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STRATEGIC POSITIONING IN WEARABLE HEALTH TECHNOLOGY: LEVERAGING CONSUMER CENTRIC ANALYTICAL APPROACHES FOR MARKET LEADERSHIP

A Literature Review on Advanced Applications, Addressing Adoption Challenges, and Innovative Solutions for Healthcare Technology

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Abstract

The wearable technology market, led by smartwatches, thrives with consumers' rising demand for health monitoring. However, current devices inadequately serve the growing elderly population with distinct healthcare needs. Through literature review and mixed-methods research - including interviews, perceptual mapping, and conjoint analysis - this study identifies critical attributes for a smartwatch appealing to elderly users. Key findings suggest enhancing usability, integrating advanced health features, ensuring data privacy, and fostering emotional connections to bridge the generational gap. The proposed "Guardian Smartwatch" guides brands, particularly Apple, in designing inclusive wearable technologies that enhance health, independence, and intergenerational care.

Individual Contribution

My contribution focused on the strategic positioning of wearable health technology, specifically smartwatches, using consumer-centric analytical approaches. Through a combination of literature review, perceptual mapping, and conjoint analysis, I identified key attributes shaping smartwatch adoption among elderly users. The research highlighted usability enhancements, integration of advanced health features, and privacy considerations as crucial for bridging the generational gap. Additionally, I introduced the "Guardian Smartwatch" as a customized

solution designed to enhance health monitoring and promote intergenerational care, positioning Apple as a potential leader in creating more inclusive and consumer-focused wearable technology.

Group Contribution

The group collaboratively developed the research methodology, leveraging both qualitative and quantitative approaches, including preliminary interviews and survey-based conjoint analysis. We examined the competitive landscape of smartwatches, analyzing brand positioning, consumer preferences, and industry trends. The group also explored the role of AI in predictive health monitoring, privacy concerns, and market gaps in accessibility. Our collective findings shaped the strategic recommendations for smartwatch brands, providing a framework for enhanced consumer engagement and technological integration in wearable health technology.

Keywords

Smartwatch, Wearable Technology, Consumer Perception, Generational Accessibility, Price Sensitivity, Brand Personality, Technological Integration, AI and Predictive Analytics, Elderly Usability

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1. Introduction

"The best way to predict the future is to create it." – Peter Drucker (1964), a pioneering authority in modern management. In wearable health technology, where innovation transforms lives daily, predicting consumer needs is the key to shaping the industry's future. Smartwatches, once mere accessories, are now integral to health monitoring and personal independence. Yet, as brands race to innovate, a critical question arises: How do consumers perceive the attributes that define these devices, and what matters most to them? This thesis dives into these perceptions, revealing insights that not only answer pressing questions about consumer behaviour but also illuminate opportunities for brands to redefine wearable tech for a diverse and evolving audience.

The wearable technology market, led by smartwatches, has become essential in health and fitness tracking. Consumer demand for devices that monitor personal health metrics has driven this growth, supported by brand ecosystems that integrate services and devices, fostering customer loyalty. Wearable technology has transformed how individuals manage their health, offering continuous monitoring and real-time insights into various health metrics (Qu et al. 2021). The heightened focus on health during the COVID-19 pandemic further propelled interest in these devices (Channa et al. 2021). These advancements bridge the gap between fitness and healthcare, with devices such as smartwatches evolving into essential tools for chronic disease management, preventive care, and personalised health tracking (Godfrey et al. 2018).

The global wearable devices market has experienced significant growth, driven by increasing consumer demand for multifunctional health monitoring devices (Lima et al. 2022). Valued at USD 61.30 billion in 2022, the wearable technology market is projected to grow at a compound annual growth rate (CAGR) of 14.6% from 2024 to 2030, showcasing the pivotal role of wearables in modern healthcare (Grand View Research 2024). North America has

emerged as a dominant market, contributing 33.8% of global revenue, followed by Asia-Pacific and Europe, with Europe maintaining steady growth through increasing adoption of wearables. Asia-Pacific exhibits the fastest growth potential due to its rapid technological adoption and accessibility of innovative products.

Europe's shifting demographics underscores the urgency to bridge this gap. As the global population ages, wearable technology is uniquely positioned to address critical healthcare and accessibility challenges. The World Health Organization recently warned in 2024 that the number of individuals aged 65 and older would surpass those under 15 in the European population, reflecting a demographic shift that presents both, challenges and opportunities for the healthcare sector (WHO 2023). Within the European Union alone, elderly individuals accounted for 20.8% of the population in 2021, with this figure projected to rise steadily over the coming decades (Eurostat 2024). Rising healthcare demands compound this trend, as older adults require more frequent medical consultations and are more likely to experience chronic conditions (WHO 2023). For this research, "elderly" is defined as individuals aged 65 years and older, with subcategories of "early elderly" (65–74 years) and "late elderly" (75 years and older), following the framework proposed by Orimo et al. (2006). These demographics face unique challenges related to chronic diseases, mobility limitations, and increased healthcare needs, making wearable health technologies especially relevant.

Wearable technologies, such as smartwatches, fitness trackers, and e-textiles, combine biosensing, microelectronics, and wireless communication to deliver real-time feedback on physical activity, vital signs, and physiological functions (Olsen 2020; Guk et al. 2019). These devices transcend traditional health management by enabling remote monitoring, fostering user independence, and reducing healthcare costs (Talukder et al. 2020). Smartwatches have become a focal point for innovation, integrating advanced features such as electrocardiogram (ECG) monitoring, blood oxygen tracking, and fall detection (Chandrasekaran et al. 2020). Brands like

Apple, Fitbit, and Samsung have spearheaded the industry by creating ecosystems that merge hardware with complementary services like Apple Fitness+ and Samsung Health, fostering user engagement and loyalty (Lima et al. 2022). As the lines between fitness devices and medical technologies blur, wearable health technologies play a crucial role in bridging the gap between preventive care and medical intervention. The integration of artificial intelligence (AI) and machine learning (ML) further enhances their capabilities, enabling early detection of health risks, predictive analytics, and personalised care plans (Jerath et al. 2023; Nahavandi et al. 2022).

Three primary barriers currently hinder the adoption of wearable health technology among elderly users. First, there is a clear lack of user-friendly, real-time health monitoring tools that integrate seamlessly into their daily routines. As one participant noted during an interview: “Older people need something functional but simple, not a device that looks like a medical gadget”. Second, the design of existing devices often emphasises clinical aesthetics or overly complex interfaces, deterring adoption. A respondent from the perceptual map survey highlighted this issue, stating, “The complexity of the device, as I find it complicated sometimes to understand and use” Lastly, caregivers face significant challenges in staying connected with elderly relatives. The conjoint analysis revealed that younger generations prioritise features such as dual connectivity, allowing them to remotely monitor health metrics while empowering elderly users to retain independence. As a market leader in wearable technology, Apple is uniquely positioned to address this gap by leveraging its reputation for seamless ecosystem integration, advanced health monitoring features, and user-centric design. This study introduces the Guardian Smartwatch, a brand-new product concept tailored specifically to the needs of elderly users while appealing to younger buyers—particularly Gen Z and Millennials—who are emerging as key advocates and purchasers for their elderly family members.

The societal relevance of this study lies in its potential to inform the development of wearable technologies that enhance the health and independence of elderly users while strengthening intergenerational connections. By addressing the challenges caregivers face, this research promotes a more inclusive and health-conscious society. The scientific relevance stems from its contribution to the existing body of knowledge on wearable technology by focusing on the intersection of consumer behaviour, health technology, and generational dynamics. The study also advances research on marketing strategies tailored to dual audiences—elderly users as end-users and Gen Z/Millennials as purchasers—offering a novel perspective on the interplay between product design, consumer behaviour, and market demand. The study seeks to answer the following research question:

RQ: *How do consumers perceive the wearable health tech industry, especially the smartwatch product category, and which key attributes do they value the most?*

The thesis begins with a literature review outlining current findings on wearable technology, generational purchasing behaviours, and elderly health monitoring. This is followed by an analysis of the perceptual map and conjoint analysis results, which identify the key attributes shaping consumer preferences. Based on these insights, the Guardian Smartwatch is proposed as a new product concept, accompanied by a detailed marketing strategy. The final section discusses the managerial implications, limitations of the study, and avenues for future research. By addressing the unmet needs of elderly users and the preferences of younger buyers, this study aims to demonstrate how Apple can redefine wearable technology as a tool for health, independence, and intergenerational care.

2. Literature review

2.1. Elderly Perception of Smartwatches and Wearable Health Technology

Elderly users' attitudes differ significantly from younger users, influenced by factors like social perceptions, usability, and comfort. Fang and Chang (2016) note that the elderly are more concerned with the social visibility of wearable devices, often feeling discomfort in public. Wrist-based wearables, however, tend to be more acceptable to them. In contrast, younger users often view smartwatches as trendy, embracing their visibility due to the "cool" factor (Chandrasekaran et al. 2020). This suggests younger users may adopt wearables for aesthetic reasons, while social judgment concerns can prevent older adults.

Social influence significantly impacts elderly users' willingness to adopt wearable healthcare technology, as encouragement from family and friends positively affects their adoption (Talukder et al. 2020). Resistance to change is also common among older adults, who may find wearables disruptive to established routines and prefer traditional healthcare practices (Talukder et al. 2020). Technology anxiety, often associated with lower self-efficacy, accentuates this reluctance, as many older adults feel less confident using digital devices effectively (Talukder et al. 2020; Chandrasekaran et al. 2020). In contrast, younger users, more comfortable with technology, readily adopt wearables for tracking fitness and lifestyle goals (Chandrasekaran et al. 2020). The elderly frequently face challenges in adopting wearable technology due to the complexity of the devices, usability issues and limited familiarity with modern technology, which hinder their engagement with wearables.

Advances in sensor miniaturisation have made wearable devices more compact and lightweight, increasing accessibility and comfort for elderly users while maintaining data quality (Chan et al. 2012). These unobtrusive designs not only encourage adoption but also support independence among elderly users, providing caregivers with peace of mind (Escobar-Linero et al. 2023).

The strong impact of performance expectancy significantly influences the elderly's intention to use wearable health technologies, as it relates to their belief in its usefulness (Talukder et al. 2020). Previous studies indicate that the perceived benefits of technology significantly boost the elderly's willingness to adopt it (Deng et al. 2014; Cimperman et al. 2016; Talukder et al. 2020). This demographic is, therefore, less likely to adopt smartwatches despite the potential health benefits these devices offer, such as monitoring chronic conditions and promoting physical activity (Lima et al. 2022). Research reveals that adults, particularly those aged 50 years and above, are significantly less likely to use wearable healthcare devices than younger adults (ages 18-34) (Chandrasekaran et al. 2020).

Long-term usage patterns also vary by age. While younger users often self-motivate through goal setting and gamification features in wearable apps (Ridgers et al. 2016), older adults require more external motivation for long-term usage of wearable technologies. Chandrasekaran et al. (2020) confirmed that gamification techniques in wearables, which appeal to younger adults, need customisation to attract other user groups, like the elderly. Brickwood et al. (2020) found elderly users benefit from professional feedback to maintain activity tracker use, with sustained engagement reliant on perceived usefulness.

Comfort and simplicity are additional critical factors for elderly users. Elderly are more sensitive to intrusiveness and discomfort, as Papa et al. (2018) emphasise, which can discourage continued use. For elderly users, functional congruence - ergonomic, lightweight, and straightforward devices - significantly influences adoption. By contrast, younger users, tolerant of minor discomforts, often appreciate multifunctional gadgets for their utility and entertainment potential (Dehghani et al. 2018). Talukder et al. (2020) suggest that straightforward, non-intrusive design can improve elderly users' experiences with smartwatches.

Lastly, the usability perceptions diverge across age groups. While younger users are generally comfortable with complex interfaces (Chandrasekaran et al. 2020), the elderly may struggle with technological complexity, leading to frustration and abandonment (Fang and Chang 2016). Older adults, who prioritise simplicity and accessible features, benefit from designs that reduce learning demands (Dehghani et al. 2018; Talukder et al. 2020).

2.2. User Experience and Design Considerations

Human-Centered Design

A well-designed Smartwatches offers the potential to enhance usability, encourage long-term use and engagement, and facilitate health monitoring and fitness tracking. User expectations often rotate around seamless integration with daily life, ease of use, long battery life, and accuracy in health tracking features such as heart rate monitoring or step counts (Pal et al. 2018). Nevertheless, it is important to recognise that user experiences can diverge from expectations, particularly when technical limitations, such as battery life concerns, data inaccuracies or complex interfaces, prevent the product from meeting the desired standards. The research findings indicate that there is necessary to focus on aspects such as interface simplicity, customisation options and intuitive design to bridge the gap between user expectations and the actual experience (Lee and Coughlin 2015).

Wearable devices that include health-monitoring functionalities tailored to elderly users, such as fall detectors, emergency alerts, and heart rate monitors, exemplify the benefits of human-centred design. These features provide critical safety functionalities and enable older adults to maintain independence, offering peace of mind to caregivers (Dinh-Le et al. 2019). Despite these advantages, older users frequently face usability challenges, ranging from difficulties in navigating complex interfaces to discomfort with the perceived stigma of wearing such devices in public (Fang and Chang 2016). Addressing these challenges through thoughtful, human-centred design is essential for fostering adoption among older adults.

Accessibility and Inclusivity in Design

Accessibility and inclusivity in design are critical factors in ensuring that wearable health technology is usable by older adults, diverse populations, people with disabilities and users from various socioeconomic backgrounds. Studies show that poor accessibility, such as small fonts, complex navigation, or lack of multi-lingual support, can significantly deter users from adopting these devices (Romero-Perales et al. 2023). Features such as voice control, larger screens and adaptive interfaces ensure that Inclusive design practices are suitable for users with visual impairments, cognitive challenges, or mobility impairments. Furthermore, integrating accessibility from the early stages of product design increases usability and broadens the market reach (Lazar, Goldstein, and Taylor 2020).

For elderly users, who often experience physical or cognitive impairments, wearable devices must incorporate ergonomic designs that enhance comfort and usability. Lightweight and non-intrusive devices, coupled with intuitive navigation and simplified interfaces, are essential to ensuring adoption and continued use (Papa et al. 2018). For example, adaptive designs that adjust interface elements based on user preferences or technologies like voice assistance can greatly enhance accessibility for diverse user groups, including older adults who may find traditional device interfaces challenging.

The Role of Family and Caregiver Support

Encouragement from family members and caregivers plays a significant role in influencing elderly users' adoption of wearable health technologies. Families can help older adults overcome perceived barriers related to complexity or unfamiliarity with modern devices by fostering confidence and providing technical support. This highlights the importance of designing wearables that are not only user-friendly but also easy for caregivers to understand and integrate into their support systems (Papa et al. 2018).

Wearable health technology, when thoughtfully designed with accessibility and inclusivity in mind, has the potential to bridge the gap between different user groups while empowering individuals—especially older adults—with tools to maintain their health and independence.

2.3. Technological Advances in Wearable Health Technology

AI, Machine Learning, and Predictive Analytics

Artificial intelligence (AI) and machine learning (ML) have transformed wearables into intelligent systems capable of detecting health risks and managing conditions. For example, AI-enabled smartwatches can detect atrial fibrillation through ECG monitoring and provide stress management insights using heart rate variability (HRV) (Jerath et al. 2023). ML algorithms, including long short-term memory (LSTM) networks, support real-time monitoring of chronic conditions such as Parkinson's disease, enhancing independence for patients (Nahavandi et al. 2022).

Beyond cardiovascular monitoring, wearables equipped with AI and ML have demonstrated capabilities in predicting seizures and managing movement disorders. Using techniques such as support vector machines and hybrid algorithms, wearables can identify seizure types and monitor movement abnormalities associated with chronic conditions like Parkinson's disease. While promising, the need for broader datasets and standardised seizure definitions present challenges for scaling these capabilities (Nahavandi et al. 2022).

Predictive analytics, powered by AI, allow wearables to identify health trends and enable early intervention for chronic diseases such as hypertension and diabetes. This capability is particularly valuable for elderly users and those managing multiple chronic conditions, supporting a shift toward proactive healthcare management (Escobar-Linero et al. 2023; Pandian et al. 2024).

Blockchain and Data Security

Blockchain technology offers a decentralised and secure method for managing the vast amounts of sensitive health data generated by wearables. By ensuring that data is only accessible to authorised parties, blockchain enhances user trust and mitigates risks associated with data breaches (Paul et al. 2023). This approach aligns with regulatory frameworks like GDPR, prioritising transparency and user control over personal health information (Mittelstadt 2017). This decentralised model not only protects user privacy but also simplifies the secure exchange of data between devices, further enabling seamless health monitoring across interconnected systems (Perez and Zeadally 2017).

Overcoming Technical Challenges

While wearables continue to advance, challenges such as limited battery life, data connectivity, and interoperability remain significant. Future innovations in power efficiency and 5G technology aim to address these issues, enabling more reliable and continuous health monitoring (Obianyo et al. 2024). A critical challenge for healthcare providers is managing the overwhelming volume of data generated by continuous monitoring.

AI-driven solutions are under development to filter, analyse, and prioritise this data, but implementation on a large scale remains in its early stages (Dinh-Le et al. 2019; Nahavandi et al. 2022). Enhanced security protocols and privacy safeguards are essential to maintain user trust and address ethical concerns surrounding wearable health technology (Kapoor et al. 2020).

2.4. Status Quo and Literature Gap

Wearable health technologies, particularly smartwatches, have made substantial progress, incorporating features such as ECG monitoring, blood oxygen measurement, fall detection, and AI-driven predictive analytics. These innovations facilitate personalised health management, chronic disease monitoring, and early detection of conditions such as atrial fibrillation and hypertension (Liu et al. 2021; Jerath et al. 2023). Despite these advancements,

challenges persist that hinder widespread adoption, especially regarding inclusivity, usability, and the regional and generational diversity of data. This highlights the need for a more consumer-oriented approach, such as integrating Choice-Based Conjoint Analysis (CA) and Perceptual Mapping (PM), to address user preferences better.

Although wearable health technology has broadened its functionality, its design is not yet fully tailored for diverse populations. Older adults and individuals with physical or cognitive impairments often encounter barriers such as complex interfaces and small screen sizes, which hinder both adoption and long-term use (Papa et al. 2018). Moreover, the high cost of wearables, along with the need for smartphone compatibility, excludes certain user groups. This underscores the need for more inclusive design to ensure broader adoption across different demographics.

