Master’s Thesis On

# “DRIVERS OF USING SMART HEALTH WATCH”

### SMART WATCH TECHNOLOGY AND IMPACT

ON HUMAN

**FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF**

**MASTER OF BUSINESS ADMINISTRATION**

**UNDER THE GUIDANCE OF Prof. DR.MATHEW K THOMAS**

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**Certificate**

This is to certify that the Master’s Thesis “ DRIVERS OF USING SMART HEALTH WATCH” has been prepared by Mr.Aniket Kumar under my supervision and guidance. The project report is submitted towards the partial fulfillment of 2 year, Full time Master of Business Administration.

Name & Signature of Faculty Date

**Declaration**

I, Aniket Kumar, Roll No.22GSOB2010286, student of School of Business, Galgotias University, Greater Noida, hereby declare that the Master’s Thesis on “DRIVERS OF USING SMART HEALTH WATCH”is an original and authenticated work done by me.

I further declare that it has not been submitted elsewhere by any other person in any of the institutes for the award of any degree or diploma.

Name and Signature of the Student Date

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# “DRIVERS OF USING SMART HEALTH

***WATCH”***

### Executive Summary: Motivators for Wearing Smart watches

In recent years, smartwatches have become far more popular than just wearing accessories. This executive summary examines the main factors contributing to the growing popularity of smart watches.

1. Health and Fitness Tracking: Smartwatches' extensive health and fitness tracking features are a major factor in their appeal.

Heart rate monitoring, step counting, sleep tracking, and workout advice are just a few of the feat ures that make smartwatches a desirable option for consumers who are health-conscious.

1. Interaction and Notifications: Users of smart watches can get calls, texts, and notifications right on their wrists thanks to the devices' smooth interaction with smartphones. By allowing users to keep current without continuously checking their phones, this feature improves convenience and boosts efficiency and productivity.
2. Style and Customization: To accommodate a wide range of consumer tastes, contemporary smartwatches are available in a variety of designs and styles. There is a smart watch to fit any taste, whether it is for athletics, formal events, or daily use. Users can also add a design element to utility by personalizing their gadgets with customized watch faces and replaceable bands.
3. Integration with Smart Devices: Smart watches act as central hubs for managing smart home appliances like lighting, security cameras, and thermostats. This integration makes using it easier for users by offering a practical approach to can control linked gadgets from a wristband, encouraging the development of ecosystems for smart homes.
4. Productivity and Utility: Voice assistants, calendar notifications, reminders, and navigation support are just a few of the productivity functions that smartwatches have to offer. Because of these functions, smartwatches are a must-have accessory for time-management enthusiasts and busy professionals alike. They also make multitasking easier.
5. Emerging Technologies: The growing popularity of smartwatches can be attributed to technological advancements including better sensors, longer battery life, and more computing power. Furthermore, the incorporation of cutting-edge functionalities such as blood oxygen monitoring, NFC payments, and ECG monitoring broadens the potential and practicality of smartwatches, drawing in early adopters and tech aficionados.

In conclusion, a variety of factors, such as connectivity, style, interaction with other smart devices, productivity capabilities, health and fitness tracking, and technological improvements, are driving the adoption of smartwatches. It is anticipated that smartwatch technology will become even more commonplace and more integrated into daily life as it develops and advances. To fulfill the changing demands and tastes of consumers, wearable technology companies should keep innovating and leveraging these drivers.

## INTRODUCTION AND BACKGROUND

Recent technological advancements have given rise to the creation of smart environments and wearable technology. The technological innovations of today include smartwatches, autonomous cars, smart buildings, smart shoes, smart robots, and more that are integrated into our daily life. These smart innovations—such as Google Glass, smartwatches like the Geek Watch and iWatch, as well as bracelets—are changing our daily routines, behaviors, and decisions.

Our upcoming discussion will center on smartwatches and how this technology affects how people utilize technology. Smart wearables have recently brought about various behavioral changes in people's daily lives. For example, in the healthcare industry, the educational system, and other crucial domains of the human experience. Smart education has garnered significant attention in recent times, with educational initiatives centered around it being implemented around. The usage of wearable smart devices is one of the biggest trends in the healthcare sector.

Starting with wearable smart devices, this phenomena is spreading to include smart homes, smart energy and transportation, and eventually smart cities. Today's modern scientific cultures are greatly dependent on a multitude of smart technologies for their daily needs. Our daily activities are connected to a vast information system cluster of which we are a part. People may now complete tasks more efficiently and contribute to societal sustainability thanks to smart technologies. Creating vast amounts of big data that decision-makers can use is just as important as utilizing end users. The purpose of this study is to identify the reasons and causes that have contributed to the spike in smartwatch sales over the last ten years. Influencing the craze for smartwatches. Manufacturers have expressed a great deal of interest in the launch of associated smart devices, platforms, and apps.

According to a recent Deloitte analysis, the percentage of Americans who own a smartwatch increased to an all-time high of 14% between 2013 and 2018 . 30.7 million "Apple" smartwatches were supplied globally between 2017 and 2019, according to a comparable estimate released by strategic analytics in February 2020. According to Statista, smartwatches and fitness trackers account for 95% of all wearable gadgets, suggesting that the future is centered around the "wrist."

This number is anticipated to increase in the upcoming years. We are motivated to investigate the reasons behind the current increase in wristwatch adoption since the technology's numerous uses continue to draw in customers from all over the world. Before elucidating the connection to human change, it is imperative to distinguish between the many sorts of smartwatches. Users

may monitor and manage their actions, including those connected to their health, much like they can with other devices equipped with sophisticated smart sensors. Certain watches are utilized for text messaging and phone conversations, among other forms of communication. Thus, it's crucial to keep in mind that various watch styles could have varying effects on how beneficial people believe the product to be.

Initially, the gadgets were sold as wristbands. in the upcoming years. We are motivated to investigate the reasons behind the current increase in wristwatch adoption since the technology's numerous uses continue to draw in customers from all over the world. Wrist bands or clip-ons are essential. Most of these were personal fitness trackers, which can calculate body temperature and perspiration to calculate calories burned, measure steps or distances, log food intake, monitor sleep and heart rates, and so on. Fitbit, Shine by Misfit, and Gear Fit by Samsung are a few examples. Second, smart apparel has evolved to cater to consumers who exercise. Two firms offered t-shirts in May 2014 that included built-in sensors that tracked stress levels, calories burned, heart and breathing rates, and more.

With the help of Intel's Mike Bell, parents and other caregivers will be able to continuously monitor children and older individuals with health concerns in the years to come. Third, the launch of recently created fashion items with high-tech capabilities is causing new trends to emerge in the fashion industry. These accessories, which include necklaces, bracelets, and key chains, come with a gadget called CuffLinc that is typically connected to smartphones via Bluetooth. These tools can be used to guarantee personal security. Simply touching a bracelet will send a distress signal to the appropriate individuals. Another area of wearable technology is eyeglasses, which is the last but just as significant. As an example, consider Google Glass, Vuzix glasses, and video spectacles. These eyewear is With the help of Intel's Mike Bell, parents and other caregivers will be able to continuously monitor children and older individuals with health concerns in the years to come. Third, newly designed clothing that is intended to help consumers in the medical area, for home use, and for those who are blind or partially sighted is causing new trends to emerge in the fashion industry. Glass, however, is still at the experimental stage and hasn't been made available to the general public for use. Since Google Glass discontinued its initial iteration. Users may monitor and manage their actions, including those connected to their health, much like they can with other devices equipped with sophisticated smart sensors.

Above all, though, the first thing that springs to mind when considering the developments in wearable electronic devices. Smart watches have surpassed all other wearable technology devices due to their exceptional user-friendliness, ability to combine the majority of other wearable tech functions into one device, ease of accessibility on a commercial scale, and attractive design that follows current trends.

## Previous studies on the issue

These days, smart watch technology is getting more and more popular, and a lot of young people are buying different brands, therefore it's critical to comprehend the factors influencing its adoption. Early adopters and smartwatches are the topics of discussion regarding the good, bad, and ugly. While the study highlighted the important characteristics of smart watch users, it also revealed that young consumers are less informed about smart watches than they are about smart phones

. Adapa looked at a few variables affecting the uptake of smart wearables, namely the Sony wristwatch 3 and Google Glass. The Technology Acceptance paradigm (TAM), a paradigm of human-computer interaction, serves as the main foundation for this study looked on how satisfied the user determines through wearable technologies which factors, specifically, determine user pleasure. A conjoint analysis was used to conduct a further study on "user preferences" by analyzing the features of different smart watches. The study also demonstrates how various variables affect consumers' purchasing decisions. Identified five important psychological factors that influence users' acceptance of smartwatches in addition to earlier research.

