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The impact of cultural differences towards product innovation in smartphone industry: A cross cultural study on consumers from Saudi Arabia and United Kingdom

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Abstract

Smartphone penetration is growing across the globe and people from all over the world are increasingly using this device. However, the average replacement cycle length of smartphone is increasing. The consumers are taking longer now to replace their smartphone. This presents the problem for the smartphone corporations to better understand the challenges currently present for consumers regarding adopting new smartphones and how the latest technology is perceived across cultures. Previous literature confirms the link of culture and uptake of technology. However, there are lack of technology acceptance models which takes culture into account and there is scarcity of frameworks which compares European and Middle Eastern culture in context of innovation. The purpose of our study is to explore the impact of culture within smartphone industry by developing a framework which compares adoption behaviour.

This study aims to fill this gap by developing and testing a conceptual framework based on Technology Acceptance Model, Theory of Reasoned Action, Sheth Model and Hofstede's Cultural Dimension Theory. Researcher attempts to validate the moderating effect of Hofstede's cultural dimensions on behavioural intention to use new smartphone technology.

This exploratory study uses interpretivist approach and gathers qualitative data by conducting 28 in depth semi-structured interviews to evaluate the psychological behaviour of the consumers in UK and Saudi Arabia aged 18-34.

Our study concluded that both adoption and resistance towards innovation within smartphone usage are driven to a varying extent by Individualism, Uncertainty avoidance, and Power distance dimensions. The research also showed that smartphone users across both cultures believed that there has not been a meaningful innovation within smartphone industry in last 5 years.

This study contributes by enlightening Policy makers, Smartphone corporations, and Software developers on factors relevant in adoption of latest smartphone features (Voice Assistants, Digital Payments). It also contributes to body of knowledge by confirming the impact and relevance of culture in technological industry. The study provides an in-depth analysis in the area which is underdeveloped theoretically and encourage future researchers to apply our model in different regions and industries.

Keywords: *Smartphone, Cross cultural, Innovation, Adoption, Resistance, UK, Saudi Arabia*.

Dedication

I dedicate my Doctoral Research to My Parents *Raees Malik and Lubbna Malik*. I would like to thank my parents for their incredible emotional support, unconditional love, and prayers throughout my life.

Secondly, I am dedicating my research to my lovely siblings who have always pushed me to improve myself and advised me in every walk of life through their experience.

Finally, I would like to take this opportunity to shed some light on one of the most important issue especially in current day and age which remains unspoken, stigmatized, or neglected: *Mental Health.*

Mental Health is unquestionably the most crucial component during the journey of Doctoral Research and even at other aspects of life. For this reason, I would also like to dedicate my Doctoral Research to every individual who at some point has suffered through mental health issues in their life.

Acknowledgement

The journey towards completion of Doctoral research is not an individual experience, rather it takes in a social context and includes several people, whom I would like to thank sincerely.

Firstly, I would like to thank *Dr. Daba Chowdhury* and *Dr. Rexon Nting (*Supervisor team) for their valuable experience and continuous support throughout this journey. Their understanding, knowledge, and guidance have kept me motivated and positive during completion. The critical discussions with supervisors have not only improved my skill level as a researcher, but also improved me as a human being. The brainstorming sessions drove me into the avenues of the research which could not have been possible.

I would also like to thank all the research colleagues, lecturers, and professors who have educated me, shared their valuable experience, and enhanced my research skills. Without their contribution, I would not have acquired critical thinking skills and understand things from different perspectives.

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Above all, I would like to thank God, for providing me the opportunity to fulfil my dream and open the doors, which at times appeared to be shut.

DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed: **Mohammad Tajwar Raees Malik**

Date: **29th Oct 2021**

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

Signed: **Mohammad Tajwar Raees Malik**

Date: **29th Oct 2021**

STATEMENT 2

I hereby give consent for my thesis, if accepted, to be available for deposit in the University's digital repository.

Signed: **Mohammad Tajwar Raees Malik**

Date: **29th Oct 2021**

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List of abbreviations

- **Apps** Applications
- **BI** Behavioural Intention
- **DOI** Diffusion of Innovation Theory
- **GPS** Global Positioning System
- **GSMA** Group Special Mobile Association
- **H2M** Human-to-Machine
- **HDI** Human-Device Interaction
- **IND** Individualism-Collectivism
- **iOS** iPhone Operating System
- **IPA** Intelligent Personal Assistant
- **M-shopping** Mobile shopping
- **MAS** Masculinity-Femininity
- **MMS** Multimedia Message Service
- **NLUI** Natural Language User Interface
- **NFC** Near Field Communication
- **R&D** Research and Development
- **PBC** Perceived Behavioural Control
- **PEOU** Perceived Ease of Use
- **PD** Power Distance
- **PHS** Personal Handy-Phone System
- **PR** Perceived Risk
- **PU** Perceived Usefulness
- **RFID** Radio Frequency identification
- **SAM** Smartphone Adoption Model
- **SMS** Short Message Service
- **SN** Subjective Norm
- **TAM** Technology Acceptance Model
- **TBP** Theory of Planned Behaviour
- **TRA** Theory of Reasoned Action
- **UTUAT** Unified Theory of Acceptance and Use of Technology
- **UA** Uncertainty Avoidance

- **UK** United Kingdom
- **WIFI** Wireless connection technology
- **2g** Second Generation of cellular network
- **3g** Third generation of cellular network
- **4g** Fourth generation of cellular network
- **5g** Fifth generation of cellular network

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Chapter 1: Introduction

1.1 Overview

The smartphone technology has transformed the way mobile phones are perceived and used daily by humans. Mobile phones now go beyond traditional text messaging and phone calls functions (Barkhuus & Polichar, 2011; Chen, Yen, & Chen, 2009; Lee, 2014). According to Shiraishi et al. (2011) smartphones can be defined as a mobile phone or PHS that incorporates a public general-purpose operating system, to which users can freely add applications, customize, or extend functionality. The mobile phone industry experienced revolution when phones started incorporating features such as access to wireless connection, taking high quality pictures, listen to music, e-commerce etc. This development meant that users could multitask with the single device and continually mobile industry is finding new ways to make phones more relevant (Okazaki & Mendez, 2013). Mobile phones have become one of the most important devices in everyone's life and this trend is expected to increase worldwide. The number of mobile phone users by 2020 is expected to reach approximately 5 billion users across the globe, which makes 62.9% of the world an owner of mobile phone (Statista, 2016). In addition, the current number of smartphones in the world today are around 3.5 billion, which makes 45% of the population own a smartphone. Penetration of smartphones have increased from 2016-2020, up by 40 % increase in the number of smartphone users (Statista, 2020). According to GSMA, 72.6 % of internet users will be accessing internet through their smartphones only by 2025, which makes up nearly to 3.7 billion people (McDonald, 2019). To put it in the perspective, the WARC estimates that around 2 billion people currently access their internet through their smartphone (Handley, 2019). The smartphone culture has also drastically impacted the lives of people psychologically. To some people, smartphone is just a functional device for making phone calls, while to others, it is the world in their palm. Smartphone is merely a decade old, and with every year it is becoming an integral part of people's lives. Every year it is becoming more versatile and innovative (Deloitte, 2017). No technology has impacted the world the way mobile devices have, and it can be termed as the fastest man-made phenomenon ever. Gadgets like smartphones and tablets are growing five times faster than the human population, which is about 1.2% annually (Boren, 2014). People have embraced the smartphone technology with unprecedented passion, and

it has transformed its' status from technological device to essential device. According to Ted Talk lecture in 2011, ''*We are all Cyborgs*'', Case (2011) argues that smartphones have become more than just a device in our pockets, and it is transforming something closer to digital extension of ourselves. This can be reflected by looking at the overall market, where smartphone has been a global success and currently dominates the consumer device sales, with annually 1.5 billion sales or over 4 million units per day (Deloitte, 2017). The penetration of smartphones has been growing enormously, however not equally across the world. It is evident that not every person is likely to own smartphone and it varies from region to region. One of the recent studies by Pew (2019) focused on emerging economies which showed that for example in countries like India, Kenya, Tunisia, and Venezuela, there were sizeable segments which owned mobile phones rather than smartphones. On the other hand, the countries which have the most smartphone penetration per population are United Kingdom, United States, Germany, and China (Newzoo, 2019)

1.2 Background to research area

The following section introduces the relationship between culture and innovation. In addition, it understands the consumer behaviour towards smartphones in context of Saudi Arabia and UK specifically.

1.2.1 Culture and Innovation

Innovation can be defined as successful implementation of creative ideas (Amabile, 1996) or the process of translating an idea or invention into a good or service that creates value or customers to be paid for it (Mamasioulas, 2020). Innovation is not just limited to the growth of the businesses, but also for their survival especially if the business is operating in competitive industry (Westwood and Low, 2003). Nations cannot simply increase the level of innovation within their countries by increasing the expenditure on research and development or industrial infrastructure. To encourage the innovation activity, countries need to change the values of their citizens (Shane, 1993). There have been several studies which concludes that there is a strong relationship between nation's culture and innovativeness (Barnett, 1953; Shane, 1992; Hayton and Zahra, 2002; Hussler, 2004; Lundvall, 2009; Kaasa and Vadi, 2010; Ofori-Dankwa, 2013; Kaasa, 2013; Khan and Cox, 2017). The influence of culture on innovation has been recognised as significant factor in international

management and has contributed to the areas of economic development (Rohlfer and Zhang, 2016). Hofstede (1984) identified that culture influences the values consumers hold and the way they perceive their environment (Nisbett et al., 2001). There have been several studies in last thirty years which has shown a relationship between culture and the acceptance of technology (Hofstede 1980; Del Galdo & Nielsen 1996; Trompenaars & Hampden-Turner 1997; Barton 2010, Alshare et al., 2011; Tarhini et al., 2017; Masimba, Appiah & Zuva, 2019; Oyibo & Vassileva, 2020). These studies confirm that individual's cultural background play crucial role in how they perceive technology.

1.2.2 Smartphones in UK

In the UK, the smartphone culture is at its peak, with 81 % of the people gaining access to the smartphone (CBR, 2016). By end of 2018, the number of smartphone users is expected to reach 48.52 million in the UK and this trend is expected to increase up to 53.9 million users by end of 2022 (Statista, 2017). A third (33%) of aged 18-24 use smartphone while even with friends, shopping, and watching television. One out of three adults in UK check messages during the middle of night (CBR, 2016). According to the recent research, one in four children in UK have problematic smartphone use which can have serious implications on the mental health (Davis, 2019). According to latest YouGov's research, 75% of the workers check their phone while at work and 86% look at their phone screen while watching television (Smith, 2018). According to the latest research, 53% of the people in the UK uses smartphone while walking (Deloitte, 2017). The smartphones have become an important part of the life, with 95% of the smartphone owners in the UK use it on daily basis (Deloitte, 2018). This domination of smartphone has caused decline in the sales of tablets and e- readers in the UK by 4 %. An average UK user according to a recent survey of 2,077 people revealed an average UK user spends 3 hours and 23 minutes per day (Feeley, 2019). This rises when looking at the age group 25-34, who spends an average 3 hours and 31 minutes, while age group 16-24 spends an average of 4 hours per day looking at smartphone screen (Code computer love, 2019). Additionally, the smartphones have become central hub in the daily lives in the UK and therefore surpassed laptop in internet using device. In addition, people spend on average 45 minutes more on the smartphone than on Laptop/PC (Ofcom, 2015). Although, the level of penetration is high in the UK, but buying new phones

are decreasing. The market of smartphone users is saturating and the lifecycle of upgrading to new phone has been extended from 20 months to every 29 months (Arthur and Butler, 2017). One of the main reasons for upgrading to a new phone in the UK is when consumers think their current model is outdated and hence look out for new device. The large screen size is other significant feature which boosted upgrading of phones. The reasons why people are relatively less interested in buying new phones is because there has not been a significant difference within last 10 years in phone industry and high price of newer models (Arthur and Butler, 2017).

1.2.3 Smartphones in Saudi Arabia

In the Saudi Arabia, the smartphone culture continues to be on rise and according to the Nielsen, 67% of the population above 16 years old uses smartphone. The key factors behind choosing new smartphone even more than pricing factor are ease of use and screen size. The impact of brand and family/friends' recommendations plays integral role in the decision-making process when purchasing a new smartphone (Nielsen, 2014). The number of smartphone users is expected to reach 19.4 million units by the end of 2019 (Statista, 2019). The increase in smartphone users in Saudi Arabia has spill over effects and changed the consumer behaviour. The number of people in Saudi Arabia accessing web via desktops and laptops has decreased by 17% in 2018, while the number of people accessing web via smartphone rose by 19% (Euromonitor, 2019).

Secondly, the Saudi Arabian market is mirroring the global trend when it comes to upgrading their phones. This can be understood that there is an average two-year holding time for phones between upgrades and this cycle is gradually increasing This has been due to increased cost of the new devices and lack of attractive new features in new sets. According to Deloitte (2019) there has been a drop of 4% from 2017 to 2019 in respondent's willingness to change their phones. The penetration and growth of smartphones in the Saudi Arabia is expected to grow further due to introduction and anticipation of 5G. According to the survey, 54% of the Saudi respondents expressed willingness to switch to 5G as soon as it is available. This number is high, when compared to other European countries when asked about willingness to switch over 5G; UK 11%, Sweeden13%, Italy, 19% (Deloitte, 2019). In addition, due to the increased penetration and benefits of smartphones, it has become more than just a device in Saudi Arabia. Facebook, Instagram, and Twitter

are experiencing double digit penetration rate, with Facebook 25% rate makes it the most popular social media app in Saudi Arabia. One of the most distinctive features about Saudi consumer is the level of engagement on social media. Saudi Arabia has the highest per capita Twitter users around the world and one of the highest video consumptions on YouTube per capita around the world. In addition, messaging apps are used greatly, with WhatsApp being the most popular followed by Facebook messenger and Skype (Oxford business group, 2018). Moreover, according to a study 75 % of the people in Saudi Arabia do not leave the house without smartphone and the reason of popularity is it acts as personal concierge (Ipsos, 2012). One of the areas which is emerging is the purchasing goods or services through smartphone. Only 25% of the people purchased through smartphone. The mobile commerce is expected to grow but needs more awareness in this area. About 46 % people feel that e-commerce does not feel secure and 22 % feel it is too complicated. Moreover, 28% of the people would give up TV for smartphone and 68% search on their smartphones every day (Ipsos, 2012).

1.3 Problem Statement

In 2013, the consumers around the world on average took 25.6 months to replace their smartphone, however by 2020 it has increased to 33.6 months (Statista, 2020). This is currently a major challenge faced by the smartphone corporations to motivate or convince the end users to upgrade to the latest smartphone device (Kantar, 2017). The problem therefore is, ‘’***The average replacement cycle length of smartphone is increasing, and consumers are taking longer now to replace and purchase new smartphones***’’.

This is extremely worrying for the smartphone industry because their revenue relies predominantly on consumers upgrading their smartphones year on year and several major brands have already reported significant dropping in revenues due to this (Abigail, 2019). To tackle this, smartphone manufacturers are increasingly spending on research and development to entice consumers with innovation and technological breakthrough features. If they keep failing to motivate consumers and the problem persists of consumers not being attracted to latest smartphones, this will result in even longer cycles of replacement by end user which will cause sharp revenue/profit drops for smartphone corporations.

Innovation is a complex and multifaceted phenomenon and consumers do not necessary welcome all innovations (Laperche, 2018). According to recent researchers on innovation, the failure rate of innovation is estimated between 40% to 90% (Rhaiem and Amar, 2019). Scholars therefore argue, that It is crucial to understand the acceptance or failure of innovation by consumers for the effective management of innovation activities (Joachim et al., 2018).

Technology acceptance is extensively investigated and understood in the literature to understand the adoption of innovative technologies in various industries. There are several models which offers understanding of the adoption behaviour. Of the acceptance models, one of the most widely recognised is Technology Acceptance Model (Vladova, 2021) and several recent researchers have applied in their studies (Zayyad & Toycan, 2018; Camilleri and Falzon, 2020; Ozkale, and Koc, 2020; Lin et al., 2021) to investigate technology adoption by end users. Of the several technology adoption problems, recent research also indicates that a significant link exists between technology adoption and culture (Gao et al., 2018; Sun, Lee and Law, 2019).

Culture comprises of beliefs, customs and norms, which previous research has shown that it impacts strongly on values and perceptions of consumer behaviour (Chow et al., 2000; Naumova et al., 2019; Shavitt and Barnes, 2020). Culture can either enable technology acceptance (Masimba, Appiah & Zuva, 2019) or hinder technology adoption (Sun, Lee & Law, 2019).

Despite this, over the years there has been research pertaining to the link between cultural factors and the uptake of technology (Kovačić, 2005; Srite & Karahanna, 2006; Al Jumeily and Hussain, 2014; Tarhini et al., 2017; Teo and Huang, 2019). However, there is a dearth of studies which applies TAM model in European and Middle Eastern country simultaneously. Most of the published studies in relation to technology acceptance are focused on Western countries and there is a scarcity of literature when it comes to countries such as Saudi Arabia (Khan, 2017). In addition, although the acceptance of technology by end-users is a consumer level phenomenon, surprisingly it was found that most of the literature about cultural effects is based on the organizational level (Tarhini et al, 2017). Furthermore, there are not enough studies on the adoption of mobile technologies (Çukurbaşı et

al., 2016). There is very little or no knowledge in current literature which explains the impact of culture towards innovation in the current climate within smartphone industry.

Therefore, it creates a need for a cross cultural study and becomes crucial for whole of smartphone industry to better understand the adoption behaviour of latest technology. The analysis and findings of the study will provide a comprehensive understanding and assist the policy makers regarding the factors which are encouraging or inhibiting consumer's adoption for the latest smartphone technologies. The researcher will seek to develop and test the adoption model to explore the cultural impact. The Appendix A is the graphical representation of our problem statement using a top-down approach.

1.4 Gap in Research

Clearly there are a number of gaps that this thesis aims to tackle. As mentioned above, there is a lack of:

- Literature which incorporates and understands ''**Innovation**'' within smartphone industry. The table attached in Appendix (B) presents the most recent smartphone studies which took culture into account. After careful review of the literature, it was concluded that the studies predominantly in this domain are either focused on ''**smartphone addiction**'' or ''**smartphone as a learning tool**'', and there is very little or no research regarding ''**innovation**'' in the context of culture within smartphone industry.
- There is scarcity of cross-cultural framework in smartphone industry which examines the factors affecting adoption of latest smartphone technologies by the end users. It is established in literature that cultural aspect plays crucial role in technology uptake, however cultural factors are largely ignored in technology adoption models (Lin, 2014). In addition, there are not enough mobile adoption studies which explains the factors affecting adoption (Nikolopoulou, 2018).
- There is also lack of studies which compares European country (UK) with Middle Eastern country (Saudi Arabia). To the best of author's knowledge, there are no previous studies that compares UK and Saudi Arabia within smartphone industry in the context of innovation.

Therefore, to address the aforementioned issues, this research aims to bridge the gap in the literature by developing a conceptual framework which explains the impact of culture towards innovation within smartphone industry. The study will extend Technology Acceptance model (TAM) and include additional variables; **Individualism** (IND), **Power Distance** (PD), **Uncertainty Avoidance** (UA), **Perceived Risk** (PR), and **Subjective Norm** (SN). The extending of TAM model will increase the applicability and predictability of the model. Several researchers have concluded that by adding external variables in acceptance models enhances the quality and ability to predict the acceptance of the model (Martins et al., 2014; Maillet et al., 2015; Cimperman et al., 2016; Kabra et al., 2017; Khalilzadeh et al., 2017). Our research model will explore the extent to which these variables affect Saudi and British consumers aged 18-34 in adopting innovative features in smartphone and investigate whether there are differences among these factors.

1.5 Research contribution by addressing the gaps

This study by filling out the gaps mentioned above will contribute to a better understanding of culture and technology adoption in smartphone industry. The significance of this research stems from the fact that the focal point of our research is ‘’**smartphone industry**’’, which in 2020 alone generated $409.1 billion revenue (Statista, 2020) and according to projections there will be 6 billion devices in circulation by 2020 (Kharpal, 2017). With so much at stake, there are number of contributions (theoretical and practical) which this research aims to contribute towards:

1. From the academic perspective, this research developed an integrative model that combines both technology acceptance theories with cultural theory and apply at consumer level within different cultural contexts. Therefore, this study is considered as a useful guide for other cross-cultural researchers to understand whether the acceptance of technology is mainly affected by individuals’ cultural background (moderation effect) or whether the acceptance is mainly based on the key determinants of technology itself. This research has the potential to become the basis for other cross-cultural researchers to use our adoption model and apply in other regions such as comparison of consumer behaviour in smartphone industry which compares

African culture (Nigeria) vs *European culture* (Italy) or *South Asian culture* (Pakistan) vs *East Asian culture* (China) etc.

2. Our model includes constructs from TAM which has been criticised, because it ignores the cultural influence (Bagozzi, 2007) and it has been mainly applied in developed countries such as North America (Tao et al., 2008). Our model also includes Hofstede's cultural dimensions, which also has been criticised by several scholars in past (Mc Sweeney, 2002; Mc Coy et al., 2005; Wu, 2006; Orr and Hauser, 2008). By developing a framework using TAM and Hofstede's cultural dimension, it will contribute by ''*testing their relevance*'' and analyse if these theories are still applicable and relevant in current climate.
3. The research also aims to contribute to the body of literature in the following domain: *Innovation*, *Technology acceptance*, *Smartphones*, and *Culture*.
4. In practical terms, our research aims to contribute to policy makers, smartphone corporations, product designers, and software developers, by assisting them with a better understanding on the factors which contributes or inhibits the adoption and provide an overall image on how the latest innovations in the industry (**Artificial intelligence/ Voice assistants**, **Digital Wallets**) are being perceived in Western vs Middle Eastern region.

1.6 Research Aim and Objectives

Based on the problem statement and gap in research, the researcher has developed the aim of this research.

The main aim of the study is ''***to explore the impact of culture towards innovation in smartphone industry of consumers aged 18-34 from UK and Saudi Arabia***''. By achieving this, the research will support the Policy makers, Software developers, Smartphone brands and Product designers operating in the smartphone industry to establish a better understanding of the factors which contributes or inhibits adoption of new smartphone features across contrasting cultures.

To fulfil the aim, specific objectives were developed below, which will help understand adoption behaviour of UK and Saudi consumers in smartphone industry. In addition, these objectives offer a chance to explore the complex concept of ''**innovation**'' in cross cultural domain at every stage.

In support of the aim mentioned above, here are the research objectives:

- To review the literature related to innovation, culture, and technology acceptance models
- To develop and test a conceptual framework which captures the factors influencing the consumer adoption towards innovation within smartphone industry
- To explore the motivation of Saudi and British consumers behind using smartphones
- To analyse the attitudes of Saudi and British consumers towards innovation in smartphone industry
- To examine the decision-making process for upgrading to new phones
- To evaluate the resistance of Saudi and British consumers towards innovation

1.7 Research Questions

Given the context of the research aim and objectives, the researcher will answer the following five questions:

- How different are the motivation of UK and Saudi consumers behind using smartphone?
- How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage.
- How do UK and Saudi consumers perceive innovation within smartphone industry?
- Why consumers in UK and Saudi Arabia upgrade to new smartphone?
- How do UK and Saudi consumers resist innovation within smartphone industry?

1.8 Theis Outline

This section provides a brief overview of the seven main chapters of this thesis and the steps undertaken to fulfil the research aim and objectives.

Chapter 1: Introduction provides the ‘roadmap’ of the entire thesis. It first introduces the reader to the research problem along with the motivation behind conducting this research and its scope. Then, it highlights the goal of the research by providing

research aim, objectives, and research questions. The first chapter is aimed to set out a clear background and purpose of the study for the reader.

Chapter 2: Our Literature review chapter is divided in 4 parts.

- *Part 1*: The 1st part of the literature review highlights the evolution of smartphone over period of time and the purchase intention affecting consumers when purchasing smartphones.
- *Part 2*: The 2nd part starts with providing taxonomy of definition for ‘’innovation’’ and it looks at classification of innovations and factors affecting it to provide a holistic view of the concept.
- *Part 3*: The 3rd part emphasizes on consumer’s perception towards newness and reviews Berlyne theory to understand psychological behaviour of individuals. Later, it reviews 7 of the most influential theories and models related to technology adoption and resistance (TRA, TAM, TBP, UTAUT, SHETH, RAM, DOI) models which then in chapter 3 are used for conceptual framework.
- *Part 4*: The 4th chapter highlights the importance of the cultural dimensions (Hofstede) on consumer behaviour and overviews the smartphone usage pattern in context of culture.

Chapter 3: Proposed conceptual framework aims to discuss the development of our conceptual model for adoption of smartphones in cross cultural setting. For this purpose, it justifies the use of Technology Acceptance Model as a theoretical basis. This chapter also provides a further justification for extending the TAM to include social and risk factors as key determinants. In addition, it introduces and integrates Hofstede’s cultural dimensions (Individualism, Power distance, Uncertainty Avoidance) as moderators within the model to explore adoption/resistance in UK and Saudi Arabia. Moreover, research hypotheses are formulated and operational definitions for each construct are presented. The results of this chapter along with the detailed literature review in Chapter 2 helps the researcher to develop a conceptual framework.

Chapter 4: Methodology chapter explained the philosophical stance, strategy of inquiry, methods, research design, and sampling techniques used in the research.

This chapter also explains the rationale behind the chosen approach and techniques that is essential in order to empirically test the proposed conceptual model and thus achieve the main research objectives and answer the research questions. Lastly, it explains on how the data is collected, how it is analysed and the ethical considerations of the research.

Chapter 5: This chapter presents the research findings of the data obtained from the respondents. The NVivo is employed for data analysis which helped in data coding, frequencies, percentages, word map etc. The results from the data analysis in this chapter focuses on the cross-cultural differences and similarities between UK and Saudi Arabia in the context of smartphones.

Chapter 6: Discussion chapter provides a holistic analysis which takes into the account the findings, past literature, and proposed conceptual framework. This chapter helps understand the role of culture towards adoption and resistance towards smartphone technology in UK and Saudi Arabia.

Chapter 7: Conclusion and Further Research is devoted to highlighting the research implications and major theoretical and practical implications drawn from the research study. This chapter also discusses and delineates the potential limitations and finally propose directions for future research.

To illustrate the *Thesis outline*, a summary map is provided in Appendix C.

1.9 Summary of the chapter 1

This chapter presented the foundation for the research by covering and illustrating its background and purpose. Moreover, this chapter covered the research aim and objectives, gaps, contributions, and significance of the study. Finally, an outline and brief description of the thesis was discussed. The following chapter will discuss and review the most used technology acceptance models, resistance theories, and cultural theories, which will form the basis of the proposed research model in Chapter 3.

Chapter 2: Literature review

2.1 Introduction

The aim of this chapter is to examine several critical areas which appear relevant to the study. This chapter is divided in 4 parts (*Smartphones, Understanding Innovation, Consumer* & *Innovation, Culture* & *Innovation*). This chapter at the end provides a conclusion and sets up the basis for the conceptual framework which is presented in chapter 3.

2.2 Smartphones (Part1)

The focus device for the research is ‘’smartphones’’ and therefore before delving into any description and functionalities of a device, it is crucial to understand the background of ‘’mobile phones’’ and how it has been evolved to ‘’smartphones’’. The goal of 1st part of literature is to understand smartphones comprehensively by reviewing previous studies and examine the emerging features which are being incorporated in smartphones.

2.2.1 History and evolution of smartphone

Smartphones are now integral part of everyone’s life. Before smartphones, it was mobile phones which were considered key mode for communication. Mobile phones are wireless devices which can be used in wide areas by providing connection to cellular systems through radio waves (Chang et al., 2009; Lexico, 2019). The concept of mobile phones goes back to 1920’s (Dunnewijk and Hulten, 2007). In 1979, there was the first cellular system developed and later in 1983 was commercialised (Agar, 2013). The initial mobile phone development was focused around in cars in New York and Boston (Agar, 2013). Additionally, in Europe the first development was considered by Sweden, and they also developed a standard name the Nordic Mobile Telephone. This standard allowed the ability for customers to use mobile phones outside their homes, and since 1982, in other European countries such as Norway, Denmark, Iceland, and Finland (Dunnewijk & Hulten, 2007). In United Kingdom, 1985 was the year where mobile networks were initially developed and government licensed two national operators to provide radio services (Ofcom, 2010). The first mobile phone call in United Kingdom was made on 1st January 1985 by Ernie Wise who was a comedian (Trenholm, 2014) During that time, several countries were developing their own mobile standards such as; C450 standard in

Germany, Nippon Telephone and Telegraph in Japan, American standard advanced mobile phone system by USA (Dunnewijk and Hulten, 2007). In Saudi Arabia, mobile phone services came into operation in 1995 (Mcit, 2019).

Secondly, humans have constantly been inventing new forms of communication; from smoke signals and pigeons as message carriers, to telephones and emails (Roger, 2019) Similar evolution took place in mobile phone industry which now has transformed into a smartphone. A smartphone can be defined as mobile phone or a device that allows users to make telephone calls, exchange emails, internet connection, and download files. It usually has an operating system and a touch screen which can download and run apps through the dedicated Appstore (Park & Chen, 2007; Mobile SQUARED, 2010; Verkasalo et al., 2010; Osman et al., 2011; Aldhaban, 2012;). Current examples of smartphone brands are the Samsung Galaxy phones and Apple iPhones which consist of operating systems such as, Android Operating Systems or iOS (Verkasalo et al., 2010).

The evolution of smartphone initiated in 1992, when IBM introduced Simon phone (Mccarty, 2014). It included a touch screen which was operated by stylus and ability to let the user receive and send fax messages. In the early phase smartphones were mainly focused on enterprise market, bridging the gap between telephones and personal digital assistants. These smartphones were heavy and had short battery lives (Rogers, 2019). Following from that, Nokia developed Nokia ‘’9000’’ communicator which consisted of additional features such as web browsing, email access, spreadsheets, and word processing (Martin,2014). The term smartphone was first phrased by Ericsson when they released the GS88 concept, which is also known as Penelope. During this early phase, smartphones were not popular among consumers and were not adopted (Martin, 2014). In the early 2000s, the smartphone development increased, and more players started focusing on new handsets. Nokia launched mobile handsets with Symbian operating system, while BlackBerry introduced handsets aimed for business users (Martin, 2014). Even at this point smartphones were not adopted by mass market and manufactures kept trying to add new functionalities such as flipping keyboards, rotating displays, wafer style phones etc. In 2007, the smartphone market took a new step, when Apple introduced iPhone which offered consumers ease to use via finger-friendly screen, one button on the handset, multimedia functions, option of downloading apps etc. Previous

smartphones were dependent on keypads and could only navigate a watered-down version of internet. The iPhone had the ability to browse the websites which were similar to desktop computer (Jackson, 2018). In 2008, HTC was the first manufacturer to have android operating system in their smartphone and later this operating system was used by LG, Samsung, and Motorola (Mccarty, 2014; Martin, 2014). Currently, smartphones have improved and are different from previous smartphones in three ways: software, physical, and connection. Smartphone nowadays have touch finger capability and large screen which offers QWERTY keypad layout. In addition, these smartphones as compared to older smartphones have powerful processors which allows the user to load web pages, games, application in quicker time. Furthermore, smartphones also have operating systems, at the moment there are two main operating systems: Android or iOS. The operating system has allowed to download application on their operating system. In addition, the networks on the smartphones have the ability to connect to 3g or 4g networks which leads to high-speed internet connection (Bridges et al., 2010). One of the key factors behind worldwide adoption of smartphones was the 3G technology. This standard allowed user to really make the use of smartphone features such as downloading applications, browsing social media on the go and other services which required reliable data connection. This technology is referred also as Universal Mobile Telecommunication System that is based on GSM standards. The transition from 2G to 3G allowed improved voice and data communications (Dunnewijk and Hulten, 2007) In UK, 3G services were launched commercially in 2003 by Hutchinson, which is now known as Three (Thomas, 2015), while In Saudi Arabia 3G was launched in 2006 (Mcit, 2019).

There has been an interesting evolution of smartphones where brands have started adding new features and innovate within smartphone industry. 57% of the UK respondents according to the latest study used voice assisted speakers, 48% of the respondents used fingerprint recognition to validate the payment for online purchase (Deloitte, 2018). Furthermore, 81% of the UK population is aware of at least one application which incorporates machine learning. Machine learning is an application of artificial intelligence which allows automated improvements without explicit programming and supporting quicker iteration. Machine learning apps uses several inputs to personalise the user experience. Machine learning can use various data

points such as usage history, location, common words. In the UK, the most common machine learning based application is predictive test, followed by voice assistants (Deloitte, 2017). Below is the figure 2.1, which shows the awareness and usage of machine learning app among UK users. There is still a clear gap between awareness and usage in all categories.

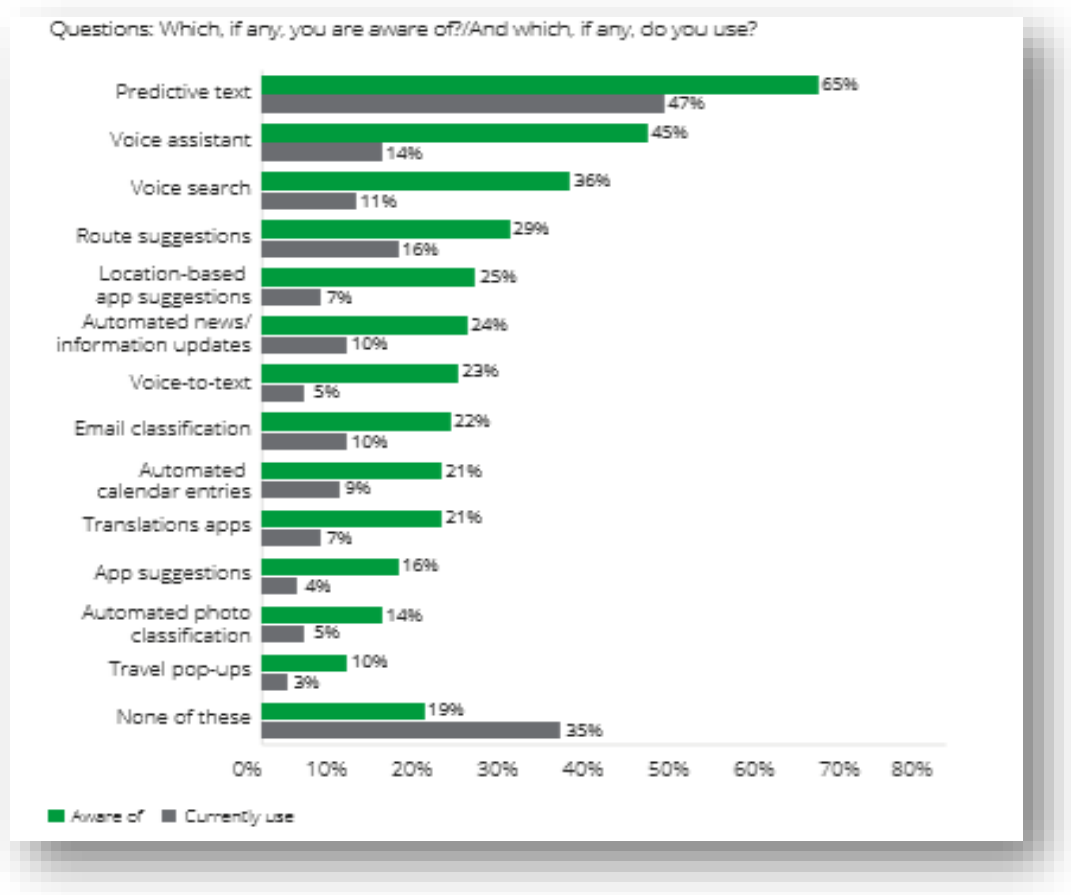

Figure 2.1: Machine learning apps usage and awareness (Deloitte, 2017)

2.2.2 Smartphone features

This research will be looking at the motivation and usage of smartphones cross culturally. To analyse the motivation, it is important to understand the smartphone features and services.

According to Gao et al. (2012) smartphones services include information search, leaning, communication, provision of office tools and entertainment. In terms of features, it comprises of; high speed processor, multi-tasking operating system, screen with high resolution & large screen size, Bluetooth connection, internet access, camera, full QWERTY keyboard functionality, Radio Frequency identification

(RFID), Global Positioning System (GPS), storage capability (Change et al., 2009). In addition, the very latest smartphones are equipped with advanced sensors such as Fingerprint ID, Barometer, Digital Compass, Accelerometer Gyroscope (Phone arena, 2014)

These features mentioned above have various uses for the smartphone users. For example: the application which uses GPS allows user to search his or her current location in the search and the result will only bring things which are closer to user's location (Liu, 2013). A prime example can be of a coffee shop, where the user search will only show the coffee shops closer to his/her location. In addition, as stated above smartphones do have gyroscope capabilities which allows to sense the orientation of a device, while accelerometer in smartphones detects linear acceleration of movement. Furthermore, digital compass in smartphones assists in directions which is useful for users using map application for routes (GSM arena, 2014). Features like these are used now by health and wellbeing apps which can track user's activities and to some degree encourage them to exercise (Liu, 2013)

One of the crucial and popular features in the current smartphones are the smartphone apps which can be downloaded on user's device. There are millions of applications available in the apps market of the smartphone and these apps can be separated into different categories. According to Xu et al. (2011) applications can be classified into categories of business, education, books, entertainment, games, finance, healthcare, lifestyle, medical, music, news, navigation, productivity, photography, reference, social network, travel, weather, utilities, sports and others. Some applications use user's location to personalise the experience based on the current location with the help of GPS such as local news, traffic routes etc (Xu et al., 2011).

The usefulness of the features above were focused from the consumer's perspectives, however smartphones have also become absolute essential for businesses and working life community. Majority of the research on mobile emails suggested that ease of sending and receiving emails on smartphones contributes towards collaboration within teams due to acceleration in work processes. (Beurer-Zuelig and Meckel, 2008a). Similarly, several other scholars suggest that smartphones allow better internal and external communications within organisation

and promotes information sharing (Kossek and Lautsch, 2012; Pitichat, 2013). On the other side, there are some scholars which argues with the above and emphasizes on the negative impacts of smartphones at work (Perlow, 2012; Derks and Bakker, 2014; Derks et al., 2015). One of the common negative impact of smartphones is that worker can find it hard to separate work from smartphones, which could result in anxiety and stress (Perlow, 2012; Derks and Bakker, 2014). In addition, smartphones can cause employees in lack of attention and distraction during important meetings which could affect the productivity of the business. This could be argued by the idea of satisfaction level, and according to Miller-Merrel (2012) smartphones can actually be used as sharing knowledge tool which does not just makes employees more efficient, knowledgeable but also satisfied with the work life.

In terms of smartphone uses, entertainment category is one of the most popular. Smartphone can be used to watch videos and listen to music both online and offline. Users can download entertainment apps such as Netflix, YouTube, Google play and watch/stream the videos of their choice. One of the growing activities among UK users on smartphone is also watching videos, where 57 % of the population aged 16-75 in the UK watches at least one form of video content on their smartphone devices. The number was 18 % five years ago and now has risen to 57%, which is an incredible growth. The most popular video watched are short, while the long video consumption such as Tv programs and films are growing strongly but still less frequent. Television still remains the preferred choice for long form of video content, and it is consistent across the gender and all age groups. Below is the figure 2.2

which illustrates the video consumption of UK users.

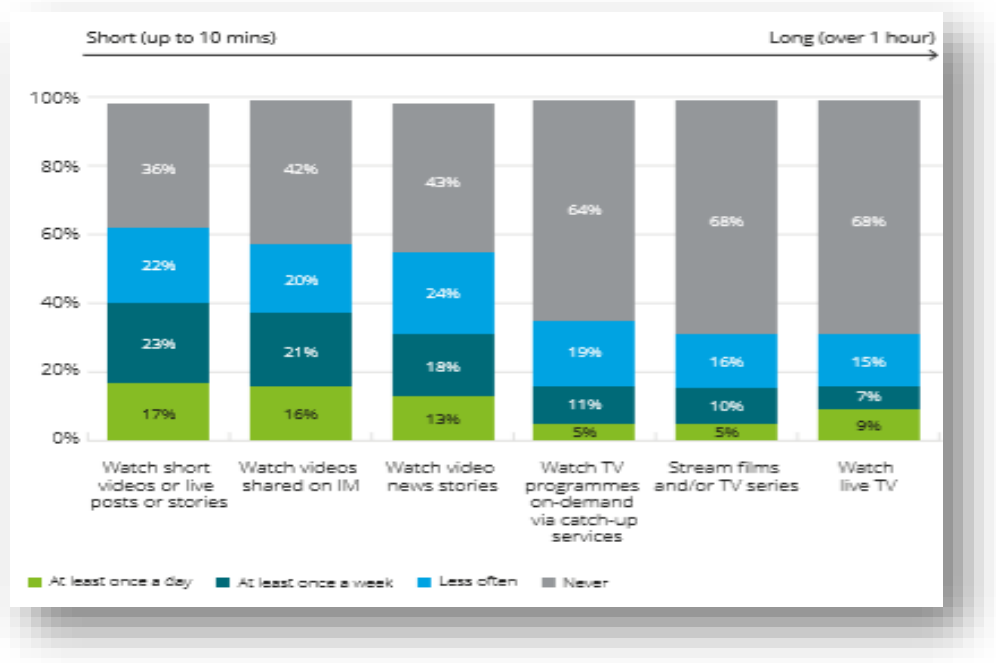

Figure 2.2 Video consumption on smartphones by format type (Deloitte, 2017)

Another big part of entertainment is gaming, which now is increasingly growing due to advancements in processors which allows users to play games on their smartphones. Moreover, another dimension of entertainment has emerged in smartphones in the form of social networks such as Facebook or Twitter, which allows users to connect online and interact with the friends. Smartphones users are not only limited to entertainment but are wide spreading in health care industry too. For health care professionals, smartphone apps have a massive potential in training and professional development of healthcare professionals. With connectivity being built in, it assists the blended learning platform with updatable information in an accessible format. Health and wellbeing applications makes up round about 40% of new smartphone apps (Smallman, 2014). The apps in smartphones offers wide ranges within healthcare category. Some apps offer in hospital clinical support, while other apps aim to provide healthcare service to developing countries that do not have proper patient care or medical devices (Journal of health, 2019). According to Whalen (2013) smartphones are helping medical professionals in things such as observe potable heart monitor, viewing patient's x-rays, and other images in a mobile environment. In addition, there is evidence that smartphones are considered as one of the most successful electronic devices among healthcare professionals. A multi-

centre survey study by imperial college on hospital doctors and nurses in UK showed suggested that 92.6% of doctors and 53.2% of nurses termed smartphone ‘’very useful’’ or ‘’useful’’ in assisting them in clinical duties. In addition, 89.6% of the doctors and 67.1% of nurses admitted owning medical apps on smartphones and use as part of clinical practice (Mobasheri et al. 2015)

Lastly, smartphones can offer additional benefits by connecting to multiple devices. According to Swan (2012) smartphones can be connected to devices like smartwatch, electrocardiogram, ultrasound, and cell scope. Moreover, it can be connected to televisions (Chen et al., 2009), other electronic devices in apartments (Suyuti et al., 2013), and cars (Kun et al., 2013).

Therefore, it can be summarized that smartphones offer vast number of benefits to users. It depends on the user on how they use and utilise the device. The usage of smartphone is considered subjective and will vary from individual to individual.

2.2.3 M-shopping

Mobile shopping can be described as a service that permits customers to purchase or browse products and services through mobile anywhere and anytime through wireless telecommunication network (Lu and Su, 2009; Hung et al., 2012; Yang and Kim, 2012). According to Wong et al. (2012) m-shopping is any monetary transactions associated with purchasing of services or goods through internet-enable mobile phones or over the wireless telecommunication network. Mobile shopping entails of any such transactions that involves transfer of ownership or rights to use goods and services which is initiated by using smartphone. The study by Lai et al. (2012) concludes that mobile shopping allows consumers to gather real time information from more than one source, browse deals and discounts, check product availability, price comparisons etc. These variety of benefits have made m-shopping relevant and therefore businesses are spending more time on mobile marketing (Barutcu, 2007; Lamarre, Galarneau, and Boeck., 2012). According to Yang (2010) the potential of m-shopping is massive and can help in many ways; acts as personal assistant for shoppers, optimising their purchase experience in a brick-and-mortar shop environment by designing a real time, tailored interactive sales channel between consumers and e-tailers. One of the best advantages of m-shopping in today’s world is accessibility of anywhere and anytime (Balasubramanian, Petersen,

and Javenpaa, 2002; McCloskey, 2006). Moreover, other benefits includes convenience, ease of use, price comparisons, variety, discounts, deals, variety of products etc. The m-shopping is still in growing stage, and it varies depending on the individual factors on how it will be perceived. The study by Chong (2012) concluded that young consumers are more likely to use m-shopping than older consumers. Furthermore, the study by Shankar et al. (2010) highlighted that mobile marketing and vast availability of mobile internet technology has caused a paradigm shift from traditional shopping to a new virtual online environment. The study by Hendrix (2013) researched on mobile shopping apps and concluded that consumers appreciate apps that are easy to use, offers price comparisons, managing loyalty award system etc. Another study by Holmes, Byrne, and Rowley (2013) identified accessibility and convenience as determining factors by consumers in context of m-shopping. The study by Mitok (2015) explored on mobile apps' impact on consumer behaviour. The study found that features like design, personalization, security, and brand positively influence consumer behaviour towards using a mobile app for m-shopping. The study by Holmes, Byrne, and Rowley (2013) found acceptance of mobile shopping significantly, however it was less when compared with shopping via desktops computer. The study examined that majority of consumers use mobiles during information search phase than actual purchase phase. In addition, the empirical study by Groß (2016) showed that risk perception towards mobile channels obstruct consumers from continuous m-shopping. The study also concluded that hindering effect is more to do with '' transaction processing and financial risks'' instead of security concerns or privacy. Furthermore, the study by Wang, Malthouse and Krishnamurthi (2015) found that consumer behaviour is changing due to emergence of m-shopping. The study revealed that customer tend to m-shop for habitual products that they have purchase before, and order rates go up after customer becomes m-shopper. This is especially more relevant for low spenders, where both order sizes and rates increase after they adopt m-shopping. The way m-shopping is perceived depends on several factors from which one of them is culture. There have been previous studies which confirms the impact of culture towards adoption of mobile services. The study by Dai and Palvia (2008) found that individuals from the culture with low uncertainty avoidance are more likely to accept new mobile services. The study by Harris, Rettie, and Cheung (2005) compared Hong Kong and UK attitudes towards m- commerce. The findings concluded some

support for the view that culture plays a major role in shaping the usage of and attitude towards m commerce services. The respondents from Hong Kong were found to be less satisfied and consistently finding them less useful as compared to UK respondents. The adoption rate of m-commerce services was higher in UK as compared to Hong Kong participants. Furthermore, the study by Zhang, Zhu, and Liu (2012) conducted a meta-analysis in which they included 53 countries and created two categories: western culture and Eastern culture. The study found that perceived risk, perceived enjoyment, and perceived cost plays a more important role in Eastern cultures, while perceived usefulness appears to be more significant in Western cultures. The study by Chung and Holdsworth (2012) suggested that the more a culture is collectivistic, the more it will rely on opinion leaders regarding adoption of mobile service. In addition, collectivistic culture normally perceives higher risk associated with online shopping than individualistic culture (Park and Jun 2003; Park et al. 2004). The study by Mandler et al. (2018) explored that adoption of mobile commerce services is negatively influence by level of uncertainty avoidance, while consumer's usage intensity is driven by level of indulgence. The study also concluded that national culture values exhibited strong statistical effect on mobile commerce adoption and usage, even when controlling individual traits.

The study by Moktar et al. (2020) found price as the most significant factor which impacts the online shopping behaviour among young adults. The study found that product being cheaper online than in stores and exclusive promotions online had the most impact when shopping online. This finding has been in been align with previous research which discovered price to have the most compelling factor on buying products online (Choudhury and Dey, 2014; James and Akhbar, 2014; Shanthi and Kannaiah, 2015). The study by Groß (2016) explored that buying online consist of monetary transaction and the main driver of consumer acceptance is related to risk avoidance, which includes privacy concerns, trust in transactions and network security. In addition, the study by Gupta and Arora (2017) analysed the mobile shopping adoption using a novel approach of behavioural reasoning theory. The findings revealed the reason for and against the m shopping according to Indian consumers. The prime reason for m-shopping was 'price saving orientation' and the reason against m-shopping was self-efficacy. This result also suggested that the

value of openness to change has a significant impact on reason for adoption but not on reasons against adoption for m-shopping.

The advances in mobile internet technology have significantly changed the consumer behaviour when purchasing goods or services. According to Pantano and Priporas (2016) mobile internet technology offers distinctive advantages such as; ubiquitous computing, high connectivity, personalization, and convenience which makes it a preferred choice among consumers. About one third of all electronical transaction in Business-to-Consumer industries are happening through mobile devices, and it is found that consumers in most of countries are preferring smartphones over personal computers for e-tail purchases (Criteo, 2016).

2.2.4 Digital Payment (E-wallets)

In today's world, smartphones are playing valuable role in everyone's life around the world. The technology is improving day by day and is changing the way consumers behave. Smartphone users can now use their phones to make a payment or complete a transaction by using applications installed in their device (Subramanian, Rajendran, and Geeta 2019). Mobile wallet or E-wallet is referred as a software application installed in mobile devices which allows individuals to perform similar role of traditional wallets (GSMA, 2012). According to Pahwas (2007) E-wallet is as online prepaid account in which one can store money and complete their transactions both online or offline via computer or smartphone. The digital payment service works as a cashless payment service, where individuals do not need to use their debit card or cash at offline merchants. A person's bank account is linked to a digital wallet in order to complete the transaction with the help of near field communication technology (NFC). This system is already getting popular in Japan where digital wallets are being widely used and called as ''wallet mobiles'' (Subramanian, Rajendran, and Geeta 2019). The study by Bamasak (2011) showed that there is a bright future for mobile payments in Saudi Arabia as most participants expressed willingness to participate in such activity in future. The unauthorised use of mobile phones to make a payment and security itself of mobile payment transactions were the main areas of the concerns according to Saudi respondents. Moreover, the study by Liu et al. (2012) concluded that digital wallet gave additional convenience to consumers in Canada by offering them flexibility and increased speed of transaction. Additionally, an empirical study by Padashetty and Kishore

(2013) found trust, ease of use, and expressiveness as motivators in India towards adoption of digital payments methods by consumers. Furthermore, the study by Rouibah (2015) concluded that in Kuwait, the major obstacles for adoption of e-payment methods are: lack of trust, poor security, high charges, and poor familiarity. The other factors besides security were related to banking facilities, quality of services and privacy were also affecting adoption of e- payments. The study by Rathore (2016) identified that digital payment method was convenient for consumers when making a purchase online without moving across places.

In the context of UK, mobile payment users within UK are expected to grow, in 2018 it was 7.2 million mobile payment users, and this is expected to by 8.3 million by 2019 (Statista, 2019). According to emarketer (2019) 8.3 million people in UK which is 19.1 % of smartphone users, will have made at least one proximity mobile payments in past 6 months. The forecasted number is expected to reach around 25.5% by 2023 from 19.1 %. Furthermore, according to new research, smartphone payments such as Apple Pay, Google Pay, and Android Pay in the UK has quadrupled over last two years, which accounts for about 6 % of all the card transactions. The biggest adopter of digital payments has been in London, which accounts for 7% of payments less than 30£, which is at least 2% higher than any other region (Clark, 2018). Like any technological innovation, according to UK finance research, younger people are more likely to register for mobile payments than older groups (UK finance, 2019). Below is the figure 2.3 which illustrates the

proportions of the people registered for mobile payments in UK.

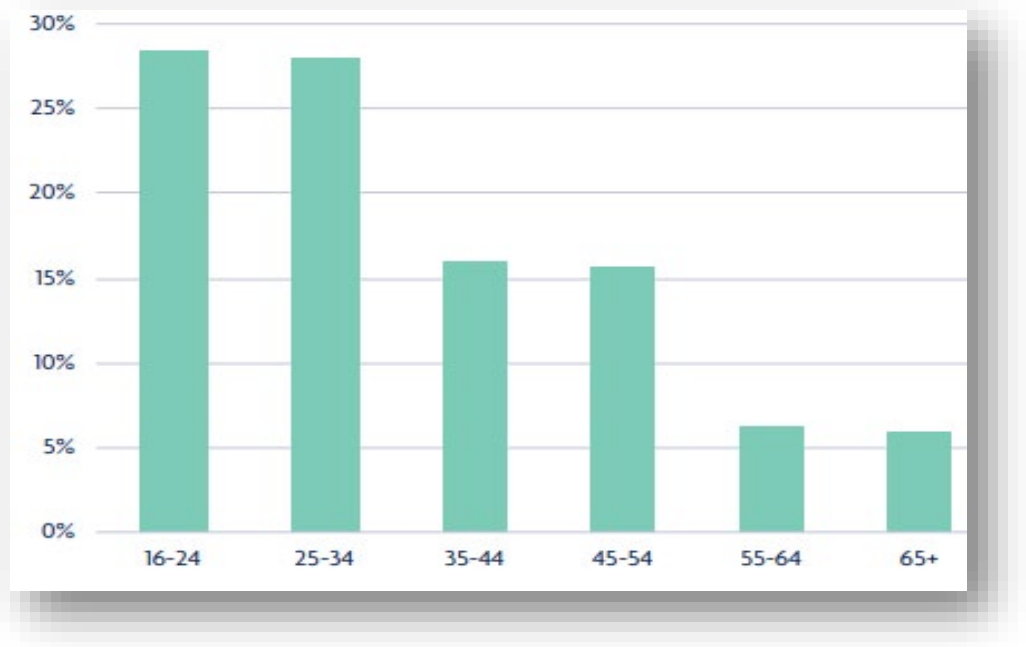

Figure 2.3 Mobile payments in UK by age groups (UK finance, 2019)

In the context of Saudi Arabia, digital payments methods have recently been introduced in 2019, where Saudi users can use their smartphone to pay via using services such as Apple Pay. According to Visa whitepaper, Saudi population has characteristics which can make digital payments and contactless methods successful such as High penetration of smartphone in the region and Tech savvy millennial population of 40 %. According to the observation, Saudi consumers have a desire to try alternative solutions, 80% of the respondents who performed contactless transactions were open to do it again in future (Biz today, 2019).

2.2.5 Intelligent personal assistant

In this era, communication with devices by voice is becoming common activity. Intelligent personal assistants (IPA) such as Apple Siri, Google assistant, Amazon Alexa, Microsoft Cortona, are allowing consumers to perform various tasks like schedule a meeting or making a phone call hands free (Silvia et al., 2019). The voice assistants make use of Natural Language User Interface (NLUI) to engage with users and give information about maps, weather, events etc. (Santos et al., 2016). NLUI allows Human-Device Interaction (HDI) and Human-to- Machine (H2M), which involves translation of human intention into devices' control commands via speech

recognition (Drosdov et al., 2017). These innovations show the advancements of artificial intelligence, semantic web, speech recognition, dialog system, and natural language processing. The term intelligent personal assistant is referred as a system that can understand and respond to voice inputs and actions on the users request (Santos et al., 2016). According to Baber (1990), an intelligent personal assistant is an application that makes use of contextual information and user's voice in order to assist by answering questions in human language. Within literature and past studies, the term IPA has been also referred as Virtual Personal Assistants, Conversational Agents, Personal Digital Assistants, Voice Activated Personal Assistants, or Voice-Enabled Assistants. The interactions with voice assistants on smart devices are increasing and the conversation is becoming a key mode of human computer interaction (Luger and Sullen, 2016). In the context of smartphones, there are several software agents which are providing users with voice assistants: Apple's Siri, Google's Assistant, Microsoft's Cortana etc. These software agents continuously listen for key word and wake up. Once it hears the key word, it records user's voice and sends it to specialise server, which then processes and interprets it as a command. The response will depend on the command, the server will supply voice assistant with relevant information to play back to the requested user or complete the task with several connected services or devices (Hoy, 2018). The companies all around the world are increasingly investing in these technologies and advancements have been made within the industry. However, little is known on the user experience of IPAs and the adoption rate. The recent survey showed that almost 98% of iPhone users were aware about Siri, but only 30% uses it regularly or occasionally (Milanesi, 2016). There have been previous studies (Luger and Sellen, 2016; Cowan et al., 2017) which have examined the usefulness of IPAs and suggested that it is mostly used in situations where user is engaged in other activities like cooking, driving, playing etc. In addition, the IPAs offer additional accessibility benefits for the population of disabled or visually impaired and provide some support for speech therapy (Pradhan et al., 2018). The satisfaction of IPAs has been associated with task complexity (the easier task, the higher satisfaction) and in-/output modes (text, voice, gestures) involved in task completion (the more modes, less satisfaction) (Kiseleva et al., 2016). The IPA adoption in Denmark concluded higher satisfaction with higher frequency tasks, pointing to positive correlations between task simplicity, frequency, and satisfaction (Bogers et al., 2019). Moreover, IPAs ability to provide

appropriate feedback on the status of software activation and task progress has also been linked to user satisfaction (Sorenson,2017), a mismatch between input and output modes (a spoken command that produces screen text) (Luger, and Sellen , 2016), a quality of speech recognition (Moore et al., 2017), quality of the IPA provided information with its sources (Lie et al., 2017), and lack of understanding on the part of the user regarding how to best utilise IPAs (Bopp, 2018). Furthermore, a recent study which explored children's use of Siri found that they ask Siri questions and request that aims on getting to know or explore the agent (asking personal questions) and using it to make a call or send text. Children also were seen to test the limits of Siri by asking questions such as ''where is mommy''? which was out of the capability of voice assistant. The biggest takeaway from the study was Siri had limitation in recognising children's speech (Silvia et al. 2015). Additionally, the study by Luger and Sellen (2016) found that users did not trust the voice assistants to complete complex tasks such as calling someone or writing emails. The study also identified that users used different strategies to make voice assistant understand their language by using fewer complex words, reducing the number of words, speaking more clearly, changing the accent, dropping colloquialisms etc. The study by Cowan et al. (2017) highlighted additional issues which are related to privacy and social embarrassment in context of using Siri (IPA). The study found, one of the biggest barriers in people adopting IPAs like Siri is reluctance to use it in public especially in front of strangers because it felt weird and embarrassing. Moreover, the study identified issues related with trust, data privacy and consistency. The participants were unsure whether the data collected is being stored and sold to marketing organisation to monetize the interaction. The previous study Trepte et al. (2017) mentions that countries with high uncertainty avoidance and collectivism tend to pose greater emphasis on privacy issues.

2.2.6 Purchase intention of smartphones

Smartphones are not just any electronical device and have been transformed as a necessity in people's lives. In earlier days, smartphones were treated as a device for making phones calls or sending messages. Smartphone has now become a new medium of communication and information sharing (May and Hearn, 2005). Since the importance of the smartphones have grown immensely all around the world,

people are becoming more conscious and considering several factors before they have the purchase intention.

Purchase intention can be described as an advanced plan to buy certain service or good in future, this plan may not actually result into implementation because it is affected by ability to perform (Chang and Wildt, 1994). The study by Chang and Wildt (1994) explained further that purchase intention will be weak, if consumer views that product value is low. According to Ayodele and Ifeanyichukwu (2016) suggested that different consumer's requirements will vary depending on the brand name, functions, price, and quality. Consumers will search information about different products and evaluate them before making purchase decision.

2.2.7 Social influence

According to Turner (1991) social influence is the process where people indirectly or directly influence the feelings, actions, and views of others. According to Kotler and Armstrong (2010) consumer behaviour is influenced by social factors such as family, socials roles, status, and small group. Consumers will seek advice, suggestions and form their opinion based on other experiences who have already purchase the smartphone. The study by Osman et al. (2012) suggested that 35% of the people preferred to purchase smartphones according to the trend in the community. Similarly, the research by Suki and Suki (2013) younger generation are highly dependent on their surrounding when it comes to purchasing the smartphones. The study by Zahid and Dastane (2016) found that social influence is the most determining factor in purchase intention of smartphones among South-East Asian young adults. Furthermore, family members are considered to be one of the most influential factors within social factor affecting the consumer behaviour. The child learns the traditions and values which later becomes part of his/her life. These values and traditions impact the attitude and behaviour of an individual in decision making (Khan, 2006). Another crucial point regarding family is the idea of decision maker. In some households, husband tends to make decisions, even though wife purchase the items. Similarly, children can be also part of influencing group especially when buying child related accessories. Marketers must know who the decision maker is when it comes to their product or service (Burnet, 2008). In addition, small groups which also can be termed as reference groups, can be formal or informal surroundings such as schools, church, group of friends, or universities.

These groups can shape the attitude or behaviour of consumer when making decision.

The social influence has been broadened due to the emergence of social media, before the social influence was just limited to face-to-face interactions (Kwahk and Ge, 2012). Mc Kenna and Bargh (2000) has identified four differences of social/online interaction as opposed to face-to-face from psychological point of view; users are anonymous, physical appearance is not important, distance is not important, and interaction not necessarily needs to be simultaneous.

According to Nelson and Mcleod (2005) purchasing smartphones are influenced by media, parents and peers. Furthermore, when new products are launched businesses will use advertisements on different mediums such as TV, Social networks to influence the buyers. A study by Ting et al. (2011) concluded that social influence also influences the level of dependency a student has on a smartphone. The consumers who share their positive experiences with other people, this creates a positive word -of-mouth and results in increased purchase of intention. The study by Chen et al. (2011) explained that online word of mouth has a significant impact on purchase behaviour. Simarly, Jalilvanda et al. (2011) identified that online consumer reviews plays two key roles in social influence: informative and suggestive. The informative roles comprise of providing additional user focused information, while suggestive provides with the signal of popularity of the product or service. Consumers who are an active member on social networking sites, creates a virtual peer pressure. The study by Power and Phillips-Wren (2011) concluded that peer pressure on social media is quicker and more comprehensive than face-to-face experience. Kaushal and Kumar (2015) identified that the consumers want to use or buy smartphone because their social circle is using it and hence, they are also motivated towards smart phone.

The study by Li (2011) suggested that consumer's behaviour action is not solely dependent on their own motivation but also by other users which are on the online community. The Wang and Lin (2011) explained that consumers in order to reduce cognitive effort when faced with too much information tends to follow other's decision instead of making their own. Moreover, consumers are now actively searching for product information on social networking sites rather than company's own website

due to credibility issue (Sinclaire and Vogugs, 2011). Furthermore, Park et al. (2007) pointed out that online consumer reviews nowadays play key role in decision making process because this kind of consumer created information provides indirect experiences of products. The consumer reviews are proven to be more for females than males according to the study by Ling and Yazdanifard (2014). Similarly, the study conducted by Bea and Lee (2011) revealed that females are more influenced by recommendations of others than males.

2.2.8 Brand

Businesses will look for ways to stand out from others especially when operating in a tough industry of smartphones which continuously keeps changing. According to Kotler & Armstrong (2010) brand name is more than just symbol and name. It is an element of relationship between business and the user. The study by Yeh et al. (2016) concluded that brand name and image can be crucial factors for adding value. Brand names are intangible asserts that assist correspond the product quality and suggest knowledge structures which associates to the brand (Filieri & Lin, 2017). In addition, from consumer perspective brand positively affects the behavioural outcomes including purchase intention (Liu et al., 2013).

