like I said I just check straight away. At the moment I know that, for example, this blood oxygenation is definitely a good indication, you just have to have a good watch as you move your hand at the time of measuring, and so I don't have any comments.	PE-AS-I
56		RES	So I take it that the watch is telling you a particular suggestion and saying that it's at a good level and you've, for example, checked it with another device and it's agreeing?	
57		INT9	Yes and it does agree.	
58	ID20	RES	Okay and tell me do you use these suggestions because your relatives for example use them?	
59		INT9	I use them for myself, and a lot of things are also suggested to me by loved ones. For example, my grandson has told me a lot about high blood pressure and the capacity of the body, because, as an athlete, he doesn't turn his watch off at night, because he needs to know what his heart rate is at rest and what his heart rate is during training, so he doesn't take his watch off at all. For me, the watch somehow bothers me when I'm sleeping, because he's transmitting messages though and I can hear it and feel it on my hand that something's going on so I take it off.	SI-I

60	ID21	RES	And do you often use these suggestions that are generated by the watch?	
61		INT9	Yes, yes, well at least those three or four times a day I use it.	H-I
62	ID22	RES	Okay, do you use these suggestions and recommendations to counteract a disease? Is it the same as with hypertension, that some suggestions help you fight it?	
63		INT9	I mean they definitely help, you can do breathing exercises just because I have problems with oxygenation of the body then I can do exercises more often.	
64		RES	And he suggests to you what exercises to do?	
65		INT9	No, no, it's already from the doctor or the physiotherapist that I know what exercises to do.	
66		RES	Okay, and are there any suggestions like that that help you in some way to fight any disease?	
67		INT9	I mean at the moment it doesn't, well with blood pressure it certainly helps that it reminds me to take my medication at a certain time, I have it programmed into my mobile phone and the watch reminds me of it.	PT-I, medicament reminder
68		RES	That we can now move on to the last functionality and that is the gamification functionality. So yes, gamification generally refers to the use of rules that you apply in games, such a normal game, but in non-game scenarios. So it can be so you know just everyday life and it's done to encourage users to achieve certain goals by increasing their motivation often for example by competing not necessarily against others but for example yourself not that for example you set yourself a certain goal and the watch tells you that you have to meet that goal	
69		INT9	No no of course, because you can set yourself How many steps would you take how long do you have to exercise every day, how many calories do you have to burn in activities and you just have to aim for that goal because if you don't then the watch reminds you that on a certain day you don't have a chance of achieving the goal.	
70	ID23	RES	Exactly right, that's exactly the point. Okay then tell me do you think it's easy to participate in these gamification elements on your smartwatch?	

71		INT9	It's simple, it's simple it's very simple because every week it shows me how much time I spend in front of the screen for example, because hmm acutely it doesn't affect my eyes very positively, also it reminds me to get up, to move around, that I need to exercise for a minute, and that's all what the watch reminds me of.	EE-G
72	ID24	RES	Okay, and tell me, do these gamification elements, for example in your case taking a certain amount of steps, help you achieve your fitness and health goals?	
73		INT9	Yes, because often if I just sit down and do something, even watching a movie, the watch reminds me that it's time to get up and move around too.	PE-AFHG-G
74	ID25	RES	Okay, are you generally happy with these gamification elements?	
75		INT9	Yes, yes.	PE-PS-G
76	ID26	RES	And are you satisfied with the accuracy and that gamification? That is, for example, is everything counted well, for example, these steps?	
77		INT9	Yes, I think it is.	PE-AS-G
78	ID27	RES	And are you willing to use elements of gamification because other people close to you use it?	
79		INT9	No, I do it for myself.	SI-G
80		RES	So, for example, you don't compare yourself to others?	
81		INT9	No, no, there are much younger people around me so I can't compare myself at all with a 40 year old person or even a 50 year old person because you know they have a higher body capacity.	
82	ID28	RES	How often do you use this function?	
83		INT9	Well at least like three or four times or when it reminds me I just read it, because on this watch I have all the messages, the same with the messages so when a message comes on the phone I can see immediately from whom. Same with the news service he notifies me that there's something going on there, different weather alerts like that, you can see everything on the watch.	H-G
84	ID29	RES	And is gamification being used by you to counteract any disease?	
85		INT9	Just enough to just not sit around constantly and to prevent ageing in some way though.	PT-G

86		RES	Okay okayokay is there anything else you would like to add?	
87		INT9	Not specifically.	
88		RES	Okay in that case thank you very much for participating in this survey.	

