# UNDERSTANDING THE DETERMINANTS OF USERS' CONTINUOUS INTENTION IN SMARTWATCHES: AN EMPIRICAL STUDY ON MALAYSIAN USERS

BY

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**DECLARATION**

We hereby declare that:
(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any applications for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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# DEDICATION

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| | |
|---|---|
| AES | Mobile Aesthetics |
| AVE | Average Variance Extracted |
| CAC | Cognitive-Affective-Conative |
| CB-SEM | Covariance-Based SEM |
| CI | Continuance Intention |
| COM | Mobile Compatibility |
| CR | Composite Reliability |
| HTMT | Heterotrait-Monotrait Ratio |
| IDC | International Data Corporation |
| IS | Information System |
| MC | Mobile Complementarity |
| MU | Mobile Usefulness |
| PLS-SEM | Partial Least Squares Structural Equation Modelling |
| SAT | Satisfaction |
| SICSIC | squared inter-construct correlation |
| TAM | Technology Acceptance Model |

# PREFACE

Smartwatches have become an increasingly popular consumer technology product in recent years, with many users incorporating them into their daily lives. The market for smartwatches has grown rapidly, with numerous manufacturers offering a variety of models with different features and functionalities. While the potential benefits of smartwatches are widely recognized, it is important to understand the factors that influence users' adoption and continued use of these devices. This study investigates the determinants of users' continuance intention in using smartwatches among Malaysian users, using the Cognitive-Affective-Conative (CAC) framework as a theoretical model. The study aims to identify the factors that influence users' satisfaction with smartwatches and their intention to continue using them. The study evaluated 385 sets of data collected from smartwatch users in Malaysia and analysed the data using structural equation modelling (SEM).

The findings of this study have important implications for practitioners in the consumer electronics industry, as well as for researchers studying technology adoption and use. By understanding the factors that influence users' satisfaction with smartwatches and their intention to continue using them, manufacturers can design and market their products more effectively. Furthermore, the study contributes to the academic literature on the determinants of smartwatch adoption and use, extends the application of the CAC framework to the context of smartwatches.

We hope that this study will provide valuable insights into the factors that influence users' adoption and use of smartwatches, as well as stimulate further research in this area.

## ABSTRACT

The consumer electronics industry has widely acknowledged smartwatches as the "next big thing," with a growing number of users incorporating these devices into their daily routines. As the market for smartwatches expands, comprehending the factors that shape users' adoption and utilization of these devices becomes crucial. This research intends to explore the components that drive Malaysian users' continuance intention towards using smartwatches, utilizing the Cognitive-Affective-Conative (CAC) framework as a theoretical model. Although many people are using smartwatches these days, limited research has been conducted to identify the drivers of the continuance intention to use these devices among Malaysian users. The targeted respondents in this research are Malaysian smartwatch users, and the self-administered questionnaires were distributed through online. A total of 417 sets of self-administered questionnaires were collected but only 385 sets of responses were used for our research because there are 32 respondents does not use smartwatch before or currently. The data collected will undergo analysis using the Partial Least Squares Structural Equation Modelling (PLS-SEM) technique. The outcomes of this research are anticipated to offer smartwatch manufacturers or companies insights into the elements that impact users' intention to continue using smartwatches.

**Keywords**: Smartwatch, continuance intention, Malaysian users, Cognitive-Affective-Conative (CAC) model

# CHAPTER 1: RESEARCH OVERVIEW

## 1.1 Research Background

Technology pervades all aspects of human life, including individual and social interactions (Uzir et al., 2018). Smartwatch is defined as a “multi-function wrist-worn gadget that gives quick, rapid access to data and apps using a short-range wireless Bluetooth connection with a linked smartphone” (Dehghani, 2018). Based on Hsiao (2017), smartwatch is a device which “can link with smartphones and receive a large amount of information, including text messages, time, itinerary, and GPS location”, although “can carry out primary data and communication task, smartwatch also able to run mobile applications”. The additional functions of smartwatch including monitor health, play music, and make video calls (Ghazali et al., 2020). The quality of people's everyday lives is expected to be significantly impacted by wearable technology, particularly smartwatches (Cecchinato et al., 2015).

According to Dehghani et al. (2018), smartwatches are the most popular smart wearables. Business Wire (2019) and Statista (2019) predict that smartwatches will continue to surpass other similar technologies through 2022. In 2022, there were 216.43 million smartwatch users, of which an estimated $43.39 billion of income was produced, and also estimated that by the end of 2023, the amount of smartwatch users is projected to achieve 224.27 million, as stated by Ruby (2023). Due to consumers' increasing preference for wearable technology, the smartwatch market has experienced the fastest growth over the past ten years (Ruby, 2023). According to a 2018 analysis by International Data Corporation, smartwatches account for about two over three of all smart wearable shipments globally, with shipments projected to increase from 72.4 million in 2018 to 121.1 million by 2022. In addition, smartwatches generate the highest revenue in the smart wearables market. According to the analysis of Canalys (2018), smartwatches generated 80% of the industry's revenue in the first quarter of 2018.

A smartwatch can be utilised as a medical gadget with AI capabilities. The device has a built-in health app with AI capabilities that allows users to independently monitor several important elements of their health. They can test and

identify health conditions like diabetes, high blood pressure, and irregular heartbeats, for instance. They may also suggest certain medications, diets, and other lifestyle modifications to help the person maintain optimum health (Uzir et al., 2021). Besides, smartwatches can also be used for education purpose. There has been a noticeable surge in study on the application of wearable technology for education and learning purposes. Wearables can be utilized to enhance the intrinsic motivation and cultural relevance of learning and teaching activities. Smartwatches may be utilized to share student accomplishments and track their activity in particular. Smartwatches may be used to record lessons and play a variety of educational activities (Al-Emran et al., 2020).

Smartwatches are steadily taking over as a key piece of fitness wearable technology. Users are connecting them to a variety of applications in order to track different types of data. Smartwatches are forecasted to serve as an important part in the industry in the close future since they may often be used as devices for monitoring, decreasing the entry barrier and offering excellent user experiences. The basis for stakeholders in smartwatch devices was created by the influence of technology on recent developments in the fitness sector. Monitoring the market is important as it witnesses the increase of integrating intelligence into smartwatches, providing real-time insights based on the user's data. The ability to measure physical activities is one of the new features of smartwatches with time schedules, which is why it is projected that the wearable technology market would grow rapidly. Smartwatch producers are gradually making investment on research and development of smartwatches for professional use to prevent accidents or injuries occurring on professional athletes (Research and Markets, 2021).

Global sales of smartwatches are anticipated to reach 18.62 billion US dollars in 2020. During the forecast period of 2021-2028, the market is estimated to expand from USD 22.02 billion in 2021 to USD 58.21 billion at a 14.9% CAGR (Fortune Business Insights, 2022). The data indicate that by 2022, the smartwatch market in Malaysia is predicted to bring in US$82.01 million. By 2027, market capacity is expected to reach US$149.30 million, and revenue growth is anticipated to average 12.73% per year (CAGR 2022-2027). According to projections, the user penetration

will be 1.92% in 2022 and 2.45% in 2027. The estimated average revenue per user is projected to be $128.90 USD (Statista, n.d.).

## 1.2 Research Problem

### 1.2.1 Theoretical Significance

Smartwatches have recently risen to the top of the consumer technology market. It also become the most favoured and fashionable wearable products after smartphones. Despite predictions of a bright future for smartwatches, shipments of these devices are expanding more slowly than those of smartphones and tablets. In 2017, more than 1.5 billion smartphones and 163 million tablets were sold out, but only 31.6 million smartwatches were shipped (Hong et al., 2017). The market for wearables is expected to continue growing by double digits annually, with commercial smartwatches being a newly developing wearable gadget that have been widely released and adopted. However, a significant issue with this type of gadgets is its limited battery life, which is mostly caused by the power absorbed via wireless connection (Chuah, 2019). Because of the rapidly evolving technology landscape, some individuals believe that there are only a limited number of smart devices that motivate them to use wearable technology. Despite having a high rate of adoption, this highly coveted innovation is in immediate danger because more than one over three of customers have discontinue to use their smartwatch in a year due to finding it is not so much engaging and practical. The smartwatch sector now struggles to draw in new customers and is mostly relies on existing users upgrading and replacing their timepieces. This raises concerns regarding the needs of different customer groups are met by the existing versions of smartwatches (Bölen, 2020). Aside from that, the fat-finger issue could hinder the performance of locking methods. Fat-fingering, which occurs when someone inadvertently pushes the incorrect button or key due to the size or shape of their fingers, can undoubtedly make it more difficult to use locking mechanisms (Nguyen, 2018). Last but not least, it can be seen that the smartwatch features can be achieved through smartphones (Torous & Foster, 2017).

### 1.2.2 Practical Significance

The development of smartwatches has significantly impacted the mobile technology industry, and their increasing popularity has led to a growing need for manufacturers and designers to create products that are functional, aesthetically pleasing, and compatible. In order to achieve this, it is crucial to have a deeper comprehension of the user experience in the context of mobile technologies. This understanding can be achieved by conducting user research to identify user behaviours, motivations, and pain points. Optimising the relationship between users and technology through user-centered design principles can additionally aid in improving comprehension of the user experience. Additionally, providing insights into how users interact with mobile technology in different perspective, such as at home, work, or on the go, can help to inform the design process and ensure that smartwatches are adaptable and responsive to the needs of the user.