These studies look at many elements of human-computer interaction and their consequences. Research also clarified the driving force behind the creation of those technologies and the significance of "ease of use" for people.

## Knowledge gaps

The studies mentioned above mainly focus on the preferences of consumers regarding the adoption of technology; not much research has been done on the implications of smart technologies on human behavior. For example, the study "An acceptance model for smartwatches" identified the major psychological factors in the adoption of smartwatches. The study presented by is primarily focused on the various attributes which could affect customers' choices; it is more difficult to determine how certain aspects of life are changing as a result of the adoption of smart wearable technology.

Studies were conducted in accordance with the customer's preferences towards smart technologies rather than "how smartwatch is making impact on customer's life."

As a result, the technology acceptance model (TAM) was embraced by numerous academics. According to Kim and Shin one important aspect contributing to the limits of earlier research was that those studies focused on early users of the technology. However, a new study would be helpful to understand the user's preferences as smartwatches have become more widely used for

various reasons and offered many new functions.

Finding studies aimed at answering the question of how smart watches are used in workplaces is difficult. While smartwatches were previously mostly dependent on the connectivity of cell phones, they have recently included a number of new features that enable them to function as a stand-alone computing device. As per a study conducted by Jung, stand-alone communication and display had significant roles in the comparison of options. These days, watches come equipped with a technology called "e-sim" that lets users listen to calls without needing to have their smartphones close by.

Therefore, we looked into the existing usage patterns in response to the introduction of new capabilities in recent smartwatches. Additionally, not much research has been done on the phenomenon of continuous smartwatch use. Therefore, another goal of the study is to look at the most popular characteristics of smartwatches, which may help us comprehend different viewpoints. The way that smartwatches link families and how the ecosystem of particular brands makes it easier for consumers to go about their everyday business is another important aspect that has been mainly disregarded in earlier research. There are some businesses that cater to children by creating apps and selling smartwatches for them.

## The research's importance and significance

The market for smartwatches has expanded dramatically in recent years, and their prevalence has increased. Watches are being utilized in sports, health, and fitness activities for both concrete and abstract benefits. It's crucial to comprehend the areas of life that a smartwatch significantly affects as a result. A person's life may be positively or negatively impacted by a factor. The wristwatch can be used for business purposes as well as for personal ones, with uses spanning from communication to fitness.

This will help companies create the greatest products possible in addition to helping consumers make judgments. Many companies are striving to sell their smartwatches on the market. to draw in prospective customers by offering a range of features. By identifying those important traits, the manufacturer will favorably target their next generation of buyers. The "next big thing" in wearable technology is the smart watch, and it will have a tremendous impact on our lives.

Furthermore, rather than just embracing these cutting-edge devices, researchers' practical studies on interactions between smart watches and consumers indicate that people have gone a long way toward integrating them into their daily lives. Future user behavior needs to be studied,

especially in light of emerging technologies. Since smart watches are designed to be worn on the body constantly, they should be extremely practical. Understanding the typical usage is essential. of the smart watches across different customers, which would assist determine future demand.

Because of their compact factor, smartwatches are relatively more convenient when driving or doing sports.

## The goal of the study:

Even though consumers use a range of smart devices, one of the closest to the user's body is the smartwatch. In particular, it is a type of wearable technology that has certain special features not found in other smart products. Customers wear smart watches for a variety of reasons; some wear them for fitness and health, while others do so for fun and social acceptance. Examining the most popular smartwatch features and their potential effects on user perceptions is the goal of this study.

Therefore, it would be beneficial to comprehend how watch technology is sustainable. Furthermore, it describes the main ways that many facets of our society will use smart watches, which will aid in comprehending the recurring patterns of usage among individuals. In doing so, this study will draw attention to a few recommendations and implications for the market's future. Additionally, the study can assist businesses in identifying the variables that influence whether or not buyers eventually stop using these types of watches. The goal is to examine how wristwatch technology is applied, how it is developing, and common elements that influence smartwatch adoption.

## Research questions:

1. How is the technology behind smartwatches being used?
2. What common causes have contributed to the rise in smartwatch adoption over the last ten years?

## Extent and constraints

Regarding the generalizability of the results, it is important to note the limitations of the study. First of all, it should be noted that the study was restricted to respondents from the Swedish and Norwegian markets, and it was carried out in a certain geographic area. Consumer views and interests in technology differ depending on the region. The rate of adoption of technology may vary depending on these circumstances, as European countries have significantly better socioeconomic statistics than underdeveloped ones.

Having access to new technologies on the market also heavily depends on a nation's technological infrastructure. The results' generalizability could be impacted by demographic variables. The results' generalization is mainly related to the selected sample, However, if the sample size is larger, it is feasible to have different results. Even though the domains of information systems and human-computer interaction have seen a great deal of research, there may be certain gaps in the literature when it comes to the discussion of smartwatch technology. Due to the fact that the smartwatch phenomena has gained popularity since 2015, there are significant restrictions while trying to locate relevant information.

## The thesis's orientation

The first section of the systematic literature review will be expanded upon in, and it will draw from prior research on smartwatch technology. The approach used for the entire study will be the basis for the following part. This covers the data collection and analysis, research design, and research philosophy. Additionally A thorough overview of the literature review is covered in depth. The conclusion and theoretical contribution form the basis of the final portion.

## Review of the literature

A literature review is a crucial component in carrying out a particular investigation and offering comprehensive data in a particular sector. Although the field of information systems and

wearable smart devices is the focus of this research, a systematic examination is carried out to learn more about the subject. Due to travel restrictions, every article included in this assessment of the literature was located in easily navigable online scholarly resources. The whole corpus of published work was searched using a number of well-known databases, including Google. The content was limited to information systems in order to obtain the most precise understanding of the phenomenon. Certain search terms were used because the databases of all the search engines were rather large to balance quantity and quality while expediting the article search.

Search terms like "smartwatch and its implications," "smart watch technology and its usage," and "wearable smart devices" were initially utilized, but later on, different filters were added in order to focus in on specific research. Before articles can be selected for the literature search, they must satisfy both the inclusion criterion and the search engine keyword requirements. As a result, a set of inclusion criteria was established to assess the caliber of the items. Here were a few of the contributing factors:

The works of literature have to be in English. Time constraints make it impossible and very difficult to translate content from other languages, even though this lowers the quality of study. Every publication needs to be related. to wearable technology, stand-alone computers, smart watch use, and more. To guarantee the validity of the literature review, only articles obtained from reputable and expert academic search engines were used. The majority of the literature has been published in "basket of eight" information system journals and has been published in one of the top journals, all of which contribute to the credibility of the review. Included are research and writings from both non-empirical and empirical sources.

## 2.1 Wearable smart gadgets

"Anybody-body-worn computer that is designed to provide useful services while the user is performing other tasks" is how defines wearable computers, The placement of the mount and— possibly more importantly—the wearer's continuous skin attachment are two of smartwatches' main advantages over competing products . The "smartwatch" is one significant wearable feature. In 2019, listed a few applications for smartwatches.

The use of smartwatches for health and well-being (such as posture, fertility, or pain), fitness (such as heart rate or step count during physical activity), lifestyle & management (such as offering a map or alerting users to incoming calls or emails), and safety (such as automatically sending an SOS alert) are a few examples, smartwatches are multifunctional devices that may be used as both a fashion piece and a computing device. Due to advancements in technology, watches are trending in the same direction as smartphones. Even though there are many different

kinds of smartwatches available, watches were not originally thought of as stand-alone computing devices, but technological advancements have completely changed their functionality. Smartwatches have some descriptive features. What positive or negative effects have smartwatches had on their users or prospective customers is one topic that has to be answered.

The response "multitudinous ways" contains the answer to this query. Wearables with many functions, or smartwatches, are used to track and monitor users' activities as well as a variety of health-related parameters with cutting-edge biofeedback and sensor technologies.

Many characteristics characterize smart watches, such as their attractiveness, usability, aesthetics, hedonic quality, and general coolness. Physical characteristics can also play a significant role in the compulsive use of these technologies. When using or purchasing, users have varying preferences with regard to weight, volume, face surface area, and bracelet length or height. Given that smartwatches are wearable technology, users can anticipate that they will be a fashion accessory or a way to express one's individuality, contributing to the "aesthetic aspect" of life.

A user can thus take into account a variety of descriptive aspects of these products, such as shininess, style, attention, shape, color, features, and bracelet-traditionality. Moreover, in relation to "security requirements, ease of use, dependability factors, and other illustrative qualities may also be appealing to end consumers. Consider built-quality, cost, size, intricacy, waterproofness, felt temperature, bendiness, watch noise, and button noise. Additional attributes like intelligence and swipe reactivity could also support users' "efficiency need" when completing various tasks.