A significant limitation in current research is the prevalence of U.S.-centric data, which restricts the generalisability of findings to other regions. Market analyses, adoption trends, and healthcare integration are often derived from the U.S. context, which may not accurately reflect the cultural, regulatory, or technological landscapes of Europe and other regions (Dinh-Le et al. 2019; Chandrasekaran et al. 2020). This lack of regional diversity creates gaps in understanding how wearable technologies are adopted and perceived in different cultural and regulatory environments, especially in Europe.

Predictive analytics and proactive health management are frequently promoted as transformative tools in wearable technology. However, their real-world application faces substantial challenges, particularly regarding validation and user awareness. Predictive models for chronic conditions, such as diabetes or cardiovascular diseases, are limited by insufficient validation across diverse populations (Nahavandi et al. 2022). Additionally, many users remain unaware of or fail to utilise these features, indicating a disconnect between the technological

capabilities of wearables and their practical use. Bridging this gap requires a closer alignment between device functionality and user needs.

Furthermore, existing literature often needs to pay more attention to cross-cultural and generational differences in the adoption of wearable health technologies. Most studies focus on Western, tech-savvy populations, overlooking regions where cultural attitudes towards privacy, technology, and health monitoring may differ significantly (Dinh-Le et al. 2019). Similarly, generational differences in adoption and priorities are often oversimplified. Younger users tend to prioritise features such as gamification and connectivity, while older adults focus on fundamental health functionalities, such as fall detection and heart rate monitoring (Chandrasekaran et al. 2020). Understanding these differences is crucial to designing wearable technologies that meet the needs of diverse user groups.

3. Methodology

The present research employs both qualitative and quantitative methods to address the overall research question (Appendix A.1):

RQ: *How do consumers perceive the wearable health tech industry, especially the smartwatch product category, and which key attributes do they value the most?*

In a preliminary analysis, interviews were conducted with two distinct groups: general consumers and industry experts. The target group consisted of individuals born between 1970 and 2000 who had purchased and used smartwatches for at least six months (Appendix A.6). Considering the researchers' limited accessibility and the specific subject of this study, a convenience sampling method was employed, incorporating data uniquely from a nearby and willingly available group of respondents. As most of the researchers had the best access to the European population, this study exclusively focused on European Gen-Z consumers. The results gathered were used as the foundation to determine relevant attributes for two subsequent quantitative surveys. The first survey was designed to construct a perceptual map and ultimately answer the first three research questions of this dissertation:

RQ1: *What key attributes shape consumers' perceptions of smartwatch brands?*

RQ2: *How do consumers perceive the overall competitive landscape within the smartwatch industry?*

RQ3: *Which main market gaps can be identified from the perception of consumers?*

The following survey was created to collect data to perform a conjoint analysis and address the remaining three research questions:

RQ4: *What key attributes and features do consumers value most when considering purchasing smartwatches?*

RQ5: *How do smartwatch brand attributes and feature preferences vary by consumer demographics (age, physical activity level, use case, current users vs non-users)?*

RQ6: *How do consumer preferences for smartwatch attributes and features change when considering a purchase for elderly users?*

3.1. Preliminary Interviews

The preliminary interviews aimed to gather qualitative insights into user preferences, behaviours, and perceptions regarding smartwatches, focusing on the features that drive purchase decisions and influence satisfaction. The following methodology outlines the approach to conducting, recording, and analysing these interviews.

To provide a deeper understanding of the interviews conducted, Appendix A summarises the interview process: A.2 and A.3 outline questions for consumers and experts, A.4 and A.5 present response trends, A.6 highlights users profile, and A.7 presents the detailed transcript of each preliminary interview.

3.1.1. Interview Design

The research employed a mixed-methods approach, utilising face-to-face interviews, phone calls, and virtual Microsoft Teams meetings to conduct a total of seven preliminary interviews, each lasting between 20 and 35 minutes. The participants represented a varied sample of three professionals and four general consumers, providing a broad perspective on how smartwatches are used in daily life and professional settings. This helped identify their attributes, influencing their purchase decisions and the features they prioritise most.

Participants represented a diverse mix of smartwatch users across brands (e.g., Apple, Garmin), demographics, and usage patterns, ensuring a wide range of perspectives on consumer experiences. The sample included various ages, genders, and fitness levels, with casual and intensive users reflecting different needs and satisfaction levels. The utilised questions for the interview covered six main themes, with the first one being the extraction of the main purchasing motivation. It examines the key features that influence customers purchasing decisions. Additionally, to validate the satisfaction with the specific features of the smartwatch,

participants were asked for necessary technical features. While exploring the interviewee's stances on data security and trust, they were asked about privacy concerns and issues related to data security. To assess how important brand loyalty and ecosystem compatibility are to smartwatch users, a theme on brand preferences and device integration was included, while usage frequency and context examined usage scenarios such as workouts and productivity. Lastly, future expectations invited participants to share ideas for future features, capturing insights on emerging trends and desired functionalities (Appendix A.2 and A.3).

3.1.2. Interview Results

Key Attribute	Interview Results
Health Monitoring	Heart rate and sleep tracking were highly valued, with a strong interest in predictive health insights
Battery Life	Essential for all users; casual users prioritized daily longevity, while sports users sought extended battery support
Design and Customization	Participants preferred adaptable designs with customizable options like interchangeable bands and watch faces to suit both function and personal style
Privacy and Data Security	Users expressed a demand for transparency and control over health data, especially regarding third-party access
Brand Loyalty and Ecosystem	Important in purchasing decisions: Apple users valued seamless integration with iPhone devices
Social Connectivity and AI Integration	Appealed to younger users; features like fitness milestone sharing and community challenges were especially attractive
Future Feature Aspirations	Included advanced health monitoring, predictive health alerts, enhanced connectivity, and community-oriented social features, indicating a mix of practical and socially engaging functionalities

Table 1: Preliminary Interview Results

Several key preferences and priorities among smartwatch users were revealed in the consumer and industry experts' interviews (Appendix A.4 and A.5):

Most interviewees identified health monitoring, especially heart rate and sleep monitoring, as the primary reason for buying a smartwatch, with battery life, design, and price also influencing their choice. Ecosystem integration, particularly within the Apple environment, was valued by over half of the participants for its convenience, though one noted that brand

loyalty didn't affect their decision. The most-used features included heart rate monitoring, step counting, and sleep tracking, emphasising the importance of health metrics.

Some users were concerned about privacy, while others were less worried, often citing data anonymisation. Opinions on AI-driven health features varied, with a few seeing them as important but not essential. Different users praised Apple's ecosystem, Garmin's fitness tracking, and Huawei's balance of price and functionality, reflecting varied brand strengths.

Comparative Analysis: Industry Experts vs. Consumers

To validate findings, insights from consumer and industry expert interviews were compared, revealing key alignments and gaps. Both consumers and experts appreciate the health monitoring and predictive capabilities of the smartwatch. Nevertheless, consumers demonstrated a greater interest in the practical, everyday applications of AI, indicating that brands should prioritise this aspect. Consumers were moderately concerned about protecting their privacy, appreciating a clear data policy and basic control of their information. In contrast, Industrie Experts place a significant value on user privacy yet recognise that users tend to accept the terms and conditions without delving into their specifics. Battery life was a crucial factor across all users, yet active users requested longer-lasting performance than what the industry standard typically offers.

Regarding device compatibility, both groups preferred a broader, cross-platform integration, allowing them more flexibility outside of a single ecosystem. Design and customisation were also appreciated by both, with consumers preferring adaptable, modular options. However, design always carries an element of personal preference. Finally, social and AI features were valued, with consumers particularly interested in social engagement, pointing to the potential for expanding community-driven functionalities.

The consumer interviews provided valuable insight into smartwatch users' priorities and most important features. Health features, privacy considerations, design preferences, and cross-

device compatibility were found to be important attributes. By comparing consumer insights with those of industry experts, conjoint analysis is well-positioned to capture smartwatch users' trade-offs when purchasing a smartwatch. The crystallised attributes provide a valuable framework for analysing consumer preferences and enable brands to meet evolving expectations in the wearable health technology market. Conjoint Analysis

Conjoint analysis is a research method that quantifies consumer preferences by assessing the trade-offs they make between different product attributes (Orme 2009). This approach allows researchers to understand the relative importance of various features, making it well-suited for complex, multi-attribute products like smartwatches (Green and Srinivasan 1978). Within this study, our conjoint analysis will capture consumers' valuation of specific smartwatch attributes across different levels, which will be derived in the subsequent sections.

Smartwatches, which blend functionality with personal expression, present a variety of features that attract diverse user demographics. By simulating real-life purchasing trade-offs, the brand-specific choice-based conjoint enables a structured examination of consumer preferences across these multiple attributes, providing insights into the features consumers prioritise in their decision-making process. By understanding these trade-offs, we can evaluate the relative consumer preferences of various attribute combinations and identify the path-worth utility compared to available alternatives within the smartwatch market.

4. Perceptual Map (resume)

A perceptual map is a valuable marketing tool used to graphically represent how consumers perceive brands or products based on multiple attributes. This allows businesses to analyse their competitive positioning and identify differentiation opportunities. In this study, the perceptual map was developed using multiple dimensions to evaluate smartwatch brands based on consumer perceptions of key attributes such as health support, trustworthiness, usability, and innovation.

4.1. Research Design

4.1.1. Choice Attributes

Sixteen attributes were selected to assess consumer perception of smartwatch brands, including health monitoring, ease of use, integration with other devices, and brand reputation. These attributes were chosen based on qualitative insights from consumer interviews and literature review.

4.1.2. Survey Design

An online survey was conducted using Qualtrics, reaching 157 respondents. Participants were randomly assigned one of five smartwatch brands (Apple, Samsung, Huawei, Fitbit, Garmin) and rated them on key attributes using a 5-point Likert scale.

4.1.3. Sample Characteristics

The majority of respondents were from the EU, with a high proportion from Germany and France. Gender distribution showed a predominance of female participants (68%), and generational representation spanned Gen Z, Millennials, and Baby Boomers.

4.2. Research Results

4.2.1. Multidimensional Perceptual Map Findings

Factor analysis using SPSS identified three key dimensions that shape consumer perception:

1. **Emotional Appeal** – Includes attributes like sophistication and brand reputation, strongly associated with Apple.
2. **Functional Practicality** – Emphasizing durability, value for money, and trustworthiness, with Garmin as a leading brand.
3. **Accessibility Across Generations** – Highlighting usability for elderly and younger users, where Samsung performed well.

4.2.2. Interpretation

Apple excels in emotional appeal but lacks in accessibility across generations. The brand is perceived as premium and aspirational, which resonates with younger consumers but may alienate older users looking for functionality over brand status. Garmin dominates functional practicality, appealing to fitness-focused consumers who prioritise durability and health-related features. Samsung balances emotional appeal and accessibility, making it an attractive all-rounder but lacking strong differentiation in either category. Fitbit and Huawei lag in emotional appeal and accessibility, indicating a need for repositioning. The perceptual map highlights a significant market gap for smartwatches catering to elderly users, presenting an opportunity for Apple to introduce a more user-friendly and health-focused model like the Guardian Smartwatch.

5. Conjoint Analysis

5.1. Research Design

5.1.1. Choice Attributes and Levels

Building on prior studies and the previous perceptual map, this work contextualises insights from our preliminary interviews within our conjoint analysis through the following most relevant seven attributes: Smartwatch Brand, Health Monitoring Features, Battery Life, Connectivity to Smartphone, Data Sharing & Privacy, Design & Aesthetics, Price (Appendix A.1). This carefully constructed setup allows us to assess how consumers value various smartwatch attributes, answering our research question **RQ4:** *What key attributes and features do consumers value most when considering purchasing smartwatches?* These insights enable targeted marketing strategies and product development recommendations.

Smartwatch Brand

The smartwatch brand identity is a key factor influencing consumer choices, serving as an initial indicator of perceived quality and reliability, which impacts a unified user experience (Hsiao and Chen 2018). The selected brands include five global players: Apple, Samsung, Garmin, Huawei, and Fitbit, based on the current market share in the European sector. Studies in consumer behaviour indicate that established brands such as Apple and Samsung dominate market share by maintaining high brand loyalty, often through exclusive features and enhanced compatibility with other devices within their ecosystem (Jung, Kim, and Choi 2016). By incorporating brand as a key attribute, the conjoint analysis can effectively capture these brand-driven dynamics, revealing brand-specific preferences and trade-offs.

Health Monitoring Features

Health monitoring capabilities have emerged as one of the primary appeals of modern smartwatches, distinguishing them from traditional watches. A study by Ghasemaghaei and

Hassanein (2019) found that adoption increases with actionable insights. Expectations of health-conscious consumers shift from basic tracking functionalities (Heart rate, step count) and advanced health insights (ECG, Blood Oxygen, Sleep Tracking, Stress Level, Blood Pressure) to AI-Enhanced Predictive Disease Management focusing on preventive care and self-monitoring (Sullivan and Gersh 2018).

Younger users often value health tracking as part of a holistic approach to fitness, while older users may view these features as essential tools for managing existing health conditions (Gumasing et al. 2024).

Battery Life

Battery life is a fundamental consideration in the smartwatch market, shaping consumer satisfaction and influencing long-term adoption. Bolen (2020) and Jansson and Vanguard (2024) note that the frequent recharging required by smartwatches impacts convenience, particularly for consumers, including Generation X, who are accustomed to long-lasting traditional watches. It demonstrates that battery life not only affects practicality but also contributes to a smartwatch's perceived quality and value. The attribute levels for "Battery Life" have been structured to represent the total market range of battery capabilities: Up to 24 hours, 2 - 3 Days, 4 – 7 Days, and More than 7 Days.

Design and Aesthetics

By combining functionality with personal style, smartwatches are not only seen as technological tools but as fashion accessories, creating a perceived tension for companies with appearance as a crucial consideration in purchase decisions. Similarly, Agustiar et al. (2024) highlight the role of design elements—such as material choices like leather, silicone, and metal—and the importance of customisation options in enhancing brand loyalty. Their findings indicate that smartwatches with interchangeable bands, diverse colour options, and high-quality

materials fulfil consumers' desires for personalisation, aligning with trends that prioritise individuality and self-expression. Based on these insights, the "Design and Aesthetics" attribute incorporates Minimalistic Design (Simple, sleek, and lightweight); Sport-Focused Design (Durable, rugged, silicone bands); Premium Accessory (luxurious, leather and stainless steel, jewellery-oriented); or Customizable and Trendy (interchangeable bands, colour options).

Price

Since smartwatches serve dual roles as technological devices and lifestyle accessories, consumer willingness to pay varies significantly based on a combination of various factors like perceived utility, the features offered at each price point, and the design appeal (Jung et al. 2016). Hsiao and Chen (2018) further emphasised that consumers are more inclined to purchase when they perceive high value for money, particularly in products that integrate robust quality features. Moreover, Gumasing et al. (2024) identify high price points as a primary barrier to adoption, particularly among older adults and first-time buyers seeking entry-level or mid-range options for essential functionalities and not advanced technologies. This suggests that while some consumers are willing to invest in premium models from brands like Apple or Samsung, affordability remains a priority for other segments. Capturing a range of common price points, based on a screening of the European smartwatch market, as well as research insights, the following price levels are used: 199€ (Entry-level range); 299€ (Low to Mid-range); 499€: (Mid to high); 799€: (premium range); and 1000€+ (luxury range).

Connectivity to Smartphone

A smooth connection across devices has become central to user experience and perceived value, especially for consumers who expect their smartwatch to function effortlessly with their existing smartphone operating system (Pal et al. 2020). According to Feng et al. (2023), users value seamless data syncing and dislike extra steps, such as using third-party apps,

which often create delays or data limitations. This attribute distinguishes between two different levels of integration, representing the current standards and consumer expectations in the smartwatch market: No App Required: Seamless, direct connection for a limited number of compatible brands, providing real-time syncing with fewer device restrictions; Additional App Required: Supports full cross-brand compatibility via third-party apps, allowing integration across most smartphone platforms, although with potential feature limitations or data delays.

Data Sharing & Privacy

With the rise of health monitoring in wearable technology, data sharing and privacy have become essential consumer considerations. Monteith et al. (2023) identify discrepancies across smartwatch brands regarding data security and third-party sharing. For instance, Apple prioritises data encryption and restricts third-party access, while Fitbit, under Google's ownership, allows minimal access under strict European privacy regulations. According to Piwek et al. (2016), privacy concerns in wearable technology are often linked to the sensitivity of the health and personal data collected, which can impact consumer trust and willingness to adopt such devices.

The levels for Data Sharing & Privacy reflect varying degrees of control and transparency, capturing how different options appeal to consumers with diverse privacy needs: Basic Data Collection (Minimal anonymity and control, with essential security measures and data collected primarily for device functionality); Standard Privacy Settings (Limited anonymity and basic control, allowing users some choice over data access while maintaining baseline privacy standards); Enhanced Privacy with Controlled Third-Party Sharing (Moderate anonymity and selective data sharing, where third-party access is limited and requires user approval); and Full Transparency (High anonymity and full control, with comprehensive data encryption and user-managed permissions ensuring data remains private unless explicitly authorised for sharing).

5.2. Survey Design & Data Collection (resume)

A choice-based conjoint analysis was conducted via Conjoint.ly, collecting 171 valid responses. The study aimed to identify consumer preferences for smartwatch attributes, including pricing, data privacy, battery life, and health monitoring features. By using a trade-off analysis method, the study measured the relative importance of these attributes in purchase decisions.

5.3. Research Results (resume)

The conjoint analysis revealed that **price remains the most critical purchase factor** across all brands, accounting for an average of 35% of the decision weight. **Data privacy** ranked as the second-most important factor (around 18%), with participants showing a strong preference for brands that offered clear transparency on data sharing and security measures. **Health monitoring features**, including heart rate tracking, ECG, and sleep monitoring, were the third most influential factor (15%), particularly among consumers with an active lifestyle or those purchasing for elderly relatives.

Price sensitivity was most pronounced among **Gen Z consumers**, who favored affordability while still expecting a stylish, functional device. **Millennials and Gen X** exhibited a greater willingness to pay for enhanced privacy and health functionalities. **Apple emerged as the preferred brand**, particularly among Gen Z and Millennials, due to its reputation for quality and integration within the broader Apple ecosystem. **Garmin and Fitbit attracted fitness-oriented users**, with Garmin excelling in battery life and durability, while Fitbit appealed to those focused on everyday health tracking.

Samsung was well-received for offering a strong balance between affordability and advanced health features, making it an appealing choice for cost-conscious consumers. **Huawei,**

however, struggled due to perceived weaknesses in brand trust and software compatibility, leading to lower consumer preference scores.