## 1.3 Research Objectives and Research Questions

Table 1.1: Research Objectives and Research Questions

| **Research objectives** | **Research questions** |
|---|---|
| General:<br><br>1. To identify the determinants of user's continuance intentions in using smartwatches. | General:<br><br>1. What are the determinants of user's continuance intentions in using smartwatches? |
| 2. To identify the relationship between satisfaction and the user's continuance intentions in using smartwatches. | 2. What is the relationship between satisfaction and the user's continuance intentions in using smartwatches? |

| | |
|---|---|
| Specific:<br><br>1. To identify the relationship between mobile usefulness and satisfaction. | Specific:<br><br>1. What is the relationship between mobile usefulness and satisfaction? |
| 2. To identify the relationship between mobile complementarity and satisfaction. | 2. What is the relationship between mobile complementarity and satisfaction? |
| 3. To identify the relationship between mobile aesthetic and satisfaction. | 3. What is the relationship between mobile aesthetic and satisfaction? |
| 4. To identify the relationship between mobile compatibility and satisfaction. | 4. What is the relationship between mobile compatibility and satisfaction? |

Source: Developed for the research

## 1.4 Contribution of the Study

### 1.4.1 Theoretical Contribution

This research is able to address the drawbacks and limitations of past studies. Look back at previous studies, among the most frequently used framework is the Technology Acceptance Model (TAM), which indicates that perceived ease of use and perceived usefulness are the two characteristics that have the biggest effect on an individual's willingness to employ new technology (Charness & Boot, 2016). However, in this study, we have used the Cognitive-Affective-Conative Model, giving a solid foundation for comprehending the cognitive (thinking), affective

(feeling), and conative (doing) aspects of consumers' purchasing processes (Han & Choi, 2019). The technological constructs of the previous studies mainly study about the usefulness, functionality of the smartwatches, yet it does not study on the satisfaction of users using smartwatches which will affect their continuous intention on using smartwatches. Hence, this study will be equally helpful to academics and researchers in the future who wish to determine the continuous intention of users in smartwatches.

### 1.4.2 Practical Contribution

The success of wearable technology ultimately depends on its continuing use, even though the device's initial acceptance is a crucial first action. Therefore, our studies have practically proven that the C-A-C model and variables used will significantly affect the consumer continuance intention in using smartwatches. Additionally, we discovered that the feature most crucial to understanding wristwatch users' desire to keep using them was contentment. Next, the issue of technology acceptance has since been the subject of the most extensive research, although the subject of technology continuance intention has a significant influence on the extended survivability of an information system. Therefore, this research helps the businessman to discover the possible driving factors that causes continuance intention of using smartwatches in Malaysia. Moreover, there is limited research who studied the determinants of continuance intention of using smartwatch through the C-A-C Model, thus this research aims to address this research gap.

## 1.5 Outline of the Study

Current study starts with background of the study, research topic, objectives, and question, as well as the study's contribution. The second chapter, which covers the theoretical framework, previous empirical research, the conceptual framework, and the development of hypotheses, will be presented after that. The research methodology, including the research design, sampling design, data collection techniques, questionnaire, and suggested data analysis tools, will also be covered in

chapter 3. Then, Chapter 4 are the reports of the findings which includes demographic of targeted respondents, measurement model assessments and structural model assessments. Lastly, chapter 5 will end with the overall conclusion of this study, and also the limitations and recommendations of this study.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Overview of the Theoretical Framework of Cognitive-Affective-Conative Model

In this study, C-A-C framework is adopted in our research model to explain about the determinants of Malaysian users' continuance intention in smartwatches. Numerous researchers have used the Cognitive-Affective-Conative framework as a foundation theory to explain how consumers process their emotions rationally and their buying habits (Lim & Kim, 2020). The three parts of the mind or consciousness that psychology has determined are cognition, affection, and conation. This framework was developed in the 18th century by German faculty psychologists. However, it was later introduced by the psychologists' association in America, England, and Scotland in the 19th century. Its impact continued into the 20th century through the publications of William McDougall. It is suggested that the classification system is still relevant in assessing the current psychological priorities, which include cognitive psychology's current importance and the corresponding lack of affection and conation (Hilgard, 1980). Due to the CAC model's successful development, several researchers have used it to examine the links between cognition, affection, and conation in order to study users' attitudes about information systems (Huang et al., 2018).

Based on this psychological historical convention, experts have constructed the C-A-C framework to analyse the connection between the three aspects of awareness and behaviour. The C-A-C model is a traditional idea that has been widely applied to illustrate how attitudes are formed. The elements that form the foundation of attitudes is a person's overall assessment of something based on their own cognitive, affective, and conative behaviours (Huang et al., 2018). The C-A-C model shows how cognition directly affects affective outcomes, which conversely alter the motivations that drive people to engage in certain behaviours (Dai et al., 2020). The C-A-C model also helps to identify the links between cognition, affective, and conation in the consumer's decision-making process.

In accordance with the C-A-C model, the cognitive component refers to someone's understanding, beliefs, and thoughts towards a certain thing which can be

considered as an individual's perceptions of an information system (Huang et al., 2018). It also has been known as the act of knowing and comprehending. This idea is particularly associated with the query “what” (Huitt, 1999). This perception includes how simple they believe the system to be to use and how valuable they believe it to be (Huang et al., 2018). The affective component refers to the feeling of someone to an attitude object. It is viewed as how an individual feels according to their knowledge as well as experiences, which may cause liking and disliking feelings that might influence their judgement (Sri, 2018). As for the third component of C-A-C framework, the conation component refers to the advancement of people's behavioural intentions and actions toward that object (Fishbein & Azjen, 1975). Therefore, the conative reaction can be defined as the planned behaviour of a person to use an information system (Lu et al., 2022). Undoubtedly, attitudes are made up of three parts: cognitive, affective, and conative. In order to clarify the internal mechanism of users' continuous use of smartwatches, this study uses CAC as a theoretical basis. The aim of this study is to examine how cognitive factors impact using CAC framework from mobile usefulness, mobile complementarity, mobile aesthetics, mobile compatibility aspects through satisfaction (affective factors) on the continuous intention on using smartwatch (conative factor).

## 2.2 Literature gaps

Based on the past studies, it is found that researchers often adopted the Technological Acceptance Model (TAM) in their research. Kim and Shin (2015) conducted a thorough preliminary research into the field of smartwatches using the fundamental TAM and explaining the subcultural attraction and price of the gadget. They also discovered a number of determinants for perceived utility and perceived usability. The research by Hong et al. (2017) found that there is a favourable relationship between consumer innovation and the desire to keep using smartwatches. The study by Chuah et al. (2016) showed that adoption intention is significantly affected by perceived usefulness and visibility. The authors also asserted that smartwatches are a form of "fashnology", which is a combination term of fashion and technology.

Table 2.1: Literature-based past theoretical studies for wearable smart technology

| Author(s) & year | Technology | Theoretical foundation | Research design | Constructs |
|---|---|---|---|---|
| Kim and Shin (2015) | Smartwatch | Integration of TAM, IDT | N = 363 smart watches users (South Korea) | Perceived ease of use, usefulness, relative advantage, mobility, Cost, Availability, Subcultural appeal |
| Hong et al. (2017) | Smartwatch | Integration of DIT, TAM, ECT & flown theory | N = 276 (CB-SEM) | Usage, Continuance Intention to Use Smartwatch, Hedonic Value, Utilitarian Value, Consumer Innovativeness |
| Chuah et al. (2016) | Smartwatch | Extended TAM | n = 226 Malaysian | Perceived ease of use, Perceived usefulness, Visibility, Familiarity |

Source: Developed for the research

However, there is less past empirical studies that can be found which have adopted the Cognitive-Affective-Conative (CAC) framework in their study. Based on Blazquez et al. (2020) research, it is to investigate how Millennial consumers'

opinions towards utilising these wearable devices relate to the key selling points of sumptuousness trend smartwatches, consumer point of view, and their willingness to purchase.

Table 2.2: Past theoretical study using CAC framework for smartwatch

| Author(s) & year | Cognitive | Affective | Conative |
|---|---|---|---|
| Adopted from Blazquez et al. (2020) | Functional<br>· Perceived Usefulness<br>· Perceived Ease of Use<br>· Perceived Quality<br>· Perceived Uniqueness<br>Individual<br>· Self-Identity<br>· Perceived Hedonism<br>Social<br>· Perceived Conspicuousness<br>· Subjective Norms | · Attitudes towards Using Luxury Fashion Smartwatches | · Purchase Intentions |

Source: Developed for the research

## 2.3 Review of Variables and Hypotheses Development

### 2.3.1 Mobile Usefulness and Satisfaction

According to this study, "mobile usefulness" refers to how potential users of technology perceive its value in achieving a particular goal while utilising mobile devices (Lee et al., 2020). It can also be referred to as the level of performance enhancement experienced by a user of a smartwatch (Loh et al., 2019). Many research have showed statistical support for the idea that usefulness significantly increases user satisfaction with IT-related goods and services (Bölen, 2020). The usefulness of a smartwatch is measured by how much a user thinks that wearing one makes him or her more efficient personally, such as more organised and productive (Chuah et al., 2016). Furthermore, these technologies are valued more highly when they are simpler to apply, and their functionality straightforwardly impact the intention to utilise them. Smartwatches have emerged as the first commonly used wearable item as technologies keep on developing and converge in a constantly developing digital settings. They are also the next killer product after smartphones (Jung et al., 2016). Mobile usefulness emphasises the utilitarian gains made by users and represents the utility connected to using information technology. There have been frequently shown that perceived usefulness significantly increases both satisfaction and future intention to utilise information systems-related goods or services (Bölen, 2020). Smartwatches are a useful tool that can make people's lives more convenient because they can accomplish many of the tasks that are frequently associated with smartphones. Smartwatches can be predicted to increase people's productivity and happiness as a ubiquitous computing tool thanks to a variety of functionalities like digital recording, GPS tracking, email access, and web browsing (Bölen, 2020). From the discussion above, we hypothesize that:

*H1: Mobile usefulness is positively associated with the satisfaction of using smartwatches.*

### 2.3.2 Mobile Complementarity and Satisfaction

The term "mobile complementarity" describes how users of mobile devices can acquire a wide range of complimentary features and services as a user base expands, enhancing their lives in new ways. Several earlier research have provided actual evidence that mobile complementarity can affect how much users value smartwatches. According to the frequency of it in mobile technology and service environments, it is hypothesised that mobile complementarity is crucial. For instance, in addition to telling the time, smartwatches provide additional features like a fitness and sleep tracker (Loh et al., 2022). Customers are drawn to complementary products and services because having access to these features makes them feel like their aims have been achieved more successfully. The notion of complementarity helps to increase customer satisfaction because value has a big impact on it (Li & Fang, 2019). Smartwatches are wristwatch-shaped wearable computers that have additional features which is to display time. Mobile complementarity is anticipated to determine how satisfied users are with using smartwatches given the wide number of additional services that they can access. In light of the aforementioned research, the following hypothesis has been put forth:

*H2: Mobile complementarity is positively associated with the satisfaction of using smartwatches.*

### 2.3.3 Mobile Aesthetics and Satisfaction

In this study, Mobile Aesthetics refers to the design aesthetics of smartwatches, which have shown importance for consumers to adopt new technology (Cyr et al., 2006; Nanda et al., 2008). It refers to a smartwatch's balance, aesthetic appeal, or visual appeal as conveyed by its colour, form, or screen layouts (Hsiao, 2013). Past studies have indicated that decisions concerning the use of products are influenced by aesthetic appeal (Dehghani et al., 2018). According to Nanda et al. (2008), considering human visual impressions are essential to the influence of cognition and view, design aesthetics are believed to have a significant role in encouraging the consumer's feeling attachment to a particular item. Whereas Cyr et

al. (2006) discovered that subjective satisfaction was greatly influenced by the aesthetics of the visual design. Since visual impressions may correspond to customer attitudes, they are a significant aspect that influences consumer acceptance of IT devices such as the smartwatches (Cyr et al., 2006; Hsiao, 2013; Nanda et al., 2008). In fact, design aesthetics have a significant impact on customer purchasing decisions. According to Reimann et al., (2010), a better user experience is produced by good design aesthetics, and smartwatch use is influenced by good design aesthetics (Rabaa'i et al., 2022). Which means that users will be satisfied with using smartwatches if the design is attractive. Based on the studies mentioned above, a hypothesis can be formulated as follow:

*H3: Mobile Aesthetics has a significant positive relationship with satisfaction.*

### 2.3.4 Mobile Compatibility and Satisfaction

Mobile Compatibility refers to which the potential users perceive a smartwatch as compatible with their values, needs, and prior experiences (Kim and Ammeter, 2014). In order to make jobs easier, smartwatches also offer real-time information. Customers will be more eager to utilise smartwatches if they can access their personal information, track their daily routines, and allow the system to be tailored (Hsiao, 2016). Smartwatches must have a more user-friendly display, practical features, and stronger infrastructure in order to improve smartwatches users' attitudes because some of their features are comparable to those of smartphones (Hsiao & Chen, 2017). Compatibility and relative benefit were found to be significant factors in the intention to use a smartwatch in previous research (Choi and Kim, 2016; Wu et al., 2016). Drawing on the studies mentioned above, the following hypothesis was developed:

*H4: Mobile Compatibility has a significant positive relationship with the satisfaction of using smartwatches.*

### 2.3.5 Satisfaction and Continuance Intention

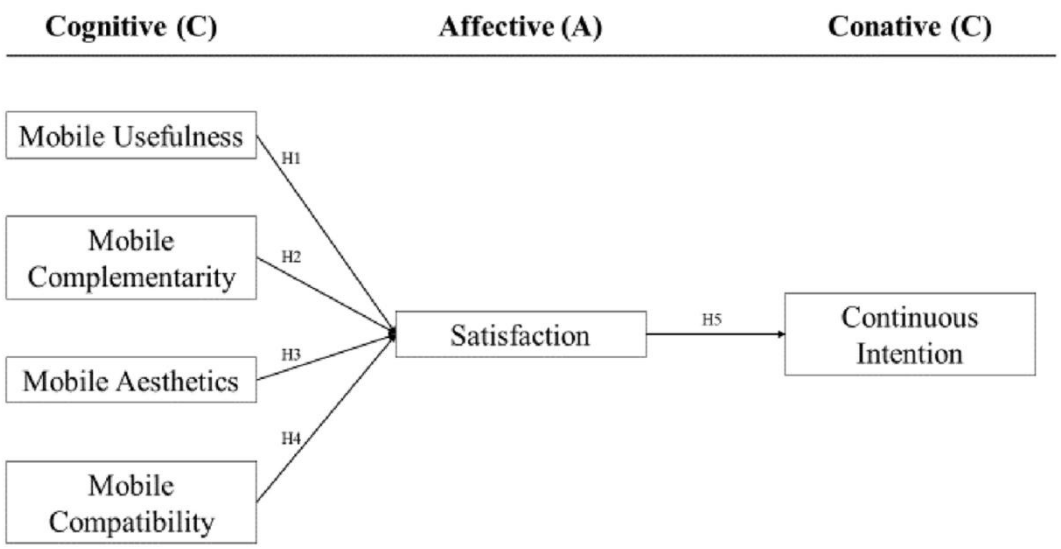
In this study, satisfaction is known as the consumers' reactions to assessments of apparent discrepancies between their original thoughts for an item and its capability (Chan et al., 2003). Customers spend to purchase goods in order to enjoy, gain benefit from, or have favourable experiences, which results in customer satisfaction (Uzir et. Al, 2021). According to Bhattacherjee, it claims that satisfaction is an important factor in post-acceptance behaviour. Although switching has a certain expense, it is anticipated that happy smartwatch owners would keep using them. (Nascimento et al., 2018). Since there are many possibilities for smartwatches, user satisfaction is a key factor that will determine whether end customers are continuing to use them. According to Pal et al. (2018), As there are many possibilities for smartwatches, user happiness is a key factor that will determine whether or not the end user will continue to use it. As "a sort of whole mental notion that the end-users experience after a longer usage of the smartwatches," satisfaction is defined. Enhancing customer satisfaction will encourage long-term adoption and brand loyalty. Satisfied users will only keep using a certain product or service. Therefore, the hypothesis formulate is:

*H5: Satisfaction has a significant positive relationship with the continuance intention of using smartwatches.*

## 2.4 Proposed Conceptual Framework

Figure 2.1 below shows the research model of this study. Mobile Usefulness, Mobile Complementarity, Mobile Aesthetics, and Mobile Compatibility fall under cognitive factors, which leads to Satisfaction that is under affective factor, and leads to Continuance Intention that is under conative factor.

Figure 2.1: Proposed Research Model




Source: Developed for research

# CHAPTER 3: METHODOLOGY

## 3.1 Research Design

This study investigates Malaysian smartwatch users' continuous intentions. A quantitative technique was being used for the goals of this research design. In a quantitative investigation, the link between the independent and dependent variables can be distinguished using a statistical method for the hypothesis evaluation. The continuous intention to use a smartwatch is the dependent variable, while the independent factors are mobile usefulness, mobile complementarity, mobile aesthetics, mobile compatibility, and satisfaction.

Due to the inclusivity, affordability, and repeatability, a cross-sectional, quantitative survey was created (Gallagher, 2017). The quantitative survey approach offers two key advantages. First, a quantitative survey may be managed and evaluated right away. The survey may be conducted without having to spend any time with, and the data can be organised fast. Second, because this method yields numerical data, it is simpler for comparing organisations or groups and assess respondents' opinions on agreement or disagreement (Yauch & Steudel, 2003). Quantitative data also has the benefit of being dependable if it is exactly, carefully, and thoroughly collected (Choy, 2014).

In this research, questionnaire surveys are used as our data collection. Smartwatch users will be the target respondent in our research. A self-administered survey will be done through distributing google forms to the respondent. The questionnaire contains two main parts, which begins from the demographic questions, consisting of questions such as age, gender, level of education, employment, and income. Second is the survey questions including mobile usefulness, mobile complementary, mobile aesthetics, mobile compatibility, satisfaction, and continuance intention to use smartwatches.

## 3.2 Population, Sample and Sampling Procedures

### 3.2.1 Target Population

The target population of this study was users of smartwatches, specifically the person that have continued to use at least one smartwatch in Malaysia. A purposive sampling design is deemed appropriate due to the full sample size of smartwatch users is not available, and only a specific group of individuals, for example, smartwatch users possess the essential information (Kamal Basha et al., 2022).

### 3.2.2 Sampling Surveys

Non-probability sampling technique was applied to choose the participants. The type of non-probability sampling is purposive sampling. "Purposive sampling" refers to several non-probability sampling techniques where units are chosen for the sample according to the existence of specific features, which means that purposive sampling choose units "on purpose" (Fleetwood, 2018). Using a non-probability sampling method, the authors choose a small sample of initial respondents, and those first respondents are then utilised to discover further respondents. The respondents had to be Malaysians with smartwatches to be eligible to be chosen for sampling for the underlying research (Babin & Zikmund, 2016).