## 2.2 Wearing a smartwatch for medical reasons

The distinct advantages of smart wearables—like accurate health data tracking and the provision of pertinent information based on real-time locations and activities—are propelling the market's demand for the devices at an accelerated rate (Kang & Jung, 2020). According to Blaine & Alexandria (2016), smart watches can help people live healthier lives by enabling self-monitoring of their own activities, getting feedback based on activity metrics, conducting in-person surveys to find behavioral patterns, and enabling two-way communication with family members and medical professionals.

Personal choices will determine how a smartwatch is used, such as for alerts, as an addition to a standard watch, as a health tracker, as an entertainment device, or a combination of the aforementione.

As was previously said, smart watches have a variety of applications in the health, sports, fitness, lifestyle, and management sectors in addition to the safety sector. Running-related software (apps) are employed and available in the majority of smart watches nowadays in the sports and fitness industry. Apps for heart rate monitoring, daily activity tracking, temperature, activity, heart rate, and posture detection are widely accessible and utilized by a large number of individuals to track their lifestyle. In the medical field, a smart watch worn on a patient's wrist or ankle can identify severe, repetitive shaking similar to that which is brought on by generalized tonic-colonic (GTC) seizures.

Using Bluetooth, the watch transmits this data to a smartphone. Afterward, the smartphone sends out the notification of authorized caregivers. The care provider is informed of the event's time, location, and duration in real time, and all procedures are fully automated.

Eight major factors have been discovered as predictive of the intention to use smartwatches continuously, with a few of them being (healthology, supplementary goods and enabling technology). People engage in a variety of routines and pursuits to enhance their well- being. The primary factor that explained smartwatch users' intention to stick with them was habit.

The majority of sensors found in smart watches are affixed to the body, allowing them to collect data about the body that is almost exact. Accelerometry is thought to be the most popular method for gathering data through intelligent timepieces. The use of smart watches has expanded beyond the individual to include communities. Communities can create health-related rules based on the data that smartwatches gather.

The use of smartwatches' health tracking features forecasts positive attitudes and behavior toward the gadgets. Smartwatches have the potential to track and deliver highly particular health-related data in a ubiquitous manner, enabling users to precisely and actively monitor their health, health tracking features in wristwatch users are predictive of positive attitudes and long-term use intentions.

#### 2.3 Technology obstacles for smartwatches

These days, technology is developing at a dizzying rate, and many companies that were well- known ten years ago have disappeared from the market. Product lifecycles have gotten shorter since people's methods of doing things are always changing. So, the question now is: Will smart

watches be able to continue dominating the market over the coming years? In recent years, smart watches have shown to be a useful tool for human activities. There are numerous varieties and brands of smart watches on the market right now. These brands have all included features that allow their watches to be used for a variety of purposes. These capacities may relate to software or hardware aspects. As opposed to this, smart watches are study on them is still in its early phases, as they are a new technology (Blaine & Alexandria, 2016). The perceived utility, enjoyment, and convenience of use of smartwatch technology are some of the aspects that may affect its sustainability (Park, 2020). With the addition of the e-sim feature, smartwatches— which were previously reliant on external communication platforms—have evolved into independent communication devices. Since potential consumers view smartwatches as autonomous gadgets, according to Jung et al. (2016), smartwatches must have independent interfaces in addition to being dependent on a mobile phone in order to perform their duties.

The study's findings show that the hedonic incentive and visual attractiveness of the wristwatch had a beneficial impact on the intention to utilize it, as indicated by Dehghani et al. (2018). smartwatches. Additionally, be on the lookout for sustained stability. It is crucial to search for elements, including perceived benefits, that could affect a buyer's intention to purchase. The most important factor is the smartwatch's design aesthetics (Kuo-Lun & Chia-Chen, 2018). The outcome also showed that certain characteristics of smartwatches, like their attractive designs, have a direct impact on the associated perceived values (Kuo-Lun & Chia-Chen, 2018).

According to Jeong et al. (2017), there are many groupings of usage patterns and temporal patterns of consumption. Contextual, subtle, and multidimensional factors can all influence wearing behaviors (Jeong et al., 2017). One of the most crucial topics was the focus of Blaine and Alexandria (2016): customer data. Data storage will be a concern because smatwatches regularly produce a lot of data. smartwatches. Additionally, be on the lookout for sustained stability. It is crucial to search for elements, including perceived benefits, that could affect a buyer's intention to purchase. According to Kuo-Lun and Chia, the most important feature of a smartwatch's design in the near future is its aesthetics. Privacy and control of data is another major concern (Blaine & Alexandria, 2016).

## 2.4 Early users' adoption of smartwatches

Owners of smartwatches may be considered early adopters of these technologies, which provide more services; how they embrace certain services is significant from a conceptual and practical standpoint (Dehghani & Kim, 2019). The Unified Theory of acceptability and Use of Technology Model was introduced by Venkatesh et al. (2012), who also covered the four main constructs that directly influence a technology's acceptability. Young people think that using technology will help them perform at a certain level. Performance expectancy, which represents an individual's belief that technology would improve his job performance in return, is one of the main components of the UTAUT model (Venkatesh, et al., 2012). A system that offers a higher

level of Another important component in the dimensions of technology adoption is ease of use, which is based on the "effort expectancy construct" (Venkatesh, et al., 2012). Young people therefore think that setting alarms, calculating calories, and making payments are all made simpler by using smart watches. Sometimes young people use technology because their classmates and the market are using it, and it's trendy. Therefore, a key factor in determining a technology's acceptance is its social impact upon adoption. Venkatesh et al. (2012) also stated that a person's behavioral intentions are directly influenced by social influence.

Originally intended to be computing gadgets, smart watches have since transformed into a fashion accessory. Among the According to Jung et al. (2016), one possible disadvantage of smart watches is that they are not stand-alone communication devices. But now that the "e-sim" capability has been added by a number of businesses, the watch can operate on its own as a standalone device. This feature can serve as a draw for early adopters. According to Jung et al. (2016), the three most important elements in the acceptance of smartwatches were display, form, and solo communication. According to another research by Jung et al. (2016), consumers place a higher value on functionality than display. Targeting young male consumers with a focus on privacy and security is one of the main recommendations made to smartwatch manufacturers (Kang & Jung, 2020). Additionally, it is mentioned that selecting between the advantages of clever Wearables and privacy protection don't necessarily have to be mutually exclusive. 2020; Kang & Jung. According to Kang & Jung (2020), when talking about the characteristics of smart watch users, young males are more adept at protecting their privacy than women are. Despite being the most frequent users of smartwatches among the three user categories, users with ambivalent viewpoints had significantly poorer attitudes about and intentions to continue using the devices than benefit-oriented groups (Kang & Jung, 2020).

Consumers value a watch's aesthetic look greatly and choose to buy watches with distinctive designs (Cecchinato, et al., 2015). According to Dehghani and Kim (2019), design aesthetic is regarded as a crucial factor in gaining market share, which genuinely enhances the value of the entire brand. Owning a unique object produces positive feelings. It fulfills people's need for something fresh (Dehghani & Kim, 2019). Uniqueness is a major factor for those who do not use smart watches, although actual tech users did not find this to be a problem (Dehghani & Kim, 2019). According to Dehghani & Kim (2019), a significant behavioral motivator for smart watch users may be the screen size. The screens of smartphones and smartwatches are increasingly replacing primary information sources. Dehghani & Kim (2019) discovered that due to the product's size and design, watches with square shapes, similar to apples, were more favored.

Focusing on the positive aspects, (Cecchinato, et al., 2015) clarified that early adopters don't necessarily need to rely heavily on their mobile phones because they can receive notifications in public areas.

Whatever the case Even if discreet alerts have several advantages, early adopters are still

dubious about the real worth of smart watches (Cecchinato, et al., 2015). Compared to cellphones, early users of smartwatches lack the extra functions needed to promote their general acceptance. The aesthetic desirability of early adopters is the worst thing since it mostly depends on personal preferences (Cecchinato, et al., 2015). The study's primary conclusions are shown in Table 1 below by Cecchinato.

**Table.1**: Key *findings of early adopters of Smartwatch* (Cecchinato, et al., 2015)

|  |  |
| --- | --- |
| ***Early adopter’s Smart watch*** | ***Description*** |
| The Good | Early adopters who do well can receive notifications in social media. |
| The poor | Early Adopters continue to be perplexed by the True Advantages of SmartWtach |
| The Ugly | Early adopters disagree on several points regarding thesmartwatch's aesthetics. |

Chol and Seongcheol (2016) elucidated the different elements associated with the acceptance of a particular technology. Table 2 has a thorough illustration of each of the important components. Additionally, the smartwatch was described as a fashion product in the same study (Chol & Seongcheol, 2016), and this was tied to the rise in use among those who desired uniqueness.