Appendix 11 - Interview 10 (INT10)

Date: April 23rd, 2023

Interview Length: 29 minutes

Language: Polish

No.	ID	Person	Transcription	Code
1		RES	<p>Okay I'm a master's student at Lund University in Sweden in the field of Information Systems and together with my colleague we're doing this study to see how the different functionalities that you have available in your watch affect the use of such devices in general and what and we're actually also studying such, it's called Technology Acceptance, which is how users decide whether you use a particular technology.</p> <p>You know smartwatches have a lot of different functionalities and for example such a basic one would be automatic data collection, it could be the display of that data, suggestions generated by algorithms, some social interactions, notifications that you receive, there's a bunch of that and we're going to focus in this study on data display, suggestions and gamification. Even though all these functionalities are somehow interconnected, I will try to talk in such a way that we talk about one all the time. Well and before we start I would like to inform you that none of your personal information will be disclosed and if you feel uncomfortable with any of the questions that I am asking you have every right to refrain from answering and stop this conversation I understand good do you have any questions so far?</p>	
2		INT10	Not yet.	
3	ID1	RES	So what kind of watch do you currently own?	
4		INT10	Garmin Fenix 6 Sapphire Pro	
5	ID2	RES	And how long have you been using smartwatches in general?	
6		INT10	Ten years or so. Ten years. Yes. Because I had a Garmin three before that and now I've moved on to this six and I'm thinking maybe 8 so.	non-first acquisition

7	ID3	RES	Okay and you wear your current watch that you have now, do you wear it all the time or just during certain activities?	
8		INT10	All the time.	use continuously
9		RES	So also when you're sleeping?	
10		INT10	Yes, I try to make sure it's on my hand too, I rarely take it off.	sport, step count, competition
11	ID4	RES	Tell me generally what you use your Smartwatch for?	
12		INT10	Primarily for workouts, for step counting and for such virtual competition among Garmin users in the Garmin Connect app.	map, heart rate, step count
13		RES	OK and you're using your tracker which is a Garmin with a dedicated app? So, for example, Garmin has an app called Garmin Connect. Are you using that app?	
14		INT10	Yes, I use it.	
15	ID5	RES	Tell me why you decided to buy a Smartwatch?	
16		INT10	First of all, because this particular Garmin has maps and I can upload different routes and follow them for competitions, for training, and for me, for exercising, for checking my heart rate, for just counting steps. So that's kind of the basics, first of all the maps and I changed the earlier one to have a pictorial map of where I am in the field.	
17		RES	OK so this particular new watch that you're wearing now you bought for that map function?	
18		INT10	Yes, first of all the maps and a good battery, when I'm at a competition so that it lasts a long time, lasts a lot of hours.	battery life
19	ID6	RES	Tell me in general how do you use your Smartwatch? Are you satisfied with it?	
20		INT10	Yes, I'm satisfied, it's fine.	HM-GE
21		RES	Could you elaborate a little bit more on that?	
22		INT10	It's accurate, it accurately shows me the terrain I'm in, where I'm at, it counts my elevation, the routes I'm in, well the basic one is just the number of steps, it's that it's connected to my phone and I can take messages, I can pay with the watch it's also a jes, although I don't do that but I can use it. That's the thing.	accuracy, location, elevation, payment, notification

23	ID7	RES	Okay and tell me if other people around you, for example your friends and your family, did they influence you to start using the Smartwatch?	
24		INT10	Well as far as my friends and running friends are concerned yes, because when I started competing I also like to know what pace I'm running, what time I got, what distance I covered. Well family no, family is not very running, not very sporty, but here friends well 3/4 of the people just happen to have this Garmin, and they all have smartwatches in general when it comes to smartwatches.	SI-GE, running pace
25		RES	So in general when you think about any group of your closest friends they all own smartwatches?	
26		INT10	Yes.	
27		RES	Okay, and would you generally say that you see your Smartwatch as a symbol of your lifestyle?	
28		INT10	Well I think it does now, I think it does. It's generated so much already that it would be hard for me without it, I'm so used to it that when I go to training Well I like to know what's going on. What time I'm at the workout, what distance I've run. Well it has got me addicted. I think for a lot of people, especially here runners, it's well essential to have a watch and know what's going on.	SI-GE
29		RES	Okay and would you say that your Smartwatch has had any positive effect on your relationships with your friends?	
30		INT10	I think so, that we exchange different insights and help each other with different things somewhere, how to get to an application somewhere, set something up maybe so settings we help each other.	social interaction
31	ID8	RES	Tell me, do you think that Garmin offers enough technical support and training material for the functionality that you have on the watch?	
32		INT10	It has a lot of hint features. First of all when you start working with a smartwatch, with a garmin, well it prompts a lot, there are virtual workouts, a virtual trainer that helps, well there's a lot of that, not everybody uses that. Well it helps, it really helps.	in-app guidance, training
33		RES	And if you don't have a problem that, for example, you don't understand some metric, some functionality, do you know where, for example, you can look for help, does Garmin offer you anything in that case?	