There are several accepted brands which are popular among consumers such as Apple, Samsung, Huawei, and HTC. Each brand reflects unique status symbol and has its own identity in the eyes of the consumer. The studies have shown that the product's brand name has influence on customer's evaluation and affects their buying decision behaviour (Khasawneh and Hasouneh, 2010). The study by Pinson and Brosdahl (2014) suggested that Apple's brand personality has a positive significant effect on Apple's brand loyalty. In an industry where technological features are similar; it is becoming more important to focus on branding to differentiate from its competitors. One of the ways how Apple has cemented his place in consumer's mind is through their multi coloured Apple logo. The president of Apple products in 1999 concluded that ''You could not dream of a more appropriate logo; lust, hope, knowledge, and anarchy'' (Linzymayer, 1999). Similarly, Apple have achieved their branding through various campaigns such as ''Think Different'' which tells consumers to be different and go against status quo buy buying Apple over traditional computers (Belk and Tumbat, 2005). One study suggested similar theme regarding brand affect and showed that brand name has a significant effect on the

demand of smartphones among students (Norazah, 2013). In addition, the study by Malviya et al. (2013) concluded that brand name of mobile phone in India has a dominant impact on consumer evaluation and subsequently their buying decision of mobile phone. Additionally, another study by Liao (2012) pointed out that brand image is the most important factor when buying smartphone in India. The study by Mohan (2014) showed that 58% of the people placed emphasis on branding of the smartphone as important when buying. Moreover, the study by Bojei and Hoo (2012) suggested that consumers prefer to buy branded products and services because they perceive brand to quality assurance. The study by Liu and Lang (2014) conducted a study which involved questionnaire and eye tracking technique to understand deeply the consumer behaviour regarding smartphones. The result of the study concluded that 71% of the respondents were willing to pay more for their favourite branded smartphone and brand logo was found to be one of the significant factors in decision making. Similarly, the recent study in Saudi Arabia concluded that Saudi consumers are more inclined towards international brands, and they are affected by brand name when making purchase (Alsulami, 2018). Additionally, Kim and Zhang (2014) concluded that countries with High power distance tends to have a strong preference towards status brands than those with low power distance belief.

2.2.9 Price

According to Kotler and Armstrong (2014) price is an amount of money being charged for a service or product, or the sum of values that consumers gives in exchange for the benefits of using or acquiring the product or service. Price will always remain one of the key concern of consumers in every purchasing decision (Smith and Carsky, 1996) According to Nagle and Holden (2002) price plays a key role as a monetary value whereby the consumers to trade it with products or services that are being sold by the seller. Consumer set an acceptable price range of product before making a purchase. The purchase intention is reduced when the actual price is higher than the acceptable price range (Dodds et al.,1991).

There are several studies conducted across the globe which has shown the impact of price on mobile purchasing behaviour. The study by Saif et al. (2012) which was conducted in Pakistan concluded that price is the most important factor when consumer decides to purchase mobile. Similarly, the study in Finland by; Pakola et al. (2010); study in Ethiopia by Sata (2013) suggested that price is the most

important factor when it comes to purchasing mobile phones. On the other side, the study by Osman et al. (2012) contradicted and stated that price is not the most important factor when purchasing smartphone, and there are other factors which are more important such as design, connectivity, and performance. Furthermore, Gabor and Grange (1966) identified that price plays key indicator of the quality from consumer's perspective, if the price is lower than expected then it may work against the seller, as the consumer may lack confidence towards the product quality. The level of price according to Aaker (1991) is found to have positively affected behavioural intentions because price establishes the brand image in sight of consumers. In addition, consumer perceive high price with high quality, while low price, with low quality (Chow at al., 2012). These findings are in line with the previous findings by Jacob and Olson (1977) who suggested that price sends signals which impact consumer's perception and therefore can evoke a psychological response. The study by Monore and Krishnan (1985) concluded that high price results in high product quality, which then increases the purchase intention directly. In the United Kingdom, according to Statista (2019) 75% of the users consider price as the most important factor when purchasing new phone.

2.2.10 Features

Smartphones are evolving continuously and adding new features year by year. With so many features in smartphones, every individual will have a preference on features which meets his/her needs and desires. Product features are the attributes of a product that can satisfy consumer's preferences through having, using, and applying the product (Kotler and Armstrong, 2007). The study by Oulasvirta, Wahlstrom, and Ericsson (2011) identified that smartphones are now featured with standard built in web browser, wireless connectivity, apps store, high resolution displays, high memory storages, file management system etc. According to previous study by Ling et al. (2006) there are five design characteristics of smartphone which are preferred by consumers such as colour screen, camera, voice activated dialling, internet browsing, and wireless connectivity. The study further elaborated that physical appearance, size, and menu organisation key factors in decision making of college students. One of the recent surveys conducted in UK revealed 67% of 55- 64 years old viewed long battery life as the most impressive smartphone feature. This number dropped to 47% when asked to 25-34 age group. The 25-34 aged group listed high

megapixel camera as the most impressive feature of smartphone. The millennials 18-24 agreed with the 54-64-year-old and listed long battery life as the most impressive feature (Andy, 2018).

In context of Saudi Arabia, poor battery remains the top reason behind changing their mobile phone. The second most popular reason is the release of new model, where 28% of the population admits changing their phone because of the release of new phone. Below is the figure 2.4 which illustrates reasons that prompt change in mobile phone according to Saudi consumers.

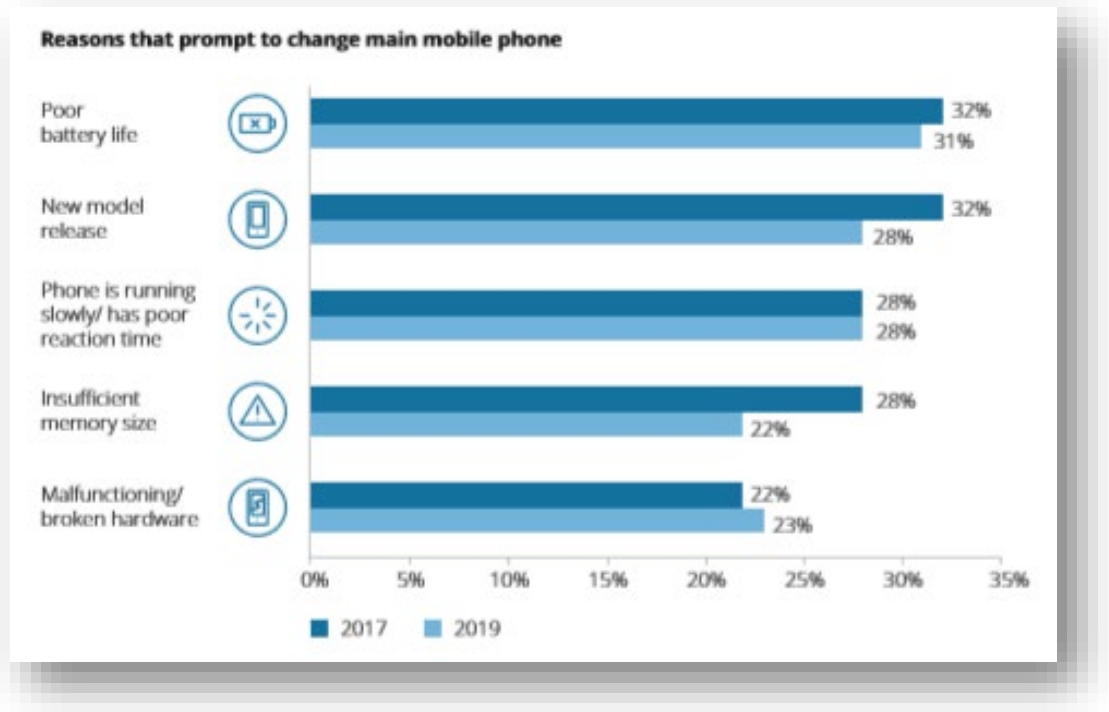

Figure 2.4: Reasons that prompt to change main mobile phone (Deloitte, 2019)

Furthermore, the appeal of the new model exists; however, it has eroded if we compare from 2017, where 34% of Saudi consumer admitted changing their phone as compared to 30% in 2019 (Deloitte, 2019). Below is the figure 2.5 which illustrates the purchasing cycle in Saudi Arabia for phone.

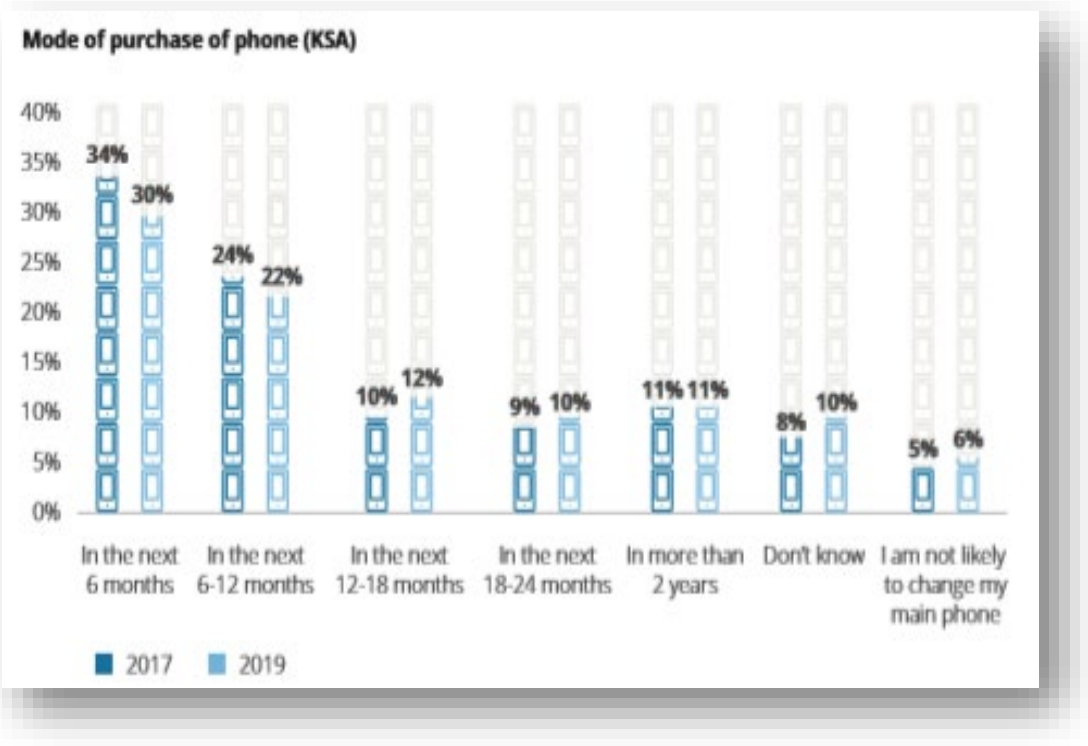

Figure 2.5: Purchasing Cycle in Saudi Arabia (Deloitte, 2019)

The study by Lay-Yee et al. (2013) explained hardware as the surface of the device which is tangible such as body of smartphone weight, size, and design. The software of the smartphone comprises of the computer programs, documentation, procedures, storage, operating systems etc. There are several types of operating system such as iOS, Windows, Android, Symbian, Bada, and RIM blackberry. Both hardware and software fall under the features of the smartphones. The study by Russel (2012) found that consumers in Malaysia mostly preferred Android operating system, followed by iOS operating system. Similar trends of preferences towards Android were seen in the following countries: Thailand, Vietnam, and New Zealand. In Singapore it was a different story, where 46% of consumers adopted iOS, while Android remained second with 29%. The study by Lay- Yee et al. (2013) concluded that 31 % of the users placed important on software rather than hardware which indicates that software will have more impact on decision making than hardware.

2.2.11 Summary- 1st part of the Literature review

The 1st part of the literature review (*Smartphones*) gives the researcher the fundamental understanding and insight towards the smartphone. It evaluates the history, evolution, and features of the smartphone over the period. The

understanding of smartphone forms a basis to further understand the consumer behaviour. The consumer behaviour is understood through ‘’purchase intention’’ and analyse different factors which affects consumer when purchasing new smartphones. The four factors established in literature were Social influence, Brand, Price, and Features.

2.3 Understanding Innovation (Part2).

In the following part, relevant academic literature of innovation is analysed. The goal of this chapter is to gather the understanding of innovation from different perspectives and differentiate innovation from invention. In addition, the chapter will also analyse different types of innovation and factors affecting. This chapter will also help understand importance of innovation in various contexts to provide holistic insight and an embedding to research.

2.3.1 Innovation definition

Innovation has been derived from Latin word ‘’Innovatus’’ which means creation of something (Johannessen et al., 2001). The concept of innovation is not new and there are over 40 definitions in scientific literature about innovation (Hakkinen, 2017). In the first three months of 2012, more than 250 books were published with the word ‘’innovation’’ in their title (Kwoh, 2012).

Klauss (2004) define innovation as the degree to which value is created for consumers through activity that converts new technologies and knowledge into profitable goods and services for domestic or international market. Similarly, Lee and Ging (2007) defines innovation as making new products and offering new services or adding new value to existing ones. The European Commission explains innovation as the enlargement and renewal of range of services, products, and the associated markets; the establishment of new method productions, distribution, and supply; also, it involves introducing of changes in management, work organization, working condition, and skills of employees (CEC,1995). According to Crossan and Apaydin (2010) innovation is adoption or production, assimilation and exploitation of value added in social and economic spheres; enlargement and renewal of products, services, and markets; establishment of new management systems and development of new methods of production This definition has been one of the most cited in the literature and considered as one of the most comprehensive definitions of

innovation (Hakkinen,2017). There are significant number of definitions that are used over the period of time by renowned authors in academia. Below is the table 2.1 which provides taxonomy of definition for ‘’innovation’’ which will assist the researcher to fully understand the concept of innovation and derive common emerging themes.

Authors	**Definition of Innovation**
Barnett (1953)	• Any behaviour, thought, or thing that is new because it is qualitatively different from existing forms.
Robertson (1967)	• Innovation as a process by which new behaviour, idea, or a thing which is qualitatively different from current forms and is implemented in practice.
Aiken and Hage (1971)	• Innovation is acceptance, generation and implementation of new ideas, services, processes, or products for the first time within an organization setting.
Zaltman, Ducnan, and Holbek (1973)	• a creative process where two or more existing entities or concepts combined in a novel way to produce a configuration which did not existed previous.
Freeman (1982)	• Innovation is introduction of change, which is something new, while invention is the creation of a new device or process.
Drucker (1985)	• Innovation is a tool of entrepreneurs, the means by which they exploit change as an opportunity for a different service or business.
Handy (1985)	• Innovation comprises of all activities directed to changing the things that the organization does or the way it does it.
Dosi (1988)	• Innovation is search for and discovery of development, experimentation, imitation and adoption of new products, new production processes and new organisational setups.
Urabe (1988)	• Innovation is the generation of a new idea and implementation into a new services, products, or process.

Twiss (1989)	• A process that combines technology, economics, science and management, as it is to achieve novelty and extends from the emergence of the idea to its commercialization in the form of production, consumption, and exchange.
Porter (1990)	• Innovation here is defined broadly, to include both improvements in technology and better methods or ways of doing things. It can be manifested in product changes, process changes, new approaches to marketing, new forms of distribution, and new conceptions of scope.
Lundvall (1992)	• Innovation is new use of pre-existing components and possibilities and components. Majority of all innovations reflect existing knowledge which is combined in new forms or ways.
Afuah (2002)	• Innovation is the employment of newly acquired knowledge which provides new products or services that customer demands.
Rasul (2003)	• Innovation as the process where ideas for new or improved services, processes, or products are developed and commercialized in marketplace.
Rogers (2003)	• Describes innovation as adoption of ideas that are new to adopting company.
Walker (2006)	• Innovation is a process through which new objects, practices, ideas are developed, created, or re invented and which are novel and new to the unit of adoption.
Plessis (2007)	• Innovation is the creation of new ideas and knowledge to facilitate new business outcomes, aimed at improving internal business structures and processes and to create market driven services and products.
Baregheh, Rowley, and Sambrook (2009)	• Innovation is the multi-layered process where organizations transform ideas into improved/new products, service or processes, in order to compete, advance and differentiate themselves successfully in the industry.
O'Sullivan and Dooley (2009)	• The application of practical techniques and tools that make changes towards processes, products, and

	services that results in the introduction of something new for the business which adds value to customers and contributes to the knowledge store of organisation.
Wang and Kafouros (2009)	• Innovation is a value driver which provides impetus to emerging economies by opening up opportunities of international trade.
Grawe, 2009: Daugherty et al. (2011)	• Innovation is a practice, idea, or an object that is perceived as new by individual or other unit of adoption.
Fri, Pehrsson, and Søilen, (2013)	• Innovation is an activity which business uses to solves problems by combining knowledge.
Hisrich and Kearney (2014)	• Innovation is a process for creating and introducing something novel, new or advanced with the aim of creating value or benefit.
OECD (2005, 2018)	• Innovation is the implementation of significantly improved or a new product or process, a new organisational method, or a new marketing method in business practices, workplace organisation or external relations. • New or improved product or process (or combination thereof) that differs significantly from the unit's previous processes or products and that has been made available to potential users (product) or brought into use by the unit (process).
Mamasioulas, Mourtzis, and Chryssolouris (2020)	• It is a process of converting an idea or invention into a good or service which creates values or customer to be paid for it. For an idea to be referred as innovation, it should be replicable at an economic cost and satisfy a need.

Table 2.1: Taxonomy of definition of Innovation by renowned authors from 1953-2020

The definitions above show convergences of ideas and thinking among field of academia. By carefully reviewing the above definitions, there are some key components/themes which could be put together to illustrate the core elements of innovation. Below is the figure 2.6 (**Innovation spider**), which is graphical representation of '**8**' common themes which emerged by reviewing taxonomy of definition for innovation between 1953-2020.

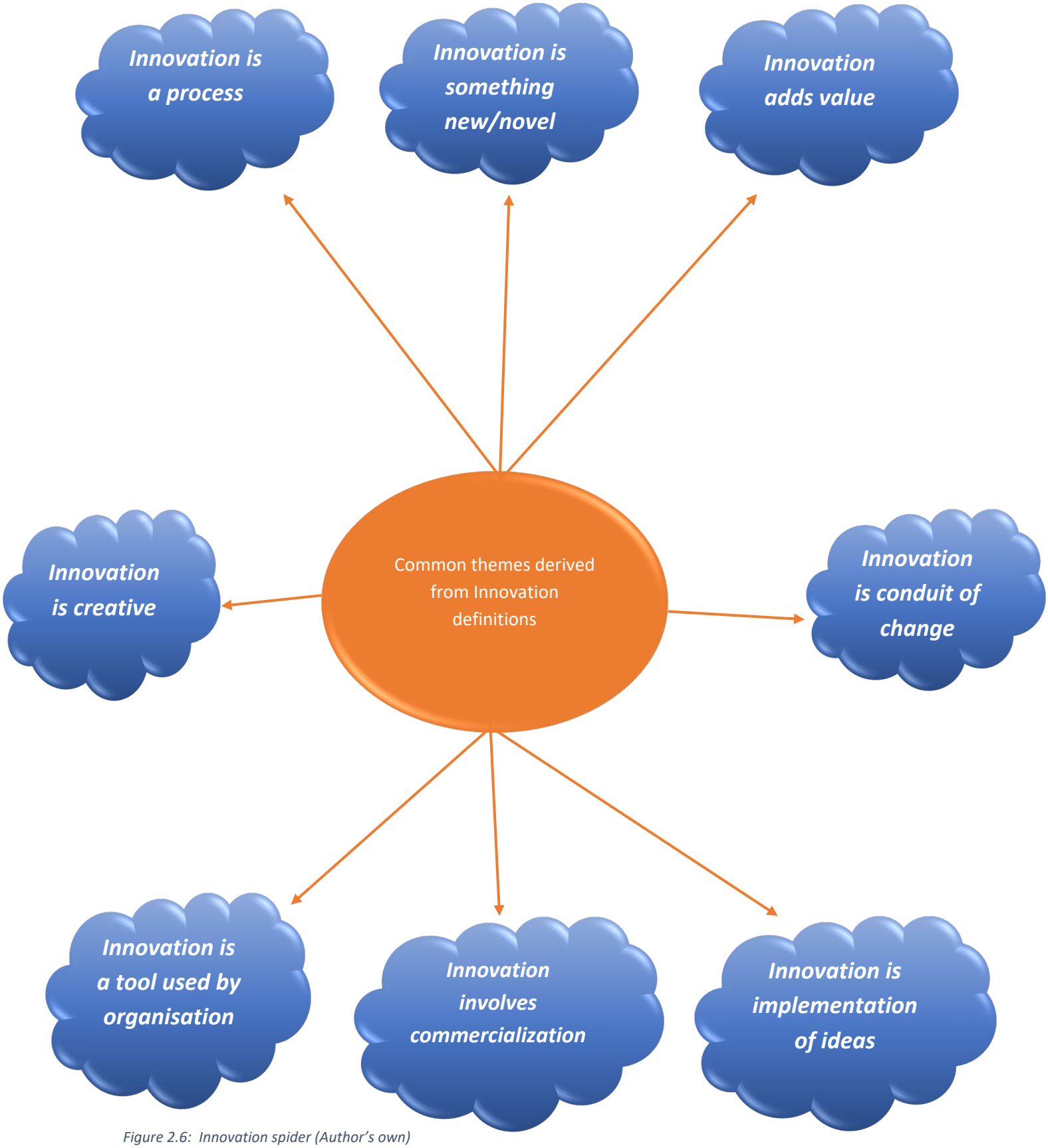

Figure 2.6: Innovation spider (Author's own)

Based on our Innovation spider, the author presents a new definition which is in the context of smartphone industry and currently missing in the current body of literature. Below is the figure 2.7 showing researcher's own definition of innovation. Future researchers can use ''***innovation spider***'' and develop innovation definition relevant to their industry. As stated earlier, innovation is a complex and multidimensional concept and therefore it is required to be defined and adapted based on the context.

''***Smartphone innovation can be termed as an implementation of a process which involves a significant technological improvement in features, services, or software, with an aim to add novelty value to the end user***'' **(Mohammad Malik, 2021).**

Figure 2.7: Smartphone Innovation (Author's own).

Secondly, there is another crucial distinction to be made when reviewing innovation. Usually, the concept of ''innovation'' is mixed with ''invention'' and are inter linked. However, the distinction is crucial between both as innovation may involve invention, but it involves several other factors as well (Crossan and Apaydin 2010; Szirmai et al., 2011; Keeley et al., 2013). Invention is purely the first occurrence of an idea of new process or product while innovation is the commercialisation of the idea and formation of practical new offering (Keeley et al., 2013). Furthermore, the distinction between innovation and invention was made clear in early 1980s by Christopher Freeman, who is one of most eminent researchers in innovation studies and concluded that invention is an idea, model, sketch for a new or improved product, device, system, process, while innovation in the context of economics is with the first commercialisation of the new process, system, device, or product (Freeman, 1982). The method of innovation starts from developing ideas, followed by refining them into a useful form, and bring them in the market where they will achieve increased efficiencies (Morris, 2008)

According to the most distinctive contributor towards innovation ''Schumpeter'', there are five areas in which innovation can contribute within the business: generation of new product, introduction of new product process, development of new sales market, development of new supply market, and restructuring of the company (Seng and Ping, 2016). Product innovation is the adoption of new or significantly improved

methods. Innovation acts as a bridging gap between the strategies of businesses and technology. According to Global Innovation Index (2017) United Kingdom ranks 5th out of 127 countries, while Saudi Arabia ranks 55 out of 127 countries. Furthermore, the expenditure on research and development is one of the key indicators of innovation within the country. The UK in 2013 spent 1.639% of the GDP on research and development, while Saudi Arabia spent 0.815% of the GDP (World Bank, 2019). From macro-point of view, innovation has emerged as the single most important factor towards long-term economic growth for countries (Rosenberg, 2004). From micro point of view, innovation is more of a management discipline where it focuses on businesses' mission, searches for unique opportunities, analyses if they are aligned with businesses' strategic direction, defines measure for success and constantly re assesses opportunities (Lin and Chen, 2007)

2.3.2 Innovation and competitive advantage

Much of the attention regarding competitive advantage in past literatures have been given regarding the determinants of competitive advantage due to its increased importance year by year. The Ansoff et al. (2019*)* explains that the current business conditions are dynamic and constantly evolving which is forcing companies to emphasize on innovation techniques in order to survive in modern market. Innovation is essential in this knowledge era, where organisations are viewing innovation as a significant contributor towards their profitability which will lead them to improve their overall competitiveness (Potters, 2009). According to Gupta (2007) sustainable growth and profitability is linked with sustainable innovation.

The research on the competitive advantage was established initially by Porter in 1980. In 1985, the same research termed as ‘’theory competitive advantage’’ and was expanded and later used by several researchers. The literature is moving forward consistently on competitive advantage and can be described as an ability of an organisation to offer extra-ordinary benefits within the business and cannot be replicated by the competitor at that given point (Hickman and Silva, 2018). According to Porter (1985) the competitive advantage of business consists of things such as differentiation of an item or advantage over competitors, lower cost per unit, and fulfilment of the demand in time. It also includes an established business structure

and marketing foundation. Furthermore, according to Barney (1991) competitive advantage is essentially developed by creating strategies which cannot be copied by rivals. To reap the benefits of the competitive advantage, it needs to be sustained for a long period rather short. The stakeholders play key part in maintaining competitive advantage of the business (Bryson, 2018). Generally, the competitive advantage does have a short period due to the tendency of the new entrants or even current businesses to imitate the unique attributes of the business in order to undermine the competitive advantage (Weerwardena et al., 2015). Porter (1985) believed that for the survival of the business competitive advantage should be sustained.

Several scholars suggest the 21st century is based on information, knowledge, and innovative economy (Collinson, 2005; Hamel & Green, 2007). The highly competitive business environment and globalisation has also resulted businesses in constant pressure of creating a competitive advantage. In addition, the markets are increasingly becoming uncertain, complex, and demanding. To overcome these factors, the leadership requires to devise a mechanism which allows them to follow the trends and stay ahead (Day and Reibstein, 1999). Traditional measures such as outsourcing, cost-cutting and re-engineering are still relevant but not enough for sustainable competitive advantage. Value creation and competitive advantage can only come from innovation (Prahalad and Ramaswamy, 2003)

Moreover, businesses are constantly finding ways to uplift the innovation rate within their products, processes, organization of production, and commercialisation. The capacity and the rate of innovation will largely depend on the internal capability, competency level, and productive qualification (Ferraz, 1995). By doing this, a competitive advantage can be created over rivals by establishing a value in its own product or process which is beyond the production cost and cannot be executed alongside by current or future rivals (Barney, 1991). The importance of competitive advantage through innovation has resulted in a widely accepted phrase of ‘’innovate or die’’ and is extremely popular in business environment (Kavadas and Chao, 2007). Overall, several scholars support the notion of innovation being significant in achieving competitive advantage (Damanpour, Walker, and Avellaneda, 2009; Gunday et all, 2011; Abidin, Mokhtar, and Yusoff., 2013; Hansen, 2014).

2.3.3 Innovation important for businesses

Anecdotal evidence suggests that innovation is linked to the business performance. There have been studies which shows the positive correlation between innovation and the success of the business. The level of success is not only limited in the research & development area but also challenges by breaking the conventional wisdom within businesses (Dodgson, 2018). The study by Hanson et al. (2016) explained that by breaking the traditional rules and focusing on innovation, it helps the company win in highly competitive industry. Another study by Anning- Dorson (2018) examined on how competitive advantage is created through innovation in emerging markets by using power distance cultural perspective and echelon theory to analyse the mediating role of business leadership on competitive advantage and innovation. Countries such as India and Ghana showed that competitive advantage was largely achieved through innovation.

The continuous market change and increased globalisation has influenced the need of product innovation. Hardaker (1998) concludes that continuous product innovation helps business avoid uncertainty and be successful by integrating with technological change. The inevitability of innovation is also endorsed by Craven et al. (2002) who views that companies have a fear of cannibalization when they introduce new products in the market. Businesses still pursue proactive cannibalization strategy to remain competitive and relevant in the market.

However, not all researchers agree that product innovation results into success. Kleinschmidt and Cooper (1991) established a relationship between product innovativeness and commercial success as U- shaped. This indicated that both high and low innovativeness product are likely to be more successful than those in between. In addition, some scholars also suggested that there is no direct main effect of product innovativeness on product financial performance (Henard and Szymanski, 2001) while other suggest that only one out five new projects become viable for businesses (Asplund and Sandin, 1999). Furthermore, according to Harvard business school every year there are 30,000 new consumer products launched and 80% of them fail (Schroeder, 2017). One of the prime examples of innovation failure within mobile phone industry is Nokia's N-gage mobile set. In 2003, Nokia at its peak of domination tried to capture the gaming market with launching mobile set which was aimed at attracting young generation by offering portable

gaming. The peculiar design of the mobile set became one of the key reasons behind failure and only sold 3 million units in 4-5 years (Cutlack, 2016; McCaskill, 2017).

However, there are studies which contradicts with above studies and shows that there is a link between research development budget expenditure and sales revenue of a firm (Franko, 1989) and there is close relation between innovation and long-term profitability (Geroski and Machin, 1992; Cosh and Hughes, 1996). One of the prominent examples within smartphone industry of innovation is the iPhone. Several mobile phones existed before iPhones, but Apple's strategy of disruptive innovation helped them achieve a successful business out of it. Large touch screen, apps market, sending emails, online transactions, and ease of use resulted them achieved unprecedented success (Kishore, 2018). Now, 60% of the Apple's revenue comes alone from the iPhone sales (Kim, 2017).

2.3.4 Classification of innovation

The understanding of several typologies of innovation is crucial for researchers and the organisations to devise a strategy. The types of innovation have received significant amount of attention throughout the years. Innovations are often analysed in terms of extremes: incremental and radical (McDermott and O'Connor, 2002); continuous and discontinuous (Veryzer, 1998); and sustainable innovation and disruptive innovation (Christensen et al., 2004). Below the researcher will understand the various classifications of innovations from different perspectives and scholars to gather deep understanding of the concept.

The most common typology is radical innovation and incremental innovation (Abrunhosa and Sa, 2008; Lin and Chen, 2007; Prajogo and Sohal, 2003, Forsman and Temel, 2011). Radical innovation leverages on current core competencies and assets to create products/services that will transform the industry for better. This kind of innovation is considered as high in risk because it requires high financial resources, time and knowledge, (Cainelli, Evangelista, and Savona, 2006; Forsman and Temel, 2011). On the other hand, incremental innovation represents an adaptation or improvement which does not cause an industry wide stir. Additionally, incremental innovation usually does not have a huge technological or economical potential as compared to the radical innovation, but the benefits of incremental

innovation can be utilized quicker with less risk (Sundaram and Yermack, 2007; Xu and Yan,2014). Radical innovations are generally unique, original, and has the ability to influence present and the future innovations. One of the prime examples of the radical innovation will be Apple's first iPhone which changed the landscape of the smartphone industry and re imagined what a phone could do (Gardner, 2017). Conversely, incremental innovation comprises of small improvements and upgrades to current service or products. According to Dewar and Dutton (1986) incremental innovation is about slight improvements to existing processes, products, services through which business tries to achieve customer satisfaction, low cost per unit, operational efficiency etc. The biggest example of incremental innovation is Gillette razors which initially begin with a single blade and has evolved into multiple blades over the years (Muckersie, 2016).

The second most common studied typology draws the distinction between technological innovation and marketing innovation. The technological innovation relates to incorporation of new technologies into the products and process. Technological innovation is closely linked with long term success by achieving competitive advantage (Grover, Purvis, and Segars, 2007). This type of innovation is largely associated with opportunities available due to advancement in the technology. The marketing innovation refers to bringing the change to the structure of the organisation. It focuses on implementing new marketing methods which brings changes in product placement, pricing, packaging, promotional activities etc. It allows to target the customer's needs, finding new markets and change the positioning of the firm within the industry.

Product versus process innovation are also commonly used typologies in professional literature of innovation. These types of innovation revolve around the idea of technological advancements. Process innovation reflects change in the way product or services are produced, while product innovation represents modification in the end service or product (Dibrell, Davis, and Craig, 2008). Product innovation focuses on new technologies, information and is about introduction of significantly improved product or service in terms of characteristics. Contrariwise, process innovation is the execution of new or substantially improved delivery or production method. The aim of process innovation can be to reduce the cost per unit of the

delivery or production, in order to enhance the quality (Gunday et al., 2011). Product innovation is more related towards the final customer in the market because it involves developments of new products and services for the end users. The impact of product innovation is largely observed by the customer. The product innovation is used by many firms as a strategy to stand out in the market which leads to customer loyalty and improve in overall business performance (Huang and Rice, 2012). Contrary, process innovation emphasizes on internal side of the business and improves or changes the way the business performs. Below is the table 2.2 which summarises the various types of innovations.

Types of innovation	
Schumpeter (1947)	• New products • New methods of production • New sources of supply • The exploitation of new markets
Abernathy and Utterback (1978)	• Incremental innovation • Discontinuous innovation • Architectural innovation • Modular innovation
Drucker (1985)	• Incremental innovation • Additive innovation • Breakthrough innovation • Complementary innovation
Christensen (1997)	• Breakout innovations • Disruptive innovation • Sustaining innovation
Tidd, Pavitt, and Bessant (2001)	• Radical innovation • Disruptive innovation • Complex innovation • Continuous incremental innovation
West (2002)	• Brand innovation • Innovation that creates an industry • Reformulation innovation • Package innovation • Service innovation • Innovation that extends capabilities • Process innovation • Technological reorganisation innovation
OCED (2005)	• Product innovation • Process innovation • Marketing innovation • Organisation innovation
Maital and Seshadri (2012)	• Market innovation • Radical innovation • Disruptive innovation • Technological substitution innovation • Incremental innovation
Tidd and Bessant (2014)	• Product innovation • Process innovation • Paradigm innovation

	• Position innovation
Christensen and van Bever (2014)	• Marketing-creating innovation • Efficiency innovations • Performance-improving innovations

Table 2.2: Types of Innovation

2.3.5 Sustaining innovation vs Disruptive innovation

Businesses are faced with intense competition and increased customer demands in today's world. According to Christensen (2011) companies are faced with a dilemma of either serving existing customers by improving their own performance or start exploring new opportunities and focus on new customers. Generally, businesses stick with existing customers because it is less risky, while exploring new customer appears unprofitable and risky at first glance.

Sustaining innovation improves existing products and does not intend to create new value or markets but focuses on developing existing ones with better value. Sustaining innovation focuses on demanding and high-end customers by developing better performance than product or services than it was previously available. Sustaining innovation can be incremental, which are improved year by year, while some sustaining innovations are break through products which are out of the reach of competitors (Christensen, 1997). On the contrary, disruptive innovation helps innovators create a new market and value network. Disruption innovation can be described as a process where a smaller business with less resources is able to challenge established companies. Companies that focus on disruptive innovation begin to target overlooked segments and gain a foothold by offering suitable solutions at relatively lower price. In the start big companies will not respond vigorously because they are focused on high profitability in more demand segments. However, when mainstream customers start adopting those disruptive offering from entrant businesses that is the time where disruption has occurred (Christensen, 1997). The prime example of disruptive innovation is Apple launching iPod, where the company combined a solid technology with ground-breaking business model of downloading digital music through iTunes. The real innovation was not the iPod itself, but the downloading of songs on iTunes Music store. The songs from nominal

cost of $0.99 were available for consumers to easily download into their iPod, which gave Apple a disruptive edge in industry. (Gosh, 2013).

2.3.6 Continuous innovation vs Discontinuous innovation

Continuous innovation uses the learning process and continues working in the already existing knowledge-based areas for consumer's needs. Continuous innovation can also be called evolutionary innovation and delivers incremental additional value. On other hand, discontinuous innovation involves expanding the boundaries and pushing the innovation into areas where it has not been before which results in radical new technologies and products (Apilo and Taskinen, 2006). There is another classification for product innovation which could be product technological capability and product capability. The study by Veryzer (1998) explained these two dimensions with integrating continuous and discontinuous terms. The study suggested that product capability dimension refers to customer's perspective about the benefit of the product. This means that higher the product capability, the more the end customer finds it beneficial. In addition, the technological capability is the extent to which product involves expanding technological capabilities beyond existing boundaries. The example used by Veryzer (1998) is Sony Walkman, which is technologically continuous and commercially discontinuous because it provided completely new experienced value. Secondly, an update in an electronic device which does not change the user experience is commercially continuous but technologically discontinuous. The higher the benefit or technological improvement, the more discontinuous the innovation will be. The changes in both benefits to customer and technology results in discontinuous change. Below is the figure 2.8 illustrating technology capability and product capability by Veryzer (1998).

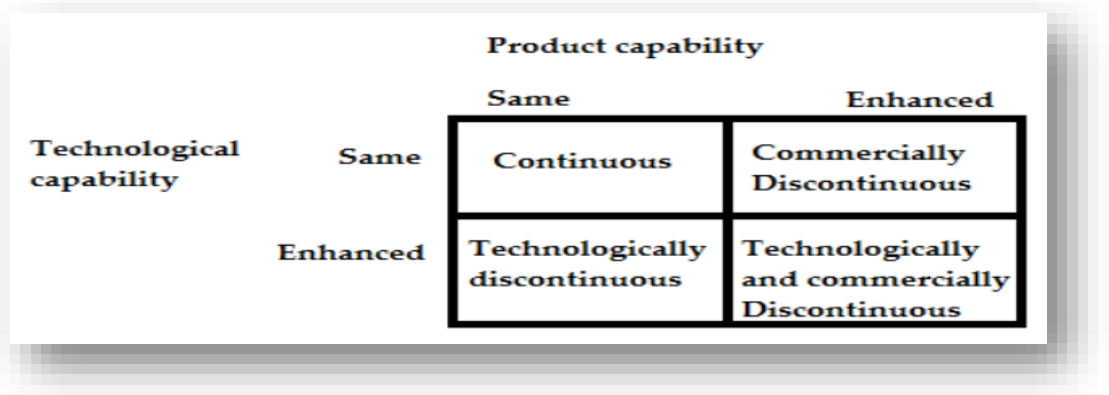

Figure 2.8: Technological capability and product capability (Veryzer, 1998)

2.3.7 Factors affecting innovation within business

Several things in the business are impacted through the management style of the business. The vast amount of literature supports the view that empowered employees and high degree of innovation will increase the degree of control of an employee. This would mean that the employee would be in a comfortable environment to innovate in its' role. (Thamhain, 1990; Tang, 1999; Zwetsloot, 2001; Amar, 2004; Mostafa, 2005; Muthusamy et al., 2005; Nystrom et al., 2002). On the other side, there are scholars who does not fully support this notion and believes that employee empowerment will not lead to increased innovation because they might end up feeling alone in the pursuit of innovation (Knight, 1987; Tang, 1999; Martins and Terblanche, 2003; Mostafa, 2005).

Moreover, the vast amount of literature supports employees as one of the most important assets when it comes to idea creation. To fully utilise, businesses must give enough resources such as financial, time, and materials to create an environment which allows idea generation (Thamhain, 1990; Avlonitis et al., 1994; Pavitt, 2002; Hyland and Beckett, 2005; Mostafa, 2005). The management therefore needs to make sure that the process of innovation gets executed seamlessly and the employees have the ability to interact with the innovation process (Vandermerwe, 1987).

2.3.8 Organisational structure and corporate strategy

This plays a crucial role in affecting the innovation within the organisation. Organisational structure impacts employees within the business directly and is done through various channels such as the organisation of teams or level of formality. The organisational structure sets up the foundation for the nature of the job (Meadows, 1980; Koberg et al., 1996; Hage, 1999; Lewis and Moultrie, 2005) The employees on its own may develop innovations, however the strong groups of employees will be more significant in terms of affecting the overall capacity of the business to innovate. (Anderson and West, 1998; Read, 2000; Lemon and Sahota, 2004; Noke and Radnor, 2004; Muthusamy et al., 2005).

Secondly, the other factors which affects the level of innovation is the corporate strategy. This strategy is in place to represent the overall culture of the business and communicate the common vision (Cottam et al., 2001; Jager et al., 2004). It is key that the workers clearly understand the vision, corporate strategy, and assess what they need to do in order to achieve business goals (Pearson et al., 1989). So therefore, if businesses are serious about innovation, then it should be reflected within the corporate strategy and eventually it will have the trickledown effect.

2.3.9 Industry Maturity

Innovation is viewed as greatly important in corporate competition and considerable attention has been paid to Abernathy–Utterback model. The model suggests that after the birth of new industry, businesses compete on the basis of the product innovation and allocate resources which contributes towards product development. The moment market matures, and customer needs become clearer, companies shift their focus from product development to covering their expenses and process innovation (Cusumano et al., 2007). The study by Klepper (1996) emphasizes that mature industries are more focused to process innovation rather product innovation. Another empirical study by Vock (2001) suggested that only 29% of construction companies from Swiss civil engineering considered product innovation important. According to Christensen (2003) even the best businesses who lead in innovation fail to sustain the level of innovation because management practices that made them leader cannot be implemented in new circumstances.

2.3.10 Customer needs and expectations

The customer expectations and needs are important to increase the process innovation which will directly affect the efficiency levels. According to Hippel (1998) companies must shift their focus towards customer needs and introduced important term called ‘’leading users’’. It is a special class of users that gives the insight and knowledge about future needs. The authors suggested that leading users will have the aptitude to display future needs as the function of their experience (Hippel ,1998) In other words, companies need to collect constant information from customers which will assist them predicting future needs. On the contrary, Christensen and Hart (2002) stresses that by spending time on existing customer can limit the scope of innovation. Slater and Narver (1999) supports the notion too that innovation does not predominantly depend on existing consumers insight, but it is also done by continually examine the market and anticipating information. This activity of collecting data beyond existing customers is extremely hard for small to medium businesses due to limits resources. The study conducted in Holland by Verhees and Meulenberg (2004) suggested that existing customer needs for radical product innovation influence positively on radical product innovation in small businesses. The hypothesis for the influence of expressed needs of potential customers has not been proved yet.

Another view comes from ‘’demand focused’’ school of thought by Schmookler (1962), who finds that main factor of innovation is the market demand. The argument is intensity of the demand will determine the rate of invention because every business is profit driven and will respond to economic stimuli. In other words, the market demands which are derived from customer will determine the innovative appetite. This concept can be called as ‘’market pull’’ and the empirical research of Schmookler (1966) concluded that demands play the crucial role in it. However, later in the decade the researcher argued and did not come to the similar conclusion of demand being key factor of innovation (Cohen, 1995). The study by Asterbro and Dahlin (2005) suggested three key hypotheses towards innovation; a) higher clients’ needs leading to positive recognition of invention, b) higher expected demand of invention, higher chances of commercialisation, c) effects of user preferences and needs are aligned with effects of estimated demand for probability of invention commercialisation.

2.3.11 Technological opportunity

The technological advancement vs market demand has been an ongoing debate and dates backs to time of Schumpeter (1934). The study by Schumpeter (1934) concluded that entrepreneurs are guided by technological opportunities which can also be called as ‘’technology push’’. This view was in complete contrast to the Schmookler’s view of ‘’market pull’’ which was demand led. The notion of Schumpeter (1934) is supported by other authors as well (Cohen, 1995; Goldenberg et al., 2001). In addition, another author; Johnson et al. (2008) concluded that the ‘’technological push’’’ and ‘’market pull ‘’ do not cancel each other. According to Martin (1994) technology push as research and development, sales and production operations without full understanding of need for product in mind. Conversely, market-pull is explained as the answer to the need. The technology-push is within the company and driven by technological development that leads to ground-breaking innovations, but it is riskier and has lower success rate than market pull. The fine example of technology-push strategy is launch of Google Glass by Google in 2012 (Chen and Sloan, 2018). It was an attempt to cause stir in wearable technology segment, however there were several reasons such as health and safety concerns of wearing Google Glass, privacy issues, and above all no clear benefit to end user (Doyle, 2016). The company like Google, with massive research and development budget can afford to adopt technology push approach and fail, however for new entrants it might be better to adopt market pull strategy. Below is the figure 2.9 showing technology push vs market pull.

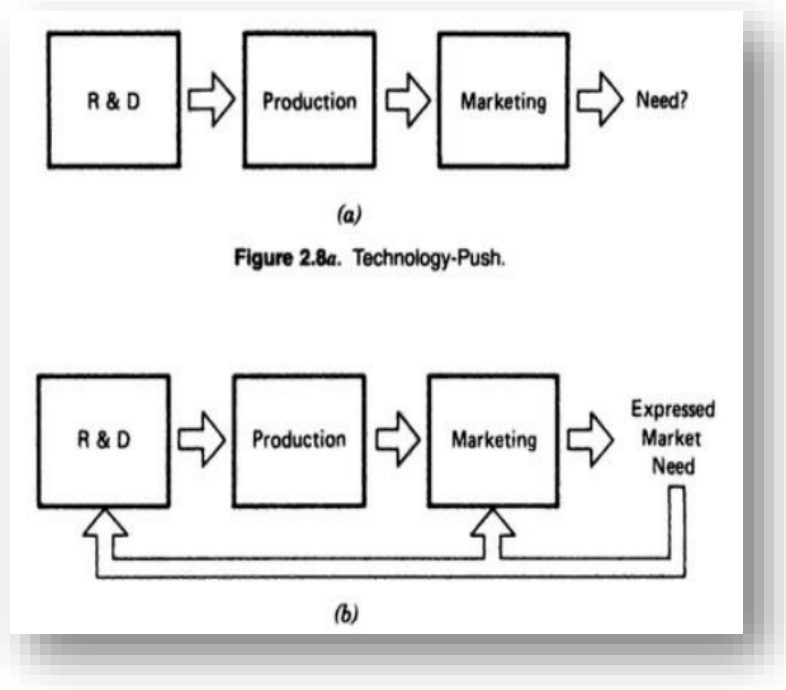

Figure 2.9: Technology push vs Market-pull (Martin, 1994)

Secondly, Innovation in real life market contains a balance approach between science/technology and demand forces. The technological opportunity does have several dimensions which are technological importance, technological performance, and the technical feasibility. The study by Asterbro and Dahlin (2005) added another dimension which was technological indefiniteness, which represents that a possibility of future action in research and development will solve current problems. Viewing this from national economy perspective, it is clear that countries which have a strong scientific and technological potentials have an advantage on those countries which do not have such potentials. Furthermore, the study by Baldwin and Sabourin (1999) found that companies that have research and development are more likely to innovate as compared to companies which do not have research and development. The study found that 60% probability rises if R&D is existing in the company, however this alone is not enough for innovation. This study further found that organised R&D activities are key for innovation

2.3.12 Summary- 2nd part of the Literature review

The goals of this chapter (*Understanding Innovation*) were understanding the roots of innovation and recognize the importance from different aspects by looking at previous literature. This part of the literature assisted to form a foundation of the

concept and distinguish innovation from invention. Moreover, it looked at various classification of innovations and factors affecting it to provide a holistic view of the concept. In addition, by reviewing the definitions of innovation (Table 2.1) in the literature from 1953- 2020, the researcher extracted 8 common themes (Innovation spider- Figure 2.6) which emerged by reviewing these definitions. Based on the innovation spider, the researcher developed a new ‘’*smartphone innovation*’’ definition which contributes to the body of knowledge because a smartphone innovation definition was missing from current literature.

2.4 Consumer and Innovation (Part3)

In the following part, relevant academic literature of consumer and innovation is explored. The goal of this chapter is to understand the link between consumer and innovation. This part of literature review will also help understand the physiological behaviour of humans towards newness and how they process information. This chapter will also review several technological acceptance models and evaluate consumer resistance towards innovation.

2.4.1 Consumer perception towards newness

According to Forster et al. (2010) newness refers to not previously experienced or lack of familiarity. The characteristic of newness includes unexpectedness, atypicality, complexity, and ambiguity. There is a high degree of chance that newness leads to evoke interest or sense of curiosity among consumers (Forster et al, 2010). The study by Loewenstein (1994) argues that innovation triggers positive and negative things at once. Scherer (2001) concluded that the experience of something new involves novelty check and pleasantness check. Novelty check determines whether a consumer further attends the stimulus, while pleasantness check analyses whether to avoid or approach the stimulus. Furthermore, the research suggests that attitude towards newness is a subjective experience (Radford and Bloch, 2011). This means the perception formed towards newness does not solely depend on the objective features of stimulus itself, but external factors as well. Forster et al. (2010) indicates that every event can be experienced as by simply adopting a different perspective on that event. This means the concept of newness may not just differ from person to person, but also situation to situation. The perceived newness towards a product may depend on how much that newness benefits the customer and level of technological newness (Chandy and Tellis, 2000). Technological newness is the degree to which how different it is from the prior technologies (Veryzer, 1998). The technology can be summed up as design for instrumental action that lowers the uncertainty in the cause effect relationship involved in achieving a desired outcome (Rogers, 2003). Technology comprises of two parts; hardware which represents the tool that makes up the physical object or materials, while the software aspect reflects the information base for the tool. One of the prime examples in modern days is the electric cars which are technologically different from combustion engines.

Newness of customer benefits refers to the degree to which innovation meets the needs better than the existing solution (Chandy and Tellis, 1998). The innovation which are categorised into high level of newness of benefits usually surpasses the original demand and helps customers with new ways of doing things, sometimes even allowing them to do things which they have never experienced before (Lehman, 1997). Customer interaction with innovation impacts their behaviours and thinking patterns because they have no prior experience and feel uncertain about (Hoeffler, 2003).

2.4.2 Perception of meaningfulness of innovation and Perceived feasibility of innovation

Perceived feasibility of innovation is linked with the cost and sacrifice that may be required in using or purchasing the ownership of innovation (Arts et al., 2011). This sacrifice and cost can be such as psychological cost, risk, and economic cost (Smith and Colgate, 2007). An innovation can reduce economic cost if it provides existing solution and lower cost. Moreover, it can reduce psychological cost by lowering the learning cost of the innovation and making it user friendly. Secondly, the concept of perception of meaningfulness can be explained as the combination of desirability of innovation with the feasibility of it (Arts et al., 2011; Trope & Liberman, 2003). If a certain innovation is viewed by a consumer as low in desirability or low in feasibility, this will lead to rejection of innovation by consumer (Rogers, 2003). The classic example of such situation is the Dvorak Keyboard which was introduced as an alternative to QWERTY Keyboard. The typists largely rejected it because it required them to learn a new way of typing and yet there was not enough benefit in switching (Rogers, 2003). The desirability of innovation can be described as to the benefit that come up when switching to an innovation. It involves of specific benefits which innovation provides over the existing method (Sethi et al., 2001).

There are three types of product benefits: Functional, Hedonic, and Symbolic.

Functional benefits are the benefits which comes up through superior functions, characteristics, attributes, and features of an innovation (Woodruff, 1997). Moreover, functional benefit is only considered if it actually improves the performance as opposed to the existing solution (Dahl & Hoeffler, 2004; Norman, 2004; Zhao et al., 2012). This means better an innovation meets its physical purpose, higher functional

benefits are (Sheth et al., 1991). The innovation is classified to have high functional benefits if it solves the current and future problems (Smith and Colgate, 2007)

Hedonic benefits refer to the level to which product create optimum emotion, experience, and feelings (Smith and Colgate, 2007). Hedonic benefit is largely based on sensory experience which is provided by innovation (Rafaeli & Vilnai-Yavetz, 2004). The attributes of innovation related to sensory experience are shapes, colours, size, materials etc (Rindova and Petkova, 2007). Hedonic benefit might arise through emotional experience with innovation such as fun, excitement, and enjoyment (Smith and Colgate, 2007). In addition, hedonic benefits might emerge through social-relational experiences. Facebook, Instagram, Twitter can be prime examples of a business's providing social relation benefits by allowing to interact and engage with online community. The final way a hedonic benefit can emerge is through epistemic experiences (Sheth et al., 1991). The study by Silvia (2005) identifies epistemic experiences comprise of knowledge emotions such as imaginations, fantasy, and curiosity.

Symbolic benefit is related to customer's personal identity and self-worth. According to Smith and Colgate (2007) it is the level to which customers associate psychological meaning to a product. The innovation offers symbolic benefit, if it matches with what customer would like to see themselves. Symbolic benefit also links up with the messaging of customer, of what they want to convey to other (Norman, 2004). Some customers will associate themselves with certain brands due to the fact they would like to be seen in that socio- group (Sheth et al., 1991). The symbolic benefits are intangible in nature and arise from the deeper meaning or core values of the innovation. This can include things like; symbols, signs, cause of particular innovation, ideas, concepts etc (Krippendorff, 1989). The study by Verganti (2008) states that symbolic benefits are likely to arise from specific language, design, and icons. Apple is one of the prominent examples in today's world of offering symbolic value to its customer. The marketing expert Marc Gobe has repeatedly mentioned that people are loyal to Mac because of its distinctive symbol, identity, and feeling not the product itself. In 2006, Apple launched a marketing campaign called ''Get a Mac''. The campaign features series of commercials that showed a young, cool guy in a hoodie is introducing himself by saying ''Hi, I'm a Mac''. They also showed a boring, older man wearing glasses and blazer who is buying regular

computer brand. The idea of the campaign was that you are what you buy, and this is a perfect example of identity in branding (Pathare, 2018). Research by Escalas and Bettman (2003) concluded that college students tend to develop positive association with brands that mirrors the images with their own identity such as athletic, hippy, cool, environmental coconscious etc.

2.4.3 Berlyne theory – newness psychological behaviour

Consumers on daily basis interact with new products and reject them due to various reasons such as, pricing, poor positioning, low distribution etc. When it comes to rejection of an innovative product, the product characteristics are considered to play crucial part in adoption innovation (Robertson and Gatignon, 1991). The product can be unsuccessful to convince customer of its benefit and value. In addition, the consumer rejecting the product can be purely because of its ‘’newness’’, consumer may find it hard to process the information and lack frame of reference for evaluating innovation (Olshavsky and Spreng, 1996; Stayman, et al., 1992; Veryzer, 1998b; Gregan-Paxton and John, 1997). If this happens, consumer can wrongly evaluate the product and it is a missed opportunity for the company which failed to acquire the customer. Similarly, Ram and Sheth (1989) concluded that the rejection of the new product can be due to the novelty of the product rather than its intrinsic value characteristics. The evaluation of new product will be subjective and vary from consumer to consumer.

This part will examine newness concept from theoretical point of view and explore the motives for acceptance and rejection for new products. The literature on newness from psychological point of view has received minimum attention over the past years. This concept has been addressed in past indirectly with concepts such as curiosity (Loewenstein, 1994; Ziamou and Gregan-Paxton, 1999), surprise (Vanhamme and Snelders, 2003), stimulation level (Steenkamp and Baumgartner, 1995). In order to explore the direct psychological perspective of consumers towards newness, Berlyne’s Theory of collative variables offers a deeper insight. This theory offers understanding about nature of newness and types of novelty. This theory additionally defines newness and allows to understand this concept through psychological perspective.

2.4.4 Newness concept

People continuously judge a situation, object, or living individual compared to a previous status. This means evaluating newness revolves around a reference against the new item is compared. Berlyne (1960) focuses on two pinnacle things which are reference in time and structure of stimulus. The reference in times is explained as to long and short-term novelty. The long-term novelty is when stimulus has not been encountered for a long time, while short term novelty is where stimulus has not been encountered lately.

In regard to structure of stimulus, ‘absolute’ novelty, when the stimulus is fully new, from ‘relative’ novelty, which applies to stimuli whose elements are not new but are assembled in different form. The term newness itself is hard to define and it is one of the most widely used term. Berlyne suggested that all novel stimuli have certain effect on individuals which the stimuli lacking in novelty does not have, it is must they will have certain qualities and properties in common to have that effect
Berlyne (1963) has identified six properties of novel stimuli, which are divided into two groups. The first group is predominantly sensory, while the second group is at cognitive level.

The first group comprises of change, incongruity, and surprise as the common properties of novel stimuli. The change represents to what subject views when comparing the stimulus to a prior stimulus. Surprise refers to that fact that subject formed an expectation based on prior stimulus and contradicts with the new stimulus. In addition, incongruity can best be elaborated as a special case of surprise, where the incongruous stimulus contradicts the expectations based on whole mass of past experience with stimuluses.

The second group of the properties includes uncertainty, conflict and complexity. Uncertainty is referred as the impossibility to anticipate what will emerge from novel stimuli. Conflict can arise from more than one reaction to a new stimulus which will vary in quality, strength and occurrences. This can be experienced at different levels and can probe emotions and increased reaction time (Berlyne, 1960). The uncertainty and conflict are closely linked and impact on conflict can reduce the uncertainty. The last one is complexity which is referred as difficulty to understand the new product. Furthermore, the higher the perception of the product is regarding

complexity, the more a subject tends to increase the knowledge about new product. However, the more the information is required to understand new product, lower the level of positive evaluation of the product in the eyes of individual. Similar themes emerged with one of the recent studies conducted by Lindgaard (2006) which was based on examining the criteria by which people evaluate the user friendliness, satisfaction, and trustworthiness of the website. The study showed that after a certain level of complexity, the experience turns out to be unpleasant. This point is crucial in understanding the concept of newness of the consumers. The time it takes for the consumer to detect the novel stimuli and whether it likes the product or not in is seconds (Lindgaard et al., 2006). Berlyne (1960) suggested that consumers need an appropriate inflow of novel stimuli in order to sustain their interest, without getting confused or worried. This optimum inflow of novel stimuli is described as optimal stimulation level (OSL). The best example is too much salt might result in unpleasant experience of a pizza, while too little salt may also result in unpleasant experience. This is also suggested by another study by Cox and Cox (2002) which showed that liking is higher for noncomplex products. In addition, few other studies underline on similar themes and indicated that complexity is potentially a barrier in product adoption (Rogers, 1995; Solomon, 2004). The studies showed that consumer reduced the cognitive activity when it comes to decision making even when it is a risky or completely new purchase.

Overall, The Berlyne's theory of collative variables provides rich understanding of newness perception from psychological point of view. The key area is that consumers perceive newness high or low, depending on the degree and nature of product. Also, it showed that consumers avoid complexity when it comes to innovation. This means one of the determining factors of new products can be on how user friendly they are especially when it comes to technological innovation.

2.4.5 Consequence of newness

Berlyne outlined two sub-groups of collative properties of new stimuli. The first one falls under dominant sensory and second one falls under cognitive level. Below is the figure 2.10 which illustrates collative properties.

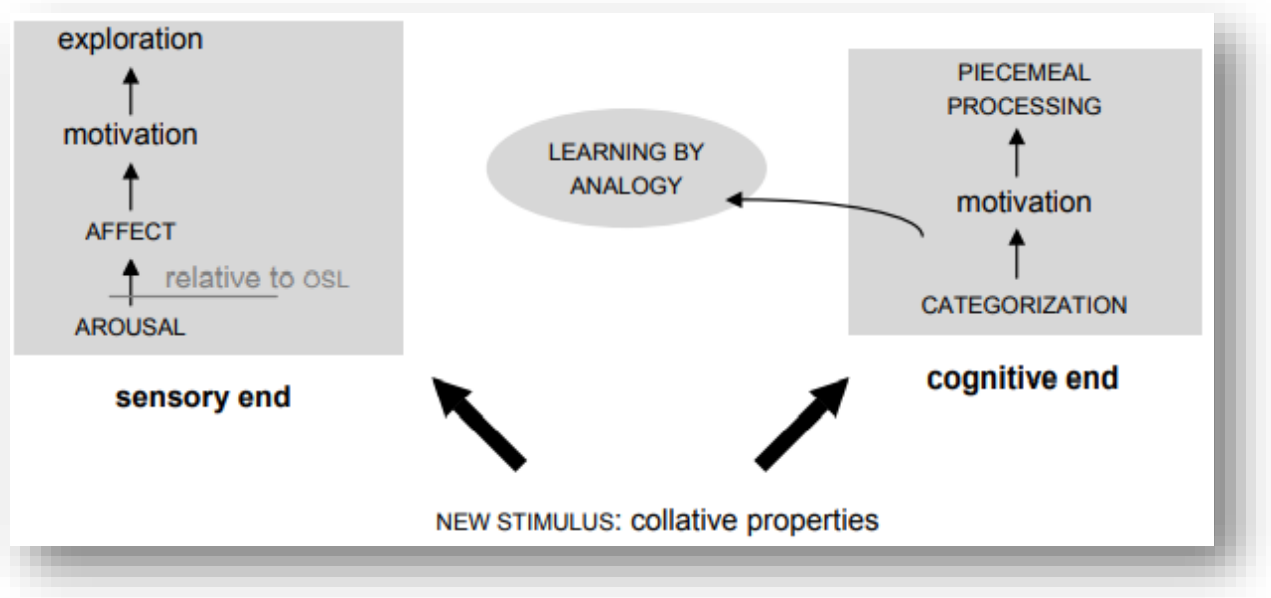

Figure 2.10: Berlyne theory (1960)

Berlyne defined arousal potential of a stimulus as properties that drive arousal upward. It is the degree of a stimulus' combined to its ability to excite the nervous system. This conceptualization is similar to notion of stimulus impact, which relates to the degree, variation and meaningfulness of the stimulus and information rate (Maddi and Fiske, 1961; Mehrabian and Russel, 1974). There are three types of determinants of arousal which are affective variables (pleasant and unpleasant forms), intensive variables (size, colour) and collative variables.

Arousal refers to motivational state of alertness of an individual on a continuum from deep sleep to great excitement (Mehrabian and Russel, 1974; Berlyne, 1966). The level of arousal of an individual is a function of environment and of arousal potential of stimuli in the environment. When a person is exposed to a stimulus, collative variables impact and contributes towards total arousal.

Berlyne (1960, 1967, 1973) suggested a U-shaped relationship between arousal potential and arousal. The left side of the U is rare in real consumer behaviour context and corresponds to extreme, experimental conditions of sensory deprivation. In context of consumer behaviour, there is a monotonically increasing relation between stimulus impact and arousal. The study by Maddi and Fiske (1961) concluded a similar notion of monotonically increasing relation between arousal and stimulus impact. In the context of collative variables, the arousal produced by

stimulus increases with novelty, change, uncertainty, and complexity (Berlyne, 1960). Moreover, Steenkamp et al. (1996) also suggested the monotonically increasing relationship between arousal potential of a stimulus and the arousal induced by that stimulus.

2.4.6 Arousal and stimulus evaluation

The intensity of stimulation plays key part on how it will impact the individual. A medium intensity of a stimulus may be pleasant; however, it may transform into unpleasant when intensity is higher. The best example could be too little sweetness may be unsavoury for dessert, but excessive sweetness may cause disgust; similarly, music can be loud to be enjoyable, but may become unpleasant when it becomes too loud and start damaging ears. The relation between hedonic value and stimulus intensity is in bell shaped curve (See-figure 2.11). There is a general consensus that high arousal level induced by a stimulus results a lower evaluation of that stimulus, as compared to moderate level arousal (Fiske and Maddi, 1961; Mehrabian and Russell, 1974). Also, stimulus evaluation is lower for low arousal levels (Fiske and Maddi, 1961; Mehrabian and Russell, 1974; Berlyne, 1978). The inverted -U relationship between arousal and stimulation evaluation also finds support in context of consumer behaviour (Steenkemp et al., 1996).

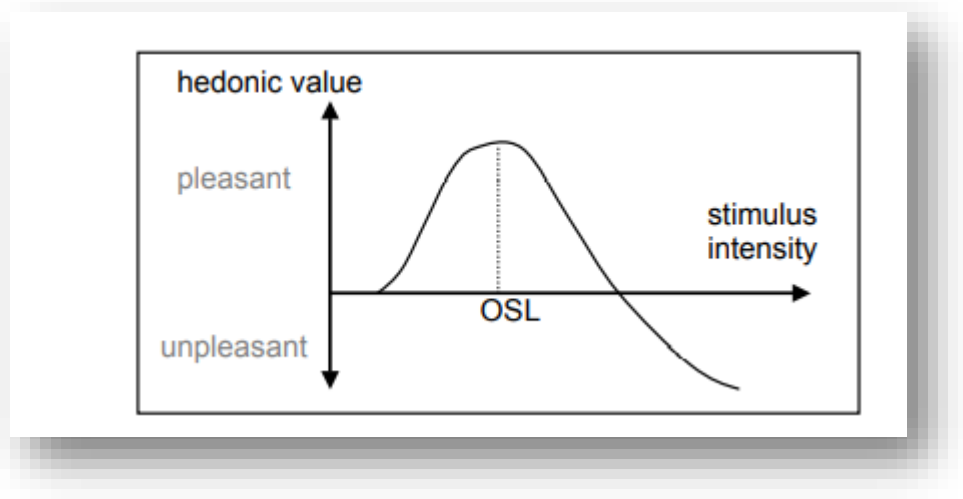

Figure 2.11: Hedonic value (Michaut, 2004)

The above is in line with OSL theory which suggests that hedonic value of a stimulus increases with stimulation, as stimulation remains below OSL of an individual. If stimulation exceeds the level of OSL, hedonic value of the stimulus decreases when

stimulation increases. The OSL is the distinctively determined stimulation level an individual favours over all situations, sources, and conditions (Maddi, 1961). This advocates a crucial role of collative variables for stimulus selection. It stresses that too familiar (rating low on collative variables) or too remote (rating high on collative variables) stimuli result in lower hedonic value since they yield deviance from the optimum.