Chol and Seongcheol (2016) have shown a connection between technological innovation and smartwatches as fashion products as external factors that impact technology adoption.Technology adoption is said to be significantly influenced by vanity and the desire for individuality (Chol & Seongcheol, 2016). The adoption of smartwatch technology is thought to be significantly influenced by the device's compatibility (Chol & Seongcheol, 2016).

**Table 2**: *Important factors that can affect the adoption of the technology* (Chol & Seongcheol, 2016)

|  |  |  |
| --- | --- | --- |
| **Factors** | **Types** | **Description** |
| ***Cognitive activity*** | Perceived usefulness Perceived ease of use | How technology is useful, benefits of using the product. How easy is to use the technologyHow compatible is the technology with others. |
| ***Social aspects*** | Social influence Privacy, Cultural acceptance | Usage in public spaces like workplaces, travelling and private gatheringsCultural aspects of using technology (acceptance, rejection) |
| ***Physical aspects*** | Physical comfort Appearance | Overall physical comfort of the technology. Health related issues by using technology Weight of the product, ease of access. |
| ***Demographic factors*** | Age, Gender, place | Important demographic factors can affect the adoption of technologyAge, gender, education and ethnicity |
| ***Technological******understanding*** | Past experiences,technological | Familiarity with technology, experience in using thetechnology. |

## Synopsis of the Review of Literature

The main focus of the literature study is on using smartwatches as tools for fitness and health. It also covers the issues facing technology and the variables that can have an impact on how long smartwatches last. The use and advantages of technology for early adopters are also discussed later. The aspects that may have an impact on how the smart watch is used are covered in the last section.

## Methodology

* 1. **Methodology of the Research**

Examining the variables impacting consumer attitudes and choices about smartwatch adoption is the main goal of the research. The research approach aids the investigator in formulating the protocol for carrying out a certain investigation. Three primary components make up the research approach, according to Creswell & Creswell (2018): research designs, research techniques, and philosophical worldviews. While the researcher has a number of possibilities for carrying out the study by adhering to particular research paradigms, the most important factor is determining which paradigm is most appropriate for elaborating on the nature of the problem and determining its solution. As an example, we can choose among constructivist, positivist, post-positivist, and pragmatic perspectives. The primary goal of the researcher should be to identify the optimal point at which these three elements intersect. The traditional approach is mostly represented by positivist and postpositivist worldviews of doing research with the assistance of quantitative data analysis and acquisition. The two are primarily distinguished by the extent to which they adhere to the "absolute truth of knowledge" (Creswell & Creswell, 2018). Post-positivism, on the other hand, is predicated on the notion that not everything that exists can be known and that we are unable to have an absolute picture of reality. Post-positivism sticks to a logical methodology and mostly uses quantitative techniques related to hypothesis testing. The "deterministic theory," which holds that cause determines result, is a major source of support for post-positive beliefs (Creswell & Creswell, 2018). Thus, one of the main instruments in this paradigm is experimentation (Creswell & Creswell, 2018). Thus, one of the main components of experiments instruments inside this paradigm. Critical realism is an additional worldview. According to Zachariadis et al. (2010), one of the primary features of critical realism is its ontology, which maintains that the "world exists as it is, independently of what we think." The way that critical realists see the cause-and-effect relationship differs from that of empiricists. According to Zachariadis et al. (2010), critical realism can simultaneously address the problems of the scientific and social sciences and is typically seen as existing between positivism and empiricism.

## Constructivist perspectives (using a qualitative method)

The constructivist method is central to this study's research strategy.

People's conceptions of their living environments serve as the foundation for "constructivist worldviews" (Creswell & Creswell, 2018). Creswell & Creswell (2018) state that the "Constructivist approach" entails the researcher depending based on participant-generated facts instead of their personal opinions on a given circumstance. The researchers want to investigate in-depth by posing an open-ended query. A participant has greater latitude to express opinions in open-ended questions, and as a result, detailed responses offer in-depth perspectives on a particular issue. In 2015, Corbin and Strauss It outlines some of the most popular justifications for selecting qualitative research, including examining regions that remain incompletely explored, learning about participants' deepest experiences, and examining how meanings are created and altered. Additionally, aspects found in qualitative research can be evaluated using quantitative research methods in the future. Above all, qualitative research can examine a

phenomenon in a more comprehensive way and comprehensive manner. Since the purpose of this study is to investigate users' perceptions and ideas regarding smart watches, a qualitative method has been used. Smartwatches come in a variety of features and product aspects, therefore consumers weigh these factors differently while selecting their favorite models. To fully comprehend the consequences of a smartwatch, more thorough responses to the research questions in this study are required. Qualitative methods are the primary means of data collection and analysis in the constructivist approach. Social science and anthropology are the original domains of qualitative research. According to Creswell & Creswell (2018), the research method in qualitative design starts with a series of open-ended questions and data collection in a natural context. The analysis is then constructed inductively from the raw data to themes, which include

the researcher's interpretation.

## Grounded theory-based qualitative research design

Grounded theory is credited to its founders, Glaser and Strauss. Their research clarified how theory may be developed from evidence directly. Their approach questioned the established practice of using academic testing to evaluate and improve theories. Grounded theory inquiries, in particular, typically center on social interactions and behaviors. They wonder why some things are done and why individuals act in various ways. This highlights the effectiveness of symbolic interactionism, a social psychology theory focused on human behavior (Sbaraini, et al., 2011).

The method of grounded theory (GT) is effective and adaptable. When little is known about a phenomenon, this practice is appropriate. Among GT's distinguishing features is its goal of producing theory that is based on the data, according to Tie et al. (2019). Many behavioral scientists have favored grounded theory, a type of qualitative study, above quantitative research. Being a qualitative methodology, grounded theory has other benefits as well. For instance, conceptions for a theory can be developed independently from the facts gathered during the research process; the researcher does not need to base these notions on prior knowledge. Next, there is greater potential for research and theory development due to the interdependence of data collection and research analysis. Throughout the study process, data gathering and analysis are conducted in a continuous cycle. Above all, researchers are incredibly free to choose from a wide range of data collection methods.Observations and interviews are the most popular forms of data collecting, and in addition, "Sources of data collection include videos, papers, sketches, internal documents and memos, memoirs, and records from archives" (Corbin &

2015; Strauss). Figure below illustrates the grounded theory's data flow in brief. 1.



**Figure.1:** *Cycle of data collection and analysis in the grounded theory (Urquhart, et al., 2010)*

When employing the grounded theory technique, a researcher begins with ideational structures, such "hunches" for further inquiry (Miles & Huberman, 1984). These foundational ideas aid in the selection of a "substantive area" of inquiry and the definition of a topic (Urquhart, et al., 2010). After that, the researcher gathers "slices of data" from the study region and codes them using conceptual categories. These data slices may originate from various sources and data collection techniques (Urquhart et al., 2010).

Glaser & Strauss (1967) state that the characteristics of these conceptual categories are initially explained in the third phase. By utilizing additional data slices to establish the "relations" between the categories, the categories are further hypothesized into theoretical entities. As of right now, consistent It is crucial to compare concepts, themes, and constructions with previously gathered data (Urquhart et al., 2010). Moreover, until the current categories are "saturated," more data will be collected by theoretical sampling (Urquhart, et al., 2010). To identify the relationships between basic categories and create a "grounded" theory, the "saturated" concepts are finally combined as much as feasible (Urquhart et al., 2010). To put it simply, constant comparison refers to the process of continuously gathering new data and comparing it with existing data. The terms theoretical sampling and theoretical saturation refer to the processes of selecting components from your existing data to inform your future work and reaching the point at which further data has no bearing on your ideas.

That being said, grounded theory has vanished. through numerous revisions and variants that aren't always compatible (see to Amsteus, 2014). Specifically, Glaser is more accommodating whereas Strauss and Corbin (1997) emphasize detailed processes. Three coding stages are introduced by Strauss and Corbin: open, axial, and selective. To simply gather data and categorize it according to comparable qualities is known as open coding. Selective coding relates to the theory that is ultimately produced, whereas axial coding pertains to figuring out how to organize the themes together (see Charmaz, 2014). According to Glaser, selective coding is not a definitive approach; rather, it is more akin to axial coding as described by Strauss and Corbin.