34		INT10	Yes, I call my friend. So that's how I call my friends if I need something somewhere I say then we exchange information and help each other.	FC-GE
35		RES	Okay then let's now move on to the first functionality, which is the data display. Generally with this feature, users can monitor their data in the form of various statistics and graphs, which are then often displayed in the app, but sometimes also on the watch itself.	
36	ID9	RES	Tell me what you think about the ease of use and interaction with the data displayed as graph statistics?	
37		INT10	The stats acct for me is cool because doing the different exercises, the tasks that I do for myself there in training I fit in and I do everything more than 99% of people my age and in my box there I fit in there in that whole algorithm. It's nice, but I don't always follow it, because there are also exercises where I don't get enough rest, but I know I want more so I don't follow what my watch intuitively tells me to do like that.	
38		RES	That's I think a function that we'll come to next, but tell me, in general, for example, when you look at all these graphs that the Garmin presents to you, do you find it easy to use?	
39		INT10	No. Me, no. There's a lot of different sine waves that I just don't understand. Maybe I don't want to understand, I don't go into it. There's a lot of it, I skip over it because I do.	EE-DD
40	ID10	RES	Tell me, would you say that these graphs and statistics somehow help you achieve your fitness and health goals?	
41		INT10	No, no. I just don't focus on that. I know there's a lot, there's all sorts of things whether my glycogen is dropping somewhere, whether I'm overtrained or undertrained, I don't look at that. I look at how my body functions, how I feel here.	PE-AFHG-DD
42		RES	And do you think these stats and graphs aren't helpful?	
43		INT10	For me they're not helpful because I just maybe don't understand them. I haven't delved into it. I don't think a person is firmly attached to an algorithm, because to me it's the whole thing, because everyone is a separate individual. Everyone has their own organism and knows what they are capable of. So certainly a lot of people find it helpful, I find it absolutely unnecessary.	one-fit-all

44	ID11	RES	Okay then overall would you say you're happy with this data display feature? Does it meet your expectations, because I understand that you don't use it much?	
45		INT10	I don't really need it so for me it doesn't need to be available.	PE-PS-DD
46	ID12	RES	Okay, I understand. And are you happy with the accuracy of the data displayed?	
47		INT10	Yes, in terms of distance travelled, time, elevation, I'm satisfied. As it is on the route it shows me everything like that, just a good GPS it is.	PE-AS-DD
48	ID13	RES	Tell me, do you to any extent feel inclined to use this feature because others are using it?	
49		INT10	No.	SI-DD
50	ID14	RES	And this is a question that I think you've already answered, but I have to ask it. How often do you use the statistics and graphs display function?	
51		INT10	I'll just look at it for myself, but I don't know what it's about anyway, so I don't technically use it.	H-DD
52	ID15	RES	So I take it that you also don't use the displayed statistics graphs in any way to counteract any diseases?	
53		INT10	No.	PT-DD
54		RES	And do you think that potentially this functionality could be used by you in the prevention and treatment of diseases? That is, that you could analyse such graphs in the future, do you think it could help you with any disease?	
55		INT10	Technology is moving forward so much that maybe I could be inclined to hang on to these stats for a while longer, and I would probably need that kind of super technical support to have someone explain it to me to show me what and how it all works and what to look out for. If there was such a risk to my health then I would definitely be inclined to just do it.	PT-DD
56		RES	We are now going to move on to suggestions. Generally these functions, all these recommendations, they are generated based on the analyses that are done by different algorithms based on artificial intelligence. Based on your data, they create personalised advice and you through this can make more informed decisions perhaps	