5.3.1. Conjoint Insights for the Elderly Use Case

When considering a smartwatch for **elderly users**, respondents prioritized the following three features:

1. **Emergency Alerts (24%)** – Including SOS buttons, fall detection, and automatic emergency calling.
2. **Ease of Use (22%)** – Simplified interfaces, larger screens, and voice command support.
3. **Battery Life (19%)** – Minimizing the need for frequent charging to ensure uninterrupted use.

A key insight from the analysis was that many respondents **shifted their smartwatch preferences** when purchasing for an elderly relative. While younger consumers prioritize aesthetics, connectivity, and brand prestige, they valued reliability and ease of use when considering a smartwatch for an older family member. This **highlighted a clear discrepancy between current smartwatch offerings and actual consumer needs** in the elderly segment.

Apple's premium reputation remained strong, yet respondents viewed its ecosystem as **too complex for elderly users** due to its reliance on multiple integrations and applications. **Garmin and Fitbit** were perceived as more user-friendly for elderly individuals, particularly due to their straightforward interfaces and long battery life. However, **neither brand offered the full range of health features** respondents were seeking for elderly users, particularly in emergency response capabilities.

The **Guardian Smartwatch concept directly addresses these gaps** by integrating the three most requested features: emergency alert functionalities, intuitive design, and long battery life. Additionally, by maintaining Apple's ecosystem advantages while simplifying the user experience, the Guardian model provides a compelling solution for both elderly users and their younger family members who act as surrogate buyers.

6. Apple's New Smartwatch Launch: Developing Product and Marketing Strategies

The current market gap in the competitive landscape, identified through the perceptual map and conjoint analysis, is the optimal opportunity for Apple to win a competitive advantage over its overall superiorly perceived rival, Samsung (**Error! Reference source not found.**), and become the clear leader in the smartwatch market. Apple is in an optimal position to capitalise on the current market gap for elderly users, if it manages to leverage its unprecedented Emotional Appeal and its prestige while improving its weak accessibility for older generations. To seize this potential, we have taken on the additional mission of designing a new Apple smartwatch, driven by our research findings, prioritising adapted features for the elderly, and developing a marketing strategy that targets Gen Z and Millennials as surrogate buyers and advocates for their loved ones.

6.1. Opportunities and Challenges

The focus on the previously defined elderly generations (65 years and above) as the end-user of the newly created Apple smartwatch, called "Guardian Smartwatch", is not only justified by the primary data resulting from the perceptual map and conjoint analysis of this thesis but also aligns with the status quo of the literature and trend forecasts, which underline the urgency of developing tailored solutions for elderly generations. Importantly, Gen Z and Millennials act as 'surrogate buyers,' taking on the responsibility of purchasing and advocating for this product on behalf of their elderly family members, ensuring that their needs are met with innovative and accessible solutions.

Opportunity: Growing Underserved Market Segment

The smartwatch industry faces an underserved yet rapidly growing demographic: elderly individuals aged 65 and over. Europe, in particular, is experiencing a demographic shift

with an ageing population that is becoming a defining trend. By 2024, individuals aged 65 and over will outnumber those under 15 (WHO 2023). This demographic currently accounts for 20.8% of the EU population and is projected to grow steadily in the coming decades (European Commission, 2023). This market represents a significant untapped opportunity, coupled with increasing healthcare demands, as older adults are more likely to suffer from chronic conditions (WHO 2023).

Our perceptual map analysis underscores that this segment remains underdeveloped, with few brands effectively aligning their offerings to meet the needs of elderly users and no brand being able to meet these needs while remaining competitive on the other key dimensions (**Error! Reference source not found.** and **Error! Reference source not found.**). For Apple, this presents a dual opportunity: To close the competitive gap with Samsung and to position itself as a leader in a growing market segment. By improving its Accessibility Across Generations, Apple can expand its consumer base and establish itself as both prestigious and inclusive in the smartwatch industry. In sum, successfully entering this market would enhance Apple's reputation and capture a growing consumer segment critical for long-term growth.

Challenges Hindering Adoption

Apple must address and solve three main challenges, which were highlighted by the literature and preliminary interviews, to capture the described opportunity effectively:

Challenge 1: Health Monitoring Needs: Older adults face higher rates of chronic illnesses and require frequent health check-ins. However, they lack easy-to-use, real-time health monitoring tools that integrate seamlessly into their daily routines. As Marie Dupont noted during the preliminary interview, "In my opinion, older people need features that are simple to use and can help monitor their health effectively."

Challenge 2: Technology Accessibility Barriers: Many older adults perceive smartwatches as too complex or unsuitable for their needs. The stigma of medical-looking devices and

unintuitive designs further hinders adoption. "Maybe the complexity of the device, as I find it complicated sometimes to understand and use. I'm not sure if that's because I'm not really into new technologies or something else." (Marie Dupont).

Challenge 3: Caregiver Challenges: Families and caregivers struggle with the pressure of monitoring elderly relatives' health. They require tools with dual connectivity features that enable younger generations to monitor the well-being of their loved ones remotely. As another participant explained, "We noticed that during Christmas campaigns, a lot of older people - like grandmothers - started buying smart bands as gifts or even for themselves. It was unexpected, but it showed us that health-conscious branding resonated with them." (Filipa Abrantes).

Proposed Solution: The Guardian Smartwatch

Our solution, called the Guardian Smartwatch by Apple, will enhance the health and independence of elderly individuals while alleviating the caregiving burden on families. The Guardian Smartwatch represents a brand-new product designed specifically for elderly users, filling a critical market gap identified through our perceptual map and conjoint analysis. The Guardian Smartwatch addresses the described challenges directly by integrating tailored features that balance functionality and usability. Built on the ideal configuration identified in our research, the Guardian combines affordability at €299 with premium features. These include full data transparency for privacy, ease of use, advanced health monitoring with emergency alerts such as SOS and fall detection, a stylish premium accessory aesthetic, and a practical battery life of 4 - 7 days. Its seamless compatibility through an additional app ensures effortless integration into Apple's ecosystem, making the Guardian the ultimate allrounder smartwatch for bridging generational needs.

Apple's Competitive Advantage in the Smartwatch Market

The conjoint analysis confirms Apple's capability to address the described challenges effectively, given its established market reputation, seamless ecosystem integration, and trusted reliability among younger buyers identified by the conjoint analysis. At the same time, the perceptual map showed room for improvement in all the dimensions except Emotional Appeal. Conjoint findings indicate the need for an allrounder product for elderly users, where the highest feature levels are not always preferred. Instead, the smartwatch convinces through a unified user experience with broad functional and aesthetic appeal. As opposed to niche products like Garmin, which address specific activities such as sports, Apple's trusted brand and expertise in wearable technology make it uniquely positioned to win over a new large customer demographic, if the brand manages to improve Apple's reputation in functionality and accessibility which is currently lacking, as identified in the perceptual map.

Target Demographics and Marketing Implications

The Guardian Smartwatch addresses the critical challenges faced by elderly users (Challenges 1 and 2) while alleviating the caregiving pressures of younger family members (Challenge 3). Elderly users, often deterred by accessibility barriers and technological intimidation, rely on younger family members - particularly Gen Z and Millennials - to select wearable devices on their behalf as surrogate buyers, a responsibility less often assumed by Gen X (Aslan et al. 2024).

Another reason to target Gen Z and Millennials as the primary buyers is that these generations are emerging as the most influential consumer demographics for the coming years. Millennials are entering their peak earning years, while Gen Z is maturing into a financially active audience, making them ideal advocates and buyers for the Guardian Smartwatch. Furthermore, our analysis identifies Generation Z and Millennials as the most suitable target demographic for launching a smartwatch tailored to the elderly use case. Gen Z comprises the largest segment in our sample and demonstrates strong interest in purchasing for elderly family

members, with 74.8% indicating "yes" to this intent. Millennials represent a similar segment with overlapping characteristics.

Additionally, 88.3% of Gen Z respondents believe smartwatches can play a crucial role in monitoring health or managing/preventing health issues, similar to Millennials (85.7%), surpassing the percentage for Gen X (62.5%). Thus, the Guardian can empower elderly users and assist caregivers, motivating them to purchase for its dual benefit: ensuring their loved one's health and safety while alleviating caregiving burdens. Moreover, the conjoint revealed that Gen Z and Millennials are very much homogenous in their brand, attribute and attribute level preferences, which would justify similar marketing approaches for both segments. By addressing the practical and emotional needs of both demographics, the Guardian Smartwatch positions itself as a functional health tool and an emotional gift that fosters intergenerational care.

The practice of children and grandchildren purchasing technology for elderly relatives reflects a shift in consumer behaviour, where the purchaser is often not the end user. As discussed in the literature review (Elderly Perception of Smartwatches and Wearable Health Technology), elderly individuals rarely buy devices like smartwatches independently and instead rely on younger family members, surrogate buyers, to make these decisions. This represents a form of joint purchasing, where family members collaborate in the buying process. Similar to gift purchasing, the buyer makes decisions based on the recipient's needs and preferences (Wilson 2000). In this context, younger family members take on the role of surrogate buyers, selecting products like the Guardian Smartwatch to meet the elderly user's needs while aligning with their own preferences for safety and usability. This strategy aligns with the "support networks" of elderly individuals, which include family members, caregivers, and close friends who play a critical role in advocating for solutions that promote safety and well-being.

Following a comprehensive analysis of the wearable technology market through the perceptual map analysis and conjoint analysis, we propose a marketing strategy designed to resonate with elderly consumers themselves as well as their support networks, specifically Gen Z and Millennials as primary buyers, which will be described in detail in chapter **Error! Reference source not found.**. While Apple dominates in Emotional Appeal, reflecting a strong association with sophistication, excitement, and aspirational branding, the perceptual map reveals opportunities for Apple to address gaps in Functional Practicality and Accessibility Across Generations.

The Guardian Smartwatch - a device designed to empower elderly users with enhanced health functionalities, robust privacy controls, and sustainable design - not only promotes intergenerational care but also boosts Apple to be the unprecedented leader in the wearable technology market. Societal Impact and Future Potential of the Guardian Smartwatch

The introduction of the Guardian Smartwatch underscores the transformative potential of wearable health technology in enhancing the quality of life for elderly individuals while fostering intergenerational connections. By addressing the unique needs of elderly users and appealing to the value of Gen Z and Millennial buyers, the Guardian Smartwatch not only bridges the generational divides but also positions itself as a meaningful tool for promoting health, independence, and safety.

The societal implications of such innovations are profound. Enhanced health monitoring can lead to early detection of medical conditions, reducing healthcare costs and improving patient outcomes, especially taking into account the previously addressed demographic shift. Moreover, by fostering collaboration between generations, wearable health technologies strengthen family bonds and encourage shared responsibility for the well-being of the young and old.

Looking ahead, the integration of wearable technology into healthcare systems, combined with targeted advocacy of younger generations, holds the promise of creating a more inclusive and health-conscious society. Continuous research in this domain will not only inform product development but also shape policies and practices that empower individuals of all ages to lead healthier, more connected lives. Through sustained innovation and strategic marketing, products like the Guardian Smartwatch can redefine the intersections of technology, health, and human connection in a dynamically changing society.

6.2. Product Development: Smartwatch Prototype for the Elderly (resume)

The Guardian Smartwatch

The Guardian Smartwatch was designed to address the specific challenges elderly users face with current smartwatch offerings while maintaining appeal for younger buyers who act as surrogate purchasers. It incorporates:

- **Advanced Health Monitoring**: ECG tracking for early detection of irregular heart rhythms, SpO2 monitoring to measure blood oxygen levels, and fall detection to alert caregivers or emergency services.
- **Emergency Features**: A dedicated SOS button, activated with a 3-second press, instantly connects to pre-selected emergency contacts. The smartwatch can also detect sudden falls and automatically notify caregivers.
- **Ease of Use**: A highly intuitive user interface, large buttons, and simplified navigation make the device accessible to users unfamiliar with touchscreen technology. The smartwatch is also voice-command enabled for hands-free operation.
- **Seamless Integration**: The Guardian connects effortlessly to Apple's Health app, allowing real-time health data sharing between elderly users and their family members. This feature ensures younger caregivers can stay informed about their loved ones' well-being.
- **Optimised Battery Life**: With a 4-7 day battery life, the Guardian eliminates the need for frequent charging, addressing a major barrier to smartwatch adoption among elderly users.
- **Privacy and Data Security**: Given the concerns surrounding health data, the Guardian implements end-to-end encryption and allows users full control over what health information is shared and with whom.

Design Considerations

- The smartwatch features a lightweight, hypoallergenic wristband for comfortable extended wear.
- It offers customisable watch faces, including large digital and analogue options tailored for visual clarity.
- The sport-focused yet elegant design ensures that it appeals to elderly users while maintaining Apple's premium brand aesthetic.

By focusing on accessibility, security, and practicality, the Guardian Smartwatch fills a significant market gap, positioning itself as the optimal solution for intergenerational care and health monitoring.

6.3. Marketing Strategy for the Guardian Smartwatch (resume)

Apple's strategy for launching the Guardian Smartwatch focuses on multi-channel engagement, strategic partnerships, and emotional branding to ensure maximum adoption.

Key Promotional Methods:

1. **Influencer Marketing**: Collaborations with family-oriented influencers such as Jessica Athayde and Riccardo Simonetti to highlight the watch's role in intergenerational caregiving.
2. **Targeted TV Spots**: Emotional storytelling featuring well-known figures like Jane Fonda, showcasing how the smartwatch enhances elderly independence while providing peace of mind for families.
3. **In-Store Workshops**: Apple retail stores will host hands-on training sessions for elderly users and caregivers, emphasizing usability and key safety features.
4. **Healthcare Partnerships**: Collaborations with hospitals, insurance providers, and wellness programs to integrate the Guardian into elderly healthcare plans.

5. **Retail Placement**: The Guardian will be prominently positioned in Apple Stores, electronics retailers, and medical supply chains to ensure accessibility to both younger buyers and elderly users.
6. **Seasonal Promotions**: Apple will introduce family bundles, senior discounts, and limited-time holiday offers to drive adoption.

By leveraging emotional branding and real-life storytelling, Apple aims to position the Guardian Smartwatch as more than just a tech product—a trusted health companion for elderly individuals and a valuable tool for their families.

6.1.Societal Impact and Future Potential of the Guardian Smartwatch

The introduction of the Guardian Smartwatch underscores the transformative potential of wearable health technology in enhancing the quality of life for elderly individuals while fostering intergenerational connections. By addressing the unique needs of elderly users and appealing to the value of Gen Z and Millennial buyers, the Guardian Smartwatch not only bridges the generational divides but also positions itself as a meaningful tool for promoting health, independence, and safety.

The societal implications of such innovations are profound. Enhanced health monitoring can lead to early detection of medical conditions, reducing healthcare costs and improving patient outcomes, especially taking into account the previously adressed demographic shift. Moreover, by fostering collaboration between generations, wearable health technologies strengthen family bonds and encourage shared responsibility for wellbeing for young and old. Looking ahead, the integration of wearable technology into healthcare systems, combined with targeted advocacy of younger generations, holds the promise of creating a more inclusive and health-conscious society. Continuous research in this domain will not only inform product development but also shape policies and practices that empower individuals of all ages to lead healthier, more connected lives. Through sustained innovation and strategic marketing, products like the Guardian Smartwatch can redefine the intersections of technology, health, and human connection in a dynamically changing society.

7. Conclusion

7.1. Discussion

The discussion provides an interpretation of the results of the analyses and a comparison with the literature. This section presents insights into how consumer perceptions and acceptance factors influence the market for wearable health technology. By synthesising and summarising the key findings from both analysis methods, the discussion aims to highlight the implications for product development and marketing strategies, particularly for targeting different generational groups.

Consumer Perceptions and Usability

The literature shows that younger consumers prefer advanced features such as AI-driven health information, while older users favour features that offer tangible, immediate benefits (Jerath et al. 2023). The conjoint analysis confirms these preferences, demonstrating that older respondents prioritise health features directly impacting their well-being, such as fall detection and emergency alerts. These findings highlight the necessity for developing smartwatches that align with the usability requirements of older users, offering immediate health benefits and a user-friendly interface. The conjoint analysis additionally revealed that Generation Z and Millennials are more inclined towards AI-driven health features. In contrast, Generation X, while still interested in health monitoring, places greater emphasis on ease of use and simpler technologies. It is noteworthy that this indicates that Generation Z may attach greater significance to health monitoring features than older generations, thereby contributing to the apparent complexity of generational preferences. The perceptual map further supports these insights, as Accessibility Across Generations, defined by Elderly Support (loading = 0.74) and Cross-Generational Usability (loading = 0.74), highlight the growing need for intuitive designs that cater to older users without alienating younger consumers. These findings reinforce prior

literature suggesting that effective designs must accommodate usability preferences for diverse demographic groups (Jerath et al. 2023; Talukder et al. 2020).

The Role of Caregivers in Adoption

The role of caregivers is particularly important in enabling older people to adopt wearable health technology. As Talukder et al. (2020) argue, family and social support significantly impact older users' willingness to use new technologies. In such cases, caregivers often assist elderly users in navigating the complexities of wearable technology. This emphasises the necessity for brands to develop products that not only address the specific requirements of older users but also ensure straightforward usability and provide the requisite support to family caregivers. The features of emergency alerts, SOS buttons and remote health monitoring are suitable for both the end user and the caregiver, thereby increasing the likelihood of adoption and trust in the devices in question.

Furthermore, the findings of this study reveal that Accessibility Across Generations, encompassing attributes such as supporting elderly users' health and ease of use across diverse age groups, emerges as a critical dimension shaping consumer perceptions of smartwatch brands. Remarkably, this dimension holds comparable importance to more traditionally emphasised factors such as Emotional Appeal—characterised by attributes like Sophistication and Excitement—and Functional Practicality, which includes attributes like value for money and trustworthiness. This significant emphasis on generational accessibility, as a factor equally influential as emotional and rational considerations, represents a novel contribution to existing research. Previous studies have not contextualised the relevance of accessibility within a multidimensional framework as explicitly, nor have they highlighted its role as a determinant of brand perception in the smartwatch industry.