On the other hand, stimuli exhibiting medium ratings on collative variables will result in higher hedonic value. Subsequently, stimuli need to strike a balance of being familiar enough and distinct enough to remain interesting (Berlyne, 1960). Furthermore, when deviance is small, an individual is more likely to recover its OSL. Therefore, stimulation level with small discrepancies in are favoured over large ones. For example, small variations in complexity and change are preferred (Berlyne, 1960). Finally, OSL theories suggests that individuals need to maintain their desired level of arousal.

2.4.7 Arousal modifying behaviours: diversive and specific exploration

Exploratory responses afford access to information that was not previously available. There are two aspects of exploration which have been outlined: specific exploration and diversive (Berlyne, 1960: Maddi, 1961). Diversive exploration aims at delivering entertainment and overcoming boredom (Berlyne, 1960). It generally characterizes exploratory behaviour aiming at enhancing arousal level in circumstances where this will be rewarding. The diversive exploration happens as arousal level is at a low level and subjects aim at regaining their optimal level via exploration of the surroundings. This can be accomplished through stimuli from a various source, given that they have arousal potential. This kind of exploration is typically discussed as exploratory behavior in the marketing literature. It comprises variety seeking in purchase behaviour (McAllister and Pessemier, 1982 for review), recreational shopping behavior (Bellenger and Kergaonkar, 1980, Westbrook and Black, 1985), exploratory consumer buying behaviour (Baumgartner and Steenkamp, 1996), and exploratory information acquisition (Hirschman, 1980, Baumgartner and Steenkamp, 1996). Therefore, in the context of novelty, it refers to the case where consumers seek for novelty in their environment.

On the other hand, specific exploration characterizes of situations where arousal has increased and must be reduced to drop back to the optimal level. This can happen when subjects are exposed to stimuli with a high arousal potential due to for example, the presence of collative properties (Cancelli et al., 1980; Kim, 1999). Specific exploration aims at providing information about one particular event or object (Berlyne, 1960: 19). It characterizes a person who aims for a solution to an intellectual problem. Identifying variables eliciting exploratory behaviour is key to the phenomenon. Several variables such as complexity, novelty, surprise, and incongruity contain arousal potential, yield deviation from the OSL and cause exploration (Berlyne, 1960, Maddi, 1961). All collative variables cause exploration, but novelty is considered most powerful amongst them (Maddi, 1961). In the situation where consumers interact to new products, specific exploration will offer extra and focused information about the stimulus, and decrease the level of arousal generated, at least in part, by collative variables of new stimuli. Subsequently, specific exploration helps consumer reduce arousal to an acceptable level and overcome potential initial rejection caused by high arousal created by the magnitude of collative variables. The next sections will focus on specific exploration.

2.4.8 Newness processing: The cognitive end

When consumers are exposed to new products/services, they will have to process the new information comprised in the product and develop an evaluation based on the outcome of this information processing. There are many theories which discusses the social psychology and cognitive thinking which will assist the researcher in understanding the process which takes place in consumer's mind. The two major fields of literature are Learning by analogy and Categorization, which previously been applied in consumer behaviour studies and relevant to the newness concept.

2.4.9 Categorization

The categorization literature has helped previous studies and researchers in cognitive psychology (Fiske, 1982; Fiske and Pavelchak 1986; Fiske 1990; Mandler, 1982). The application of this concept in consumer behaviour context has been discussed in various papers before (Sujan, 1985; Sujan and Dekleva, 1987; Meyers-Levy and Tybout, 1989; Loken and Ward, 1990; Ozanne et al., 1992; Stayman et al.,

1992; Moreau et al., 2001). The foundation of this concept is that knowledge structure of a consumer is organised along categories represented by schemas in brain. People when process new information, naturally divide the world into categories (Sujan, 1985). This results in consumers first trying to understand new product based on the internal knowledge. If this exercise fails, then consumers will aim to understand the product on the basis of external knowledge such as attributes of products in order to achieve comprehensive understanding. Therefore, consumers use more attribute information as they move from direct, non-thoughtful categorization towards a piecemeal process. The potential process is illustrated by a continuum from category based to attribute-based processes in figure 2.12. The Fiske and Taylor (1991) argues that individuals use a continuum of impression formation processing ranging from more schematic processes or category based to more individual processing or attribute-based processing, and one can identify the configurations of information that move people from one end to another end of the continuum. Furthermore, Fiske and Neuberg (1990) explained that category-based processes have priority over attribute-oriented processes in two ways; if relatively category-oriented processes are successful, then the perceiver will not go further towards attribute-based processes and perceivers attempt-based impression formation. The sequential priority of processes moves from category confirmation to re categorisation, to piecemeal integration of attributes.

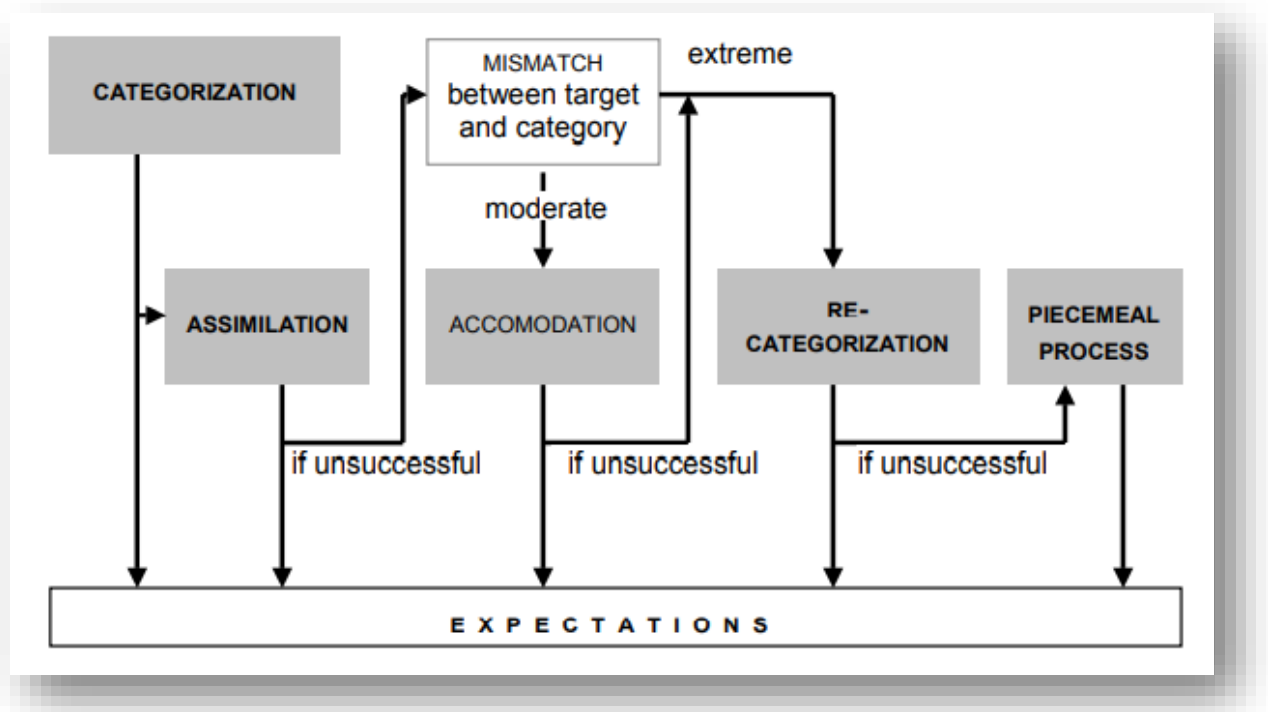

Figure 2.12: Categorization (Michaut, 2004)

2.4.10 Insight into psychological processes engaged in categorization

Based on illustration above, it can be identified that there are two main streams of processing, attribute-based (piecemeal) processing and complementary not competitive, namely category.

According to Fiske and Pavelchak (1986), category-based processing contains two stages: categorization and evaluation, to form expectations. The product is initially assigned a meaning (categorized) and then evaluated by forming inferences from the schema, i.e., the affect associated with the evokes category is attached to the new product.

While piecemeal processing directly deals with evaluation and does not start with meaning assignment: product attributes are evaluated and considered one by one. The evaluation of the product is form through an integration and combination of these evaluations. The literature often separates schemas from categories. Categories are presented as taxonomic organizations of objects or to be more specific products, while schemas are according to Mandler (1979) temporally organized structures. A schema is therefore the organized structure of previous knowledge stored in memory about category (Stayman et al., 1992), it is an abstract

representation (Mandler, 1982: 16) which is formed from previous experiences. Schemas may change in their level of abstraction and represent perceptual elements of an object or event as well as its intangible idea (Mandler, 1982). The schema entails information about common attributes of the products constituting the category, their products' relationships to other categories and their links. Categorization is referred here as the process of allocating a product to a category because it matches the individual's schema for this category.

2.4.11 Initial categorization

Initial categorization happens instantly according to Fiske and Neuberg (1990), when encountering information sufficient for cueing a meaningful category. The process is very quick and perceptual (Bruner, 1957). It helps reaching the most basic types of categories. For example, In the food context, initial categories will probably be referred to as dairy products, sauces, chocolate, soft drinks because consumers spontaneously sort products using a taxonomic organization (Ross and Murphy, 1999). However, if consumers enter a butcher shop, they are assumed to be in a more specific context and therefore cue more specific initial categories such as poultry, beef, lamb, which remain basic categories for the situation. This stage occurs when individual is exposed to the new product and does not require attention from the subject. Nonetheless, Sujan and Dekleva (1987) suggest that basic types of categories are limited in the way that they contain few attributes and are little different from other categories at the same level. Therefore, they yield little inferences and may not satisfy consumers in their attempt to give a meaning to the new product. An evaluation of the personal relevance or interest of the product will decide whether to go further in information processing. The attention phase begins with the decision to pursue the process.

2.4.12 Assimilation

This stage is where the subject evaluates the new product typicality in context to the initial category (Fiske and Neuberg, 1990). Entering a state of ‘attention’, they are able to consider a number of new product attributes. Mandler (1982) points out that assimilation happens when these attributes fit with the schema of the category, it equals a confirmation of the initial categorization. When considering new product

attributes, the category schema and congruity between these attributes results to assimilation and develops cognitive continuity (Mandler 1982).

On the other hand, incongruity permits a change in cognitive and causes a ‘schema switch’ as explained by Stayman et al. (1992). Processes explained in the following section happens when assimilation is unsuccessful. Different levels of incongruity originate them, which result in different types of schema switch. Incongruity can be moderate, yielding a refinement of the cued category or extreme, leading to the consideration of a new schema.

2.4.13 Accommodation

This happens when there is a moderate disparity between the activated schema and the new product attributes (Mandler, 1982). Consumers needs to accommodate their schema when initial schema refinement (assimilation) is not enough to assign the new product to the category. Accommodation can best be explained as the re organization or adaptation of the schema of the first category cued after considering some attributes of the target. There are two types of accommodation. First, novice consumers may have little information and understanding about a category resulting in an incomplete schema as a representation (Sujan and Dekleva, 1987). They need to diversify it with extra information when they encounter new category members.

Second type is where experts are more knowledgeable and have more complete schemas (Sujan and Dekleva, 1987). Some authors such as (Fiske and Neuberg, 1990; Fiske and Pavelchak, 1986) concludes that accommodation is a type of re-categorization, but two processes are two different levels of ‘schema switch’ (Stayman et al., 1992). Re-categorization happens when the claimed category membership and attributes have a mismatch (Meyers-Levy and Tybout, 1989), or extreme incongruity between the activated schema and attributes. Refinement of the initial schema is not satisfying, but instead of key structural changes in the cognitive structure, the solution is to find an alternate or different schema (Mandler, 1982; Fiske 1990) that integrates with the attributes of the new product, It leads to a delayed congruity (Mandler, 1982). Re-categorization consists in leaving the first category and in cueing a new one based on target attributes. Re-categorization is accomplished by retrieving a similar exemplar fitting another schema or by directly cueing another category. The Piecemeal integration according to Fiske and

Neuberg, (1990) is when new product attributes hinder to confirm the first categorization or to re-categorize the product, the subject may advance to an attribute-by-attribute analysis. The set of evaluations later then combines to evaluate the total value of the target (Sujan, 1985). The process is referred as a piecemeal process. In this evaluation process, the initial category is considered as an attribute among others and therefore has a little impact on the response. In a piecemeal integration process, consumers directly evaluate the product, without a prior meaning assignment stage.

2.4.14 Conclusion on Categorization model

The section above analysed the theory when consumers are exposed to new products and how they possess two main streams of information processing which is attribute based(piecemeal) and complementary not competitive. The initial categorization process is majorly sensory (Olshavsky and Spreng, 1996), yet as they integrate more information and attributes to form a meaning and evaluation, consumers move towards a cognitive processing.

2.4.15 Learning by analogy

The categorization theory outlines two stages: meaning assignment and product evaluation. The evaluation phase understands that the affect attached to the category is transferred to the new product. The ‘learning by analogy’ theory gives a foundation to analyse on how inferences are made from prior knowledge to give meaning to and evaluate a new product. Consumers are continuously encounter new products, but they are able to view some similarities with products they already are aware of with the likes of attributes, benefits or even values that they are already familiar to them. According to Keane (1996) analogy has proved to be one way for dealing with novelty. When reasoning by analogy, the novel target (new product) is seen as a new instance of something known, namely, and the familiar analogy (Gentner and Holyoak, 1997).Therefore, subjects are learning about the new target by linking it to their prior knowledge, which can also be called as the ‘base’ or ‘source’. The literature differentiates between similarity and analogy. Even though both need integration of the target and the base, but they consist in different relations. Analogy is explained by Gentner and Markman (1997) as a shrewd, systematic process used in creative discovery, while similarity is a brute, perceptual

process that we share with the whole animal kingdom. In other words, analogy refers to the cognitive end, while similarity addresses to the sensory end of processing. Other levels of shared attributes and relations can also be involved, the whole set forms a continuum from similarity to analogy. Below is the figure 2.13 which is illustrating analogy.

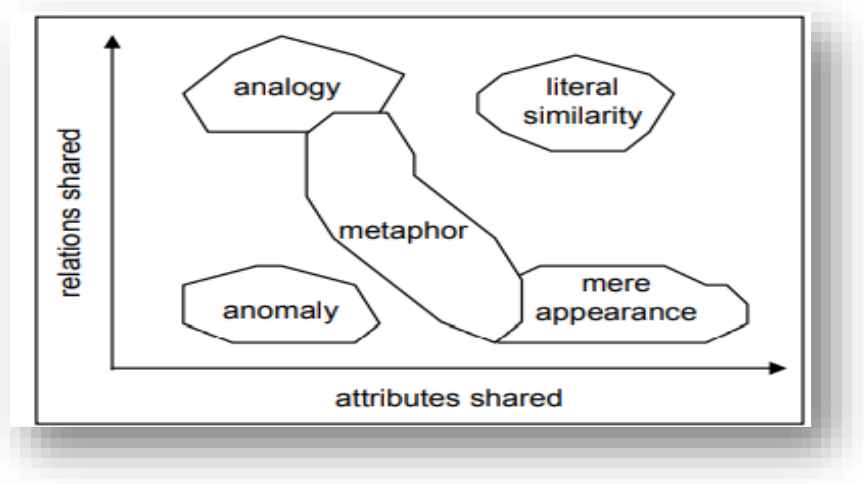

Figure 2.13: Analogy (Gentner and Markman, 1997)

Holyoak and Thagard (1997) highlights the structural parallel (relations shared) between the base and target, yet the process they associate to it also involves similarity. The anological definition which is defined by Gentner and Holyoak (1997), the target is confronted to the memory in which the subject will browse in order to search link, based on common relations or attributes. Processes involved to develop these correspondences between the analogs and target in the base are diverse. For example, the analog may perfectly match the new target, an adaptation may be required, or several pieces of information (analogs) may have to be combined to find a new solution (Kolodner, 1997). This diversity in analogies relates to the diversity in categorization processes. The result of analogical thinking may contain the creation of new knowledge to fill gaps in understanding, such as new schemas and categories, adding new instances, new understanding of old schemas and instances that allow them to be better accessed in the future (Gentner and Holyoak, 1997; Kolodner, 1997).

2.4.16 Newness perception in various countries

This previous part studied newness from a theoretical perspective and now it will understand in the context of cultures.

Culture has been widely acknowledged as a determining factor influencing the consumer behaviour (Hofstede, 1991; Solomon, 2004). According to Steenkamp et al. (1996) the level of innovation is dependent on the culture. The study showed that individualism and masculinity positively related to innovation as opposed to uncertainty avoidance. In other words, the countries which score higher on individualistic and masculinity dimension are likely to embrace innovation than the countries which are collectivistic and score low on masculinity dimension (Baumgartner and Steenkamp, 1996).The study by Taylor and Wilson (2012) which collected data from 62 counties concluded that individualism have a significant impact on innovation, while collectivism not only harms innovation but becomes obstacle in the scientific progress on national level. Furthermore, another study by Gorodnichenko and Roland (2011) explained that countries which are individualistic creates a social status reward to personal achievement and therefore not only provides monetary rewards for innovation but also social status rewards which leads to higher innovation nationally as compared to collectivistic culture. Additionally, consumers in individualistic cultures are likely to be more receptive towards innovative ideas because it will allow them to be distinctive from others and establish their self-identity (Steenkamp et al, 1999; Lim and Park, 2013). Individualistic culture promotes the risk taking and rewards entrepreneur behaviours which leads to more new ideas in product development (Singh, 2006; Morris and Leung, 2010). Furthermore, the decision making of an individual in individualistic society is through personal beliefs rather than group norms (Roth 1995; Steenkamp et al., 1999; Perez-Alvarez, 2009). On the other side, collectivistic society promotes group consensus in decision making (Wickliffe and Pysarchik, 2001).

The collectivistic culture is known to negatively impact the innovation. However, there are some empirical studies which shows the positive role of collectivism on innovation. A study by Kaasa and Vadi (2010) indicated that a certain kind of collectivism which refers to ‘’friends related and social related’’ actually promotes innovation. Additionally, there is a study by Shane (1993) which contradicts with majority of research and suggest that innovation has a negative relationship with

individualistic culture. Some other researchers also argue that individualistic culture has significant effect on innovation (Waarts and Van Everdingen, 2005; Lin, 2009; Engelen et al., 2014). The conflicting findings invites further research in the field to evaluate the impact. Similarly, a society high in masculinity is believed to be more success oriented (De Mooji and Hofstede, 2010). According to Efrat (2014) individuals in masculine society are more confident and assertive, therefore are likely to be more innovative oriented.

Moreover, the study by Michaut (2004) indicated that countries with high uncertainty avoidance overestimate and exaggerate the complexity of new products than those who score lower in uncertainty avoidance dimension. This may suggest that perceived complexity and incongruity will differ cross culturally and react to them differently. This is further endorsed by the study of Strang and Soule (1998), which concluded that uncertainty avoidance reduces the rate of adoption towards new products. In addition, the High uncertainty avoidance cultures find ways to reduce the unstructured conditions and risks by enforcing strict laws and regulations. It was show that managers in a country like Japan who score high in uncertainty avoidance, prefer predictable meetings and structure (Lussier and Achua, 2010). Furthermore, the study by Kumar and Pansari (2016) analysed consumer-level transaction data for a random group of consumers across the 30 countries from 2008 until 2013. The study concluded and suggested few interesting themes; consumers who belong to country that score high on individualism such as Australia, U.S, they are more likely to shop from various channels like retail stores, online and more frequently return items which does not meet their expectation. This study showed that consumers from individualistic culture emphasize more on latest trends than sticking to the brand which makes loyalty cards less effective in these countries. On the other side countries which score high on collectivism like Mexico and Turkey, people are inclined to follow the crowd and place value on brand’s reputation instead of its novelty. The study further pointed out that consumers from collectivistic society buy products for their families and are more likely to buy from same trusted retailer. The consumers in these societies would like to see and feel the product instead of e commerce approach. The experiencing of the product tangibly is like societies which are indulgent and found in parts of South and North America. They enjoy testing an item instore and enjoys the freedom of trying out wide range of products.

2.4.17 Resistance to innovation

The concept of resistance to innovation has been overlooked in the literature and only few researchers have explored this concept. The focus has mainly been around ‘’adoption of innovation’’ and therefore Sheth (1981) has termed resistance to innovation as ‘’less developed’’. Since 1960, when Everett rogers conducted his initial research on diffusion of innovation, there has been growth in the area of innovation studies. Despite this, from 300 articles on innovation, only 26 of them mentioned unintended consequences of innovation. (Laipointe et al, 2002). According to Sveiby et al. (2009) researchers have expressed little interest on these areas because it is too complicated and difficult because there is no reliable method. It is likely that the researchers back then were pro innovation and focused their efforts on adoption process and ignored the resistance element of it. However, the research about consumer resistance to innovation is increasingly important because more and more products are failing and according to the study Crawford and Di Benedetto (2008), 90% of the products which are launched do not survive in the market.

Furthermore, according to several researchers on innovation; Sivadas and Dwyer, 2000; Andrew and Sirkin, 2003; Schneider and Hall, 2011, suggested the failure rate varies between 50% to somewhat 90%, measured in terms of insufficient financial returns. Moreover, another research by Stevens and Burke (1997) studied resistance to innovation. The figure 2.14 below shows only one product is successful which begins from 3,000 raw ideas. Similarly, the study Cooper (1990) suggested similar themes and found that for every 4 developed projects, only one is successful on the market and at launch stage, at least one of three products fail despite marketing research.

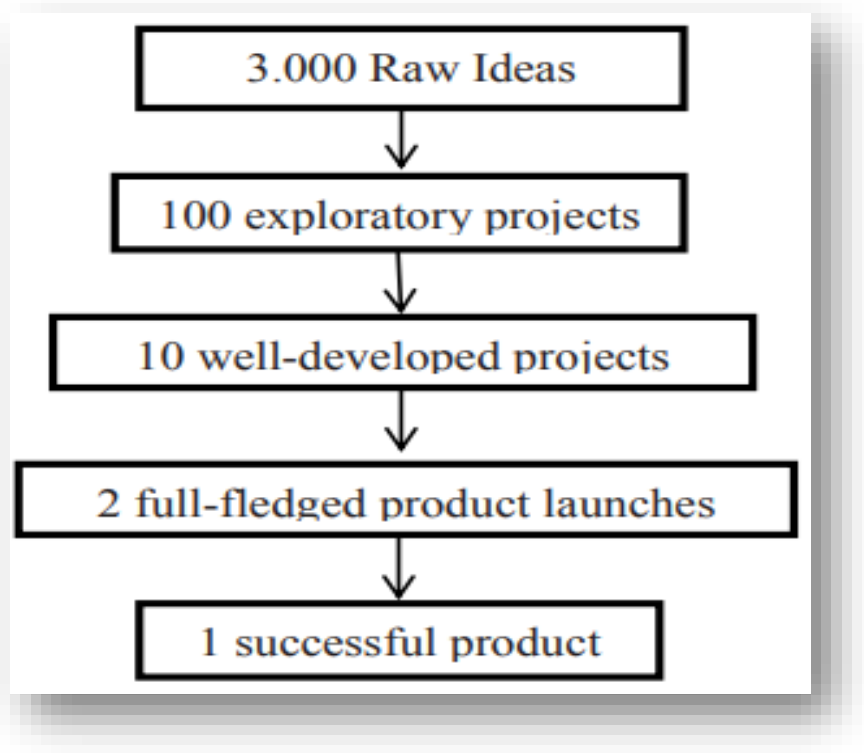

Figure 2.14: Successful products journey (Stevens and Burke,1997).

This high failure rates are alarming for corporations because it can easily have negative impact on their revenues, competitive position in an industry, brand equity (Bayus et al. 2003, Liao and Cheng, 2014). The perfect example in context of smartphone industry is Nokia, which dominated the mobile market for several years and now has lost its' position, market share, and revenues due to lack of understanding their market/ consumers and late to react to changing market dynamics of innovation (Bowman et al., 2014)

From psychological point of view resistance is conceptualized as aversive motivational form, and it originates when an individual or a group view that their freedom is under threat. This leads to people acting in direction towards recovering their susceptible freedom (Brehm 1966; Brehm and Brehm, 1981). The resistance towards innovation is the critical factor regarding adoption of new technology (Leonard, 2004). The study by Lapointe et al. (2002) has explained that innovation and resistance are termed as two ends of a continuum of reaction towards innovation. According to Ram and Seth (1989) the resistance towards innovation arises from adoption barriers such as value, usage, image, risk etc. The value barrier is purely from the economic point of view when consumer perceives the innovation is

not offering strong price to performance as opposed to the current product. The usage barrier comes up when consumer's existing structure of workflow or routine does not match with the innovation. In addition, risk barrier is the level of risk attached with the innovation, while value barrier is linked with the association of the innovation's origin, category, branding, or country of origin (Ram and Seth, 1989).

Consumer's resistance is negatively linked with innovation and has been a determining factor in the market for the success of new products (Ram 1987, Ram & Sheth 1989). The interesting thing about resistance is that it leads consumers to respond into three different forms: rejection, postponement, opposition.

Rejection is a form of response from consumer where it is not due to lack of awareness or knowledge of innovation. It arises when consumer a evaluates the situation of the innovation and leads to disinclination. The study by Rogers (2003) suggests that rejection is likely to result when the consumer is highly suspicious and the product in unproven. Additionally, Hirschheim and Newman (1988) identifies that rejection arises due to the basic human nature of conservatism and status quo. The prominent example was in food industry when McDonalds tried to position themselves with the new 'Arc Deluxe Burger', which had the slogan 'Burger with Grown up taste'. The idea of shifting towards sophistication from convenience was not embraced by masses in America as they were not used to it (Haig, 2003). The 5g example in mobile industry, some of the consumer's suspicion is high and not familiar with it (Warren, 2020).

Another response is **postponement**, where consumer is accepting the innovation to certain degree, however not ready to commit or adopt at that time. In other words, it is delaying the adoption of innovation to future (Kuisma et al, 2007).

Furthermore**, opposition** is also another form of response described as when consumers are maybe convinced that the innovation is unsuitable and decide to launch attack in the form of negative word of mouth. According to Davidson and Walley (1985) referred this as innovation sabotage because consumers actively involve themselves in strategies which will inhibit the innovation's success. The 5g in the UK is the prime example, where in the current situation some of the consumer's suspicion is high. Some of the 5G towers in the UK were burned down and some of the consumers expressed their resentment towards the 5G (Warren, 2020).

Smartphone industry has been evolving and growing at an enormous pace. Smartphone manufacturers have been continuously researching and understanding consumer behaviour in order to survive in highly competitive market. Smartphone industry mainly represents continuous radical innovation and therefore is faced with great consumer resistance than “incremental innovation" (Heiskanen et al., 2007; Garcia et al. 2007). Consumers who form resistance to innovation are mainly non-adopters and are comprised of significant part of the consumer base. These consumers have a strong potential for delivering useful information necessary for the implementation, development, and to the commercialization of innovation. These consumers should not be overlooked and in fact be given more attention in the research studies (Laukkanen et al., 2008). Several empirical studies have shown that innovation failure is due to consumer resistance (Heidenreich and Kraemar, 2016). Consumer resistance will remain one of the biggest threats in the future as well as for businesses (Abbas et l., 2017). Companies operating in smartphones such as Apple and Samsung have to continually review their innovation strategies to sustain their position in global market and understand consumers from across the world.

By analysing literature regarding resistance, there is generally discussion about habits. Bagozzi and Lee (1999) considers consumer’s habits at the passive resistance. Sheth (1981) termed habit as the crucial determinant in generating resistance. Habit is predisposition attempt for the uniformity and status quo, instead to change the old behaviour (Chernev, 2004; Gourville, 2005). In addition, the other determinant of passive resistance is too much information (Herbig and Kramer, 1994). If consumers utilize the information in short span, then in this capacity the information becomes burden. The burden of information happens usually when innovation changes rapidly and can be very problematic for consumers to streamline the information (Hirschan, 1970). According to latest study by Lily and Alhazmi (2018) suggested that Arab culture resist innovation in various forms and thus maintains a retro activism- dominated way of life. It further adds that retro activists play key part in reviving old norms and values to remind society to maintain past ideologies. However there have been several reports which suggests that the Saudi Arabian culture is shifting from ultraconservative to a liberal society. Moreover, Saudi Arabian consumers are generally viewed as big spenders and in the last 10-15

years, the Saudi society has seen massive increase of consumerism within country. The factors which have contributed towards this are media awareness and dominance of western values (Assad, 2008). However, there are drawbacks to this modernization and consumerism which directly contradicts with the Saudi cultural values. One of the studies showed that some people in Saudi Arabia were reluctant to use technology because it was reducing the personal connection and collectiveness within the society (Aldraehim, 2013). The study by al Raddawi (2014) suggested that Arabic and western values are significantly different which are rooted in their origins. Al Dossry (2012) concluded that Saudi society is still loyal to Islamic religion as a fundamental doctrine, and it has effect on their consumer behavior despite adoption of western good and services

There have been several studies which suggested that people's motive to adopt and reasons to resist varies qualitatively and influences their decision making. (Garcia et al. 2007; Kleijnen et al. 2009; Antioco and Kleijnen, 2010). This sets the foundation for exploring the consumer behaviour of UK and Saudi consumers towards resisting and adoption of innovation within in smartphone industry. The reasons for resisting innovation might not be opposite to the reasons to adopt innovation. For example, an individual might view relative advantage of electric cars and report positive attitudes towards it. However, despite this, an individual might still resist it because of other factors such as perceived image or cost barriers. (Chazidakis and Lee, 2013). Similar, a study conducted by Tansuhaj et al. (1991) suggested that global standardised marketing strategy for introducing new products will not be suitable as the resistance varies based on the culture. Overall, the literature review regarding innovation reveals that more efforts have been put previously on adoption of innovation instead of resistance of consumer's (Gatignon and Robertson, 1985, 1991; Ram !987). It has been pointed out by Ram (1989) and Sheth (1981) that it is more useful to emphasize on the factors affecting consumer resistance instead of innovation adoption. Innovation has two parts, one which is the first stage where resistance occurs and therefore is crucial to understand this phenomenon (Kuisma et al., 2007).

2.4.18 Sheth Model

This model by Sheth forms the foundation of the consumer resistance from a psychological perspective. It is easier to theorize about individuals who resist innovation instead of individuals who embrace them. According to Sheth's model (1981), there are two psychological constructs which are crucial in understanding innovation resistance from psychological perspective; Habit toward an existing practice or behaviour and Perceived risks associated with innovation adoption (Sheth and Stellner, 1979). The figure 2.15 below illustrates the Sheth model 1981 (Modelling psychology of innovation resistance) and its two psychological constructs (Kaufman et al. 2019).

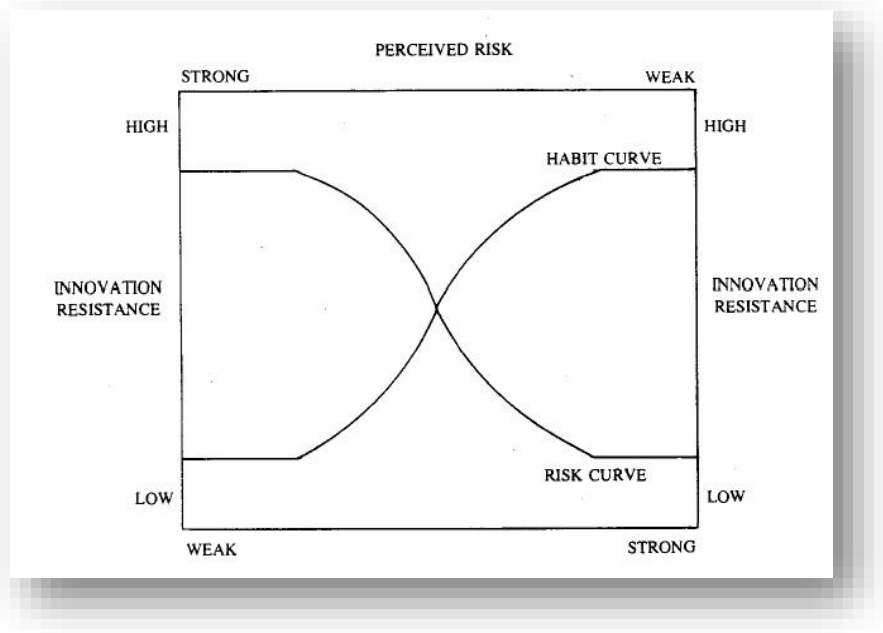

Figure 2.15: Modelling psychology of innovation resistance (Sheth, 1981)

Habit towards existing practice: The habit is single most powerful determinant in causing resistance to change. The more powerful the habits are to existing setup, the higher the resistance will be from consumers. The innovation which causes the ''change'' most in the behavioural setup of individual will be resisted more strongly than other innovations which generate change for a single behavioural act (Sheth

and Stellner, 1979). In the absence of motivational incentive, an individual is less likely to voluntarily pay attention to innovation communication or voluntarily commit himself/herself to try it out. The perceptual cognitive mechanisms are likely to be in actioning to preserve the habit because humans are wired and strive for consistency and maintain the status quo instead of embracing new behaviours. The stronger the habits towards existing setup, behaviour, practice it will result in great intensity of resistance. As explained above, Habit is extremely strong factor for generating resistance, but it is not the only factor. It is possible for individuals to generate resistance even in the situation where strong habits are absent (Sheth and Stellner, 1979).

Perceived Risk Associated with Innovation: This is the second major determinant of innovation resistance. The higher it is perceived risk of an innovation; it will lead to higher resistance towards innovation. The innovation which are discontinuous in nature are likely to be perceived with higher risk than continuous type of innovation (Kaufmann et al., 2019). There are three types of risk; aversive physical risk, which revolves around economic or social consequences, performance uncertainty; and perceived side effects which are linked with the innovation (Sheth and Stellner, 1979).

2.4.19 Ram Model

Following Sheth's model, Ram model (1987) was later formed to give more detailed insight on to resistance to innovation. According to Gatingnon and Robertson (1989) Ram's model of resistance is a useful framework to analyse the relationship between innovation and resistance. This model has been categorised into three different categories: innovation characteristics, consumer characteristics, and characteristics of propagation mechanism.

The factors of innovation characteristic comprise of compatibility, relative advantage, expectations, perceived risk and complexity. Whereas the factors of consumer characteristics are motivation, perception, innovative experience, education, income, and age. The propagative mechanism can be classified into two dimensions, level of marketer control and type of contact with consumer. When a new product is launched in the market, consumers are likely to face with marketing activities such as adverts which reduces the level of resistance towards that new product. Once the

product is being adopted by some people, propagation mechanism outside the marketer control comes into action in the form of word of mouth and reviews (Kaufmann, 2019]. All the above factors mentioned have different impact depending on the product and industry. Below is figure 2.16 illustrating Ram's model of innovation resistance.

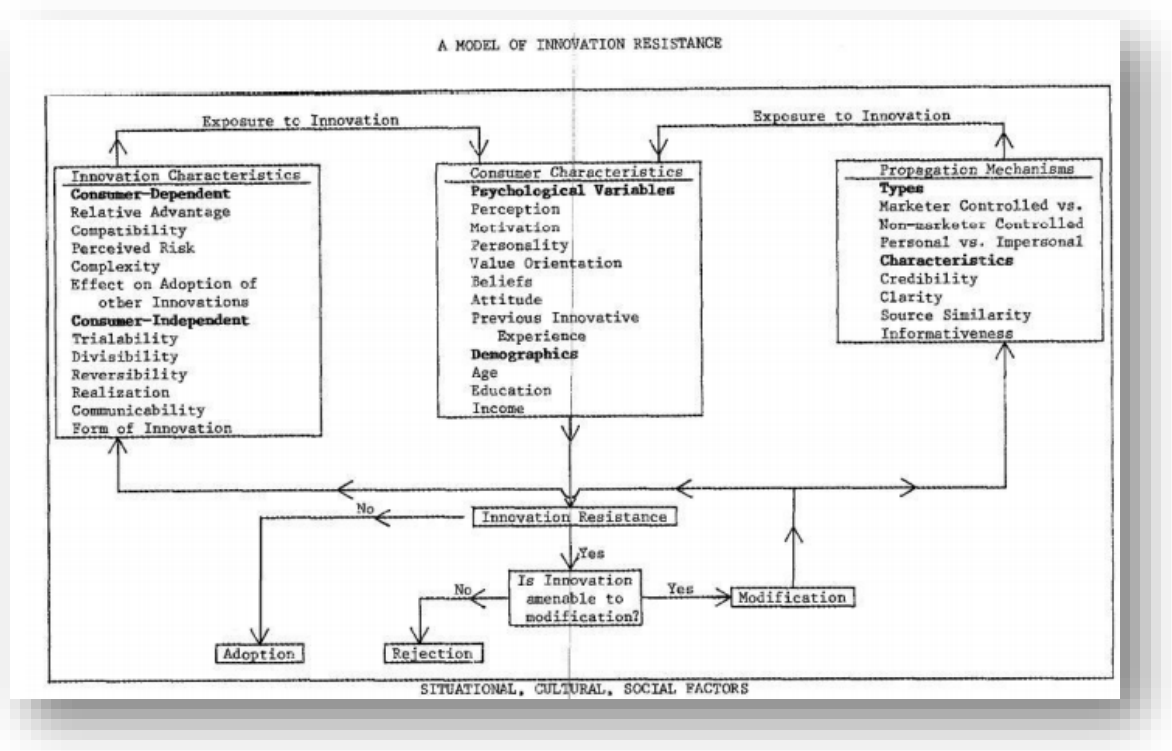

Figure 2.16: Model of Innovation Resistance (Ram, 1987)

2.4.20 Theory of reasoned action (TRA)

This is one of the pioneering adoption theories which was used to explain individual behaviour and developed in social psychology field. According to the Theory of Reasoned Action (TRA), individuals' intention to perform a behaviour (behavioural intention) determines what they do, and it is based on two things: perceived social pressures from people whom they want to please (subjective norms) and their own attitudes about the behaviour (Fishbein and Ajzen, 1975). Usually, people intend to perform behaviours that they feel positively about or that are popular with other people, and they do not intend to perform behaviours that they feel negatively about or that are unpopular with other people. Once the intention to behave a certain way is determined, people tend to follow through with the intention and engage in the

behaviour. Below is the figure 2.17 which illustrates factors determining individual's behaviour in TRA model.

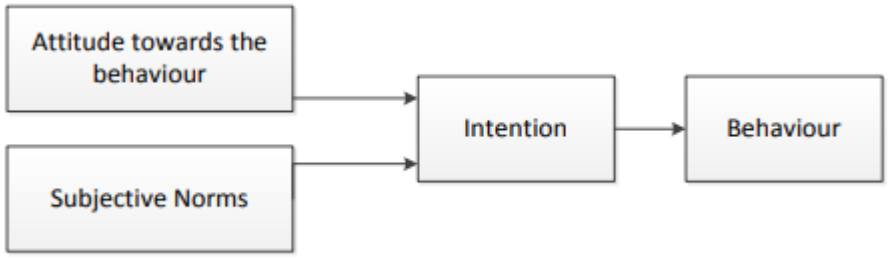

Figure 2.17: TRA (Fishbein and Ajzen, 1975)

The explanation of factors in TRA model are below:

Attitude towards the behaviour is the degree to which performance of the behaviour is positively or negatively valued.

Subjective norm is the influence of environment on behaviour. It is individual's perception of the majority of people who are importance to him or her think that he/she should or should not perform the behaviour.

Intention is an indicator of individual's readiness to perform certain behaviour

This theory can only explain planned behaviours, but cannot explain habitual actions, immediate decisions, or unconscious decision (Sheppard et al. 1988). In addition, one of the biggest limitations to this theory is lack of personality related factors such as demographic or cultural variables.

2.4.21 Theory of Planned behaviour (TPB)

The theory of planned behaviour was developed to reduce the limitations of TRA (Ajzen,1991). TPB is an extension of TRA by maintaining the central factors and the behavioural intention to perform certain behaviour. The difference of TPB from TRA is the added factors of perceived behavioural control (PBC). The component responds to a situation when individuals have incomplete control over some behaviour. Below is the figure 2.18 which illustrates TBP Model.

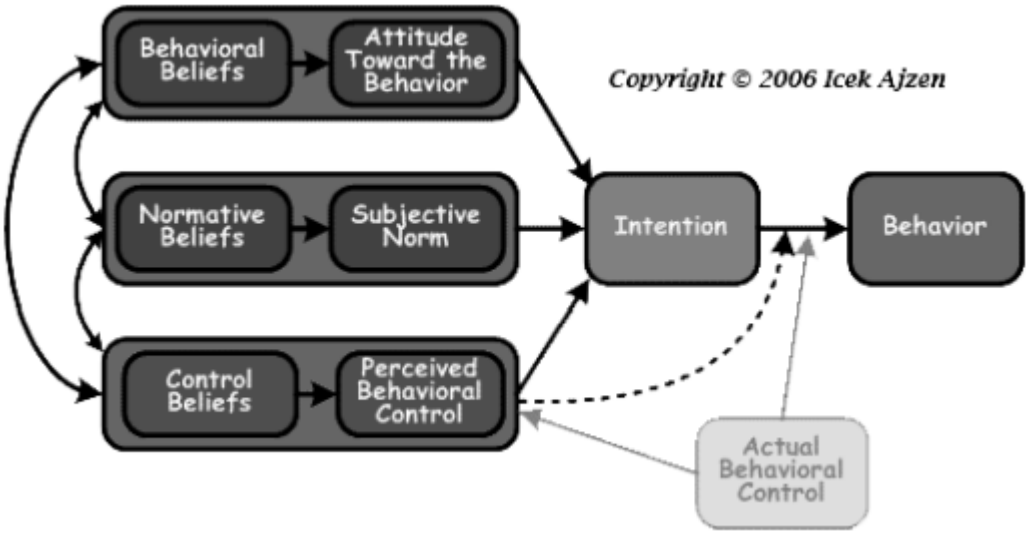

Figure 2.18: TPB (Ajzen, 2006)

The explanation of the components in TPB model are below:

Behavioural beliefs are the subjective probability that the behaviour will produce a given outcome. This factor also impacts attitude towards the behaviour.

Normative beliefs are perceived behavioural expectations from important referent individuals or groups such as friends, family, partners, teacher, doctor, and co-workers. Normative belief is derived from Subjective norm.

Control beliefs are the perception of the factors that may encourage of impede the performance of behaviour. Control beliefs influences PBC.

Perceived behavioural control refers to an individual's perception of the difficulty or ease of performing the behaviour of the interest.

Actual Behavioural Control is the extent to which an individual has the skills, resources, and other prerequisites needed to perform a given behaviour. This factor also influences Perceived Behavioural control. Together with intention, this factor can directly predict behaviour.

This theory is a broad framework and can be not easily applicable especially in fields such as technology adoption behaviour (Benbasat & Zmud, 1999; Taylor & Todd, 1995a)

2.4.22 Technological Acceptance Model (TAM)

In 21st century, the technological advancement has significantly impacted everyone's life on daily basis. It is difficult to imagine an office or household without being affected by the technology. Generally, there are positive perceptions associated with technology such as increased efficiency, productivity, and convenience. However, the implementations of these technologies might not be go as predicted or smoothly.

Consistently, many business organisations are investing heavily in new product development which are aiming to improve the lives of consumers. According to Harvard business research, each year there are more than 30,000 new products introduced to consumers and nearly 80% of them are failed (Kocina, 2013).

Due to the fact that implementation of technology is one of the big obstacles in development of society, this has triggered scholars to conduct research in this area. Existing theories regarding technological acceptance include technological acceptance model (TAM), Theory of planned behaviour (TBP), the theory of reasoned action (TRA), and unified theory of acceptance and use of technology (UTAUT). These theories and frameworks are still relevant for today's use and have been modified or extended depending on the context of research. Most of the study which involved smartphone adoption used TAM model (Chun et Al., 2012; Wan et al., 2012) or UTAUT model (Jung et al., 2015; Sanakulov and Karjaluto, 2017).

Following on the foundations of psychological perspective of resistance towards innovation. This model specifically examines resistance towards innovation with technology in context. According to TAM, the intentions to use new technology is affected by two things: perceived usefulness and perceived ease of use. The model has been constructed by Davis (1989) and was applied to explore consumer's resistance to new computer systems. This study later has been widely adopted and applied in the research which involved technology adoption behaviour of consumer towards new products (Gefen et al., 2004; Hsu et al., 2004; Luarn & Lin, 2005). Technological Acceptance model is derived from Ram's model; however, it adds technological innovation to consumer resistance. The perceived usefulness is related to the degree of complexity, while perceived usefulness is associated from relative advantage. These two factors are influenced by the external variable such as social factors, political factors and cultural factors. The attitude towards using is related to

individual's evaluation of desirability of using an information system, while Behavioural intention is the likelihood of the individual employing the application. Below is the figure 2.19 showing TAM model.

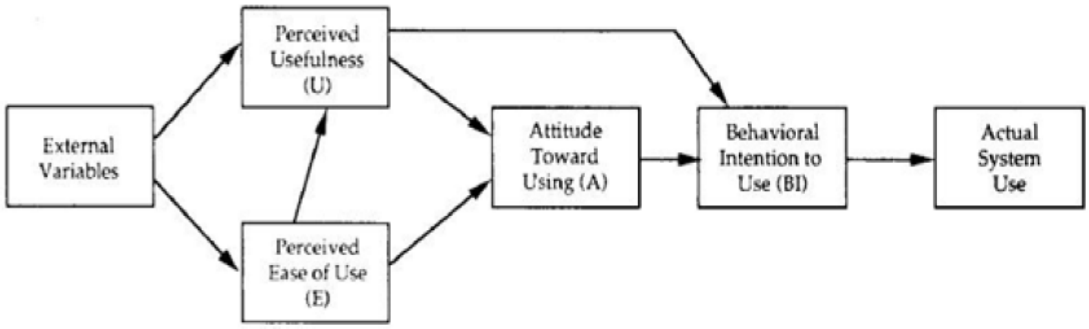

Figure 2.19: Technology acceptance model (TAM) (Davis, 1989)

Tam Model is one of the most popular frameworks that is used to predict the acceptance of technology and information systems by people. Several studies such as: Yang (2005), Yui Chi et al. (2007) and Amin (2008) have used TAM model to analyse consumer characteristic factors on their attitude towards online banking, mobile commerce, and phone credit cards. In addition, the study by Nysveen et al. (2005) used TAM model to explore effect of gender in explaining intention to use mobile chat services. Additionally, the study by Pak and Chen (2007) applied TAM model to investigate adoption of smartphone by medical nurses and doctors. On the other hand, it has received some criticism as well; the study by Pijpers et al. (2001) and Yang (2005), failed to provide understanding of consumer's perception of innovative technologies using this model. Below is the table 2.3 which shows the review of the literature using TAM model in smartphone related studies.

Literature	Area of research	Research purpose
Alalwan et al. (2018)	Mobile internet	*The study in Saudi Arabia examining the adoption of mobile internet by using TAM with perceived enjoyment, innovativeness and trust.*
Beldad and Henger (2018)	Smartphone application adoption	*The study in Germany utilising TAM to determine the willingness of using fitness app.*
Bouman et al. (2007)	Mobile services	*This research studied 6 mobile services- GPRS, mobile travel service, mobile surveillance, traditional and advance entertainment and m- commerce service bundles in Finland.*
Chen et al. (2009)	Smartphone adoption in logistic companies	*To analyse acceptance and diffusion of smartphones via case study approach in a logistic company.*
Chong et al. (2012)	Mobile commerce	*Examine the adoption of mobile commerce in Malaysia and China. The research reported that apart from TAM variables affecting adoption, culture can also affect adoption.*
Chtourou and Souiden (2010)	Smartphone adoption- browsing the internet.	*Evaluating the effect of fun aspect of consumers' adoption of technological products.*
Kim (2008)	Smartphone adoption	*Adoption of mobile internet in smartphones with TAM and other factors.*
Koeing-Lewis et al. (2010)	Mobile Banking	*Study related to barriers for adopting mobile banking services.*
Kang et al. (2011)	Smartphone adoption and their features	*TAM used to evaluate factors affecting the adoption of smartphone and features.*
Kim and Garrison (2008)	Mobile internet	*Tam used as a main theory with other factors to examine mobile wireless adoption such as PDA and Cellular*
Lin, Juan, and Lin (2020)	Smartphone application adoption	*Evaluating effect of smartphone application on tourism information search behaviours of foreign independent travellers in Taiwan.*

Mallat et al. (2006)	Mobile ticketing	*Study related to mobile ticketing service adoption in public transportation.*
Mizanur and Sloan (2017)	Mobile commerce	*The study conducted in Bangladesh integrating Tam with perceived risk, perceived cost and personal awareness to examine the adoption of mobile commerce*
Nysveen et al. (2005)	Mobile messaging services	*Analysing effect of gender in explaining the intention to use mobile chat services in Norway.*
Park and Chen (2007)	Smartphone Adoption	*Investigating human motivations affecting adoption decision for smartphone among medical doctors and nurses.*
Rafdinal and Agriqisthi (2020)	Mobile gaming	*The study analysed factors in mobile game adoption by using TAM and game features.*
Roy (2020)	Smartphone app usage	*The study in India examined the adoption behaviour of mobile apps using TAM.*
Shin (2007)	Internet mobile	*TAM used to explore the adoption of mobile internet in South Korea.*
Shin (2009)	Mobile payment	*The study in Korea validated a model of consumer acceptance in regard to mobile payment. The results found perceived usefulness, perceived ease of use, trust, and perceived security affect consumer intention when using mobile payments.*
Shukla and Sharma (2018)	Mobile shopping	*The study in India evaluated adoption of mobile grocery shopping on mobiles using TAM.*
Tahamtan et al. (2017)	Smartphone adoption in medical sector	*The study in Iran explored factors affecting smartphone adoption for accessing information in medical settings.*
Trivedi, Chauhan, and Trivedi (2021)	Smartphone adoption	*Exploring consumer decision factors in adopting smartphone by utilising TAM and Multi-Attribute Utility theory in India.*

Verkasalo (2010)	Mobile apps	*Examining adoption of new mobile apps, internet, games, and maps.*
Wismantoro, Himawan, and Widiyatmko (2020)	Smartphone usage	*This study was conducted in Indonesia and focused on the application of the Technology Acceptance Model (TAM) to determine the willingness of batik and textile craftsmen to use smartphones.*
Wu and Wang (2005)	Mobile commerce	*The study was related to mobile commerce using DOI, TAM, Cost and Perceived risk.*

Table 2.3: Review of the literature using TAM model in smartphone related studies

It can be seen from the table above that TAM is one of the most popular theory used when understanding technology adoption research. The most recent literature related to smartphone have adopted TAM in their studies which indicates its' ease of application and usefulness in present context. According to Olushola and Abiola (2017) TAM is robust, strong, and parsimonious model for predicting user acceptance of information technologies. It has been used in many empirical studies and proven to be of quality and statistically reliable.

2.4.23 Unified Theory of Acceptance and Use of technology (UTAUT)

In 2003, UTUAT was developed based on TAM, TPB and DOI (Venkatesh et al. 2003). The improved factors are Effort expectancy, Performance expectancy, Social influence and Facilitating conditions that affect independent variables. The moderating variables are gender, age, experience and voluntariness of use. Below is the Figure 2.20 which illustrates UTUAT model.

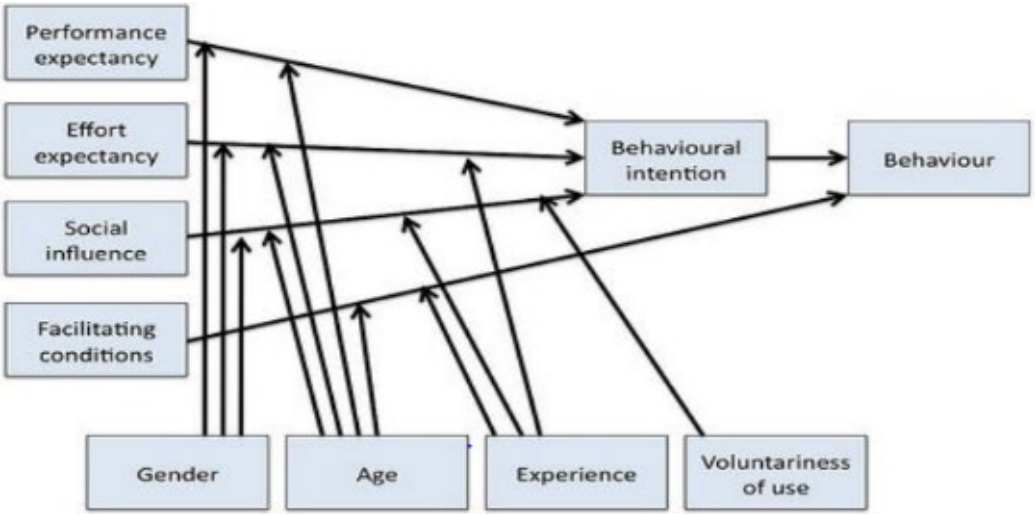

Figure 2.20: UTUAT Model (Venkatesh et al. 2003)

Below are the explanations of UTUAT's variables (Venkatesh et al., 2012).

Performance expectancy: This can be referred as a degree to which an individual believes that using the system will help him/her to attain gains in job performance. This variable is similar to perceived usefulness from TAM and relative advantage from DOI.

Effort expectancy: This can be referred as the degree of ease associated with the use of the system. This variable is similar to perceived ease of use from TAM and complexity from DOI.

Social influence: This can be referred as the degree to which individual perceives it to be important that others believe that they should use technology. This factor is similar to Subjective Norm from TRA.

Facilitating Conditions: This can be referred as the degree to which individual believes that technical and organizational infrastructure exists to facilitate the support of the system. This variable is similar to perceived behavioural control from TPB and compatibility from DOI.

The UTUAT model has also been widely adopted and below is the table 2.4 which shows the review of the previous literature using UTUAT model within smartphone related studies.

Literature	Research domain	Research purpose
Al-adwan, Al-adwan, and Berger (2018)	Smartphone learning adoption	The study in Jordan exploring the factors affecting mobile learning in higher education by utilising UTUAT model.
Alam, Hu, and Barua (2018)	Smartphone adoption in health sector	The study in Bangladesh used UTUAT model to determine factors affecting use of Mobile health services.
Alkhunaizan and Love (2012)	Mobile commerce	Examining factors affecting m-commerce in Saudi Arabia.
Boontarig et al. (2012)	Smartphone adoption in e-health service	Study conducted in Thailand explored the factors that influenced older population's purchase intention to use smartphone as e-health services. Using UTUAT
Carlsson et al. (2006)	Smartphone adoption devices and services	Study in Finland analysed mobile device using UTAUT in organisations.
He and Lu (2007)	Mobile advertisement	The Chinese study examined consumer's perception and acceptance of mobile advertising in SMS
Kamboj and Joshi (2021)	Smartphone application	Examining the factors influencing smartphone apps use at tourism destinations by utilising a UTAUT model
Kijsanayotin et al. (2009)	IT in health	Influencing factors affecting IT adoption in community health centres in Thailand.
Lee at al. (2012)	Applications in Smartphone	Research used UTUAT, personalization and credibility to examine smartphone application adoption.
Nur and Panggabean (2021)	Mobile payment adoption	The study in Jakarta examining the factors influencing adoption of Mobile payment among Generation Z.
Park et al. (2007)	Mobile communication technology	Study in China investigated mobile communication technology adoption

Pitchayadejanant (2011)	Comparison of adoption between Blackberry and iPhone	UTUAT used to identify use of smartphones in Thailand.
Shi (2009)	Mobile application	The study from China used UTUAT to investigate smartphone software adoption.
Song and Han (2009)	Smartphone applications	The study conducted in South Korea analysed the adoption of smartphone applications.
Thomas, Singh, and Renville (2020)	Mobile learning	The study in conducted in Caribbean to examine the factors determining mobile learning.
Venkatesh et al (2012)	Mobile internet	The study used UTUAT2 to study acceptance and use of technology among consumers in Hong Kong.
Walrave, Waeterloos, and Ponnent (2021)	Smartphone application	Investigating the adoption of COVID-19 contact-tracing technology using UTUAT model in Belgium.
Zhou (2008)	Mobile commerce	The study in China used UTUAT's significant factors influencing user acceptance of mobile commerce.
Zhou et al. (2010)	Mobile Banking	This research used UTUAT to explain mobile banking adoption in China.

Table 2.4: Review of the literature using UTUAT model in smartphone related studies

It can be seen that UTUAT model is also widely used by previous researchers within smartphone context. UTUAT predicts technology intention of use up to 70% as compared to other models. Although this model is significant, but it is still weak in terms of determining impact of cultural factors affecting intention to use new technology (Chiemeke and Evwiekpaefe, 2011) and concerns regarding parsimony (Williams et al., 2011).

2.4.24 Diffusion of Innovation theory (DOI)

The high failure rate of innovation in the marketplace is concerning for managers and market researchers. One of the key reasons behind this is, businesses not understanding the innovation diffusion within the society. The adoption of new devices and gadgets in human society is explained by Prof Everett M Rogers in his book of ‘’Diffusion of innovation’’ (Ali and Miraz, 2015). Roger identified that diffusion is the process of how uptake of innovation and news is communicated through networks and social contacts with respect to time. The diffusion of innovation suggested that there are four factors which effects rate of spread of an innovation. The four factors included innovation itself, time, communication channels, and social system (Rogers, 2003). In addition, for innovation to flourish it must be financially supported and adopted by mass. According to Rogers (2003) there are five categories of adopters, which can be defined as ‘’classification of members of a social system on the basis of innovativeness’’. The figure 2.21 below illustrates the five categories of adopters.

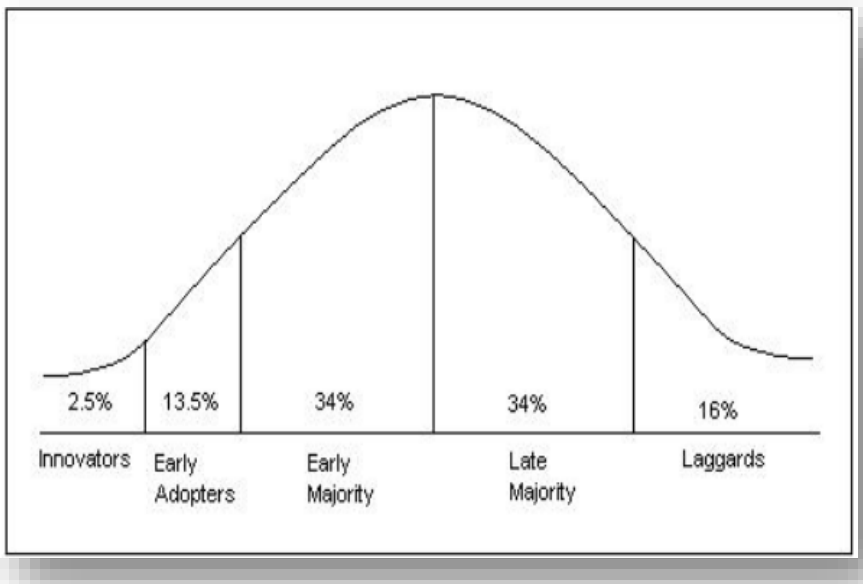

Figure 2.21: Adopter categorisation on the basis of innovation (Rogers, 2003)

Innovators: These are the pioneer adopters of technology and likes novelty. These people are risk takers and innovate themselves. The people who fall under this category needs minimal persuasion for adopting new technology.

Early adopters: These people are aware of the need of change and are strategic leaders. Early adopters are responsive to the innovation changes and technologies. They require little support and information on how to adopt technology. They believe in indulging themselves in ‘’do it yourself’’ activities and cope with new innovation. Early adopters are more likely to have leadership role in social system and plays key role in diffusion of innovation. Other members of society will come to early adopters to seek advice or approval for adoption of innovation.

Early Majority: These people are not leaders or pioneers in adopting innovation, however once the evidence is presented to them regarding benefits of innovation then eventually, they adopt the innovation. They are neither the first ones to adopt nor the last ones to embrace the innovation.

Late Majority: These people are doubters and holds reservation to the innovation. They will only embrace the innovation after majority. In order to be persuaded about any new innovation, they need to see others have successfully benefited from the innovation. Similar to early majority, the late majority comprises of one-third of all the members of the social system who waits until most of their peers have embraced the innovation.

Laggard: People who fall under this category are traditionalist, conservatives, and sceptics. They are resistant to change and toughest to convince. In order to change their mind, they need to be presented with statistics, pressure from other groups, and even fear appeals.

Moreover, Rogers (2003) explained the innovation-diffusion process as an ‘’reduction in uncertainty process’’. Rogers (2003) suggested five attributes of innovation which can help decrease the uncertainty linked with innovation. The attributes of innovation include five characteristics of innovations: relative advantage, compatibility, complexity, trial-ability, and observability.

Relative advantage: This is the extent to which innovation is viewed to offer an advantage over the existing instrument it is replacing.

Compatibility: Compatibility is as an extent of how well innovation integrates or blend with current idea or product in terms of user experience, needs, and values.

Complexity: The innovation if viewed to be overly complex, it would hinder people in the society to adopt. According to Rogers (2003) complexity is negatively correlated with the rate of adoption.

Trialability: the innovation must be easily experimented or tested, so people can try it before making decision. The trialability is positively correlated with rate of adoption. The more an innovation is tried, the faster it will be adopted.

Observability: The innovation must be seen to produce observable and concrete results by subject. The relative advantage, trialability, compatibility and observability are all positively correlated with adoption of an innovation.

The process of adopting innovation has been studied for several years in past, however Roger's work of Diffusion of Innovation remains one of the most popular adoption models (Sherry and Gibson, 2002). The work has been applied to various disciplines such as political sciences, public health, history, education, and technology (Dooley 1999; Stuart, 2000). However, despite being used in several studies over different disciplines, the theory of diffusion has attracted criticism as well by researchers. The study by Pace (2013) emphasized that this model is outdated, and innovations nowadays are so radical that current models of innovations are not sufficient to understand. Similarly, Peres et al. (2010) pointed out that innovation has become multifaceted and increasingly complex which makes it hard for the previous theories to become relevant. Although DOI theory explains the decision-making process behind adoption and categorises the adoption, but it does not explain how attitude is involved in the adoption procedure (Karahanna, Straub, and Chervany, 1999; Chen, Gillenson, and Sherrell, 2002). To overcome such weaknesses, further developments of the model and theory were made. In addition, Wood (2017) identified that customer expectations change over time and diffusion of innovation does not take that into consideration.

Overall, several studies in past are focused on exploring how technology is perceived and examine their behaviours on how consumers interact with technology (Moore and Benbasat, 1991). There has been common interest with researcher in past to analyse adoption of technology with user demographics in context such as age, education level etc (Kim, 2009). Also, several studies focus on product itself and their features contributing towards adoption (Henard and Syzmanski, 2001;

Moreau et al., 2001). However, the sociological studies emphasize less on the product factors, but more on the characteristics of the society (Selwyn, 2003; Slowlkowski and Jarratt, 2007). These studies suggest that analysing the relationship between users might be more useful than the factors of the product itself when it comes to technological adoption (Brown and Duguid, 1991; Haggman, 2009).