### 3.2.3 Sampling Procedures

The current research investigated the interplay among mobile usefulness, mobile complementarity, mobile aesthetics, mobile compatibility and satisfaction to use a smartwatch in Malaysia. Google Form was used to run an online survey to gather data from smartwatch users via social media for them to voluntarily complete the questionnaires. The responses were based on seven-point Likert scale ranging from 1 to 7, which are (1) is Strongly Disagree; (2) is Disagree; (3) is Somewhat

Disagree; (4) is Neither Agree Nor Disagree; (5) is Somewhat Agree; (6) is Agree; and (7) is Strongly Agree.

### 3.3 Data Collection Method

An online questionnaire was designed to gather data through the google form (Bölen, 2020). In order to screen participants, we asked an open-ended question on respondents' ownership of smart wearables. Data were gathered using a purposive sample approach by distributing questionnaires over social media (Kamal Basha et al., 2022). Additionally, participants were requested to answer questions in the survey according to their experiences using a smartwatch, as this study's primary goal was to investigate people's satisfaction with using it (Wang et al., 2022). All of the people selected for the survey were smartwatch users, ensuring the study's validity. The question "Do you use a smartwatch?" was utilized to filter out and eliminate the respondents who do not use smartwatches (Ji & Meng, 2021). Respondents who choose the "no" option were excluded from the study.

#### 3.3.1 Variables and Measurement

Table 3.1: Measurement of Variables

| Construct | Description | Items | Sources | Measurements |
|---|---|---|---|---|
| Mobile Usefulness | Mobile usefulness can be defined as the perception of technology's usefulness to attain a specific objective for potential adopters while using the mobile devices (Lee et al., 2020). | 4 | Adapted and modified from Loh et al. (2022) | Seven-point Likert scale (1-strongly disagree and 7-strongly agree) |
| Mobile Complementarity | Mobile complementarity refers to the ability of | 5 | Adapted and modified from Loh et | Seven-point Likert scale (1-strongly |

| | | | | |
|---|---|---|---|---|
| | consumers to gain a wide range of complementary features and services as a user base grows, adding new benefits to their lives (Loh et al., 2022). | | al. (2022) | disagree and 7-strongly agree) |
| Mobile Aesthetics | Mobile aesthetics refers to the design aesthetics of the smartwatches (Cyr et al., 2006; Nanda et al., 2008), also refers to a smartwatch's balance, aesthetic appeal, or visual appeal as conveyed by its color, form, or screen layouts (Hsiao, 2013). | 4 | Adapted and modified from Bölen (2020) | Seven-point Likert scale (1-strongly disagree and 7-strongly agree) |
| Mobile Compatibility | Mobile compatibility refers to the degree where a smartwatch is perceived to be compatible with the values, requirements, and prior experiences of potential users (Kim and Ammeter, 2014). | 4 | Adapted and modified from Ghazali et al. (2020) | Seven-point Likert scale (1-strongly disagree and 7-strongly agree) |
| Satisfaction | Satisfaction refers to the consumers' reactions to assessments of | 4 | Adapted and modified from Siepmann & | Seven-point Likert scale (1-strongly disagree and 7- |

| | | | | |
|---|---|---|---|---|
| | apparent discrepancies between their original expectations for a product and its performance (Chan et al., 2003). | | Kowalczuk (2021) | strongly agree) |
| Continuous Intention | Continuous intention refers to "a user's desire to constantly utilise the same product or service presently being used" (Hong et al., 2013). | 4 | Adapted and modified from Loh et al. (2022) | Seven-point Likert scale (1-strongly disagree and 7-strongly agree) |

Source: Developed for the research

### 3.3.2 Pre-test

To ensure the correctness and comprehensibility of the sentences in the final questionnaire version, a pre-test involving three educators whose primary research areas are the domains of IS was conducted. Certain parts were improved to increase clarity and understandability based on their comments and suggestions (Bölen, 2020).

### 3.3.3 Pilot Test

30 owners of smartwatches afterwards participated in a pilot test of the instrument. The results of the pilot test demonstrated the scale's validity and dependability (Bölen, 2020). By using the data collected, we conducted a reliability test.

### 3.3.4 Pilot Test Result

As mentioned earlier, a reliability test was conducted to access the reliability of each and every variable after the collection of 30 survey sample sizes. Using the

PLS-SEM reliability test, it was determined that all 30 sets of surveys were applicable.

Table 3.2: Reliability test result for pilot test

| Construct | Cronbach's Alpha | Composite Reliability (rho_a) | Number of Items |
|---|---|---|---|
| **Mobile Usefulness** | 0.863 | 0.876 | 4 |
| **Mobile Complementarity** | 0.793 | 0.802 | 5 |
| **Aesthetics** | 0.911 | 0.932 | 4 |
| **Compatibility** | 0.795 | 0.821 | 4 |
| **Satisfaction** | 0.832 | 0.844 | 4 |
| **Continuance Intention** | 0.857 | 0.874 | 4 |

Source: Developed for pilot test

Table 3.2 above shows the results of a reliability test of 30 sets of survey questionnaires for the pilot test. As shown above, the Cronbach's Alpha and Composite Reliability values for all variables exceeded 0.70.

## 3.4 Proposed Data Analysis Tool

### 3.4.1 Partial Least Squares Structural Equation Modelling (PLS-SEM)

Based on the research model that was employed in this study, data analysis is done by using partial least squares structural equation modelling (PLS-SEM). PLS-SEM is more resistant to multicollinearity and distributional variation in indicator

characteristics than covariance-based SEM (CB-SEM) (Cassell & Bickmore, 2000). The covariance-based SEM technique performs best with large sample sizes and normally distributed data, according to Qureshi and Compeau (2009). Big sample sizes yet can also benefit from the component-based approach (PLS). They found that the performance of the technique was restricted for smaller sample sizes by the impacts of normality, effect size, and the number of measures applied to measure constructs. Since PLS is nonparametric, it can conquer the two multiple regression's drawbacks. It can accommodate a wide range of study variables (Fornell, 1982) and is appropriate for non-normal data (Hair et al., 2011). Furthermore, PLS-SEM is better suited to understanding interrelations as it gets rid with two major problems: unacceptable solutions and uncertain factors (Fornell, 1982). It examines both whether the put forward hypotheses are validated and how effectively the measures connect to each construct. It is appropriate for managing small sample sizes and theoretical testing (Hair et al., 2017).

### 3.4.2 Measurement Model Assessment

The initial step in analysing PLS-SEM results includes the assessing of measurement models, which vary for reflecting and formative components. The structural model must next be assessed by researchers if the measurement models fulfill the necessary requirements (Hair et al., 2017). It is significant to check and confirm that the constructed item's validity and reliability, as well as the variables employed, are consistent with one another. The framework's validity may be evaluated using convergent validity and discriminant validity, yet the model's reliability can be investigated using Cronbach's alpha and composite reliability (CR) (Hair et al., 2014). According to Hair et al. (2017), average variance extracted (AVE) was utilised to examine convergent validity. Based on Ramayah et al. (2018), they proposed that Internal consistency via composite reliability (CR) should be more than 0.7; indicator reliability via indicator loadings should be more than 0.7 and significant level at 0.05; convergent validity via AVE should exceed 0.50. To ensure discriminant validity through cross-loading and the Fornell and Larcker correlation, the square root of the AVE of a variable should be bigger than the relationships between the variable and other variables in the model. Heterotrait-Monotrait Ratio

(HTMT) was suggested by Henseler et al. (2015) to address problems with discriminant validity. 0.85 (Kline, 2011) or 0.90 (Gold et al., 2001; Teo et al., 2008) is the HTMT cutoff value.

### 3.4.3 Structural Model Assessment

When measurement model assessment is adequate, the structural model will be assessed in the following steps in evaluating PLS-SEM results (Hair et al., 2019). Contrary to CB-SEM, PLS-SEM lacks a standard goodness-of-fit metric and attempts to create one have in fact proven to be very challenging (Henseler & Sarstedt, 2013). The model's performance can also be evaluated based on its capability to predict the dependent variables instead (Sarstedt et al., 2014). The coefficient of determination (R2), the blindfolding-based cross-validated redundancy measure Q2, as well as the statistical significance and relevance of the path coefficients, are common assessment criteria that should be considered (Hair et al., 2019). The researcher must first look into the structural model for any possible predictor construct collinearity before making this judgement (Sarstedt et al., 2014).

# CHAPTER 4: DATA ANALYSIS

This chapter will start with a descriptive analysis that highlights the respondents' demographic characteristics, then proceed to an assessment of the PLS-SEM-based measurement model.

## 4.1 Demographic of Targeted Respondents

The demographics of the targeted respondents included gender, age, highest education level, monthly personal income/allowance, and whether they are using a smartwatch. An overall number of 417 sets of responses were gathered for the survey. Out of 417 sets of responses, 32 sets of responses are excluded because they disagree with letting their personal data be processed and didn’t use smartwatch before. The table below shows the demographic profile of the respondents and its percentage for each category.