Design and Aesthetics

The aesthetic appeal of wearable technology is a significant factor influencing its adoption. For younger users, the concept of "fashnology" – the fusion of fashion and technology – has become a pivotal factor influencing their choices, with design being a critical consideration (Choi and Kim 2016). These findings are supported by both quantitative studies conducted in this research. The conjoint analysis indicates that Generation Z and Millennials place a premium on stylish and customisable smartwatch options. In the case of Apple, the preferences of Generation Z and Millennials are primarily oriented towards premium accessory aesthetics and design, in contrast to those of Generation X, who tend to favour sport-focused aesthetics. In contrast, minimalistic designs are preferred across all age groups for other brands, with the exception of Apple. The perceptual map findings further validate these observations, as it identifies Emotional Appeal as a key dimension shaping overall perceptions of smartwatch brands. Attributes loading on this dimension such as Sophistication (loading = 0.85) and Excitement (loading = 0.80) underscore the importance of aspirational branding.

For brands like Apple, which score high in this dimension, it captures the aspirational qualities that resonate with younger consumers, aligning with the concept of 'fashnology' highlighted by Choi and Kim (2016). However, as Fang and Chang (2016) note, aesthetic considerations can also mitigate stigma for older users, making balanced designs—such as those incorporating both sporty and premium elements—critical for cross-generational adoption. The elderly frequently encounter stigma when utilising medical wearables (Fang and Chang 2016). The Guardian Smartwatch addresses this challenge through its balanced design, which incorporates both sporty and premium elements. This is consistent with the findings of Hsiao (2013), who demonstrated that aesthetic considerations can reduce stigma and enhance cross-generational appeal.

Health Monitoring and Safety Features

Implementing health monitoring features such as fall detection, heart rate monitoring and emergency alerts was identified as important. This influences the acceptance of wearable technology, especially among older users (Olsen 2020; Lima et al. 2022). The transition from fitness tracking to more comprehensive health monitoring is well documented in the literature (Collier and Randolph 2015; Liu et al. 2021). The perceptual map confirms these findings, demonstrating that health support features is an important attribute across multiple dimensions. Support for Elderly users, including specific health features and safety features like fall detection, has emerged as one of the key attributes belonging to the Accessibility Across Generations dimension, which is significantly influencing consumers' brand perception. The conjoint analysis corresponds with the literature and the perceptual map results, indicating that older users highly value features such as fall detection and emergency alerts for their immediate health benefits. Despite the importance of these health features, the conjoint reveals that price remains the most important factor in purchase decisions across all brands and segments. This is in line with Jung et al. (2016), who note that consumers tend to prefer the functionality of a smartwatch but also consider price to be a determining factor. In the conjoint, while health monitoring features are important, price continues to play the most important role in the purchase decision.

Privacy and Data Security

Previous literature has emphasised that privacy concerns regarding personal health data remain a major barrier to the adoption of wearable health technologies across all age groups, as noted by Chandrasekaran et al. (2020) and Kapoor et al. The conjoint findings of this work add nuance to this as they reveal a generational divide: Gen Z and millennials are more willing to trade privacy for enhanced features, while older users prioritise data security. This discrepancy underlines the shifting attitudes towards data sharing, influenced by generational familiarity

with digital ecosystems. The perceptual map also highlights privacy (load = 0.62) as a key attribute within the functional purpose dimension, supporting the literature's call for transparent data sharing practices to build trust, particularly important among Gen Xers and Millennials. To address these concerns, brands should focus on clear data sharing policies and intuitive privacy settings to build trust and increase adoption, especially among Gen Xers, who are more cautious about data security.

Barriers to Inclusive Adoption

The extant literature identifies economic and design-related barriers that limit the adoption of wearable technology, particularly among low-income and older populations (Lima et al. 2022; Chandrasekaran et al. 2020). The Accessibility Across Generations dimension from the perceptual map highlights the unmet need for user-friendly designs that cater to older users. Attributes like Elderly Support (loading = 0.74) suggest that brands could enhance adoption rates by simplifying interfaces and emphasising inclusivity. These findings support prior literature highlighting the importance of intuitive design and affordability in overcoming adoption barriers for older populations (Lima et al. 2022; Chandrasekaran et al. 2020). This research offers partial support for this, indicating that affordability is a significant factor for Gen Z buyers acting as caregivers. While both Gen Z and Millennials tend to favour lower price points (e.g., €199), they demonstrated a somewhat higher willingness to pay for devices that offer reassurance and enhanced functionality for their family members, particularly for more functional brands such as Garmin and Samsung. However, when considering devices for elderly users, consumers demonstrated a reduced willingness to pay above €499 compared to purchasing for themselves, indicating that a price barrier persists in the elderly use case. This illustrates the complex relationship between price sensitivity and the perceived value of these devices in caregiving contexts, which could be investigated further in future research.

Brand Ecosystems and Integration

Existing literature underscores the importance of brand ecosystems in promoting consumer loyalty and increasing product value (Gawer and Cusumano 2014; Lima et al. 2022). As the perceptual map shows, Apple in particular benefits from its strong ecosystem, which appeals particularly to younger consumers. However, this study's indings highlight a potential disadvantage of closed ecosystems, especially for older users who may struggle with cross-brand compatibility. Interestingly, Gen Z is willing to accept an additional app to facilitate compatibility between Apple and Garmin smartwatches. Especially when purchasing for older family members. This suggests that while Apple's ecosystem is attractive to younger consumers, it may not be as compelling for older users. Further, this underscores the literature's suggestion for improved interconnectivity to increase inclusivity and facilitate wider adoption (Romero-Perales et al. 2023). Although the literature suggests that brand ecosystems facilitate adoption, our conjoint analysis found that the utility of this attribute was generally low across all brands and segments. Once again, this highlights the complexity of consumer preferences.

Generational Differences in Adoption Patterns

As noted by Chandrasekaran et al. (2020), wearable technology adoption varies significantly across generations, with younger users favouring features like fitness tracking and gamification, while older users prioritise health monitoring and safety. Our conjoint analysis confirms these generational preferences and highlights a critical intersection: younger generations often make purchasing decisions for older family members. While the perceptual map does not segment results by age group, its broader findings highlight the importance of Emotional Appeal and Functional Practicality as drivers of consumer perceptions across the smartwatch market. These dimensions suggest that brands must strike a balance between aspirational branding and practical features to appeal to diverse consumer groups. Addressing gaps in Accessibility Across Generations, as shown in attributes like Elderly Support (loading

= 0.74), offers a clear opportunity to align with the priorities of younger caregivers and older users alike. By bridging these needs, the Guardian Smartwatch aligns with generational priorities, addressing the concerns of caregivers and providing utility for elderly users.

7.2. Managerial Implications

The results from the perceptual map analysis and choice-based conjoint analysis provide a comprehensive understanding of how consumers perceive smartwatch brands and the attributes that drive their preferences. By integrating these findings, this chapter offers tailored, data-driven recommendations for each brand. Together, these analyses reveal actionable opportunities for each brand to enhance their competitive positioning and align their strategies with consumer demands. The following sections outline three key managerial implications for each brand, providing a strategic roadmap and actionable recommendations to optimise their product offerings, marketing initiatives, and overall brand perception.

To contextualise these findings, Michael Porter's Generic Strategies framework is employed to clarify managerial implications. This framework delineates three primary strategies for achieving competitive advantage: cost leadership, which focuses on becoming the lowest-cost producer in the industry; differentiation, which involves offering unique products or services that customers value; and focus, which targets a specific market segment, with an emphasis on either cost minimisation or differentiation within that segment. By integrating these strategic perspectives with consumer insights, this chapter offers tailored, data-driven recommendations for each brand. (Ali and Anwar, 2021)

Apple

Currently, Apple is positioned as a premium brand with strong preference scores across all demographic segments and strong Emotional Appeal, leading in attributes such as excitement and sophistication, but it underperforms in cross-generational accessibility and Functional Practicality. Applying a categorisation across the dimensions of Porter’s generic

positioning framework, Apple should continue positioning itself within the differentiation strategy. To broaden its market appeal, it is recommended that Apple addresses both emotional and functional consumer needs. Apple can do this by emphasising data privacy and increasing affordability for entry-level smartwatch models while enhancing elder-friendly features.

1. **Market Emotional Appeal:** For premium brands like Apple, the challenge lies in maintaining their innovative appeal without deterring value-conscious consumers, especially Gen Z and new smartwatch users. Reinforce campaigns that emphasise excitement and sophistication through exclusive designs and aspirational messaging, highlight Apple's prestige and innovation to maintain its dominant Emotional Appeal. For Apple, sport-focused and premium accessory designs align with its positioning as a versatile all-rounder, appealing to consumers seeking aesthetics and performance.
2. **Expand Functional Practicality:** To improve the weak perception of consumers towards Apple's Functional Practicality and high demand for privacy and durability, particularly among mid-range buyers, the brand should promote features like data privacy for sensitive health data and durability. Advanced features like AI health monitoring and offering occasional promotions to address entry-level pricing points at 199€ and 299€ can improve Apple's perceived value while preserving the premium brand image. Setting battery life to 4-7 days for satisfying practical and functional needs and placing marketing messages in everyday real-world scenarios, such as multi-day outdoor use or travel, can reinforce an image of a reliable all-rounder lifestyle device to strengthen the preference across all demographics. For GenX in particular, Apple's marketing communication should highlight user-friendly and fully transparent privacy settings with seamless ecosystem integration,
3. **Enhance Accessibility Features:** Despite its appeal as an allrounder watch, Apple's suitability for the growing elderly use cases is less pronounced, and Apple is not perceived as a cross-generational brand, as the perceptual map results show. To improve the appeal to

the growing market of elderly users, tangible health monitoring benefits, such as improved well-being and preventative care, including SOS button and fall detection features for elderly users, could position Apple's smartwatches as indispensable health tools for all generations.

Samsung

Samsung operates in a competitive middle ground, holding a balanced position by performing positively across Emotional Appeal, Functional Practicality, and cross-generational accessibility, appealing to a wide demographic. However, it struggles to establish a strong, differentiated identity against competitors. Following a broad differentiation strategy by emphasising versatility and trustworthiness will reinforce its position as an all-rounder and trustworthy brand that offers a broad portfolio which caters effectively to diverse consumer segments.

1. **Leverage Balanced Positioning:** In the perceptual map, Samsung is the Nr. 1 player with the highest average overall rating across all dimensions. The brand's reputation is consistently in the mediocre positive, with no compromises made and no dimension where it excels. For Samsung to keep its competitive advantage ahead of Apple, it needs to reinforce its positioning as a versatile brand that appeals to a wide demographic. Showcasing compatibility within its broad Android ecosystem particularly features such as cross-device syncing and enhanced productivity tools with seamless functionality, could attract users. Samsung should market its smartwatches as high-value alternatives to premium brands like Apple by highlighting usability and advanced health features, creating inclusive messaging for diverse users.
2. **Strengthen Accessibility Campaigns:** Samsung should strengthen its competitive edge in the underserved elderly segment by promoting features like elderly support and cross-

generational usability through campaigns targeting older audiences, highlighting advanced health monitoring and user-friendly design.

3. **Boost Functional Practicality:** For Samsung, as a trusted and established player, proactively addressing privacy concerns in their marketing through transparency in data handling could act as a conversion driver for non-smartwatch users. They perceive privacy risks as a barrier to entry, and this underlines the relevance of trust-building and emotional campaigns to enhance a premium image with accessible pricing at the higher end. Develop and market rugged designs and reliability-focused features to appeal to active users, reinforcing Samsung's credibility among performance-driven buyers.

Garmin

Garmin is recognised for its Functional Practicality and value for money, primarily appealing to niche markets such as athletes and outdoor enthusiasts. Expanding its focus differentiation strategy to include urban users by highlighting durability and data privacy can attract a new consumer segment seeking practical and reliable smartwatches, thereby broadening its market reach beyond its traditional niche.

1. **Promote Value for Money and Trustworthiness:** Functional and fitness-focused brands like Garmin must reinforce their image of technological innovation at an affordable mid-range price point (499€) to strengthen their cost-effective positioning for performance-driven buyers. To keep Garmin's core user group, high-activity users, loyal, the brand should highlight its core competencies: Advanced AI-enhanced tracking features and a long battery life of more than 7 days. In addition, expanding market share to urban users presents a significant growth opportunity. This involves retaining its fitness-oriented appeal and addressing high-functional lifestyle needs, including privacy and everyday health support. Marketing campaigns should showcase Garmin's long-standing reputation for reliability

and durability in real-world scenarios, such as urban commuting and casual use, to attract a more diverse demographic.

This marketing approach could target younger, price-sensitive segments like Gen Z and first-time smartwatch users by emphasising the device's exceptional value for money, robust performance, and suitability for varied lifestyles. Highlighting Garmin's industry-leading data privacy and health-focused functionalities, which appeal across all demographics, would further establish the brand as the ideal choice for practical, health-conscious individuals.

2. **Expand Beyond Niche Markets**: Garmin's trusted reputation for accuracy in tracking functionalities and exceptional reliability positions the brand to successfully broaden its appeal beyond its traditional focus on athletes and outdoor enthusiasts. By expanding its offerings to target more casual urban users, Garmin can reach new demographics that value versatility and everyday practicality. This can be achieved through marketing campaigns emphasising Garmin's ruggedness and durability in real-world scenarios, such as professional use, urban commuting, and travel. These attributes resonate with a broader audience and demonstrate that Garmin's features extend beyond niche applications to suit modern urban lifestyles.
3. **Leverage Privacy and Data-Sharing Practices:** Highlighting Garmin's superior data protection capabilities - known to be far better than those of its competitors - can appeal to privacy-conscious users, particularly in urban and professional environments. In addition, integrating features such as payment protection into the smartwatch would address consumer preferences for secure, multi-functional devices and strengthen Garmin's relevance in broader markets and general users. By promoting its superior data protection, minimalistic design, and practical functionalities in a way that resonates with casual and

urban users, Garmin can capitalise on its strong foundation to expand into untapped markets.

Fitbit

Fitbit is known for its simplicity. It performs well in Accessibility Across Generations, but it underperforms in Functional Practicality and Emotional Appeal. Enhancing product durability, perceived trustworthiness and crafting emotionally resonant marketing can elevate its aspirational value, supporting its cost leadership strategy by addressing consumer desires for robust and emotionally engaging products.

1. **Leverage Simplicity to Strengthen Accessibility Across Generations:** Fitbit's strength in Accessibility Across Generations aligns with its cost leadership strategy by catering to both younger and older consumers with straightforward and affordable solutions. As conjoint findings confirm demand for intuitive, health-focused features for Fitbit, the brand should continue emphasizing its simple and user-friendly health features, such as fitness tracking and heart rate monitoring, while tailoring campaigns to highlight these benefits for caregivers and elderly users. Targeting users who prioritise simplicity and affordability over luxury by reinforcing Fitbit's value as an accessible yet affordable health device can solidify its position in cost-conscious markets.
2. **Strengthen Cost Leadership as the Entry-Level Smartwatch:** Fitbit's relatively simple interface and affordability make it well-suited for first-time smartwatch buyers or casual users. Fitbit should highlight this accessibility in its messaging, positioning itself as the ideal starting point for individuals new to wearable technology at a lower price point of 199€.
3. **Elevate Emotional Appeal with Resonant Marketing Campaigns:** To address its lower performance in Emotional Appeal, Fitbit should focus on crafting emotionally resonant marketing campaigns that connect with consumers on a personal level. Marketing

campaigns could emphasise how Fitbit removes the noise and complications of modern technology, helping users focus on what truly matters - health, well-being, and peace of mind. A tagline such as "Fitbit: Life Made Simple" or "Fitbit: Simplify Your World" could resonate deeply, reinforcing the idea that Fitbit is a tool for creating a more centred and uncomplicated lifestyle, fostering trust and aspirational value. This approach can complement its cost leadership strategy by demonstrating that affordable products can also deliver meaningful and engaging experiences, enhancing Fitbit's overall brand perception.

Huawei

Huawei positions itself as an affordable, feature-rich smartwatch provider but faces challenges with negative Emotional Appeal and data privacy concerns. To enhance its cost leadership strategy and appeal to value-conscious consumers, Huawei should rebuild its Emotional Appeal and emphasise data privacy to improve consumer trust. Given that price is the primary driver for Huawei's target market, offering competitively priced devices that ensure data security can significantly boost sales. However, investing in advanced features may not yield substantial returns, as consumers do not currently perceive Huawei as a prestigious or highly functional brand. Therefore, maintaining a cost-effective positioning is the most feasible approach

1. **Rebuild Emotional Appeal:** Invest in branding initiatives that enhance Huawei's reputation as a more exciting brand to improve the negative perception of Huawei's Emotional Appeal. For Huawei, an emphasis on innovation and quality that resonates emotionally with consumers significantly influences consumer decisions, as shown by the conjoint analysis.
2. **Focus on Functional Attributes:** Highlight affordability, practicality, and privacy protection in campaigns to resonate with value-conscious consumers. Consumers in this segment are less interested in advanced or AI-driven health monitoring. Instead, they seek

reliable basic features such as heart rate monitoring, step counting, and sleep tracking. The brand should avoid investing heavily in high-end functionalities and instead position itself as a value-driven option, presenting Huawei as the “smart choice” for budget-conscious consumers who want sufficient functionality without overspending

3. **Target Underserved Markets**: Leverage Huawei's cost-effective positioning to dominate emerging markets where affordability is a primary driver. Simultaneously, it gradually builds a perception of being not just a cheap alternative but increasingly a serious quality alternative in more developed regions to expand market reach and competitiveness. This can be achieved by offering region-specific products that cater to local preferences and purchasing power, thereby increasing market penetration and brand loyalty.

7.3. Limitations and Recommendations for Future Research

This chapter will shed light on the limitations of this research, and thereby, it will provide recommendations for future research. It is important to bring attention to the limitations, as they will provide knowledge and guidance for future research regarding the topics discussed. The limitations of this research are centred around sampling methodology, survey design, analytical frameworks, and the broader contextual scope of the smartwatch market. Furthermore, the identification of the limitations within this study will be linked with the recommendations for future research endeavours that can refine its approach by addressing these issues to provide more robust and generalisable insights.

7.3.1. Sample Profile Constraints

The sample profile consists of predominantly younger, tech-savvy individuals (mostly Gen Z and Millennials), with older generations and non-European participants underrepresented. This demographic skew limits the study's applicability to older populations and non-Western markets, where smartwatch adoption behaviours and preferences might differ.

The overrepresentation of younger respondents (e.g., 71.6% aged 18–27 in the conjoint analysis) reflects a demographic that is more familiar with wearable technology and, therefore, does not fully represent the needs and preferences of other key consumer segments, such as Baby Boomers or Generation X.