Glaser tended to focus only on what he termed "substantive theory," which is a rather restricted field of study aimed to individual domains. According to him, formal theories are the result of comparison in various contexts. Due to these disagreements on the precise processes, methods, and reasoning processes involved, many researchers contend that their work is "informed by" grounded theory. This is partly due to the fact that researchers may believe that the data sample they have is insufficient to produce a solid "formal" theory that would hold true in various contexts or domains. According to Charmaz (2014), "constructivist" grounded theory emphasizes flexibility and offers much fewer instructions, allowing for various interpretations of what constitutes a theory. Mick and Fournier provide an example of using grounded theory to construct a conceptual framework rather than a formal theory (1998) in their investigation into how consumers feel about new technologies. The fundamental components of inductivism, continual comparison, theoretical sampling, and theoretical saturation are all present in almost all of them, despite variations in interpretation. We do not look for a formal theory in our data; instead, we apply grounded theory in the flexible and constrained manner that the constructivist method suggests. Nevertheless, we use the previously described steps as a guide for our work.

## Techniques for Gathering Data

To get data, purposeful sampling was employed. We filmed in-person and online interviews with people who wore different kinds of smartwatches. Participants were picked from two nations: Sweden and Norway. Three weeks were allotted to the data collection process. Open-ended and semi-structured interviews centered on the aforementioned study issues were conducted in an exploratory manner. Using the "Zoom" video conferencing application, 20 online recorded interviews were conducted. Each interview lasted between twenty and thirty minutes, giving participants considerable leeway. The trustworthiness of the research is enhanced by the evaluation of different methodologies, which makes it important. The researcher has many alternatives while conducting qualitative research, however the choice is dependent only on

on the limitations, information, and queries. In this trial, too, alternatives were limited due to Covid-19 limitations.

## Talks with People

The qualitative study can be carried out using focus groups, telephone interviews, in-person interviews, and email interviews. On the other hand, Zoom meeting software will be used to conduct a one-on-one interview for this study. Furthermore, because semi-structured interviews allow for the selection of certain phenomena to remain in focus, this method was chosen to study the phenomenon (Corbin & Strauss, 2015). Corbin & Strauss (2015) have further delineated the many attributes of semi-structured interviews, including the researcher's ability to incorporate insightful inquiries alongside the primary interview questions. One-on-one interviews offer several advantages, such as the freedom for participants to express their thoughts and the capacity to to obtain historical information. Every interview covers the same set of inquiries and subjects. The researcher may be able to construct the questionnaire more freely and manage the interview procedure before it happens. The primary phenomenon of "smart watch technology" is taken into consideration when designing the questions, and they are also based on the primary research questions of the study. Comparing the instances is not the main focus of a study with a limited sample size, like this thesis. Because of this, the questions can be more open-ended and don't need to be highly structured. Members of the interview team created and distributed a protocol document and a thorough interview questionnaire in order to maintain uniform guidelines during the procedure. this research, appendix 2.

## Guidelines for interviews

Understanding the interview rules or framework is crucial before starting data collection; adhering to these criteria will aid in achieving the objectives and preventing unfavorable results. The researcher adheres to the process for participant approval, data recording, technology selection, and storage and dissemination in the interview guidelines. The book by Creswell & Creswell, (2018) is used to assist create a general interview rules document. Before creating the questionnaire and starting the data gathering process, a thorough literature review was conducted. To ensure that the same procedures are followed in interviews, interview instructions should be provided to each data collector. Since this study is a group project, following the same rules was crucial. Thus The appendix contains is a thorough set of interview guidelines.

Appendix 1 contains a detailed interview guidelines document that was created prior to the commencement of data collection.

## Summary of participants

Twenty interviews in total were done in Sweden and Norway. A series of questions were asked during the 20–30 minute interviews. As a result, a sample of participants was obtained, and those who were wearing the smartwatch were selected for an interview because this study was gender, class, and age neutral. The sample did not have a "brand" restriction, therefore participants' smart watch brands varied. Participants came from a variety of professional backgrounds and ranged in age from thirty to fifty-five.

## Grounded theory method to data analysis

When using a qualitative method, there is a possibility that a large volume of data in text, observational symbols, or any other format will be given to researchers. Finding relevant data is therefore one of the goals of qualitative research. Synthesizing data is essential to developing core concepts. As previously mentioned, semi-structured interviews were used to gather the data, and a grounded theory analysis methodology was used. The grounded theory method deviates a little from the others. According to Mills et al. (2006), coding is the main analytical technique in grounded theory for locating an emergent grounded theory from data. "With coding, you define what is happening in the data and begin to grapple with what it means," as explained by Charmaz (2006, p. 43). As stated by Corbin and Strauss, 2015) Open, axial, and selective coding are the three main forms of coding that are typically utilized. Figure 2 provides a quick overview of coding strategies. When using open coding, the researcher usually starts by creating the basic codes using a lot of data. The codes created in the initial stage of axial coding then transform into a more extensive phenomenon in the subsequent step. The final step in the coding process, called the selection stage, may yield the final idea.







Open coding

Axial coding

Figure 2: Grounded theory methodology's coding strategies (Corbin & Strauss, 2015)

Selective coding

## Validity and dependability of research

It seems that thinking about the ideas of validity and reliability is always a good idea, regardless of approach. However, the focus of this thesis is currently on qualitative research concerns due to the approach used. One of the key advantages of qualitative research is validity, which is determining the accuracy of the findings from the viewpoints of the participant, the researcher, and the readers of the account (Creswell & Creswell, 2018). To validate the results, themes will be evaluated using a variety of sources or research projects. According to Creswell & Creswell (2018), this approach can be considered to increase the study's validity if themes are developed by combining data from multiple sources or participant perspectives. The goal is to present a comprehensive summary of the findings so that the main ideas are easily understood by readers.

A study report is legitimate if "it accurately represents those features of the phenomena that it is intended to describe, explain, or formulate," according to Corbin & Strauss (2015). Corbin and Strauss (2015) go on to say in their book "basics of qualitative research" that categorizing the key ideas and making sure all data items are transcribed are two ways to achieve reliability.

Reflexivity is one of the most crucial aspects of qualitative research. According to Creswell & Creswell (2018), high-quality qualitative research incorporates input from the researchers regarding how their background—including gender, culture, experience, and socioeconomic status—affects how they interpret the findings. The purpose of this study is to closely monitor the precision of data "transcription" during the procedure for gathering data, since this is how the researcher will get the most accurate findings. A study's credibility can be increased by the researcher by providing sufficient evidence of the data collection and analysis procedures (Corbin & Strauss, 2015). Reliability in qualitative interviews is problematic since it is feasible that diverse answers to the same questions will be obtained. There are a few key things that researchers need to remember when performing qualitative research. For instance, a researcher ought to be more open and honest in how they explain their study methodology to other interested parties.

## Moral implications

A few crucial ethical considerations need to be kept in mind when performing a qualitative analysis, and it's also appropriate to keep a few key elements in mind. keeping in mind that can have an impact on the interpretive research design. Researchers explain their biases, beliefs, and personal context—such as gender, history, culture, and socioeconomic status—that shapes their

interpretations during a study in order to address these concerns (Creswell & Creswell, 2018). Our thesis supervisor and the staff members running the thesis seminar granted us permission to proceed to the data gathering phase before we did. In order to get answers to our research objectives, we had a clear evaluation and agreement on the kinds of interview questions we intended to pose to our participants. Each of us decided that before to the commencement of every interview, our participants needed to be made aware of our objectives. and the reason we want to speak with them in an interview. In order to confirm the participants' willingness, we obtained verbal consent over "phone & zoom" before beginning the interview. Additionally, as shown in appendix 5, we conducted and recorded the interview using a consent form. We took the time to thoroughly explain the goal of the interview to each of our participants. Each participant was also given the assurance that the information and materials from the interviews would be used only for academic research purposes and would be deleted as soon as the thesis work was completed. The study took great care and importance to protect the participants' confidentiality. The participants were notified that their identities would not be made public at any time during the investigation. We made sure that the interview results—both good and bad— were shared. Any prior tape from the interview with the participant was erased, and participants were given the freedom to opt out of the interview at any time.

## The researcher's involvement or the reflexivity component

An important component of gathering data is past experience, which includes any associations with participants that may have an impact on the research or observations regarding research problems that are similar.

Therefore, research is being conducted with these aspects in mind, and an effort is being made to leave participants' perceptions of the questions unaffected. The second most crucial factor is that a researcher's perspective on a particular phenomenon would be shaped by prior experiences.

Experiences could have an effect on the themes that emerge from the data gathered, so the researcher needs to find further proof to support their claims. Creswell & Creswell (2018) covered a few key topics on the use of refelexive thinking in research. The researcher can better control the data gathering process and incorporate the observation in written form by taking notes and memos. The researcher will then be better able to structure the concepts and topics for the analysis portion. Therefore, interviews for this study are videotaped for use in the analysis and discussion sections. Furthermore, it is imperative for qualitative researchers to minimize their own experiences in order to maintain the significance of the study's approach and content.