Table 4.1: Demographics of targeted respondents

| **Demographic Profile** | **Categories** | **Frequency** | **Percentage (%)** |
|---|---|---|---|
| Gender | Male | 180 | 46.75 |
| | Female | 205 | 53.25 |
| Age | 16-20 | 28 | 7.27 |
| | 21-25 | 96 | 24.94 |

| | | | |
|---|---|---|---|
| | 26-30 | 26 | 6.75 |
| | 31-35 | 29 | 7.53 |
| | 36-40 | 38 | 9.87 |
| | 41-45 | 54 | 14.03 |
| | 46-50 | 48 | 12.47 |
| | 51-55 | 45 | 11.69 |
| | 56-60 | 16 | 4.17 |
| | Above 60 | 5 | 1.3 |
| Highest Education Level | Primary or Secondary School | 65 | 16.88 |
| | Pre-U or Diploma or Advanced Diploma | 80 | 20.78 |
| | Bachelor or Professional Qualification | 221 | 57.40 |

| | | | |
|---|---|---|---|
| | Master or PHD | 19 | 4.94 |
| Monthly Personal Income/ Allowance | RM2000 and below | 91 | 23.65 |
| | RM2001-RM4000 | 70 | 18.18 |
| | RM4001-RM6000 | 60 | 15.58 |
| | RM6001-RM8000 | 66 | 17.14 |
| | RM8001-RM10000 | 64 | 16.62 |
| | RM10000 and above | 34 | 8.83 |
| I am using a smartwatch (e.g., Fitbit, Mi Band, Apple Watch, Samsung Galaxy Watch, etc.) | Yes | 385 | |

Based on Table 4.1 above, it shows the demographic profile and the experience on using smartwatch of 385 respondents. Most of the respondents in the sample our research are females that is between the ages of 21 and 25, with an income of less than RM 2000. Smart wearable technologies are becoming increasingly important in this generations and are now evolving in a positive way. These wearable technologies have appeared due to the increment of popularity in mobile devices (Fang, 2016). Wearable devices like smartwatches and fitness wristbands are becoming more and more popular as a result of recent technology

advancements in the world. This is because smartwatch help in the access to any information more easily and conveniently. The term "mobility" is changing from being solely associated with portable devices to include seamlessly integrated wearable technology, taking the pervasiveness of personal communication to a new level (Kim, 2015). Smartwatches are gaining increasing momentum with robust growth projections, as the distinctions between technology, fashion, and healthcare are fuzzier. For instance, International Data Corporation (IDC) predicts that between 2018 and 2022, global shipments of smartwatches would grow at a 13.3% compound annual growth rate, taking the lead in the wearable industry with a 63.3% share (Chuah, 2019). In this survey, female respondents make up the majority of participants. In addition, most of the respondents qualify a greatest level of education with a bachelor's degree or a professional certification.

## 4.2 Measurement Model Assessment

### 4.2.1 Reliability Analysis

Below Table 4.2 shows the actual results of the reliability test which was collected from 385 sets of usable data. According to the results shown below, every variable is reliable because the Composite Reliability and Cronbach's Alpha Value is greater than the minimum need of 0.7. In order to determine the internal consistency, Cronbach alpha and composite reliability are the most commonly used measures because it helps to examine the interrelationships of observed variable items to determine their reliability. The values in PLS-SEM are arranged in accordance with the dependability of each particular indicator (Ab Hamid et al., 2017). Measurement procedures can be deemed reliable when they are consistent and stable. The reliability index of instruments can be obtained using Cronbach's alpha. The reliability index ranges from zero ($\alpha=0$) to one ($\alpha=1$), with a higher alpha value signifying a stronger reliability (Chan & Idris, 2017). According to Pallant (2000), instruments should have an alpha index of 0.7 or above.

Table 4.2: Reliability Analysis Data

| **Construct** | **Cronbach's Alpha** | **Composite Reliability (rho_a)** | **Composite Reliability (rho_c)** | **Number of Items** |
|---|---|---|---|---|
| Mobile Usefulness | 0.753 | 0.753 | 0.844 | 4 |
| Mobile Complementarity | 0.781 | 0.781 | 0.851 | 5 |
| Mobile Aesthetics | 0.824 | 0.824 | 0.883 | 4 |
| Mobile Compatibility | 0.776 | 0.778 | 0.856 | 4 |
| Satisfaction | 0.748 | 0.751 | 0.841 | 4 |
| Continuance Intention | 0.81 | 0.812 | 0.876 | 4 |

Source: Developed for the research

### 4.2.2 Validity Analysis

#### *4.2.2.1 Convergent Validity*

Convergent validity is the degree to which a construct accurately represents the variance in its variables. The convergent validity analysis is conducted using the average variance extracted. By averaging the squared loadings of the indicators connected to a construct, or by dividing the sum of the squared loadings by the number of indicators, the average variance extracted (AVE) is computed (Hair Jr et. al, 2021). The acceptability criteria for AVE is standardised factor loading > 0.5 or, preferably, 0.7 to show that the measured variables accurately represent the desired hidden structures. AVE > 0.5 CR > 0.7 (Fornell & Larcker, 1981; Hair et al., 2010;

Ramayah et al., 2010). The Table 4.3 below shows the convergent validity in this research exceeded the threshold of AVE value 0.50 for each construct, which means the convergent validity in this research is achievable.

Table 4.3: Average Variance Extracted (AVE)

| **Construct** | **Average variance extracted (AVE)** |
|---|---|
| Mobile Usefulness | 0.575 |
| Mobile Complementarity | 0.534 |
| Mobile Aesthetics | 0.654 |
| Mobile Compatibility | 0.599 |
| Satisfaction | 0.569 |
| Continuance Intention | 0.638 |

Source: Developed for the research

#### *4.2.2.2 Discriminant Validity*

In order to determine how much the evaluated constructs, differ from one another in the structural model, a discriminant validity analysis was conducted. This analysis assists in determining the degree to which each construct is comparable to one another as well as the amount of items necessary to adequately represent each construct (Hair et al., 2016). According to Hair et al. (2010), If the average variance extracted (AVE) is higher than the squared inter-construct correlation (SIC), discriminant validity is deemed satisfactory. However, Chiu & Wang (2008), Fornell & Larcker (1981), and Ramayah et al. (2010) propose that in order to obtain discriminant validity, the square root of the AVE should be larger than the inter-construct correlation. Cross Loading and Kriteria Fornell-Larcker are employed in this work to gauge discriminant validity.

Cross loading is the term for a construct's loading number, which must be higher than the loading values of all other constructs (Hair et al., 2016). It is the level of relative independence between each predictor and the hidden variable. By guaranteeing that the hidden variable's Average Variance Extracted (AVE) value is higher than any other variable's, these standards are crucial for limiting the prevalence of multicollinearity among the hidden variables (Chin, 1998; Larcker, 1988; Vinzi, Chin, Henseler & Wang, 2010). Table 4.4 presented below displays the results of the cross-loading analysis. The factor loadings for each construct are highlighted in bold, while the remaining values indicate the cross-loadings within the same construct.

Table 4.4: Cross Loading

| | AES | CI | COM | MC | MU | SAT |
|---|---|---|---|---|---|---|
| AES1 | **0.828** | 0.577 | 0.508 | 0.528 | 0.49 | 0.494 |
| AES2 | **0.801** | 0.578 | 0.404 | 0.472 | 0.48 | 0.507 |
| AES3 | **0.823** | 0.515 | 0.562 | 0.508 | 0.485 | 0.479 |
| AES4 | **0.782** | 0.504 | 0.531 | 0.458 | 0.44 | 0.464 |
| CI1 | 0.486 | **0.769** | 0.419 | 0.435 | 0.441 | 0.497 |
| CI2 | 0.567 | **0.77** | 0.46 | 0.545 | 0.475 | 0.513 |
| CI3 | 0.568 | **0.844** | 0.458 | 0.545 | 0.537 | 0.533 |
| CI4 | 0.529 | **0.809** | 0.467 | 0.54 | 0.492 | 0.533 |
| COM1 | 0.435 | 0.418 | **0.743** | 0.413 | 0.399 | 0.486 |

| | | | | | | |
|---|---|---|---|---|---|---|
| COM2 | 0.539 | 0.46 | **0.776** | 0.5 | 0.465 | 0.488 |
| COM3 | 0.459 | 0.433 | **0.814** | 0.507 | 0.388 | 0.527 |
| COM4 | 0.481 | 0.44 | **0.761** | 0.45 | 0.513 | 0.495 |
| MC1 | 0.451 | 0.527 | 0.375 | **0.697** | 0.523 | 0.445 |
| MC2 | 0.479 | 0.503 | 0.4 | **0.691** | 0.461 | 0.443 |
| MC3 | 0.394 | 0.428 | 0.483 | **0.761** | 0.394 | 0.444 |
| MC4 | 0.45 | 0.445 | 0.473 | **0.772** | 0.412 | 0.437 |
| MC5 | 0.443 | 0.46 | 0.475 | **0.729** | 0.445 | 0.462 |
| MU1 | 0.395 | 0.393 | 0.396 | 0.391 | **0.76** | 0.425 |
| MU2 | 0.447 | 0.462 | 0.379 | 0.428 | **0.787** | 0.429 |
| MU3 | 0.463 | 0.469 | 0.506 | 0.532 | **0.711** | 0.455 |
| MU4 | 0.47 | 0.52 | 0.438 | 0.498 | **0.774** | 0.448 |
| SAT1 | 0.497 | 0.528 | 0.53 | 0.56 | 0.448 | **0.787** |
| SAT2 | 0.425 | 0.475 | 0.446 | 0.452 | 0.42 | **0.739** |
| SAT3 | 0.46 | 0.514 | 0.478 | 0.435 | 0.451 | **0.77** |
| SAT4 | 0.429 | 0.441 | 0.492 | 0.388 | 0.433 | **0.721** |

Source: Developed for the research

Note: AES = Mobile Aesthetics, CI = Continuance Intention, COM = Mobile Compatibility, MC = Mobile Complementarity, MU = Mobile Usefulness, SAT = Satisfaction

According to the Fornell-Larcker criterion, the highest correlation value shown in any row or column of a construct is compared to the square root value of the average variance extracted (AVE) and the highest correlation value of any other construct (Hair et al., 2016). This approach depends on the idea that hidden variables provide a better explanation for variation in items compared to variations in other hidden variables. Table 4.5 displays the AVE squared values, which are higher than the values for each of the other construct's correlation.