57	ID16	RES	Tell me what you think about the ease of use and interaction with the suggestions generated by your Smartwatch? Do you find that what it tells you, for example, is always understandable, straightforward? Do you go into that app and as you look at it for you it's transparent what it's telling you?	
58		INT10	Actually yes, it's transparent to me just that I don't use a lot of the functions. Well I don't look at it because sometimes the watch will tell me that I'm just doing too little stationary exercise like that and a lot of exercise and I should sort of rest. So I'm putting too much strain on myself, this whole body battery of mine is heavily discharged well and I don't look at it.	EE-I, rest
59	ID17	RES	Do the suggestions help you achieve your fitness and health goals in any way?	
60		INT10	No.	PE-AFHG-I
61		RES	OK and why do you think it's not helpful?	
62		INT10	Well because Every body is different, I listen to my heart and my head and I know that if I'm doing something and even it's beyond my strength I'm going to do it anyway, well that's how I'm convinced.	
63	ID18	RES	And in general, do the suggestions that you get meet your expectations? To the extent that you have any at all towards them?	
64		INT10	Well, if I have any. What I use in the smartwatch, what I want to use is completely enough for me	PE-PS-I
65		RES	And is there, for example, any kind of recommendation suggestion generated by these algorithms that you use at all? Or in some way you look at it for example, do you suggest yourself?	
66		INT10	Well. For example, it suggests steps or somewhere I haven't done enough steps so I would like to add to there. So I go out for a workout meaning she motivates me a little bit.	motivating
67		RES	Okay, is it that, for example, the watch tells you listen you're not taking enough steps at the moment and you should go out for a workout, or do you just look at the number?	

68		INT10	They're looking at the number because I've got that 'move' function turned off. I'm looking at yes, I'm determining for myself not that I'm not doing enough though, I'm determining that for myself, not that the watch me here.	
69		RES	At this point, I wouldn't pull it up under those suggestions, I would pull it up more under this data display, for example, because you're looking at a good I should do something.	
70		INT10	Exactly.	
71	ID19	RES	Are you generally happy with the accuracy of these suggestions that are being generated?	
72		INT10	Yes, yes. I am.	PE-AS-I
73		RES	And you were talking about the fact that you don't use them because you think they're not helpful?	
74		INT10	Just from the suggestions that I pick up, so for example distance, time, elevation, those are my suggestions, or even heart rate I look at that as well	
75		RES	What I mean at the moment is that, for example, Garmin Tells you all that is generated by artificial intelligence. So it's telling you, for example, directly that you're overtrained and you should rest, that your body battery is very low and you shouldn't do anything anymore today, you're getting too stressed and you need to stop stressing.	
76		INT10	Well no I'm not looking at that, I'm not looking at that.	
77	ID20	RES	Do you feel in any way inclined to use these suggestions because others use them?	
78		INT10	As far as that goes, no. I look at it as it suits me. That is, not like the general public.	SI-I
79	ID21	RES	Well that's also a question that I think I already know the answer to, how often do you use the suggestions generated by the watch?	
80		INT10	Almost not at all.	H-I
81	ID22	RES	Do you use the suggestions to counteract any illness?	
82		INT10	No.	PT-I
83		RES	And do you think that these suggestions generated by the algorithms could in some way be used by you in the prevention and treatment of disease?	

84		INT10	They could, yeah, like well if I felt that my health was declining badly and there was a suggestion that I could improve my health by listening to these whole algorithms well then I might be inclined. But the most important thing is that someone explains it to me and describes to me how it works and what I should pay attention to. Then I could at least try to see if it works if I had an artificial intelligence that would tell me what to do. For now, I'm not doing that.	professional personnel
85		RES	Let us now turn to the last functionality, namely gamification. This generally refers to the use of game rules in scenarios other than games in normal life to encourage users to achieve certain goals by simply increasing motivation. In the case of watches, it's often some kind of challenge, competing with others, for example in the form of some different rankings, comparing some different overall statistics, whether it could be for example the distance travelled, whether it could be the number of steps on a given day, things like that.	
86	ID23	RES	Tell me what you think about the ease of participation in gamification that is offered by in your smartwatch?	
87		INT10	It's very simple and very comprehensive. There's a lot of different gamification that you can enable for yourself, once that Smartwatch has its own that it invites you to, but it's also the case that users themselves can create their own gamification that they invite their friends to and together we compete in different challenges. So it's a cool thing, I think it's a very healthy competition and it also improves one, it improves your mood, two it motivates you to take care of your health and improve some results, it also works like that.	EE-G
88	ID24	RES	Do the gamification elements help you achieve your fitness and health goals in any way?	
89		INT10	Yes, I think they do.	PE-AFHG-G
90		RES	Then in what ways?	
91		INT10	Well it's that I see that one of my friends is leading somewhere, and I'd like to be closer to him or even win some competition so I get up off the proverbial couch and act. So that's kind of the cool engine.	social interaction
92	ID25	RES	Okay, and are you generally happy with gamification? Is she meeting your expectations?	
93		INT10	As much as possible.	PE-PS-G