2.4.25 Risk to innovation

Consumers generally perceive a risk towards innovation and unfavourable side effects which cannot be anticipated (Ram and Seth ,1989). According to Rijsdijk and Hultink (2003) there are various types of risks involved from customer's perspectives towards innovations such as Financial risk, Performance Risk, Psychological risk. Physical risk and Risk of time loss.

Jacoby and Kaplan, 1972 stated that performance risk is that where something faulty is perceived with innovation. It includes concerns of nature such as durability, functionality, or utility of an item. The main reason for performance risk is lack of prior experience and the idea that innovation has not been fully tested (Ram and Seth, 1989). Financial risk is associated with the unfavourable financial consequences for the potential customer (Jacoby and Kaplan, 1972). The financial risk increases if the price of the innovation is high. Psychological risk denotes that the adoption will not align with the self-image of a consumer (Jacoby and Kaplan, 1972). Many innovations are rejected because customers are emotionally attached to the current technology (Castano et al., 2008). Physical risk refers to the chance of adoption of an innovation which may be harmful or injurious to health. Innovations like smartphones could be considered as a health hazard according to some individuals. Risk of time loss is associated with waste of time, efforts, conscience (Roselius, 1971). This kind of risk increases, if customer experience is low and investment of time and money is high towards innovation.

2.4.26 Summary- 3rd part of the literature review

This part of the literature (*Consumer and Innovation*) assisted researcher in understanding the concept of newness from the psychological point of view and analyse how consumer from different countries perceive new products. Moreover, it examined the consumer resistance and adoption behaviours towards innovation by

reviewing seven of the most influential models in the literature (TRA, TBP, DOI, TAM, UTUAT, SHETH, RAM).

2.5 Culture (Part4)

In the final part of literature, the researcher will be reviewing and explore the link of culture and innovation. This chapter will introduce Hofstede's cultural dimension theory and examine previous literature linked to it. The goal of this chapter is to provide the solid foundation on the impact of culture towards innovation.

2.5.1 Culture and innovation

The academic review notes more than 150 definition of culture which explains the importance and complexity of this phenomenon (Kluckohn and Kroeberg, 1952). The meta-analysis conducted by Baldwin et al. (2006) counted over 300 definitions of culture. The analysis further showed that researchers of culture generally have one of seven approaches; they view culture as function, structure, process, refinement, product, group, or power (Faulkner et al., 2006). It has been pointed out that culture is extremely difficult to define (Condon and LaBrack, 2015) and it represents series of mutually incomparable concepts (Winthrop, 1991). According to Beck and Moore (1985) national culture can be explained as beliefs, assumptions, and values which are learned in the childhood which distinguish one segment of people to other. Schwartz (2014) defined culture as common values in a group of people that differentiates the members of the group from others and shapes one's behaviour. According to Jones and Davis (2000) similarities in national culture are derived from common history, language, and religion. The studies which are based on culture, majority of work is built on from Hofstede's original framework. According to Bond (2002) Hofstede's work is the most widely cited when it comes to culture. The most cited definition of culture is by Hofstede and Hofstede (2005) and defined as the collective programming of individual's mind that differentiates the one member of group from another. Hofstede's book in 1980; ''Culture's Consequences'' and is still one of the most influential publications in international business. The original publication, along with newer editions, has been cited more than 50,000 times according to Google Scholar (Devinney and Hohberger, 2017). Culture is embedded in daily life and is resistant to change which affects the consumer behaviour (Newman and Nollen, 1996). Cultural misunderstanding and lack of empathy by

businesses leads to conflicts (Zhang et al., 2003). According to Lee (1996) cultural misunderstanding occurs when one assumes that other culture is similar to yours or takes the differences for granted. According to Pukthuanthog and Walker (2007) due to advancement in globalisation, understanding cultures is the biggest objectives of the businesses. According to Bowman and Okuda (1985) the biggest brands are the ones who have successfully understood other markets and cultures while holding their own values.

According to study conducted by Lundvall (2007) concluded that various aspects on the national level impact the motivation of the innovation. The research done by Jones and Davis (2000) confirmed that national culture affects the level of the innovation within the country which impacts consumers on individual level. A society's values will steer the process of technological development and adoption. Herbig and Dunphy (1998) analysed that existing cultural condition determines if what type, when, and how innovation will be adopted. Moreover, Williams and McGuire (2010) concluded that culture of the country shapes the attitude towards innovation.

2.5.2 Culture and consumer behaviour

Below is figure 2.22 which shows Hofstede's cultural dimension of UK and Saudi Arabia.

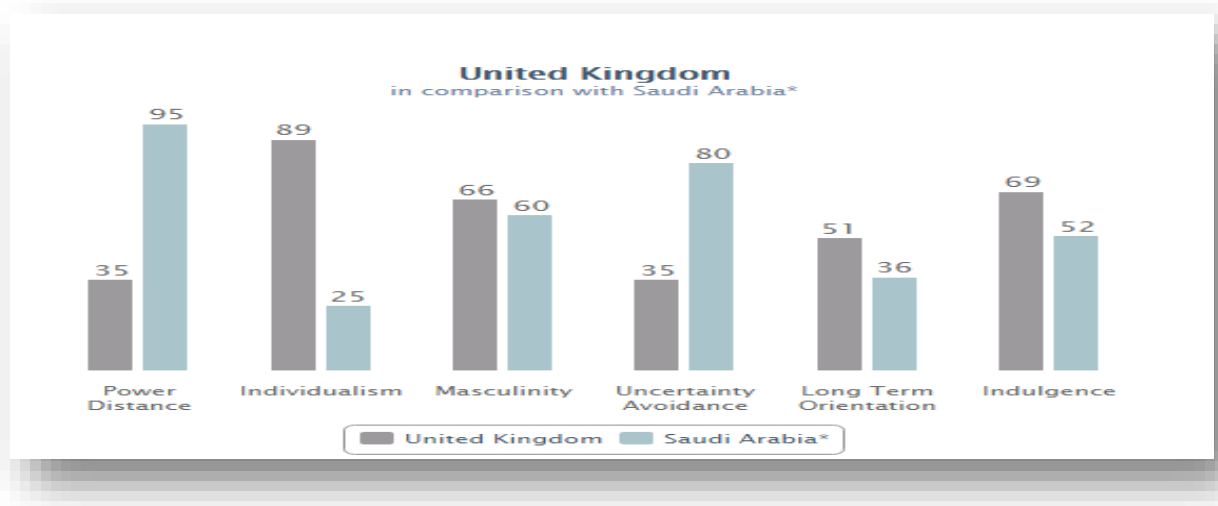

Figure 2.22: Hofstede cultural dimensions: UK and Saudi Arabia (Hofstede, 2010).

Hofstede created dimensions which showed differences across the cultures. The framework proposed 6 dimensions (Hofstede, 2017).

Power distance: This dimension expresses the degree to which less powerful members of the society accept and expect the power to be distributed equally. Saudi Arabia score 95 as compared to 35 by United Kingdom. This indicates that society in UK believes that in equality should be minimized as opposed to Saudi society. Power distance is a dimension of culture which reflects the level of acceptance towards unequal distribution of preference and power between superiors and subordinates (Hofstede et al*.,* 2010). If someone belongs to the culture with high power distance, you will tend to believe in hierarchy of power and understand everyone has specific place in society. For example, nations such as Mexico and Russia will tend to accept and expect unequal distribution of power. On the other hand, countries like Austria and Sweden will place more emphasis on equality and decentralisation (Hofstede et al., 2010).

The culture with high power distance is generally considered to have respect for authority and elders, whereas the culture with low power distance believes in treating children as equals and accepting criticism from them (Hofstede *et al.*, 2010). In addition, cultures with high power distance in organisational context have a tendency towards less conflict, because subordinates find it difficult to criticize or confront the authority which can hinder the innovation process. Conversely, cultures with low power distance encourages initiatives by subordinates which generally supports the innovation process (Hofstede et al*.,* 2010).

Previous studies have shown that power distance is inversely proportional to innovation (Halkos & Tzeremes, 2013; Rinne et al., 2012; Shane, 1992, 1993) In addition, power distance has shown to be related with less consumer information (Erumban and Dejong, 2006) and lower adoption towards new products (Kumar, 2014). On the other side there have been some studies which suggest otherwise regarding Power distance and its' impact on innovation in operational activities in enterprises. The study by Veechi and Brenan (2009) suggested that power distance had a positive impact on the innovation inputs. Furthermore, the study by Jones and Davis (2000) linked a positive relationship between power distance and innovation adoption. At national level, the counties with small power distance are seen living

with modern technology, social mobility, and urban living. All of these is possible due to the innovation process acceptance in small power distance countries (Hofstede et al., 2010).

Individualism/collectivism: Individualism believes in ‘’me’’ not ‘’we’’ and are expected to be independent in their thinking process. Collectivist society tends place importance on group more than individual. United Kingdom scores 89 as opposed to collectivist Saudi Arabian society of 25. This means in UK children are taught from early age to be unique and independent. This cultures with high individualistic score are considered to have loose ties between people and it is a society where ‘’me is above we ‘’ (UK and USA). The countries which are collectivist such as Pakistan and Columbia are believed to have strong links between people and places importance on groups over individuality. The core values of individualistic culture are ‘’ autonomy and freedom’’, while in collectivist cultures it is ‘’loyalty and integration’’ (Hofstede et al., 2010). According to Shane (1992) individualism promotes the traits that encourages entrepreneurship, creativity, and innovation. According to Lee et al. (2013) the consumer in the individualistic society acts more independently than collective society and are more attractive towards the new products (Kumar, 2014).

In organisational context, the studies by; Hofstede et al., 2010; Shane, 1993; Taylor & Wilson, 2012, has linked individualism with more tolerant environment for ideas and incentives for innovators.

In macro environment context, there is a positive relationship between GNI (gross national income) and individualism. The economy which is derived under individualism is usually have a restrained government’s role in the economy, high social mobility, and emphasis on the policies which encourages the ideologies of freedom over equality (Hofstede*., 2010).* This dimension has been one of the most importance regarding innovation according to several studies: Taylor and Wilson 2012; Rinnie et al., 2012.

Masculinity: This dimension relates to a society that is driven by competition, achievement, and success. Both Saudi Arabia and UK fall below 70.

This dimension focuses on the gender differences within the society. In societies where Masculinity is higher such as Venezuela and Japan, gender roles are distinct,

men are expected to be assertive and tough, while women are expected to be gentle and modest (Hofstede, 1997). Countries such as Sweden and Norway are considered highly feminine societies and gender roles do overlap (Hofstede, 1991). The culture which is masculine values recognition and advancement, whereas feminine society values quality of life and relationships (Hofstede., et al 2010*).* This dimension according to previous literature had contrasting findings in context to its' impact on innovativeness. According to Halkos and Tzermes (2013) suggested that there is a positive correlation between masculinity and national innovativeness. However, the study conducted by Rinnes et al. (2012) found this correlation of national innovativeness and masculinity insignificant. The study by Steenkamp et al. (1999) found the relationship between masculinity and consumers' propensity to buy new products in order to display success and accomplishment.

Considering the masculinity under the organisational level, the study by Jones and David (2000) argued that masculinity encourages innovativeness because it focuses on accomplishment, achievement, success etc. On the other hand, masculinity can create a high ego atmosphere as per studies which can lead to disruption in innovation processes (Berdahl et al., 2018).

Masculinity in government's institutions showed that it prioritized growth, while feminine cultures emphasized on the living environment (Hofstede., et al 2010*)*. These both strategies could be argued can be used for innovation and it shows how complex is the relationship between masculinity and national innovativeness.

Uncertainty avoidance: This refers to how well people can cope with uncertainty. Saudi Arabia scores 80 on this dimension and prefers avoiding uncertainty. This means countries scoring high on this are intolerant towards unorthodox behaviour and ideas which might emerge. Uncertainty avoidance (UAI) is the dimension which reflects the tolerance of the society on unpredictability and ambiguous (Hofstede et al., 2010) Belgium and Greece can be classified as high in uncertainty avoidance, while Singapore and Sweden can be categorised as low in uncertainty avoidance. The general perception based on previous studies is that the uncertainty about new goods and services increases in high uncertainty avoidance cultures (Rubera et al., 2012; Yalcinkaya, 2008). Uncertainty avoidance is considered to have negative impact on consumers' propensity of buying new mobile and internet (Hofstede et al.,

2010). In addition, low uncertainty avoidance culture demonstrates risk-taking and ease with unknown, while countries who score higher are hesitant towards new information and unknown.

However, the study by Tellis et al. (2003) indicated that new products sell quicker in high uncertainty avoidance cultures. The Uncertainty avoidance in the organisational context, suggest similar themes. According to Elenkov and Manev (2005) indicated that manger's impact on the innovation towards product/service is negatively related to high uncertainty avoidance culture. In addition, the earlier study by Shane et al. (1995) found that cultures which score high in uncertainty avoidance limits the role of employee in innovation process.

At national level according to several studies gives a similar trend. The study by Allred and Swan (2004) showed that cultures with high uncertainty avoidance tends to obstruct the innovation process and protect them from technological changes by implementing actions such as nationalism, protectionism, trade barriers etc. According to Hofstede (2010) uncertainty avoidance is directly proportional to the corruption which impacts the reputation of the country and affects the innovation process.

Long-term orientation: It refers to how every society has to maintain some links with its own past while dealing with future challenges. The countries which score low on this dimension chooses to uphold the time-honoured traditions and norms. On the other side, countries who score higher prefers to be more pragmatic and encourage thrift and efforts. Germany and China are among the categorised under long term orientation, while Iran is categorised as short-term orientation (Hofstede et al., 2010).

This dimension's effect on consumer behaviour is interesting and complex. The study by Yalcinkaya (2008) found that long term orientation encourages slow adoption of new ideas, while short term orientation cultures boost the adoption process of new goods/services for recognition and status. Generally, it is observed that new products taking off is slower in Confucian Asia than in Nordic European countries (Chandrasekaran & Tellis, 2008).

In organisational level the impact of long-term orientation is significant on innovation process. High long-term orientation countries correlate with R&D intensity (Allred and Swann, 2004). High long-term orientation encourages the initiation and implementation phase (Nakata & Sivakumar, 1996). Countries which score high in long term orientation adapts quicker to B2B innovation (Van Everdingen & Waarts, 2003; Waarts & van Everdingen, 2005). Another study by Tajeddini & Trueman, (2012) suggested that new ideas are believed to be useful in high long-term orientation cultures.

Indulgence: This dimension relates to the extent to which people try to control their impulses and desires. A high score of 69 by United Kingdom indicates that they based their decisions on impulse and desires. This is relatively new dimension within this model, and it could be defined as the extent to which people try to control their impulses and desires based on the way they are raised. Strong control is called Restrain, while weaker control is called Indulgence. Indulgence within society reflects that it allows free gratification of basic human needs, while restrain stands for a society that curbs gratification by stringent societal norms (Hofstede et al., 2010). Indulgence has been so far negatively correlated with Hofstede's power distance and Globe's in group collectivism. Previous studies have shown that indulgence is positively correlated with design innovation, which offers satisfactions with their creativity; however, it is negatively correlated with technological innovation (Bukowski and Rudnicki, 2018).

On the macro level, it appears that indulgence is positively related with freedom of speech and negatively correlated with choosing to maintain an order in nation (Hofstede et al., 2010, pp. 295-296). This combination may contribute towards the flowing of ideas and cause disruption in demands within society which may assist towards innovation. The study by Syed and Malik (2014) concluded that cultures with low uncertainty avoidance and high indulgence adopts new technology better than the cultures high uncertainty avoidance and low indulgence. This dimension needs further verification and evidence, however based on majority previous studies it can be expected that indulgence leads to support national innovativeness.

2.5.3 Criticism on Hofstede's cultural dimensions theory

Hofstede's research has been one of the most cited studies and had remarkable effect on academics and practitioners' various fields. Hofstede's model has been a foundational framework which is used for implementation by business systems such as entrepreneurial behaviour, training design, conflict relation, leadership styles, innovation, and several other cross-cultural issues (Michael, 1997, Smith, 1998). Geert Hoftede's research began in 1980 which comprised of 116,000 questionnaires, from which 60,000 people responded across 50 countries. Hofstede worked with IBM which at that time was identified as 'Hermes'. Hofstede provided factor analysis of 32 questions in 40 countries, from which he identified bipolar dimensions. Hofstede initially distinguished four, later five and finally even six dimensions of culture orientation that are different for various national cultures (Hofstede, 2001). According to Bhagat and Mcquaid (1982), Hofstede's works is without a doubt the most important cross-cultural study. Hofstede has been termed as one of the leading academics in the field of culture by several other researchers; Kirkman et al., 2006; Merkin et al., 2014). In addition, Hofstede's work is the most extensively used framework among researchers and practitioners (Sondergaard 1994; Ross, 1999; Furrer, 2000; Gong et al., 2007). The study by Holden (2004) concluded that Hofstede's work can still be viewed as the most comprehensive and relevant work in cultural differences context. According to Sondergaard (1994) the Hofstede study has been citated 1,036 times, while another study which is highly regarded in the field by Mile and Snow only received 200 citations. Also, the similar study pointed out that Hofstede's work is the foundation, because at that time there was little, or no work done in cross culture field. The Hofstede's study opened the doors for other researcher and practitioners to build on from his framework. Furthermore, several studies have been developed to test the relevancy of Hofstede's questions and they have confirmed the accuracy of Hofstede's dimension (Sondergaard, 1994).

On the other hand, despite its extraordinary impact on cross cultural studies, Hofstede's work has been criticised by some scholars. One of the main criticisms has been that study of Hofstede is out-dated especially with today's rapid changing globalisation and convergence (Mc Sweeny, 2000; Wu, 2006). Hofstede's counter argument to this argument is that cross cultural outcomes were based on centuries of indoctrination and programming. The recent replication of studies has supported

the notion that cultures does not change overnight (Hofstede, 1998). Mc Sweeney (2002) and Orr and Hauser (2008) has further argued that there might be a 'political influence' on the developments of some dimensions of Hofstede particularly uncertainty avoidance and masculinity in the time of cold war. Furthermore, Mc Sweeney (2002) criticised that nations are not the best unit of examining the cultural aspect and surveys are not the most suitable ways. Hofstede (2002) countered that nations might not be the best possible way of measuring cultural aspects, but often the only available for conducting this kind of research. In addition, Hofstede (2000) agrees with the idea of surveys not being only research instrument and therefore welcomes other researcher to come up with proposals. Further argument against Hofstede's work is that it is methodically questionable to assign the results of subordinates of one company and generalise to the whole nation (McSweeney, 2002). However, variety of frameworks and research have shown that national culture values are related to workplace attitudes, behaviours, and other organizational outcomes (Kluckohn and Strodbeck, 1961; Hall, 1976; Ronen and Shenkar, 1985; Trompenaars, 1993; Schwartz, 1994). Overall, Hofstede's work till this day remains one of the crucial frameworks in analysing cultures and conducting cross cultural studies.

There are three significant large scale cultural dimension models which overlap in some way, but are different in respect to sampling, purpose, and type of questions asked. The models that include cultural values and can be used for cross cultural research are Hofstede (1980), Shalom Schwartz (1992), and project GLOBE (House et al., 2004). Hofstede's work explored the differences in work motivations of all the levels of employees across the world. Schwartz (2011) focused on basic values on which individuals differ in all cultures and developed into a theory. While Robert House, who initiated the GLOBE was eager to examine the effectiveness of leadership styles (House et al., 2002). Hofstede's work revolved around group of employees in seven occupational categories within one global country which was present in 66 countries. Schwartz work utilized teacher and students in 54 countries, while GLOBE surveyed middle management in 951 organisations in 62 societies (De Mooij, 2003)

Overall, the work by Hofstede remains the most used by other researchers in international marketing settings and comprehensive. The study by Hadwick (2011)

compared Hofstede's model with GLOBE study and concluded that Hofstede's work is simpler and more familiar than GLOBE's work. In addition, Hofstede's dimension creates a common language for researchers in psychology, management, anthropology which can later be used to interact across disciplines. When it comes to Hofstede vs Schwartz cultural framework model, the study by Steenkamp et al. (2001) pointed out that Schwartz might have a better theoretical foundation, but it has not been tested empirically enough. In addition, the study by Drogendijk and Slangen (2006) compared Schwartz work with Hofstede's and concluded that scholars can reliably still use both Hofstede and Schwartz measure of culture distance and therefore is premature to dismiss Hofstede's work as outdated. Additionally, the study by Magnusson et al. (2008) compared cultural frameworks and examine the validity of it. The study found that the cultural distance based on Hofstede's work had stronger convergent validity as compared to cultural distance based on Schwartz' and GLOBE's scale. Hofstede's book in 1980; ''Culture's Consequences'' is still one of the most influential publications in international business. The original publication, along with newer editions has been cited more than 50,000 times according to Google Scholar (Devinney and Hohberger, 2017).

2.5.4 Kano Model

Customer satisfaction has a significant impact on the profitability of the business organisations because it increases customer loyalty (Hallowell, 1996). Business organisations are continually aiming to satisfy their customers and different attributes of a product will lead to different level of satisfaction or even dissatisfaction (Tontini, 2007). In addition, Tontini et al. (2013) concludes that satisfaction is linked with what customer's indirect and direct needs are recognised by the attributes of a product or a service. For example, Smartphones are now more than just a device which is used for making calls, but also perform various tasks (Kim et al., 2016; Liu and Yu, 2017). For example, smartphones have features such as camera, charging speed, processing speed etc. These features will have different impact on different individuals and every individual will has its own preferences. Businesses which are able to satisfy their customers are likely to have superior financial return and therefore organisations must identify which attributes their product should have in order to generate customer satisfaction (Anderson et al., 1994; Hallowell, 1996).

The Kano model (Theory of attractive quality) was formed to categorise product or service-related attributes to customer satisfaction (Kano et al., 1984). The Kano model has been developed by Noraiki Kano which aimed to identify the correlation between performance and customers satisfaction (Tontini, 2007). This model is inspired by Herzberg's motivational theory which revolved around how some factors that cause job satisfaction differ from the factors which causes job dissatisfaction. Kano suggested that not all product and service attributes have linear relationship with customer satisfaction. He believed that customer satisfaction is more complex and multidimensional (Gregory and Parsa, 2013). According to Pinner (2014) Kano model provides a solid understanding of customer satisfaction and examines customer requirements via multiple factor structure. The model distinguishes attributes into five categories of Must be, Attractive attributes, One dimensional attribute, In different attributes, and Reverse attributes (Kano et al., 1984). The Kano model illustrated below in figure 2.23 illustrates that the vertical axis stands for the satisfaction and dissatisfaction users, while horizontal axis stands for conditions being insufficient or sufficient.

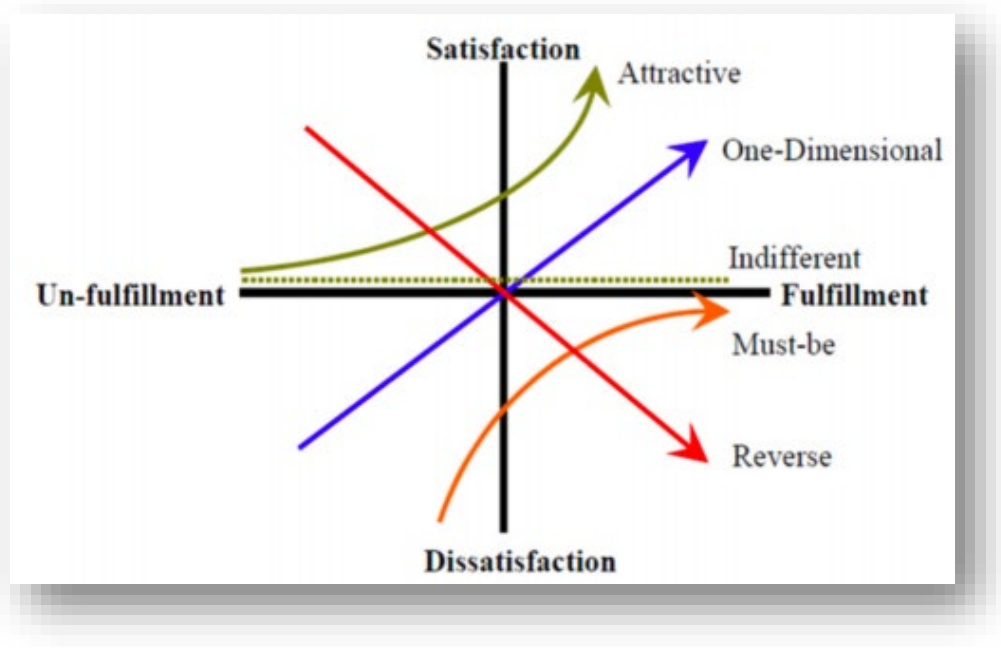

Figure 2.23: Theory of attractive quality (Kano et al ., 1984)

The Five categories are:

Must be: These attributes do not increase the customer satisfaction, however if not present it can increase customer dissatisfaction.

Attractive attributes: These attributes are source of attraction and delight for customer satisfaction. These attributes are not expected by customers and the absence of these attributes will neither change the satisfaction positively nor negatively.

One dimensional attribute: These attributes are positively related with customer satisfaction and if they are not present it will cause customer dissatisfaction. One of the prime examples is smartphone's battery life.

In different attributes: These attributes have no impact on customer either positively or negatively. These qualities are considered irrelevant and goes unnoticed by customers.

Reverse attributes: These are the attributes which triggers dissatisfaction if present and triggers satisfaction if not present.

The Kano model is dynamic and suggests that consumer perceptions can change of certain attributes. The prime example is the ''touch screen'' attribute of mobile which in the start was considered as ''attractive attribute'', however now is considered as ''must be attribute''. Kano Model has been used extensively within academic research (Emery and Tian, 2002; Emery and Tian, 2003; Bhattacharyya and Rahman, 2004; Fuller and Matzler, 2007; Wang and Ji, 2010) and applied in various industries such as student/professor satisfaction (Emery, 2006), employee satisfaction (Matzler et al., 2004), manufacturing products (Miyakawa and Wong, 1989), and banking and grocery stores (Scvaneveldt et al., 1991). One of the recent studies which applied Kano model was by Yang et al. (2009) which demonstrated the importance of Kano model on discontinuing certain components of products to achieve cost reduction. Most importantly Kano model has been applied previously within smartphone context (Baek et al. 2009) which concluded that picture messaging, internet access capability, and instant messaging are considered as one-dimensional quality attributes. Similarly, another study within context of mobile phones was by Hahn and Kodo (2017) which applied Kano model on exploring

mobile payments and concluded that factors such as security protection have transformed and became important features. The other attributes such as colour of mobile payment application is not of importance due to the nature issue.

2.5.5 Sharing and using mobile devices across cultures

According to Katz and Aakhus (2002) mobile phones are considered very personal and individual devices. The sharing behaviour of mobile devices might vary from culture to culture. Several studies have been conducted in developing nations about the consumers sharing their mobile devices. The study by Rangaswami and Singh (2009) indicated that Indian families' mobile devices were like ''walking landline'' and sharing was highly popular. The study further suggested that women in India shared not only their family's mobile phones but also their neighbour's mobile phones. One of the key factors was the lower economic situation of the families which increased the sharing of mobile devices according to this study. In addition, another study reported similar findings that mobile phone sharing with friends and family were highly popular in Banglore (Steenson and Doner, 2009). However, there was another study in the early 2000 which contradicted with the notion of economic necessity and sharing of mobile devices. The study showed that teens from Sweden might share their mobile devices with their friends and occasionally with strangers (Weilenmann and Larsson, 2001).

According to Bell (2003) culture plays crucial role on how people share their mobile devices. The study further reported that Asian people's sharing of mobile devices might be due to lesser valuing of ''individual'' compared to western culture. The study by Chenn (2011) showed that large proportion of Taiwanese teens borrowed friends' mobile phones to make quick phone calls. In addition, a US study by Karlson et al. (2009) found that middle class Americans shared their smartphones depending on the type of phone activity it was needed for and the relationship between phone owner and borrower.

One of the common reasons behind different sharing mobile devices behaviour could be the privacy concerns. The study by Bellman et al. (2004) surveyed over 500 internet users from 38 countries and concluded that cultural values do have an impact on the level of concern about information privacy. The study by Cho et al. (2009); Miltgen and Guillard (2014) found that people from collectivistic culture

displays less concern on data privacy as compared to people from individualistic culture. Similar findings were reported by; Milberg et al. (1995, 2000) which showed that individualistic cultures are more concerned about privacy and private life. The same study reported that higher score in power distance dimension is associated with privacy concern because there will be a trust deficit towards powerful groups/businesses. High score on uncertainty avoidance will link to high stress, anxiety, and privacy concerns. According to bellman et al. (2004) Masculinity dimension is negatively related with the privacy concern. The study by Posey et al. (2010); Miltgen and Guillard (2014) found that focus group participants from individualistic cultures were more hesitant to disclose their information that participants from collectivistic society. The study by Cho et al. (2009) indicated that internet users from individualistic cultures displayed higher concerns about privacy than collectivistic cultures. In addition, the study by Steenkamp and Geyskens (2006) suggested that individualistic cultures placed more emphasis on customization and privacy. There are additional differences between cultures even when it comes to sharing content. Several studies have suggested that mobile users share content and their locations with their friends and family (Taylor and Harper 2003; Consolvo, 2005; Koskinen, 2007) The study by Taylor and Harper (2003) found that UK teenagers exchanged their mobile media content with friends and family. The research added that UK teenagers were creating a social relationship by exchanging content with each other. This exchanging and sharing of mobile content is termed as ‘’gift giving’’ ritual among youngsters. Another Study by Chen (2011) reported similar theme that the teenagers in Taiwan had a ritual among group friends which involved exchanging of content with each other. In addition, the exchanging of content was mainly humorous MMS/SMS and music tracks.

Secondly, there have been several studies which indicates that culture do impact the way consumers interact and use technological devices. The study by Bell (2003) conducted an ethnographic study in five different counties, including Malaysia, China, India, Singapore, and South Korea. The study found that the mobile users in India used SMS instantly to stay in touch with their friends and family. Another study by Shuter and Chattopadhyay (2010) compared the Indian and American SMS behaviour. The study indicated that Americans send messages while in public space with strangers around them, while Indians prefer to send SMS in private space.

Malaysians used new media for religious activities and sharing. Another study by Baron and Segerstad (2010) examined the behaviour of Japanese, American and Swedish students in regard to usage of media in public places. The study found that American and Swedes felt comfortable using mobile phones in public, unlike Japanese. The reason behind was that in Japan there is ‘’keep quiet’’ in public policy and it is a norm to obey that.

2.5.6 Smartphones as fashion symbol across cultures

Smartphones are becoming more common day by day across the globe. The meaning of the smartphone is evolving as well when it travels across. Some might be using for functional purposes, while others may be using as a status symbol. The study by Yusuf and Abdullah (2003) found that key motivation behind using smartphone among 630 Turkish participants were ‘’status’’. Moreover, the plant (2000) has linked people with ‘stage phoning’ or talking loudly in order to make people aware of the device. This trend is increasing more in youth than the older users. The youth are engaging themselves in personalization of mobile devices and using new ringtones in order to their mobile devices visible. Mobile phones are transforming into fashion accessories such as using bright colourful covers for their mobile phones, fashionable wallpapers being downloaded as wallpapers etc.

The evidence of smartphones as a status symbol is not just seen through personalization of mobile phones, but also with the size of the mobile phones. Some studies have shown that there are different reasons and preference behind consumers choosing large size of the smartphone. The study by Rau et al. (2015) suggested that Chinese consumers preferred large screen size smartphones due to the fact it looked more prestigious and expensive, while Germans choose large screen smartphones due to better battery life and faster processing. Similar theme of finding was reported by Khan (2016) where it was found that consumers from Pakistan views smartphone as the part of their image, status, and preference is given to a socially desirable brand of a phone than the feature of phone when making decision of purchase.

2.5.7 Attachment with mobile devices

Product attachment is described as the intensity of the emotional bond between consumer and a product (Schifferstein and Pelgrim, 2004). Mugge et al. (2008)

suggested that people develop emotions towards product that convey special meaning to them and gives them an overview of different meanings that product may have to their owners. It further stated that there are possibly four product meanings as possible determinants of product attachment.

Group affiliation: The product expresses owner's belonging to a certain group.

Pleasure: Product provides pleasure.

Self-expression: It says something about the identity of the person.

Memories: Triggers nostalgia.

Many mobile users across the world develop personal attachment with their mobile devices (Rangaswamy and Singh, 2009). The study by Venta et al. (2009) identified that though personalization of mobile content on their device and customization, the users develop emotional attachment with their device. The study by Katz and Sugiyama (2006) added that mobile users treated their devices as physical extension of their body and as a symbolic tool. The study by Vincent et al. (2003, 2004a) concluded that people in UK and Germany had emotional attachment largely due to the information stored and delivered on their mobile device. Furthermore, the study further listed common concerns and emotions related with mobile devices among users. Some of the emotions were ''panic'' if device went missing and ''thrill'' if received text and ability to multitask. Furthermore, the study by Vincent (2005) further added that constant interaction of phone with our senses are greatly responsible for emotional attachment. For example: constant touching and holding it in your palm or keeping in your pocket. However, the study by Tukle (2007) gave a slightly different view of consumers' attachment to their mobile devices. The study argued that mobile devices are viewed as evocative rather authentic companions. The study by Savas (2003) which was exploratory in nature investigated the reasons of product detachment and attachments. Respondents in this study mainly linked things such as positive experiences, social reasons, past, and style as the reasons behind any attachment towards products.

2.5.8 Smartphones addiction

Smartphone addiction is linked to internet addiction, because it has the same symptoms and effects. According to Shaw and Black (2008) the internet addiction is characterized as an extreme or poorly controlled behaviours and urges towards internet use that results in distress or impairment. Similarly, smartphone addiction can be classified into behavioural addiction, and it is similar to chemical addiction. Both behavioural and chemical addiction entails similar symptoms such as; mood modification, conflict withdrawal, tolerance, salience, and problems (Grant et al., 2010). Various studies have reported some common features of smartphone addiction. The study by Lin et al. (2014) indicated that smartphone addiction has four features such as compulsion, tolerance, functional impairment, and withdrawal. Likewise, Bianchi and Phillips (2005) linked excessive use of smartphone to psychological symptoms which are in form of behavioural addiction. The study by Griffiths (1995) associated smartphone addiction as technological addiction which comprises of human to machine interaction. Smartphone addiction is overall an inability to control the smartphone usage despite the damaging impact on the user. Individuals who are addicted to smartphones, they tend to receive pleasure, reduction in stress, but also it leads to lack of control to the extent they use regardless of the negative effect on psychological, financial, and social aspects of life (Van Deursen et al., 2015). The study by Mc Crae et al. (2017) found a statistically significant relationship between social media use and depressive symptoms in children and adolescents. In addition, a meta-analysis of 23 studies showed correlation of problematic Facebook use and psychological distress in young adults and adolescents (Marino et al., 2018). According to Kappeler (2003) individualistic societies are more likely to suffer from depression, and other mental health issues.

The research by Young (2007) showed that social media addicts were not able to manage real life activities. The study by divan et al. (2012) suggested that children using cell phones resulted in behavioural problems such as nervousness, mental distraction, and laziness. Moreover, the study by Nie and Erbring (2000) identified that people spending excessive time on internet had poor social support and great levels of loneliness. In context of Saudi, study by Alosaimi et al. (2016) 61 % of the respondents used smartphone at least 5 hours per day, while 27% of the respondents admitted spending more than 8 hours a day in Saudi Arabia.

2.5.9 Psychological and physical problems with smartphone addiction

Smartphone addiction is largely believed to have significant impact on individual's health (Abo -Jedi, 2008). Technology causes depression and in order to avoid that depression, individuals engage themselves in smartphones to avoid the depression or any other anxiety (Kim et al., 2015). Users constantly wait, check, and react to the notifications which is also the sign of depression and anxiety (Cougle et al., 2012; Evraire and Dozois, 2011). Additionally, a longitudinal study by Thomee et al. (2011) reported the high stress, sleeping disturbances, and depression among heavy users of smartphones. Similar themes were emerged in other studies ; Brunborg et al., 2011; Vollmer et al., 2012, which linked screen time with disturbed sleeping pattern.

Apart from psychological effects, overuse of smartphone could result in physical effect too. The overuse of smartphone can result into following; wrist pains, joints fatigue, problem with eardrum, weak immune system, brain tumour, cancer (Alasdair and Philips, 2017; Richard, 2001). However, interestingly the perception of 'overusing' varies from age to age. In the context of UK, Smartphones have been adopted by all age groups in the UK, however the penetration is the strongest among 25-34 years old with 94% adoption rate in 2019. Age group 55-75 has the lowest adoption of 80%, but it is on increasing trend from previous year which shows the overall peak of smartphones in the UK (Deloitte, 2019). With such a high rate of adoption and usage, about 38% of the population between 16-75 thinks that they overuse their phone. Over half of the population among 16-34 believes that they are overusing their phones, however the idea of overusing decreases as compare with older age groups (Deloitte, 2017).

2.5.10 Smartphone usage pattern

Smartphone addict spends significant amount of time and uses daily, which is an indicator to a smartphone addiction. The study by Torrecillas (2007) shows that 40% of adults and adolescents spends 4 hours a day to make phones calls and messages. People who spent more than 4 hours showed more problems than the people who did not overly used smartphones. In Europe, smartphone user touches their cell phones approximately between 10-200 times a day, for a mean period between 10-250 seconds, and used 1-1000 megabytes of data per day (Falaiki et al., 2010). One of the key motivators behind addiction is the ''smart'' side of the things in

the phone (Van Deursen et al., 2015). The study by Park and Lee (2012) showed that smartphone addicts use social networking sites which explains the fact females are more likely to be addicted to smartphones than males. The study by Liu et al. (2016) suggested gaming as a key motivator behind smartphone addiction too. Overall, the studies by Jeong et al., 2016; Salehan and Neghban (2013) classified ‘’social networking sites’’ as the strongest factor of smartphone addiction as compared to entertainment, gaming, or study. The study Dimitrios and Alali (2014) concluded that Saudi society are heavy users of social media with more than 85% usage

Secondly, smartphone usage is continuously changing our day-to-day behaviours. To explore deeper into how people in UK are spending time on their mobile screen, the poll uncovered screen time activities. The most popular activities included ‘; messaging family and friends (67%), browsing social media (59%), reading news (48%), music (49%), e commerce (35%), and posting on social media (30%). It was an interesting insight which showed people are more likely to browse than actually post on social media which indicates social media platforms are used in quiet passive way. The other activities include usage of health/fitness apps is somewhat common (17%), but other ‘healthy’ types of apps are only used by a minority: Sleep improvement (6%), Meditation (6%), creating art/producing music (5%), and Journaling (4%) (What mobile, 2019). According to Statista (2020) sending/receiving email was the most popular activity in Britain (2020). Texting during driving is considered to be a dangerous act and several countries have passed legislations to prevent the harms and accidents caused by it (Governors highway safety n,d.). The studies are now showing texting while walking can cause negative effects and suggesting that texting should not only be avoided while driving, but also when walking. This smartphone walking culture can be further validated by the research by AO- Mobile (2019) which identified that 96% of the population say they have experienced people not paying full attention while walking because of their phone. Due to increase in ‘’distracted walking’’ there have been UK’s first slow lane created in Manchester for distracted walkers. Furthermore, people in the society are being glued to smartphones which is another term of ‘’smartphone zombie culture’’. According to (Monsell, 2003) multitasking is emerging as the new norm in 21st century, but it comes with the cost. Using smartphone while walking affects the

speed of walking and posture (Oh and La Pointe, 2017) and affects the reaction times of individuals towards auditory and visual targets. (Haga et al., 2015) Similarly, there was another study which showed that while browsing internet on smartphone while cross a virtual street, increased the time spent looking away from the road and frequency of vehicular collisions (Byington and Schwebe, 2013). This study concluded that smartphone while walking influences our style of walking, attention span, and risks of injury. Moreover, the study by Nasar and Troyer (2013) found that the percentage of phone related pedestrian injuries are increasing. The smartphone addiction is still controversial and in one study, university students scoring higher on the smartphone-addiction proneness scale reported higher accident rates when using a smartphone while walking than people with lower scores (Kim, & Min, 2017).

2.5.11 Gender and Cultural Smartphone addiction

Several researchers have suggested that difference may exist on the basis of gender regarding smartphone usage (Billieux et al., 2008; Hakoama & Hakoyama, 2011; Haverila, 2011; Junco et al., 2010; Leung, 2008). According to Geser (2006), women use smartphones as a social tool, while men use it more for instrumental use. Similarly, the study by Junco et al. (2010) analysed that female college students spent more time on cell phones talking and sent more text messages than male students. Females perceive smartphones as a means to maintain and nurture the relationships, while men tend to view this as a source of entertainment or information (Junco and Cole, 2008). The another study which finds a similar theme to above is that females have a higher attachment to their cell phones as compared to males (Geser 2006; Hakoama & Hakoyama, 2011; Jackson et al., 2008; Jenaro et al., 2007; Leung, 2008; Wei & Lo, 2006). In addition, there was another study which surveyed college students in USA, which showed that women spend an average of 600 minutes on cell phone everyday as compared to 459 minutes by men. Moreover, women spend on average 105 minutes on texting as compared to men spending 84 minutes (Roberts et al., 2014). However, there are some studies; Bianchi and Phillips (2005); Junco et al., (2010), which contradicts with the notion of female attachments is higher than male to the cell phones. Smartphone addiction studies have reported over the time that women are more dependent on smartphones than men (Billieux et al., 2008). Similarly, the study by Walsh et al. (2011) suggested that females are likely to get involved with their mobile phones than males are.

Smartphone addiction in the context of cross culture gives an interesting insight into behavioural changes. The study by Sun et al. (2012) suggested that Internet addiction among Chinese population were high on males as compared to females. However, the same study indicated that Internet addiction was higher in females as compared to males in the US sample of data. Additionally, another study was conducted in Turkey which indicated that female high school students had higher internet addiction rates than males (Aylaz et al., 2016). Furthermore, a comparative study between UK and Chinese students revealed that females had higher problematic smartphone use than males in both cultures (Yang et al., 2018). A more recent study also revealed a similar pattern and identified that females are more prone to internet gaming disorder than males (Wang et al., 2019).

2.5.12 Summary- 4th part of the literature review

This part of literature review (*Culture and Innovation*) emphasized on the relationship of culture and innovation. It introduced and explained the Hofstede's 6-dimension model and identify differences between Saudi and British culture. Additionally, this part of the literature helped understand smartphone usage, sharing behaviour and addiction related behaviours.

2.6 Summary of Literature review

This chapter has presented and discussed available literature related to smartphones, technology acceptance models, resistance models and Hofstede's cultural model. This has provided the theoretical background of this research.

In particular, an overview of the factors affecting decision making when purchasing new smartphones was presented in the first section. Secondly, a review of the seven most influential models in literature that has been used to study human behaviour regarding adoption and resistance of technology was presented; **Diffusion of Innovation theory** (DOI); **Unified Theory for Acceptance and Use of Technology** (UTAUT); **Technology Acceptance Model** (TAM); **Theory of Planned Behaviour** (TPB); **Theory of Reasoned action** (TRA); **Sheth Model**, and **Ram Model**. From the previous critical literature, researcher can note that some of the models have good parsimony and application (TAM), but lacks the comprehensive cover of major factors, while other models include more complex factors, but compromise on the

parsimony of the model (UTUAT). After critical review of adoption literature within smartphone area (Table 2.3, Table 2.4), TAM was found to have an acceptable explanatory power and also with good parsimony. TAM has received extensive empirical support in the implementation area and has been regarded as the most robust, easy to use, influential, and powerful model in innovations acceptance behaviour (Davis et al., 1989, Pavlou, 2003; Olushola and Abiola, 2017). It has been used in several empirical studies which proven to be statically reliable and therefore we consider this theoretical model as a base for the purpose of the present study.

However, there have been some criticisms concerning the theoretical contributions of this model, specifically its ability to fully explain technology adoption and usage. Additionally, the existing constructs of the TAM neglects investigating other essential predictors that may affect the adoption of technology such as **cultural factors**. Taking into consideration the above limitations, this research will extend the TAM and include additional factors in order to increase its predictive power and make it more comprehensive. The following chapter will discuss the conceptual framework in detail.

Finally, this chapter also discussed the Hofstede's cultural model and compared with the other two most influential cultural models; Schwartz (1992) and project GLOBE (House et al., 2004). It was concluded that Hofstede's model to this date remains the most cited, reliable, and easy to use, as compared to other two models. In addition, the chapter also reviewed previous literature related with the impact of culture towards innovation. Although, the acceptance of technology by end-users is a consumer level phenomenon, surprisingly it was found that most of the literature about cultural effects in research is based on the organisational level. Therefore, in an attempt to overcome this gap, this research will develop a conceptual framework which will explore the impact of culture at the consumer level within the context of Middle Eastern country (Saudi Arabia) and Western (UK) country. The table attached in Appendix D summarizes the theories/models which underpins our research. The following chapter will discuss the conceptual framework and hypotheses of our study.

Chapter 3: Proposed Conceptual Framework

3.1 Introduction

The previous chapter discussed various theories and models that are related to technology acceptance and external factors which directly or indirectly are useful in developing the conceptual framework for this study. Based on previous chapter, the aim of this chapter is to discuss the development of proposed conceptual model to study adoption of new smartphones in cross-cultural setting. This chapter also provides justification for including Hofstede's cultural dimensions as moderators for our adoption model. This chapter will then list the research hypothesis which are drawn and define every construct which is included in our model. The next section **3.2** will introduce theoretical background for the conceptual framework of our study which will discuss the theories that are underpinning our research.

3.2 Theoretical development

As stated earlier in the research aim that our study is ''*exploring the impact of culture towards innovation within smartphone industry".* After reviewing seven most influential adoption/resistance theories in literature; **Diffusion of Innovation theory** (DOI); **Unified Theory for Acceptance and Use of Technology** (UTAUT); **Technology Acceptance Model** (TAM), **Theory of Planned Behaviour** (TPB), **Theory of Reasoned action** (TRA), **Sheth Model**, and **RAM model**, it was found that no one theory is complete in explaining the adoption of smartphones. Extensions of existing models or integration is suggested as a better option (Qingfei et al., 2008; Venkatesh et al., 2003). In addition, some of the studies (Jeyaraj et al., 2006; Liu et al., 2005) suggested that TAM needs to be integrated with other broader models for improved result to testing its predictive power. Furthermore, some argue that given the complexity of the behavioural research, it is nearly impossible to cover all or majority of the adoption factors by using a single model (Ward, 2013). The researcher therefore decided to integrate the following theories (**TAM**, **TRA**, **Sheth Model** and **Hofstede's Cultural Dimension Theory**) to provide a comprehensive understanding of adoption for new smartphones. TAM will be used as a baseline model in this research and additional constructs from TRA, Sheth Model and Hofstede's dimensions are added to extend the TAM.

The rationale behind using TAM is because it is proven to be easily applicable, flexible and vastly used in various fields. The field of our research is ‘’**smartphone**’’ and researcher carefully reviewed the smartphone adoption literature (See table 2.3, table 2.4) and it was concluded to incorporate TAM in our study due to its’ large-scale acceptance, robustness and clear focus (Chandio, 2011).

In addition, the researcher also reviewed past studies which incorporated Hofstede’s cultural dimension with technology acceptance models. Below is the Table 3.1 which illustrates past studies using Hofstede’s dimensions with technology acceptance models. Based on review, it was found that TAM does not only prove to be viable model, but also most used when incorporating Hofstede’s dimension to a research based on technology acceptance across cultures. In each of the studies below, it was also indicated that culture did have an effect to some degree on technology acceptance.

Previous Study	*Technology acceptance models*	*Title*	*Culture*	*Cultural dimensions*
Akthar et al. (2018)	TAM and TRA	*Investigating the moderating role of uncertainty avoidance on mobile banking adoption*	Pakistan vs China	Hofstede
Al Ghathani, Hubona, and Wang (2007)	UTUAT	*Culture and the acceptance and use of IT*	Saudi Arabia	Hofstede
Al Jaafreh (2011)	TAM: PU and cultural dimensions yield BI	*The relationship between information quality and national cultural in Jordan.*	Jordan vs Western	Hofstede
Calantone, Griffith, and Yalcinkaya (2006)	TAM	*An Empirical Examination of a Technology Adoption Model for the Context of China*	China	Hofstede
Hassan and Ditsa (1999)	TAM	*The Impact of Culture on the Adoption of IT*	Middle East vs West Africa	Hofstede
Hussain, Salah, and Madanan (2019)	TAM	*Evaluating e-government acceptance*	Oman	Hofstede
Igbaria, Ivaria & Maragahh, 1995	TAM	*Why do individuals use computer technology? A Finnish case study*	Finnish	Hofstede

Im, Hong, and Kang (2011)	UTUAUT	*An International Comparison of Technology Adoption (Mp3 player and Internet banking)*	Korea vs USA	Hofstede
Jere and Maharaj (2017)	Integration of TAM and DOI	*Evaluating the influence of information and communications technology on food security*	South Africa	Hofstede
Mahomed, Mcgrath, and Yuh (2018)	TAM: PU and PEOU	*Usage of emails among academician*	Malaysian	Hofstede
Mc Coy, Galetta, and King (2007)	TAM: PU, PEU, BI	*Applying TAM across cultures: the need for caution*	Several cultures	Hofstede
Sreen, Sadarangani, and Giridhar (2019)	TAM	*A path from cultural values (Mobile travel app)*	India	Hofstde
Srite (2006)	TAM	*Culture as an explanation of technology acceptance differences*	Chinese vs USA	Hofstede
Straub (1994)	TAM	*The Effect of Culture on IT Diffusion*: *E-mail and Fax in Japan and the US*	Japan vs USA	Hofstede
Straub, Keil and Branner (1997)	TAM: PU and PEOU	*Testing the technology*	Switzerland, Japan, and USA	Hofstede

		acceptance model across cultures.		
Terzis et al. (2013)	Computer based assessment acceptance model (CBAAM)	*Computer Based Assessment Acceptance: A Cross-cultural Study in Greece and Mexico*	Greece vs Mexico	Hofstede
Park et al. (2007)	UTUAT	*Adoption of mobile technologies for Chinese consumers*	Chinese	Hofstede
Veiga, Floyd, & Dechant (2001)	Tam: PU and PEOU	*Towards Modelling the Effects of National Culture on IT Implementation and Acceptance*	Several cultures	Hofstede
Van Slyke, Belanger, & Sridhar (2005)	Diffusion of Innovation theory	*A comparison of American and Indian consumers' perceptions of electronic commerce*	American vs Indian	Hofstede

Table 3.1: Studies which integrated Technology acceptance models with Hofstede's dimensions

Based on the analysis and recommendations of the previous studies, we developed our research model which combines variables from:

- Theory of Reasoned Action– **Subjective Norm** (SN)
- Sheth model (1981)- **Perceived Risk** (PR)
- Technology Acceptance Model- **Perceived Usefulness** (PU), **Perceived Ease of Use** (PEOU), **Behaviour intention** (BI)
- Hofstede dimensions – I**ndividualism** (IND), **Power Distance** (PD), **Uncertainty Avoidance** (UA)

Our proposed conceptual framework is called SAM (***Smartphone Adoption Model***).

Our model includes three categories of variables, and the categories are presented below:

- **Independent variables** (PEOU, PU, SN, PR) these variables may have an effect on BI
- **Dependent Variable** (BI)- This variable may be affected by the independent variable directly or indirectly by set of moderators.
- **Moderators** (IND/PD/UA)- These set of moderators may have an impact on the relationship between independent variables and BI.

The table 3.2 summarizes the variables of ‘’**SAM**’’ and the theories they are derived from:

Variables	*Summary*	*Theories derived from*
Individualism	This refers to the extent to which individuals are integrated into groups. Individualistic societies focus on ''I'' instead of ''We''. Collectivistic societies place emphasis on family and society.	• Hofstede (1980)
Power distance	This refers to the extent to which individuals expect and accept differences in power between different people.	• Hofstede (1980)
Uncertainty Avoidance	This refers to the extent to which ambiguities and uncertainties are tolerated.	• Hofstede (1980)
Perceived Risk	The perception of the degree of risk associated with adopting & using innovation.	• Sheth Model (1981)
Perceived usefulness	The degree to which a person believes that using a particular system would enhance his or her job performance.	• TAM Model (Davis et al. 1989)
Perceived ease of use	The degree to which a person believes that using a particular system would be free of effort.	• TAM Model (Davis et al. 1989)
Behavioural intention	Means a person's ability or capability to intend to perform behaviour.	• TAM Model (Davis et al. 1989)
Subjective norm	The person's perception that most people who are important to him or her thinks he/she should or should not perform the behaviour in question.	• TRA (Fishbein & Ajzen, 1975)

Table 3.2: Variables of conceptual framework

3.3 Proposed conceptual Framework (SAM)

Before we delve into detailed explanation of our variables and proposed propositions of **SAM**, it is best to discuss the concept of hypothesis in qualitative research. Kerlinger (1956) describes hypothesis as relational propositions which are made to clarify the direction of research problem. It is often in the form of conjectural statement which predicts the relationship between two or more variables. In addition, Ary et al. (1996) defines it as a tentative proposition which is made to suggest a possible solution to a problem, or an explanation of a phenomenon or situation surrounding a problem. Moreover, Creswell (1994) explains hypothesis in a different manner and defines it as a formal statement that present the normal relationship between dependent and an independent variable. All these definitions can be summarised to mean that a research hypothesis is '' *the statement developed by a researcher, which gives direction or clarifies the problem and speculates upon the nature of relationship between variables''*. The above summarised version of definition is going to be our understanding for the research hypothesis.

Secondly, our research is qualitative and there are scholars who advocates the idea of ''*hypothesis being relevant only in quantitative studies*'' (Ulichny, 1991; Malterud and Hollnagel, 1999; Malterud, 2001; Bluhm et al., 2010; Maudsley, 2011). However, there are other scholars (Sabatier, 1998; Flyvbjerg, 2006: Sullivan and Sargeant, 2011) who have asserted that hypothesis can be used and tested in qualitative research. Our study aligns with these scholars and believes that the science of research and the culture is evolving and ever changing. According to Chigbu (2019) qualitative researcher should not be discouraged from using hypothesis in their study and considered it ''illogical'' to expect qualitative researcher to strictly follow the rules of quantitative methods. The use of hypothesis in current study is viewed as ''*ingredients of the preconceptions, reflections, or a direction*'' and this approach is supported by (Malterud, 2001; Chigbu, 2019) for researchers using qualitative methods.

Thirdly, there is always discussions among the academics regarding testing of hypothesis in qualitative research. The term ''test'' has never been about quantities or numerical calculations, and always has been about examination (Steger, Owens, and Park, 2015; Garland et al., 2017; Gentsch et al., 2018). However, the common

misconceptions or traditional practices in past literature leads researchers to believe that testing always mean quantitative calculations to prove or disapprove assumptions. Hypothesis can be tested through data gathered by not only surveys or statistical tools, but also interviews (Smith and Mc Gannon, 2018; Christensen, Johnson, and Turner, 2014; Chigbu, 2013; Chigbu, 2019). The use of a hypothesis can be done in any form of research to predict scenarios that can be either confirmed or proved in the later part of a study to give direction to scientifically justified conclusions. For example: if there is a hypothesis proposed by a scientist that ‘’*water is in the jar*’’, in order to confirm or refute this hypothesis, scientist needs to show that there is or there is no water in the jar. The scientist does not necessarily require conducting a volumetric analysis to arrive at zero or a negative numerical result before him/her to conclude that there is no water in the jar.

The purpose of the hypothesis in our study is to provide the researcher with a direction or enable a framework for making solid conclusion. The researcher developed an approach for formulating the propositions based on **SAM** (See-appendix E).

The below section will now provide a detailed explanation of each variable mentioned in the above table (3.2) and proposed hypothesis.

3.3.1 Perceived usefulness (PU)

Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his/her job performance (Davis, 1989). PU is similar to ‘’*relative advantage*’’ from the model DOI and ‘’*performance expectancy’’* in UTUAT model (Venkatesh et al., 2003). In TAM, PU has been theorised as a direct determinant of BI. According to previous research (Davis,1989; Chang and Tung, 2008; Liu et al., 2010) PU was found to have a significantly greater correlation with BI than PEOU. Davis (1989) concluded that users are more likely to adopt a system mainly because of the functions it performs for them.

In the present context of study, PU was used to explore the consumers’ attitudes about potential benefits of latest smartphone features. Many studies have highlighted the positive effect PU has on BI (Davis, 1989; Igbaria et al., 1997; Venkatesh & Davis, 2000; Chau & Hu, 2002; Venkatesh & Balla, 2008; Al-Hujran & Al-Dalahmeh, 2011). Therefore, it is hypothesised that PU will have a positive

significant influence on the behavioural intention to use the latest smartphone features.

- **H1**: *High PU will have a direct positive influence on the behavioural intention to use new smartphones*

3.3.2 Perceived Ease of Use (PEOU)

Perceived ease of use (PEOU) is defined as the degree to which an individual believes that his/her using a particular system would be free of effort (Davis et al., 1989). This is similar to ‘’*effort expectancy*’’ from UTUAT model (Venkatesh et al., 2003). In TAM, this has been theorised as a direct determinant of BI. There is strong evidence which concludes that PEOU plays a significant role in predicting BI (Davis, 1989; Igbaria et al., 1997; Venkatesh and Morris, 2000; Chan and Lu, 2004; Reid and Levy, 2008). In addition, several studies confirm the direct positive influence of PEOU on BI (Davis, 1989; Venkatesh, 2000; Venkatesh & Balla, 2008; Al Hujran & Al-Dalahmeh 2011; Hoque & Bao, 2015; Croteau & Vieru, 2002; Wu et al., 2008; Aggelidis & Chatzoglou, 2009).

In the present context of the study, PEOU is included to explore consumers’ beliefs of whether the latest smartphones are free of effort and to predict their behavioural intention to use. It is expected that consumers from UK and Saudi Arabia are expected to adopt new smartphones, if they are easy to use and not complicated. Therefore, based on previous research and many models which considered the direct relationship of PEOU on BI, we propose the following hypothesis:

- ***H2****: PEOU will have a direct positive influence on the behavioural intention to use new smartphones*

3.3.3 Subjective norm (SN)

Subjective norm can be defined as the individual’s perception that most people who are important to him/her think he or she should or should not perform the behaviour in question (Ajzen and Fishbein, 1980). This construct has been derived from Theory of Reasoned Action (TRA). SN has been characterised as an antecedent of PU and in some as an antecedent of BI. According to Venkatesh et al. (2003) the influence of SN is complex and there are inconsistencies in the literature about the influence of

SN on BI. Majority of studies have concluded that SN have a significant impact on BI (Hung, Ku, & Chien, 2012; Hsieh, 2015: Abbasi, et al., 2015; Van Raaij & Schepers, 2008; Venkatesh & Davis, 2000; Venkatesh et al., 2003). However, there are some studies which failed to report any impact of SN on BI (Chau & Hu, 2002; Lewis, Agarwal, & Sambamurthy, 2003). Building on the study from Venkatesh and Davis (2000) this study will consider direct impact of SN on BI. This research extends the TAM and includes SN to overcome the limitation of TAM model in measuring the influence of social environments (Venkatesh and Davis, 2000). The inclusion of SN is also important due to the nature of the study (Cross cultural) and thus, we propose the following hypothesis:

- **H3**: *SN will have a positive influence on users' BI to use new smartphones*

3.3.4 Perceived Risk

Bauer (1960), Webster (1969), and Ostlund (1974) introduced perceived risk as an additional construct in the adoption of innovation, which is then later added by Sheth (1981) in modelling of innovation resistance. This is the second major determinant of innovation resistance in Sheth model. The higher it is perceived risk of an innovation by an individual, the higher resistance towards innovation it will lead to.

TAM's basic constructs do not completely replicate the user task environments and should be improved and extended (Wessels and Drennan, 2010). Previous researchers considered risk as one of the factors that influences the mobile user's acceptance (Brown et al., 2003; Karjaluoto, Riquelme, and Rios 2010; Wessels and Drennan, 2010). Hence, the current research incorporated Perceived risk as additional construct along with TAM's fundamental constructs.

Several studies have indicated the negative relationship between perceived risk and behavioural intention to use things such as e-commerce and mobile payment systems (Crespo and del Bosque, 2010, Herrero and San Martín, 2012; Liébana-Cabanillas et al., 2013; Liébana-Cabanillas et al., 2018, Slade et al., 2015). Several studies on the adoption of new technologies show that the perception of the individuals regarding perceived risk is an important factor in adopting technology (Chen, 2013; Laforet and Li, 2005; Yang, 2009). In their studies, Im, Kim, and Han

(2008) and Lee (2009) noted how perceived risk attenuates the perception of usefulness and ease of use, and consequently the intention to use.
In present context of study, perceived risk is crucial, and it is considered an antecedent of intention to use. Therefore, we propose this research hypothesis:

- **H4**: *Perceived risk will have direct negative influence on BI to use new smartphone features.*

3.3.5 Behavioural intention to use new smartphone (BI)

The main difference between TRA and TAM is the Behavioural intention. The BI is considered as crucial in determining the actual usage of the system. Many studies have reported the relationship between BI and actual usage (Chang & Tung, 2008; Liu et al., 2010; Park, 2009; Tarhini et al., 2017; Teo, 2010).

In present context of study, BI to use new smartphone is considered as dependent variable for our conceptual framework.

3.3.6 Moderating variables in our model (Hofstede's cultural dimension)

This section will explain the moderating variables used in our conceptual framework (Individualism, Power distance, and Uncertainty avoidance) and the impact these dimensions may have on the core constructs of our model. The rationale behind inclusion of moderators within our conceptual model is to increase the predictive power and based on literature gap which suggested that culture impacts the uptake of new technology. Below is the table 3.3 which illustrates the values of UK and Saudi Hofstede's dimension. The other dimensions (Masculinity, Indulgence, Long term orientation) were not included in our framework, because according to Hofstede's cultural dimensions the values of Saudi Arabia and UK were similar in those dimensions (see figure 2.22). Our aim as stated earlier is '' *to explore the impact of culture towards innovation''* and therefore incorporated dimensions which were different between cultures to examine if it has any impact on behaviour.

Dimensions	UK	Saudi Arabia
Individualism	89	25
Power Distance	35	95
Uncertainty avoidance	35	80

Table 3.3: UK and Saudi cultural dimensions (Hofstede)

3.3.7 Individualism

Hofstede (1980) refers this dimension as the extent to which individuals are integrated into groups. Individualistic societies such as UK focus on achievement and personal goals, while collectivistic societies such as Saudi Arabia focus on group they belong. Several authors have confirmed the role of Individualism/Collectivism on PU and PEOU. The study by (Akour 2006; Lee et al., 2007) found that individualism has a direct positive effect on PU and PEOU. Furthermore, studies by Mc Coy, Everard, and Jones, 2005; Sanchez-Franco et al., 2009, hypothesised the moderating role of Individualism on the relationship between PU and BI. Individualistic cultures are focused on individual goals, so PU would be highly relevant when evaluating new smartphones. In addition, the study by Mc Coy, Galletta, and King (2007) found the PEOU, and BI was impaired in collectivistic setting and speculate that people within these cultures may be more willing to use poor usability as long as they are achieving goals that are valued by wider group. According to Shane (1992) individualism promotes the traits that encourages entrepreneurship, creativity, and innovation. According to Lee et al. (2013) the consumer in the individualistic society acts more independently than collective society and are more attractive towards the new products (Kumar, 2014).