Table 4.5: Fornell-Larcker

| | AES | CI | COM | MC | MU | SAT |
|---|---|---|---|---|---|---|
| AES | **0.809** | | | | | |
| CI | 0.673 | **0.799** | | | | |
| COM | 0.618 | 0.565 | **0.774** | | | |
| MC | 0.608 | 0.647 | 0.605 | **0.731** | | |
| MU | 0.586 | 0.61 | 0.569 | 0.613 | **0.759** | |
| SAT | 0.602 | 0.65 | 0.646 | 0.612 | 0.58 | **0.755** |

Source: Developed for the research

Note: AES = Mobile Aesthetics, CI = Continuance Intention, COM = Mobile Compatibility, MC = Mobile Complementarity, MU = Mobile Usefulness, SAT = Satisfaction

### 4.3 Structural Model Assessment

The table 4.6 shows the results of path coefficients, P-value and T-value for each variable. The results indicated that aesthetic (=0.185, P =0.002), compatibility (=0.309, P =0.000), mobile compatibility (=0.209, P =0.001), and mobile usefulness (=0.167, P =0.013) significantly and positively affect the satisfaction of smartwatch continuance intention. Therefore, the following hypotheses developed in chapter 2 (H1, H2, H3, H4) were supported. In accordance with table 4.7, the satisfaction (=0.65, P =0.000) significantly affect the continuance intention. Thus, hypotheses 5 (H5) from chapter 2 were supported. To sum up, all the hypotheses, which are H1, H2, H3, H4, H5 from chapter 2 were supported based on the path coefficient (bootstrapping) obtained from the PLS-SEM analysis.

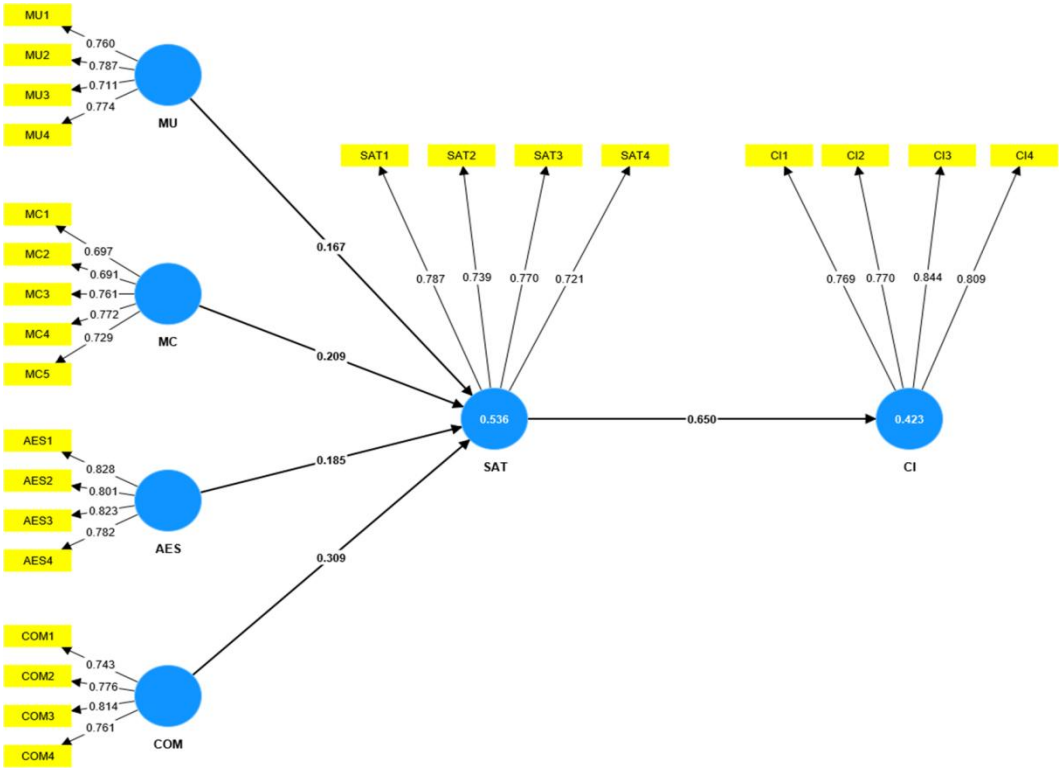
Table 4.6: Path Coefficient

| | Path coefficients | P values | T statistics (\|O/STDEV\|) | Remarks |
|---|---|---|---|---|
| AES -> SAT | 0.185 | 0.002 | 3.17 | Supported |
| COM -> SAT | 0.309 | 0 | 5.334 | Supported |
| MC -> SAT | 0.209 | 0.001 | 3.407 | Supported |
| MU -> SAT | 0.167 | 0.013 | 2.481 | Supported |
| SAT -> CI | 0.65 | 0 | 17.457 | Supported |

Source: Developed for the research

Note: AES = Mobile Aesthetics, CI = Continuance Intention, COM = Mobile Compatibility, MC = Mobile Complementarity, MU = Mobile Usefulness, SAT = Satisfaction

Figure 4.1: Outcome of Structural Model Examination



# CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

## 5.1 Summary of Statistical Analysis

### 5.1.1 Descriptive Analysis

A total of 385 sets of surveys were used as the final sample out of 417 responses that were collected. All 385 respondents had either used smartwatches in the past or currently do. The fact that smartwatches are commonly regarded as the "next big thing," which will drastically affect how we live our daily lives, so it is important for us to collect the responses from different age and income groups to better understand about determinants of the Malaysian continuance intention in using smartwatches (Baba et al., 2019).

### 5.1.2 The Results of Measurement Model

After conducting the reliability test by using the PLS-SEM, the Cronbach's Alpha and Composite Reliability values for every variable were higher than the acceptable level of 0.70. As for the validity test, it shows that the average extracted variance of all the variables has surpassed the cutoff of 0.50. Hence, the convergent validity analysis has proved that all the results are positively valid and corresponded with all variables. Furthermore, because all of the variables are strongly loaded onto the construct, the discriminant validity analysis is attained.

### 5.1.3 The Results of Structural Model

Based on Figure 4.1, this study has achieved all the research objectives as stated in chapter 1. Furthermore, all five hypotheses (H1, H2, H3, H4, H5) in this research have been tested and results have proven that the independent variables and dependent variables have significant relationships. It can be seen that Mobile Compatibility has the strongest influence on satisfaction among other variables in this research.

## 5.2 Discussion of Major Findings

All of the hypotheses have been supported based on the outcomes stated in the earlier chapter, and they are further discussed here. First and foremost, this study

has used the CAC framework (cognitive-affective-conative) in determining the Malaysian users' continuance intention in using smartwatches. According to past studies (Choi & Kim, 2016; Bölen, 2020; Dehghani, 2018), one of the main factors influencing customers' continuance intention in using smartwatches is the **mobile usefulness**. This study has established a strong association between Malaysian users' satisfaction and the usability of mobile devices. The measure of a smartwatch's mobile utility is the amount to which customers believe wearing one increases their personal efficacy, such as being more organised and effective (Chuah et al., 2016). By enabling users to check emails, plan tasks and meetings, access data, and communicate with co-workers at any time and from any place, wearable gadgets help users increase their productivity (Yang et al., 2016). Users are more satisfied and more willing to continue using smartwatches when they receive additional benefits from them (Nascimento et al., 2018). According to Park, Kim, and Kim (2018), it indicates that the usefulness of using smartwatches is the most significant factor in determining the continuance intention. It shows that potential adopters recognize the distinct technological advantages of smartwatches well. Therefore, practitioners in the smartwatches industry need to emphasis on useful and practical aspects of smartwatches. With that said, the mobile usefulness has a significant impact on user satisfaction, along with the mobile usefulness has directly and favourably influences IS continuation intention (Bölen, 2020). So, the marketers should highlight the mobile features and usefulness of smartwatches, particularly to target tech-savvy consumers who prioritise convenience and mobility.

Next, **mobile complementarity** is also one of the main determinants that influence the smartwatch users' continuance intention (Li & Fang, 2019; Dehghani et al. ,2018). Mobile complementary products and services increase the value of another specific product. According to this description, a product like this might not have much value without its complements, therefore customers are more inclined towards utilising the core product and its complimentary products together. Smartwatch is one of these (Sekardhani & Song, 2022). From the perspective of the consumer, many products are consider only functional or usable in the presence of a set of complimentary services, such as smartphone apps (Claussen et al., 2015). Hence, the apps that can make smartwatches more useful to users and facilitate their

usage. For instance, the app for smartwatches offers information in an easy-to-understand way. It locates a location using voice search and bookmarks it using 3D touch so that users may pick up their phone later. Having said that, the availability and calibre of mobile complements have an impact on the long-term intention and contentment of smartwatch users (Dehghani et al., 2018). As a result, the marketers should highlight the advantage of mobile complementarity, such as the seamless integration between smartwatches and mobile devices, to increase customer satisfaction and encourage their continuance intention in using smartwatches.