Table 3: *Summary of Methodology*

|  |  |
| --- | --- |
| *Research Purpose* | Exploratory Inductive style |
| *Research paradigm* | Constructivists worldviews Qualitative |
| *Research design* | Grounded theory |
| *Methods of data collection* | *Primary data*: Interviews one-to-one (Total 20)*Questionnaire*: Based on total 11 semi-structured & open questions see*appendix 2***.***Sampling*: Sampling is based upon the guidelines of grounded theory which describes that user of a certain product (smartwatch) can be selected as a possible sample (Corbin & Strauss, 1990).Convenient (purposive) sampling*Source*: Norway & Sweden.The participants were split evenly between *Norway* and *Sweden*. Participants ranged in age from 28 to 55 years old and came from a variety of backgrounds. Participants were active smartwatch user.Brief summary of characteristics of participants is attached in the*Appendix 4*.*Secondary data*: Articles from journals, books, LNU one search, EBESCO, IEEE, ACM, google scholar & websites |
| *Data analysis* | Constant comparative analysis is used to analytically understand the core categories, while collecting the data.Analysis is based upon the grounded theory approach. Two stages of coding were applied in the data analysis* Open coding
* Axial coding
 |
| *Conceptual framework in**Grounded theory methodology* | Conceptual framework is developed after the axial coding. Development of relationship of among core categories Relationship among the core constructs |
| *Validity & Reliability* | Data recording, recording of notes, memos, All major elements are described. Controlled personal reflexivity.Code & categories are assessed by the help of various scholarly articles. |

## Results

Following each interview, participant data was gathered, and the codes were determined. ongoing comparison of the information gathered during the procedure. Several codes were found after gathering and examining main and secondary data. These first codes explain how the concepts relate to one another.

## Unrestricted coding

The initial stage of the grounded theory approach's data analysis is open coding. In open coding, researchers create categories and codes based on the data (Mills, et al., 2006). The interviews used in this investigation provided the initial codes, which are shown in Figure 3. When open coding starts to imply the basic categories, it might be terminated (Corbin & Strauss, 2015).

Interviews produced some fascinating study-related information, in addition to distinct qualities. These concepts were in fact related to the use of smartwatches and their potential benefits, either directly or indirectly. Here, an attempt was made to record any noteworthy concepts pertaining to the user's hedonic or utilitarian value. We first listed the fundamental terms utilized in our interview responses following each recorded interview, and then we grouped those connected terms to comprehend the common codes. According to Corbin & Strauss (2015), the theorist works with conceptualizations of data rather than actual data. According to Corbin and Strauss (2015), theories cannot be created from "raw data," or actual events or behaviors that have been observed or documented. Formalization of the basic codes is aided by raw data. Ideas that were connected to one another were combined into a single code. Terms pertaining to exercise and training, stress management, professional use, child supervision, and ease of use were combined.

 **Open codes ** **Open codes ** **Open codes ** **Open codes**

Running, Ultrarunner

Steps traking

GPS & Altitude capturing Distance &

movemnet

monitoring Weight control

Goals & Challenges

Alerts

Health tracking ECG

Sleep monitoring Pulse check

Blood presure

Alerts & notification of activities

Easy & secure communicatio

n. Critical messages

Watch tracking if lost

Alternate to mobiles Motivational apps Family connnectivity

Contactless payments

Easy to answer calls

Quick messages

Use in sports, cycling, swimming or driving Sharing

goals

Organizational health & organizational usage

Easy payments

**Figure 3**: *Initial codes derived in open coding process*

## The axial code

We make the linkages between the codes that have been identified using axial coding. As per Strauss & Corbin (1999), axial coding involves researchers drawing linkages between categories and subcategories. Additional axial coding aids in determining the primary category. Sorting and organizing massive amounts of data in order to find codes that are similar to those found during the open coding phase is the aim of axial coding (Creswell & Creswell, 2018). Strauss & Corbin (1999) go on to clarify this idea by saying that whereas axial coding approach is employed to return the data in a "coherent whole," open coding allows researchers to retrieve data in depth.

### Health & Fitness monitoring Sustainability of smartwatch Usage behaviour in early adopters

Organizational impact of smartwatch Child monitoring & safety

**Figure 4:** *Major codes after axial coding*

A few axial codes were found after carefully reviewing and analyzing the relationships between the codes during the open coding stage; these codes are depicted in Figure 4 above. The deeper

connections between the many codes, which are all connected in some way, are explained by these codes. Chapter 5 provides a detailed explanation of the primary axial codes.

## Tracking Fitness and Health

We used the use of smartwatch products for general health and fitness monitoring as one of the codes to categorize the data that we acquired from the interviews with all participants. Because most smartwatches today come equipped with a variety of inbuilt sensors, including an accelerometer, gyroscope, SPO2, and heart rate measurement capabilities, this theme has been regarded by the majority of previous researchers as an emerging and significant benefit that users could expect from their devices (Anurag, et al., 2015). We conducted multiple interviews with participants to gather insights on how smartwatches can be utilized as a general health and fitness tool, given their current capabilities. Each interviewee received an ID throughout the session, such as "participant A" or "participant B" and the like. Every participant cited multiple explanations for selecting a certain smartwatch. The questions that were put to our participants are listed below.

Question: What is your preferred brand of smartwatch and why do you use it? What made you decide to purchase it?

Question: Is employing this intelligent technology causing any changes in your life? If so, how?

Question: Which of your smartwatch's features are your favorites, and how do they affect the way you carry out tasks?

Each participant is asked the first question on the kind of smartwatch brand they own. Fitbit, Samsung Galaxy, Garmin, Denver, and the generic kind of smart watch were among the brands of smartwatches that our participants cited (See Appendix 1 for further information). Participant A, a 50-year-old woman, stated that she purchased a Fitbit brand smartwatch because it allows her to track her daily movement and measure her sleep quality. In addition, the smartwatch contains an app that connects to her phone, which is what inspired her to use the device. The 47- year-old female participant B explained that she chose to get a Samsung Galaxy smartwatch because it allows her to perform calculations. her sleep duration and figure out how many steps she takes each day. Participant B added that she purchased this particular kind of wristwatch for the purpose of using it to regularly check her heart rate and blood pressure rather than because it was more affordable.

The participants, C and D, who are 38 and 49 years old, respectively, explained why they went

with the Garmin brand of smartwatches. Each claimed that their own motivation for purchasing the smart watch was their love of sports and physical activity. They selected this brand because it encourages them to work out every day. Female participant E stated that she purchased her Denver smartwatch because it was less expensive and that she wanted to see how it operated before deciding to to purchase a more costly one. It was said by participant E that she purchased it in order to monitor her heart rate, sleep habits, and daily objectives. She is therefore happy that she was able to accomplish her objectives. She added that the Denver smartwatch's attractive design and feminine appearance were the main reasons she chose to get it.

In addition, the age distribution of Participants G (61 years old), H (45 years old), and I (35 years old) indicates that they own smartwatches from Samsung, Garmin, and Apple, respectively.

Participant G stated that the ability to monitor his blood pressure and everyday exercise routines is what inspired him to select a Samsung smartwatch. But he asserted that no Having this watch made a significant difference in his life. Participant H also offered an alternative viewpoint, stating that she exclusively uses her smartwatch for purposes other than monitoring her health. She claims that she seldom ever uses her smartwatch for fitness and health-related purposes.

Participant I selected the Apple smartwatch brand because it allows him to track his walking distance. Furthermore, the smartwatch aids him in monitoring his regular fitness goals.

A few respondents stated that the potential to link their smartwatch to their smartphones was what prompted them to purchase one. Some claimed they switched to a specific brand because they could use some essential health apps that were pre-installed on the wristwatch. Furthermore, according to some of the participant comments, they utilize the smartwatch to track their calorie intake and measure their sleeping patterns. Some, however, claimed to use their smartwatches to check their oxygen levels and take their blood pressure (full interview quotes are included in Appendix 3). Additionally, a few individuals mentioned that they measure their daily training level and calculate their daily steps using their watches. They went on to say that they occasionally check their heart rate on the wristwatch and see if their personal goals are being fulfilled (see appendix 1 for quotations from participants B, F, I, L, M, and N).

As part of the early acceptance of wearables, a lot of respondents emphasized the smart watch's ability to measure health, which validates the help that the devices offer in daily life. Smart watches can be used by senior citizens to measure their heart rates, check their blood sugar levels, and make sure they are drinking enough water to avoid dehydration.

## The smartwatch's sustainability

Any technology's ability to endure is dependent on a wide range of variables, all of which are susceptible to various internal and external dangers. Sales of smartwatches are at an all-time high, as was already mentioned, but how long will they remain in this fiercely competitive market? Therefore, questions were created with this goal in mind, allowing participants to share their opinions on how technology might be improved. Some instances are:

Question: Is there anything you would suggest doing to advance the technology of smartwatches?