In the present context of study, individualistic dimension is viewed as a significant predictor which moderates the relationship between PU and BI. Individualistic cultures are characterised by an emphasis on the achievement of individual goals, so PU would appear to be a highly relevant factor for technology adoption in such settings as compared to collectivistic cultures. To further explain this, PU is considered one's subjective probability to view the usefulness of technology for self-

interest and can better be favoured by the individualistic mind set (Mc Coy, 2002). Therefore, we propose the following:

- **H5:** *Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals towards new smartphone features*

3.3.8 Power distance

According to Hofstede (1980) Power distance refers to the extent to which individual expect and accept difference in power between different people. Several past studies have indicated that PD is expected to moderate relationship between SN and BI (Dinev et al., 2009; Li et al., 2009; McCoy, Everard, & Jones, 2005; Srite & Karahanna, 2006; Zakour, 2004). The general consensus based on the review of these studies is that higher the value of PD, the more it will be likely to base their decision with social environment in mind. Cultures with High PD value will adopt smartphones, if it has a positive impact on their image in social environment such as colleagues, friends and family. Therefore, we propose the following:

- ***H6a****: High PD score, more effect of SN on BI to use new smartphones. Low PD Score, lower effect of SN on BI to use new smartphones.*

In addition, Mc Coy, Everard, and Jones (2005) predicts that PD value moderates the relationship between PU and BI. The relationship is not clearly explained however, it is assumed that cultures with low PD values may feel to user their own intention rather than rely on individuals, groups, colleagues who have high perceived power. In addition, study by Akour et al. (2006) and Al Hujran et al. (2011) supports the notion that PD impacts the PU. In the present context of study, this is explored in the context of features and its' importance across cultures. Therefore, we propose the following:

- ***H6b****: The relationship between PU and BI to use smartphone is moderated by PD value*

3.3.9 Uncertainty avoidance

According to Hofstede (1980), this dimension refers to the extent to which uncertainties and ambiguities are tolerated. Cultures with high UA are hypothesised by previous literature to be less accepting of technological change (Zakour, 2004).

The study by Al and Kumar (2011) Indicate that in cultures where uncertainty avoidance is high, perceived risk with internet buying is also high, and this impacts internet buying negatively. Similarly, study by Yin et al. (2019) compared China and France and concluded that high uncertainty avoidance culture brings perceived risk. Furthermore, Hofstede (1984) claimed that High UA cultures embody stability, risk avoidance, predictability, resistance to change and discomfort with unknown features. The study by Dai and Palvia (2008) found that individuals from the culture with low uncertainty avoidance are more likely to accept new mobile services as compared to higher uncertainty avoidance cultures.

In the present context of study, we predict that uncertainty avoidance will impact the perceived risk when evaluating new smartphone features. Therefore, we propose the following

- **H7**: *The relationship between PR and Bi to use is moderated by UA value.*

3.3.10 SAM Hypothesis Summary

Below is the Table 3.4 which summarises the hypothesis of *SAM* (**Smartphone Adoption Model**)

Variables	Hypothesis	Previous Authors
Perceived Usefulness (PU)	**H1**: High PU will have a direct positive influence on the behavioural intention to use new smartphones	(Davis, 1989; Igbaria et al., 1997; Venkatesh & Davis, 2000; Chau & Hu, 2002; Venkatesh & Balla, 2008; Al-Hujran & Al Dalahmeh, 2011).
Perceived Ease of Use (PEOU)	**H2**: PEOU will have a direct positive influence on the behavioural intention to use new smartphones	(Aggelidis & Chatzoglou, 2009; Al-Hujran & Al-Dalahmeh, 2011; Croteau & Vieru, 2002; Davis, 1989; Venkatesh, 2000; Venkatesh & Balla, 2008; Hoque & Bao, 2015; Wu et al., 2008).
Subjective norm (SN)	**H3**: SN will have a positive influence on users' BI to use smartphones	(Venkatesh and Davis, 2000; Venkatesh et al., 2003; Hung, Ku, &Chien, 2012; Hsieh, 2015, Abbasi, et al., 2015; Van Raaij & Schepers, 2008).
Perceived Risk (PR)	**H4**: PR will have a direct negative effect on BI	(Brown et al., 2003; Karjaluoto, Riquelme, and Rios 2010; Wessels and Drennan, 2010; Crespo and del Bosque, 2010, Herrero and San Martín, 2012; Liébana-Cabanillas et al., 2014; Liébana-Cabanillas et al., 2017, Slade et al., 2015; Chen, 2013; Laforet and Li, 2005; Yang, 2009; Im, Kim, and Han, 2008; Lee, 2009).
Individualism (IND)	**H5**: Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals towards new smartphone features	(Akour et al., 2006; Shane 1992; Lee et al., 2007; Lee et al., 2013; Kumar, 2014; Mc Coy, 2002; Mc Coy, Everard, and Jones, 2005; Sanchez-Franco et al., 2009).
Power distance (PD)	**H6a**: High PD scores, more effect of SN on BI to use new smartphones. Low PD Score, lower effect of SN on BI to use new smartphones	(Akour et al.,2006; Al Hujran et al., 2011; Dinev et al., 2009; Li et al., 2009; McCoy, Everard, & Jones, 2005; Srite & Karahanna, 2006; Zakour, 2004).

	H6b: The relationship between PU and BI to use smartphone is moderated by PD value.	
Uncertainty avoidance (UA)	**H7**: The relationship between PR and Bi to use is moderated by UA value.	(Hofstde, 1984; Al and Kumar 2011; Dai and Palvia, 2008; Yin et al., 2019)

Table 3.4: Summary of SAM Hypothesis

3.4 SAM conceptual framework (Smartphone adoption model)

Below is the figure 3.1 which illustrates our final conceptual framework (SAM) and explains the relationship of variables.

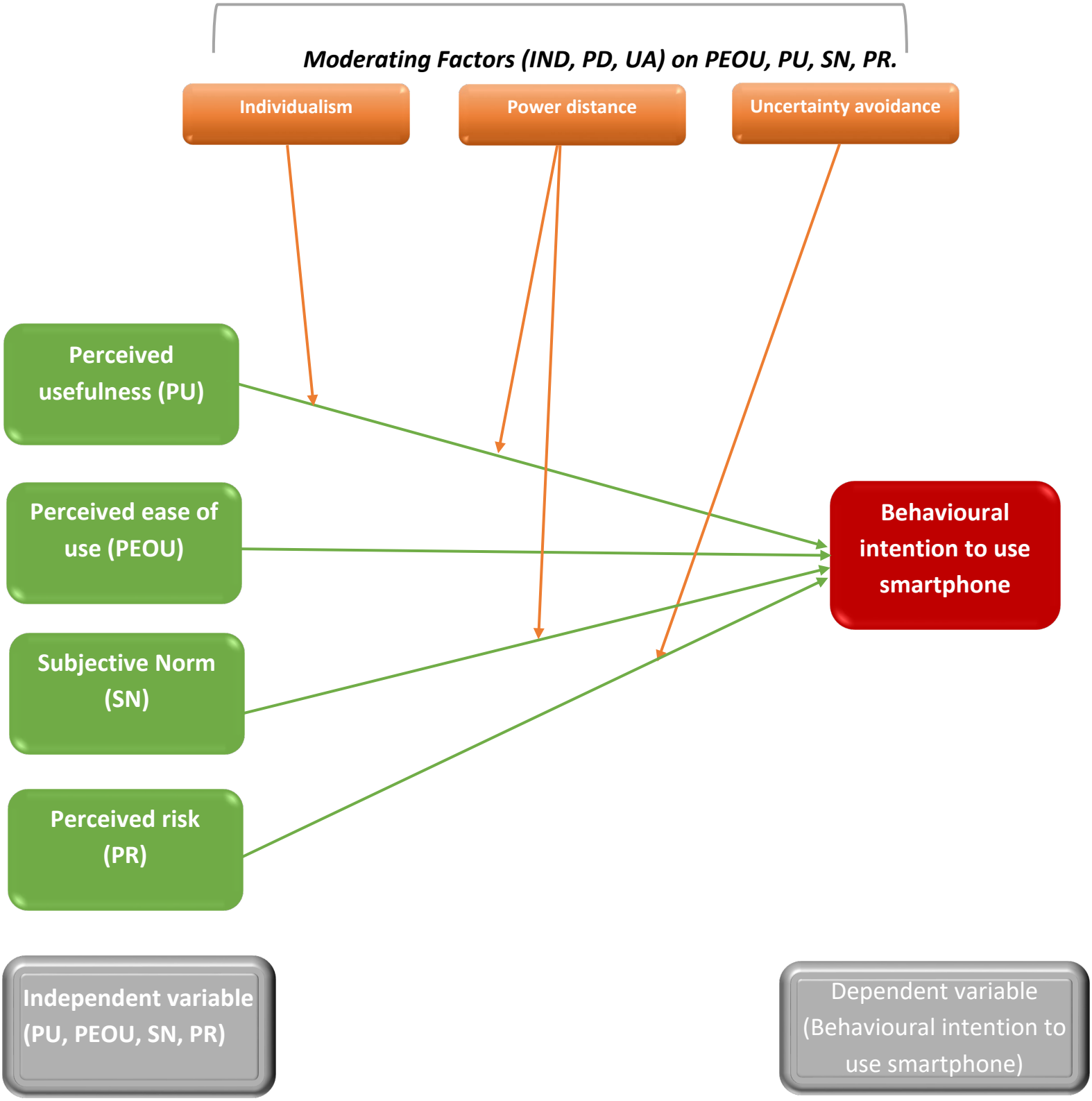

Figure 3.1: Proposed Conceptual Framework- Smartphone Acceptance Model (SAM)

3.5 Summary of Chapter 3

We developed our ***Smartphone Adoption Model*** (SAM) based on the literature review to understand the impact of cultural factors on individual's intention to adopt new smartphones in British and Saudi context. The SAM is based on well renowned theories and models which were discussed in Chapter 2 (TAM, TRA, Sheth, Hofstede) and have been integrated to reflect the factors which may be relevant within smartphone industry. The TAM model is extended by including SN, PR, and moderators (cultural dimensions) are introduced to explore the impact of culture on behavioural intention in smartphone context. There are seven hypotheses which are proposed in our framework and the following chapter will offer a detailed discussion and a plan (methodology) to validate our model cross culturally.

Chapter 4: Methodology

4.1 Introduction

The overall aim of research methodology chapter is to devise a mechanism which acts as a bridge between our Chapter 3 and Chapter 5. By doing this, it will assist the researcher to achieve the objectives and answer the research questions. The first half of the chapter explains the research philosophy and the research design of the study. Latter half of the chapter will outline the data collection techniques, sampling, target population, ethical issues, and considerations.

The research methodology according to Bryman and Bell (2007) is a procedure or a way of gathering the data. Sekaran and Bougie (2010) defines business research as systematic, organised, data based, critical, objective scientific inquiry, or investigation into specific issue, conducting to get answers or solutions. According to Saunders et al. (2009) the research is any process by which an individual tries to study new things in a systematic way in order to enhance their knowledge. Research methodology supports the nature of evidence gathered and types of question that can be tackled (Clark, 1984). Overall, methodology is a body of knowledge that assists researcher to analyse and describe their methods for gathering information (Miller, 1983). The aim of our study is to explore the impact of culture towards innovation within smartphone industry by analysing attitudes of Saudi and British consumers aged 18-34. By achieving this, this research will support the Policy makers, Software developers, Smartphone brands and Product designers operating in the smartphone industry to establish a better understanding of the factors for adopting or resisting of new smartphone features across contrasting cultures.

4.2 Selecting an Appropriate Research Approach

According to Levin (1988) research approach is an idea or a belief about interpretation, collection, and analysis of data collected. Research approach is the second layer of the research onion and can be divided into two types; deductive and inductive (Saunders et al., 2009). According to Trochim (2006) inductive approach moves from specific to general, while deductive begins from general and ends with specific. Similarly, Creswell and Plano Clark (2007) suggest that deductive researcher works from ‘’top down’’, meaning from theory to hypothesis to data, to add or contradict with theory. Moreover, deductive approach develops hypothesis or

hypotheses based on pre-existing theory and then formulates research approach (Silverman, 2013). The inductive researcher takes a ‘’bottom up’’ approach, meaning it starts with participant’s views to form broader themes and resulting in generating theory. Similarly, Saunders et al. (2009) adds that deductive approach emphasizes on utilizing theoretical literature and identify theories which research will test using data. Contrarywise, inductive approach focuses on data collection and theory development established based on results of data analysis.

This study adopted inductive approach because the researcher begins with the topic, develop empirical generalisation and identify any relationships. This research is not testing any theories, the foundation of the research is understanding individuals from different cultures and gain a deeper understanding of their behaviour. One of the key advantages of using inductive research in the cross-cultural context is its’ ability to disregard any previous trends/literature, because this method is commonly complimented with qualitative research (Flick, 2011). In addition, inductive approach allowed the research to be more flexible and to be focused more on the research context which is crucial in the cross-cultural study. Moreover, inductive approach assisted to reduce the bias in the data collection stage where interviews were conducted with the focus on specific phenomena rather than previous theory (Bryman and Bell, 2011). Additionally, this study adopts interpretivist approach instead of positivist, and the deductive approach according to Snieder and Larner, (2009) is better suited for a positivist approach because it allows formulation of hypotheses and statistical testing of expected result. Below is the Figure 4.1 which illustrates our approach.

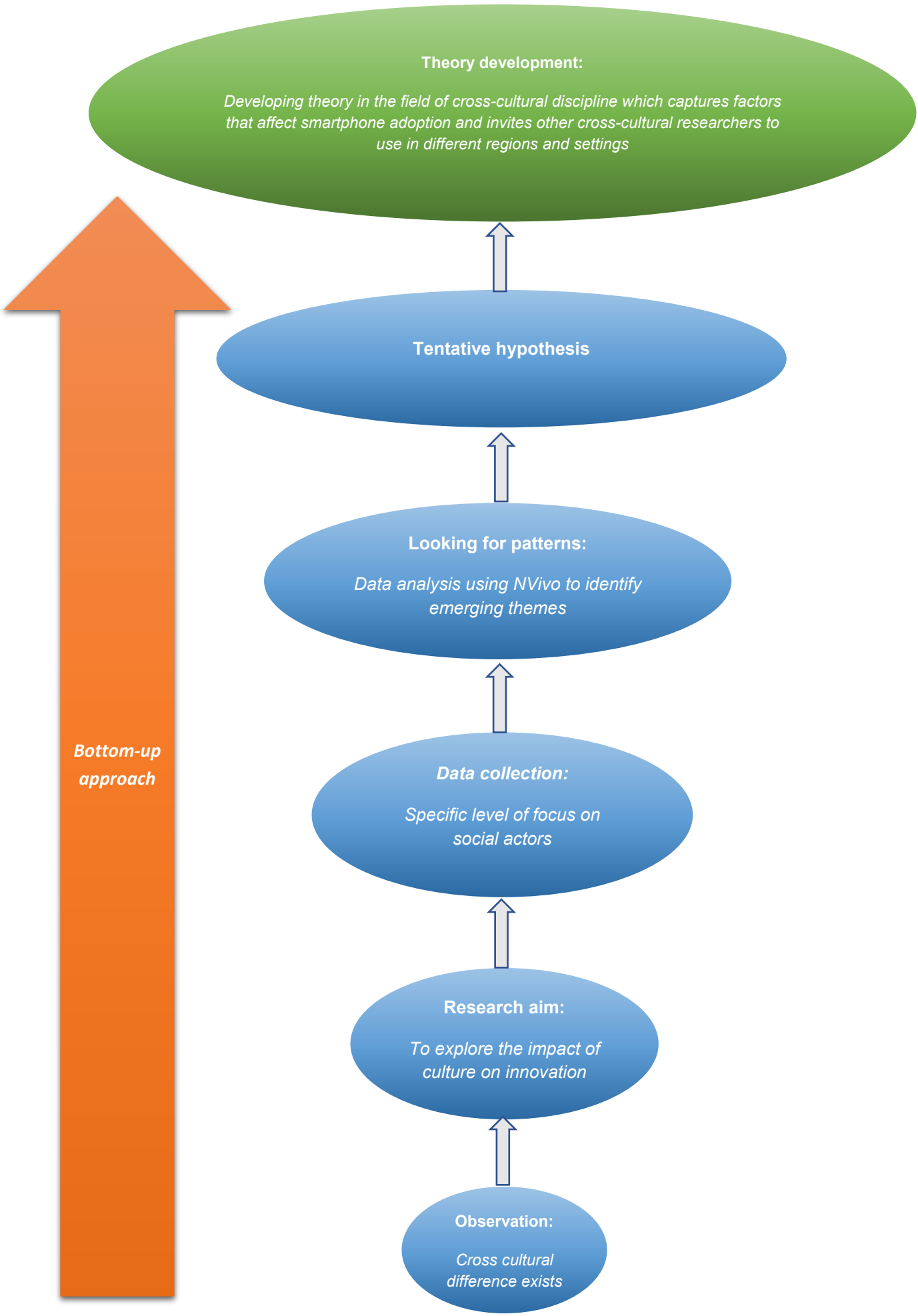
Theory development:
Developing theory in the field of cross-cultural discipline which captures factors that affect smartphone adoption and invites other cross-cultural researchers to use in different regions and settings
Tentative hypothesis
Looking for patterns:
Data analysis using NVivo to identify emerging themes
Data collection:
Specific level of focus on social actors
Research aim:
To explore the impact of culture on innovation
Observation:
Cross cultural difference exists
Bottom-up approach

Figure 4.1: Inductive approach (Author's own)

4.2.1 Underlying Philosophical assumptions

The research philosophy is the foundation of the research and the first layer of the research onion. The research philosophy can be referred as a belief of interpretation, collection and analysis of the data collected (Levin, 1998). At this stage of layer, the researcher displays the assumptions, views, and the way he/she views the world (Simpson, 2009). This perspective of the research will influence the choices the researcher makes into the data collection stages

There are five main research philosophies: **positivism**, **realism**, **postmodernism**, **pragmatism**, and **interpretivism** (Saunders et al., 2009).

Positivism supports the view that only factual knowledge gained through observation, including the measurement is credible. The role of the researcher is limited to data collection and interpretation in an objective way (Bryman and Bell, 2007). According to Crowther and Lancaster (2008) that positivist studies generally follow the route of being deductive rather inductive in nature. Positivist philosophical stance consists of working with an observable social reality to produce law-like generalisation (Saunders et al., 2012).

Realism approach supports the notion of independence of reality from human mind. This approach adopts scientific approach in terms of development of knowledge. The essence of the approach is that there is a reality independent of the mind. Realism is considered a branch of epistemology, which is similar to positivism and takes the scientific approach (Saunders et al., 2009). The realism can be divided into two types: direct realism and critical realism. The critical realism claims there are two steps of experiencing the world. First being the actual thing and the sensations, it conveys, and the second step is when the sensations meet our senses (Novikov and Novikov, 2013). The direct realism believes only in the first step and can be referred as what you see is what you get. It means that direct realism shows the world through personal human senses (Saunders et al., 2012).

Postmodernism focuses on the power relations and role of language, seeking to question accepted ways of thinking and giving voice to marginalised views. According to Calas and Smircich (1997) Post-modernist actively seek to question the power relation and expose the sustain dominant realities. The overall aim according to Kilduff and Mehra (1997) of post-modernist is to challenge the established ways of knowing and thinking.

Pragmatism believes that concepts are only relevant where they support action (Keleman and Rumens, 2008). The overall aim of a pragmatist researcher is to contribute toward a practical solution to inform future practice. Pragmatist's research varies in terms of subjectivist or objectivist and may use multiple methods or types of knowledge. Pragmatists researchers realise that there is more than one way of interpreting the world and undertaking the research.

The other philosophy is interpretivism which primarily integrates human interest into a study. The interpretive researchers assumes that access to reality is through social constructions such as shared meanings, language, and instruments. The foundation of this philosophy is based on the critique of positivism (Myers, 2008). The researcher in interpretivist approach acts as a social actor and appreciates the differences between people (Saunders et al. 2012). Individual constructs are elicited through interaction between participants and researcher (Guba and Lincoln, 1994), with participants being the focal point (Creswell, 2009). Interpretive philosophy is usually grounded (inductive) and is being generated from the data, not preceding it (Cohen et al., 2007). Below is the table 4.1 which summarises the research philosophies and our choice.

Research Philosophies	Ontology (Nature of reality or being)	Epistemology	Axiology	Typical methods
Positivism	One true reality(universalism) Independent, external, real	Casual explanations and predictions. Scientific methods (measurable facts and numbers)	Researcher objective and distanced.	Traditionally deductive and quantitative.
Critical Realism	External, Independent Casual mechanisms	Facts are socially constructed. Epistemological relativism	Value-laden research	Retroductive, in depth historically situated analysis of pre-existing structures and emerging agency.
Post modernism	Rich, Complex. Socially constructed through power relations.	Truth and knowledge are decided by dominant ideologies Emphasis on silences and repressed/oppressed meanings, voices, and interpretation	Value constituted research. Researcher and research in power relations	In depth examinations of silences, anomalies, and absences. Typically, qualitative method of analysis
Pragmatism	Rich, Complex, External. Reality consequence of ideas	Focus on problems, practices and relevance. Problem solving and informed future practice as key contribution	Value-driven research. Researcher begins with researcher's own beliefs and doubts	Focus on practical solutions and outcomes. Range of methods typically used: Mixed, multiple, action research.
Interpretivism	Rich, Complex and socially constructed through culture and language	Emphasis on perceptions, narratives, and stories	Researcher part of what is researched, and researcher's interpretation key to contribution	Traditionally inductive and involves small samples, in depth investigations. Use of qual methods.

Our Research Philosophy

Table 4.1: Summary of Research Philosophies (Saunders et al., 2009)

4.2.2 Selecting Interpretive Research Approach

For this study, an interpretivist view was suitable to explore the cultural differences towards innovation. Interpretivism emphasizes that nature of reality is socially constructed by human actors and distinctively rules out the methods of natural science (Mc Intosh, 1997; Eliaeson, 2002). According to Whitley (1984) interpretivists focus on the meaning and motives behind individual's actions such as behaviours and interaction with society and culture. Furthermore, Lin (1998) suggests that interpretivist researchers are not limited to search the casual relationship, but also ways in which it is manifested and above all the context in which things occur. Similarly, Kelliher (2005) believes that interpretivist researchers go beyond and emphasize on how it is occurred instead of what has occurred. Placing people in social context gives opportunity to a researcher to understand their perceptions they have of their own activities (Hussey and Hussey, 1997). The whole foundation of interpretivism is that research is being conducted on humans rather than objects. Interpretivism considers emotions, social behaviour and acknowledges the fact that individuals are different, and these differences needs to be taken into account (Saunders et al., 2012). This research was about understanding British and Saudi culture and view the reality through their lens. In addition, past several cultural studies have used interpretivism as the research philosophy to aid in the understanding of cultures (Briggs, 1972; Zhang, 2012). By taking interpretivist stance, the researcher was able to critically evaluate the impact of cultural backgrounds and interpret the participants' feedback through their lens. Culture is an intangible idea and comprises of values and beliefs of individuals. This research views culture as a value of an individual which gives different meanings when the context changes. This approach allowed more contextual space for individuals to convey the reality in a way that original message is not lost due to different cultural backgrounds. This permitted the researcher to unveil the hidden meanings of two different cultures and assist in interpreting individual's behaviour from UK and Saudi Arabia. However, the researcher was aware of the disadvantages which comes with the interpretivist approach. This stance of interpreting the cultures may cause bias, by imposing their own values onto the views. The researchers using an interpretive stance to understand and interpret culture need to be careful not to cause bias, by imposing their own values and beliefs on to others' views. According to Schwandt

(2003) researcher's biases were engaged in understanding, which was not an attribute that an interpreter needed to get rid of to achieve a strong understanding. Instead, these biases should be used to help examine the preconceptions and prejudices which were historically inherited and believed and alter the ones that inhibits researcher from a better understanding (Garrison, 1996). According to Aylesworth, 1991; Bernstein, 1983, understanding of a social action or text was a temporal and gradual process, which was bound to each specific occasion. As a result, the researcher emphasized more to the specific context, timing, environment, location, and people, in order to get a more holistic view of the findings.

4.3 Justifying the Use of Qualitative Research Method

This stage of research is when researcher decides on which strategy to opt for data collection. Determining which methods is suitable, it largely depends on the research questions and objectives. The strategy involves on making a decision regarding the method of data collection and analysis and must be aligned with the nature of research study (Creswell, 2009). According to Punch (2003); Saunders et al. (2012) there are three types of research methods and can be categorized into; qualitative, quantitative, and mixed method.

The literature in past have differentiated the research strategies into qualitative and quantitative research, however some of the past studies have used the mixture of both which can be referred as mixed methods.

The origins of quantitative research can be traced back from natural sciences and it is about examining the As-Is situation by identifying the characteristics of a phenomenon or exploring the correlation between more than one phenomenon (Leedy and Ormrod, 2006). The quantitative research is research which focuses on quantification in terms of data collection and analysis (Bryman and Bell, 2007). The methods are predetermined and uses closed ended questions, performance, observation, attitude, and census data. The quantitative approaches are used to test the existing theories or explanations. The quantitative theorist believes in singular reality which can be measured reliably and validly using scientific principles (Onwuegbuzie and Leech, 2005). According to Robson (2002) quantitative research is suitable when researcher is trying to measure the relationship between variables. The quantitative research is objective and normally deductive, and researcher's role

is like ‘’disinterested scientist’’ (Neuman, 1997). According to Patton (2002) this type of research requires standardised measures, which normally begin with cause- effect relationship, derived from existing theories (Neuman, 1997; Leedy and Ormrod, 2005). The biggest limitation to the quantitative research is lack of insight in the research and explaining ‘’what’’ without providing any understanding of ‘’how’’. According to Roer-Stier and Kurman (2009) quantitative research often rely on questionnaire data which provides little knowledge to the subjective experience of the participants, and it depends on the subjective interpretation of the researcher. The short comings of the quantitative research can be overcome by the qualitative research.

Qualitative research according to Creswell (2005) is a type of educational research in which researcher depends on the perspective of participants by asking broad questions and collect the data which constitutes of mainly words or texts. These words or texts are analysed later to find themes and conduct the inquiry in a subjective manner. The qualitative theorists believe in multiple constructed realities that generate different meanings for different individuals, and whose interpretations rely on the researcher’s lens. (Onwuegbuzie and Leech, 2005). According to Olds et al. (2005) qualitative research is used to test and collect textual data such as interviews, focus groups, surveys, conversational analysis, and observation. Furthermore, Creswell (2003) points out that qualitative research focuses on examining an issue by obtaining views and attitudes of the interviewees. The qualitative research gives an insight on ‘’how’’ and offers detailed explanation of the subjective experience. In addition, the findings are not gathered through statistical procedures or quantification (Strauss and Corbin, 1998). Instead, it revolves around according to Stauss and Corbin (1998) on the individual’s experiences, emotions, behaviours, life experiences, or to organise social movements, functions, interaction between notions, and cultural phenomena. The qualitative approach offers focus on phenomena in real world context, and they examine them in all their complexity and detail (Patton 2002; Leedy and Ormrod, 2005). The key advantage of qualitative research according to Sipe and Constable (1999) is it allows a dialogue between researcher and participant, which gives a deeper understanding of the social world. In addition, according to Denzin and Lincoln (2000) qualitative research places importance on words of participants instead of number of participants which can give

better and detailed understanding in findings. However, qualitative research has been criticised and according to Bryman (2001) that it can be too subjective because it relies heavily on the researcher and can be hard to generalise, because it is impossible to know how findings can be generalised in other settings. Later in the chapter, the researcher will attempt to address the ways to overcome the shortcomings of qualitative research.

The third type is the balance and combination of both qualitative and quantitative research called mixed methods. According to Sandelowski (2006) mixed method is combination of purposeful and probability sampling, open and close ended data collection techniques and narrative and multivariable analyses in which anything can be used together. Similarly, Creswell (2003; 2005) describes mixed methods as mixture of qualitative and quantitative methods in a particular study for data collection and analysis. Researchers have stressed that purpose of the mixed method design is to obtain a comprehensive understanding of a studies model and overcome the weaknesses of quantitative approach Tashakkori et al., 2007). Additionally, Jick (1979), has supported the multi or mixed method design because it offers researcher the benefits of both. Also, according to King et al. (1994) the best research is the one which integrates features of both qualitative and quantitative research. Furthermore, Green et al. (1989) analysed various research studies and concluded that mixed methods have several advantages for a researcher. Triangulation can be achieved by convergence and corroboration of results from different methods which increases the validity of the findings. Additionally, it can offer complementarity, which means that elaboration and clarification of results from one method with the results from other to enhance the meaningfulness and interpretability. Moreover, it can assist with initiation which is described as comparison of data which may contradict from one another and offer different perspectives. Likewise, it can add depth and breadth to research by using different methods at different stages of research (Greene et al. 1989).

The nature of our research is culture, people, and their behaviour. Qualitative research is best suited to understand and analyse the complex nature of the study. The current research is under explored because it is attempting to explore the consumer behaviour of Western vs Eastern cultural group. There has been scarcity of cross-cultural frameworks when studying impact of culture towards innovation.

The qualitative research allows to use open ended question which offered researcher to gain an in depth understanding of the behaviours. The overall aim was to get richer insight of Saudi and UK consumers in terms of smartphone usage, reasons to adopt, and reasons to resist towards innovation. The quantitative research was not suitable because it lacks to offer depth knowledge to the issue and add value to the body of knowledge. The goal of our research is to uncover the 'why' and 'how' instead of 'what'. The qualitative research assisted revealing the psychological process behind their decision making and allowed the researcher to see the reality through their lens. This study explored consumer behaviour in the context of latest and complex technologies such as Voice assistants, Artificial intelligence, Digital Payments etc. These topics are complex, multi-dimensional, and required a two-way communication to evaluate the perception of Saudi and British consumers especially considering difference in languages, expressions, emotions etc. In addition, our two main concepts of the research are *Innovation* and *Culture,* and both of these concepts were established in the literature review chapter as hard to define, understand, and complex. Therefore, qualitative research method was the most suitable to explore these concepts in cross cultural setting.

4.4 Selecting an Appropriate Research Strategy

According to Remeyi et al. (2005) research strategy provides comprehensive direction of the research and identified various types of research strategies such as survey, ethnography, grounded theory, case studies, and archival research. Saunders et al. (2009) refers research strategy as the overall plan of how researcher will go about answering research questions. In addition, Bryman (2008) defines research strategy as general orientation to the conduct of the research.

The choice of research strategy according to Saunders et al. (2009) has to be based on the research objectives and questions, the amount of time, and resources available, the extent of existing knowledge on the subject area to be investigated, and philosophical stance of the researcher towards the research. According to Yin (2003b) the selection of research strategy must be based on three conditions; the extent of control an investigator has over actual behavioural events, type of research questions, and degree of focus on contemporary of historical events. Both Saunders et al. (2009) and Yin (2003) agreed that although there are different types of

research strategies which are distinctive in terms of characteristics, but there are still overlaps among them and researcher should select which is most advantageous for particular research. From the various research strategies, the current research adopts case study as the research strategy and following section will explain the case study strategy and its justification.

4.4.1 Justifying the use of Case Study Research

The current research adopts case study as the main strategy. According to Yin (2003b) case study is an empirical inquiry that examines a contemporary phenomenon within its real-life context, especially when the boundaries between context and phenomenon are not clearly evident. Moreover, Creswell (2013) explains that case study explores a real life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through a detailed, in-depth collection involving multiple sources of information and reports a case themes and case description. Verschuren (2003) defines case study as a strategy that can be termed as comprehensive in nature, following an iterative-parallel way of proceeding, looking at only few selected cases, observed in their natural context in an open-ended way, explicitly avoiding all variants, making use of analytical comparison of cases or sub cases, and aimed at description and explanation of complex and entangled group patterns, structures, processes, or attributes. The case study in other words allows for a holistic and intensive investigation of the chosen topic, through more effort and research time to seek detailed and in-depth information. In addition, Simons (2009) defines case study after critical review of various case study definition, as in-depth exploration from multiple perspectives of uniqueness and complexity of a particular project, institution, policy, system, or a program in real world. The current research questions aim to seek in depth understanding of complex topics such as ***culture*** and ***innovation***, which requires rich data in each specific context, and therefore case study is the appropriate choice for the current study. The researcher aims to gather in depth understanding of how innovation is perceived across cultures within smartphone industry, and this is supported by Morris and Wood (1991) which states that case study strategy is appropriate if the researcher wishes to gain rich understanding. Moreover, Yin (2003) as explained above mentioned three conditions to decide upon a research strategy (types of questions posed, the extent of control researcher has over actual events, and degree

of focus on contemporary issues). Our research questions are exploratory in nature and involves ‘’How and Why’’. Below are our research questions:

1. How different are the motivation of UK and Saudi consumers behind using smartphone?
2. How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage?
3. How do UK and Saudi consumers perceive innovation within smartphone industry?
4. Why consumers in UK and Saudi Arabia upgrade to new smartphone?
5. How do UK and Saudi consumers resist innovation within smartphone industry?

The second condition identified is the degree of control the research has over the actual behavioural events. The research did not have control over the behaviour of consumers in cross cultural setting and there is no possibility of manipulating the behaviour when having an open-ended conversation in interview format. The third condition involves degree of focus on contemporary events, and this research is investigating contemporary issue by exploring current consumers aged 18-34 from Saudi and British culture regarding innovation within smartphone industry. The key issue with case study within interpretive paradigm is the generalizability. The findings gathered are based on interviewer’s interpretation and therefore findings may not be generalised to the whole population (Walsham, 1995). However, the findings can be applied broadly, and Walsham (1995) identifies four types of generalization: generation of theory, development of concepts, drawing of specific implication, and contribution of rich insight. The findings of this research can be transferred to other cultural settings in order to understand innovation better across the world. Below is the table 4.2 which summarises different research strategies and illustrates our choice.

Strategy	Types of research questions	Requires control over an event	Focus on contemporary events
Experiment	Why, How	Yes	Yes
Survey	What, Where, How much, How many	No	Yes
Archival Analysis	What, Who, Where, How much	No	Yes/No
History	Why, How	No	No
Case Study	Why, How	No	Yes

Our Strategy

Table 4.2: Summary of Research Strategies (Adapted from Yin, 2003)

4.4.1.1 Multiple Case Study Research

Stake (2000) identified three types of case study: instrumental case study, intrinsic study, and collective case study. The intrinsic case study is undertaken when the researcher wants to better understand a particular case, which demonstrates a special problem or trait, and the case itself is of the interest to the researcher. Instrumental case study is undertaken where the researcher wants to examine one case and provide detailed insight into an issue or to re-evaluate and seek its generalisation. In this type of case study, the case is not of primarily interest, but provides contextual meaning for the issues to facilitate people's understanding. Collective case study (Multiple case study) is study of several case where the researcher examines to investigate a phenomenon, general condition, or population. According to Creswell (2007) multiple case study selects several programmes to be studies from several research sites, or alternatively multiple programmes within a single site. Stake (2000) adds further that multiple case study offers better understanding or better theorising about a larger collection of cases.

The current research has 2 different cases which varies in terms of culture and the focus of the research is to explore the similarities and differences in these cases. Verschuren (2003) further argues that single case lacks the analytical power, generalisability, and pervasiveness of the multi-cases. The research results of a single case study are difficult to compare and can be valid within one single context. On the other hand, in multi-cases the results can be compared and contrasted across cases, expand the diversity of possible results, which allows researcher to obtain a result with a wider view, which ultimately assists in analysis. Moreover, Verschuren and Dorewaard (1999) explained that multi cases allows researcher to adopt a comparative approach, which increases the diversity of research. In addition, according to Darke et al. (1998) multiple case studies allow comparison of findings and investigation of phenomenon in different settings. The current research adopts multiple case study to obtain a comprehensive picture of culture differences and to distinguish the impact of culture towards innovation. It helps the researcher build a better insight from various angles and strengthens the exploration of the cultural phenomena. Furthermore, the comparison of case studies helps researcher to provide a more reliable findings and solid theoretical contribution (Vannoni, 2014). In addition, according to Eisenhardt and Graebner, (2007) multiple case study allows wider exploring of the research questions and theoretical evaluation.

4.5 Empirical Research Methodology

Empirical research is research that makes use of verifiable evidence in order to arrive at research outcomes. This type of research relies solely on evidence obtained through observation or other data collections methods (Calfree and Chambliss, 2005). The starting point of any empirical research are the research questions which becomes the focal point when evaluating methodological choices. Our research questions guide us for our methodological choices. The research questions of our study focus on ‘’Why’’ and ‘’How’’ and therefore, leads the researcher to adopt qualitative methods (Interviews). The following section will discuss in detail about design, data collection, sampling, interviews, and data analysis.

4.5.1 Research design

Churchill (1979) identifies that research design provides researchers direction for analysing and collecting data for their respective study. Research design is about shaping the plan to guide the researcher for the collection of data and answering the research questions. Similarly, according to Creswell and Plan (2007) research design is the 'procedures for collecting, analysing, interpreting and reporting data in research studies. In other words, It is the overall plan for connecting the conceptual research problems with the pertinent (and achievable) empirical research.

There are three different types of routes research design can progress with according to Robson (2002): **exploratory**, **descriptive**, and **causa**l. Descriptive research's main objective is to gather an accurate representation of happenings, situations, or people. Descriptive research is a way of determining, describing, identifying what is and attempts cast light on current issues or problems (Fox and Barat, 2007). One of the biggest issues with descriptive research is that it can become too descriptive and may result in worthless outcome. The most common primary data collection method for this type of study is observation, however case studies and surveys can also be applied in specific situations. Many studies tend to combine descriptive study with explanatory to provide valuable explanation (Saunders et al., 2012). Explanatory study is when a researcher is establishing causal relationship between variables. The focus is to analyse the situation or a problem to explain the relationship between variables (Saunders et al., 2012). Explanatory research is conducted to examine the impact of specific changes on existing processes, norms. Experiments are generally the most popular form of primary data collection in explanatory research. One of the issues with explanatory research is that coincidences might be perceived as cause and effect. In addition, conclusion is difficult to reach because there could be many other factors having an impact in social environment (Zikmund et al., 2012).

By considering the research problem and the research philosophy, this study opted for exploratory route. Exploratory study is about finding out 'what is happening'' in order to discover new insights; ask questions and analyse the phenomena in a new way (Robson, 2002). It is useful especially, if the nature of study is relatively unexplored and is flexible in the approach. The current study compares Saudi and British population in the light of innovation. According to Javindan and House (2001)

researching culture is always complex and multifaceted. The biggest challenge for cross-cultural researcher is the understanding of culture and what it relates to because there are many conceptualizations and definitions in the literature (Straub et al. 2002). The current study's topic is relatively unexplored and required a two-way communication with participants to understand the behaviour. According to Brown (2006) exploratory research is known to be suitable in tackling new problems on which little or no previous research has been done. According to Saunders et al. (2009) exploratory is valuable when asking open ended questions such as how and what. The elements of exploratory research aligned well with the nature of cross-cultural study. However, there are issues with exploratory research such as information may have a bias as it is subject to interpretation, and It can be too flexible. The research was aware of that and according to Adams and Schvaneveldt (1991) that exploratory research is flexible but does not mean it is absence of direction. It starts broader and eventually becomes narrower in the focus as the research progresses. Topics like culture especially when comparing western culture with eastern culture, it is suitable to understand the research problem with the help of exploratory research rather than jumping onto the conclusions. There have been several studies which successfully used exploratory nature in their research such as study by Turan and Kara (2007), a cross national comparison between Turkish and Irish Entrepreneurs; Oumlil and Baloun (2019) assessing cross national advertising differences within Morocco, UK, USA, Spain, and France; Panova et al. (2019) exploring smartphone usage behaviour in Spain, USA, and Columbia.

Secondly, time horizon is described as required time for completion of project work. There are two types of time horizon which are identified by Saunders et al. (2009) in research onion (See appendix F) are cross sectional and the longitudinal. This study undertakes a cross sectional design for the current study as it was being conducted at a particular time of a particular situation. The study was not investigating the same situation/phenomenon repeatedly or several times and views our study as a snapshot of current situation (Saunders et al., 2009).

Furthermore, our research aims to explore the impact of culture towards innovation within smartphone industry. The study adopts Case study strategy, by focusing on British and Saudi smartphone users aged 18-34. To achieve this, the researcher develops a conceptual framework **SAM**, which incorporates constructs from TAM, TRA, Sheth model and Hofstede's cultural dimensions. To best of our knowledge,

there has been very little, or no frameworks present which explores the impact of culture within smartphone industry. By developing **SAM**, it will have several implications and contributions (practical and theoretical) which will improve the overall understanding in body of literature.

As stated earlier (4.2.2) our study adopts interpretive stance, because it integrates and aligns with the nature of our research. Our research involves concepts (**Innovation and Culture**) which are complex, multifaceted, and multidimensional. This stance will help researcher see reality through the lens of social actors (Participants). Moreover, our research is inductive, and it is useful especially in the cross-cultural context, because of its' ability to disregard any previous trends/literature (Flick, 2011). Below is the figure 4.2 which illustrates our research design.

Figure 4.2: Research design (Author's own)

4.5.2 Data Collection

This study was conducted cross nationally, in two diverse countries: United Kingdom and Saudi Arabia. The sample consisted of fourteen members from each culture, making up a total of 28 members. The analysis of 28 interviews through NVivo resulted in identifying several themes and correlations for the research. The themes identified in the semi structured- in depth interviews are linked to the objectives and aims of the study. The respondents are labelled or categorised as either British (B) and Saudi Arabian as (S). Moreover, each respondent was given a number which will show the profile of the respondent. Please find below the interviewee profiles in the figure 4.3 and 4.4:

Demographic Characteristic and Profile of Interviewees.

Respondent	Age	Living	Gender	Bought smartphone	Highest degree obtained	Profession
B1	34	UK	M	2018	Undergraduate	Salesperson
B2	30	UK	M	2019	Postgraduate	Self employed
B3	34	UK	M	2020	High school	Salesperson
B4	26	UK	M	2019	Postgraduate	Marketing
B5	25	UK	M	2019	Undergraduate	HR
B6	24	UK	M	2019	Undergraduate	Student
B7	24	UK	M	2019	Undergraduate	Accountant
B8	23	UK	F	2018	Undergraduate	Student
B9	20	UK	F	2020	High School	Salesperson
B10	22	UK	M	2019	Undergraduate	Salesperson
B11	33	UK	M	2020	Postgraduate	Engineer
B12	22	UK	F	2019	Pursuing undergraduate	Barista
B13	25	UK	F	2018	Undergraduate	Fashion retail management
B14	34	UK	M	2019	Undergraduate	Self employed

Figure 4.3 Demographic characteristics and profile of British interviewees (Author's own)

Demographic Characteristic and Profile of Interviewees

Respondent	Age	Living	Gender	Bought smartphone	Highest degree obtained	Profession
S1	32	Saudi Arabia	M	2020	Undergraduate	Banking
S2	33	Saudi Arabia	F	2020	Undergraduate	Teacher
S3	27	Saudi Arabia	F	2020	Undergraduate	Housewife
S4	34	Saudi Arabia	M	2019	Postgraduate	Hospitality
S5	24	Saudi Arabia	F	2019	Undergraduate	Retail
S6	25	Saudi Arabia	F	2019	Undergraduate	Teacher
S7	30	Saudi Arabia	M	2017	Undergraduate	Business owner
S8	34	Saudi Arabia	M	2020	Undergraduate	HR
S9	24	Saudi Arabia	M	2019	Pursuing undergraduate	Student
S10	28	Saudi Arabia	M	2020	Postgraduate	Area manager
S11	31	Saudi Arabia	M	2018	Postgraduate	Marketing
S12	19	Saudi Arabia	M	2018	College	Student
S13	29	Saudi Arabia	F	2020	Undergraduate	Housewife
S14	27	Saudi Arabia	M	2018	Postgraduate	Sales executive

Figure 4.4: Demographic characteristics and profile of Saudi interviewees (Author's own)

The average age of British participants was 27 and 28 for Saudi participants. The participants from both cultures were either Saudi citizens or British citizens and fell under the age group of 18-34. Our recruitment of participants ensured that all the participants have purchased a smartphone for themselves in last three years.

The interview lasted between 30-60 minutes and conducted via Skype. The participants were sent an inviting email for participation in the research. The sample email invitation is attached in Appendix L. The interviews were conducted online instead of Face to Face due to COVID-19 restrictions and as a result it did not allow the researcher to record the semi structured interviews. However, notes were taken during every interview and shared back with the participants to confirm the answers. Moreover, the researcher was also concerned with technological intervention of recording, which could have resulted in lack of participation or lack of expressiveness on certain sensitive topics in our study. Furthermore, Saudi female participants asserted reluctance towards the idea of audio recording due to

religious/cultural reasons. The researcher therefore decided against recording of interviews and keep similar data collection settings across both cultures for the consistency of data. Prior conducting interviews, the researcher sent out the informed consent form to each of the participants who expressed their interest in participating in the study which is attached in appendix K. Each of the participants interviewed signed the consent form and returned it back to the researcher. After consent received, the research contacted the subject to explain the purpose of the interview, attached the semi structured interview guide, and arrange the time of the interview to be conducted.

4.5.2.1 Sampling Techniques

Population can be referred as complete number of organizations, components, items, or individuals that participates in study (Parahoo, 2006). It is suggested by Miles and Huberman (1994) that regardless of the type of methods used in the study, researcher will inevitably face difficulties in including everyone in the study, in all places, doing all the things. This is the reason why researchers are urged and advised to sample the study and then generalize the results. Henry (1990) suggests that sampling allows feasible and practical way for researchers to implement the research projects within time and budget. Furthermore, Henry (1990) describes samples as study of small group of cases that represents the larger population. According to Saunders et al. (2012) sampling is as selecting units or slices from the whole population, due to limitations in time and money. Similarly, according to Parasuraman (2004); Singleton and Straits (2005), sampling is the choice of subset of cases of the total number of units to draw a general conclusion about whole body of units.

The sampling strategies are influenced by research questions and overall aim of the study. Statistical representativeness is not the goal of our study, but it is to have a deeper understanding of the ‘’innovation perceptions cross culturally’’ which is largely unexplored.

The study conducted on Smartphone users based in UK and Saudi Arabia to get the insight about their attitudes and behaviours towards innovation. The overall sample size of semi structured interviews was 28 (14 participants from UK and 14 participants from Saudi Arabia). All interviewees were recruited via researcher’s

professional networks by using purposive and snowball sampling. This sampling method helped recruit preferred participants in accordance to their ability to elucidate on phenomenon being studied (Creswell, 2007). In order to have diverse perspective within the population, individuals were recruited purposefully with different professions and gender. The sample size used criterion of data saturation to guide data collection. When no more useful information could be collected, it was considered complete and resulting interviews have reached data saturation (Morgan, 1998). Furthermore, Grady (1998) defined data saturation as when in interviews, the researcher begins to hear same comments again and again. It is time to stop collecting information and start analysing of what has been collected. In addition, study by Guest, Bruce, and Johnson (2006) studied data saturation in depth when study is using non probabilistic sampling and concluded that saturation was occurred in the first twelve interviews and basic elements for meta themes were present as early as in first six interviews. Moreover, one of the first studies which studied data saturation for qualitative study was by Morgan et al. (2002). The study concluded that first five to six interviews produced the majority of the new data and little information was gained after that. In addition, the study by Coenen et al. (2012) empirically assessed saturation by inductive and deductive approach. The study concluded that data saturation was reached after 13 interviews in inductive approach analysis.

Our study conducted interviews step by step. The first phase began with conducting semi structured interviews with one culture. After 14 British semi structured interviews, the data saturation was reached, and no new information was adding value to the research aims. The second phase was then to complete Saudi semi structured interviews. After 12 interviews, data saturation was reached, however in order to keep consistency and similar research setting, researcher conducted additional two interviews.

Nonprobability was used since there was no frame or list for smartphone users in the system**.** The description of the population is below:

- **Aged 18-34 years old**. According to Nielsen (2016) smartphone owners by age, penetration is highest aged 18-24, 98% of whom own smartphones and second highest is aged 25-34, 97%. In the UK , as of 2018, 95 percent of

people aged 16 to 34 years owned a smartphone. The smartphone penetration is highest between two age groups: 16-24, and 25- 34. Below is the figure 4.5 which illustrates the smartphone users by age in UK. In addition, according to Deloitte (2019) adoption remains strongest with 18-24 and 25-34-year-olds, among whom mobile ownership is almost universal: 93% and 94% adoption. Not only does adoption vary by age, but it also varies by usage. The younger age band (18-34) grew up with smartphones as their main device, while older groups would have used laptops (35-44 band) or desktops (45+ band) when these first became widely available. That familiarity continues to guide preferences, with the older groups tending to use desktops and laptops rather than smartphones for online services such as online banking or mobile commerce. The goal of this study was to focus on the age group which have used smartphones predominantly in their life as primary device which then will help understand the adoption and resistance better for the new emerging technologies.

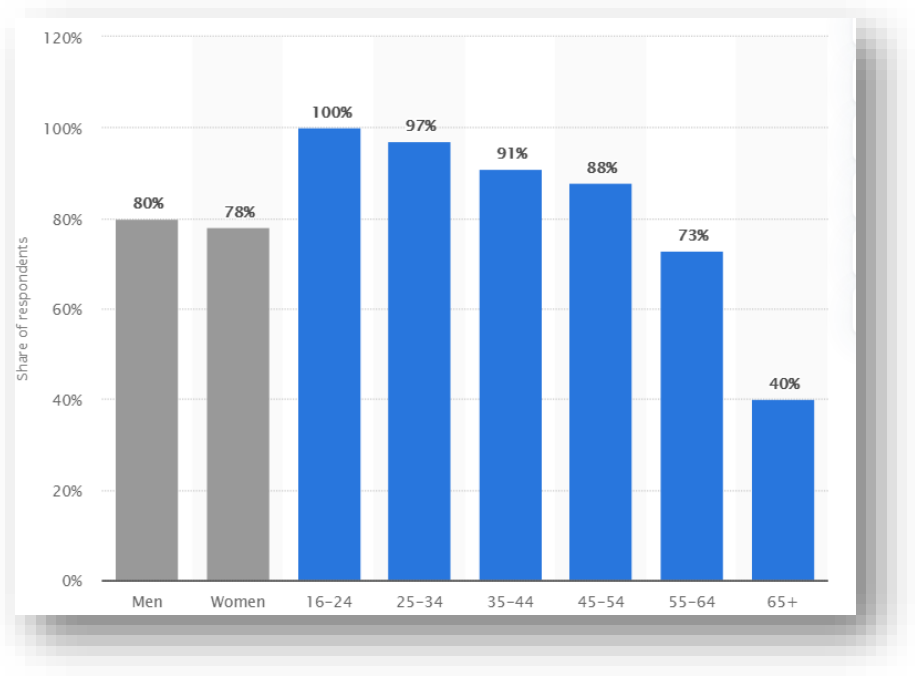

Figure 4.5: Smartphone users by age in UK (Statista, 2019)

- **Local citizens**. British participant based in the UK and Saudi participants based in Saudi Arabia. This rationale behind this was to get the true reflection of the cross-cultural factors affecting their perceptions.
- **Participant who has upgraded or bought a smartphone in last 3 years**. According to Kantar Worldpanel (2016) that majority of countries around the world upgrade their phones before 36 months. Additionally, the UK data suggested that British consumers upgraded their phone after 29 months (Arthur and Butler, 2017). The data for Saudi Arabia upgrade to new phone is not known. According to Statista (2017) the average smartphone was replaced after 28.1 month in 2016 across the world. By doing this, it assisted the researcher to gather latest decision-making process and insight on the innovation by participants from both cultures.

According to Gratton and Jones (2004); Ary et al. (2006), there are two types of sampling designs; probability and non-probability. Probability sampling is when every individual in the population has equal chance of being randomly selected to produce a sample that is statistically representative of the population. On the other hand, in non-probability sampling techniques the selection of individuals from population is not random and established by researcher (Greener, 2008). Probability sampling is commonly applied in quantitative studies, while qualitative studies rely on non-probability sampling (Anderson, 2009).

Purposive sampling and snowball sampling was used to recruit and interview the participants. According to Patton (2002) purposive sampling is a technique which is commonly used in qualitative research for identification and selection of information in order the effectiveness of limited resources. This technique involves identifying and selecting individuals that are knowledgeable or experience about the phenomenon (Creswell and Plano Clark, 2011). The reason behind choosing purposeful, because the goal of the research was to gain understanding of Saudi and UK participants regarding innovation in smartphone. The goal of the research is not statistical generalising, and our study have a relatively small population, therefore purposive sampling is suitable for our study.

Secondly, snowball sampling was used where already participants which have been interviewed through purposive sampling assisted in providing others who match the

above criteria. According to Brewerton and Milward (2001) snowball sampling is a technique that utilizes few cases to help encourage other cases to take part in the study, resulting in increasing the sample size. Snowball sampling was particularly useful in Saudi Arabia where personal connections play vital part. In addition, snowball sampling did only assist in finding the target sample, but also communicate better with samples as the acquaintances of the first sample has already gone through the process. This was in line with the previous research by Polit and Beck (2006) which also concluded that snowball sampling helps in communication with the participants of the study. Same sampling methods were applied for both cultures to eradicate any flaws and biasness on the research.

4.5.2.2 Semi structured Interviews

According to Kahn and Cannell (1957) Interviews are a purposeful discussion between two or more people and a credible way for gathering data. The origins of interviews can be traced back from psychiatry and psychology and is widely used methods in qualitative research (Bryman, 2006). Easterby-Smith et al. (2002) interviews are popular among researchers and respondents because they allow a two-way communication which is face to face and provide in-depth and holistic insight about the research topic. According to Bryman (2012) Interviews are categorised by the level of formality, ranging from structured interviews to unstructured interviews. Structured interviews are rigid and uses identical set of questions which are predetermined for all the respondents. Structured interviews are quite similar to questionnaires and used to collect mainly quantitative data from participants. On the contrary, unstructured interviews are like informal discussion and do not have a format or a standardised question. They usually have broad topics and interviewers may change the questions depending on the conversation with the participants (Healy and Rawlision, 1994).

The semi structured interviews are in between structured and unstructured interviews. According to Flick (2002) semi- structured interviews involves a series of open-ended question around the topic area, covered by interview outline and responses are left open. Bryman (2004) indicated that interview guide for semi-structure interviews is more relaxed than structured interview guide. The guide in semi structured interview is used as a brief list of memory prompts of topics and

issues which needs to be addressed. This method gives opportunity to discuss topics in detail and opportunities for respondents to raise issues that are important to them. Semi structured interviews have pre-determined question; however, it allows flexibility for any new ideas to emerge during discussion and sequence of the questions may vary depending on the flow of conversation (Greener, 2008).

This research used semi- structured interviews for this study based on the overall aim and objectives of the research. Interviews have been considered as best way for understanding complex topics such as culture (Miles and Huberman, 1994). The main reason behind is the balance between structure and flexibility which is crucial in cross cultural studies. The researcher was able to navigate the interviews and conversations were focused on the topics, but also gave opportunity to participants to express ideas even if it is not part of the interview guide. According to Berg (2007) semi structured interviews gives researcher to prepare an interview guide, while gives interviewees a leeway in how to reply. The current study was exploratory and interpretive in nature, therefore the semi structured interview provided opportunity to probe answers where researcher wanted interviewees to explain or build on their responses. Understanding of multi-layered and complex topics of our study such as: ‘’artificial intelligence’’ and ‘’perception regarding big tech corporations’’ were only possible through the flexible nature of semi structured interviews.

The limitation of interview is mainly the amount of time it requires a researcher for conducting interviews, transcribing them, and analysing interviews (Bailey, 2008). In addition, since it requires a vast amount of time, the researcher can only conduct interviews with relatively small sample of respondents. Moreover, interviews are susceptible to response bias, meaning the interviewees may view certain response to be more desirable than their actual views, or it can be influenced by interviewer’s opinion (Healey and Rawlinson, 1994).

Overall, the flexibility and two-way communication nature of semi structured interviews offered better discussion on the complex issues layer by layer and helped deep dive into the psychological process behind every answer. Additionally, semi structured interviews are not rigid and adaptable which helped in grasping the information from two opposing cultures, who have different way of expressing and choice of words.

4.5.2.3 Semi structured interview guide

Based on the literature review and the research questions in previous chapters, the interview guide (See appendix G, Interview guide in English and Appendix J, Interview guide in Arabic translation) comprised of four sections including motivation behind using smartphone, cross cultural analysis towards innovation, purchase intention decision making process, and cross-cultural resistance towards resistance. The interview questions used simple and direct language to extract the information easily from participants. In addition, interviews were conducted in relaxed and comfortable manner and efforts were made to build rapport making it easier for participants to open and express their views. At the end of the interviews, participants were given the transcribing notes and offered them opportunity to add/subtract anything which was not interpreted correctly by the researcher.

The interview guide was originally written in English and therefore was essential to translate into Arabic for the consumers in Saudi Arabia and is attached in appendix J. According to Blaschko and Burlingame (2002) three step protocol was applied in order to achieve the best possible Arabic version of the interview. The interview guide was initially translated into Arabic by using online credible service. Secondly, the translated Arabic version of the interview guide was translated back into English to check any discrepancies. The final step is to cross check the validity and accuracy of translation. A professional researcher fluent in both Arabic and English compared and assessed the original English and the re-translated version. Some revision and amendments were made after the review to keep both guides as simple as possible.

4.5.2.4 Transcription

The literature on transcription provides several views and explanations of the concept. There is a common theme with transcription that it is theoretical in nature (Ochs, 1999). Transcription is representational process (Bucholtz, 2000) and encompasses of several things; what is represented in transcripts things such as (nonverbal action, talk, time, speaker/hearer relationship, multiple languages, translation, physical orientation); who is representing whom, in which way, for what purpose, and with what outcome; and how the analyst position themselves, and their interviewers in their representation (Green et al., 1997). Translation entails translation or transformation of image/sound from recording to text (Slembrouck, 2007; Duranti, 2007). The transcription process is selective where one part of the

talk or phenomena are transcribed. This selectivity of transcription is actually practical and theoretical solution, because it is impossible to record all features of the talk. According to Ochs (1979) selective transcription is more useful than non-selective one because extra information might be cause issues for researchers to extract relevant information

Several scholars have stressed the importance on researcher doing their own transcriptions (Lapidat and Lindsey, 1999; Wengraf, 2001; Tiley, 2003). It is according to Strauss and Corbin (19990) to build additional theoretical sensitivity during research process. This can also be referred as researcher- transcriber, where researcher opts to transcribe his/her own data and gives opportunity to listen data more carefully and think about the interview using sensory and other memory (Park and Zenah, 2005). During transcribing, it is easier and better for researcher to reflect on the data and add their thoughts, reactions, feelings, and analytical assumptions. Recalling interviews several times during transcription provides researcher of memories and thoughts that will aid in giving the true representation of the feelings of the participant (Wengraf, 2001.) The researcher transcribing their own data also give opportunity to revisit those pauses, words, tones, and silences which the hired transcriber might not be aware of (Wengraf, 2001; Park and Zenah, 2005).

The researcher went through transcription of interviews several times and recalled to the detailed conversation with notes present. This helped the researcher to not miss out on any important words/meanings and therefore ensure accuracy of the individual's emotions. Palmero (2009) interrogated the transcription work for qualitative research and concluded that researcher transcribing his/her own work allows researcher to know the data better and as a result helps greatly in analysis process and themes. In addition, Tile and Powick (2002) have evaluated the use of hired transcribers in relation to the accuracy of transcripts and their analysis. This study is one of the few studies which provides empirical accounts of transcription and concluded that there are several issues when researcher hired a transcriber such as lack of direction given by researcher to hired transcriber, transcriber's alteration of words or omission when transcribing and above all the ethical matters related to confidentiality of the data when handing over to a hired transcriber. For the reasons stated above and better analysis, researcher opted to transcribe the data on its own instead of hiring a transcriber. During every interview, notes were taken with

the consent of the participants and after completion of the interview, those notes were put into the transcription and sent to the participants to cross check. This process was repeated after every interview. The researcher only conducted and moved to another interview, once the notes and transcriptions of the previous interview was completed and cross checked by the interviewee for the accuracy of the data. This exercise produced approximately 20,000 words of rich data from 28 participants (British and Saudi). Below is the figure 4.6 showing the five-step approach taken by researcher for transcription:

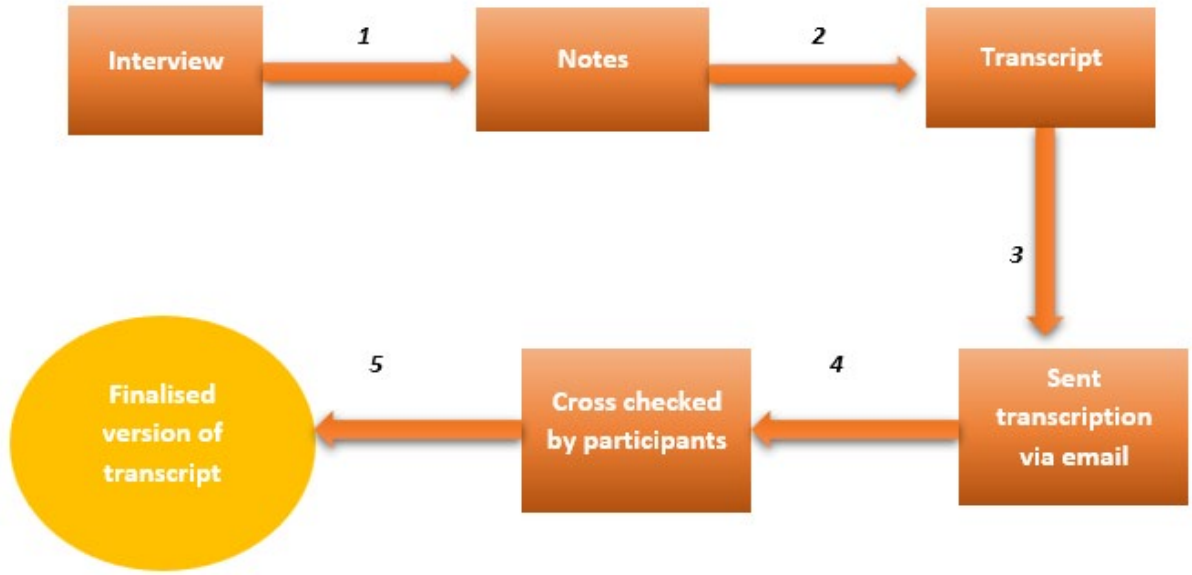

Figure 4.6: 5 step approach (Author's own)

4.5.3 Data analysis

Qualitive research has been adopted by many scholars due to the fact it provides in-depth and rich information which quantitative data struggles with. Qualitative research allows to explore experiences, behaviours, attitudes, perceptions, and the overall thinking process of individuals or groups. This means the data collected will be rich in text, comprising of large number of words, interactions, gestures etc (Pope and May, 1996; May and Pope, 2000). Due to the large number of words, text, and in-depth information, it is crucial that the data is analysed appropriately in order to grasp the true nature of thoughts and experiences of participants (Tashakkori and Teddlie ,2006).

Data analysis in qualitative research is more than just a technical exercise, and it involves creative process of inductive reasoning, intuitiveness, thinking, theorising (Basit, 2003). Bogdan (1982) refers data analysis in qualitative research as the systematic process of searching and arranging transcripts, interviews, observation notes, or any non-textual materials that the research views, that it is important to increase the understanding of the phenomenon. According to Saunders et al. (2012) there is no single and standardized way for analysing qualitative data. There are several techniques which can be used to examine and report patterns within text (Braun and Clarke, 2006). According to Riessman (2005) there are four types of method for analysing textual narratives for qualitative data: Thematic analysis, Structural analysis, Interactional analysis, and Performative analysis.