Besides, the results of this research regarding **mobile aesthetics** suggest that is a main indicator that impact on user fulfillment of needs and continuance usage in using smartwatches. Based on Coursaris and van Osch (2016), their findings indicate that in the setting of information system, aesthetics is a critical determinant of user pleasure, validating the favourable impact of perceived aesthetics on users' contentment that has been hypothesised. These results show that people view smartwatches as fashion items rather than practical tools. This is likely due to the fact that more people use smartwatches for fashion-related reasons rather than practical ones, such as visibility (Chuah et al., 2016), result demonstrability (Wu et al., 2016), or aesthetics (Jeong et al., 2017). It can also be explained by the fact that aesthetics can affect users' emotional attachment to their devices, which conversely can boost satisfaction and intend to continue using the device (Bhattacherjee, 2001). In particular, our research showed that users who thought smartwatches looked aesthetically appealing were happier with what they were wearing and more likely to keep using them in the future. As a result, companies and designers should concentrate on creating smartwatches that offer both practical features and capabilities as well as pleasing aesthetics to the user.

Furthermore, the findings of this study regarding **mobile compatibility** suggest that it has a significant positive impact on user satisfaction and continuance intention in using smartwatches. This is in accordance with earlier studies that discovered compatibility to play an important part in the uptake of technologies and utilisation (Venkatesh et al., 2003; Zhu, 2004). This can be explained that smartwatch compatibility can increase their perceived usefulness by enabling users

to easily access and control their information across various devices (Venkatesh et al., 2003). This can contribute to a more efficient and convenient user experience, which ultimately may result in greater satisfaction and continuance intention. According to Kim and Ammeter (2014), compatibility is the most crucial aspect of information system innovation. Customers can save time and become more productive due to the feature that remembers their preferences and routines based on past information searches (Vijayasarathy, 2004). Smartwatches can access personal data, keep track of daily routines, enable system customization, and real-time texting, which leads to satisfaction of consumers using smartwatch. Users who perceived smartwatches to be compatible with their existing devices were more satisfied with their device and more inclined to keep on in using the smartwatch in the future.

Moreover, the findings of this study regarding user **satisfaction** suggest that it has a favourable effect on the intention to continue using smartwatches. In accordance with earlier research, it is identified that customer satisfaction as a key determinant of users' desire to continue using and loyalty to technology products (Bhattacherjee, 2001). If users have a favourable attitude about the smartwatch and are pleased with its functioning, they want to keep using it, and this will also positively influences the people around them (Rekha & Timothy, 2020). According to our research, people who were happier with their smartwatches were more likely to keep using them in the future. In order to encourage continuing use and foster consumer loyalty, this recommends that businesses and designers should prioritise user satisfaction when designing and developing smartwatches.

## 5.3 Implication of Study

### 5.3.1 Managerial Implications

This study investigates the CAC framework which cognitive factors consist of mobile usefulness, mobile complementarity, mobile aesthetics, and mobile compatibility that leads to the affective factor, which is satisfaction, and influence the conative factor which is continuance intention. There are several managerial implications that can be proposed to businesses and organisations involved in the development, marketing, and distribution of smartwatches in Malaysia based on the

CAC framework and the study's results. For mobile usefulness, companies have to ensure that the smartwatches that they produce are beneficial and could bring convenience to customer's daily life. Smartwatches with various functions such as stopwatch, alarm, sports mode, etc. could help to increase the productivity of consumers, making them feel that the smartwatch is beneficial. Besides, the smartwatch market is getting competitive, thus companies are adding more complementary services such as fitness tracker, crash detection, emergency services, health monitoring services, and others in order to compete with other companies. The company will need to ensure that these added services could run efficiently so that customers are willing to use it continuously. Mobile aesthetics also leads to customers satisfaction on using smartwatch. A well-designed and attractive user interface of smartwatch could attract customers to purchase the smartwatch. In addition, due to the small capacity, the smartwatch is unlike phones or tablets, which can have many functions and apps in it. The company needs to figure out which function do customers need more, in order to be compatible with customers' lifestyle and needs.

### 5.3.2 Theoretical Implications

The research's contribution involves applying the CAC framework to examine the factors that Malaysian users' continuance intention of using smartwatches. By utilising this framework, this study contributes to a better understanding of the cognitive, affective, and conative factors that influence users' continuance intention in using smartwatches. The CAC framework allows for a more nuanced examination of the different determinants of the users' behaviour in the usage of smartwatch, which can help identify areas for improvement and optimization in smartwatch design and development. This can help smartwatch companies or manufacturers to design and develop smartwatches that meet users' needs and preferences, ultimately leading to increased user adoption and usage. The study emphasises the significance of user-centred design and personalised services in smartwatch development, emphasising the need for smartwatches to provide personalised and adaptive services to cater to users' individual needs and preferences.

The main dedication of this research is to highlight the use of the CAC framework in the setting of smartwatches, providing a new perspective on understanding the factors that influence users' continuance intention in this emerging technology.

## 5.4 Limitations and Recommendations

### 5.4.1 Limitations

The limitation of bias is a concern in this research, and it is particularly relevant in this study as it involved self-reported data. Self-reported data may be biased as respondents might not always provide accurate or truthful responses, which can lead to inaccurate or biased results. The possibility of bias is a typical issue in research, and since this study used self-reported data, it is more pertinent. Self-reported data may be biased because respondents may not always give genuine or correct answers, which can produce false or biased findings.

Next, is the usage of a cross-sectional design may be the study's drawback. The capacity to establish causal links between variables is constrained by the cross-sectional research' single-point data collection which limits this study to examining the current determinants of continuance intentions of Malaysian smartwatch users.

Third, cultural factors could be one of the limitations. This research was conducted in Malaysia, and the outcomes might not be applicable to societies or cultures with different views toward or cultural norms regarding the use of smartwatches. People's attitudes and behaviours toward technology, including the use of smartwatches, can be significantly shaped by cultural factors. Malaysia is a multi-ethnic nation with a wide range of religious and ethnic backgrounds, and cultural considerations can affect how people view and embrace new technologies.

The fourth limitation is due to time, resources, and budget constraints, only an English version of Google Form survey questionnaire is prepared. However, Malaysia is a multiethnic country, which means it may discourage involvement from non-native English speakers. Some groups of people couldn’t be reached because

they might not know how to access the Google Form, which restricted the number of respondents that we could gain for that particular group of people.

### 5.4.2 Recommendations

For the first limitations, the researchers may employ a range of data collection techniques in addition to self-reported data in order to reduce bias in future studies, including observational techniques or objective metrics. Also, in order to encourage respondents to provide more true and accurate responses, researchers could employ techniques like anonymity or confidentiality.

Next, in order to overcome the limitations of a cross-sectional design, researchers can use a longitudinal design in future studies. A longitudinal design involves collecting data from the same individuals at multiple time points, allowing for the examination of changes over time and the establishment of causal relationships between variables. This can give a deeper comprehension of the relationships between the variables and can help to establish the direction of causality.

Third, conduct cross-national research on those countries which have bigger smartwatch market or sales such as India, China, North America (DOVAL, 2022). Research that is cross-national can improve the results' generalizability to more than one nation or culture. This can be used to find more general trends and patterns in smartwatch adoption and desire to stick with them across different environments and geographic areas. Researchers can find similarities and differences in the variables that affect smartwatch adoption and continuance intention by comparing the results of this research with related research carried out in other nations or cultures. This can aid in creating a more complex understanding of the variables influencing smartwatch use in various settings.

The fourth recommendation is that in future research, the researchers can prepare a multi-language survey questionnaire in both online and printed paper versions. Since our country is multiracial, not every person will understand English, especially elderly and those people that English is not their native language. By

preparing a multi-language survey questionnaire, these groups of people could understand the survey well. Some people may also not know how to use technology devices, hence printed paper version questionnaires are needed in order to collect responses from them.

## 5.5 Conclusion

In a nutshell, the determinants of Malaysian users' continuance intention in using smartwatch have been examined in this study by implicating the Cognitive-Affective-Conative framework. The findings indicate that mobile usefulness, mobile complementarity, mobile compatibility, and mobile aesthetic, which act as exogenous variables in this study, positively affect satisfaction, and that satisfaction has a positive and major impact on continuance intention.

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**APPENDIX A – ETHICAL CLEARANCE**

***(APPENDIX J2)***

**Application No.**
***(Official use only)***

## Summary of Application for Ethical Clearance to Involve Human Subjects for Undergraduate Student's Project

**Programme Name: Bachelor of Marketing (Hons)**
**Code & Title of Course: UBTZ3026 Research Project**

**Please attach a copy of the survey questionnaire/interview questions for every project listed below.*

| No | Student Name | Supervisor Name | Project Title | Brief Description of Project | Brief Description of Questionnaire/ Interview Questions | Supervisor's Signature |
|---|---|---|---|---|---|---|
| 1 | MK039/2206<br>1. Lydia Yu Yun Fei 19ABB02369<br>2. Ting Ching Err 19ABB02675 | Dr. Lee Voon Hsien | Understanding the determinants of users' continuance intention in smartwatches: An empirical study on Malaysian users. | To examine the factors that lead to continuance usage intention in smartwatches by using CAC framework | Refer to the Appendix 039_2206 |  |

## APPENDIX B – PERMISSION TO CONDUCT SURVEY

**UNIVERSITI TUNKU ABDUL RAHMAN** *(DU012(A))*
Wholly owned by UTAR Education Foundation *(200201010564(578327-M))*
Faculty of Business and Finance
Jalan Universiti, Bandar Barat, 31900 Kampar, Perak
Phone: 05-468-8888
https://fbf.utar.edu.my/

13th September 2022

**To Whom It May Concern**

Dear Sir/Madam,

**Permission to Conduct Survey**

This is to confirm that the following students are currently pursuing their *Bachelor of Marketing (Honours)* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

| Name of Student | Student ID |
|---|---|
| Lydia Yu Yun Fei | 19ABB02369 |
| Ting Ching Err | 19ABB02675 |

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

.....