94	ID26	RES	And are you satisfied with the accuracy of the gamification? So that's kind of the question is, for example, do you subjectively feel that if you're taking part in a challenge for example, do you feel that everything is counted well? For example, if you see that I don't know someone jumps you and you for example then might suspect that something is wrong?	
95		INT10	No it just all depends on the competitors because there are people who can cheat even in such whole competitions and for example when there is a step count they can wave their hand and the steps count for them without doing anything. I'm saying, it all depends on the attitude of the rivals, how good they are, first of all towards each other, but also towards other competitors.	PE-AS-G
96		RES	Okay, but when it comes to some kind of a watch you don't have a basis for judging that there might be some accuracy issues?	
97		INT10	No, no, no, I think every company somewhere has their biases in there, because different watches count different data, it all depends on the company as well, but I think this is such a competition that here you're not competing for cash prizes or some kind of material prizes, you're competing for yourself after all.	
98	ID27	RES	Okay, do you feel like using gamification because it's used by your friends?	
99		INT10	First of all for myself too. It motivates me to compete, my friends - yes it's great to compete with my friends, but it's mainly for myself. Well, it's also a challenge to myself to overcome something more than I did before, for example, to improve, to see if I can cope with a decent challenge.	SI-G
100	ID28	RES	How often do you use the gamification feature?	
101		INT10	All the time, often, as soon as there are competitions so all the time I am. There are weekly challenges, there are monthly challenges, I'm always in them.	H-G
102		RES	And for example you look at it every day, the different challenges and what's going on?	
103		INT10	Yes, and at what level I'm already higher in the rankings of what I've come what episodes. On a regular basis and I kind of get sucked into it, yes it does suck me in yes, but it's fun I think it's healthy, it makes me feel better and it's also good. Even if I'm somewhere behind but it always motivates me there, it's a cool thing this competition.	motivating

104	ID29	RES	Okay and tell me do you use gamification to counteract any disease?	
105		INT10	No.	PT-G
106		RES	And do you think that this funkiness, or generally this kind of gamification, in the sense of such elements of gamification could help you in some way in the prevention and treatment of a disease?	
107		INT10	I think it would. I think it's a cool thing when a person is struggling with depression. It's a very difficult illness as soon as he gets into it and he can improve something for himself, occupy his head with just such gamification for example, I think it's a cool cure	PT-G, depression
108		RES	Okay is there anything else you would like to add from yourself to this study?	
109		INT10	I think already when we bought our first Smartwatch we know that we're going to change these Smartwatches for better for more features for more capabilities and Well we'll always have them. That's the way I think it's going to be I at least will have one. Now I'm planning on a seven only that one I have to mess with first.	
110		RES	Listen then thank you very much for taking part in the survey.	

Appendix 12 - Interview 11 (INT11)

Date: April 23rd, 2023

Interview Length: 25 minutes

Language: Polish

No.	ID	Person	Transcription	Code
1		RES	<p>Okay, I'm a master's student in information systems at Lund and my friend and I are doing this study to investigate how the different functionalities of watches and smartwatches affect the use of these watches. In general, as a user you certainly know that these watches have a lot of different functionalities like some kind of notifications that you can get automatically, data collection, some kind of recommendations that you get based on some kind of algorithms, it can also be gamification, social interaction. We, in this study, are focusing on the data display function, suggestions and gamification. We realise that these functionalities are very interconnected, but as I talk about all this I will try to do it in such a way that you will definitely know what it is all about. Before I start I would like to inform you that none of your personal information will be disclosed, and if you feel uncomfortable with any of the questions I ask you have every right to refrain from answering and stop this conversation.</p>	
2		RES	Do you have any questions so far?	
3		INT11	No, we can get started.	
4	ID1	RES	Okay, tell me what watch do you currently own?	
5		INT11	Garmin Pro S6	
6	ID2	RES	And generally how long have you been using smartwatches?	
7		INT11	Generally for three years. For three years yes.	
8	ID3	RES	Currently, this current watch of yours, do you wear it all the time?	
9		INT11	Yes, all the time, 24 hours a day.	use continuously
10		RES	Okay, so that includes when you're sleeping?	