Table 4.3 below explain different types of narrative analysis and our choice of analysis for the study. (Riessman, 2005)

Discourse/ Structural Analysis	• *Focuses on a way the story is told. Emphasizes on language, frequency of words, their structures, and relationships.*
Performative Analysis	• *Envisions dialogues as a performance which is addressing audience through gestures and language. They focus on ''doing'' rather than ''telling''*
Interactional Analysis	• *Focus is on the dialogical process between listener and teller. Takes into account pauses, interruptions, change of topic and other aspects of conversations*
Thematic analysis	• *The focal point is on the content of the text, what is said over how it is said. Identifies themes of meaning.*

Data analysis of our research

Table 4.3: Narrative Analysis (Riessman, 2005)

4.5.3.1 Thematic analysis

The researcher opted for thematic analysis considering the nature and overall aim of the research. Ritchie and Spencer (1994) identified that thematic analysis involves both intuitive and logical thinking which aids the researcher to interpret the

meanings, find key issues, and link ideas. According to Attride- Sterling (2001) thematic analysis stages are described as reduction or breakdown of the text, exploration of the text, and the integration of text. According to Ryan and Bernard (2000) thematic stages are discovering themes and subthemes, winnowing themes into manageable (refining of themes), and developing hierarchies of code books or themes, and linking these themes back to theoretical models.

To interpret the data from the current research and find emerging themes between respondents, thematic analysis was better suited.

28 transcriptions (14 Saudi and 14 British Interview data) of the research were transferred into NVivo software. According to Basit (2003); Walsh (2003), NVivo allows researchers flexibility to view data, linking them, comparing patterns within and across documents. NVivo allowed transcriptions to be categorised according to the interview guide, which was structured by concepts and topics that directly links to research questions and overall aim. Themes are generated in two ways generally; inductively which are derived from raw text/data and deductively which are based on previous research/theories (Boyatzis, 1998; Fereday and Muir- Cochrane, 2006). In the current research data, themes have been coded in two tier stages. In the start, primary themes were developed which were based on previous researcher/theories. These themes acted as guide tool for the researcher who sought other different and similar issues across transcriptions. During the process, some of the primary codes were found to be not relevant or adding value to the overall research and were replaced by the new themes which emerged during analysis. By doing this, the complete list of themes were developed and all transcriptions were thoroughly classified and categorised based on those developed themes. The reason for opting NVivo software is it allows researcher to explore and identify themes easily because it can perform the manual tasks seamlessly, leaving researcher more time on focusing on the data. In addition, NVivo is ideal because it is immensely systematic, flexible, easier to use for the researchers (Wong, 2008), and improves the accuracy of the qualitative studies (Bezeley, 2007). In addition, NVivo's key strength is its' compatibility, and is not limited to one specific research designs. There have been several different kinds of studies which have successfully used NVivo for analysis; Qualitative Study by Donmozoun et al (2014), Cross sectional study by Gilmore et al. (2014), comparative study by Adongo et al. (2014), cross cultural study by Fox

(2010), study of smartphone usage by British and Chinese students Yang et al. (2018). After managing the data into themes from NVivo, it was transferred into an excel sheet where it helped to illustrate the results graphically into charts and cross validate the analysis.

4.6 Data triangulation

According to Simons (2010) triangulation is means of cross-checking the significance and relevance of issues or testing out arguments and perspectives from different angles. In addition, triangulation helps reduce minimise systematic bias and provide cross validity checks (Patton, 1999).

Denzin (1978) and Patton (1999) explained there are four types of triangulations:

- **Data triangulation** (obtaining data from different sources or at different times or under different space)
- **Investigator triangulation** (using several researchers in study)
- **Theory triangulation** (encourages several theoretical schemes to enable interpretation of phenomenon)
- **Methodological triangulation** (involves use of several data collections methods)

For our research, space triangulation fits well with the cross-cultural nature of the study. Cohen and Manon (1978) explain triangulation as an attempt to understand more fully, the complexity and richness of human behaviour by studying it from more than one standpoint. Our research involves studying the same phenomenon, but in different ‘’space’’ such as London and Riyadh. The idea was to ‘’explore *impact of culture towards innovation within smartphone industry’’*. Studying the same phenomena (Smartphone Innovation) in different settings/space to reach divergence or convergence in findings. Below is the figure 4.7 which illustrates Space triangulation.

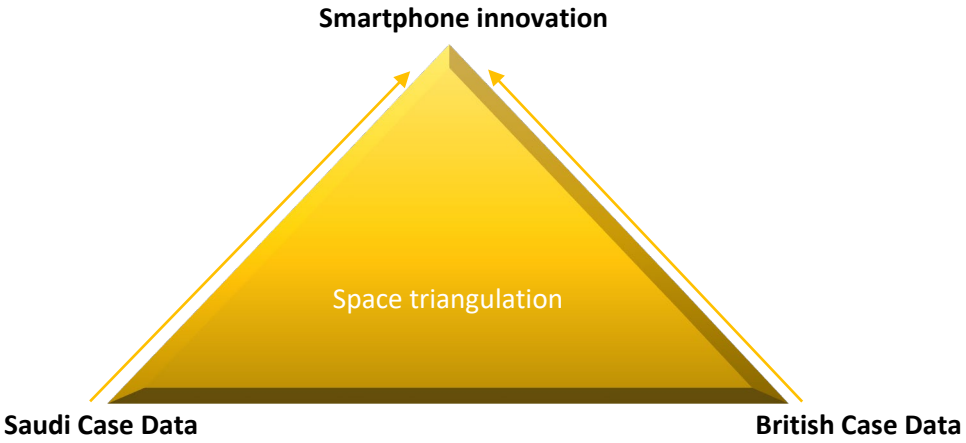

Figure 4.7: Space Triangulation (Author's own)

In addition, to evaluate the empirical research, Yin (2009) suggests that there are four aspects which should be maximized (construct validity, external validity, internal validity, and reliability). Yin (2009) proposed three (3) principles of data collection to deal with the problems of establishing the construct validity and reliability of the case study evidence, which are multiple sources of evidence; create a case study database; and maintain a chain of evidence. Below is the table 4.4 showing our reliability and validity measures.

Tests	*Descriptions*	*Our study*
Construct validity	Establishing correct operational measures (Yin, 2003)	Multiple sources of data by conducting Semi structured interviews from UK and Saudi participants on the same phenomenon.
Internal validity	Internal validity seeks to demonstrate that the explanation of a particular event, set of data or issue which a piece of research provides can actually be sustained by the data. (Cohen, Manion and Morrison, 2007)	Clear hypotheses were established with diagram to explain the relationship between different variables. Hypothesis derived from established theories and several theories were considered when establishing hypothesis.
External validity	External validity refers to which the results can be generalized to the wider population, situations, or	Multiple case study adopted with a clear rationale of sampling and case selection.

	cases. (Cohen, Manion and Morrison, 2007)	
Reliability	Demonstrating that operations of study can be repeated with same result (Yin, 2003)	Careful documentation and clarification of the research procedures and developing of case study protocol. Case study data base included field notes, transcripts, and semi structured interview guides.

Table 4.4: Reliability and validity in our study (Adapted from Yin, 2003)

4.7 Case Study Protocol: An Operational Action Plan

A case study protocol is normally a document or a record that comprises of the procedures, methods, and rules that will be followed in using instruments of data collection. The case study protocol is used to improve the overall reliability of case study results (Rahim and Baksh, 2003). According to Yin (1994) a case study protocol outlines: (a) **the case study overview,** (b) **fieldwork research procedures** (c) **questions addressed by the research** (for example, *exploring the factors affecting adoption of smartphones in UK and Saudi Arabia*), and (d) **the research output format.** Below is the table 4.5 which illustrates a snapshot to case study protocol, and which later is explained in detail in following sections.

Section	Overview
Case study overview (research aim and research questions)	*'''To explore the impact of the culture towards innovation within smartphone industry in UK and Saudi Arabia''-* • How different are the motivation of UK and Saudi consumers behind using smartphone? • How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage? • How do UK and Saudi consumers perceive innovation within smartphone industry? • Why consumers in UK and Saudi Arabia upgrade to new smartphone? • How do UK and Saudi consumers resist innovation within smartphone industry?
Field work research procedures	Participant selection criteria: • Aged 18-34 • UK cand Saudi Citizens only. • Bought Smartphone within last 3 years Invitation email and consent forms sent out to the participants (Please see Appendix K and L)
Research instrument	• Qualitative Method adopted (28 semi structured interviews) • Interview guide attached Appendix G
Data analysis	• Thematic analysis using NVivo
Design	• Multiple case study (Research Strategy) • Qualitative Method adopted
Case selection	• UK and Saudi Arabian consumer aged 18-34 (14 participants UK and 14 Saudi)
Data collection	• Semi Structured interview

Table 4.5: Case study protocol

4.7.1 Case study overview

The case study overview typically involves overview of the research project which includes aims, research questions, and the importance of the study. The case study overview should provide sufficient information to anyone who may be interested in the research (Yin, 2009). This case study investigated British case and Saudi case regarding innovation within smartphone industry. The case study overview helps the researcher in narrowing down the focus and emphasize on the key elements of the issue. Below is the figure 4.8 which illustrates the overview of our case study.

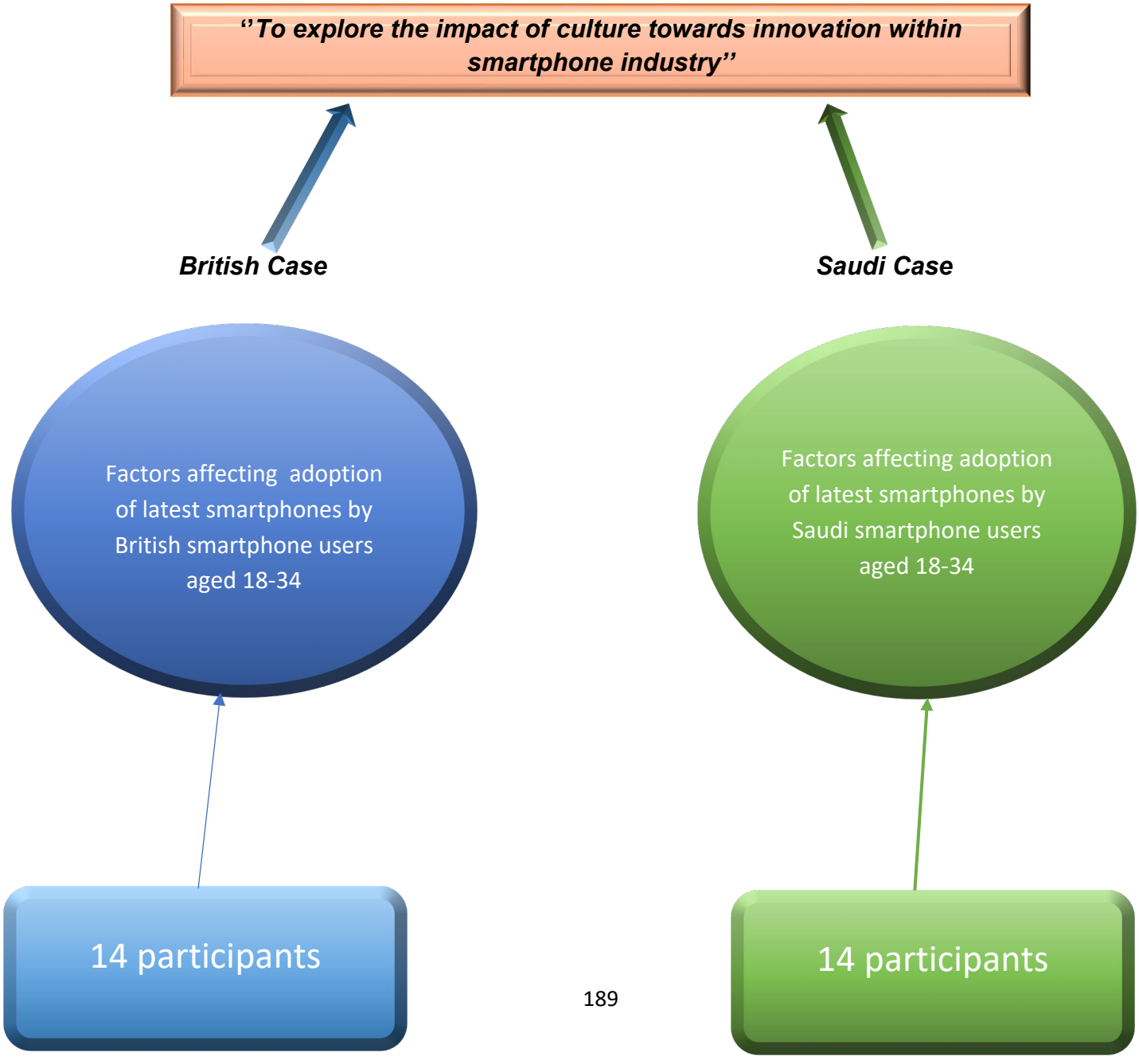

Figure 4.8: Case study overview (Author's own)

The aim of the case study: ''*To explore the impact of culture towards innovation within smartphone industry''*

Importance of our case study:

1. This case study provides an opportunity to develop an integrative model that combines both technology acceptance theories and cultural theory and test it at consumer level. As established earlier in introductory chapter, there is dearth of studies which explores innovation at the consumer level in cross-cultural setting within smartphone industry. This results in lack of cross-cultural framework currently in body of literature which examines the factors influencing the adoption of latest smartphones.
2. Our conceptual framework integrates (**SAM**) integrates Hofstede's cultural dimensions with the technology acceptance model. By doing this, the researcher is testing the relevancy of Hofstede's dimension in this modern age. The research by Mc Coy, Galletta, and King (2005) questions the relevance of Hofstede's work by suggesting that shifts may have occurred over last 30 years in context of cultural values.
3. By addressing the above gaps, our research will assist the following: *Policy makers, Smartphone brands, Product Designers, and Software developers* with a better understanding on how the latest innovations emerging in the industry such as **Artificial intelligence**, **Digital Wallets, M-shopping** are being perceived in Western vs Eastern region.

Research questions:

- How different are the motivation of UK and Saudi consumers behind using smartphone?
- How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage?

- How do UK and Saudi consumers perceive innovation within smartphone industry?
- Why consumers in UK and Saudi Arabia upgrade to new smartphone?
- How do UK and Saudi consumers resist innovation within smartphone industry?

4.7.2 Fieldwork Research Procedures

Field research procedures are guidelines as to how the case study will be conducted. This section normally includes areas such as how subjects will be accessed (Ethical issues), the schedule, any practical issues etc (Yin, 2009).

The fieldwork research procedures are below:

- Selecting appropriate countries for case study and setting a defined criteria on who should be interviewed. The researcher set a strict criterion and applied across both cultures. The participants who fell under the following criteria were able to participate in our study:
    1. **Aged 18-34**
    2. **Bought smartphone in last 3 years**
    3. **British and Saudi citizens only (Living in their respective country; for example, in order to qualify for the participation in the study, participants must be residing in their home country)**

The same list of questions (Semi- structured interview guide, Appendix G) were asked to British and Saudi respondents to keep the consistency. By using Semi-structured interview, it allowed the researcher to fully explore, and deep dive into the psychological mind set of respondents from British and Saudi respondents. This data gathering method allowed researcher to also accommodate the differences in communication style by British and Saudi consumers.

- Respondents were asked to participate in the current research by email invite. The email is attached in Appendix L which explicitly stated the following:

    1. **Introduction to the researcher and university**
    2. **Purpose of our research**
    3. **Method of data collection**

4. **Selection criteria**
5. **Data confidentiality**
6. **Voluntary participation**

According to Christians (2005) there are four main items in codes of ethics: informed consent, deception, privacy and confidentiality and accuracy. The participants who took part in the research were ensured their anonymity and confidentiality. Every participating participant signed a consent from (details in appendix K) which listed matters related to confidentiality and how the data will be used. The information provided by the participants was used only for the current research and the details of the participants will not be revealed to any other person except the researcher, either in dissertation or in any subsequent publications. The researcher therefore replaced names of participants by pseudonyms (Baez, 2002; Kaiser, 2009) and identified using letters and numbers (see figure 4.3 and 4.4). Interviews were only arranged if participant was voluntarily willing and consent. Participants were assured that there would be no adverse effect if they refuse to participate or withdraw from the study (Crow et al., 2006). Respondents were informed about the aims and nature of the study both verbally and in writing. Respondents were given an opportunity and right to not answer a question. After finishing every semi- structured interview, the researcher summarised the data and cross checked with the respondents to make sure that their views and meanings are conveyed accurately (see figure 4.6- Author's own five-step transcription approach). This exercise of cross checking assisted in avoiding misinterpretation of the data and it was crucial because of the cross-cultural nature of study and language issues (Arabic and English). The researcher informed every participant before starting interview that they might need to repeat or clarify on occasions where the researcher feels the need of it for improved understanding. Moreover, researcher also informed the participants that there might be delays in between questions because of notetaking during the interview. The researcher always kept sufficient resources such as large note pads, pens, and markers to highlight key issues in order to grasp every important word, pauses, feelings of the respondents. The interviews were one on one via online (Skype), however some of the Saudi Female respondents asked their partner (Husband) to accompany them during the interview. This was because, some of the Saudi female respondents felt more comfortable and willing to take part in the research when accompanied by their

husband. The researcher made sure that every effort is made to enhance the level of comfort, because this led to a pro longed discussions and helped really understand the multi-layered, complex issues such as ***Artificial intelligence***, ***Innovation***, ***Cultural Impact*** etc.

4.7.3 Issues addressed by the Research

The research questions are a focal point of any study and therefore needs be addressed. This section of case study highlights the issues that the researcher intends to address and answer to make theoretical and practical contribution. Our research intends to make practical contribution on a wide scale, industry level (smartphone) which will be useful to Smartphone manufacturers, Software developers, Product designers, Policy makers, and make theoretical contribution in the following areas: Development of Cross-cultural framework for smartphone adoption (SAM), Innovation literature, Testing the relevance of Hofstede's cultural dimension in this modern age and exploring Saudi Arabian culture which is under researched in body of literature in context of technology acceptance.

Below is the table 4.6 which shows in detail the issues addressed by research. The researcher extracted sub questions from the research question to show the number of key issues addressed by our case study.

Research issues	*Research questions*	*Sub questions*
Motivation behind using smartphone by British and Saudi smartphone users aged 18-34. In order to explore the smartphone behaviour and usage, it is crucial to understand their motives first.	• (Rq1) How different are the motivation of UK and Saudi consumers behind using smartphone?	*What is the average screen time per day of UK and Saudi smartphone users aged 18-34?* How dependent UK and Saudi smartphone users aged 18-34 are on their device and why? How has smartphone affected daily life of UK and Saudi smartphone users aged 18-34? *What are the most popular apps according to UK and Saudi smartphone users aged 18-34 and Why?* *Where do UK and users spend their time while using smartphone?*
Factors influencing the adoption of latest smartphones. Focusing on reasons to adopt.	• (Rq2) How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage.	*How different is the perception of UK and Saudi consumers towards the latest smartphone features such as Voice Assistants, Digital Payments, M-shopping?* *What are the factors which contribute towards adoption of new smartphone features?* *How do UK and Saudi smartphone users view large screen smartphones?* *Which culture pays more attention to functional benefit of the product and why?*
Attitudes towards innovation by British and Saudi smartphone users aged 18-34	• (Rq3) How do UK and Saudi consumers perceive innovation within smartphone industry?	*How different is the perspective of UK and Saudi consumers regarding the level of innovation they experienced within smartphone industry in last 5 years?* *What do British and Saudi smartphone users think of big smartphone companies such as Apple, Samsung launching phone every year?* *How different UK and Saudi users view the word ''innovation'' and what do they associate this word with?*
Factors influencing the upgrade of smartphones	• (Rq4) Why consumers in UK and Saudi Arabia	*Which factors affect UK and Saudi the most when purchasing new smartphone and why?*

	upgrade to new smartphone?	*How important is branding, pricing, and features to British and Saudi smartphone users and why?* *How important is the following: online recommendation, friends/family advice when making decision towards new smartphone?*
Factors contributing towards resistance of latest smartphones. Focus is on reasons not to adopt and rejection.	• (Rq5) How do UK and Saudi consumers resist innovation within smartphone industry?	*Which factors contribute the most regarding rejecting new smartphone features?* *What are the views of UK and Saudi smartphone users regarding ease of use?* *How different is the perception of ''risk'' and '' privacy'' when it comes to innovation and why***?** *What is the attitude of UK and Saudi smartphone users towards early adoption in smartphone users?*

Table 4.6: Research issues (Author's own)

4.7.4 The Research Output Format

According to Yin (2003) reporting case studies are one of the most challenging aspects of case studies and researcher should give utmost priority of identifying the audience for which the case study is directed to. There are some key elements addressed by Yin (2003) that should be covered in this section: Targeting case study reports and Illustrative structures for case study compositions.

The starting point is identifying the audience for the case study. Generally, case studies are believed to have a wider audience than for example 'experiment'.

By reviewing our study, it can be concluded that there are several target audiences for the study. The researchers have categorised the audience into three types: Primary audience, Secondary audience, Tertiary audience. The table 4.7 below identifies the different types of audience for our case study and implications to it.

Audience type	Who	Implications to audience
Primary audience	• Research community especially in cross cultural discipline, innovation, technology acceptance etc. • Academic colleagues • Research committees	The relevance of our case study to primary audience is in following areas: • **Fulfilling the gap by developing of cross-cultural framework (SAM) for smartphone adoption** • **Innovation literature (Developing a new innovation definition in the context of smartphone)** • **Testing the relevance of Hofstede's work in modern age**
Secondary audience	• Smartphone manufacturers (Apple, Samsung, Huawei, Google etc.) • Software developers • Product designers • Policy makers • International managers	The relevance of our case study to secondary audience is in following areas: • **Our case study depicts the current usage, attitudes, and perceptions of users aged 18-34 regarding emerging technology within smartphone industry** • **Our case study reports the reasons to adopt and examines the factors inhibiting the adoption towards new features in smartphone industry and showing which factors are relevant in western vs eastern region.**

Tertiary audience	Policy makers operating in emerging tech Industries which share some common characteristics with smartphone industry such as: • Smart speaker industry (Alexa, Google assistants etc). • Virtual reality and Augmented reality industry (Oculus) • Smart watches (Fitbit) • Electric vehicles (Tesla) • Other Artificial intelligence related products.	The relevance of our case study to tertiary audience is in following areas: • **Our case study reports the attitudes of consumers regarding Artificial intelligence and Machine learning technologies.** • **Our case study reports on the current perception of innovation from consumers aged 18-34. It shows what factors are still the most relevant for adoption.** • **Our case study reports the consumer's mindset in relation to the risks/ resistance towards innovation. The other related industries can learn from this and apply to their industry for increasing the adoption.**

Table 4.7: Target audience for our Case study

Secondly, another crucial part in case study report output format according to Yin (2003) are the illustrative structures for case study compositions. There are six structures most commonly used (Linear analytic, comparative, Chronological, Theory Building, Suspense, Unsequenced). Our purpose of case study is exploratory and after reviewing the six structures, linear analytical structure best fit our study. This structure usually begins with the issues or problem, followed by relevant literature. Then the structure proceeds with the methods used, and then there is a chapter presented for findings and discussion (Yin, 2003). This structure is most commonly used in the research community for academic reporting of case studies. However, some changes are made to the current the structure to fit the context of our study and audience. Below is the table 4.8 which illustrates six structures of composition and our choice.

Our choice

Type of structures	Explanatory	Descriptive	Exploratory
Linear -analytical	X	X	X
Comparative	X	X	X
Chronological	X	X	X
Theory building	X		X
Suspense	X		
Unsequenced		X	

Table 4.8: Six structures of composition (Yin, 2003)

Furthermore, the quality of case study does not only depend on the empirical data collection, but also on its reporting (Denzin and Lincoln, 1998). It is important for a case study to clearly show the phenomena under investigation and be presented in easy-to-read format.

The case study involves consumers aged 18-34 from UK and Saudi Arabia. Selecting UK and Saudi Arabia as case study involves three reasons:

- Our research focal point is ‘’**culture and its’ impact towards innovation**’’. It was logical to select cases which are culturally distinctive. This was also validated by Hofstede’s national dimensions which illustrates differences in Saudi and UK cultural dimensions. Below is the table 4.9 showing Hofstede’s dimensions of Saudi and UK.

Dimensions	UK	Saudi Arabia
Individualism	89	25
Power Distance	35	95
Uncertainty avoidance	35	80

Table 4.9: Hofstede's cultural dimensions – UK and Saudi Arabia

- Secondly, the literature indicates that UK smartphone penetration is one of the highest in Europe (Statista, 2021), while Saudi smartphone penetration is one of highest in Middle east (Deloitte, 2019). These regions therefore become a viable and appropriate option due to nature of our study which involves ''**smartphone industry''**.
- **Geographical considerations**: UK and Saudi regions were conveniently accessible to the researcher.

Below is the table 4.10 which shows details of our case study.

Case	Description	Population Criteria	Respondents
1. British case	Involves exploring the factors affecting the adoption of latest smartphones in a real-life context (London based)	• Aged 18-34 • UK citizens only • Bought Smartphone within last 3 years	14 Participants
2. Saudi case	Involves exploring the factors affecting the adoption of latest smartphones in a real-life context (Riyadh based)	• Aged 18-34 • Saudi citizens only • Bought Smartphone within last 3 years	14 participants

Table 4.10: Case study Description (Author's own)

4.8 Summary methodology

The research adopted interpretivist approach in the study which emphasizes on the individual differences. The interpretivist approach focuses on people, not on objects and see the reality through lens of social actors (Saunders et al*.,* 2009). The research was about analysing consumer behaviour from different culture, which assisted the inherit nature of interpretivism; focus on feelings and behaviours of individuals.

The research approach adopted inductive rather deductive because the research was commencing with the problem, and it is not testing any theory. The Saudi and British consumer behaviour towards innovation is not known, therefore it initiated with the topic and recognise any relationships/theories.

The purpose of the study was exploratory because there is a scarcity in cross cultural studies when it comes to product innovation. The understanding of Saudi and British customers required adaptability and flexibility due to cultural differences and unexpected nature of the study.

To achieve the objectives of the study, the research used qualitative method for gathering information. The qualitative research helped rich understanding of the issue complex issues concerning with product innovation in opposing cultures. The qualitative data helped research on exploring the ‘’why’’ rather than ‘’what’’. The Saudi and British perception towards complex issues were understood via two-way communication. This two-way communication allowed researcher to incorporate nonverbal communication such as expressions, pauses, tones, feelings into the data interpretation for rich understanding. The researcher used nonprobability sampling (Purposeful and Snowball) to recruit participants. The criteria for selection of participants for the study were (*Smartphone users aged 18- 34*, *Purchased smartphone in last 3 years*, *and Saudi and British citizen only*).

Chapter 5: Research Findings

5.1 Introduction

The presentation of research findings and analysis will be structured aligning to the objectives in the introductory chapter. This chapter will aim to answer objectives and overall aim of this paper, which was identified earlier in the introductory chapter.

5.2 Screen time of British and Saudi smartphone users aged 18-34

The respondents were asked to share the screen time from their smartphone which illustrated the duration of time spent per day. The data was gathered from features on their smartphone such as **Screen time** (iOS) and **Digital Wellbeing** (Android OS). This data revealed reports of British and Saudi smartphone users on how much and where they spend time (Entertainment, Social media, Productivity, etc.) when using smartphone. A significant trend was observed when analysing the screen time of both Saudi and UK smartphone users. The table 5.1 illustrates the time spent per day on smartphone by British and Saudi respondents aged 18-34. The figure 5.1 graphically represents the average time spent by British and Saudi respondents on their smartphone.

Smartphone Screen time (minutes per day)	British Respondent	Smartphone Screen time (minutes per day)	Saudi Respondent
240	B1	420	S1
330	B2	600	S2
420	B3	300	S3
360	B4	360	S4
390	B5	600	S5
240	B6	660	S6
340	B7	720	S7
360	B8	210	S8
420	B9	510	S9
250	B10	360	S10
388	B11	460	S11
391	B12	560	S12
255	B13	360	S13
210	B14	444	S14

Table 5.1: Screen time (Minutes per day)

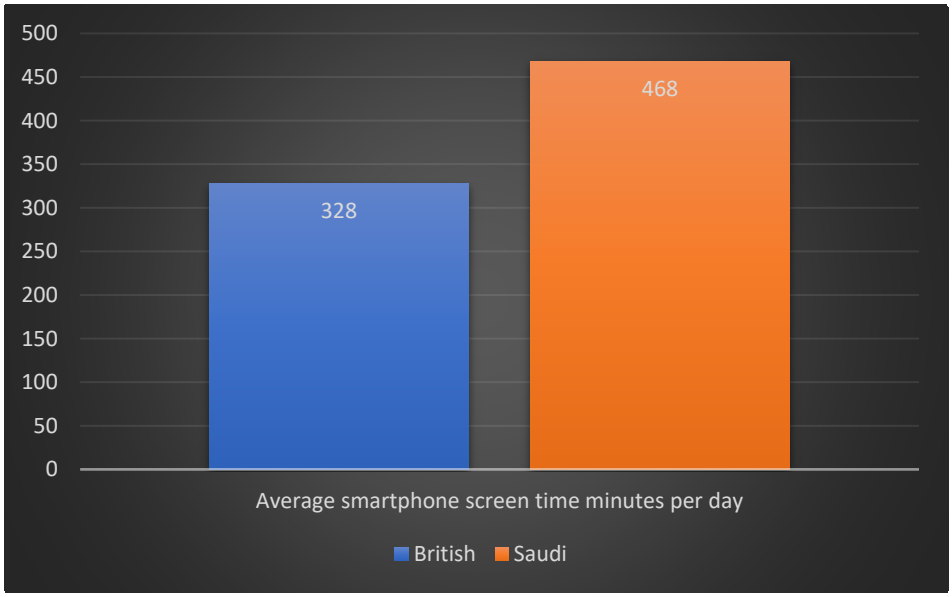

Figure 5.1: Average smartphone screen time minutes per day

There was a common theme between British and Saudi respondents regarding their high dependency on their smartphones. British users on average spent 5 hours and 28 minutes per day (328 minutes per day), while Saudi respondents spent 7 hours and 48 minutes per day (468 minutes per day). This means every day on average; Saudi users are spending an extra 2 hours and 18 minutes (2.3 hours) per day on their screen of smartphone than British respondents.

The largest screen time data from UK respondent was 7 hours and lowest was 3 hours and 30 minutes. On the contrary, highest screen time from Saudi data was 12 hours, and lowest was 3 hours and 30 minutes.

5.3 Motivation behind using smartphone by British and Saudi smartphone users

Based on the user's screen time reports and semi structured interviews, 7 themes were created on where users spend their time when using smartphone. Below is the table 5.2 which is showing the name of the apps and the respective categories they fall under.

Apps Category	*Name of apps*
Communication	*WhatsApp, I message, Facetime, Teams, Texting messengers, Skype, Imo etc.*
Entertainment	*YouTube, Netflix, Spotify, Apple Music, Podcast, Gaming apps, Apple Tv+ etc.*
Social Media	*Facebook, Twitter, Instagram, Snapchat etc.*
Productivity and finance	*Financial trading apps, Notes, Online Banking apps etc.*
Information and Reading	*News apps, Weather, Academic learning apps etc.*
Navigation/Travel	*Google maps, Waze, Maps, Uber, Careem etc.*
Shopping/ Ecommerce	*Amazon, Souq, Namshi, Noon etc.*

Table 5.2: Apps Categories

British and Saudi respondents were asked to list 3 most used apps. In total, 42 apps were noted down per culture.

- 33% of the apps listed by UK respondents were from communication category, while 29% of the apps were from Entertainment category, and 26% of the apps were from social media category. Below is the Figure 37 to illustrate the motivation of British smartphone users behind using smartphones
- 38% of 42 apps were from Social media category, followed by 36% of the communication category, and 17% of the entertainment category.

The figure 5.2 and figure 5.3 graphically illustrates the motivation of British and Saudi smartphone users behind using smartphones.

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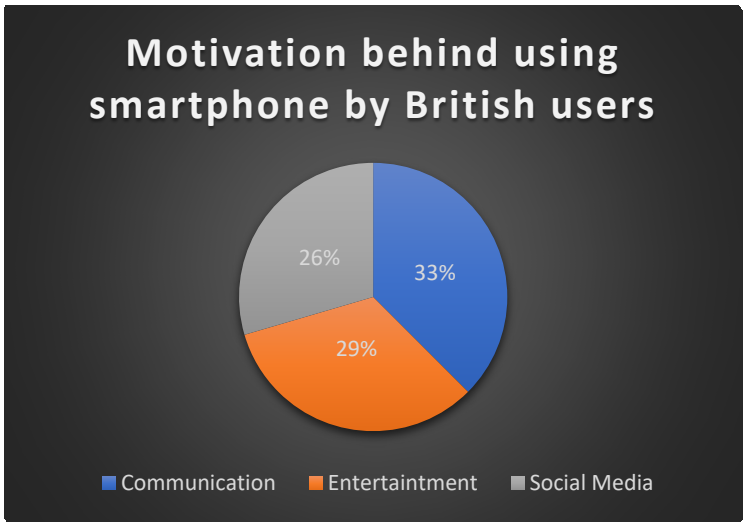

Figure 5.2: Motivation behind using smartphone by British users

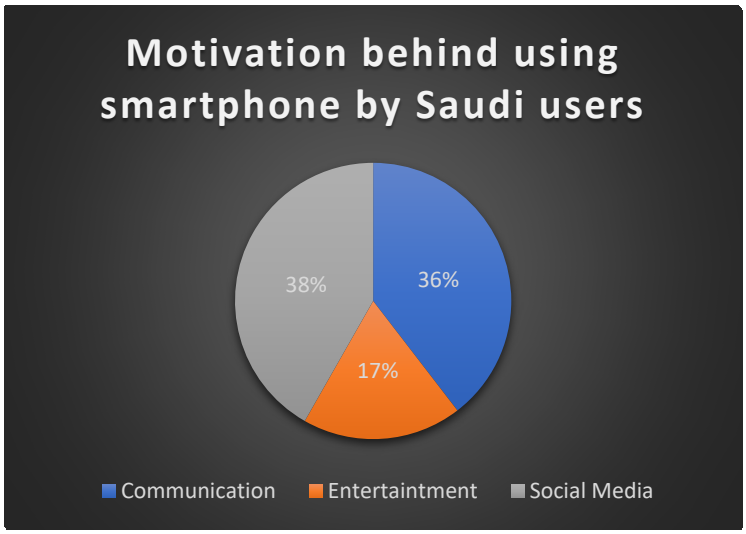

Figure 5.3: Motivation behind using smartphone by Saudi users

The main reason behind using smartphone by British users emerged to be Communication, Entertainment, and Social media. Below are the statements from British and Saudi participants regarding motivation behind using smartphones. The letter ‘B’ stands for British respondent and ‘S’ stands for Saudi respondent. The numbers have been aligned to each participant.

Respondent B4

‘’I generally use for catching up with my friends. I spent time exchanging memes and talk about things happening around the world with my friends. If I want to use it for something more serious like academic reasons or work, then I will use laptop’’.

Respondent B7

‘’I watch lots of shows on YouTube related with technology news for my knowledge, some gaming reviews and talking with my Friends’’.

Respondent B9

‘’*The purpose is fun and leisure. I do not think, I do much productive on smartphone. It is a way to move away from stress of real life’’.*

Respondent B13

‘’My smartphone has become my new Tv, when I am travelling, I got my headphone on and end up watching show on it or listen something. I cannot remember the last time I watched Tv’’.

Respondent B14

‘’The biggest use is communication with people from both work and non-work. I do also play games sometimes on my smartphone when I cannot sleep’’.

Saudi respondents showed similar trends, however Social media was the most popular category, followed by Communication, and then Entertainment.

Respondent S2

‘’I use 25% for work and then rest 75 % is leisure. My activity on smartphone increases at night-time. I primarily use for social media’’.

Respondent S4

‘’I can easily speak to my suppliers and customer throughout the day. I create business relationships and send receipts to my suppliers by using WhatsApp always. In addition, I use it for keeping in touch with my Family’’.

Respondent S9

‘’Smartphone’s main purpose for me personally is keeping an eye on what is going on around the world and with friends/family’’.

Respondent S13

‘’To stay in touch with people I know and pass time’’.

Respondent S14

‘’Navigation is most useful feature because my work requires me to go to areas which I have not been before. Riyadh is such a huge city, and I till this day, have not fully explored the city. The second purpose is staying in touch with my social circle’’.

5.4 Most used apps by Saudi and British smartphone users

- 71% of the British respondents listed WhatsApp as one of the most used apps on their smart phone. The second most used app used was YouTube with 36% people listing as most used app. The third most used app was Facebook, with 28% of the people listing it as most used app on their smartphone. The other apps which were popular among British respondents were Gmail 21%, Instagram 21%, and Netflix 14%. Below is the figure 5.4 which illustrates the most apps used by British respondents.
- 79% of the Saudi respondents listed WhatsApp as one of the most used apps. The second most used app was Facebook, with 43% listing as most used app. The third most used apps were shared between Instagram and YouTube with 29%. The other apps which were popular were Snapchat 21% and Twitter 21% among Saudi respondents. Below is the figure 5.5 which illustrates the most apps used by Saudi respondents.

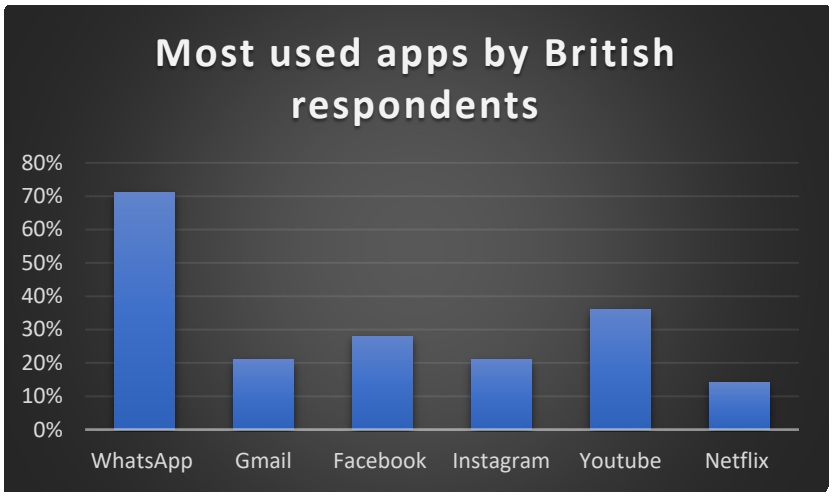

Figure 5.4: Most used apps by British respondents

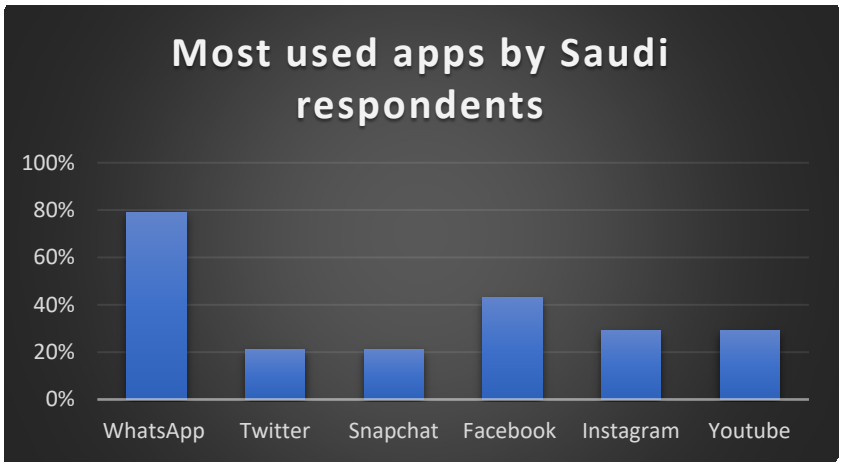

Figure 5.5: Most used apps by Saudi respondents

5.5 Most important electronical device according to British and Saudi consumers

Interesting themes emerged while exploring the perception towards importance of smartphone and it showed the increasing penetration of smartphones in both cultures for users aged 18-34. There were similar trends regarding being the most important device, however opposing views were collated regarding second most important device. 86% of the British respondents, and 93% of Saudi respondents listed smartphone as the most important electronical device. British and Saudi users concluded that smartphones are the most important device due to following 2 major reasons:

- **Convenience**
- **Performing multiple tasks**

Respondent B4

‘’*Smartphone is such an incredible thing. It has everything. I remember before it was used to be Laptop where I was used to be excited to spend more time, but now due to ease of access of internet and smartphones being so advanced, I prefer using smartphones’’.*

Respondent B6

‘’I do spend time on gaming consoles, but if I must pick one, it has to be smartphones, because you can do several things. With gaming you can just play games, while with smartphone you can play, listen to music, chat etc’’.

Respondent B12

‘’*I live away from my family, so smartphone is important because I can always keep in touch with them. We have created WhatsApp groups where we share jokes/memes with each other throughout the day. Staying in touch was never as easy as it is today, with one click’’.*

Similarly, 93% of the Saudi respondents listed smartphones as the most important electronical device which they use on daily basis.

Respondent S1

‘’*All my life is linked to this small device now. Working from home now makes smartphone even more important and helps connect with work and leisure easily’’.*

Respondent S3

‘’Smartphone is most important because you carry all the time in your hands, which makes it portable’’.

Respondent S13

‘’Smartphone is important because these days communication is very essential. I use my smartphone to keep in touch with my family and other relatives. No other device offers ease like smartphone’’.

On the other hand, 14% of the British respondents and 7% of Saudi respondents did not viewed smartphones as the most important device.

Respondent B10

‘’ *I spend a lot of time on personal computer because I work on it and play online gaming a lot. I got myself a new gaming monitor which is equipped with high resolution screen which makes it harder for me to get used to smartphone screens now’’.*

Respondent B14

‘’ *Due to nature of my work, Laptop is all I use 24/7. I prefer large screens in general and not a fan of small screens. Maybe it is down to my eyesight, but I feel more comfortable using laptop. Smartphones, I only use it for calls or text’’.*

Respondent S8

‘’I spend about 8 hours daily on desktop, while 3 hours 30 minutes on Smartphone. Desktop is most important device currently because being working professional, I cannot waste time on smartphone which will affect my deadlines or career’’.

The second most important device was laptop among British users (43%) followed by Desktop/PC (29%). The leading reason behind using Laptop were to perform tasks related to:

- **Academic and Work**

Respondent B3

‘’*The second most used device will be laptop because of the zoom calls I need to attend for work’’*.

Respondent B9

‘’For university work, I have to use Laptop which I bought recently especially when I have to create PowerPoint presentation’’.

On the other side, the second most important device was Desktop/PC among Saudi users with (36 %), followed by Laptop (21%).

The leading reason behind PC/desktop computers was

- **Efficiency towards completion of tasks.**

Respondent S4

‘’All of our offices have desktop setups and they have given us work laptops as well. I still prefer desktops and in fact miss them because working from home now requires using laptops, but it is not the same’’.

Respondent S11

‘’I still think PC/Desktops are way quicker than any other device when it comes to perform tough tasks. With laptops when I work on it, I found them not as efficient as desktops. Working on PC psychologically has a better impact on me than when I do on Laptop. Just my opinion’’.

In addition, the second most popular device among Saudi Females were Television.

Respondent S2

‘’*Television plays a major role in our family because we are binge watching shows on Netflix every night. I watch one episode daily with my husband on our 65-inch television’’.*

Respondent S3

‘’Although I watch videos on smartphone but there are somethings which smartphone cannot replace is like a movie night with family on a tv’’.

Respondent S6

‘’Television is always on in the background and feels empty when its off’’.

5.6 Mobile shopping adoption by British and Saudi smartphone users

UK users are significantly ahead when it comes to M-shopping, 79% of the British respondents admitted purchasing something over their smartphone at least once a month. The m-shopping among Saudi users were relatively lower, only 50% users have bought something over last month using their smartphone. Below is the figure 5.6 illustrating varied level of adoption between Saudi and British smartphone users aged 18-34.

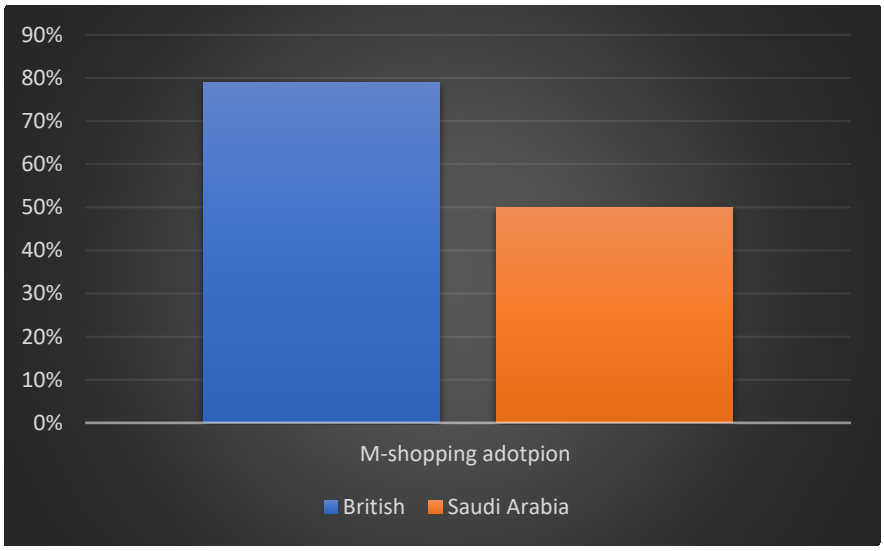

Figure 5.6: M-shopping adoption by British and Saudi respondents

There were two main reasons emerged on why UK users use smartphone for shopping online:

- **Convenience**
- **Quick delivery**

Respondent B1

''I do shop online using smartphone every month, obviously it depends on how quickly I need an item. If it is not that urgent, then I might use my computer for online shopping or even go to store''.

Respondent B2

‘’I use smartphone once a week at least to buy something. I prefer using smartphone over laptop because it is handy. Turning on the laptop and wait for it to start up takes time. You can do the whole lot with smartphone; everything is in palm of my hand’’.

Respondent B13

‘’Going to store and they do not have in stock is frustrating. At least over online, it is usually in stock or if not, I can check on the app. Also, I like the delivery times. You order in night, and they come tomorrow. That is unbelievable’’.

Some of the UK users also mentioned that they use smartphone as

- **Price comparison tool**
- **Window browsing tool**

Respondent B8

’’I mainly use to compare prices. There have been instances when for example, I wanted to buy a shaver from one of the stores, before making purchase, I checked on the website to see if it was cheaper anywhere else and it was’’.

Respondent B10

‘’Regularly, every week I shop online using smartphone. When you go instore there is no stock. I could never imagine myself buying grocery online, but now I do. I also enjoy sometimes just window shopping on my phone to see what is out there and read reviews below’’.

Some users (Respondent B4 and B7) expressed that they shop using smartphone for things which are relatively lower in price but prefer using Laptop/Desktop for high price or high importance item.

Respondent B4

‘’I do shop online using smartphone once a week. Places like Amazon, or other online retailers makes it easier. The time I will use laptop is when I plan to book

something important like flying tickets or hotel bookings. For daily normal buys, using smartphone is more efficient''

Respondent B7

''If I am buying a luxury item, I will use my Pc to complete the transaction. It will have less chance of me making a mistake or ordering a wrong item. If I am ordering a protein shake, kettle, then I will use my smartphone''.

21 % of the UK users admitted that they spend more than they should when shopping over their smartphone.

Respondent B6

''I often shop online every 2 weeks via smartphone because I do not like to go all the way to stores and especially due to current restrictions it even a bigger reason to shop online. However, I do realise I spend more now when shopping online than instore. I do not know why it is like this. There are so many instances where this has happened to me''.

Respondent B9

''Yeah, it is so much easier, just a click really and I can also shop when I want to and not bound by store hours. This is great, but then I purchase things which I do not need''.

Respondent B12

''So many times, I do not need an item but when I am browsing while sitting on my couch, I end up ordering stuff. I probably need to discipline myself from that''.

The main reasons behind low adoption of M-shopping behind Saudi users were:

- **Poor experiences**
- **Lack of confidence towards online payments system**
- **Lack of touch feel factor**

Respondent S1

‘’*I am not the biggest supporter of e commerce. I had horrible experiences in past such as late delivery or product not as shown on the web. I am a bit old school especially when it comes to clothing. I would like to see the fit first clothing and then buy it. These days brand ‘A’ will have different fit as compared to brand ‘B’ which makes it harder. In food also, I tried ordering online and food delivered was cold. Overall, people are lazy, but I like the idea of going out on shopping’’.*

Respondent S2

‘’I downloaded an app recently which was offering great discount for my mobile covers but still did not place order. One of the reasons is delivery takes too much time and I am not sure of the quality they are showing on the web. I have lack of trust over online shopping. I prefer to go instore. I also feel hesitant for putting my card details to online apps or websites’’.

Respondent S3

‘’I browse online a lot and have apps installed on my smartphone which are for ecommerce, but never managed to make a purchase. The reason why because I cannot check the quality of the product and also sometimes worry that it might be a scam when putting down the bank details. The only time I use is for price check’’.

Respondent S10

‘’I still do not shop online regardless. I always have the feeling if something goes wrong if you buy from the store, you can always go there and speak to the manager. Online it all seems invisible’’.

Respondent S12

‘’I avoid shopping online because I feel empty if I buy something without checking’’.

50 % of the Saudi respondents aged 18-34 used M-shopping at least once a month. The prime reason emerged to be:

- **Price**
- **Convenience**

Respondent S7

‘’I shop a lot. It is effortless and easy. Saves time. I hardly visit shopping malls. I use cash on delivery method over credit card’’.

Respondent S8

‘’*Yes, I use Souq website (Amazon) frequently. It is quick and has some great offers when used with online coupons’’*.

Respondent S11

‘’I shop everything online. From clothes to electrical items, I have been using it more than ever and getting some good deals recently. I use smartphone for shopping at least once a week to order various items such as watches, laptop covers etc. I am normally logged in on smartphone and the process becomes quicker’’.

Moreover, even the Saudi users who adopted M-shopping, some of them still preferred to choose

- **Cash on delivery payment method** over online payment when ordering online.

Respondent S14

‘’Yes, I do use smartphone for m-shopping. I find electronics 300-500 Saudi riyal cheaper online as compared to stores with same warranty. I prefer pay cash on delivery over putting card details’’.

5.7 Attitude towards social media by Saudi and British smartphone users

86 % of the British and 93% of the Saudi smartphone users use social media apps on their smartphone. The interesting themes emerged when discussing if the users post photos/videos on social media. About one-third (33%) of the UK users who use social media do not post photos/videos, while a significant 62% of the Saudi users who use social media do not post photos/video. The reasoning behind not posting were found different across both cultures. The leading reasons behind not posting photos/videos according to Saudi respondents varied based on gender. The leading reasons were:

- **Religious/Cultural** (Saudi female respondent reason)
- **Privacy** (Saudi male respondents)

Respondent S2, 23, S5, S13 do not post on social media due to religious/cultural reason.

Respondent S2

''I prefer to remain low profile online and use it silently. Facebook and Instagram take most of my time in social media context, but I still avoid posting anything on due to religious reasons''.

Respondent S4

''I prefer to keep an eye on what is going around with the world and friends. I do not feel comfortable sharing my life stories on the web''.

Respondent S13

''I do not like to show pictures of our family on social media due to religious reasons''.

On the other side, a third (33%) of the users in UK who do not post videos/photos due to three main reasons:

- **Privacy**
- **Waste of time**
- **Mental health**

Respondent B3’

’’I work 9-5 and my nature of work requires a lot of focus and efficiency. I do not want to be distracted by unnecessary notifications and comments which will waste my time or affect me’’.

Respondent B6

‘’I like to stay away from posting on social media apps and sometimes it can be awkward if no one likes the picture/post I post. Some of my friends they have thousands and thousands of followers. There have been times when I was used to post something and keep on checking my phone to see if anyone liked or commented it. It was affecting me and have stopped posting altogether’’.

Respondent B7

’’Not anymore, I remember when I started using social media, I was on it like every day posting things. Now I still use it, but do not post anymore. Privacy is one of the major reasons to not share personal stuff’’.

Respondent B14

‘’I do not post stuff online – if for example I went to a vacation and I want to share my family photos with my relative or friends, I will send to them directly through WhatsApp instead of posting them on my social media. No one knows what happens to our pictures when they go online’’.

5.8 Attachment towards smartphone according to British and Saudi smartphone users

Respondents were asked to discuss their thoughts on how important smartphone is to them and they were presented up with three follow up questions:

- Do you use smartphone while walking?
- Do you check your smartphone while watching television?
- Do you use smartphone while at bed before going to sleep at night?

The findings show the intensity of attachment towards smartphones across both cultures aged 18-34. The ‘’smartphone zombie culture’’ is more prevalent among British users as compared to Saudi users.93% of the British and 64% of the Saudi users admitted that they use smartphones while walking. The main reason emerged were across both were:

- **Texting to reply work related messages/emails**
- **Staying connected with friends/family**

Respondent B3

‘’Using smartphone while walking is purely because I am always on the go and have to respond to work’s’ emails and friends’ messages straight away. From train station to my home, there is a 10 minutes’ walk, I catchup with all the messages during that too’’.

Respondent B4

‘’I do use smartphone while walking, I suppose this is what multitasking looks like. It also shows I am always available everywhere all the time’’.

Respondent B7

‘’Using smartphone while walking is often because It is usually some silly text or a notification which entices me to respond’’.

Respondent S10

‘’Some customers need constant support, and it is vital for me to respond them quickly. Majority of calls I take is when I am walking somewhere’’.

Respondent S12

‘’Yes, I do use smartphone while walking, in fact everywhere even in gym, shopping malls etc’’.

Some of the Saudi smartphone users (36%) were not using smartphone while walking due to:

- **Social reasons**
- **Family reasons**.

Respondent S2

‘’I strictly avoid using smartphone while walking because I am afraid of snatching of my new phone. To overcome this, I recently bought apple watch so that I can look at important messages and respond them while I am walking without the need of taking my phone out’’.

Respondent S3

‘’Never use smartphone while walking now because of the kids. I have to be cautious and keep an eye on them when out’’.

Secondly, there was similarity in behaviour when it comes to using smartphone while watching television – 100 % of both British smartphone users (excluding Respondent B13 because does not watch television) and 100% of Saudi smartphone users use smartphone while watching television. The impressions given from both cultures were similar and considered as a ‘’normal practice’’, however some pointed out drawbacks to this activity.

Respondent B12

‘’I think my concentration level has decreased when I am watching something on Tv. I feel the urge to check and hold my smartphone even when I am watching an incredible film which is not nice’’.

Respondent S9

‘’When watching television, there have been so many instances where I had to rewind the film to understand because I missed while being engaged in smartphone. It is mainly texting or notification which distracts’’.

79% of respondent aged 18-34 in UK use smartphone while at bed before going to sleep. The main reasons behind were:

- **Trouble sleeping patterns**
- **Boredom**.

Respondent B5

‘’Yes, I use smartphone while on bed before sleep. In fact, I mainly use my phone while I am at bed which is bad. On several occasions, I end up falling asleep while using it.’’

Respondent B8

‘’The main reason behind this multitasking comes from when I can’t sleep on bed or when I am watching something on Tv that is not interesting enough’’.

Respondent B11

‘’It feels like a routine now to have a ‘’smartphone session’’ before going to bed. Trying to sleep without checking notifications keeps me awake, therefore I end up using it for 30 minutes and then sleep’’.

86% of the Saudi users admitted using smartphone while on bed before going to sleep. The leading reasons were:

- **Boredom**.
- **During night they have spare time (Female respondents)**

Respondent S1

‘’Yes, I use smartphone every night before going to sleep while on bed, it serves a purpose of lullaby for me on bed over 80 -90 minutes’’.

Respondent S2

‘’I use smartphone at night because that is the most peaceful time in my home due to kids being asleep and I can browse without distractions’’.

Respondent S11

‘’Yes, I use smartphone before going sleep at night because you cannot do much when everyone is asleep. You are never alone if you have smartphone regardless of time’’.

Respondent S13

‘’Using smartphone at night is best time because that is my ‘’me time’’ otherwise during the day it is chaos because of kids/husband’’.

5.9 Overusing and Dependency on smartphones

Respondents were asked to express their views on the level of dependency towards their smartphone and the idea of overusing smartphone. There is a clear theme which emerged that smartphones are playing a key role across the cultures, whether it is a Western country or an Eastern country. The overwhelming majority of British and Saudi smartphone users believed that they are dependent on their smartphones.

Respondent B7

‘’My hands hurt sometimes which shows that my body is telling me to stop using smartphone. Using less smartphone now feels harder than going to gym. I do plan for new year’s resolution to reduce my smartphone usage’’.

Respondent B8

‘’Yes, I am dependent. Now the first thing when I wake up is check my notification even before brushing my teeth’’.

Respondent B9

‘’I like to think I am not dependent, but that would be a lie. I use this to get away from stress. If I am busy doing something, I will not even think of checking my smartphone, but If I am doing absolutely nothing then smartphone will be the first thing, I will put my hands on’’.

Respondent S1

‘’I am connected to my work and family through smartphone. I hold my smartphone more than my kids and dumbbells’’.

Respondent S2

‘’Smartphone is like my 4th child. I do not think I am overusing, because hours spent is required for personal and work reasons’’.

Respondent S3

‘’I am totally dependent on smartphone because being housewife, this is one of the top sources for entertainment and connecting with family/friends. I cannot imagine life without it’’.

Although, both cultures viewed they are dependent on smartphone, but two third of British users (64%) also believed that they are overusing their smartphone.

Respondent B1

‘’Yes, I am overusing my smartphone. This mainly happens when I am trying to get distracted from something. I do end up playing some random games on my smartphone’’.

(44%) of the UK respondents who believe they are overusing their smartphones blamed social media behind increased screen time.

Respondent B3

‘’Yes, I am dependent to my smartphone and that is mainly down to work and keep in touch with family and friends. I sometimes spend more then I should on social network but only when I am bored’’.

Respondent B4

‘’Yes, I am absolutely spending too much time on smartphone, particularly on Instagram. I remember before, I was used to be more active and involved in outdoor activities. I am planning to change this, but I am not too hopeful if I can’’.

Respondent B12

‘’We are using more smartphone because we have created the social bubble where we live our lives on daily basis. I am sure if the world is forced to go back to previous days, the world will still survive.’’

2 of the British respondents have already cut down the screen time of their smartphone.

Respondent B13

‘’ I do not like the feeling that I feel thirsty of checking notification. I have reduced my usage by turning notifications off’’.

On the contrary, only 29% of Saudi respondents believed that they are overusing their smartphone. Majority of the respondents (71%) justified their screen time and considered as a ‘‘**necessity**’’ in today’s world.

Respondent S1

‘’My average usage is divided into work and leisure. Browsing memes during work and compilation videos is negative but It is a necessity to relax from work. I see people talk about we use a lot but then there is always resistance about new technology. I am fine with it. I do not think I am overusing smartphone’’.

Respondent S4

‘’Without smartphone it is difficult to live because it is crucial for work and communication. Now, online banking, insurances, and other important things are easily accessible on our phones which makes it even more essential. It is my requirement. I use it productively’’.

Respondent S10

‘’I understand why people would think that we might be overusing the device. I think we need to understand, the need of smartphone is only going to increase and there is nothing much we can do about it. I was amazed and surprised last time at airport when I went away to Turkey, I did not need to print boarding pass, but just show the screen shot on my phone’’.

Respondent S11

‘’I am not overusing my smartphone, if there was an alternative way or device which can assist in so many things then I will say yes, otherwise no’’.

Saudi users who viewed that they were overusing their device were primarily concerned with the impact smartphone have on:

- **Eyesight**
- **Social Fabric (Family)**

Respondent S5

''Looking to reduce screen time because of eyesight issues it may cause in future. I worry specially for kids/ cousins who are spending so much time at this young age''.

Respondent S6

''It feels like a part of family now the smartphone. I do miss old times where our family members on dinner table were more engaging, as opposed to being busy over their phones all the time including me''.

Respondent S9

''I love pretty much everything what smartphone bring to table; however, I do see we are busier taking selfies when out with family/friends than actually having fun. This is not smartphone's fault; it is us who are misusing the device and letting it take over our original behaviour''.

5.10 Psychological mind map of British and Saudi consumers towards the word ''innovation''

Respondents were asked to express the first thing comes to the mind when they hear the word ''**innovation**''. This part of the findings revealed the psychological snapshot of the word innovation in the minds of British and Saudi consumers.

The figure 5.7, 5.8 are the ''**Word Query**'' which illustrates the words used by British and Saudi users when expressing their thoughts on innovation. The ''**Word Query**'' is created using NVivo software, where transcripts of the answers are imported and visualized in a word map manner on the basis of most frequently appeared word.

Figure 5.7: Psychological Mind Map of British consumer towards the word ''innovation'' (NVivo)

Figure 5.8: Psychological Mind Map of Saudi consumers towards the word ''innovation'' (NVivo)

The findings revealed that innovation in general is viewed positively across both cultures, however the understanding and the expression are different on how they are perceived psychologically.

British respondents aged 18-34 associated innovation dominantly to:

- **Artificial intelligence**
- **Robots**
- **Machines**

Respondent B7

‘’I visualize a life with touch screen and voice commands when I think about innovation. ‘’Artificial intelligence’’ and ‘’Future’’ comes to my mind’’.

Respondent B12

‘’I link innovation with Robots/Automation. It reminds me of transformers movie, where robots will take over the humans’’.

On the contrary, Saudi respondents aged 18-34 associated innovation heavily with:

- **Smartphone**
- **Computers**
- **Wi-Fi**

Respondent S1

‘’Smartphones is all I can think with the word innovation. The best example will be 5G currently, because there have been huge billboards of 5g all over the Riyadh city. The moment you say innovation, it also reminds me of technology, tool, or a device which basically cuts down original process into shorter time. I also think of computers when someone says innovation. When I was growing up computers were the next big thing’’.

Respondent S6

‘’Smartphones. I do not think there is any industry who has a product and marketing every other day. You are forced to believe and relate innovation with smartphones nowadays’’.

There were some exclusive words and expressions which were used by Saudi respondents such as:

- **5G**
- **Western/ American**
- **Modern**.

Respondent S7

‘’5G. I have been told by several colleagues/friends that life will change with the inclusion of 5G in the world. It has been a hot topic here’’.

Respondent S9

‘’Progress. Modern. American. These words pop into my mind’’.

Respondent S13

‘’Advanced’’. ‘’Western’’. There is a perception that new technologies are from international countries. So naturally you think of that when you hear innovation or advancement’’.

Respondents from both cultures were similar in associating the word innovation with:

- **Technology**
- **New**.

Respondent B2

‘’New and interesting. The reason why because I love technology and I tend to keep an eye on trends in technology. There is a strong relationship between innovation and technology’’.

Respondent S14

‘’Better technology for easy life. The goal of innovation really is to explore new ways to help us in our daily lives’’.

Another interesting aspect was found that some of the perception towards innovation were similar, yet the way respondents expressed were different.

Both cultures expressed that when they hear the word innovation, they think of electric vehicles or smartphones. The way British respondents described them were by naming a brand which makes electric vehicles or smartphones such as Apple or Tesla, while Saudi respondent did not mention the brands, but they directly mentioned the word Smartphones or Electric cars.

Respondent B8

‘’I think of Apple. They always communicate to the audience by using this word. There messaging is powerful and makes me relate innovation with this brand’’.

Respondent B11

‘’A new invention is what I link innovation with. I hear the word ‘’innovation’’ generally when I see corporations trying to sell their technology such as Apple or a Tesla’’.

Respondent S3

‘’Anything related with Smartphone is what I associate innovation with. One of the reasons is that I have seen a visible change in our family behaviour on how we communicate now and how it was like before. Smartphone is being used every second at our house even in kitchen, bedroom, kids’ room etc. The impact it has on our family is unbelievable’’.