Mr Choy Johnn Yee
Head of Department
Faculty of Business and Finance
Email: choyjy@utar.edu.my

## APPENDIX C – SURVEY QUESTIONNAIRE FOR RESEARCH PROJECT

**Demographics**

Gender: Male / Female

Age: 16-20 / 21-25 / 26-30 / 31-35 / 36-40 / 41-45 / 46-50 / 51-55 / 56-60 / Above 60

Highest Education Level: Primary or Secondary School / Pre-U or Diploma or Advanced Diploma / Bachelor or Professional Qualification / Master or PhD

Monthly Personal Income / Allowance: RM2,000 and below / RM2,001-RM4,000 / RM4,001-RM6,000 / RM6,001- RM8,000 / RM8,001 to RM10,000 / Above RM10,000

I am using a smartwatch (e.g., Fitbit, Mi Band, Apple Watch, Samsung Galaxy Watch, etc.): Yes / No

Experience of using smartwatch: Less than 3 years / 3-5 years / More than 5 years

| Constructs | Measurement Items | Measurement | Adapted from |
|---|---|---|---|
| **Mobile Usefulness** | MU1: I find that using smartwatch increases my productivity/performance. | Seven-point Likert Scale | Loh et al. (2022) |
| | MU2: I find that using smartwatch enhances my effectiveness. | | |
| | MU3: I find that using smartwatch makes my daily life better. | | |
| | MU4: Overall, I find that using smartwatch is beneficial. | | |
| **Mobile Complementarity** | MC1: Smartwatch has a wide range of services (e.g., stopwatch, alarm) that are available. | Seven-point Likert Scale | Loh et al. (2022) |

| | | | |
|---|---|---|---|
| | MC2: Smartwatch has a wide range of complementary services (e.g., fitness tracker, health monitoring) that are available. | | |
| | MC3: I believe that these services will run effectively. | | |
| | MC4: I believe that these services will run efficiently. | | |
| | MC5: I believe that these services will run smoothly. | | |
| **Aesthetics** | AES1: The design of my smartwatch is attractive. | Seven-point Likert Scale | Bölen (2020) |
| | AES2: The design of my smartwatch is visually appealing. | | |
| | AES3: The design of my smartwatch is excellent. | | |
| | AES4: The user interface of my smartwatch is attractive. | | |
| **Compatibility** | COM1: Using a smartwatch is compatible with my lifestyle. | Seven-point Likert Scale | Ghazali et al. (2020) |
| | COM2: Using a smartwatch is compatible with my needs. | | |
| | COM3: Using a smartwatch is compatible with my habits. | | |
| | COM4: Using a smartwatch is compatible with my preferences. | | |
| **Satisfaction** | SAT1: I am satisfied with the overall experience of using smartwatch. | Seven-point Likert Scale | Siepmann & Kowalczuk (2021) |
| | SAT2: I am pleased with the overall experience of using smartwatch. | | |
| | SAT3: I am contented with the | | |

| | | | |
|---|---|---|---|
| | overall experience of using smartwatch. | | |
| | SAT4: I am delighted with the overall experience of using smartwatch. | | |
| **Continuance Intention** | CI1: I intend to continue using smartwatch in the future. | Seven-point Likert Scale | Loh et al. (2022) |
| | CI2: I will keep using smartwatch as regularly as I do now. | | |
| | CI3: I will always try to use smartwatch. | | |
| | CI4: I intend to increase my use of smartwatch in the future. | | |

**Supervisor Endorsement**
Name: Dr. Lee Voon Hsien

Signature:
Date: 12 Sept 2022



**UNIVERSITI TUNKU ABDUL RAHMAN**

**FACULTY OF BUSINESS AND FINANCE**

**BACHELOR OF MARKETING (HONS)**

**UNDERGRADUATE FINAL YEAR PROJECT [FYP]**

**Title of Topic:** Understanding the determinants of users' continuance intention in smartwatches: An empirical study on Malaysian users

**Interview Questions**

Dear Respondents,

We are the final year undergraduate students who are currently pursuing Bachelor of Marketing (HONS) from Universiti Tunku Abdul Rahman (UTAR). We are conducting a research project which is entitled “Understanding the determinants of users' continuance intention in smartwatches: An empirical study on Malaysian users”. This research aims to identify how satisfaction influence users’ continuance intention in using smartwatches in Malaysia.

Self-administered survey will be conducted, 6 demographic questions will also be asked for assurance and to ensure the validity of the study. Please be assured that all personal information and responses will remain private and confidential. Your participation is highly appreciated. For further inquiries, please contact us via lydiayu6698@gmail.com.

Thank you in advance.

Sincerely,

Lydia Yu Yun Fei 19ABB02369
Ting Ching Err 19ABB02675

**PERSONAL DATA PROTECTION STATEMENT**

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

**Notice:**

1. The purposes for which your personal data may be used are inclusive but not limited to:-
    - For assessment of any application to UTAR
    - For processing any benefits and services
    - For communication purposes
    - For advertorial and news
    - For general administration and record purposes
    - For enhancing the value of education
    - For educational and related purposes consequential to UTAR
    - For the purpose of our corporate governance
    - For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan

2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

**Consent:**

1. By submitting this form you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.

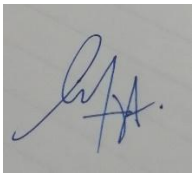
2. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

3. You may access and update your personal data by writing to us at lydiayu6698@gmail.com.

**Acknowledgment of Notice**

- ✓ I have been notified by you and that I hereby understood, consented and agreed per UTAR above notice.

[ ] I disagree, my personal data will not be processed.



……

Students' Name: Lydia Yu Yun Fei

Date: 12nd September 2022

# RESEARCH INSTRUMENT

**Section A: Demographic Information**

The following questions refer to the personal information of the respondents. Please provide the correct information by choosing one option in the boxes provided.

1. Gender

- ○ Male
- ○ Female

2. Age

- ○ 16-20
- ○ 21-25
- ○ 26-30
- ○ 31-35
- ○ 36-40
- ○ 41-45
- ○ 46-50
- ○ 51-55
- ○ 56-60
- ○ Above 60

3. Highest education level

- ○ Primary or Secondary School
- ○ Pre-U or Diploma or Advanced Diploma
- ○ Bachelor or Professional Qualification
- ○ Master or PhD

4. Monthly Personal Income / Allowance

- ○ RM2,000 and below
- ○ RM2,001-RM4,000
- ○ RM4,001-RM6,000
- ○ RM6,001- RM8,000
- ○ RM8,001 to RM10,000
- ○ Above RM10,000

5. I am using a smartwatch (e.g., Fitbit, Mi Band, Apple Watch, Samsung Galaxy Watch, etc.):

- ○ Yes
- ○ No

6. Experience of using smartwatch

- ○ Less than 3 years
- ○ 3-5 years
- ○ More than 5 years

**Section B: Variable Items**

This section would be seeking on your opinion regarding to the continuance intention in using smartwatch through satisfaction.

Based on the statement, please choose the most suitable answer based on the Seven-point Likert scale. (1) Strongly Disagree; (2) Disagree; (3) Somewhat Disagree; (4) Neither Agree Nor Disagree; (5) Somewhat Agree; (6) Agree; (7) Strongly Agree

**Mobile Usefulness**

1. I find that using smartwatch increases my productivity/performance.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. I find that using smartwatch enhances my effectiveness.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. I find that using smartwatch makes my daily life better.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. Overall, I find that using smartwatch is beneficial.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

**Mobile Complementarity**

1. Smartwatch has a wide range of services (e.g., stopwatch, alarm) that are available.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. Smartwatch has a wide range of complementary services (e.g., fitness tracker, health monitoring) that are available.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. I believe that these services will run effectively.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. I believe that these services will run efficiently.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

5. I believe that these services will run smoothly.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

**Mobile Aesthetics**

1. The design of my smartwatch is attractive.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. The design of my smartwatch is visually appealing.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. The design of my smartwatch is excellent.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. The user interface of my smartwatch is attractive.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

**Mobile Compatibility**

1. Using a smartwatch is compatible with my lifestyle.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. Using a smartwatch is compatible with my needs.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. Using a smartwatch is compatible with my habits.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. Using a smartwatch is compatible with my preferences.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

**Satisfaction**

1. I am satisfied with the overall experience of using smartwatch.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. I am pleased with the overall experience of using smartwatch.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. I am contented with the overall experience of using smartwatch.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. I am delighted with the overall experience of using smartwatch.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

**Continuance Intention**

1. I intend to continue using smartwatch in the future.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

2. I will keep using smartwatch as regularly as I do now.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

3. I will always try to use smartwatch.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |

4. I intend to increase my use of smartwatch in the future.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Strongly Disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Agree |