11		INT11	Yes.	
12	ID4	RES	Tell me what you use your Smartwatch for?	
13		INT11	Well. For different sporting purposes. For sports, generally running and different sports like walking, pilates, yoga, things like that.	sport
14		RES	So your main motivation is sport?	
15		INT11	Yes, solely and exclusively.	
16		RES	And what functionalities of your watch do you use on a daily basis?	
17		INT11	What do you mean?	
18		RES	So, for example, you said something about steps, do you measure steps, for example?	
19		INT11.	Yes, measuring steps, heart rate, first of all, and also calories. That's on the watch face and that's what's displayed to me non-stop.	step count, heart rate, calory
20		RES.	Okay, well generally I mean the sort of things that you know, the first thing that comes to mind. How do you think of a watch, for example, what do you check every day on that watch.	
21		INT11	Well that's what I've got mainly set up here on the watch face, those are the main functions that I'm interested in.	
22		RES.	You use the watch with any dedicated smartphone app?	
23		INT11	No, I mean the app is this Connect Garmin app.	
24		RES.	So you only use that app?	
25		INT11	Yes, just and exclusively.	
26	ID5	RES	And tell me, why did you decide to buy a smartwatch?	
27		INT11	To have just calories and steps under control, because I didn't know about them. How many calories I burn? How many steps I take a day? Well, and generally persuasion from friends.	
28	ID6	RES	And how are you using the smartwatch in general? Are you happy with it?	

29		INT11	Yes. The previous one was a poorer version, where, for example, I would go to the pool and I couldn't. I didn't have the function to count the length of the pools. This one has that and that's mainly why, because of the pool, too. And the maps, which are also uploaded here.	HM-GE, map
30	ID7	RES	I think you've answered this a little bit already, but did other people around you make you start using a smartwatch?	
31		INT11.	Well, yes. It was mainly a group of friends and their persuasion. I'm generally such a small electronic person and it's just their persuasion and the fact that I wanted to do something different, something more and it gives me this opportunity.	SI-GE
32		RES.	Do your friends somehow approve of you using a watch?	
33		INT11	Well, yes. Because we can see each other just on the app. We can see our progress, our workouts and it's so mobilising. If I have some downtime, I see someone's workout it's mobilising to keep moving and active.	social interaction
34		RES	And would you say your smartwatch has a positive impact on your relationships with friends?	
35		INT11	Is it positive? I think yes, because by being able to see each other on the app, your workouts, we can comment on each other's workouts and we keep in touch with each other. Well, and it also somehow mobilises us to move, to do sport, to meet up to arrange workouts. So that's great.	social interaction
36		RES	And would you say that you see your smartwatch as a symbol of your lifestyle?	
37		INT11	No, no exaggeration.	SI-GE
38	ID8	RES	Okay. Tell me, do you think that the manufacturer, which is Garmin, offers enough technical support and training material for the functionality that you have in your watch?	
39		INT11	I mean my smartwatch is enough for me at the moment. So I think for my needs it is completely adequate.	FC-GE

40		RES	Okay, but if you have some functionality that you don't understand potentially. Do you know where you can find some information about it, for example? Can you always find something in this app that explains to you how it works?	
41		INT11	Generally if I have problems with my smartwatch, I just look for an explanation on the internet first. If there isn't, well I have friends who always have the same watch or just smartwatches, they always help me. They generally deal with the technical side of it	
42	ID9	RES	Great, then we will now move on to this data display function. That is to say, in general, with this function, users are able to monitor all the data that is collected by the zagarek through various statistics, graphs and other visualisations. Tell me what you generally think about the ease of use and interaction with this data that is displayed in the form of graph statistics?	
43		INT11	I mean that's about it, right?	
44		RES	For example, any visualisations that you can see on your watch.	
45		INT11	I mean for me they are very readable for me. They're very readable, I've got a map straight away, mileage, calories burned and that's fine with me and I don't need anything else at the moment. I'm not a competitive athlete, I'm just an amateur athlete and it's very readable and it suits me.	EE-DD
46		RES	Okay. So I take it you're judging that it's very easy to use all these data, statistics and visualisations?	
47		INT11	Yes, as much as possible	
48	ID10	RES	Okay and would you say that the fact that you can analyse such data in the form of graph statistics helps you to achieve your fitness and health goals?	
49		INT11	I mean, it's definitely some kind of suggestion to have this kind of competition with yourself to raise the bar and to make these results better and better. It certainly has a great motivational effect.	PE-AFHG-DD, motivating
50	ID11	RES	Overall, are you satisfied with this data display feature? Is she meeting your expectations?	