Additionally, geographic representation was concentrated in Europe, particularly Germany (54.7% in perceptual mapping and 80% in conjoint analysis), with participation mainly from other regions in Europe. Notably, only 2% of perceptual map participants and 1% of conjoint analysis participants were from outside Europe. This regional focus may not capture cultural, regulatory, and market-specific nuances outside Europe. Similarly, the reliance on academic and digital recruitment channels such as personal networks, such as those of students at NOVA School of Business and Economics and the Survey Circle platform, limited socioeconomic diversity, reflecting the preferences of higher-income, educated participants while excluding less tech-savvy or lower-income groups who might prioritize affordability and basic functionality.

Future studies should adopt more inclusive sampling methods. This could involve partnerships with healthcare networks, senior organisations, or community groups to engage older adults and low-income populations. Additionally, recruiting participants from underrepresented regions such as Asia, Africa, and Latin America would allow for a more globally representative understanding of smartwatch adoption. Broaden recruitment channels to include participants from diverse socioeconomic strata, such as outreach through local communities or public organisations. Longitudinal studies that track evolving preferences across diverse demographics would provide deeper insights into behavioural changes over time.

7.3.2. Methodological Constraints

Next to the limitations of the sample profile, methodological constraints should be stated as limitations of this research. The research combined two analytical methods, choice-based

conjoint tasks and perceptual mapping, which were two separate studies, both including demographic questions. Even though the duration of the surveys was aimed to be reduced by splitting the analysis methods into two separate ones, the duration of the two surveys may have introduced cognitive fatigue among participants, especially as they progressed through complex conjoint exercises. This could have impacted the accuracy of responses, particularly for attributes presented later in the survey.

The focus on seven attributes in the conjoint analysis (e.g., price, health tracking, battery life) excluded emerging benefits that gain importance, such as sustainability, as the surveys focused on the main attributes mentioned in the preliminary interviews.

Additionally, the predefined generational categories (e.g., Gen Z, Millennials) assumed homogeneity within groups, potentially oversimplifying nuanced differences driven by factors such as life stage, income, or lifestyle. For instance, Millennials aged 28–43 may exhibit significantly different preferences depending on whether they are career-focused or family-oriented. Future studies should consider using adaptive surveys or streamlined questionnaires to minimise cognitive load while maintaining data richness. Moving beyond predefined generational categories to incorporate psychographic and behavioural traits, such as attitudes toward health, technology readiness, and purchasing motivations, could yield more nuanced insights. Expanding the attribute set in conjoint analysis and perceptual map to include features like environmental sustainability would reflect evolving consumer priorities.

7.3.3. Industry Selection and Scope Constraints

This research specifically examined smartwatches, excluding other wearable devices such as smart rings, fitness trackers, and smart glasses. These alternative devices share overlapping functionalities and target similar consumer segments. However, by limiting the scope to smartwatches, the study does not address how consumers perceive these alternatives

or how they may interact as complementary or competing devices within the broader wearable technology ecosystem.

Due to the preliminary research and deductive approach, the decision was made to focus on a select few of the most prominent brands in the smartwatch industry: Apple, Samsung, Garmin, Fitbit, and Huawei. By prioritising these key players, other emerging or niche brands with potentially disruptive innovations were excluded. This focus introduces a technology maturity bias, as the findings primarily reflect consumer perceptions of well-established technologies. Consequently, the study does not provide a comprehensive view of the entire smartwatch industry or insights into the impact of nascent brands and technologies that may be reshaping market dynamics.

Future research should expand its scope by including a broader range of wearable devices alongside smartwatches to explore whether these alternatives function as substitutes or complements in consumer decision-making. Additionally, incorporating smaller and emerging brands would provide a more nuanced understanding of how early-stage innovations influence consumer perceptions and competitive positioning. Longitudinal studies could further address the static nature of this research by tracking changes in consumer preferences, technological advancements, and market positioning over time. By adopting a more holistic and temporal approach, future studies could better understand the wearable technology ecosystem and its evolving consumer landscape.

7.3.4. Time Constraints

A significant limitation of this study is the time constraint, a common challenge in academic research that influenced the scope and depth of the analysis. The restricted timeframe limited the opportunity for a more extended survey period, which could have increased the sample size and improved the diversity of demographic representation. A larger and more heterogeneous sample, particularly for underrepresented groups such as older generations and

non-European participants, could have provided deeper insights and more robust findings. Additionally, with extended timelines, the study could have included a broader set of variables and attributes, further enriching the analysis and its implications.

The temporal nature of the research reflects its limitation as a static snapshot of consumer preferences at a specific moment in time. Rapid advancements in artificial intelligence and sustainability continue to reshape consumer expectations and market dynamics. The inability to account for these evolving trends constrains the relevance of the findings as market conditions and consumer priorities shift over time.

The reliance on stated preferences through survey methods, rather than observing actual consumer behaviours such as purchase decisions or usage patterns, also introduces a potential limitation. Stated preferences may not fully align with real-world actions, which can impact the applicability of the findings. A relevant example for an usecase that should be investigated further in observational studies is the complex relationship between price sensitivity and the perceived value of smartwatches in caregiving contexts, in order to identify at which price point consumers would buy a device for someone else than themselves.

Another limitation is the perceptual map's lack of differentiation between generational cohorts, as this was performed in detail with the conjoint analysis, and the limited time and page count of this research didn’t allow for five perceptual map analyses for each generational group. This prevents a nuanced understanding of how brand perceptions vary across distinct age groups, limiting the ability to draw age-specific insights about brand positioning or attribute importance and only showing the consumers’ perception across generations.

Future research should address these constraints by decoupling timelines from academic requirements, allowing for more extended data collection periods to increase sample size and demographic diversity. Longitudinal studies are recommended to capture evolving consumer preferences, market trends, and the impact of technological advancements and sustainability on

consumer behaviour. Combining survey methods with observational or experimental research, such as simulated purchase scenarios or real-world usage tracking, would help validate stated preferences against actual behaviour. Additionally, conducting separate perceptual map analyses for distinct generational cohorts would uncover nuanced differences in brand perception and attribute importance, enhancing the depth and applicability of future findings.

7.3.5. Additional Recommendations for Future Research

This section highlights additional research areas to complement the limitations and recommendations discussed. These include deeper exploration of specific attributes, focus on emerging consumer segments, and usability testing to enhance smartwatch adoption insights. Deepening Attribute-Specific Research: Future studies should investigate sub-dimensions of attributes such as “style” and “functionality,” exploring how these concepts vary across demographics and use cases. For example, defining what “stylish” means to different age groups or how “functionality” aligns with health-focused features could inform targeted product improvements.

Focus on Emerging Segments and Usability Testing: Ongoing research into the shifting preferences of younger generations like Gen Z is vital, as is expanding into emerging markets to understand regional differences. Real-world usability testing, particularly with elderly users, can identify barriers to accessibility. Co-creating solutions with these users and testing prototypes in realistic settings would offer actionable design insights.

Feasibility of Production and Design: Future research should also assess the feasibility of integrating recommended features while maintaining affordability. Collaboration with technical experts and designers to evaluate production methods, materials, and costs will ensure that proposed innovations are both practical and cost-effective.

In conclusion, this study has significantly contributed to understanding consumer perceptions within the wearable health tech industry, particularly the smartwatch product

category, by identifying key attributes valued by consumers and providing actionable insights for both academia and industry. However, the research is not without limitations, leaving considerable room for future research guided by the recommendations outlined. By addressing the identified limitations and extending the scope of the investigation, future research can provide a more comprehensive understanding of how consumers perceive the wearable health technology industry, particularly the smartwatch product category. This will deepen insights into the key attributes that shape consumer preferences, enabling the industry to better cater to diverse demographic needs and evolving market trends. Such advancements will not only enhance theoretical understanding but also inform strategic decisions for product development and marketing in the wearable tech sector.

Just as Peter Drucker's words remind us that shaping the future lies in our hands, this thesis closes with the hope that its insights into consumer perceptions of wearable health technology will inspire not only the creation of smarter, more inclusive devices but also a future where technology truly empowers lives across generations.

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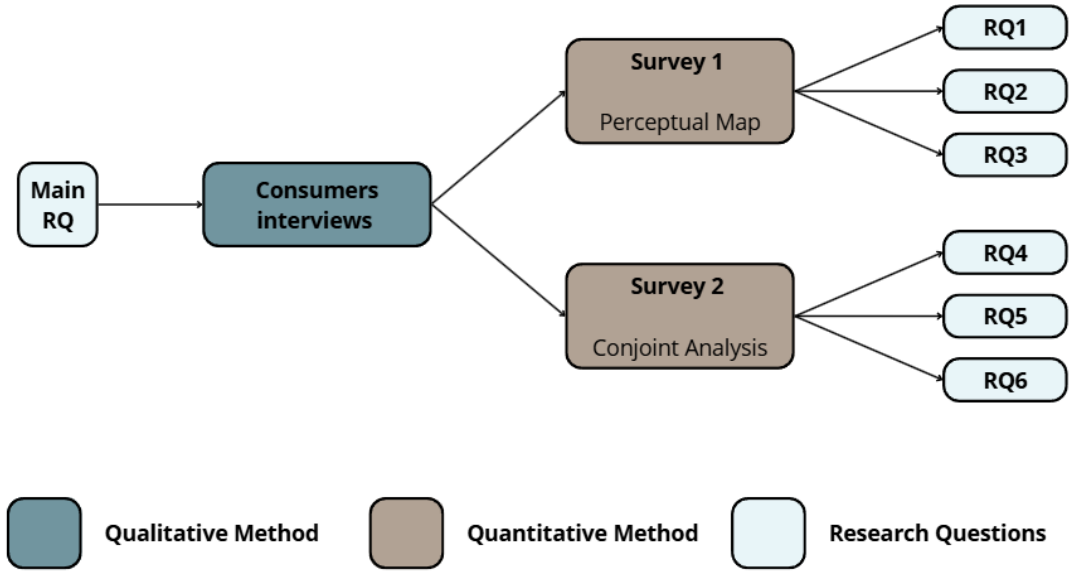
9. Appendix

A- Methodology Appendix

Appendix A.1: Methodology Structure



Appendix A.2: Preliminary Consumer Interviews Question Guidelines

Section	Questions
Choosing a smartwatch and Features	1. What smartwatch do you have? - What motivated you to purchase a smartwatch in general? - Why did you choose this specific model? - What features were important to you when selecting a smartwatch?
Brand Perception of Other Brands	2. Which other smartwatch brands come to mind? - What do you think about these other smartwatch brands? (Consider brand personality, emotional connection, etc.)
Feature Usage	3. What features do you use the most on your smartwatch? - How often do you use these features (daily/weekly)?
Satisfaction and Improvement	4. Are there features you wish your smartwatch had or didn't have? - What could be improved? - Would you consider switching to a different brand for better features?
Influence of Ecosystem and Data Usage	5. Is the connectivity between your smartwatch and other devices important to you? - How important is the brand ecosystem (e.g., Apple, Samsung) in your decision to buy a smartwatch? 6. Is the use of the tracked data relevant to you? Why? 7. Are you aware of who can see your data? - Would you be interested in sharing your data with third parties?
AI Integration	8. How important do you think AI-driven health insights and disease management are to you? (e.g., AI-driven health insights, disease management)
Open Question	9. What did we forget to ask? - Is there anything else we should consider?

Appendix A.3: Preliminary Industry Expert Interviews Question Guidelines

Section	Questions
Introduction	1. What has your role in [ORGANIZATION] been?
Current Market Landscape	2. How would you describe the current competitive landscape of the smartwatch market?
Demographic Preferences	3. Do you observe differences in preferences among various demographics (e.g., age, gender)?
Sales Drivers	4. What are the most common reasons customers purchase smartwatches, in your experience? - What pain points do customers mention? - Top Features: What are the top features or attributes driving consumer purchasing decisions? - Customer Complaints: What features do customers often praise or complain about? How do these affect their purchasing decisions?
Brand and Ecosystem Influence	5. How important is brand loyalty and ecosystem integration (e.g., compatibility with other devices) in influencing a purchase?
Data Usage and Privacy	6. Given the increasing focus on data privacy, especially in health tech, how concerned are consumers about data privacy and security? - How does this impact their purchasing decision? - Are consumers willing to share their data? - Are there any features or guarantees regarding data privacy that are becoming particularly important for consumers?
Future Trends in smartwatch Adoption and AI	7. From your expert view, what trends are shaping the smartwatch market? - What features are gaining traction? - How is AI playing a role in the smartwatch market?
Challenges and Limitations	8. What are the main challenges facing smartwatch adoption, and how might brands overcome them?
Effective Marketing Strategies	9. Which marketing approaches or sales tactics seem most effective in persuading customers to choose certain smartwatches?

Appendix A.4: Consumer Interviews Findings

Question	Attributes/Frequency
What are the most important features to you when choosing a smartwatch?	Health Tracking / 6 Design / 3 Price / 3 Battery Life / 3 Connectivity / 2 Sports Features / 1
How important is the brand ecosystem (e.g., Apple, Samsung) in your decision to buy a smartwatch?	Very Important / 4 Somewhat Important / 2 Not Important / 1
Which features do you use the most in your smartwatch, and how often?	Heart Rate Monitoring / 5 Step Counting / 4 Sleep Tracking / 3 Notifications / 2
Are you concerned about data privacy in relation to your smartwatch usage?	Yes / 3 No / 4
How important are AI-driven health features (e.g., predictive health monitoring) to you?	Very Important / 3 Somewhat Important / 3 Not Important / 1
What do you think of other smartwatch brands in comparison to the one you own?	Apple: Best Ecosystem / 3 Garmin: Best for Fitness / 3 Huawei: Good for Budget / 2

Appendix A.5: Expert Interviews Findings

Question	Attributes/Frequency
What are the top features or attributes that drive consumer purchasing decisions for smartwatches?	Connectivity / 5 Ecosystem Integration / 4 Health Features / 5 Battery Life / 3 Design / 3
How concerned are consumers about data privacy and security in relation to smartwatches?	Very Concerned / 3 Somewhat Concerned / 2 Not Concerned / 2
What trends are shaping the smartwatch market?	AI-driven Health Features / 4 Increased Connectivity / 3 Wearable Tech for Elderly / 2
How important is brand loyalty and ecosystem integration for consumers when choosing a smartwatch?	Very Important / 5 Somewhat Important / 2 Not Important / 1
What marketing approaches seem most effective in persuading consumers to purchase certain smartwatches?	Bundled Promotions / 4 Emphasis on Health Benefits / 4 Loyalty Programs / 2

Appendix A.6: User Profiles

This appendix supplements the main analysis by highlighting specific user needs and experiences and thereby offering insight into the variety of the interviewed smartwatch users. Consent to use the participants' names was given prior to the interview, except for "Lukas Mustermann" whose name was changed to respect his privacy request.

Éric Bitsch

Role	QHSE & Sustainability Professional and Ultra-Trail Runner
Device	Garmin Enduro
Usage Purpose	Sports performance and health monitoring (heart rate variability, sleep tracking, "Body Battery" function)
Key Quote	"When it's red, I know I'm tired or getting sick."
Privacy Perspective	Comfortable with data sharing for research but wary of commercial exploitation.

Éric, an experienced ultra-trail runner and QHSE professional at SIKA Maroc, shared insights from both his athletic and professional perspectives. He highlighted that his primary motivation for using a smartwatch was to monitor his sports performance and health. Éric noted key features such as heart rate variability, sleep tracking, and the "Body Battery" function as essential in managing his daily energy levels and training loads. His experience with using a Garmin Enduro smartwatch was mainly centred on health metrics like blood oxygen levels, especially after his recovery from a pulmonary embolism in 2023. He emphasised the importance of reliable data, stating, "When it's red, I know I'm tired or getting sick." Éric's professional expertise also gave him a strong understanding of data protection and privacy concerns. He expressed comfort with sharing his data for research purposes but was wary of commercial exploitation without his consent.

Marie Dupont (name changed to respect privacy request)

Role	General Consumer, Apple Watch User
Device	Apple Watch
Usage Purpose	Health tracking, convenience in daily life
Key Quote	Heart rate monitoring, calorie tracking, "Find My Phone" feature
Privacy Perspective	Unaware of data-sharing practices; privacy is a concern.

Marie Dupont, a general consumer, uses her Apple Watch primarily for its health-related features and convenience in daily life. She started using a smartwatch when she returned to sports and found it more practical than carrying her phone during workouts. The design and customisable nature of the watch faces were also instrumental in Marie's decision to make a purchase. Marie primarily values the ability to receive messages, track her heart rate, monitor calories, and follow the duration of her activities. She also expressed concern about data privacy, stating that she was unaware her health data could be shared with third parties. Marie uses her Apple Watch daily, with a special emphasis on its "Find My Phone" feature.

Chiara Schneider

Role	Nurse, Huawei Watch 3 User
Device	Huawei Watch 3
Usage Purpose	Health monitoring during work shifts
Key Quote	Step counting, sleep tracking, oxygen monitoring
Privacy Perspective	Minimal concern due to basic tracking metrics.

Chiara, a nurse, uses her Huawei Watch 3 primarily for work-related tasks such as step counting and tracking her heart rate during long shifts. For her, health monitoring was more important than fitness tracking. Chiara values features like sleep tracking and oxygen monitoring but noted some dissatisfaction with the overloaded app interface on her watch. While she appreciates the ease of connectivity between her watch and her phone, privacy was not a major

concern since her watch only tracks basic metrics like steps and sleep. She also believes that smartwatches are important for elderly users, as they offer continuous health tracking and can replace more expensive and complex devices like ECGs.

Filipa Abrantes

Role	Former Huawei Digital Marketing Manager
Professional Insight	Highlighted the importance of AI in health monitoring and consumer interest in price, battery life, and durability.
Key Quote	"AI-based health analytics could help detect issues like irregular heart rhythms."
Role	Former Huawei Digital Marketing Manager

Filipa provided unique professional insights from her role in launching Huawei smartwatches in Portugal. She emphasized that consumer preferences in Portugal often focused on price, battery life, and durability. Filipa also highlighted the growing importance of AI-driven health monitoring in smartwatches, noting that "AI-based health analytics could help detect issues like irregular heart rhythms." She mentioned that Huawei marketed their smartwatches as both a lifestyle accessory and a health-tracking device, offering features like step counting, heart rate monitoring, and GPS tracking. Furthermore, she highlighted that elderly people are an important market for wearable health technology which should be looked into more in the future. She mentioned that Huawei achieved notable revenues with bundle packages in which wrist bands were sold in a bundle with smartwatches and the wrist bands were given to elderly family members, who seemed to profit from the simple usage.