Question: What are your thoughts on this technology's prospects?

Question: Do you use it more, less, or the same amount as you did at first? Justification

Subcategories about the future of technology are included in the discussion. There were a few significant aspects that users have highlighted and that share similarities with one another.

According to a responder in one interview (see interviews in appendix 3), wearing a smart watch has the following advantages: "I can even make a phone call while I'm swimming."

The same respondent shared his opinions that

"Here, we need a more immediate source of information; you know how unpredictable the weather is in Scandinavia and how you have to pay attention to messages from the transport authority and others."

The majority of participants in the interviews stated that one of the most crucial elements was their smartwatch's battery life. Even while businesses have prioritized these important elements, they can still do better. Some responders report longer battery life.

time in stand-alone mode, but when the watch is linked to other gadgets, such a portable speaker, it rapidly runs out. The battery problem was brought up by responder "N," who said, "Although I think the battery is almost adequate, I used to go to the beach without my phone or wallet." I so put my watch on the speakers so I can listen to music, but the battery runs out very soon. Several more participants brought up the battery problem.

"Using a docking station to charge causes the charging to be very slow."

A few participants emphasized the aspect of compatibility. They explained that the only reason they are utilizing the particular watches is to be able to link to other smart gadgets. Respondent N shared his opinions: "I purchased this Apple Series 4 device and I use it."

just as a result of my other Apple product. It is quite similar to what I have with my iPhone, iPad, and MacBook, which is why I like it. Another respondent P was highlighting the same factor.

"One of the reasons I went with the Samsung Gear S3 wristwatch is that Samsung is a dear buddy. Furthermore, it is compatible with my Samsung mobile phone, which is the second factor.

I am also able to use the application.

Users can store and track their progress with the many applications that smartwatches have built in for the functions that watches perform. They can analyze the data they have uploaded in this way. Watches also feature online communities where users may save and exchange collaboration-related stories. While having an interview Respondent "O," who was utilizing a Fitbit, shared his experience.

The ability to participate in an online community was another benefit. In other words, it's like putting the same individuals in the same community in a cooperative or competitive environment.

Respondent N "I believe that if I could have a digital ID instead of a physical card, I would be completely independent from my wallet. That's the one thing I think is missing." I can't live without a real item, and my smartwatch serves as a kind of digital ID that allows me to unlock my house and vehicle.

## Early adopters' use patterns

It is true that it was beneficial to converse with others in order to better grasp the range of uses for wearable watches. Regarding the research being done here, it is important to highlight the

depth of the interviews that were done with various people to find out how using wearable technology impacts their personal and professional lives. Additionally, the research conducted through interviews and the evidence acquired through interviews can be supported by data from the literature. Finding elements that may provide insight into client use trends was crucial, as the purpose of the study questions was to identify the factors driving the growing sales of smartwatches.

As said before, watches can now do more functions than they could in the past, which leads to a greater variety of applications. While different market segments have distinct tastes when it comes to buying and utilizing smartwatches, "usage in early adopters" is one of the most significant patterns identified by the study.

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Although it has been noted that timepieces have certain characteristics, some of them are unique in that they serve different purposes. Consumer needs and behaviors differ, so while some find it perfect for tracking their health, others use it as a means of rapid communication. The questions were designed in a way that allowed respondents to freely express their opinions on purchasing various brands and to also identify the most

used functionalities. Recognizing the significant societal impact of technology was aided by the fact that people were beginning to understand how it was changing their lives.

Question: Which smart watch brand do you currently own, and why do you think it's better than others?

Question: Which of your smartwatch's functions do you find most useful, and how do they affect the way you complete tasks?

Question: Is using this smart technology causing any changes in your life? If so, how?

A comprehensive summary of the various usage patterns that were noted during the interview is provided in Table 4.

It was found during data collection that a sizable portion of participants were using smartwatch

technology for free and sport-related activities. Not only were smart watches used to deliver information, but they were also employed for data analysis.

I am now using the Suunto 9 model.smartwatch. I decided on Suunto over Garmin since I thought it captured altitude better. Professional athletes utilize the Strava application, which I also use.

This participant was a young ultra-runner and postdoctoral researcher from Oslo University. The participant explained during the interview that he was wearing the Suunto watch because he was preparing for a 100-kilometer run. According to Suunto (2021), the respondent was seen sporting a watch from a Swedish brand that specializes in functional timepieces and provides a range of wearable accessories for outdoor sports. Compared to ordinary users, early adopters have a unique use pattern and a different sense of importance. While some consumers view smartwatches as "fashionology," there is a minority that believe

smartwatches as cutting-edge technology that meets their particular requirements.

"I didn't find the steps to be the main focus; however, if you could track my running, swimming, cycling, and other specific sports, it was much more precise."

These days, watches can compute a wide range of statistics and give specialists exact data. One participant said that by not having to spend as much time simply computing his data, his watch saves him time. Therefore, the participant made the decision to purchase a smartwatch and monitor his performance in order to accurately record his improvement.

"I believe that during training, I've gotten more aware of the different things I do, such as if I'm going uphill or

I think I can tell which area of my training needs improvement based on how my heart rate varies in different parts of the trail, how my cadence and pace alter, and how I'm riding downhill.

One of the primary uses for the early adopter is notification. It was discovered during the interviews that those who used to spend a lot of time sitting in workplaces would receive alerts from watches that tracked their whereabouts. The ability of smart wearables to track your

activity and send you recommendations is one of its most popular capabilities. A commenter named "O" shared his positive experiences, stating, "The Fitbit's small notification feature is a plus."

It brings to mind the number of hours I have been sitting without moving. Specific answers are included in the appendix. The benefits of wearing a smartwatch exceed the drawbacks; in general, smartwatches help users do jobs more efficiently.

Smart watches can be used for expedient response times in addition to providing users with access to all of their phone's alerts. Upon considering the several facets of smart watches, a theme analysis demonstrated that most research participants were early adopters of smart wearable technology.

Many people brought up the contactless payment option, which is increasingly common among wearers of smartwatches. Many brands provide unique feature, which allows users to use their bank cards at different contactless terminals by simply scanning their watches after entering their card details just once. This technology is installed in many POS (Points of Sale), particularly in Europe, and consumers are also using their cellphones to make payments. A participant who held a position as a product manager in a large, international company brought attention to the regular usage of smart watches, especially in situations with demanding schedules. People can use smart watches to their advantage when they are unable to glance across their phones or access them concurrently during hectic periods.

One of the primary uses for the early adopter is notification. It was discovered during the interviews that Watches are used to track the movements of workers who used to spend a lot of time sitting in offices. The ability of smart wearables to track your activity and send you recommendations is one of its most popular capabilities.

"The good thing about this Fitbit is that you get small notifications which remind me that I have been sitting for X, amount of hours without walking," said respondent "O," highlighting his experiences.

The appendix has specific responses. People may use technology more efficiently if they are familiar with it or have a better understanding of its functions. People can use the technology

with ease and enjoyment as long as they start to understand its features.Answering a question on technology

use, respondents said they are utilizing it more than they did a year ago.

"Perhaps a little bit extra. I mean, I'm becoming more knowledgeable about the features.

## The influence of smartwatches on organizations

The purpose of the interviews was not to discuss the impact on organizational life, but one very important aspect was made clear by the large number of participants. The advantages that the report mentions are significant since they are associated with "use in early adopters." Messages, calls, and important notifications can all be accessed promptly on a smartwatch, for instance. The following are some of the general questions we were asked concerning the functionality, typical user behavior, and possible impact on daily life. Additionally, the main concepts that are discussed were determined.Learn about how the smart watch affects life at work.

Which smartwatch function is your favorite, and how does it affect your day-to-day professional life?

How frequently do you use your smartwatch on a daily basis?

Is there a difference in your life now that you use this intelligent technology?

Our capacity to communicate with the organization's internal and external stakeholders has improved as a result of the use of ICTs. During the day, people typically receive notifications regarding social media updates, emails, and other messages. While it offers greater flexibility in terms of following developments from anywhere you are, it can occasionally lead to increased work-life conflict. Greater freedom in terms of where and when you work is a benefit, on the one hand.

Thus, once more, messages, whether examining I utilize that a lot, dealing with different teams that are situated in different time zones.

The person who made the aforementioned remark worked across time zones and explained how his smartwatch helps him manage his workers that are spread out across different locations. The same respondent reiterated his opinions regarding his professional life.

The worst thing you could do is open your laptop or take your phone out of your bag when you have back-to-back texts. Since it's a little more covert, I typically use the notifications on my watch.