51		INT11	Yes, like I said. The colour scheme, the maps - it's very clear. Well I'm finding myself in it.	PE-PS-DD, design, map
52	ID12	RES	And in terms of the accuracy of this displayed data, is it accurate? Are you happy with it?	
53		INT11	I've never paid that much attention to that kind of accuracy because I don't need it at the moment. But I do find that the accuracy of comparing, for example, training with the person who is training with me at the moment sometimes, we check the accuracy of our, I don't know, mileage, maybe calories burned, but mileage is generally it's all close together.	PE-AS-DD
54	ID13	RES	Tell me, do you feel any inclination to use this data display functionality because your friends are using it?	
55		INT11	Yes, since I have a watch recommended by friends they are my friends in the app. That's yes, as much as possible.	SI-DD
56	ID14	RES	How often do you use this data display feature?	
57		INT11	Every day.	H-DD
58		RES	So every day you analyse, you look at some graphs and statistics?	
59		INT11	Yes, yes.	
60	ID15	RES	And do you use the displayed data and statistics to counteract any disease?	
61		INT11	I mean I don't. I generally consider myself a healthy person. I've never paid much attention to things like that.	PT-DD
62		RES	So you didn't have a particular disease that you were battling. And do you think that this kind of display of data in the form of statistics and graphs could potentially help you in the future to prevent and treat diseases?	
63		INT11	Probably yes, if in prevention? Probably yes. Certainly if I was a person who was ill to some degree it would motivate me, I don't know, I would see what was happening to my body more or less like that and I would definitely keep that in mind.	PT-DD

64		RES	Okay, we're going to move on to suggestions now. That is, this feature generally analyses your data using algorithms that are based on artificial intelligence and generates for you some different suggestions and recommendations that you can use to make more informed decisions. So, for example, Garmin could tell you when it thinks you're, for example, training too much or not getting enough sleep. When you're too stressed and it could tell you what you can do then.	
65	ID16	RES	Tell me, or what do you think about the ease of use and interaction with these suggestions that are generated by the Smartwatch?	
66		INT11	I mean, to be honest, I don't particularly care about them in this case. I have a high heart rate indicator set up and it just stresses me out.	
67		RES	But in general if you're looking at these suggestions for example what Garmin, what this artificial intelligence, is going to tell you, do you understand what it's telling you?	
68		INT11	No, no, no. I generally try to also, suggestion is suggestion and my feelings are my feelings and I don't pay that much attention to it, I don't pay that much attention to it.	actual feeling
69	ID17	RES	And would you say that these suggestions help you in some way to achieve your fitness and health goals?	
70		INT11	I mean, no, I don't. I don't really suggest these suggestions and I don't really pay attention to it, it doesn't really matter to me.	PE-AFHG-I
71		RES	Do you think it's not helpful in that case?	
72		INT11	It probably is but, in my case it's not.	
73		RES	Why do you think that in your case?	
74		INT11	Because I listen to my body and I don't want to listen to it simply. I listen to my body and I don't think I need that because I don't want to be kind of guided by an app and I wouldn't want someone to impose something on me just.	
75	ID18	RES	Would you say you're happy with the performance of the suggestions you get? Are they meeting your expectations?	