Respondent S8

‘’Electric cars and smartphones are often I associate innovation with. Electric cars are going to be massive in Saudi because we love cars here. Likewise, smartphones are also only going to get better, and we will continuously be using them’’.

5.11 Saud and British smartphone users' feelings towards new smartphones.

Respondents were asked to express their emotions when they see new smartphones. There were six themes emerged from the discussion from Saudi and British respondents. There are 6 reaction categories which were expressed by both cultures:

- **Marketing/Money making**
- **Devaluation of current smartphones**
- **Happy and Excited**
- **Curious**
- **Confused**
- **No reaction/Neutral emotion**

There was no British respondent who mentioned about devaluation of current smartphone in context of launching of new smartphones. On the contrary, 2 of the 14 Saudi respondents viewed launching of new smartphones negative because of the impact it has on the value of their smartphone.

Respondent S3

''The reaction will be to some degree sad because I recently bought my new smartphone and that will mean it will devalue the value of my current smartphone''.

Respondent S7

''I get angry because it makes me want to throw my old/obsolete device which has lost its' resell value. I am not happy with frequent release of new models''.

21% of the Saudi respondents and 14 % of the British respondents view when they see new smartphones, as a marketing or money-making activity for businesses in smartphone industry.

Respondent B1

‘’I feel annoyed. The reason being from experience, businesses are now using this for making more money. If you look at smartphones, there is not much difference between a smartphone in 2015 as compared to smartphone launched in 2020’’.

Respondent B11

‘’If you look at the pricing it is going up year by year. I see new product launches for smartphones as a way of making money. They entice you with the things which you do not need’’.

Respondent S6

‘’It is marketing, selling the same thing in the new packaging’’.

Respondent S12

‘’There are so many now, the new does not sound new anymore. They release new products for their profits’’.

42 % of the British respondents and 29% of the Saudi respondents expressed positive emotions (Happy, Excited) towards launching of new smartphones.

Respondent B7

‘’I am excited when I see new smartphones. I am always looking to get upgrade and replace my phone’’.

Respondent B9

‘’I am happy, there is always a buzz when you see new gadgets/devices launch’’.

Respondent S4

‘’I like to play around with new phones, it is great’’.

Respondent S8

‘’*I feel happy because it is an advancement and progress in tech. New tech empowers society’’.*

36% of the Saudi respondents and 14 % of the British respondents expressed curiosity/intriguing emotions towards launching of new smartphones.

Respondent B5

‘’I am a curious person overall and yes I do get curious when I see something new in smartphones’’.

Respondent S1

‘’Everyday there is new smartphone. I will not react until or unless I see something which is different. It will not make me excited but more curious’’.

Respondent S2

‘’I will investigate further – for example I was checking new apple watch 6 and Se series – I search more to find the difference and concluded there was not a major difference. I saved myself few hundred riyals and bought Se. It depends on the technology and features’’.

Respondent S12

‘’It will depend on the brand who launches it. If it is from the brand which I prefer, then I will have my attention’’.

21% of British respondents expressed neutral emotions towards when they hear about launching of new smartphones.

Respondent B3

‘’I do not get any feeling or excitement; I only get a felling as how the company who developed the product is going to have impact on the market. I focus on how these companies going to innovate and help make the world better place’’.

Respondent B14

‘’I get enthusiastic normally, but enthusiasm levels are not the same because lack of exciting ideas in smartphone recently’’.

1 British respondent expressed emotion of confusion towards launching of new smartphones.

Respondent B12

‘’I get confused sometimes because there are so many. The market is saturated’’.

5.12 Voice Assistant adoption by British and Saudi smartphone users aged 18-34

Respondents were asked to discuss their opinion and experience about voice assistant feature in their smartphone. About 57% of the British and 36% of the Saudi users aged 18- 34 use voice assistant at least once a week. The reasoning behind using and the perception towards voice learning applications varies across cultures.

The leading reason behind UK users using voice assistant were:

- **38% of the users use it to respond to texts or phone calls while driving**
- **38% of the users use it to play music**
- **A quarter use it to check weather**
- **13% use it for to request jokes/riddles.**

Respondent B2

‘’I think voice assistants are useful, especially when you are driving. The searching is easier, and navigation of apps are better through voice over typing when driving’’.

Respondent B5

‘’I use these features while driving. It is useful asking Bixby to call someone while driving’’.

Respondent B6

‘’I do listen to music using Siri, I think that is convenient and useful feature. It is a decent feature, sometimes it needs to understand the dictation clearly’’.

Respondent B8

‘’*I request voice assistant lots of silly things like play a classic song. I have not used it for something serious, but just for leisure. I always loved the idea of smart house. I would like to control things through my voice like open windows, change thermostat. That looks cool’’.*

Respondent B9

‘’I often ask my Siri, or my smart speak at home to play music for me. When I am working on my laptop, fully focused and realise I need a music in background, that is where I just ask Hey Siri or to check if it is going to rain’’.

Respondent B11

‘’For driving this is super useful. I am always out and before it was extremely hard to respond or attend calls while driving’’.

Respondent B13

‘’When my nephews see me do this, he laughs and enjoys the robotic voice of voice assistants. I request jokes and riddles’’.

Some of the UK users (43%) aged 18-34 did not use voice assistant in their smartphone. The leading reason behind was:

- ‘**Gap between expectation vs actual by consumers**.

Respondent B1

‘’When these features came out, I was extremely excited but now I have realised it does not offer advantage over traditional methods such as typing. It now looks as ‘’Gimmicky’’ it does not do what it is supposed, you must repeat several times for voice assistant to understand what I am saying. This makes me frustrated, and I end up typing’’.

Respondent B7

‘’I do not use Siri much; I find it pointless because it was supposed to be quicker than typing. I do not think asking Siri of nearby coffee shops is any quicker than typing on google’’.

On the other side, about two-third (64%) of the Saudi users did not use voice assistants on their smartphone. The leasing reasons behind were:

- **Perceived value and perceived performance are low towards this technology**
- **Viewed this technology for a certain segment (Older generation)**

Respondent S1

‘’Artificial intelligence has lots of benefits. I am not against using. People especially who have disability, is doing wonders for them. For me and my personal lifestyle, I do not like this lazy way of doing things. I do not mind typing. I think we are not there yet. Voice assistant is luxury but not a need. Having a fast car 250 mph is a good but would you be driving on a road every day’’.

Respondent S2

‘’I tried using it, it is a waste of time. In my opinion, voice assistant is aimed towards older generation’’.

Respondent S3

‘’Typing is more convenient, and it does not understand all the accents’’.

Respondent S8

‘’It does not add much value. It is cool technology, but not for my lifestyle, maybe in future’’.

Respondent S13

‘’It does not work for me. I like the traditional way. I think this technology is for older people’’.

5.13 Digital payment adoption by British and Saudi smartphone users aged 18-34

Respondents were asked to share their thoughts regarding Digital payments and how useful they find it. The findings revealed the different adoption level of digital payment methods such as Apple Pay, Samsung Pay, Google Pay etc. The reason behind adoption of digital payments and the whole psychological thinking varied across culture.

About Two-thirds (64%) of British and 42% of the Saudi users aged 18-34 use at least once a month digital payment method such as Apple Pay, Samsung Pay, or Google pay.

The main reasons behind UK users adopting digital payment methods were:

- **Backup method for payment**
- **Covid-19**

Respondent B5

‘’ I use Samsung pay quite frequently. I remember once I had problem with my bank card, but I was still able to make a purchase because I had Samsung pay’’.

Respondent B7

‘’ I use it for emergency reasons as a backup. It is a fantastic feature. Imagine on a night out, you lose your wallet’’.

Respondent B9

‘’I use it more now than ever because I do not carry cash due to corona virus. Even retailers are encouraging it to pay contactless which is nice’’.

Respondent B14

‘’I enjoy this feature, especially when you do not need to carry cash and heavy coins. I still use contactless cards more than Samsung pay. Nowadays, I am avoiding cash handling due to Covid-19 situation. I use it every week at least’’.

The 36% of UK users aged 18-34 did not use digital payment methods because:

- **Low perceived benefit for digital payment method over existing method**.

Respondent B1

‘’I *do not use this feature because I always have a wallet, I do not see a point. Why do I need a digital payment method when there is already a fully functioning system of bank cards’’.*

Respondent B10

‘’I prefer using card over cash overall, however I tried paying from phone wallet mode but now stopped it. They need to improve the accuracy of it. I used it in a café, and I had to tap 2-3 times to make it work’’.

On the other hand, Saudi respondents had evidently a different view towards digital payment methods.

42% of the Saudi respondents had positive views about digital payments and main reasons were:

- **Convenience**
- **Tracking the payments**

Respondent S2

‘’*Yes, absolutely I use it a lot. I hated the fact before I have to open my huge bag and find my purse with kids around at pay point. Now it is just a click away. Also, gives all the summary of transaction, easy to track the date/time/place of the money spend’’.*

Respondent S5

‘’I use it every day. It is a great innovation. Quick and easy’’.

Respondent S9

‘’Useful and great addition. I wear gloves now when I am out due to pandemic, and I was used to struggle taking my wallet and take out my bank card. With this one touch, it is convenient’’.

Respondent S11

‘’The best thing happened in smartphone. It does what it says. Before, I was used to spend money in cash and always double count on where all money went’’.

The other 58% were reluctant to adopt digital payment. The leading reason were:

- **Low perceived benefit**
- **Old habits**

Respondent S1

‘’Three important things which I never forget: wallet, smartphone, and keys. I do not need technology to make it complicated’’.

Respondent S7

‘’I do not use it because it is pointless, and I am not used to it’’

Respondent S10

‘’I been carrying wallets since 16. I do not feel the need at the moment. Habits take time to change’’.

5.14 Perception of risk attached to innovation in smartphone

The findings revealed a clear disparity between the type and level of concerns between UK and Saudi users. 71% of the UK users aged 18-34 expressed concerns towards the innovations and advancements happening in smartphone industry. The leading reasons behind were:

- **Data privacy**
- **Hacking**

Respondent B1

‘’Yes, I do see ulterior motives sometimes behind these innovations. Corporations trying to solve problems which does not exist. I am also not too sure how secure is paying through your smartphone’’.

Respondent B4

‘’Yes, I do see some risks because now our smartphone has not only our contact details but our voice, health information, pictures, and other personal details. There is always a bit of doubt with new things’’.

Respondent B6

‘’Yes, I am not fully sure if the voice recordings on these voice assistants are recorded or not. I have always been sceptical about Artificial intelligence’’.

Respondent B7

‘’Privacy is concerning especially with these voice assistants. I will never talk something sensitive or personal details on voice assistants like Siri or Bixby because it feels unsafe’’.

Respondent B9

‘’I do get scared of hacking because the amount of information my smartphone has’’.

Respondent B10

‘’I did hear few things from my friend about fraud happening in online banking which made me a worried and the amount of personal data which is being shared by big tech corporations without our consent’’.

On the contrary, only 37 % of the Saudi users aged 18-34 expressed concerns and risks attached to these innovations in smartphone. The majority 64% of the Saudi users expressed comfort toward these innovations.

Respondent S2

‘’These things technologies are essential, especially in pandemic. These new features are not bad innovations. Also, I do not see opposition for these innovations which makes me confident that we are in safe hands. Everyone is using technology now’’.

Respondent S3

‘’No risk – it is a must thing to have. Smartphone does more good than harm’’.

Respondent S9

‘’I do not view any risk with these innovations, people who are in position of power should worry, not common people’’.

Respondent S13

‘’I do not fear about these things because life is too short to worry about these stuffs. The question is even if it these risks are there; can I stop using it? No!’’

Within Saudi respondents, there were some (36%) who expressed concerned with smartphone innovations. The reasons varied from health hazard, social fabric, and hacking issues.

Respondent S4

‘’I am more concerned about the addiction side of the smartphone. They are making these things so attractive and as a human we are engaging with them more than we should. More light should be shed on Health hazard and its long-term implications, especially on our kids. Some research I saw which found that too much use of smartphone will impact on your health like eyesight etc’’.

Respondent S8

‘’There is little we know about online world, and yes there is a fear of scams during online shopping which I do a lot. Also, the other risk I see is regarding our society losing human touch. Everyone is busy in their own shell and not talking face to face’’.

Respondent S10

‘’The risk is we not being disciplined enough with these innovations and handling it. I was used to use phone while on bed constantly, which caused stiff back/neck for a short period of time’’.

5.15 Attitude towards smartphone corporations launching smartphones every year

Respondents were asked to share their attitudes and perceptions towards smartphone companies launching phones every year. The findings revealed congruence in perceptions across UK and Saudi Arabian users in this matter.

Majority of British (57%) and Saudi (71%) expressed resentment towards the idea of companies launching phones every year. The figure 5.9 below illustrates the perception of Saudi and British respondents.

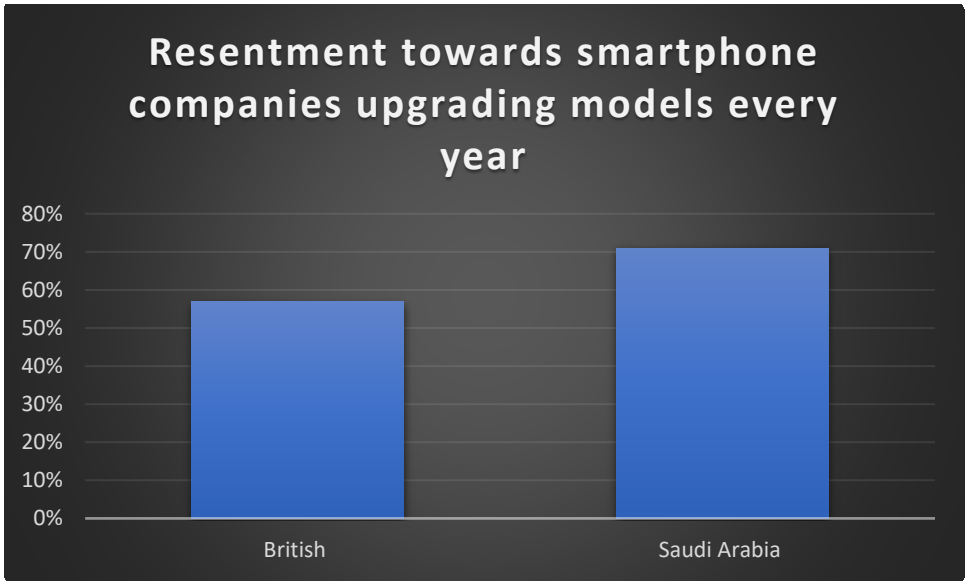

Figure 5.9: Resentment towards smartphone companies upgrading models every year

The leading reason behind this according to British respondents were:

- **Lack of trust towards big tech corporations**
- **Current smartphone becomes obsolete**

The leading reason behind Saudi respondents were:

- **Lack of trust towards big tech corporations**
- **Devaluation of current phone**

Respondent B1

‘’Smartphone upgrading models every year is hypocritical because there is not much innovation within smartphones and all these companies tends to push ‘’ free carbon emission’’, if they are serious then they should probably not make smartphone every year’’.

Respondent B2

‘’Launching smartphones every year, is a bad thing, the fact you bought a smartphone in 2019 and in 2020 comes new phone, consumer should be frustrated because it becomes outdated. Companies should launch smartphones maybe like every 2 years instead of every year’’.

Respondent B5

‘’Smartphones have now become a business big time. Before it was more about new features, now it is releasing a model for the sake of launching it and charge customers premium. The pricing is way too much’’.

Respondent B6

‘’It gets boring sometimes, one smartphone after another. You buy today and then tomorrow is another one. Cannot keep up with them! For someone like me who likes to buy and keep up with latest technology hurts his wallet’’.

Respondent B11

‘’I do not agree, it is a money-making cycle for businesses’’.

Respondent S1

‘’I personally feel smartphone companies hold on the release of technologies. For example, if they have 20-megapixel resolution technology available in 2010 for smartphone cameras, they will deliberately release only 10 megapixels at that time. They will divide the innovation over the period of years which makes more money for companies over long period of time’’.

Respondent S3

‘’Main problem is it devalues your smartphone. Also, the differences what they launch are inches or minor ones’’.

Respondent S4

‘’It devalues the smartphone, for example if we buy 4000- 5000 Saudi riyals brand new smartphone, it will go down 50 % just after next year because of the new model’’.

Respondent S9

‘’It is marketing really. They sell every year the same thing in a different way. I do not like the idea of launching phones every year’’.

Respondent S12

‘’It is like a theatre when they launch new products. Small improvements, more drama and big prices’’.

5.16 Sharing smartphone devices

Respondent were asked to discuss whether they share their smartphone device with their family. Clear patterns were revealed when discussing sharing of smartphone devices with families.

Significant majority (79%) of the respondents in the UK aged 18-34 did not shared their smartphones with their families. Most of the respondent felt uncomfortable with the idea of sharing due to ‘’**Privacy**’’.

Respondent B4

‘’No, I do not share because it is such a personal device with all my sensitive information and the things I type, search etc. I am not comfortable at all to share my device with anyone’’.

Respondent B6

‘’No, I do not share smartphone with my family because I have work documents’’.

Respondent B14

‘’*Before I was used to share my smartphone with them but one of my kids accidently deleted some of the important pictures such as receipts. Now, all my kids have a tablet or a phone, therefore they do not bother me. It is funny how everyone now in my house have a screen pet’’.*

The 21 % of the users in the UK who shared their devices were with their kids or a younger sibling.

Respondent B5

‘’*I share sometimes with my kid. If my kid wants to play a quick game while we are out shopping. It keeps her entertained and helps us shop at ease’’.*

Respondent B12

‘’I occasionally share smartphone with my family (younger sister). She likes to play candy crush on my phone’’.

On the contrary, a significant majority 57 % users in Saudi Arabia aged 18- 34 shared their devices with their family members. There was a common theme that sharing was common practice with their kids and husband/wife.

Respondent S1

‘’*I have 3 kids and it can be hard to handle them when we are outside or in a car. It keeps them distracted’’.*

Respondent S3

‘’Even though everyone in my house including kids have their own tablets or phones. Still my kids end up using my smartphone at some point especially when their tablet’s battery dies. My husband does use it sometimes too from time to time. When kids use my phone, I do try to put lock on some apps’’.

Respondent S11

‘’Yes, I do share my phone sometimes with my kids. My 10-year-old wants to buy a phone, although I am reluctant. I allow him to use my one for few minutes. I do also consult with my wife if I have to spend 5,000 Saudi riyals’’.

5.17 British and Saudi attitudes towards large screen smartphones (Phablets)

Respondents were asked to discuss their attitudes towards large screen smartphones. The large screen smartphones were considered such as Note + or iPhone Max models.

43 % of the UK users and 71 % of Saudi users prefers to have large screen phones. The findings revealed that the users from UK had different reasons as opposed to Saudi users behind purchasing large screen size smartphones (Phablets). The figure

5.10 illustrates the preference towards large screen smartphone by Saudi and British users.

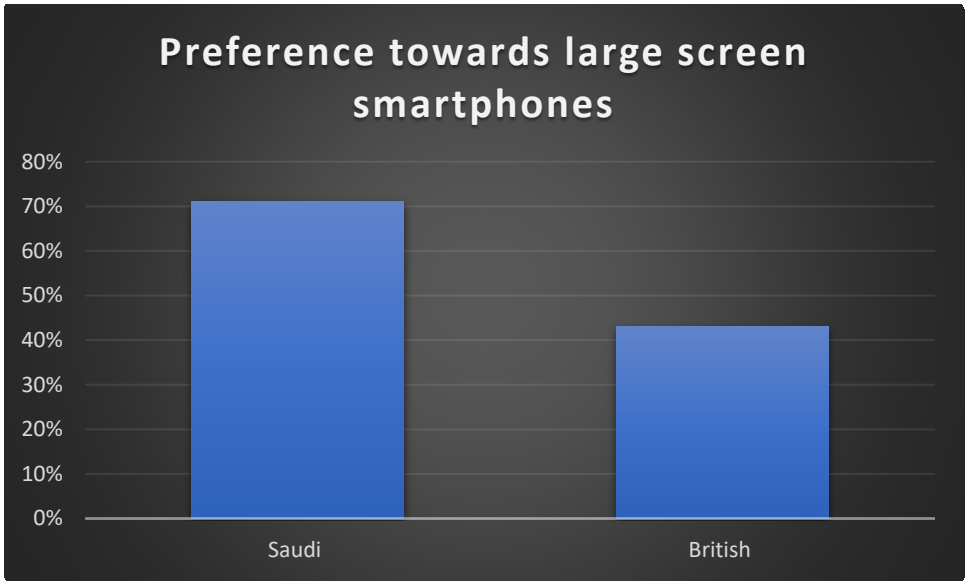

Figure 5.10: Preference towards large screen smartphones

The leading reason behind buying large screen smartphone according to British respondents was:

- **Functional benefits as compared to regular size smartphone**

Respondent B2

‘’*Watching films/shows on large screen is a better experience and I also use Microsoft excel on my note plus which makes it easier to navigate’’.*

Respondent B5

‘’Yes, larger smartphones are better because I also watch live sports matches on my phone which makes the experience better visually’’.

Respondent B13

‘’Large screen smartphones like Note+ are better for watching tv shows/films. I do that a lot. I have stopped watching television. I cannot remember the last time I sat down and watch Tv’’.

Respondent B14

‘’Yes, because large screen phones have better batteries and I have a fear of running out of battery when I am working longer shifts’’.

The leading reason behind Saudi users (71%) behind choosing large screen smartphones were a combination of:

- **Functional benefits as compared to regular size smartphones**
- **Social status**

Respondent S1

‘’Yes, big phones are better (S20+). You get something bigger for small premium to pay. Lots of people have asked me in office when I bought my new phone. It makes a statement’’.

Respondent S2

‘’I like large screen phones because it offers better view when watching shows or reading something on it. In addition, it looks good when carrying it in the hand’’.

Respondent S6

‘’*I do change my smartphone often, however when I recently purchased the pro max everyone in my social circle spotted it and asked me about it’’.*

Respondent S9

‘’Bigger screen is better and important because now I spend a lot of time on it. Facetime/ watching videos are better on large screen phones’’.

Respondent S13

‘’Yes, bigger phones have better design and looks’’.

5.18 Main motivational factors behind upgrading

Respondents were asked to describe their main motivation behind upgrading their smartphone. There were some similarities and differences between Saudi and British respondents.

43% of the British respondents listed Faster processor as main motivation behind upgrading to a new smartphone. The second leading motivation was More memory with 36% of respondents listing as their motivation. The third motivation was split between features such as: Camera (21%), Design (21%) and 5G (21%). The rest motivational factors included: Bored of current smartphone 14%, Faster charging (7%) and Price bargain (7%). Below is the figure 5.11 which illustrates main motivation behind upgrading smartphone by British respondents.

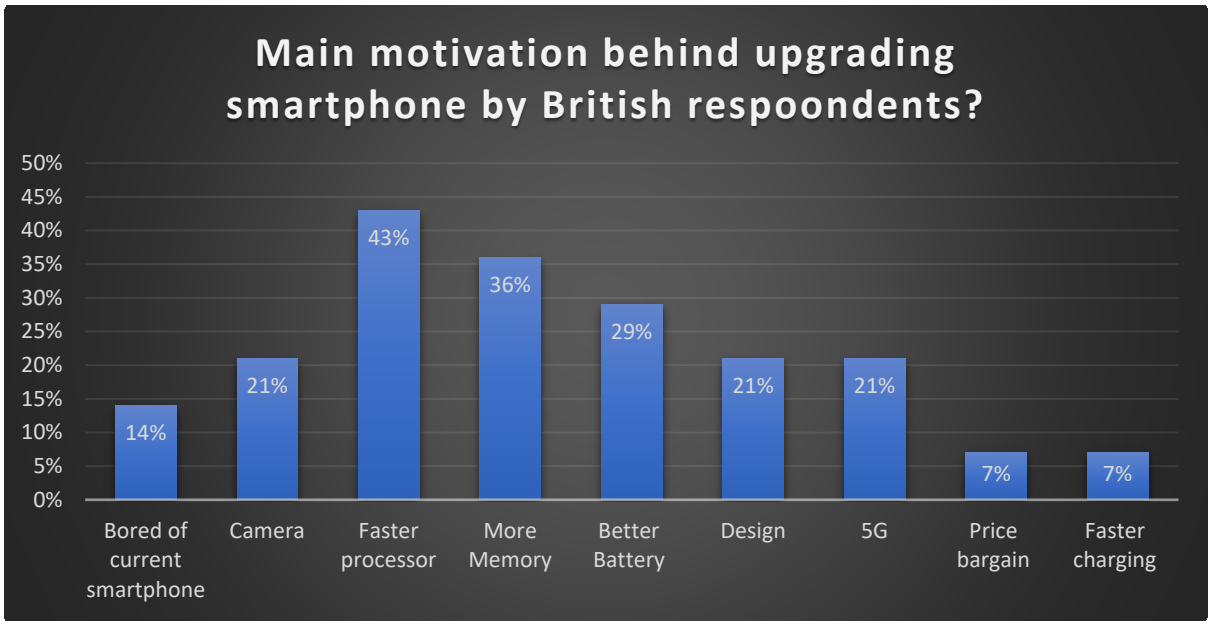

Figure 5.11: Main motivation behind upgrading smartphone by British respondents

Camera was emerged as the main motivation behind upgrading smartphone among Saudi smartphone users (43%) The second leading motivation was More Memory with 36% of respondents listing as their motivation. The third motivation was faster processor with 29% of the respondents listing it as main motivation. The rest motivational factors included: Dual sim (14%), Lagging issues in current phone (14%), Bored of current phone (14%), Hype (7%), Better Battery (7%), 5G (7%)

Below is the figure 5.12 which illustrates main motivation behind upgrading smartphone by Saudi respondents.

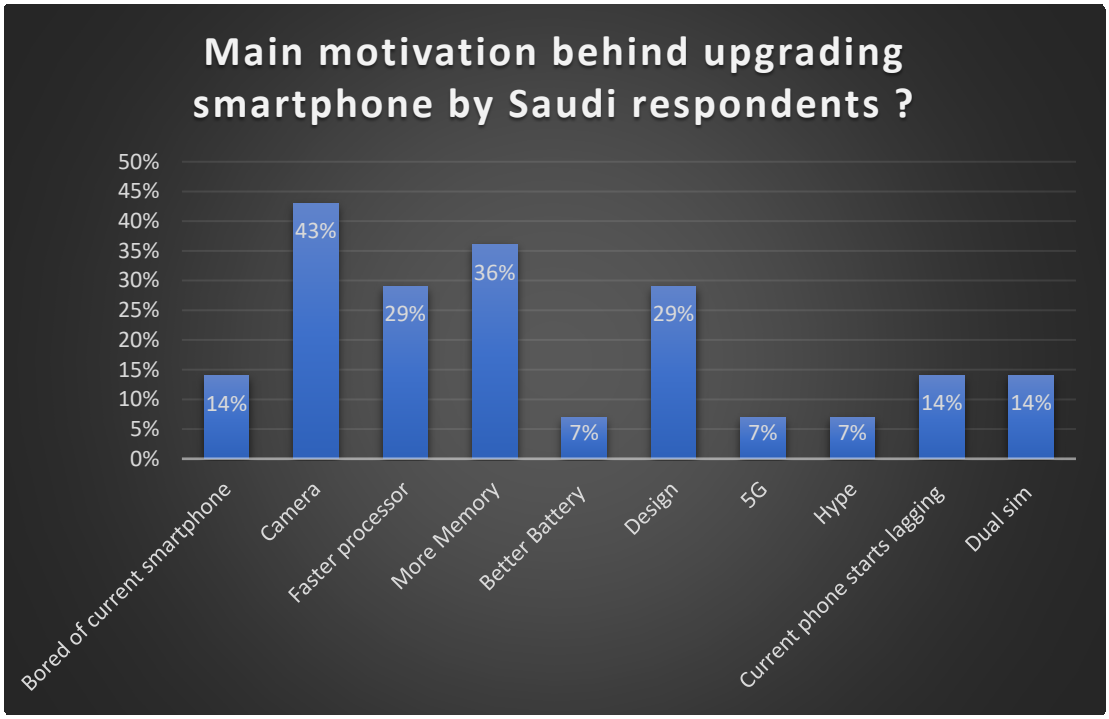

Figure 5.12: Main motivation behind upgrading smartphone by Saudi respondents.

5.19 Main source of recommendation when purchasing a new smartphone

Respondents were asked to express the main source of recommendation when they purchase a new smartphone. An overwhelming majority across both cultures expressed online reviews as the main source of recommendation by British and Saudi Respondents aged 18-34.

Respondent B2

''I will look out on YouTube for online reviews and then go to see phone in real life. I will not base my opinion based on brand's website, salesperson etc. I believe in personal research. Phone is very personal thing, I will not need someone else opinion to affect me, for example if everyone in my households buys Brand A I will not be persuaded by that and I will see what suits best for me''.

Respondent S1

''Salesperson is off the charts now. Everything is available online. I find user reviews on Tech blogging and gadgets related websites (Gsm arena) which allows me to quickly compare and see what gadget gurus think of it''.

5.20 Influential factors affecting decision making process

Respondents were asked to explain the most influential factor which affects them during decision making of purchasing a new smartphone.

Features clearly plays an integral part in UK consumer decision making with 50% of the respondent listing it as most influential factor. The second most influential factor is shared between Branding (21%) and Price (21%). The least influential factor was social influence (7%) according to British respondents. The figure 5.13 below illustrates most influential factor during decision making process by British respondents.

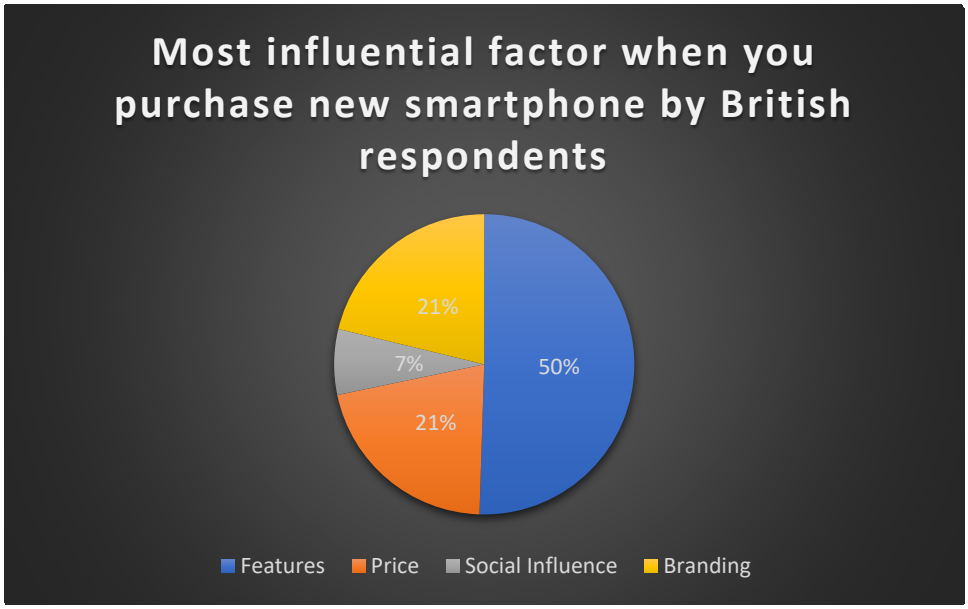

Figure 5.13: Most influential factor when you purchase new smartphone by British respondents

One the other side, 43% of the Saudi users viewed branding as the most influential factors towards decision making. The second most important factor was Price (29%). The third most influential factor was split between Social Influence (14%) and

Features (14%). The figure 5.14 below illustrates most influential factor during decision making process by Saudi respondents.

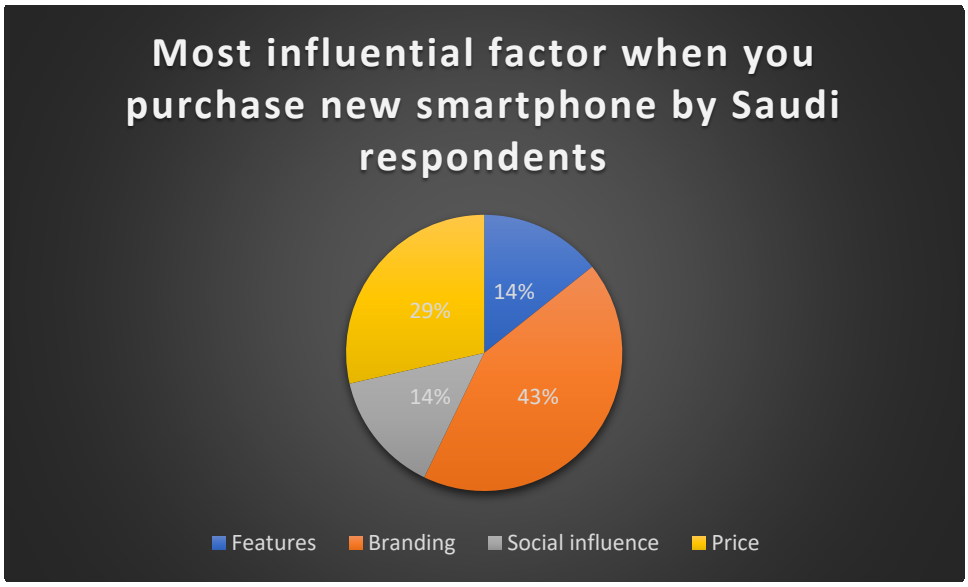

Figure 5.14: Most influential factor when you purchase new smartphone by Saudi respondents

5.21 Perception of ''early adopter'' within smartphone industry

The findings revealed some similarities and differences between UK and Saudi consumers regarding buying smartphone as early as possible from launch date. Most of the Saudi respondent (79%) prefers to wait when it comes to make a purchase of a new smartphone. The leading reasons behind these were:

- **Saudi respondents prefer to wait and assess the feedback of other buyers regarding the performance of new smartphone.**
- **Saudi respondents prefer to wait for few months because they expect a price drop.**

Respondent S2

''I wait for reviews and then buy. I see the market reaction first and then react''.

Respondent S4

‘’I wait for my colleagues/friends to tell me if the new smartphone is worth the money. No need to rush’’.

Respondent S8

‘’I prefer to wait and see if there are any premature issues in device or operating system’’.

Respondent S11

‘’I will if I know the price will not drop after 3 months. This is the main reason why I stop. I remember I bought a television and after couple of weeks I saw it on reduction of 1,000 Saudi riyals. That frustrated me’’.

On the other side, British respondents expressed a mixed reaction where 50 % of the respondent were not early adopters when it comes to smartphone because:

- **Lack of innovation and differences year on year**
- **Happy with the current smartphone performance**

Respondent B1

‘’I would say 10 years ago, I was an early adopter when it comes to smartphone. I always wanted to be the first one to buy. From past few years there has not been much improvement or innovation in smartphones, so I have been holding off my purchase of new smartphone. The moment I found something interesting, the design I like, I will buy it. I will not wait for other people to get it’’.

Respondent B3

‘’It is Irrelevant that whether I buy it first or last as I buy them as a work necessity. I had my first phone when I turned 16 and had my first job. The product should just work, and my current phone is working fine’’.

Respondent B10

''In some things I am like I want to do it on first day; for example, watching film on 1st day of release. In smartphones I do not think I am early adopter''.

Respondent B14

''If something comes up and I need it immediately then yes, otherwise I can wait and take my time. The latest phone vs last year phone, there are only minor changes''.

The other 50% of the British respondents supported that they are early adopters and like to purchase smartphone on launch dates.

Respondent B4

''In theory I would like to buy new smartphones on 1st day of launch, but the pricing has been ridiculous lately. Yes, but it is cool and exciting to be the among first ones. Always can buy on contract which makes spreads the cost''.

Respondent B7

''Buying on release date and pre order is enjoyable. I do that very often with Apple or PlayStations''.

Respondent B9

''Yes, I do order things as they come out fresh. It satisfies me''.

Respondent B12

''It is always entertaining to get it first and share it with friends on what you purchased before them''.

5.22 Perception towards the scale of innovation in last 5 years within smartphone industry

Across both cultures, there are convergence of views regarding the level of improvement and innovation within smartphone industry in past 5 years. Respondents were asked to discuss their views on the level of improvement and

innovation according to them they have seen year on year. Majority of respondents from both cultures viewed and expressed that there has not been a:

- **Substantial and meaningful innovation within the smartphone industry. This has resulted people holding on to their older smartphones and delaying their purchase of a new smartphone.**
- **There have been few improvements over past 5 year in areas such as cameras, processors, artificial intelligence, 5G, battery, and design.**

Respondent B1

‘’Not just in smartphones, but business corporations are producing lots and lots of products which gives more choice to the people, but not sure if so many choices are any good for the consumers. This is focus on quantity rather quality is not only diminishing level of innovation in industry, but also customer satisfaction People are always left dissatisfied and confused when they are buying products, especially technology. When you buy Smartphone A, you think about the things you missed out on Smartphone B and so on and so forth’’.

Respondent B2

‘’Yes, there has been improvement in areas such as processors, 5g etc. However, in recent times their differences are becoming subtle, and the innovation is focused on wrong areas. For example: Smartphone companies are pushing 120 hz panel refresh rate screen, the average person will not make use of it. I would say around 80% of people will not make full use of the device capability regardless. People buying new phones now probably because of the looks might be appealing, but the technical specification and innovation are not being utilised as such because it is not helping the average user greatly’’.

Respondent B3

‘’They are only different when it comes to memory capacity or battery, otherwise smartphones they are still the same’’.

Respondent B5

‘’There is an improvement in some areas like processors. But you can still live your life with phones which are of 5 years old. The older smartphones are not obsolete because the newer ones have not got any anything out of ordinary features or tech in them’’.

Respondent B14

‘’Smartphone are trying to improve things which does not matter much. They are forcing the innovation which is not adding value to the common man’’.

Respondent S1

‘’From 2015- 2020. There has been not a major innovation. How I describe this is as moving on straight line. Need a new Steve Jobs or Bill Gates which can spike innovation exponentially in smartphone sector’’.

Respondent S2

‘’6/10 in my opinion. For example, I had iPhone 7+ before and then If i compare with iPhone 11 pro max, then there is not that much difference or new features. The difference becomes big if I would have jumped from any other unknown brand of smartphone to iPhone 11 pro max. The area which has been improved is cameras, especially now they have 3 cameras built in which makes a difference’’.

Respondent S10

‘’How I see now is it is all marketing and way of taking customer’s money from their pockets. I can still call, send text, browse internet, take pictures from a smartphone which is let us say 4-5 years old. The new phones might be better but not sure if they are vastly different’’.

Respondent S12

‘’I will only now change my smartphone if it stops working or I lose it. I see my friends with their new phones which look great but are not attractive enough to change’’.

Respondent S13

‘’No significant differences. More publicity and new words’’.

5.23 Ease of use perception by British and Saudi smartphone users

The findings saw convergence in views and perceptions of Saudi and UK respondents regarding smartphones being complicated to use. The respondents across both cultures aged 18-34 overwhelmingly considered operating new smartphones as

- **Not complicated and easy to get used to.**

Respondent B2

‘’If the user stick with one brand and been using the same Operating system then there is no complication because the core system and layout remains the same. I prefer to stick with Android operating system, and I am confident that I can easily operate any android device. However, if you switch between brands with different operating system then there might be some complications and it will take time to get used to it’’.

Respondent B10

‘’Smartphones are similar these days and user friendly. There are 2 main operating systems in current day and age. Once you know how to operate them (Android and iOS), then it is no brainer’’.

Respondent S1

‘’It can become complicated to certain age group, because my parents struggled when they switched from J to S series within Samsung. It depends on age group. For me it is easiest thing to use’’.

Respondent S3

‘’Extremely easy to get used to it and new smartphones are not complicated to operate. My 2-year-old navigates smartphones as if it is a piece of cake. So, if kids can do it, then why not us?’’

5.24 Factors behind rejecting new smartphone by British and Saudi smartphone users

Respondents were asked to express their main reasons to reject the new smartphone from 4 below statements:

1. **I do not want to pay lot of money and I am not even sure if it is any good**
2. **I will wait for other people to get it first and then buy**
3. **The latest phone is no different and happy with current**
4. **The new phone might be complicated**

50 % of the British respondents listed statement #3 as the strongest reason to reject a new smartphone. They elaborated that that they will not change the phone because there are not significant differences. The 29% of the British respondents opted for statement #1 to reject a new smartphone. This was down to the financial risk attached when purchasing brand new smartphones at premium price. 14% of the respondents opted statement #2 and 7% chose statement 1#. The figure 5.15 below illustrates the responses by British respondents.

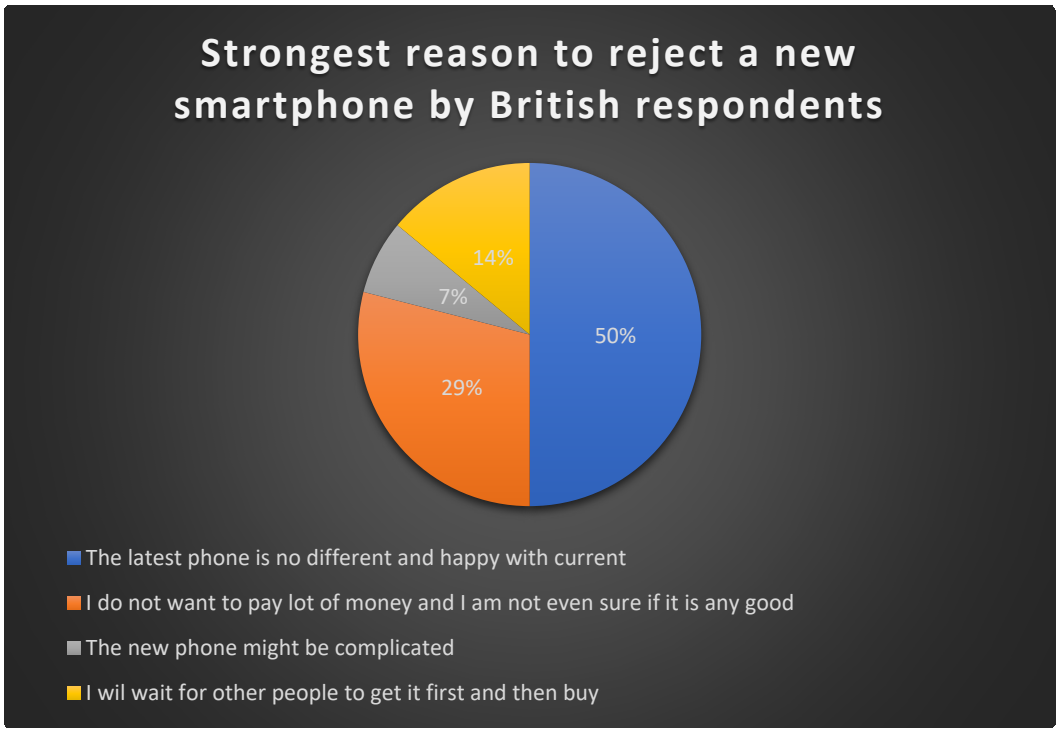

Figure 5.15: Strongest reason to reject a new smartphone by British respondents

On the contrary, 43% of the Saudi respondents listed statement 1# as the strongest reason to reject innovation. 36% of the respondents listed statement #2 as strong reason to reject new smartphone. This means financial risk and performance risk plays a crucial role in the decision making. The figure 5.16 below illustrates responses of Saudi respondents.

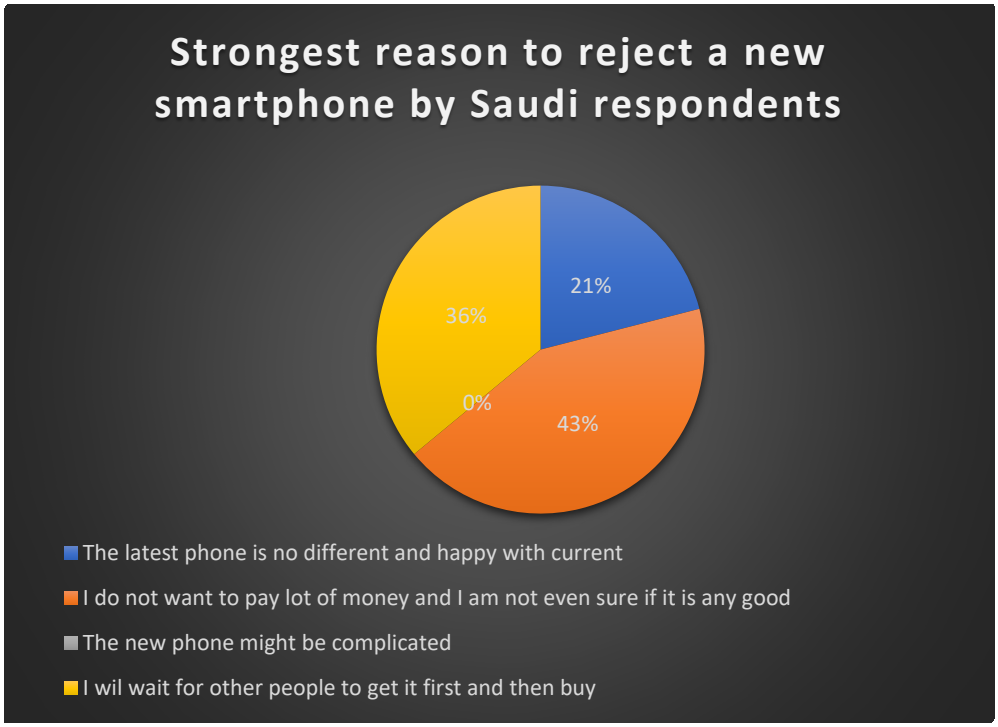

Figure 5.16: Strongest reason to reject a new smartphone by Saudi respondents

5.25 Smartphone Adoption Model (SAM) Hypothesis validation

Below are Table 5.3 and 5.4 which illustrates and explains the validation of our proposed hypothesis of SAM Model in British context and Saudi context separately.

SAM Constructs	Original Hypothesis	Our study result	Validation (British Context)	British Participants
PU	**H1**: High PU will have a direct positive influence on the behavioural intention to use new smartphones.	**Supported**	86% of the British respondents listed smartphone as the most important electronical device. The reason behind being the most important electronical device was due to the usefulness it offers in the lives of British users aged 18-34. The reasons behind this were down to: • **Convenience** • **Performing multiple tasks** Below are the three examples which shows British respondents expressing their views on how and why new smartphones are useful. **Respondent B4** *''Smartphone is such an incredible thing. It has everything. I remember before it was used to be Laptop where I was used to be excited to spend more time, but now due to ease of access of internet and smartphones being so advanced, I prefer using smartphones''.* **Respondent B6** *''I do spend time on gaming consoles, but if I must pick one, it has to be smartphones, because you can do several things. With gaming you can just play games, while with smartphone you can play, listen to music, chat etc''.* **Respondent B12**	• **B1, B2, B3, B4, B5, B6, B7, B9, B11, B12, B13** - *Listed Smartphone as most important electronical device.* • **B10**- *Listed PC as most important electronical device* • **B14**- *Listed Laptop as most important electronical device*

			''I live away from my family, so smartphone is important because I can always keep in touch with them. We have created WhatsApp groups where we share jokes/memes with each other throughout the day. Staying in touch was never as easy as it is today, with one click''. Our findings further validate this by reviewing the screen time of the respondents aged 18-34. British users on average spent 5 hours and 28 minutes per day (328 minutes per day). The findings confirmed that British users are overwhelmingly becoming dependent on smartphones and using more due to the usefulness they offer. Below are the two examples showing high dependency on smartphones by British respondents. **Respondent B7** *''My hands hurt sometimes which shows that my body is telling me to stop using smartphone. Using less smartphone now feels harder than going to gym. I do plan for new year's resolution to reduce my smartphone usage''.* **Respondent B9** *''I like to think I am not dependent, but that would be a lie. I use this to get away from stress. If I am busy doing something, I will not even think of checking my smartphone, but If I am doing absolutely nothing then smartphone will be the first thing, I will put my hands on''.*	
PEOU	**H2**: PEOU will have a direct positive influence on the behavioural intention to use	**Supported**	British smartphone users aged 18-34 when asked about ease of use and impact it has on their usage. Below are the three examples showing British users expressing their views and intent.	• **B1, B2, B3, B4, B5. B6, B7, B8, B9, B10, B13, B14** -*View smartphone ease of use and not complicated*

	new smartphones.		**Respondent B2** *''If the user stick with one brand and been using the same Operating system then there is no complication because the core system and layout remains the same. I prefer to stick with Android operating system, and I am confident that I can easily operate any android device. However, if you switch between brands with different operating system then there might be some complications and it will take time to get used to it''.* **Respondent B9** *''One of the main reasons I stick with Apple phones is the ease of use. I started from iPhone 4 and still with them. Some of my friends try to push me to buy another brand, but for me simplicity is key when it comes to interface''* **Respondent B10** *''Smartphones are similar these days and user friendly. There are 2 main operating systems in current day and age. Once you know how to operate them (Android and iOS), then it is no brainer''.*	• **B11**- *Listed smartphones as not 'ease of use'' and added that some new features especially regarding data transfer can be complicated.* • **B12**- *Mixed emotions – listed smartphone complicated when there is a software update in the phone*
SN	**H3**: SN will have a positive influence on users' BI to use new smartphones	**Not Supported**	British users did not display any indication which showed the influence of SN on their decision making. When asked about most influential factor when purchasing smartphone. only 7% of the respondents mentioned Social influence as factor. In addition, when asked about source of recommendations when deciding to purchase a new smartphone, overwhelming British users listed ''online recommendations'' over friends/family or ''instore colleagues''. Below is the example of	• **B1, B2, B5, B6, B8, B9, B12**- *Features* • **B3-, B4, B7** -*Brand* • **B10, B11,** B14-*Price* • **B13** -*Social influence* • **B1, B2, B3, B4, B5, B6, B7, B8 B9, B10, B12, B14**- *Online reviews as main source of recommendation* • **B11, B13**- *Friends/Family*

			British user expressing views regarding recommendations. **Respondent B2** *''I will look out on YouTube for online reviews and then go to see phone in real life. I will not base my opinion based on brand's website, salesperson etc. I believe in personal research. Phone is very personal thing, I will not need someone else opinion to affect me, for example if everyone in my households buys Brand A I will not be persuaded by that and I will see what suits best for me''.*	
PR	**H4**: PR will have a direct negative influence on BI to use new smartphone features	**Supported**	British users when asked about if they perceive any risks attached to the innovation which are being incorporated in latest smartphones and if it affects them. The types of risk perceived by British smartphone users aged 18-34 were of following nature: **Data Privacy and Hacking** **Respondent B1** *''Yes, I do see ulterior motives sometimes behind these innovations. Corporations trying to solve problems which does not exist. I am also not too sure how secure is paying through your smartphone''.* **Respondent B4** *''Yes, I do see some risks because now our smartphone has not only our contact details but our voice, health information, pictures, and other personal details. There is always a bit of doubt with new things''.* **Respondent B6**	• **B1, B2, B3, B4, B6, B7, B9, B10, B12, B14**- *Perceives Risk with innovations being incorporated In smartphone as whole which affects BI* • **B5, B8, B13**- *No PR perceived which affects BI* • **B11**- *Undecided*

			''Yes, I am not fully sure if the voice recordings on these voice assistants are recorded or not. I have always been sceptical about Artificial intelligence''. **Respondent B7** *''Privacy is concerning especially with these voice assistants. I will never talk something sensitive or personal details on voice assistants like Siri or Bixby because it feels unsafe''.*	
Ind	**H5**: Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals for new smartphone features	**Supported**	**Perceived usefulness of Digital Payments (Apple Pay, Samsung Pay, Google Pay) by British smartphone users aged 18-34** Two-thirds (64%) of British smartphone users aged 18-34 use at least once a month digital payment method such as Apple Pay, Samsung Pay, or Google pay. British smartphone users viewed this innovation as useful and the reason behind adoption were: • **Backup method of payment** • **COVID-19** Below are the examples of British respondents expressing their views on their adoption towards digital payments such as Apple Pay, Samsung Pay, or Google pay. **Respondent B5** *'' I use Samsung pay quite frequently. I remember once I had problem with my bank card, but I was still able to make a purchase because I had Samsung pay''.* **Respondent B7**	• **B2, B5, B6, B7, B8, B9, B12, B13, B14** - *Perceives Usefulness towards Digital Payments* • **B1, B3, B4, B10, B11**- *Not Perceives Usefulness towards Digital Payments* • **B2, B5, B6, B8, B9, B10, B11, B13**- *Perceives Usefulness towards Voice assistants* • **B1, B3, B4, B7, B12, B14**- *Not Perceives Usefulness towards Voice Assistants* • **B2, B4, B5, B6, B7, B9, B12**- *Early adopter and like to purchase new smartphones as soon as it is launched* • **B1, B3, B8, B10, B11 B13, B14**- *Not early adopter and does not like to purchase new smartphones as soon as it is launched*

			'' I use it for emergency reasons as a backup. It is a fantastic feature. Imagine on a night out, you lose your wallet'' **Respondent B9** *''I use it more now than ever because I do not carry cash due to corona virus. Even retailers are encouraging it to pay contactless which is nice''.* **Respondent B14** *''I enjoy this feature, especially when you do not need to carry cash and heavy coins. I still use contactless cards more than Samsung pay. Nowadays, I am avoiding cash handling due to Covid-19 situation. I use it every week at least''.* **Perceived usefulness of Voice assistants (SIRI, BIXBY) by British smartphone users aged 18-34** British respondents when asked about the innovative features in new smartphones such as Voice assistant (SIRI, BIXBY). It was confirmed that the significant reason behind adoption was the perception of usefulness or benefit they offer. Below are the three examples which shows British users expressing why they intent to use voice assistants. **Respondent B2** *''I think voice assistants are useful, especially when you are driving. The searching is easier, and navigation of apps are better through voice over typing when driving''.* **Respondent B5** *''I use these features while driving. It is useful asking Bixby to call someone while driving''.*	• **B3, B5, B12**- *Sharing smartphones* with their family • **B1, B2, B4, B6, B7, B8, B9, B10, B11, B13, B14**- *Not sharing smartphones with family*

Respondent B6

''I do listen to music using Siri, I think that is convenient and useful feature. It is a decent feature, sometimes it needs to understand the dictation clearly''.

Early adopters

British respondents were relatively early adopters when comparing it with Saudi participants

British respondents supported that they are early adopters and like to purchase smartphone on launch dates. Below are the examples showing British users expressing their intent.

Respondent B7

''Buying on release date and pre order is enjoyable. I do that very often with Apple or PlayStations''.

Respondent B9

''Yes, I do order things as they come out fresh. It satisfies me''.

Respondent B12

''It is always entertaining to get it first and share it with friends on what you purchased before them''.

Individualistic behaviour

Significant majority (79%) of the respondents in the UK aged 18-34 did not shared their smartphones with their families. Most of the respondent felt uncomfortable with the idea of sharing due to ''Privacy''. Displaying strong individualistic behaviour and confirming the individualistic trait.

Respondent B4

			''No, I do not share because it is such a personal device with all my sensitive information and the things I type, search etc. I am not comfortable at all to share my device with anyone''. **Respondent B6** *'' No, I do not share smartphone with my family because I have work documents''.* **Respondent B14** *''Before I was used to share my smartphone with them but one of my kids accidently deleted some of the important pictures such as receipts. Now, all my kids have a tablet or a phone, therefore they do not bother me. It is funny how everyone now in my house have a screen pet''.*	
PD	**H6a**: High PD score, more effect of SN on BI to use new smartphones. Low PD Score, lower effect of SN on BI to use new smartphones **H6b**: The relationship between PU and BI to use smartphone is moderated by PD value.	**Both Supported**	**H6a: Power distance and preference towards large screen smartphones** 43% of British Smartphone users preferred large screen smartphone and the reasons was due to ''Functional benefits'', while Saudi smartphone users preferred large screen smartphones due to ''Social Status'' and ''Functional benefits''. This confirmed that high PD cultures (Saudi) emphasizes on ''status goods'' and ''social desirability '', while low PD cultures (British) does not base their decision which relates to social status within smartphone industry. Below are the example of British respondents expressing their views on preference towards large screen. **Respondent B5** *''Yes, larger smartphones are better because I also watch live sports matches on my phone which makes the experience better visually''.*	• **B1, B2, B5, B11, B13, B14**- *Prefers large screen smartphones* • **B3, B4, B6, B7, B8, B9, B10**- *Not prefers large screen smartphones* • **B12**- *Undecided / no strong preference* • **B1, B2, B5, B6, B8, B9, B12**- *Features* • **B3-, B4, B7** -*Brand* • **B10, B11,** B14-*Price* • **B13** -*Social influence*

			Respondent B13 *''Large screen smartphones like Note+ are better for watching tv shows/films. I do that a lot. I have stopped watching television. I cannot remember the last time I sat down and watch Tv''.* **Respondent B14** *''Yes, because large screen phones have better batteries and I have a fear of running out of battery when I am working longer shifts''.* **H6b: British smartphone decision making** Features clearly plays an integral part in UK consumer decision making with 50% of the respondent listing it as most influential factor. The second most influential factor is shared between Branding (21%) and Price (21%). The least influential factor was social influence (7%) according to British respondents. This confirms that cultures with low PD(UK) uses their own judgment instead of relying on other factors on basing decision. This shows Low PD users are focused more on the usefulness over anything.	
UA	**H7**: The relationship between PR and Bi to use is moderated by UA value.	**Supported**	British smartphone users aged 18-34 are significantly ahead when it comes to M-shopping (79%) as compared to Saudi smartphone users. Our study found that UK (LOW UA) adopted m-shopping because they displayed little or no perceived risk and used it due to the usefulness. There were two main reasons emerged on why UK users use smartphone for shopping online: • **Convenience** • **Quick delivery**	• **B1, B2, B4, B5, B6, B7, B9, B10, B11, B12, B13**- *Adopted M-shopping* • **B3, B14**- *Not adopted M-shopping* • **B8**- Uses *for price comparison only* • **B10**- *Uses for price comparisons and also shops using smartphone*

			Respondent B2 *''I use smartphone once a week at least to buy something. I prefer using smartphone over laptop because it is handy. Turning on the laptop and wait for it to start up takes time. You can do the whole lot with smartphone; everything is in palm of my hand''.* **Respondent B13** *''Going to store and they do not have in stock is frustrating. At least over online, it is usually in stock or if not, I can check on the app. Also, I like the delivery times. You order in night, and they come tomorrow. That is unbelievable''.*	

Table 5.3: Hypothesis validation- British context (Author's own)

SAM Constructs	Original Hypothesis	Our study result	Validation (Saudi context)	Saudi Participants
PU	**H1**: High PU will have a direct positive influence on the behavioural intention to use new smartphones	**Supported**	93% of the Saudi respondents listed smartphones as the most important electronical device. The reason behind being the most important electronical device was due to the usefulness it offers in the lives of Saudi users aged 18-34. The reasons behind high adoption of smartphones among Saudi users aged 18-34 were also of similar nature: • **Convenience** • **Performing multiple tasks** Below are the three examples which shows Saudi respondents expressing their views on how and why smartphones are useful. **Respondent S1** *''All my life is linked to this small device now. Working from home now makes smartphone even more important and helps connect with work and leisure easily''.* **Respondent S3** *''Smartphone is most important because you carry all the time in your hands, which makes it portable''.* **Respondent S13** *''Smartphone is important because these days communication is very essential. I use my smartphone to keep in touch with my family and other relatives. No other device offers ease like smartphone''.* Our findings further validate this by reviewing the screen time of the respondents aged 18-34. Saudi users on average spent 7 hours and 48 minutes per day (468	• **B1, B2, B3, B4, b5, B6, B7, B9, B10, B11, B12, B13, B14**- *Listed Smartphone as most important electronical device* • **B8**- *Listed Desktop as most important electronical device*

			minutes per day). The findings confirmed that Saudi users are overwhelmingly becoming dependent on smartphones and using more due to the usefulness they offer. Below are the two examples showing high dependency on smartphones by Saudi respondents. **Respondent S2** *''Smartphone is like my 4th child. I do not think I am overusing, because hours spent is required for personal and work reasons''.* **Respondent S3** *''I am totally dependent on smartphone because being housewife, this is one of the top sources for entertainment and connecting with family/friends. I cannot imagine life without it''.*	
PEOU	**H2**: PEOU will have a direct positive influence on the behavioural intention to use new smartphones	**Supported**	Saudi smartphone users aged 18-34 when asked about ease of use and impact it has on their usage. Below are the three examples showing Saudi users expressing their views and intent. **Respondent S1** *''It can become complicated to certain age group, because my parents struggled when they switched from J to S series within Samsung. It depends on age group. For me it is easiest thing to use''.* **Respondent S3** *''Extremely easy to get used to it and new smartphones are not complicated to operate. My 2-year-old navigates smartphones as if it is a piece of cake. So, if kids can do it, then why not us?''*	• **S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14**- *Views smartphone as easy to use and not complicated*

			Respondent S11 *''If you asked me this question 10 years ago, yes. Now, I can use smartphones with my blindfold on and this is the reason we are addicted to it''.*	
SN	**H3**: SN will have a positive influence on users' BI to use new smartphones	**Not Supported**	Saudi users also did not display any significant indication which confirms the influence of SN on their decision making. When asked about most influential factor when purchasing smartphone. only 14% of the respondents mentioned Social influence as factor. Branding and pricing were far more relevant factors as compared to social influence factor. In addition, when asked about source of recommendations when deciding to purchase a new smartphone, overwhelming Saudi users listed ''online recommendations'' over friends/family or ''instore colleagues''. Below is the example of Saudi user expressing views regarding recommendations. **Respondent S1** *''Salesperson is off the charts now. Everything is available online. I find user reviews on Tech blogging and gadgets related websites (Gsm arena) which allows me to quickly compare and see what gadget gurus think of it''.*	• **S1, S3, S5, S6, S8, S9, S11, S14**- *Online reviews* • **S4, S10, S12, S13**- *Friends/Family* • **S2**- *Social media* • **S7**- *Instore salesperson* • **S4, S5, S7, S8, S9, S10**- *Brand* • **S1- S3, S11- S12**- *Price* • **S6, S14**- *Features* • **S2, S13**- *Social Influence*
PR	**H4**: PR will have a direct negative influence on BI to use new smartphone features	**Supported**	One of the main reasons behind Saudi smartphone users resisting Mobile shopping was perceived risk **(Financial risk).** **Respondent S2** *''I downloaded an app recently which was offering great discount for my mobile covers but still did not place order. One of the reasons is delivery takes too much time and I am not sure of the quality they are showing on the web. I have lack of trust over online shopping. I prefer to go*	• **S1, S2, S3, S4, S10, S12, S13-** Did *not adopt M-shopping due to PR- BI affected* • **S1, S4, S7, S8, S10** – *Perceives Risk with innovations being incorporated In smartphone as whole which affects BI*

			instore. I also feel hesitant for putting my card details to online apps or websites''. In addition, Saudi users when asked about if they perceive any risks attached to the innovation which are being incorporated in latest smartphones and if it affects them. The types of risk perceived were of following nature: **Health hazard, Social fabric, Financial risk, and Hacking issues** **Respondent S4** *''I am more concerned about the addiction side of the smartphone. They are making these things so attractive and as a human we are engaging with them more than we should. More light should be shed on Health hazard and its long-term implications, especially on our kids. Some research I saw which found that too much use of smartphone will impact on your health like eyesight etc''.* **Respondent S8** *''There is little we know about online world, and yes there is a fear of scams during online shopping which I do a lot. Also, the other risk I see is regarding our society losing human touch. Everyone is busy in their own shell and not talking face to face''* **Respondent S10** *''The risk is we not being disciplined enough with these innovations and handling it. I was used to use phone while on bed constantly, which caused stiff back/neck for a short period of time''.*	

Ind	**H5**: Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals towards new smartphone features	**Supported**	**Perceived usefulness of Digital payments (Apple Pay, Samsung Pay, Google Pay) by Saudi smartphone users** The 58% of Saudi smartphone users aged 18-34 were reluctant to adopt digital payment. The leading reason were: • **Low perceived benefit** • **Old habits** **Respondent S1** *"Three important things which I never forget: wallet, smartphone, and keys. I do not need technology to make it complicated".* **Respondent S7** *"I do not use it because it is pointless, and I am not used to it"* **Respondent S10** *"I been carrying wallets since 16. I do not feel the need at the moment. Habits take time to change".* **Perceived usefulness of Voice assistants (SIRI, BIXBY) by Saudi smartphone users** Saudi respondents when asked about the innovative features in new smartphones such as Voice assistant (SIRI, BIXBY). It was confirmed that the reason behind not adopting was due to the lower perception of usefulness or benefit they offer. Below are the three examples which shows Saudi users expressing why they intent to not use voice assistants. **Respondent S1** *"Artificial intelligence has lots of benefits. I am not against using it. People especially who have disability, is doing wonders for them. For me and my personal*	• **S2, S5, S6, S9, S11, S13**- *Perceives Usefulness towards Digital Payments* • **S1, S3, S4, S7, S8, S10, S12, S14**- *Not Perceives Usefulness towards Digital Payments* • **S5, S6, S7, S11, S14**- *Perceives Usefulness towards Voice assistants* • **S1, S2, S3, S4, S8, S9, S10, S12, S13**- *Not Perceives usefulness towards Voice Assistants* • **S9, S13, S14**- *Early adopter and likes to purchase new smartphones as soon as it is launched* • **S1, S2, S3, S4, S5, S6, S7 S8, S10, S11, S12**- *Not early adopter and does not like to purchase new smartphones as soon as it is launched* • **S1, S3, S4, S5, S10, S11, S13, S14** - *Sharing smartphone with their Family*

			lifestyle, I do not like this lazy way of doing things. I do not mind typing. I think we are not there yet. Voice assistant is luxury but not a need. Having a fast car 250 mph is a good but would you be driving on a road every day''. **Respondent S2** *''I tried using it, it is a waste of time. In my opinion, voice assistant is aimed towards older generation''.* **Respondent S3** *''Typing is more convenient, and it does not understand all the accents''.* **Respondent S8** ''It does not add much value. It is cool technology, but not for my lifestyle, maybe in future''. **Early adopters** Most of the Saudi respondent (79%) prefers to wait when it comes to make a purchase of a new smartphone and are not early adopters as compared to individualistic (UK) culture. The leading reasons behind these were: • **Saudi respondents prefer to wait and assess the feedback of other buyers regarding the performance of new smartphone.** • **Saudi respondents prefer to wait for few months because they expect a price drop.** **Respondent S2** *''I wait for reviews and then buy. I see the market reaction first and then react''* **Respondent S4**	• **S2, S6, S7, S8, S9, S12** *Not Sharing smartphone with their Family*

			''I wait for my colleagues/friends to tell me if the new smartphone is worth the money. No need to rush''. **Respondent S8** *''I prefer to wait and see if there are any premature issues in device or operating system''.* **Respondent S11** *''I will if I know the price will not drop after 3 months. This is the main reason why I stop. I remember I bought a television and after couple of weeks I saw it on reduction of 1,000 Saudi riyals. That frustrated me''.* **Collectivistic behaviour** Furthermore, our findings also confirmed the collectivistic behaviour of Saudi culture where a significant majority 57 % users in Saudi Arabia aged 18- 34 shared their devices with their family members. There was a common theme that sharing was common practice with their kids and husband/wife. **Respondent S1** *'' I have 3 kids and it can be hard to handle them when we are outside or in a car. It keeps them distracted''.* **Respondent S3** *''Even though everyone in my house including kids have their own tablets or phones. Still my kids end up using my smartphone at some point especially when their tablet's battery dies. My husband does use it sometimes too from time to time. When kids use my phone, I do try to put lock on some apps''.* **Respondent S11**	

			''Yes, I do share my phone sometimes with my kids. My 10-year-old wants to buy a phone, although I am reluctant. I allow him to use my one for few minutes. I do also consult with my wife if I have to spend 5,000 Saudi riyals''.	
PD	**H6a**: High PD score, more effect of SN on BI to use new smartphones. Low PD Score, lower effect of SN on BI to use new smartphones **H6b**: The relationship between PU and BI to use smartphone is moderated by PD value.	**Both Supported**	**H6a: Power distance and preference towards large screens** 71% Saudi Smartphone users preferred large screen smartphone due to Social Status and Functional benefits, while British smartphone users preferred large screen smartphones just due to functional benefits. This confirmed that high PD cultures (Saudi) emphasizes on ''status goods'' and ''social desirability ''. **Respondent S1** *''Yes, big phones are better (S20+). You get something bigger for small premium to pay. Lots of people have asked me in office when I bought my new phone. It makes a statement''.* **Respondent S2** *''I like large screen phones because it offers better view when watching shows or reading something on it. In addition, it looks good when carrying it in the hand''.* **Respondent S6** *'' I do change my smartphone often, however when I recently purchased the pro max everyone in my social circle spotted it and asked me about it''.* **Respondent S13** *''Yes, bigger phones have better design and looks''.* **H6b: Saudi smartphone decision making**	• **S1, S2, S3, S5, S6, S7, S9, S10, S13, S14**- *Prefers Large Screen Smartphones* • **S4, S8, S11, S12**- *Not Prefers Large Screen Smartphones* • **S4, S5, S7, S8, S9, S10**- *Brand* • **S1- S3, S11- S12**- *Price* • **S6, S14**- *Features* • **S2, S13**- *Social Influence*

			Branding over features .43% of the Saudi users viewed branding as the most influential factors towards decision making. The second most important factor was Price (29%). The third most influential factor was split between Social Influence (14%) and Features (14%). High power distance tends to have a strong preference towards status brands than those with low power distance belief. Buying branded products can be a way of enhancing social status and therefore branding plays a significant part when purchasing new smartphone by Saudi users.	
UA	**H7**: The relationship between PR and Bi to use is moderated by UA value.	**Supported**	British smartphone users aged 18-34 are significantly ahead when it comes to M-shopping (79%) as compared to Saudi smartphone users. Our study found that Saudi (High UA) resisted m-shopping because of perceived risk. *The main reasons behind low adoption of M-shopping behind Saudi users were:* • **Poor experiences** • **Lack of confidence towards online payments system** • **Lack of touch feel factor** Below are the examples of Saudi respondents on resisting M-shopping. **Respondent S2** *''I downloaded an app recently which was offering great discount for my mobile covers but still did not place order. One of the reasons is delivery takes too much time and I am not sure of the quality they are showing on the web. I have lack of trust over online shopping. I prefer to go instore. I also feel hesitant for putting my card details to online apps or websites''.* **Respondent S3**	• **S5, S6, S7, S8, S9, S11, S14**- *Adopted M-shopping* • **S1, S2, S3, S4, S10, S12, S13**- *Not adopted M-shopping*

			'' I browse online a lot and have apps installed on my smartphone which are for ecommerce, but never managed to make a purchase. The reason why because I cannot check the quality of the product and also sometimes worry that it might be a scam when putting down the bank details. The only time I use is for price check''. **Respondent S10** *''I still do not shop online regardless. I always have the feeling if something goes wrong if you buy from the store, you can always go there and speak to the manager. Online it all seems invisible''.* Moreover, even the Saudi users who adopted M-shopping, some of them still preferred to choose • **Cash on delivery payment method over online payment when ordering online.** **Respondent S14** *''Yes, I do use smartphone for m-shopping. I find electronics 300-500 Saudi riyal cheaper online as compared to stores with same warranty. I prefer pay cash on delivery over putting card details''.*	

Table 5.4: Hypothesis validation- Saudi context (Author's own)

5.26 Summary of findings

Below is table 5.5 which presents the summary of our findings in tabular format and links the findings back to our original objectives of the study. The findings link back to objective number 3,4,5, and 6.