The majority of participants expressed their preference for the smartwatch's message, phone, and email notifications since they can quickly access and respond to urgent texts and calls whenever they happen. and punctual. (Refer to participant B, C, and H's remarks in Appendix 2).

Furthermore, some participants mentioned that, in contrast to cell phones, they utilize smartwatches as portable, convenient devices. The watch is a small, portable gadget worn on the arm. Certain participants disclosed that they utilize their smartwatches due to workplace policies prohibiting the usage of cell phones and their inability to pay for missed important emails that need immediate attention or a response, as well as urgent calls and messages. Consequently, in this scenario, a smartwatch serves as an ideal substitute for their requirement (refer to participants E, F, K, and O in Appendix 2).

Every participant said they always carry their smartwatches with them, with the exception of when they are having their bath or most likely recharging the smartwatch's battery. Furthermore, every individual mentioned that wearing a smart watch had improved their everyday professional lives. A participant from the oil and gas industry stated that since they are not allowed to use cell phones for work-related purposes, using a smartwatch enables them to get real-time updates and notifications. Another person who works in the electronics and Internet of Things industries also brought up the fact that using a cell phone in a lab setting could have an impact on the outcome. He was thus utilizing his Fitbit, which provides him with notifications and immediate messaging. The same participants also discussed the concept of "organizational health surveillance" at their place of employment, where COVID-19 has forced coworkers to work from home. Considering The company held a competition among employees who possessed smart watches after realizing how stressful it is for staff to work from home. He was thus utilizing his Fitbit, which provides him with notifications and immediate messaging. The same participants also discussed the concept of "organizational health surveillance" at their place of employment, where COVID-19 has forced coworkers to work from home. The company held a competition among staff members who possessed smartwatches after realizing how stressful it is for employees to work from home.

Because they can quickly access and promptly respond to urgent messages and calls, the majority of participants expressed their preference for the smartwatch's message, phone, and email notification features. Refer to Appendix 3 for quotes from participants B, C, and H. Furthermore, some participants mentioned that, in contrast to cell phones, they utilize smartwatches as portable, convenient devices. The watch is a small, portable gadget worn on the arm. Certain participants disclosed that they utilize their smartwatches due to workplace policies prohibiting the usage of cell phones and their inability to pay for missed important emails that need immediate attention or a response, as well as urgent calls and messages. Consequently, a smartwatch serves as an ideal substitute for their requirement in this scenario. Appendix 3 has a list of detailed replies.

## 3.2.2 Child safety and observation

The purpose of this study is to identify the variables that affect people's behavior and what drives the rise in smartwatch sales. Many causes have previously been investigated, but there is one more intriguing factor related to the bond between parents and children. Although a wide range of phenomena were covered by the questionnaire when it was designed, we subsequently found that only few participants had shared their thoughts about the smartwatches they had bought for their kids. Nowadays, a lot of smart watches are being used as child monitors. While keeping an eye on kids can be stressful and time-consuming, smart watches have also come to the parents' and guardians' rescue in this regard.

Which features are your favorites most on your smartwatch, and how do they affect how you carry out tasks?

"I have an application on my phone called Explore, which I must use if I need to make a call." Even though the watch has a SIM card inside, it can only be used with the parent's app that has been approved. That app can only be installed and used to call her by four close friends.

These smartwatches have sensors and other built-in technology that allow them to gather data. The following stage involves operationalizing and processing this data in accordance with the user-specified benchmark creator or user profile. The system selects suggested actions from a list of actions with the aid of a pattern analyzer. Data accuracy is excellent. when comparing smart watches to smartphones and other comparable devices.

Here is a brief summary of the characteristics of the Explora smartwatch, as some participants mentioned using it for their children. While this function appears to be very useful and enticing, it does have certain disadvantages. These mostly relate to the possibility of sensitive data being compromised and unauthorized parties gaining access to particular content, usually by unethical ways.

Which smartwatch brand do you currently own, and why do you think it's better?

In reality, I've used two—one Samsung and the other Explora. When my daughter was six years old, I purchased her an Explora because she was excited to go to school and return with her friends. I felt a little anxious. then I was informed about this alternative, which is a really wonderful choice, by someone.

Parents are typically more understanding of their children, and this is a major consideration when choosing devices like computers, tablets, and cellphones that are intended for use by youngsters. When their children are utilizing those devices, parents should be extra watchful. Therefore, the features of the watch stated above answer those issues. Through the privacy functions, parents can monitor and regulate their children's behavior.

"The children use them to get to and from school and other activities since they have smart watches that have SIM cards built into them."

"You can converse with them in the interim while tracking them on the map that their parents have set." furthermore. Since then, I've been really at ease, and she does too. Whenever she goes to see her friend, I generally get a call to come pick her up.

Thus, another important element of the kids' smartwatches is tracking. Communication with children feels more safe and comfortable for parents. In the meantime, the parents claim that their children are feeling happier and accomplishing various health-related objectives. One father gave an example of how his watch's step tracking feature encouraged his kids by giving them free applications or digital presents like music.

1. Talk

Understanding the reasons behind wearable technology has been the subject of numerous publications, which contributes to the explanation of the industry's rise. The excellent research that has already been done on the phenomenon as well as studies in the information systems sector will serve as the foundation for discussion and interpretation. The study by Chol & Seongcheol (2016) on identifying the influential factor provides a solid foundation for the conversation. The themes that emerged following the axial coding and the empirical data serve as the foundation for further discussion.

* 1. Tracking fitness and health

The answers we received during our interview are consistent with the findings of the Anurag et

al. (2015) study, which maintains that smartwatches are a device for creating individualized short- and long-term fitness objectives of a person's physical activity, calculating how many calories they burn each day, and determining their level of fitness by utilizing heart rate data from sensors built into their smartwatch. Many of the participants that we spoke with said that they primarily use their smartwatches as fitness and health trackers, although some of them use them for other purposes. As part of the early acceptance of wearables, a lot of respondents emphasized the smart watch's ability to measure health, which validates the help that the devices offer in daily life. Seniors who use smart watches can use them to check their blood sugar levels, track their heart rates, and make sure they're drinking enough water to avoid becoming dehydrated. An additional facet is to the theory of Reasoned Action (TRA), which is a widely recognized concept that serves as the foundation for consumer behavior research on subjects including smartphone adoption and online purchase intention (Kuo-Lun & Chia-Chen, 2018).

The theories are applied to study smartwatch buying intention and perceived value. According to Kuo-Lun and Chia-Chen (2018), perceived value in this case relates to the buyer's assessment of the utility offered by a certain product (smartwatch). Although it has been noted that timepieces have certain characteristics, some of them are unique in that they serve different purposes.

Consumer needs and behaviors differ, so while some find it perfect for tracking their health, others use it as a means of rapid communication. An After carefully examining the participant data, we found that the majority of the participants' intentions to utilize the smartwatch were determined by how they viewed its values. Thus, keeping track of one's health is something that most consumers consider valuable. This further clarified the second study question, which sought to identify the shared elements driving the market for smart watch sales. Wearables are being used by people to track their everyday activities and health. When the cost of purchase and use are taken into account, consumers' perceptions of a product's utilities—such as a smartwatch— are referred to as perceived value (Kuo-Lun & Chia-Chen, 2018). Additionally, it responds to the first research question, which asks how technology is changing people's everyday life in terms of wellbeing and health. People are growing more conscious of their food consumption and physical exercise, both of which are good for their health. Two of the most often used features on smartwatches are movement and sleep tracking, both of which have an immediate effect on users' daily lives.

#### Conclusion

This study underscores the importance of ongoing research and development in the field of wearable technology. As users increasingly rely on smartwatches to enhance their health, productivity, and connectivity, there is a growing demand for continuous innovation to address evolving consumer needs. Researchers and technology developers have a crucial role to play in refining smartwatch features and functionalities, ensuring seamless integration into users' daily routines. By staying attuned to user feedback and market trends, stakeholders can tailor smartwatch offerings to better align with the diverse preferences and lifestyles of consumers.

Furthermore, the study highlights the potential societal impact of smartwatch technology, particularly in areas such as healthcare and child safety. As smartwatches become more adept at monitoring health metrics and facilitating communication, they have the potential to revolutionize how individuals manage their well-being and stay connected with loved ones.

Moreover, the adoption of smartwatches as child monitors underscores their utility in promoting safety and peace of mind for parents, illustrating the broader social implications of wearable technology.

In conclusion, this study underscores the significance of understanding users' preferences and behaviors in shaping the future trajectory of smartwatch technology. By leveraging insights gleaned from user experiences, researchers and developers can drive innovation and refinement in smartwatch design and functionality, ultimately empowering consumers to lead healthier, more connected lives. As smartwatches continue to evolve and integrate into various aspects of daily life, they hold the promise of transforming not only individual experiences but also broader societal norms and practices.