Lukas Mustermann (name changed to respect privacy request)

Role	Vodafone Marketing Manager
Insight	Highlighted the importance of AI in health monitoring and consumer interest in price, battery life, and durability.
Brand Observation	Garmin remains preferred for athletes to tracking precisions.
Role	Vodafone Marketing Manager

Lukas, a Vodafone Germany marketing professional, discussed how smartwatches with cellular connectivity are becoming increasingly popular. He emphasized that consumers are drawn to smartwatches that can function independently from their smartphones. Apple and Samsung were highlighted as the leading brands due to their strong ecosystem integration, particularly for customers who are already immersed in the Apple ecosystem. Lukas also noted that Garmin watches remain the go-to choice for serious athletes due to their precision in tracking sports metrics.

Elisa Mitteldorf

Role	Student, Garmin Vivoactive 5 User
Device	Fitness tracking, preparing for a half marathon
Key Features	Heart rate monitoring, interval training, music integration via Spotify
Privacy Perspective	Indifferent about data handling but supportive of sharing for health improvement.
Role	Student, Garmin Vivoactive 5 User

Elisa primarily uses her Garmin Vivoactive 5 for fitness tracking. Her motivation for purchasing the watch was to prepare for a half marathon, prioritizing accuracy in fitness tracking, particularly heart rate and interval training. Elisa chose Garmin over Apple because of its superior fitness tracking capabilities, viewing the Apple Watch as more of a lifestyle product. Additionally, she preferred the more affordable option, avoiding the higher price associated with the Apple Watch. She emphasized the importance of price, connectivity with her iPhone,

and fitness tracking accuracy. Bluetooth functionality and integrated music access, particularly through Spotify, were also valuable to her, as they allowed her to work out without carrying her phone. In terms of data usage, Elisa is indifferent about how her data is handled but is open to sharing it with her doctor or for research purposes if it contributes to better health outcomes. She considers AI-driven health insights important and appreciates the ability to track and better understand her health data, seeing it as a valuable feature.

Felix Kreuz

Role	Fitness Trainer and Garmin Fenix 7 Pro Solar User
Device	Garmin Fenix 7 Pro Solar
Usage Purpose	Endurance sports performance tracking, client training management
Key Features	Running, swimming, strength training, sleep, and heart rate monitoring
Privacy Perspective	Generally unconcerned about privacy but opposes personalized advertising based on health data
Role	Fitness Trainer and Garmin Fenix 7 Pro Solar User

Felix, a fitness trainer with a dual degree in fitness economics, uses his Garmin Fenix 7 Pro Solar to monitor endurance metrics, including recovery, sleep, pace, and heart rate. He chose Garmin for its functionality tailored to endurance sports. As a trainer, Felix relies on smartwatch data to make client performance visible, enhancing training outcomes. He highlights that smartwatches are widespread among younger clients, while older clients often underuse their devices. Though generally unconcerned with data privacy, Felix dislikes the idea of personalized advertising based on his health data. He also sees potential in AI, though he acknowledges its risks, and envisions future software solutions for more efficient fitness data aggregation and training management.

Appendix B.7: Preliminary Interviews Transcripts

Interview with anonymous industry expert, Marketing Manager for IoT & Roaming at Vodafone Germany

Interviewer: We are a team of five people focusing on the Wearable Health Market, specifically on smartwatches. We are analysing how consumers evaluate the various functions and features of smartwatches, such as health tracking, privacy, and connectivity. We want to base our research on this interview, particularly focusing on which factors influence the purchase decisions of smartwatches and how the current market is perceived. We are also interested in future trends, and we would love to hear your thoughts and insights. So, for the record, let me start by asking: What has your role been in the company, particularly regarding smartwatches?

Anonymous Interviewee, Vodafone: Yes, exactly. In our company, my role primarily involves selling smartwatches with connectivity. I think it's important to differentiate them from the smartwatches typically seen in the sports sector, like Garmin or Polar. You have to consider whether the manufacturers are also marketing smartphones and then using smartwatches as an additional sales or cross-sell element to draw customers deeper into their own infrastructure. On the other hand, as you mentioned, there are sports-oriented manufacturers like Garmin or Polar, who focus on selling watches designed specifically for sports functions and GPS tracking. Our focus is really on devices that offer standalone connectivity, meaning they can connect to the mobile network independently if a corresponding SIM card is inserted. For most of these sports-oriented manufacturers, these are typically Bluetooth-connectable devices that synchronise via an administration app with the smartphone. That's not where our focus lies because there are no additional services that we can sell with these devices. What I can say about this is that we always offer these connectable watches in combination with mobile services. It's designed so that you don’t need a separate contract for the smartwatch itself, and in fact, all mobile providers in Germany handle it this way. If you already have a primary

contract with a mobile provider, you can add a supplementary option for the watch. This allows you to be reachable on the same number even when you don't have your phone with you, and you don't need a separate number for the smartwatch. Another advantage is that the data allowance from your mobile contract can also be used on the smartwatch, which naturally offers these benefits, yes.

Interviewer: Very cool, you've already touched on some important points regarding connectivity from the company's perspective. How have you recently viewed the competitive landscape in the smartwatch market? Which players have you identified as the main competitors, either from your perspective or from the customers' viewpoint, and why?

Anonymous Interviewee, Vodafone: Mhm, so as we've mentioned before, the focus of this conversation is on manufacturers who also sell smartphones. Naturally, you can think of which company we're talking about in September each year—clearly, Apple devices. The Apple Watch, especially for customers who are already immersed in the Apple ecosystem—including MacBooks, iPhones, Apple Watches, AirPods, and AirTags—has become very important. From a business perspective, I believe we have a good success rate placing an Apple Watch with these customers. You can also see that the market is most active during the launch months of new iPhones and Apple Watches. If you compare this to the launch of a new Google Pixel Watch, it's simply not on the same level.

Samsung is the second major player in the market. They tend to release new watches slightly after launching their flagship smartphones. You also see parallel purchases among customers who are used to the Samsung ecosystem and who then want to add a Samsung Watch, like to their Galaxy phone. I can't back this up with statistics, but I'd argue that Apple has a much stronger correlation—customers who already own an iPhone are much more likely to also buy an Apple Watch.

Interviewer: You've just mentioned customer buying motives and features from a marketing perspective. You've already touched on Apple's ecosystem. From your experience, is this ecosystem one of the strongest sales drivers for Apple? Or are there other drivers that influence smartwatch sales in your experience?

Anonymous Interviewee, Vodafone: Yes, I think another strong factor is how easily the device, in this case, the smartwatch, can synchronize with the smartphone. Personally, I use a Garmin Watch, which is more sports-focused, and it works very well with a separate app. With Apple, of course, the seamless iCloud synchronization across devices is a well-known feature, and it's almost flawless. You could even conduct an empirical study, but if you were to ask a hypothetical Apple customer, who already owns an iPhone, to choose a smartwatch, and you presented them with three smartwatches from three different manufacturers, the chances are high that they'd choose the Apple Watch simply because of its synchronization capabilities with the iPhone.

Interviewer: You've already mentioned some features. Are there any features that your customers feel are missing in the watches you offer, or are there any barriers that make it difficult to sell smartwatches?

Anonymous Interviewee, Vodafone: The watches we offer, of course, have the standard sports functionalities. A classic example is tracking your last jogging session or cycling tour. These are complete standard functionalities that are also available in the connectable watches. There's no difference in functionality between the connected and non-connected versions. For instance, an Apple Watch with or without connectivity has the same functions. Therefore, there's no gap in terms of functionality within our product portfolio. When it comes to marketability, these are all state-of-the-art devices, and they are the ones truly in demand. Since this topic isn't the absolute focus of the environment we operate in, we don't try to cover every

single edge case for customer demands. Instead, we aim to meet the needs of the majority and cater to the most requested features.

Interviewer: You were talking about the state-of-the-art portfolio. There's always this difference in perception when it comes to brands like Apple and Samsung, which aren't necessarily as functionally focused as Garmin watches. You've just mentioned that there are no gaps in your portfolio. Is that really the case, or would you say that Garmin watches are better suited for sports and health tracking, while the Apple Watch is more of an all-rounder? What's your view on other brands?

Anonymous Interviewee, Vodafone: Well, that's something I can't empirically prove. Perhaps it's also because we don't have market research or anything similar on that. For example, there's the idea that Apple Watches might not be as precise in tracking as Garmin watches. That's something you might want to explore further in your research. I believe that a company like Garmin, which has grown by building navigation solutions for ships and other similar technologies, probably has the expertise to include a high-quality, precise tracking sensor in such a small device. But that's just my personal conclusion. I think you'd have to take a closer look at what exactly is built into Apple Watches compared to Garmin. If you look at high-performance athletes, they generally wear watches like these. Take Jonas Deichmann, for example. I'm not sure if he tracks his sporting sessions, but he ran 120 triathlons in a row—one every day. If you check his social media posts, you'll see that athletes like him don't rely on lifestyle-oriented watches like the Samsung Watch or Apple Watch. They opt for more specialized brands like Garmin due to factors like battery life and precision.

Interviewer: You're touching on the different use cases here. From a marketing perspective, do you see any differences in preferences within demographic groups, such as between age groups or genders? Are there any different approaches in your marketing strategy that cater to these preferences?

Anonymous Interviewee, Vodafone: I think that's more a question of how the watch portfolio is structured. What we sell, right?

Yes, this decision doesn't fall directly within my area of responsibility, as my focus is more on what services we can market alongside the smartwatch. The core focus of the company where I work isn't necessarily on catering to different buyer groups specifically for smartwatches. Instead, we see smartwatches as an additional vehicle to market more value-added services to mobile customers or households. It's less about covering all the different needs of various smartwatch users and more about supporting the idea of an ecosystem. So, if a customer has a smartphone from a specific manufacturer, we also offer the smartwatch from that manufacturer to reinforce the ecosystem concept. We don't really focus on functionalities offered by other manufacturers outside of that logic. The decision about which functionalities to include is made by the manufacturer itself. The whole question of what consumers need in a smartwatch or what features they want is entirely in the hands of the manufacturer, who decides what to include in their portfolio.

Interviewer: Yes, exactly. I find the topic of smartwatches with standalone mobile connectivity quite interesting. I'm not sure if you have any relevant statistics or information, but how popular is it for smartwatches to function independently of a smartphone, for example, for making calls? What percentage of smartwatches fall under this use case, and is it a popular feature?

Anonymous Interviewee, Vodafone: Unfortunately, I don't have exact percentages at hand that I could share. And honestly, I don't have that information off the top of my head either. I think, in this context, performance data doesn't play a significant role when we're discussing qualitative topics. That's my diplomatic way of putting it.

Interviewer: What is your view on the future development of the smartwatch market, especially when considering mobile connectivity? What trends do you see emerging, or what trends are already starting to take off?

Anonymous Interviewee, Vodafone: From a mobile connectivity perspective, things will get really interesting when there's no longer a distinction between non-connectable and connectable smartwatches. Currently, the market is still very segmented in that way. Of course, pricing is a factor. If you check any website or online shop for the relevant OEMs, the watches that only offer Bluetooth connectivity are always significantly cheaper than the ones that also include mobile connectivity.

But once we reach the point where this price difference disappears and consumers can choose between these options without having to pay more, it will become really exciting for mobile providers. This would open up far more opportunities to market connectivity across a wider range of watches. We're already seeing this with the Apple Watch Ultra, for example. It doesn't come in two variants; it's only available with mobile connectivity. If this trend continues to grow in the market, it will be much more exciting from a mobile provider's perspective and will present many more marketing opportunities.

Interviewer: Speaking of marketing strategies and future trends, I'm not entirely sure if this is relevant for you since you mentioned that you're only the reseller. Do you get any insights into the topic of artificial intelligence in the smartwatch market? Are there any new developments that you're also marketing? Or is that more of a secondary role? Additionally, what are the most effective marketing strategies for you in the smartwatch sector?

Anonymous Interviewee, Vodafone: I think what can generally be observed in the market, and we saw this with the Google Pixel launch and partially with Apple, though only in selected markets, is that these new top smartphones are now bringing observation, but it seems to be happening mostly in areas like photography, where AI supports certain functionalities, such as image optimization or allows for specific photo editing processes.

Of course, photo editing isn't really relevant for smartwatches, but I think when it comes to analyzing the health data that these devices collect, AI-based analysis could be very helpful for

consumers. For example, developments in resting heart rate data could potentially alert users to health issues even earlier—this kind of predictive health status. This might be something for you to look into in your research, perhaps finding studies on why people buy smartwatches. I think in the future, the topic of wanting an overview of one's health data will play an even bigger role. From personal experience since I bought such a device, if you're using it for sports, you start paying much closer attention to performance data. You also need to spend time understanding what it all means. If you weren't wearing such a watch, you wouldn't usually know what your heart rate is when running at a certain pace, or what your resting heart rate or some AI-based functionalities. This is just a personal recovery heart rate means after a workout, and what conclusions you can draw from that.

This data gains much more significance when systematically analyzed by artificial intelligence. As an individual, you're just looking at single data points without drawing broader conclusions. But through the processing of massive amounts of data and the comparison of different datasets from various people through AI, much stronger insights can be drawn.

This could be an interesting point for your Master's thesis—to explore what motivates consumers to buy smartwatches today. I believe that health functionality plays a significant role, especially the topic of predictive health statistics. By tracking certain KPIs, or rather, the key performance indicators of one's body, users can analyze and understand potential health issues far in advance. I think Apple Watches, for example, can detect atrial fibrillation and similar conditions. All these new high-end devices can do that. In combination with AI, I believe this field—AI-enabled functionality—will become very exciting.

Interviewer: Lukas, you're definitely touching on something very interesting here because we will also have a small focus on predictive disease prevention through AI.

Anonymous Interviewee, Vodafone: Have you ever worn a smartwatch while you had a

COVID-19 infection? You can notice, a few days before your COVID test turns positive—of course, you can only observe this in retrospect—that your sleep quality starts to decline.

Anonymous Interviewee, Vodafone: These watches can also measure in which sleep phases you were during the night, how your heart rate changed during sleep, and how quickly it changed. They also monitor your breathing rate, among other parameters, which then contribute to a sleep score the next morning. My sleep score steadily decreased. Another thing that happened: my resting heart rate significantly increased. These watches also indicate your readiness to train, like how prepared you are for a workout today. Normally, you're in phases of "maintaining fitness" or "building fitness," but suddenly it switched to "fatigued." Garmin, for example, has a feature called Body Battery, which measures a charge level from 0 to 100%, giving you a morning rating in combination with your sleep score. It tells you how ready you are for the day and what activities, like sports, you can handle. But my body battery just wasn't recharging properly. I think that's a great example of how smartwatches can detect issues in the body—like an infection, in this case, COVID—well before you fully feel the effects. Even a few days before you test positive, a smartwatch can already give you clues.

Interviewer: Yes, I find that personally very exciting, I must say. For me, the main reason to wear a smartwatch is the potential for even better disease predictions and sports planning. That's really fascinating. Perhaps as a final question: Are there efforts within your company to pursue partnerships with healthcare organizations or similar institutions for marketing? Are there new approaches focused on health, or is the main selling point still price and data? Like the classic approach versus a newer health-oriented approach?

Anonymous Interviewee, Vodafone: I think you'd have to look at this more closely in a study. And maybe it would help if, in your thesis, you examined various smartwatch model generations. It could be quite simple to build, although it would require detailed work. You could look at the top 5 devices in the smartwatch market over the past 10 years. I'm not sure

exactly when the first smartwatch was sold, but roughly speaking, it should be possible. Then you could examine what functionalities they started with and what has been added in recent years. I think you'd quickly see that functionalities like ECG have been added, as newer Apple Watches allow you to take an ECG. Of course, it's always a question of how detailed this is compared to an ECG taken at a doctor's office, and Apple's website states in every footnote that it's just an indication. In case of doubt, you should always consult a doctor. But looking at that could be a good idea, maybe as a small meta-study in your master's thesis—tracking which devices were released each year and, on the y-axis, noting what functionalities they offered. Without empirical data, I'd personally argue that more health-related functionalities have been added in recent years, and there are surely relevant studies across the smartwatch market that confirm this, including purchasing intent and more.

Interviewer: Thank you so much for taking the time!

Interview with anonymous Smartwatch User

Interviewer: Hello Marie. Thank you for agreeing to participate in this interview. To give you some context, we're a team of five master students conducting research on the Wearable Health Market, with a specific focus on smartwatches. We'll discuss your experience with smartwatches, their features, and your daily usage. Please feel free to share as many details as you'd like. To start, can you tell me when you first felt the desire to own a smartwatch and what triggered that interest?

Anonymous Interviewee: Hello, it's a pleasure to contribute to your studies. The trigger? I'd say it was when I started seriously getting back into sports. I thought it would be more convenient to have a watch on my wrist to track my metrics rather than carrying my phone around.

Interviewer: Thanks for sharing. Now that I have some background, could you tell me what kind of smartwatch you have?

Anonymous Interviewee: I have an Apple Watch.

Interviewer: Do you happen to know which version of the Apple Watch you own?

Anonymous Interviewee: Not really. I've had it for a few years now. It was the latest model when I bought it, but I don't keep track of the versions.

Interviewer: I understand. When asked about your motivation to buy a smartwatch, you mentioned sports—was that the only reason?

Anonymous Interviewee: No, it wasn't just for sports. I also liked how it looked and the design of it. You started seeing more and more people wearing them, both men and women. I liked the ability to change the watch faces and the overall aesthetics.

Interviewer: So, we can say that the aesthetic and design of the smartwatch were critical factors in your purchasing decision. Why did you choose this particular model? Did you compare it to other models, or were there specific features that attracted you?

Anonymous Interviewee: Honestly, it was mostly the brand. I saw Apple Watches on so many people's wrists, whether during the day or in the evening. Other smartwatches seemed to be used mostly by athletes during exercise, not as an everyday accessory. That's why I chose this one—it's trendy.

Interviewer: And in terms of features, which ones were the most important to you when you made your decision?

Anonymous Interviewee: The first thing was that it tells the time in large characters—my eyesight is getting worse as I age. I also loved the customisable watch faces. Another important feature was receiving messages from my iPhone directly on the watch. The ability to take calls without being near my phone was a big plus, too. For sports, it's great for tracking my heart rate, calories burned, and activity duration.

Interviewer: That's very insightful. You mentioned how your eyesight is getting worse as you age. Would you say smartwatches currently offer enough features or tools that cater specifically to older users and their health needs?

Anonymous Interviewee: In my opinion, older people need features that are simple to use and can help monitor their health effectively. I think a smartwatch can be a useful tool for that, but it's also important that it's intuitive and not overwhelming. Too many features can sometimes make things more complicated for older users.

Interviewer: That's very insightful! Let's talk about other brands now. When you think of smartwatches, which other brands come to mind?