76		INT11	Probably if it interested me that much, then maybe yes. But if I'm the kind of person who's not susceptible to such suggestions, then I'm generally not interested.	PE-PS-I
77	ID19	RES	Are you happy with the accuracy of those suggestions? For example, if you were to look at the kind of suggestions it generates for you and, for example, compare that to how you currently feel? That is, for example, the watch could tell you that you are overtrained and you think you are not overtrained at all. Are there any situations like that?	
78		INT11	If the watch shows me an elevated heart rate then my elevated heart rate alarm goes off and I generally don't feel that way and I think something, I mean it's his suggestion there, his alarm, but I'm feeling fine at the moment. It's the same with overtraining, I'm supposed to have 56 hours of rest for example, and I feel very good and I don't know if I should give in to that or not. So generally like I say, I listen to my body and take it into account, I know there is something like that but I don't worry about it.	PE-AS-I
79		RES	And do you find these suggestions useful despite the low accuracy?	
80		INT11	They are probably useful. Well because there's always a seed planted somewhere where you have to, I don't know, look out for yourself at some point. Well I think so.	
81	ID20	RES	And do you feel inclined to use such suggestions because your friends use them?	
82		INT11	No, no. I try to do my own way apps with apps, suggestions with suggestions, and I listen to myself.	SI-I
83	ID21	RES	And how often do you use these suggestions that are generated by the watch?	
84		INT11	Rarely, rarely. Really rarely, it's got to be really I don't know, I've got to be overtrained, I've got to be feeling tired, well then somewhere in there I can suggest it, but very rarely.	H-I
85	ID22	RES	Do you use such suggestions to counteract any illness?	

86		INT11	No, absolutely not. It doesn't make any difference to me.	PT-I
87		RES	And do you think that such suggestion functionality could be used in the prevention and treatment of disease?	
88		INT11	I think so if there are susceptible people who are interested in it and who are very attentive to it, then that's as possible.	PT-I
89	ID23	RES	Okay. Let's now move on to gamification. In general, this feature refers to the use of rules used in games in scenarios such life. Primarily to increase user motivation. In general, in gamification it can be, for example, challenges, comparing yourself with others, with a community, comparing yourself, for example, with the general population or, for example, with a population of a certain age that corresponds to your parameters, comparing some different metrics that the watch can prepare for you, such as sleep quality in points. And tell me what you think about the ease of participation in gamification that is offered in your watch?	
90		INT11	I mean yes, I think it's very easy, very motivating. Well, and it can be very addictive to have that kind of competition. So it's generally very simple to use, I use it and I use it and it's very simple. And I don't hide the fact that it's rewarding.	motivating, EE-G
91	ID24	RES	Would you say the gamification elements help you achieve your fitness and health goals?	
92		INT11	Yes, as much as possible.	PE-AFHG-G
93		RES	And in what ways?	
94		INT11	Well this kind of competition is very stimulating, you want to prove yourself, you want to be better, you want to show that you can do a lot, So you act.	
95	ID25	RES	Are you happy with gamification in general? Is she meeting your expectations?	
96		INT11	I think it does. With my level of training, with my time that I'm putting into the sport it's totally enough for me.	PE-PS-G

97	ID26	RES	And are you happy with the accuracy of the gamification? I mean for example here I'm asking more or less do you think that if you're competing with someone is everything counted properly?	
98		INT11	I trust that it is. I trust that. Yes. I try to do my training diligently and I trust that it's all counted as it should be.	PE-AS-G
99	ID27	RES	Are you inclined to use gamification because your friends are using it?	
100		INT11	Well, yes. Because a lot is done by persuasion, a lot of influence and inviting yourself to such challenges. So that's how the competition is turned on automatically.	SI-G, social interaction
101		RES	Then can you give some example of such gamification?	
102		INT11	Steps too first, running challenges. Generally I take part in those, steps, running challenges, swimming challenges that too.	
103	ID28	RES	How often do you use the gamification feature?	
104		INT11	Every day, every day the steps are checked, every second, third day some kind of running workout. And then swimming.	H-G
105	ID29	RES	And do you use gamification to counteract any disease?	
106		INT11	No, it's meant to be fun and pure satisfaction.	PT-G
107		RES	And do you think that potentially this functionality of gamification could be used by you in the prevention and treatment of diseases?	
108		INT11	I think definitely in the treatment of diseases. I don't know I never put any weight on something like that.	PT-G
109		RES	So you don't see any potential here?	
110		INT11	Maybe the potential is there, whereas in general, it should maybe be used, but by people who know about it in general. I'm not interested in that.	
111		RES	Okay is there anything else you would like to add to this study?	
112		INT11	I think not.	
113		RES	Okay in that case thank you very much for your participation.	

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