Anonymous Interviewee: I don't know any other brands. I only know Apple Watches.

Interviewer: Alright, then let's move on to your daily usage. What features do you use most frequently—fitness tracking, message notifications, weather updates, or something else?

Anonymous Interviewee: Besides checking the time, I mostly use the "Find My Phone" feature.

Interviewer: How often do you use these features—every day or occasionally?

Anonymous Interviewee: Every day.

Interviewer: Are there any features you wish your watch had or any you find unnecessary?

Anonymous Interviewee: No, I don't think I need anything extra, and I don't find any features unnecessary.

Interviewer: What improvements, if any, would you suggest for your smartwatch?

Anonymous Interviewee: I can't think of anything specific right now. Maybe the complexity of the device, as I find it complicated sometimes to understand and use. I'm not sure if that's because I'm not really into new technologies or something else. When I think about older people, you know, mmh, a smartwatch could really help them monitor their health. However, the device remains way too complex, I think. Older people need something functional but simple, not a device that looks like a medical gadget.

Interviewer: I completely understand. So, reducing the complexity of the device would be a key area for improvement in your view. Let's move on to how your watch integrates with other devices. You mentioned earlier that connectivity is important to you. Would you say it's essential, or is it more of a secondary consideration?

Anonymous Interviewee: It's very important. That's actually why I bought it. Without the connectivity, a smartwatch wouldn't interest me.

Interviewer: So, owning an Apple iPhone and an Apple computer influenced your decision to buy the Apple Watch?

Anonymous Interviewee: Yes, absolutely.

Interviewer: Regarding the personal data your watch collects, is that something you pay attention to?

Anonymous Interviewee: I didn't realise the data could be shared with third parties. I thought it was private—just for the user.

Interviewer: Would sharing your data with other companies bother you?

Anonymous Interviewee: Yes, it would. It's personal and even medical in nature.

Interviewer: Do you feel well-informed about this? Sometimes, privacy policies appear when using apps, but they're often long and difficult to understand. Do you feel knowledgeable about who can access your data, and would it concern you if it were shared?

Anonymous Interviewee: I generally don't share my data. I only allow access when it's necessary, like for apps that need my location. Otherwise, I refuse.

Interviewer: That makes sense. Recently, AI features have become more integrated into smartwatches, such as detecting heart rate abnormalities, sending fall alerts, or even predicting conditions like heart disease or diabetes. Do you find these AI-driven health features interesting and important when choosing a smartwatch?

Anonymous Interviewee: Yes, I think it's important. I'd use it to monitor my health. It becomes more relevant as you age, and I think these features would especially benefit older people or those with medical conditions.

Interviewer: Thank you for pointing that out. One last question: Is there anything we didn't cover that you think is important to mention?

Anonymous Interviewee: Perhaps more information on whether wearing a smartwatch daily could have long-term health consequences. There isn't much data yet on whether it's safe to wear connected devices all the time.

Interviewer: That's an excellent point and a very interesting topic. We'll see if we can include that in our thesis. Thank you so much, for your time and insights. Can I reach out to you if we have more questions? Your answers will greatly help our research and the future questionnaires we plan to send out.

Anonymous Interviewee: Yes, of course, it will be my pleasure. Thank you.

Interview with Eric Bitsch, Professional Runner and Smartwatch User

Interviewer: First of all, thank you again for agreeing to do this interview with me. This is part of our master's thesis, where we're exploring how users like you perceive and use smartwatches, especially regarding health tracking, connectivity, and future trends like the integration of artificial intelligence. The goal of this interview is to better understand the factors that influence the purchase of a smartwatch and how users analyse their data, such as heart rate or sleep quality.

We'll start by discussing your personal experience as an athlete with smartwatches, their features, and how you use them in your daily life. Please feel free to provide as much detail as you'd like—there are no right or wrong answers. Before we dive into your smartwatch usage, I'd like to learn more about your background as an athlete. How did you start running, how long have you been running, and do you practise any other sports besides running?

Interviewee, Eric Bitsch: Well, I started running... it's been about ten years now. I started running, as you know, thanks to Delphine, and yeah, we started with short distances, which I hated, like many people who run and don't enjoy it at first. We began with short distances, then moved on to a half marathon, then a marathon. Eventually, we started trail running, gradually increasing the distances, which led to where I am now—doing longer and longer trails. Do you need more details?

Interviewer: No, that's perfect. Do you often use technology in your sports practice, aside from your smartwatch?

Interviewee, Eric Bitsch: Well, I have apps on my phone, and I also use web platforms to manage and track my training loads.

Interviewer: Could you give an example?

Interviewee, Eric Bitsch: Yes, there's one that connects with my watch, and then there's another platform developed by some young French people that I use to help with my training loads and planning.

Interviewer: Understood. You're welcome to mention specific brands, of course. Now, let's talk about your smartwatch. What smartwatch do you currently use?

Interviewee, Eric Bitsch: I have a Garmin Enduro.

Interviewer: And what made you decide to buy a smartwatch? Was it mainly for sports, or also for health tracking, given all the data the watch can measure?

Interviewee, Eric Bitsch: Initially, it was mostly for sports. But over time, smartwatches have started providing more and more data related to health. At first, my watch was only for sports—it wasn't even a connected watch. But as time went on, they added more health-related features, so now it's for both sports and health.

Interviewer: Do you remember your first smartwatch model?

Interviewee, Eric Bitsch: It was a TomTom. I can't remember the exact reference, but after that, I had a Garmin 230.

Interviewer: Why did you choose Garmin? Did you compare it with other models?

Interviewee, Eric Bitsch: Yes, I researched online. Initially, I had the TomTom, but it wasn't programmable, which made it hard to plan marathon training. So, I switched to Garmin because it had the best price-to-quality ratio at the time. Now I stick with Garmin because I'm familiar with its system.

Interviewer: That makes sense. What other smartwatch brands come to mind when you think about smartwatches, and what do you think of them?

Interviewee, Eric Bitsch: Well, there's the Apple Watch. Initially, it wasn't really a sports watch; it was more of a daily smartwatch. They've started making more sports-oriented models, but from what I know, they're still not on the same level as Garmin for sports.

Interviewer: I see.

Interviewee, Eric Bitsch: There are also brands like Coros, Suunto, and Decathlon, which make very good watches. But I stick with Garmin because I'm familiar with the system, just like people stick with iPhones or Samsung once they're used to them.

Interviewer: That's a fair point. Let's talk about your daily use of the watch. What are the main features you use? For example, activity tracking, message notifications, or health features like heart rate monitoring?

Interviewee, Eric Bitsch: For me, it's mainly about sports and health. I'm not really into the connectivity part, so I don't receive WhatsApp messages on my watch. That would annoy me—having notifications every five minutes. I primarily use it for sports and health. Sure, when someone calls me, it rings on my watch and I can see who's calling, but that's the only kind of connection I have.

Interviewer: Makes sense.

Interviewee, Eric Bitsch: Beyond that, it's all about health tracking—sleep, heart rate, heart rate variability, oxygen saturation levels, and, of course, every activity I do, whether it's running, swimming, or cycling—it's all recorded.

Interviewer: That's interesting. Are there any features you wish the watch had, or anything you find unnecessary on your current model?

Interviewee, Eric Bitsch: No, nothing in particular. I don't think there's anything I'd want to add. As for unnecessary features, I don't use everything, so I'm sure there are many functions on the watch that I don't even know about. But I chose this model because it fits my needs.

Interviewer: So, there's nothing you would want to improve in the current watch model?

Interviewee, Eric Bitsch: No, my needs are pretty much met.

Interviewer: That's good to hear. Let's move on to another important aspect—connectivity. How does your watch integrate with your other devices? Is this connection essential for you, or

do you find it secondary? For example, Garmin, unlike Apple or Samsung, doesn't have a complete ecosystem with phones or computers. Did Garmin's compatibility with multiple platforms influence your decision in any way?

Interviewee, Eric Bitsch: No, not really. Garmin has its own platform. I use the Garmin app on my phone, and they have a web platform too. Every time I do an activity or regularly throughout the week, I sync my watch with the platform. That's all I need.

Interviewer: Understood.

Interviewee, Eric Bitsch: I use the Garmin platform to track my activities, but I also sync my data with another platform I like for training management. I sync my watch through my phone, and from there, everything goes to the web platform.

Interviewer: That makes sense. But, for instance, if you had a Mac and an iPhone, would the brand's ecosystem influence your choice in any way?

Interviewee, Eric Bitsch: No, not at all.

Interviewer: I see.

Interviewee, Eric Bitsch: Garmin works independently of any system, so they're not tied to anything. That's what's interesting.

Interviewer: That's a good point. Now, let's talk about the data your watch collects. Today, smartwatches gather extensive data, like heart rate, sleep patterns, and location, which is often used to provide statistics or improve user experience. However, this data can potentially be shared or sold to third parties, such as insurance companies, app developers, or marketing firms. Are you concerned about this? Do you feel well-informed about how your data is used, or do you think it's just part of the service?

Interviewee, Eric Bitsch: From what I understand, Garmin keeps the data protected and doesn't share it—at least, that's what they claim. I'm not 100% sure, but I don't worry too

much. If someone knows my heart beats at 50 or my Body Battery is at 90, it doesn't really bother me.

Interviewer: That's understandable.

Interviewee, Eric Bitsch: Of course, if they were profiting from it, that might bother me, as I don't see why they should profit from my health data. But if it's for research studies, I don't mind. In fact, I sometimes voluntarily share my data for health research.

Interviewer: That's an interesting perspective.

Interviewee, Eric Bitsch: Normally, my data is protected with Garmin, and they seem to have good security in place. But a few years ago, they were hacked, so who knows where my data went then...

Interviewer: Right, I see. Thank you for clarifying that. Moving on to another trend: the integration of artificial intelligence (AI) in smartwatches. More and more smartwatches use AI to analyse health data. For example, some watches can detect anomalies in heart rate, alert you about falls, or even predict health risks like heart disease or diabetes. These technologies are increasingly being integrated into the medical field to help prevent diseases based on the data from your watch. Do you find these features interesting or important when choosing a smartwatch? Would you consider using these features to track your health, or is that not a priority for you?

Interviewee, Eric Bitsch: Yes, I'd be interested. For example, my watch already has heart rate variability tracking, and over time, I've noticed that when it goes into the red zone, I'm either really tired or about to get sick. So, these are already useful indicators for me. Garmin has had these features for a few years now. It's the same with the blood oxygen levels—you know, like the pulse oximeters people were using during COVID to check their oxygen levels.

Interviewer: Right, I actually had a question about that, but go ahead.

Interviewee, Eric Bitsch: The watch can do that now, and I check it to make sure everything's OK.

Interviewer: That's great.

Interviewee, Eric Bitsch: I glance at it to see if my oxygen levels are good, especially after COVID.

Interviewer: Speaking of COVID, during an interview with the marketing manager at Vodafone, we learned that some people wearing smartwatches, like Garmin, noticed a drop in their sleep quality or an increase in resting heart rate a few days before testing positive for COVID. I don't know if you ever tested positive for COVID, but have you ever noticed similar changes?

Interviewee, Eric Bitsch: No, not really, because the watch I had during COVID wasn't as advanced. It didn't give as much information. Back then, I only had heart rate tracking.

Interviewer: Understood.

Interviewee, Eric Bitsch: But with heart rate variability, I've noticed that whenever I've had serious health issues, like when I had a pulmonary embolism after my attack last year, the watch recorded me going into the red zone. I didn't pay attention at the time, but later, when I checked, I saw that my watch had detected the problem a day or two before.

Interviewer: Wow, that's fascinating.

Interviewee, Eric Bitsch: Now I pay more attention to those signs because I know they're indicators of a problem.

Interviewer: So now it helps you in your daily life to adapt your training and better understand your health?

Interviewee, Eric Bitsch: Yes, definitely.

Interviewer: That's excellent. One last question before we finish: is there anything we haven't covered that you think is important to mention about smartwatches?

Interviewee, Eric Bitsch: Well, with smartwatches like Garmin, some people say the indicators aren't always accurate. For example, the heart rate monitor might not be spot on.

Interviewer: Yes, I've heard similar feedback.

Interviewee, Eric Bitsch: Or things like that. But I see it as an indicator, not a precise measure. When the watch shows a red zone for heart rate variability, it means I'm tired or not feeling well. Whether the data is accurate down to the millisecond doesn't matter much to me.

Interviewer: That makes sense.

Interviewee, Eric Bitsch: It's the indication that matters. It's the same with heart rate tracking—people say the watch heart rate monitors aren't very reliable. Maybe your heart rate is actually 140 instead of 145, but it's still a helpful guide.

Interviewer: That's a great way to look at it.

Interviewee, Eric Bitsch: So no, nothing particular to add beyond that.

Interviewer: OK, great! Thank you so much, Eric. It's been fantastic to get your perspective as both an athlete and a smartwatch user. Your insights will definitely help deepen our research. You might receive a follow-up questionnaire later as we progress with our analysis. Further, do you consent to being mentioned in our thesis, or would you prefer to remain anonymous?

Interviewee, Eric Bitsch: I'm happy to be mentioned. Feel free to include my name. And let me know the results when you've completed your full study.

Interview with Filipa Abrantes, Marketing Professional at Huawei Portugal

Interviewer: As I told you, our research is based on or focused on the wearable health technology, specifically the smartwatch market. And in this interview, I would like to understand your perspective from your experience in the smartwatch market. So, I have prepared 9 questions, which you can just freely answer. Maybe you could explain what your role at Huawei was.

Interviewee, Filipa Abrantes: So my role there, there were mainly two things. The first one was I was responsible for creating all of the digital strategy. By digital strategy, I mean the website, the content we should put on the website, best practices for the e-commerce retailers that we had in Portugal at that time.

What were the types of keywords that people were searching? What were the types of marketing activities that we should focus on more in our social media and also PR fields?

And we had several categories. The first one was a smartwatch because at the time when Huawei arrived in Portugal, they just had smartphones—medium range ones, though. Then they turned to premium range, and then they just went into the smartwatch field as well.

So I was responsible for launching a new category. I can describe it better by saying the first one is like I was mentioning: people were going to recognize Huawei not just as a smartphone provider but as a reference for smartwatches. At that time, Apple was super strong. You already had Samsung, and you already had other Chinese brands as well.

They really wanted to differentiate, so I did several things. The first one I would say regarding marketing activities, of course, was some partnerships at that time. With influencers that were like more mass influencers, so with a lot of volume, with a lot of followers because we didn't want to get into a niche. Huawei is not a niche brand. So, we were seeking volume.

So we needed partnerships, and we had smartwatch models for women and men, so we needed to find someone that could fit into both of these. In Portugal at that time, we chose Francolina Patricia. That's one of the major influencers in Portugal. She's really into sports. She's already sponsored by other sports brands. So we did something like that and also worked with influencers to use the watch in terms of digital experience. It was really interesting because we needed to do a deep keyword study, so we just hired a company to make that. What people are searching for when they look for a smartwatch is price and quality, a better screen, colors, so we needed to find out all of these.

Interviewer: Yes.

Interviewee, Filipa Abrantes: We did this way of marketing for Portugal, but we have some analysis from the previous countries because Portugal was not the first country in which Huawei launched the smartwatches. We got information that people from France really care about the color, about the quality of the materials, because of the sweating, and because when you're doing sports, there is a lot of sweat.

Also, the girls don't like things super big on their arms because their arms are skinnier. The battery is one of the things that people valued the most at that time.

Interviewer: And when was this? When were you there?

Interviewee, Filipa Abrantes: Yeah, it was in 2019, five years ago. So before COVID, which was really nice because you could do outdoor activities. These were also one of the marketing activities as well as partnerships with gyms and outdoor activities, types of training for which the trainer at that time was using the watch.

There were also a lot of discounts because it was really price-driven as well, while the quality was really good. At that time, we just made a lot of studies in terms of keywords for Google ads to push for those keywords in some branded contents that we had.

Also, we did some magazines like *Men's Health* or *Women's Health*. We focused on lifestyle and also urban because it was our target audience we wanted to reach. We also made a partnership with Spotify at the time, because when people do sports, they listen to music. So we did a lot of partnerships with Spotify, even with a range of music experiences to display a certain sport during playlists.

We made a huge pre-launch campaign so we could get a discount if you would pre-order the watch. I think it is a time we tried different bundles, so we had it.

I think it was the watch with the freebies, Freebuds. It's like AirPods, so earphones without wires. And I think it was there. It was like we tried to discount. We tried the Freebuds due to the audio. That's why we made also so, so many partnerships. Also, we invested a lot in YouTube and other channels, but these ones I think it was the most worth it that I remember.

Then we also did another bundle that was different colors from the bracelets because we got it that there's like people who preferred to have bracelets to do sports and another one more colorful for like to hang out during the day. So, we tried both of them as well, but the audio at that time functioned really, really well.

We also joined a fashion contest or something like that in Portugal. We have, like, the Portuguese Fashion Week. They also had the clothes and the sports at that time. I can tell you there was like more than one million investment that we did with all of these small actions.

But it was really worth it because we even had studies regarding the keywords, like what people were seeking the most. And like I told you, it was really regarding the battery, the quality of the materials. Then in terms of features, we started understanding that people, for instance, wanted the steps to be counted and the calories as well.

We had an application, so we just needed to develop the application too.

If we had it at that time, it was Huawei Health, and we needed to improve the features and the data it was capturing. We had a lot of good reviews, and it was really good.

Interviewer: Mm hmm.

Interviewee, Filipa Abrantes: I remember a few friends who had Apple Watches and then just changed to Huawei watches. And one of the things, like I told you, was the bracelets. Even for men, we had sporty bracelets, and then we got, for instance, a leather bracelet.

Because if you think about Apple, Apple is like a status thing. Boys being boys wanted to look pretty, and Huawei tried to imitate those types of things. And also, it was a good strategy at that time. Even for the details like the bracelets, I think we didn't have that immediately in Portugal, but it was also to imitate other brands. But since the prices were lower and the preorders were really, really strong, we got really good reviews. I think Huawei is a brand that grew organically, really in an organic way, because people started loving it. And I can tell you, we had like a Huawei community. We paid 0 to these people.

We didn't pay; they really liked the brand, and they became brand ambassadors at that time as well. So, it was interesting to launch. I remember every six months we had like a different model, so it was really interesting.

Interviewer: Hmm. Yes.

Interviewee, Filipa Abrantes: Like I told you, the reviews that we had also in the e-commerce websites. So, we had different bundles for each e-commerce retailer.

But we grew the business. I don't know the exact numbers, but we conquered like 22% to 30% of the market share really quickly. And of course, Portugal is a good market to test, like I told you previously. But we grew. We grew.

Interviewer: Mm hmm.

Interviewee, Filipa Abrantes: And also for us, it was really—I don't know—important for our teams. Like I told you, then Trump made a tweet. Remember I told you that?

So, for instance, we had to stop working with American companies because Huawei was banned from working with American companies due to Trump imposing certain legal restrictions on Huawei at that time.

And, for instance, the smartwatch wasn't as affected as the smartphones because for smartphones, you go to Google. The smartwatch, you don't need Google. You just have the software and application. So, it was really nice because it wasn't such an affected category. Even in terms of risk, it was a lower-risk category. So, we could survive in that space at the time. We pushed a lot, a lot with the watches because, well, of course, we suffered a lot with the smartphones and also with the PCs. We were also starting to sell laptops, but laptops have Intel chips, and Intel is an American company, so we couldn't sell computers anymore.

Interviewer: Yes.

Interviewee, Filipa Abrantes: But the smartwatch was still an area where we could push, and it was really rewarding at that time.

Interviewer: No, it's really interesting, also considering the time you were there with these political circumstances. It's remarkable what you achieved in the smartwatch market.

What would you say was the competitive landscape then, or maybe even now if you're still up to date? What's your impression of the different competitors? What image do they have? And how would you compare them to each other?

Interviewee, Filipa Abrantes: I would say Apple was the best one. Imagine there were certain features like the ECG (electrocardiogram) or cardiac frequency. These features were certified by certain associations. Most of these associations are American, OK?

So, American brands are really privileged when it comes to certifications. I remember that Apple had a lot of features certified by cardio associations worldwide, and they invested heavily in health. Samsung started doing the same, but Apple was really ahead in health at the time.

Even today, Apple smartwatches can detect diseases through a lot of different features. So, I would say that in terms of watches, Apple was the leader. And their ecosystem was impressive. You had AirPods and all the other connected devices.

Interviewee, Filipa Abrantes: But the features were also really nice. The eSIM card was an innovation—they didn't need their phone to be connected by Bluetooth to their smartwatch because they could make direct calls.

And I think that, at that time, Apple was the only brand that had this feature, at least in Portugal. When I was working with Vodafone, Apple was the only brand that had Apple Watches in its portfolio. They were really pioneering in this way. The Chinese brands like Huawei came in and imitated, offering similar features at a lower price. But in terms of positioning, I would say Samsung was also a really interesting brand.

If you notice, it's hard for people to trust a brand that's only made for watches. Only if you go for sports—for instance, Garmin. Garmin is super well-known for sports, right?

Interviewer: Yes, yes.

Interviewee, Filipa Abrantes: But it's not the same audience. A runner would look for a Garmin watch, but someone who values lifestyle and aesthetics might look for Apple, Huawei, or Samsung. For lifestyle, I would say Apple, Huawei, Samsung, and even Xiaomi are strong contenders.

Smartwatches can also do things like payments. For example, Apple Watches are pioneers in payment systems. Here in Portugal, it wasn't very common, but Apple did some really interesting collaborations with banks.

Interviewer: OK.

Interviewee, Filipa Abrantes: For instance, I remember that if you wanted to subscribe to a new account at a Portuguese bank, they would give you an Apple Watch.

If a bank is recommending an Apple Watch, it means trust. Banks would not do that with Huawei, for example.

Interviewer: OK. That's interesting.

Interviewee, Filipa Abrantes: One of the things as well.

Interviewer: And so you mentioned already the kind of segments like runners or lifestyle. Do you also notice differences in preferences among various demographics, for example, age, gender, or for what they use it? How did you segment it?

Interviewee, Filipa Abrantes: I would say that, first, you don't see a lot of teenagers using smartwatches right away.

I would say the main segment was people between 20 and 40, maybe up to 50. But between 20 and 40 was the sweet spot—urban people with urban interests.

Because they're looking for lifestyle and sophistication.

Interviewer: OK.

Interviewee, Filipa Abrantes: The type of partnerships and media we used were aimed at this audience—city centers, urbanites. The watches themselves aren't super cheap.

Huawei did have more affordable options like smart bands, which were much cheaper than the smartwatches. So, we could grab some younger customers with bundles. For example, if you bought a smartphone, we would give you a smart band.

One interesting observation in Portugal was that many grandmothers started using smart bands because their children or grandchildren gifted them during promotions like Christmas.

Interviewer: Really?

Interviewee, Filipa Abrantes: Yes. It was interesting. Even though older people weren't the target, it worked because they thought having a band made them healthier.

They felt like wearing one meant they were improving their lifestyle.

If someone sees you wearing a Garmin, they might think, “Wow, you must be a runner.” It becomes part of your personal brand.

Interviewer: Yes, OK.

Interviewee, Filipa Abrantes: It’s really fascinating how these products can project an image, even if you don’t actively use all the features.

Interviewer: And did you see in your experience—the search words that were mostly used—what would you say was the most common reason people purchased a smartwatch?

Interviewee, Filipa Abrantes: Definitely the battery, like I mentioned earlier.

The quality of materials was another key factor, especially for people with allergies or those who sweat a lot during sports. The colors were also very important, particularly for women.

In Portugal, it seemed like people also cared about having lots of features, even if they never used all of them. It made them feel like they were getting something better.

For instance, on my birthday, I received two smartwatches—a Huawei and a Garmin.

Interviewer: Oh, nice.

Interviewee, Filipa Abrantes: I preferred the Huawei one in terms of design because the bracelet was thinner and more elegant. They also had a feature where water would be expelled from the watch through a hole—it was pretty amazing. But at the end of the day, I stuck with the Garmin because I only use watches for running. For me, it’s just about running, so I chose the Garmin.

Interviewer: OK, interesting. And what about the features that made people complain? Were there any common complaints that might have affected purchase decisions?

Interviewee, Filipa Abrantes: Yes, there were a few things.

First, the materials—while they were good, they weren’t extraordinary. Over time, they could deteriorate.

Second, firmware updates were another issue. Sometimes, there were problems with the connectivity between the smartwatch and the application after an update.

Third, the screen. Broken screens were a common complaint. But honestly, I don't think this was because of the quality of the glass; it was more about accidental damage. People would bump their watch against a wall or drop it.

But overall, the materials and connectivity issues were the main complaints.

Interviewer: OK. And in terms of preferred materials, what do you think worked best?

Interviewee, Filipa Abrantes: For men, it was leather straps. Definitely leather.

For women, it was more about the colors. They wanted something softer and more stylish. Pink, gold, silver—those kinds of colors.

If we didn't offer these colors, they would look for another brand.

Interviewer: So, design choices made a big impact?

Interviewee, Filipa Abrantes: Absolutely. People use these devices as lifestyle accessories.

It's not just about functionality. A smartwatch is also a piece of design, a fashion statement.

Interviewer: OK, that's interesting. Another thing you touched on earlier was brand loyalty and ecosystem integration. How important was that for purchase decisions?

Interviewee, Filipa Abrantes: Super important—like, really important.

Take Apple, for example. Apple has a closed ecosystem, which means their devices work seamlessly together.

But Huawei was actually better in some ways because it could integrate with devices from other brands, even iPhones.

We developed applications to make sure Huawei smartwatches could work with Apple devices.

On a scale of 1 to 10, I would say brand loyalty is a solid 9 in terms of importance. Once people have the smartwatch, the FreeBuds, and other accessories, they're locked into that ecosystem.

Interviewer: That's fascinating.

Interviewee, Filipa Abrantes: Yes. That's also why we created so many bundles. For example, if you bought a smartwatch, you might get FreeBuds for free. It was all about building that ecosystem.

Interviewer: Was it possible to use a Huawei smartwatch with an iPhone?

Interviewee, Filipa Abrantes: Yes, exactly. It was possible, and that was a big advantage for us.

Interviewer: OK. Now, moving on to data usage and privacy, which is an important topic for us. Are there any guarantees or features regarding data privacy that are becoming more important for consumers?

Interviewee, Filipa Abrantes: Privacy is mandatory for companies. We had strict privacy policies, and during the setup process, users had to authorize a lot of things.

But the data was always used in bulk, not individually. For example, we wouldn't know that it's *you*, Carla, using the device. Instead, we would know that a woman aged 20 to 30, who likes technology and sports, is using it.

This is how companies gather insights to improve their products.

Interviewer: OK.

Interviewee, Filipa Abrantes: The ecosystem plays a role here as well. Companies use aggregated data to understand how people use their devices.

It's also worth mentioning that there are other big players in the market—like the pharma and health industries—who are interested in this data.

For example, insurance companies might want access to health data. Huawei might know more about your health than your insurance company does.

Interviewer: That's a good point.

Interviewee, Filipa Abrantes: Yes, and it's not just the tech companies. There are many invisible players in this market.

Interviewer: So, how did customers perceive this? Did you have to communicate transparently about data privacy, or did customers just accept it to use the product?

Interviewee, Filipa Abrantes: We had to communicate it, of course. Privacy policies were always included in advertisements and on the website.

But honestly, most people don't read the fine print. When you're setting up a device, you just click "Next, Next, Next."

Interviewer: That's true.

Interviewee, Filipa Abrantes: Exactly. People authorize permissions without even realizing it. They don't think about it until they notice targeted ads or other things that make them wonder.

Interviewer: Was there ever an incident that significantly impacted consumer trust in the smartwatch brand?

Interviewee, Filipa Abrantes: Not specifically in the smartwatch category.

But when Huawei faced political challenges—like being banned from working with American companies—it affected all product categories, not just smartwatches.

For example, if someone stopped buying Huawei smartphones, they might also stop buying Huawei smartwatches and accessories.

It was all interconnected.

Interviewer: That makes sense. Now, looking to the future, what trends do you think are shaping the smartwatch market?

Interviewee, Filipa Abrantes: I think the battery is still a key feature. People want longer battery life.

Software and applications are also becoming more important. Some people buy smartwatches because of the apps, not the watch itself.

For example, I've heard of people choosing certain brands because their sports apps have better graphics and data visualization.

Interviewer: OK, that's really interesting. Do you have any examples of apps that are particularly popular or unique?

Interviewee, Filipa Abrantes: Yes, one that comes to mind is Suunto. I've heard great things about its features for trail running and elevation tracking.

For example, when I run trails, I like to see the exact elevation I've covered. Not all smartwatches offer that.

Garmin is another one that's excellent for runners and trail enthusiasts because of its GPS accuracy and data.

Interviewer: Got it. So, some apps or features really set certain brands apart.

Interviewee, Filipa Abrantes: Exactly. Sometimes it's not just the smartwatch—it's the ecosystem or the app that makes the difference.

Interviewer: What do you see as the main challenges facing smartwatch adoption? And how can brands overcome them?

Interviewee, Filipa Abrantes: The biggest challenge is the sheer competitiveness of the market. If someone isn't loyal to a particular brand, the deciding factor often becomes price. There are so many good brands offering similar features at various price points. That's why brand reputation is so important. For example, Garmin has a strong reputation among runners, and people trust it for sports. But for general lifestyle, people might prefer Apple, Huawei, or Samsung because they integrate better into everyday life.

Interviewer: So, reputation and price are key challenges.

Interviewee, Filipa Abrantes: Yes, and I'd also add control and personalisation as growing trends. People want more control over their health and lifestyle. Features that monitor heart rate, calories, and even provide personalised fitness recommendations are becoming more important. It's about giving users insights that feel tailored to them—like reminding them to

rest if their heart rate is too high or suggesting how many calories they should consume after a workout.

Interviewer: That makes sense. Personalised features seem to be gaining traction.

Interviewee, Filipa Abrantes: Yes, and they make a smartwatch feel like more than just a device. It becomes a personal assistant for your health.

Interviewer: That's a great perspective. One last question: Is there anything we didn't ask that you think we should keep in mind?

Interviewee, Filipa Abrantes: Hmm, let me think.

I don't know what type of people you're interviewing, but I'd suggest including a wide range of demographics. For example, we noticed that during Christmas campaigns, a lot of older people—like grandmothers—started buying smart bands as gifts or even for themselves. It was unexpected, but it showed us that health-conscious branding resonated with them.

Interviewer: That's fascinating.

Interviewee, Filipa Abrantes: Yes, it was. And even younger people, like teenagers, were more likely to buy smart bands than full smartwatches because of the price difference. So, it's worth exploring how different demographics perceive and use these devices.

Interviewer: That's a great point. I'll definitely share that with my group.

Interviewee, Filipa Abrantes: Perfect. I think those insights could add depth to your research.

Interviewer: Thank you so much, Filipa. This has been incredibly insightful, and we really appreciate your time.

Interviewee, Filipa Abrantes: You're very welcome. If you need anything else, feel free to reach out.

Interviewer: Thank you! I'll stop the recording now.

Interviewee, Filipa Abrantes: Great, and good luck with your research!

Interview with Felix Kreuz, Fitness Trainer

Interviewer: Can you tell us about your background as a fitness trainer and how you use or recommend smartwatches in your work?

Felix Kreuz: Yes, of course. So, my background as a fitness trainer: I've worked in the fitness industry for about five years, including completing a dual degree in fitness economics. During my studies and work in the gym, I came into contact with smartwatches and other wearables. These are especially important for training management and monitoring. I've conducted about 500 to 1,000 personal training sessions, and the challenge was always to make the client's performance visible without relying solely on subjective assessments. Smartwatches make it possible to measure calorie consumption, check intensity levels, and provide insights into recovery and sleep. These devices are now widely used in the fitness industry.

Interviewer: Okay, perfect. So, would you say that smartwatches have helped improve the training with your clients?

Felix Kreuz: Definitely. Especially when the client wears a watch that provides qualified data, it makes my job much easier. You can make the client's performance more visible, make training more meaningful, and monitor parameters like stress levels or recovery.

Interviewer: Thanks, that also answers the next question: How widespread are smartwatches in the fitness world today?

Felix Kreuz: Smartwatches are a common tool but not yet widespread everywhere. Many wear an Apple Watch, Samsung Watch, or Google Watch, but they tend to use them more for everyday life. Proper sports watches like Garmin or Polar are more commonly seen among ambitious athletes.

Interviewer: So, would you say that smartwatches are considered more of a "nice to have" rather than a priority training tool?

Felix Kreuz: Yes, I see it that way at the moment. It's becoming more common, but it hasn't completely taken hold yet.

Interviewer: Are there differences in usage depending on demographic groups, for example, between younger and older users?

Felix Kreuz: Yes, it's more common among younger people up to their mid-40s, especially with smartwatches from Apple or Samsung, which are compatible with their smartphones. Older people are increasingly using smartwatches but often not to their full potential.

Interviewer: What are the most common reasons your clients own a smartwatch?

Felix Kreuz: Most of the time, it's the "all-in-one package." They use various features like health monitoring, sports functions, calls, and music, but it's often also a status symbol.

Interviewer: Do your clients share their fitness data with you, and what opportunities do you see in closer collaboration between trainers and smartwatch data?

Felix Kreuz: I see great opportunities. There's a basic trust between trainer and client, so most are happy to share their data. This allows the training to be much more effective. In the future, I see great potential in software solutions that aggregate data and improve training management.

Interviewer: Are your clients informed about the functions of their smartwatches, or do you have to proactively educate them?

Felix Kreuz: Usually proactive. Many know that they can display certain health data, but they often don't understand how this data affects their performance. As a trainer, you can provide a lot of support there.

Interviewer: Which smartwatch do you personally use?

Felix Kreuz: I use the Garmin Fenix 7 Pro Solar.

Interviewer: What motivated you to buy this smartwatch?

Felix Kreuz: I started endurance sports and wanted to make my performance more visible and track it better, especially my recovery, sleep, and GPS data.

Interviewer: Why did you specifically choose Garmin?

Felix Kreuz: I compared many watches, and Garmin offered the best overall package for my needs, especially in endurance sports. An Apple Watch wasn't an option since I don't have an iPhone.

Interviewer: Which other brands did you consider?

Felix Kreuz: Polar, Apple, and Samsung. I also looked at Fitbit, but it was too weak in terms of performance for me.

Interviewer: Which functions do you use the most?

Felix Kreuz: Tracking running, swimming, strength training, and sleep, as well as continuous heart rate monitoring.

Interviewer: Are there any functions you wish the smartwatch had?

Felix Kreuz: An ECG would be nice, but that's only available on more expensive models. Otherwise, I'm very satisfied.

Interviewer: How do you feel about Garmin's use of your data? Does it concern you?

Felix Kreuz: I'm pretty relaxed about it. Garmin probably gets some data, but I'm not too worried about it.

Interviewer: Would it bother you if your data was used for personalized advertising?

Felix Kreuz: Yes, that would be uncomfortable, especially with personal data like health information.

Interviewer: What are your thoughts on the integration of AI in smartwatches?

Felix Kreuz: I see great potential but also certain risks. I think in a few years I might see it more positively.

Interviewer: Is there anything else you'd like to mention?

Felix Kreuz: One could perhaps ask whether customers combine their watches with other devices, such as a chest strap, to get more accurate readings. Also, the question of whether the watch is worn all day or only at certain times would be interesting.

B- Conjoint Analysis Appendix

Appendix B.1: Attributes and Levels of the Conjoint Analysis

Attributes	Levels
1. Brand	**Apple** **Samsung** **Garmin** **Fitbit** **Huawei**
2.. Health Monitoring Features	**Basic** (Heart Rate, Step Count) **Advanced** (ECG, Blood Oxygen, Sleep Tracking) **Comprehensive** (Advanced features + Stress Level, Blood Pressure) **AI-Enhanced** (Predictive disease management, Generative AI-driven insights)
3. Battery Life	**Up to 24 hours** **2-3 days** **4-7 days** **More than 7 days**
4. Connectivity to Smartphone (Synchronization)	**No app required** (but limited compatibility with other brands) **Additional App required** (but full compatibility across brands)
5. Data Sharing and Privacy	**Basic Data Collection** (Minimal Anonymity and Control) **Standard Privacy Settings** (Limited Anonymity and Basic Control) **Enhanced Privacy with Controlled Third-Party Sharing** (Moderate Anonymity and Control) **Full Transparency (High Anonymity and Full Control)**
6. Design and Aesthetics	**Minimalistic** (Simple, Sleek, Lightweight) **Sport-Focused** (Rugged, Durable, Silicone Bands) **Premium Accessory** (Luxury Options: Leather, Stainless Steel, jewelry oriented) **Customizable and Trendy** (Interchangeable bands, Color options)
7. Retail Price	**199 €** **299 €** **499 €** **799 €** **1000€+**