Exploring Motivation

3rd objective findings

Smartphone behaviour	British respondents	Saudi Respondents	Summary Analysis
Average screen time of smartphone usage per day	328 minutes per day (5 hours, 28 minutes)	468 minutes per day (7hours, 48 minutes)	Saudi smartphone users are spending extra 2.3 hours per day than British smartphone users.
Motivation behind using smartphone	33% Communication, 29% Entertainment, 26% Social media	38% Social media, 36% Communication, 17% Entertainment	Saudi smartphone users use predominantly Social media apps, while British smartphone users use more Entertainment and Communication apps.
Most used apps	WhatsApp, YouTube, Facebook	WhatsApp, Facebook, Instagram, YouTube	WhatsApp most used app across both cultures.
Most important electronical device	Smartphone 1st most important device	Smartphone 1st most important device	Reason behind being most important device by British and Saudi respondents were **Convenience and Ability to perform multiple tasks.**
Second most important electronical device	Laptop 2nd most important device according to British respondents	Saudi Male: Desktop, 2nd most important device Saudi Female: Television, 2nd most important device	Laptop 2nd most important device according to British respondents. Saudi Males listed Desktop, while majority of Saudi Females listed Television as most important device.
Mobile shopping	79% purchased something over last month. -Reasons behind high adoption: **Convenience and Quick delivery**	50% purchased something over last month. -Reasons not to adopt: **Poor experience, Lack of touch feel factor, and Lack of trust towards online payment system.** -Reasons to adopt: **Price and Convenience**	British respondents are significantly adopting Mobile shopping than Saudi respondents. People who adopted M-shopping in Saudi Arabia still preferred Cash on delivery method over online transactions.
Attitude towards social media	86% use Social media. 33 % does not posts photos/videos. -Reasons for not posting by British: **Privacy, Mental Health, and Waste of time**	93% uses social media, 62% does not post photos/videos. -Reasons for not posting by Saudi female: **Religious/ Cultural** and Saudi male reason: **Privacy**	Social media usage is high across both cultures but the reasons for not posting differs across cultures.

Exploring Motivation *3rd objective findings*	**Intensity of Attachment** **Using smartphone while walking**	93% uses smartphone while waling	64% uses smartphone while walking	Reason behind using smartphone while walking by British and Saudi: **Texting to reply work related messages/emails and Staying connected with friends/family**. Reasons for not using while walking is higher in Saudi because of **Social and Family reasons**.
	Intensity of Attachment **Using smartphone while on bed and before going to sleep**	Using while on bed before sleep - 79% admits -Reasons: **Trouble sleeping and boredom**	Using while on bed before sleep- 86% admits- -Reasons: **Boredom** (Saudi male) and **free time is at night** (Saudi female)	Similar behaviour but different reasons behind this action.
	Intensity of Attachment **Using smartphone while watching television**	100% uses smartphone with exception of B13 respondent because B13 does not watch television at all	100% uses smartphone while watching television	Congruence in behaviour behind using smartphone while watching television and considered as ''**normal practice**'' across both cultures.
	Dependency towards smartphone	Majority are dependent	Majority are dependent	Congruence in behaviour and reasons behind being dependent on smartphones. Heavy reliance.
	Overusing of smartphone	64% view they are overusing their device - and 44% blames it on emergence of Social media	Only 29% view they are overusing their smartphone. 71 % justifying their usage. People who viewed they are overusing were concerned with the impact it has on Eyesight and Social fabric	Differences on how both cultures view this. Although, our study indicates that Saudi users are on average using 2.3 hours more than British users per day, but still Saudi respondents believe they are not overusing their device.
Attitude towards Innovation *4th objective findings*	**Psychological Mind map towards "innovation" word**	Linking with Artificial intelligence, Robots, Machines	Linking with Smartphones, Computers, Wi-Fi	Exclusive words by Saudi towards innovation: 5g, Modern, Western/American. Common words across both: 'Technology and New'. British naming names of brands like Apple and Tesla, while Saudi naming the devices such as smartphones or electric vehicles when expressing innovation.

Attitude towards Innovation *4th objective findings*	**Emotion when they hear about new smartphone**	21% marketing or money-making activity, 42% expressed positive emotion - 29% curious - 21% neutral reaction. 1 respondent confusion	2 respondents: devaluation of current smartphone. 14% marketing/money making activity. 29% expressed positive emotion -36% curious	Curiosity is very much the emotion when Saudi respondents hear about new smartphone, while British respondents expressed 'happy and exciting' emotion.
	Voice assistant	57% British uses voice assistant once a week -Reason for not using British 43%: Gap between expectation and actual	36% Saudi uses once a week. -Reasons for not using (64%): Perceived value and perceived performance are low – and views technology for older generation	The adoption of voice assistant feature like Siri, Bixby varies and is higher in British culture as opposed to Saudi. In addition, the way it is perceived varies too.
	Payment through smartphone (digital payment)	Two third (64%) uses. – Reasons for adopting Backup method and COVID-19 Reason not to adopt: Low perceived benefit for digital payment over existing method	42% uses. -Reasons for adopting Convenience and Tracking payments - Reasons not to adopt: Low perceived benefit and Old habits	The adoption of digital payment method such as Apple Pay, Samsung Pay, Google wallet is higher in British culture as opposed to Saudi. The reason behind on adoption and resisting varies across both cultures.
	Risk attached to these innovations	71% expressed concerns. -Risks included: **Data privacy and Hacking**	Only 37% expressed concern. -Risks included: **Social fabric, Health hazard and Hacking**	Completely different outlook and interpretation on how risks attached to innovation is viewed by Saudi and British culture.
Examining Decision making process *5th objective findings*	**Resentment towards smartphone companies upgrading model every year**	57% expressed resentment. -Reasons: **Lack of trust towards big tech corporation and Obsolete technology**	71% expressed resentment. - Reasons: **Lack of trust towards big tech corporation and Devaluation of current phone**	British resentment related with obsolete of technology, while Saudi resentment related with devaluation of current phone. Both were similar with lack of trust towards big tech corporation.
	Sharing of smartphone with family	79% did not shared their smartphone with their family due to privacy	57% share their smartphone predominantly with kids, husband/wife	Saudi respondents admitted sharing their smartphone device with their family members. British respondents did not feel comfortable sharing due to privacy of data.
	Preference towards large screen (Phablets)	43% of the preferred large screen -Reasons: **Functional benefits over regular size**	71% preferred large screen - Reasons: Functional **benefits over regular size and Social status**	Saudi respondents strongly preferred large screen smartphone due to functional benefits and social status.

Examining Decision making process *5th objective findings*				Majority of British respondents did not prefer large screen smartphones.
	Main motivation behind upgrading	Faster Processor	Better Camera	Different motivation between British and Saudi respondents behind upgrading smartphone.
	Main source of recommendation	Online	Online	Congruence in views and attitudes towards source of recommendation. Online being popular across both cultures.
	Most influential factor	50% Features, 21% Price, 21% Branding.	43% Branding, 29% Price, 14% Social influence, 14% Features.	British respondents are features oriented, while Saudi base their decision by focusing on brand.
Evaluating resistance *6th objective findings*	**Early adopter**	50% will not buy as soon as possible because they view there is lack of innovation and are also happy with current performance of their smartphone	79% will wait and not buy as soon as possible because: Saudi respondents prefer to wait and assess the feedback of other buyers regarding the performance of new smartphone. Saudi respondents also prefer to wait for few months because they expect a price drop.	British respondents are still relatively early adopter. Both cultures have different reasons and thought process for not being early adopter.
	Views towards innovation in smartphone within last 5 years	Not big innovation within last 5 years	Not big innovation within last 5 years	Convergence of views - No substantial and meaningful innovation seen in industry. Some small improvements made such as :5G, Design, A.I, Camera, Processor, and Battery.
	Are new smartphones complicated to use?	No	No	Convergence views- overwhelming majority does not consider new smartphones as 'complicated' and find them easy to get used to.
	Strongest reason to reject new smartphone.	The latest phone is no different and happy with current	I do not want to pay lot of money and I am not even sure if it is any good	Financial risk and Performance risk plays crucial role regarding rejecting new smartphone – Saudi respondents. Lack of perceived benefit plays critical role regarding rejecting new smartphone – British respondents.

Table 5.5: Summary of Findings (Author's own)

Chapter 6: Discussion

6.1 Introduction

The aim of this chapter is to pull the various threads of the research together, relate the results and analysis to the themes emerged from previous literature and explain how the research questions of the study have been answered. Moreover, the contribution to the knowledge and implications for theory and practice will be merged to provide comprehensive discussion.

As explained at the start, this study's overall aim is to explore the impact of culture towards innovation by analysing the attitudes of British and Saudi consumers aged 18-34 towards innovation in smartphone industry. The study also explored to provide a detailed insight and 'why' behind consumer's perceptions towards adoption or rejection of innovation. The study aimed to focus on the area of research which is understudied; Western vs Middle Eastern culture and provide a framework for international marketers to understand the psychology behind their decisions.

Most of the cross-cultural studies in the context of smartphone has been in the area of addiction or problematic smartphone usage. This study provided an opportunity to fill the gap on scarcity of frameworks on how these innovations are being interpreted by consumers from the two different cultures. Below are the research questions:

- How different are the motivation of UK and Saudi consumers behind using smartphone?
- How do cultural dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage?
- How do UK and Saudi consumers perceive innovation within smartphone industry?
- Why consumers in UK and Saudi Arabia upgrade to new smartphone?
- How do UK and Saudi consumers resist innovation within smartphone industry?

6.2 Motivation

This part discusses and focuses on the reasoning behind why Saudi and British consumers aged 18-34 use smartphone. This first step was to evaluate and develop a solid foundation on their motivation which also assisted the researcher to better understand the other parts of findings and linking them.

The results of screen time of smartphone and most apps used highlighted some differences and some similarities between British and Saudi smartphone users.

Some of the findings aligned with previous literature, however some of the findings contradicted.

Our findings revealed that Saudi users spend on average 2.3 hours more per day than British respondents. The average screen time of British smartphone user was 328 minutes per day as opposed to 468 minutes by Saudi respondents.

According to latest survey conducted by Code Computer love (2019) found that an average UK screen time is 3 hours and 23 minutes per day, and this rises considerably to 3 hours and 48 minutes for the aged group 16-24. On the other side, the study by Al Osaimi (2016), found that majority (61%) of the 2367 participants spent at least 5 hours per day using their smartphones, whereas 27.2% spend more than 8 hours per day. Our findings have reported an increase in screen time in both cultures as compared to previous research. The increase of screen time per day could be due to the fact that our study is being conducted during pandemic COVID-19 and respondents are spending more time on their smartphones. In addition, our findings were based on the population aged 18-34 only, there is a possibility for future researchers to find the decreased screen time for older age group across both cultures.

Secondly, our findings concluded that British users use smartphone predominantly for Communication and Entertainment purposes, while Saudi users uses smartphone primarily for Social Media and Communication. 38% of the apps listed by Saudi users regarding most used were from Social media category, followed by 36 % of the Communication category apps. This finding aligns with the study by Al Osaimi (2016) which concluded that Saudi users use their smartphone primarily for social networking sites and study by Dimitrios and Alali (2014) which concluded that Saudi

society is heavy users of social media with more than 85% usage in the country. However, our findings provided an extra layer regarding attitudes towards social media. Our study found that although there is considerably higher penetration of Social media across both cultures, but 64% of Saudi and 33% of the British respondents expressed that they do not post photos/videos on social media and are silent users. The findings explored that Saudi females did not post due to cultural/religious reasons and Saudi males stated privacy as their reason. The previous study by Raddawi (2014) supported the findings from Saudi females which concluded that Arabic and Western cultures have significant differences which are rooted in their origins and religion. In addition, the study by Al Dossry (2012) echoes with our findings that many Saudi families reject the goods that are seen as un-Islamic and plays important part in their consumer behaviour. Al Dossry (2012) explained that Saudi society is still loyal to the Islamic religion as a fundamental doctrine, and it affect their behaviour despite their adoption of western fashion, technology, and luxury cars.

Secondly, our findings also reported that one-third (33%) of the British respondents also did not post photos/videos and were silent users. The reasoning behind that were of different nature which included: mental health, waste of time, and privacy. This is in line with previous literature, where studies have shown correlation between social media and anxiety. The study by Mc Crae et al. (2017) found a statistically significant relationship between social media use and depressive symptoms in children and adolescents. In addition, a meta-analysis of 23 studies showed correlation of problematic Facebook use and psychological distress in young adults and adolescents (Marino et al., 2018). The interesting findings were although a great deal of previous literature shows the social media use and mental health issues, however only UK respondents expressed as a factor but not Saudi smartphone users. This reasoning behind Saudi smartphone users not mentioning mental health unlike British respondents could be down to the cultural makeup. The Saudi society is highly collectivistic and promotes interdependence rather independence. The individualistic cultures like Britain have been proven to be more prone to depressions, disorders than non-western cultures according to Kappeler (2003). The day child is born, the individualistic society teaches them to be alone and independent which results in a weaker family system. The individuals from

individualistic society therefore are more frequently left alone to cope with issues on its own.

Thirdly, our findings also found that WhatsApp was the most used app across both cultures These finding contradicts with tone of the recent surveys conducted in UK, which revealed that sending/receiving emails were the most popular activity performed by individual in Great Britain (Statista,2020). On other hand, the study by Al Osaimi (2016) found that among Saudi university students, WhatsApp was the most common app, followed by twitter and Instagram. Our study found that WhatsApp was the most used app, followed by Facebook, Instagram, and YouTube by Saudi respondents.

Furthermore, our research found that Smartphone is the most important electronical device according to both cultures. British and Saudi users concluded that this due to the common benefit convenience and ability can perform multiple tasks. There was a disparity on the second most important electronical device, where Saudi respondents perceived desktops and British respondents viewed laptops as 2nd most important electronical device. In addition, the findings further attempted to gather the intensity of attachment towards smartphones across both cultures. 93% of the British and 64% of the Saudi users admitted that they use smartphones while walking. According to Deloitte (2017) 53 % of the 4,150 British people aged 18-75 admit using smartphone while walking. Our research found a significantly higher number than previous survey and the reason behind this could be the age sample of our study 18-34, as opposed to 18-75. Higher smartphones use while walking among British respondents as opposed to Saudi could be the fact Britain has one of the finest public transportation systems which means more people walk and therefore this behaviour emerges. In addition, the walking trend is an increasingly adopted lifestyle in UK where proportion of adults walking at least once per week in England increased from 68% in 2015-16 to 70% in 2017-18 (Department for transport, 2019).

The 36% of the Saudi respondents did not use smartphone while walking and reasons emerged to be Social and Family. This can be traced back to the fact Saudi is a collectivistic culture which affected this behaviour. There is a congruence regarding using smartphone while watching television. It appeared to be normal practice across both cultures. Moreover, differences on reasoning were observed

behind using smartphone while on bed before going to sleep. The British respondents used smartphone because of Boredom and trouble sleeping patterns, while Saudi female used at night because of the they are busy during the day with kids/husband, and Saudi male used at night because of boredom. Collectivistic culture according to Hofstede (2010) promotes family values and looking after them. Saudi females mentioned that they use smartphone at night-time because they are looking after kids or their partner during the day.

This first part of discussion provides a detailed insight of the motivation behind using smartphone by Saudi and British users. This part of discussion adds to the body of knowledge that culture has an impact on the actions which impacts the motivation behind using smartphone. It also contributed to the fact that some of the contradictions with previous literature arise (**Expected screen time was lower than actual screen time)** due to global pandemic and it will assist policy makers within smartphone industry to base their future decisions with COVID-19 in mind across the globe. Our findings also reported that PU construct is still relevant across both culture and the reason behind high adoption of smartphones is due to usefulness they offer to the users aged 18-34: **convenience and multitasking**.

6.3 Cultural dimensions impact

This part of the discussion emphasizes on understanding the perceptions of consumers from both cultures towards innovation. The data gathered showed impact of culture when it comes to adoption or resistance towards new technology.

6.3.1 M-shopping discussion

Our findings reported that British smartphone users aged 18-34 are significantly ahead when it comes to M-shopping (79%) as compared to 50% of the Saudi smartphone users. The study by Mandler et al. (2018) suggested that mobile commerce services is negatively influenced by level of uncertainty avoidance. Saudi Arabia scores 80 and UK scores 35 on uncertainty avoidance dimension on Hofstede model. In addition, the study by Dai and Palvia (2008) found that individuals from the culture with low uncertainty avoidance are more likely to accept new mobile services as compared to higher uncertainty avoidance cultures. Furthermore, the previous studies have also found that individualism and collectivism influence the perceived risk of online shopping. Collectivistic culture normally

perceives higher risk associated with online shopping than individualistic culture (Park and Jun 2003; Park et al. 2004). According to Hofstede, Saudi Arabian culture falls under collectivism with the score of 25, while UK is a highly individualistic society with the score of 89. The Saudi respondents one of the main reasons not to shop online was:

- **Lack of confidence towards online payments system**

Findings from our research supports the previous literature and concludes that cultural dimensions have an impact towards adoption of M-shopping.

In addition, the study by Mokhtar et al. (2020) found price as the most significant factor which impacts the online shopping behaviour among young adults. The study found that product being cheaper online than in stores and exclusive promotions online had the most impact when shopping online. Our findings partially contradict and support the previous literature. The reasons to adopt M-shopping by British smartphone users were convenience and quick delivery. On the contrary, according to Saudi smartphone users price emerged to be significant reason behind adoption. Additionally, previous empirical study by Groß (2016) showed that risk perception towards mobile channels obstruct consumers from continuous m-shopping. The study concluded that hindering effect is more to do with ‘’ transaction processing and financial risks’’ instead of security concerns or privacy. Our findings revealed that Saudi consumers who adopted M-shopping still preferred ‘’cash on delivery’ option instead of online payment.

6.3.2 Voice assistant and Digital payment discussion

Our findings revealed that 57% of the UK and 36% of the Saudi users aged 18- 34 use voice assistant at least once a week. The reasoning behind using and not using varied across both cultures. The significant reason behind using voice assistant by British respondents was responding to texts/calls during driving. The previous study by Luger and Sellen, 2016; Cowan et al., 2017 examined the usefulness of Intelligent personal assistants (IPAs) and suggested that it is mostly used in situations where user is engaged in other activities like cooking, driving, and playing. However, majority of Saudi respondents did not use voice assistants on their smartphone due to following reasons:

- **Perceived value and perceived performance are low towards this technology**
- **Viewed this technology for a certain segment (Older generation)**

Previous studies have shown social embarrassment, consistency, and trust as one of the major obstacles behind using Intelligent Personal Assistant (Cowan et al., 2017). Our findings somewhat contradict and suggested that Saudi respondent's main reason was that they do not consider voice assistants as useful and were not satisfied with performance level. The reason behind not adopting was not due to social embarrassment or trust as per previous research. Although Saudi is a highly collectivistic society and social considerations are taken into consideration but with this technology it was not that matter.

Secondly, about Two-thirds (64%) of UK and 42% of the Saudi users aged 18-34 use at least once a month digital payment method such as Apple Pay, Samsung Pay, or Google pay etc. British smartphone users viewed this innovation as useful and the reason behind adoption were:

- **Backup method of payment**
- **COVID-19**.

The significant adoption rate was down to the fact British respondents mentioned that they are using contactless ways and avoid cash handling due to pandemic. Within contactless ways it included contactless cards and digital payment methods.

While Saudi smartphone users' reason behind adoption were:

- **Convenience**
- **Tracking payments**

Previous study by Bamasak (2011) showed that there is a bright future of mobile payments in Saudi Arabia as most of the participants in the study expressed willingness to use it in future. However, our findings revealed that still a majority 58% of the Saudi smartphone users have not adopted digital payment method. Reasons behind lack of adoption by Saudi smartphone users were:

- **Low perceived benefit**

- **Old habits**

The study by Rouibah (2015) found that major obstacle behind adoption of digital payments methods in Kuwait which is culturally comparable to Saudi Arabia were: high charges, low trust, and familiarity, The Saudi smartphone users' reason behind not adopting were somewhat of different nature as compared to Kuwaiti smartphone users even though culturally they are similar on Hofstede's 6 dimension of national culture. The familiarity factor was common across both cultures as being an obstacle. Overall, by reviewing the discussion of Digital payments and Voice assistants, it is clear that consumers from British views these as high in PU as compared Saudi smartphone users aged 18-34.

6.3.3 Risk attached to innovations

Our findings reported that majority of (71%) British smartphone users expressed concerns and risks attached to innovation in smartphone, while (63%) Saudi respondents expressed comfort towards future innovation when asked if participants view any potential risk attached to these latest features and innovation in smartphone industry day by day. This disregards previous research by Hofstede et al. (2010) which suggested that low uncertainty avoidance culture (UK) demonstrates risk-taking and ease with unknown, while countries who score higher (Saudi Arabia) are hesitant towards new information and unknown. The major risk perceived by British smartphone users to future innovation were:

- **Data privacy**
- **Hacking**

While Saudi smartphone users listed 3 concerns:

- **Social fabric**
- **Eyesight**
- **Hacking**

The previous study Trepte et al. (2017) mentions that countries with high uncertainty avoidance and collectivism tend to pose greater emphasis on privacy issues. Our findings found the UK smartphone users who are low in uncertainty avoidance and individualistic to be more concerned about data privacy. The innovations of digital

payments and voice assistants have raised their concerns due to the fact the amount of sensitive information smartphone has. On the other side, Saudi respondents were not overly concerned about privacy but more about the long-term affect smartphone is having on the social fabric. Several respondents mentioned that there has been less face-to-face conversation within the house and attention of family member have been divided over the dinner table because of constantly using smartphone. This particular concern arises from being part of collectivistic culture which places strong emphasis on family values and relationships and Hofstede et al. (2010) findings about collectivistic findings society confirms that

6.4 British and Saudi views towards innovation in smartphone industry within last 5 years.

There was a congruence between perceptions when asked regarding how the participants view the level of innovation in smartphone industry in last 5 years. There was an agreement across both cultures that there has not been a substantial and meaningful innovation in last 5 years. The smartphone users from both cultures agreed that there have been some improvements in areas such as: :5G, Design, A.I, Camera, Processor, and Battery. Furthermore, our research also found that there is a resentment towards the idea of smartphone companies launching models every year by (57%) of British and (71%) of Saudi smartphone users aged 18-34. The mutual reason behind resentment was lack of trust towards big tech corporations. Several respondents from both cultures perceived this as money making activity or a marketing tactic for businesses to reap profits.

This part of discussion adds to body of the knowledge that the perception of innovation within last 5 years have been similar in Eastern and Western culture. The smartphone corporations would need to work heavily on research and development and to have a breakthrough in terms on innovation. In addition, smartphone companies need to work on their perception of ‘’money making activities’’ in mind of consumers all over the world. If these two ideas persist across the world, then there could be a decline in the overall sales revenue of smartphones which could affect the degree of innovation in the industry. People will hold on to their mobile for long before they upgrade to a new one. Secondly, our findings also revealed that financial risk and performance risk plays crucial role regarding rejecting new smartphones

according to Saudi smartphone users, while Lack of perceived benefit plays critical role in rejecting new smartphones by British respondents

6.5 Upgrading to new smartphones

This part of the discussion emphasizes on the decision-making process when British and Saudi smartphone users upgrade their smartphone. This discussion provides knowledge on the factors which influences their purchase intention.

Our findings reported that main motivation factor behind upgrading smartphone by British users were 'Faster Processor', while Saudi respondents listed 'Better Camera'. Furthermore, the most influential factor according to British smartphone users was 'Features', while 'Branding' plays crucial part in the decision making of Saudi smartphone users. Our findings align with previous research of Kim and Zhang (2014) which concluded that countries with High power distance tends to have a strong preference towards status brands than those with low power distance belief. Buying branded products can be a way of enhancing social status and therefore branding plays a significant part when purchasing new smartphone by Saudi users. Similarly, the recent study by Alsulami (2018) concurs with our findings are points out that those Saudi consumers are more inclined towards international brands, and they are affected by brand name when making purchase. Moreover, the study by Malviya et al. (2013) concluded that brand name of mobile phone in India has a dominant impact on consumer evaluation and subsequently their buying decision of mobile phone. Additionally, another study by Liao (2012) pointed out that brand image is the most important factor when buying smartphone in India. Both Saudi Arabia and India are High in Power distance and the studies have established a strong relationship between High power distance and brand in decision making.

6.5.1 Preference towards large screen smartphone

Secondly, 71% of the Saudi and 43 % of the UK users have preference towards large screen phones (Phablets). The important findings were not the level of preference towards large screen smartphone but the reasoning behind the preference. Our findings revealed that Saudi respondents' two main reasons on why they prefer large screen smartphone (Phablets) were; Functional Benefits and Social Status. Saudi respondent placed emphasis on large screen looks good and design being prominent among friends/office workers.

The UK smartphone users' main reason behind large screen smartphones was exclusively 'Functional Benefits' such as better batter life, working efficiently on a larger screen, better experience for watching etc. The Saudi Arabian culture scores high on Power distance dimension 95, while UK culture according to Hofstede scores 35. This is in line with previous literature, the study by Kim and Zhang (2014) shown that people in high-power-distance contexts prefer status goods more than those in low-power-distance contexts. In addition, our findings are also aligned with a previous cross cultural study Rau et al. (2015) which concluded that Chinese consumers prefers large screen smartphones due to prestige factor and German's respondents prefers large screen phones mainly due to for speed and battery life of large screen smartphone. Chinese culture scores high on power distance (80) dimension like Saudi Arabia (95) This concludes that Saudi smartphone users perceive large screen phones socially desirable as opposed to British consumers who solely perceives them as better functionally.

6.5.2 Sharing of device

57 % users in Saudi Arabia and 21% of British smartphone users aged 18- 34 shared their devices with their family members. There was a common theme that sharing was majorly with their kids. The study by Chen (2013) concluded that Taiwanese respondents which is highly collectivistic culture frequently shared their tablets as opposed to the U.S respondents which falls under individualistic culture. Our research is in align with the previous study because the respondents in Saudi Arabia expressed sharing as a normal behaviour especially with their kids and partner. The reason behind UK respondent not sharing their smartphones was predominantly due to 'Privacy'. However, even though majority of Saudi respondents shared device, but there was still a considerable 43% of the Saudi respondents which did not shared their device. Saudi is a highly collectivistic culture but still a sizeable number of respondents expressed views which were close to individualism values like UK. This could be potentially due to culture being evolved due to several factors such as social media, westernization or our study being limited to age group of 18-34, maybe a higher age group will have higher sharing rates of their devices because they might be closer to their cultural makeup.

6.5.3 Online reviews

Our findings revealed that online reviews are the main source of recommendation for British and Saudi respondents when purchasing new smartphones. This is concurring with previous research which concludes the online reviews plays significant part in the decision making these days. The study by Li (2011) suggests that consumer actions are not just dependent on their own motivation but also by the user online. The Wang and Lin (2011) explained that consumers in order to reduce cognitive effort when faced with too much information tends to follow other's decision instead of making their own. Moreover, consumers are now actively searching for product information on social networking sites rather than company's own website due to credibility issue (Sinclaire and Vogugs, 2011). Furthermore, Park et al. (2007) pointed out that online consumer reviews nowadays play key role in decision making process because this kind of consumer created information provides indirect experiences of products.

The interesting finding was that even Saudi smartphone users also mentioned online reviews as their main source of recommendation. Although, Saudi Arabia is a highly collectivist society and it could have been expected that Saudi participants could be using Friends/Family/Instore salesperson as a source of recommendation over online due to the interpersonal nature of the society. In addition, the reason behind online recommendations taking over the human recommendations is the emergence and penetration of social media among Saudi respondents aged 18-34. Our first part of the findings also confirmed that the Social media is the main motivation behind Saudi smartphone users.

The findings add to the body of knowledge that international marketers should heavily invest on online presence and availability on major social media platforms. There was a significant preference across both cultures towards online reviews due to the fact they are perceived as unbiased and more credible than the brand's own website or the instore salesperson. In addition, several respondents from both cultures mentioned about their increased M-shopping due to several reasons such as Covid-19. This another reason on why smartphone corporations should find new ways to make the customer journey from purchase- to- finding reviews better.

6.6 Early adopters

The study by Yeniyurt and Townsend (2003) suggested that countries with power distance and uncertainty avoidance hinders the acceptance of new products, while individualism encourages the innovative products.

Our findings revealed across both culture there were reasons behind not buying new smartphone as soon as possible from the launch date. Even though culturally Saudi and United Kingdom appears to be different on Hofstede dimensions especially in power distance and uncertainty avoidance. Our study concluded that neither of cultures are fully early adopter when it comes to purchase new smartphone. The factors which resist British smartphone users were:

- **There is lack of innovation within smartphones.**
- **Happy with current performance of their smartphone**

While reason behind Saudi smartphone users on not being early adopter were:

- **Saudi respondents prefer to wait and assess the feedback of other buyers regarding the performance of new smartphone.**
- **Saudi respondents prefer to wait for few months because of price drop.**

The findings of reasoning contribute to the knowledge that how different market behaves and assesses the early adoption. This should assist policy makers in smartphone industry to address these reasons in order to decrease the average replacement cycle of consumers all around the world regarding smartphone upgrades.

6.7 Final Verdict SAM

Based on the Finding in Chapter 5 and Discussion in Chapter 6, table 6.1 shows the final verdict on our original hypothesis of **SAM**. The graphical illustration of each hypothesis can be found in Appendix M, N, O, P, Q, R.1, R.2, S.

Original hypothesis	Validation	Final verdict
H1: High PU will have a direct positive influence on the behavioural intention to use new smartphones	**Supported**	*Our findings concluded that PU is relevant in smartphone industry. The reason why people use smartphones across both cultures is due to the benefit they offer. The higher the perceived usefulness, higher the BI to use smartphones.*
H2: PEOU will have a direct positive influence on the behavioural intention to use new smartphones	**Supported**	*Our findings concluded that PEOU is relevant in smartphone industry. Users across both cultures aged 18-34 currently find these smartphones easy to use and not complicated, which increases their BI to use.*
H3: SN will have a positive influence on users' BI to use smartphones	**Not Supported**	*Our findings concluded that SN did not have any substantial effect on Saudi smartphone users and no effect on British smartphone users. Both cultures heavily relied on 'online recommendation' as opposed to Friends/Family opinions when making decision about purchasing new smartphone.*
H4: PR will have a direct negative influence on BI to use new smartphone features	**Supported**	*Our findings concluded that PR is still one of the significant factors when it comes to resistance of innovation in smartphone industry.*
H5 Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals for new smartphone features	**Supported**	*Our findings confirmed that smartphone users from individualistic (UK) culture were more focused on PU, which resulted high intent to use. Conversely, users from collectivistic (Saudi) culture perceived less usefulness to these new innovations as compared to British users.*

H6a: High PD score, more effect of SN on BI to use new smartphones. Low PD Score, lower effect of SN on BI to use new smartphones **H6b: The relationship between PU and BI to use smartphone is moderated by PD value.**	**Supported** **Supported**	*Our findings confirmed that social influence only came into effect when societal differences were involved. Saudi Culture preferred Large screen smartphones due to the Social status, while British culture (Low PD) preferred large screen smartphones due to functional benefits. This confirmed that High PD cultures (Saudi) takes social environment into account when they need to demonstrate social status or send a message to environment.* *Secondly, Low PD cultures do not rely on others and use their own judgement which is based on usefulness and therefore it is feature oriented. On the contrary, high PD culture have a strong preference towards status brands than those with low power distance belief. Buying branded products can be a way of enhancing social status and therefore branding plays a significant part when purchasing new smartphone by Saudi users*
H7 The relationship between PR and BI to use is moderated by UA value	**Supported**	*Our findings confirmed that high UA culture (Saudi) perceived higher risk to M-shopping, as compared to Low UA culture (British). Saudi users' perceived risk overshadowed their perception of usefulness of this service. On the other hand, British users did not demonstrate any risk in context of m-shopping and found it useful.*

Table 6.1: Final Verdict on SAM (Author's own)

6.8 Summary Chapter 6

After extensive discussion of our findings and SAM conceptual framework, please find below table 6.2 which summarizes our key discussion points. The summary discussion is divided into 3 parts (*Motivation*, *Cultural Dimensions' Impact, Upgrading to New Smartphone and Behaviour*).

Motivation- Discussion Summary *Part 1*			
Our findings	**Previous literature/research**	**Findings Expected**	**Explanation**
The average **screen time** of British smartphone user was 5 hours, 28 minutes per day as opposed to 7 hours, 48 minutes by Saudi respondents.	• Code Computer love (2019) found that an average UK screen time is 3 hours and 23 minutes per day, and this rises considerably to 3 hours and 48 minutes for the aged group 16-24. • The study by Alosaimi (2016) found that majority (61%) of the 2367 participants (Saudi) spent at least 5 hours per day using their smartphones, whereas 27.2% spend more than 8 hours per day.	*Not expected*	Saudi users spend on average 2.3 hours more per day than British respondents. One of the reasons behind high screen time across both cultures could be 'timing of our research'. Our research was conducted during COVID-19, and there could be a possibility that individuals had more spare time due to lockdown.
Our findings identified that Saudi females used social media but did not post on Social networking sites due to **cultural/religious** reasons.	• The study by Al dossry (2012) and Al Raddawi (2014) found that Saudi society is still loyal to the Islamic religion as a fundamental doctrine, and not as westernized which affect their behaviour.	*Expected*	This comes back to the conservative nature of the Saudi society. Also, according to Hofstede, Saudi Arabia is a highly collectivistic society which means group opinion prevails over 'I'.

Our findings reported 86% of the British and 93% of the Saudi respondents listed **smartphone** as the most important electronical device.	• The following literature indicated that PU has a significant impact on BI: Davis, 1989; Igbaria et al., 1997; Venkatesh & Davis, 2000; Chau & Hu, 2002; Venkatesh & Balla, 2008; Al-Hujran & Al Dalahmeh, 2011	*Expected*	PU construct is still relevant across both culture and the reason behind high adoption of smartphones is due to high usefulness they offer. According to Saudi and British smartphone users, the significant reason behind high adoption of smartphone is down to: **Convenience and Multitasking**
Our findings indicated that smartphone is considered by significant majority as **ease of use** and **not complicated** across both cultures which impacts BI to use smartphone.	• The following literature indicated that PEOU has significant impact on BI: Aggelidis & Chatzoglou, 2009; Al-Hujran & Al-Dalahmeh, 2011; Croteau & Vieru, 2002; Davis, 1989; Venkatesh, 2000; Venkatesh & Balla, 2008; Hoque & Bao, 2015; Wu et al., 2008	*Expected*	One of the reasons behind overwhelming majority across both cultures viewing smartphones as 'easy to use' and not 'complicated' could be due to the age sample of our research (18-34). The literature indicates the younger generations are more likely to adapt to new technology as compared to older generation.
Cultural Dimensions' Impact- Discussion Summary Part2			
Our findings	**Previous literature/research**	**Findings Expected**	**Explanation**
British smartphone users aged 18-34 are significantly ahead when it comes to **M-shopping** (79%) as compared to 50% of the Saudi smartphone users.	• Mandler et al. (2018) suggested that mobile commerce services are negatively influenced by level of uncertainty avoidance • Dai and Palvia (2008) found that individuals from the culture with low uncertainty avoidance are more likely to accept new mobile services as compared to higher uncertainty avoidance cultures • Park and June 2003; Park et al., 2004 concluded that collectivistic cultures perceive higher risk with online shopping • Groß (2016) showed that risk perception towards mobile	*Partially*	One of the prime reasons for Saudi respondents to not fully adopt M-shopping was the perceived risk. Saudi respondents who even used M-shopping, even they preferred 'cash on delivery method' over online transaction. Our findings contradict with Mokhtar et al. (2020), but supports the findings from the study by Holmes, Byrne, and Rowley (2013). The reasons to adopt M-shopping by British smartphone users were 'convenience' and 'quick delivery' instead of 'price'.

	channels obstruct consumers from continuous m-shopping • Mokhtar et al. (2020) found price as the most significant factor which impacts the online shopping behaviour among young adults • Holmes, Byrne, and Rowley (2013) identified accessibility and convenience as determining factors by consumers in context of m-shopping		Overall, Saudi users (High UA culture) perceived higher risk of M-shopping which affected their adoption.
Our findings revealed that 57% of the UK and 36% of the Saudi users aged 18- 34 use **voice assistant** at least once a week	• Luger and Sellen, 2016; Cowan et al., 2017 examined the usefulness of Intelligent personal assistants (IPAs) and suggested that it is mostly used in situations where user is engaged in other activities like cooking, driving, and playing. • Cowan et al. (2017) have shown social embarrassment, consistency, and trust as one of the major obstacles behind using Intelligent Personal Assistant.	*Partially*	The significant reason behind using voice assistant by British respondents was responding to texts/calls during driving. This is in line with study by Luger and Sellen (2016) and Cowan et al. (2017). The prime reason for Saudi respondents not adopting Voice assistants was down to their perception for this technology – *'Viewed this technology for older smartphone users'*. No previous study has indicated this as obstacle. Overall, British users (Highly Individualistic culture) have a higher adoption rate because they perceive higher usefulness of this innovation as compared to Saudi (Highly collectivistic culture) smartphone users.
Two-thirds (64%) of UK and 42% of the Saudi users aged 18-34 use at least once a month **digital payment** method such as Apple Pay,	• Bamasak (2011) showed that there is a bright future of mobile payments in Saudi Arabia as most of the participants in the study	*Partially*	Reasons behind lack of adoption by Saudi smartphone users were: • **Low perceived benefit** • **Old habits**

Samsung Pay, or Google pay etc.	expressed willingness to use it in future • Rouibah (2015) found that major obstacle behind adoption of digital payments methods in Kuwait which is culturally comparable to Saudi Arabia were: high charges, low trust, and familiarity • Liu et al. (2012) concluded that digital wallet gave additional convenience to consumers in Canada by offering them flexibility and increased speed of transaction • Padashetty and Kishore (2013) found trust, ease of use, and expressiveness as motivators in India towards adoption of digital payments methods by consumers • Rathore (2016) identified that digital payment method was convenient for consumers when making a purchase online without moving across places.		This is partially in line with study of Rouibah (2015) regarding familiarity towards digital payments, but Saudi users did not indicate high charges or low trust as obstacle in digital payment context. The high adoption rate for Digital payments by British smartphone users was due to COVID-19, because users are using contactless ways more now and avoid cash handling. No previous study indicated the impact of COVID-19 on digital payments. Overall, Saudi users (Highly Collectivistic culture) have relatively a lower adoption rate because they perceive low usefulness of this innovation as compared to British (Highly Individualistic culture) smartphone users.
Upgrading to New Smartphones and Behaviour- Discussion Summary Part3			
Our findings	**Previous literature/research**	**Findings Expected**	**Explanation**
The most influential factor according to British smartphone users was **'Features'**, while **'Branding'** plays crucial	• Kim and Zhang (2014) concluded that countries with High power distance tends to have a strong preference towards status brands than those with low power distance belief. • Liao (2012) indicated that brand image is most important factor	*Expected*	Branding over features. 43% of the Saudi users viewed branding as the most influential factors towards decision making. The second most important factor was Price (29%). The third most influential factor was split between Social Influence (14%) and Features (14%). High power distance tends to have a strong preference towards status

part in the decision making of Saudi smartphone users	when purchasing smartphone for consumers in India • Alsulami (2018) concurs with our findings are points out that those Saudi consumers are more inclined towards international brands, and they are affected by brand name when making purchase • Malviya et al. (2013) concluded that brand name of mobile phone in India has a dominant impact on consumer evaluation and subsequently their buying decision of mobile phone		brands than those with low power distance belief. Buying branded products can be a way of enhancing social status and therefore branding plays a significant part when purchasing new smartphone by Saudi users. On the other hand, Features plays an integral part in UK consumer decision making with 50% of the respondent listing it as most influential factor. The second most influential factor is shared between Branding (21%) and Price (21%). The least influential factor was social influence (7%) according to British respondents. This confirms that cultures with low PD(UK) uses their own judgment instead of relying on other factors on basing decision. This confirms that users from Low PD culture emphasizes on the usefulness over anything.
71% of the Saudi and 43 % of the UK users have preference towards **large screen** phones (Phablets).	• Rau et al. (2015) which concluded that Chinese consumers prefers large screen smartphones due to prestige factor and German's respondents prefers large screen phones mainly due to for speed and battery life of large screen smartphone.	*Yes*	Our findings revealed that Saudi respondents' two main reasons on why they prefer large screen smartphone (Phablets) were: • **Social Status.** • **Functional benefits** Saudi respondent placed emphasis on large screen looks good and design being prominent among friends/office workers. The UK smartphone users' main reason behind large screen smartphones was exclusively: • **Functional Benefits** British respondents placed emphasis on things such as better batter life, working efficiently on a larger screen, better

			experience for watching videos on large screen. Overall High PD culture (Saudi) places emphasises on status goods and social desirability element, while low PD culture (UK) base their decision on usefulness.
57 % users in Saudi Arabia and 21% of British smartphone users aged 18- 34 **shared** their devices with their family members	• The study by Chen (2013) concluded that Taiwanese respondents which is highly collectivistic culture frequently shared their tablets as opposed to the U.S respondents which falls under individualistic culture	*Partially*	The reason behind UK respondent not sharing their smartphones was predominantly due to 'Privacy'. Even though majority of Saudi respondents shared device, but there was still a considerable 43% of the Saudi respondents who did not share their device. Saudi is a highly collectivistic culture but still a sizeable number of respondents expressed views which were close to individualism values like UK. This could be potentially due to culture being evolved due to several factors such as social media, westernization or our study being limited to age group of 18-34. Maybe a higher age group will have higher sharing rates of their devices because they might be closer to their cultural makeup.

Table 6.2: Summary Discussion (Author's own)

Chapter 7 Conclusion and Further research

7.1 Research overview

This study sets out to enrich the body of cross-cultural literature by exploring the perceptions and behaviours of British and Saudi smartphone users aged 18-34. Five specific research questions were asked in order to discover how innovation is viewed by Western vs Eastern culture group. Our research questions included: motivation behind using smartphone, cultural dimensions impact on behavioural intention, attitudes towards innovation, purchase intention behind upgrading, and reasons behind resistance of innovation cross culturally.

The study used Hofstede's cultural dimension model of national culture to investigate the cultural differences between UK and Saudi Arabia. The study adopted interpretivist approach and gathered qualitative data by conducting 28 in depth Semi-structured interviews (14 British participants and 14 Saudi participants) to evaluate the psychological behaviour of the consumers in the context of innovation.

Our study concluded that both adoption and resistance towards innovation within smartphone are driven to a varying extent by different cultural dimensions. Individualism/Collectivism, Uncertainty avoidance, Power distance, are the three dimensions which exhibited an impact on our findings and identified varied decision-making process by both cultures. Our study concluded that reasoning behind adoption and resistance by both cultures towards; Mobile commerce, Digital payments, Voice assistant, Large screen smartphones and Sharing of devices were different. This confirmed the interpretation and understanding of innovation changes based on cultural makeup.

The findings also showed that there was a convergence in perception regarding the level of innovation within last 5 years in smartphone industry. Our results showed that there was a consensus that there has not been a substantial and meaningful innovation in the industry recently. The study also found that there was a resentment towards smartphone companies launching smartphones every year across both cultures.

Despite limitations of the study, our study contributed to the body knowledge in several ways. This research developed an integrative model that combines both technology acceptance theories with cultural theory and apply at consumer level

within different cultural contexts. This research by developing **SAM** framework which combines TAM and Hofstede cultural dimension, tested the relevance of these theories in the current climate. In addition, our study showed the reasons behind adoption/resistance towards the emerging latest features which are being incorporated such as: Voice assistants, Digital payments, M-shopping etc. There is a limited knowledge on how these technologies will be perceived by people from all over the globe with different cultural backgrounds. The previous studies have been limited to 'what', while our study focused on the thinking process behind adoption or resistance towards these new features. Furthermore, there was scarcity in understanding of 'views, opinions, and beliefs'' of Western and Middle Eastern culture regarding innovation in smartphone industry. Our research provided an in-depth analysis in this area which was underdeveloped and provided opportunity for future researchers to apply the findings in different regions. Our study assisted *Policy makers, Smartphone brands, Product Designers, and Software developers* with a better understanding on how the latest innovations emerging in the industry such as **Artificial intelligence/Voice assistants**, **Digital Wallets, M-shopping** are being perceived in Western vs Eastern region.

7.2 Meeting the aim and objectives of thesis

The aim of the study was ''***to explore the impact of culture towards innovation in smartphone industry of consumers aged 18-34 from UK and Saudi Arabia***''.

The outcome of our aim was to support the ''***Policy makers, Software developers, Smartphone brands and Product designers operating in the smartphone industry to establish a better understanding of the factors which contributes or inhibits adoption of new smartphone features across contrasting cultures***''

In order to measure the fulfilment of the aim and objectives, the researcher revisited our **SAM** constructs, its effect on our study, and analysed the relevance of those effects within **smartphone industry**. Below is the table 7.1 which shows this in tabular format.

Smartphone adoption model (SAM) constructs	*Effect*	*Implications and relevance of SAM within smartphone industry*
Perceived usefulness	• Saudi users' perceived usefulness was low towards voice assistants in smartphones, therefore only 36% uses it. • In British context this construct was highly relevant because the focal point in their decision making was perceived usefulness (Feature oriented and focused on functional benefits)	Perceived usefulness remained to be the most significant factor in our model regarding adoption. It was clear that if a feature/service/innovation is viewed highly useful then it will be adopted especially in the context of British culture which is feature oriented and individualistic. The smartphone developers and international marketers when bringing out innovative features should emphasize more in highlighting the benefits on how it will improve one's life which will increase the perceived usefulness especially in the individualistic cultures.
Perceived ease of use	• Overwhelming majority across both cultures viewed new smartphones as easy to use and this contributed towards their intention to use	One of the prime reasons behind this could be our study focused on aged 18-34, which are technically more literate as per literature. Technology related devices being 'easy to use' is a model and a lesson for other tech related emerging industries such as **Virtual reality, Smartwatches, Augmented Reality, Smart glasses, Electric cars** to follow because this confirms that if the tech related product is easy to use and not complicated, it is likely to be adopted all over the world, not just developed regions. Our study showed similar perception of smartphones regarding ease of use in both parts of the world (Middle East and West). For smartphone companies, they should keep their new innovation and operating systems less complicated in order to sustain the mass global adoption.
Perceived Risk	• One of the main reasons behind Saudi smartphone users resisting Mobile shopping was perceived risk (financial risk).	Smartphone corporations in order to increase the adoption and decrease the resistance towards new services should devise **trust building campaigns** especially in Saudi culture where these services are relatively new, and suspicion is high (High Uncertainty Avoidance cultures). Perceived

		risk is more relevant in high UA cultures because individuals from those cultures prefer to avoid uncertainty and can be intolerant towards unorthodox ideas.
Subjective Norm	• Online reviews play the most influential part when deciding to purchase by British and Saudi users.	This is an interesting development from global industry perspective that online recommendations across both cultures remains to be more effective than ''**instore colleague**s'', ''**friends/family**'' recommendations. Our findings suggest smartphone companies to invest heavily on e- commerce side of business instead of stores. Smartphone users across both cultures spend more time on tech experts reviews than instore for their recommendations.
Individualism	• Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals for new smartphone features • Negative effects on social fabric according to Saudi users regarding high screen times on their smartphones	High adoption rate in individualistic culture and the PU had a stronger effect on them, while in collectivistic culture PU was not as relevant. This was the reason behind disparity among adoption of Voice assistants, Digital payment between British and Saudi culture. In addition, Smartphone brands needs to come up with **innovative screen lock features** which could be applied easily. Saudi smartphone users expressed resentment regarding overusing of their device because it is affecting the ''**social fabric**'' of society according to some. The corporations also need to work on their image and strive to be viewed as ''**proactive**'' and ''**serious**'' when it comes to limiting screen time for their users.
Power Distance	• 71% Saudi Smartphone users preferred large screen smartphone due to Social Status and Functional benefits, while British smartphone users preferred large screen smartphones just due to functional benefits.	This shows that people in high-power-distance culture prefers status goods more than those in low-power-distance contexts. In High PD cultures, the smartphones which will be viewed in the society as ''socially desirable'' or ''premium'' will likely have more success because it will serve the **''social status''** need. The advertisers and brand managers operating in High PD regions should emphasize more on the ''social desirability'' element of their

		smartphone to increase the revenue/profits.
Uncertainty avoidance (UA)	• 79% of British smartphone users admitted embracing M-shopping.	Cultures with low UA demonstrates more risk taking and are more willing to accept new services. Special attention is needed in cultures which are high in UA such as Saudi where more transparency and better communication by smartphone corporations are required regarding new services in order to increase the global adoption.

Table 7.1: SAM Constructs, Effect, and Relevance to smartphone industry (Author's own)

7.3 Key findings of thesis

The following sections will recapitulate the key findings of the study by revisiting the research questions and present it in British and Saudi context. Below is the table 7.2 which shows our key findings.

Research Questions	British Key findings	Saudi Key findings
1)How different are the **motivation** of UK and Saudi consumers behind using smartphone?	• *British users predominantly use smartphone for communication, followed by entertainment purposes* • *British smartphone users spend 5 hours, 28 minutes on average on their smartphone per day*	• *Saudi users use mainly for social media, followed by communication purposes.* • *Saudi smartphone users spend 7 hours, 48 minutes on average on their smartphone per day*
2) How do **cultural** dimensions (Individualism, Power distance, and Uncertainty avoidance) impact the behavioural intention of smartphone usage.	• *57% of British uses voice assistant once a week* • *64% uses digital payment* • *79% of British purchased something over last month using smartphone*	• *36% of Saudi uses voice assistants once a week* • *42% uses digital payment* • *50% of Saudi users purchased something over last month using smartphone*
3) How do UK and Saudi consumers perceive **innovation** within smartphone industry?	• *No substantial and meaningful innovation according to British smartphone users in last 5 years* • *Resentment towards smartphone companies launching smartphone every year because lack of trust towards big tech corporations and obsolete technology.*	• *No substantial and meaningful innovation according to Saudi smartphone users in last 5 years* • *Resentment towards smartphone companies launching smartphone every year because it devalues the current smartphone and lack of trust towards big tech corporations.*
4) Why consumers in UK and Saudi Arabia **upgrade** to new smartphone?	• *Our findings reported that main motivation factor behind upgrading smartphone by British users were 'Faster Processor',* • *British users reported 'Features' as the most influential factor when purchasing new smartphone*	• *Our findings reported that main motivation factor behind upgrading smartphone by Saudi users were 'Better Camera'.* • *Saudi users reported 'Branding' as the most influential factor when purchasing new smartphone*

5) How do UK and Saudi consumers **resist** innovation within smartphone industry?	• *Lack of perceived benefit (usefulness) plays critical role regarding rejecting new smartphone according to British respondents.*	• *Financial risk and Performance risk plays crucial role regarding rejecting new smartphone according to Saudi respondents.*

Table 7.2: Key findings (Author's own)

7.4 Research contribution and novelty

This study presents several contributions on several avenues within and outside the smartphone industry. To the best of author's knowledge, there has been no study which explored cultural impact within smartphone industry by comparing under researched 'Saudi Arabia' and western (UK) culture. Below are the several contributions of our research:

- Our study's novelty stems from the fact that there has been very little or no studies which incorporated innovation in the context of smartphone. By addressing this gap, the outcome is that it should open the doors for future researcher to explore *innovation* in other technological industries which share similar characteristics with smartphone industry such as **smart watch, virtual reality, augmented reality, electric cars, smart speakers etc**. Our study's contribution goes beyond just smartphone industry and will have spill over effects in other technology driven industries because our study discussed the perception of emerging phenomenon: **Artificial intelligence**.
- Our study is also quite novel because it developed **Smartphone Adoption Model** (SAM) which not only just took into account adoption factors (PU, PEOU), but also included resistance factor (PR), and cultural factors (IND, PD, UA). To our knowledge there has been no study which developed a comprehensive model and applied in western vs eastern region.
- Our study indicated that the adoption rate towards new smartphone features such as **voice assistants**, **digital payments**, **m-shopping** is more favourable in UK as compared to Saudi Arabia. This provides an opportunity for smartphone corporation (Apple, Samsung, Huawei), software developers, international marketing managers to better understand on how their innovation is being perceived and why there are disparities in adoption rates

across cultures. Our findings and discussion chapter provided a detailed explanation behind every adoption and resistance, which gives smartphone manufacturers an opportunity to address them.

- Our study also confirmed that TAM constructs (**PU, PEOU**) are still relevant, even in today's day and age and significant even with latest innovation like Siri, Bixby: Apple pay, Samsung Pay. In addition, our study also confirmed the effect of Perceived risk as one of the top resistance factors. This is crucial for user experience designers when developing new services for consumers around the world.
- Our study confirmed cultural effect (*Testing relevance of Hofstede's work*) and contributed towards the growing body of literature. Our study pinpointed the effect of cultural dimensions within TAM model and therefore assisted in providing a better understanding of the role of culture in current climate in context of smartphone industry. In addition, our study also compared cultures (UK vs Saudi Arabia) which were not just different culturally, but also in terms of language, religion, and geographic region. Our review of literature showed that majority of cross-cultural studies within smartphone industry were comparing cultures which were similar or in same continent. The outcome of this novelty will encourage other researchers to conduct consumer oriented cross-cultural studies which are in contrasting regions such as *African culture vs Asian* culture or *European culture vs Latin culture*.
- One of the most important contribution of our study is that our research produced a qualitative, rich, textual information instead of numbers, which depicted the clear image of the psychology of consumer's mind. To our knowledge there are no present studies which compared underlying motivations of an Arab country vs European country in qualitative exploratory nature. This approach provided layered information about British and Saudi perception on latest smartphone innovation and emphasized **Why** and **How.**
- Our study confirmed that upgrading life cycle are increasing across both cultures. The study contributed by providing detailed reasoning on the reasons behind consumers on delaying their upgrade. This provides an opportunity for smartphone corporations to address this as soon as possible.

- Our study also provided a new definition of ‘’**innovation**’’ which is in context of smartphone industry (See Figure 2.7). The researcher reviewed extensive literature (Table 2.1) which reviewed innovation definitions from 1953-2020. The researcher also developed ‘’**innovation spider''** (See Figure 2.6) which illustrates the 8 common themes by reviewing definitions from 1953-2020. This innovation spider provides opportunity for other researchers to use this and develop their own definition of innovation based on the context of industry

Below is the Figure 7.1 which illustrates our contributions graphically for our research.

Figure 7.1: Research contributions (Author's own)

7.5 Research implications

As established in the earlier section that our study has several contributions. This study also presents several implications which are in context of theory and practical.

7.5.1 Implications to Theory

Based on the findings from the literature and results of the current study there were emerging factors which were missing in previous cultural frameworks. Our findings confirmed as per previous research that cultural differences exist and affects the consumer behaviour. The 6-dimension model of national culture by Hofstede explains the difference based on various dimensions. Hofstede's framework has been one of the best and widely cited pieces of work in cross cultural studies. Our findings appeared to show that Saudi culture is deeply rooted to its Islamic origin, however there were signs of 'westernization'. Our findings revealed word map of both British and Saudi respondents regarding the word ''innovation''. Our study found that Saudi respondents associated innovation with words such as ''American/western''. Furthermore, one of our findings reported that 57% of the Saudi smartphone users share their device with their family. Although this showed the values of collectivism dictating the behaviour, however there was still a sizeable 43% of respondents which did not prefer to share their device due to privacy. This may indicate that the cultural values are shifting or changing. The literature showed that Saudi Society has one of highest social media penetration and sites like Facebook and Instagram are experiencing double digit growth in recent years. Saudi Arabia also has the highest per capita Twitter users around the world and one of the highest video consumptions on YouTube per capita around the world. Our findings raise a question mark on previous cultural frameworks such as: *Hofstede 1980, 2001, 2010; Schwartz 1992; Trompenaars 1994; House et al., 2004*.

- **How do you measure intangible shift or effect on values by emergence of Social Media?**

Hofstede's work and many other scholars regarding culture has been conducted before the emergence of the Social media. There is little known about how it has an effect on one's cultural makeup. Majority of the established cultural frameworks in previous literature such as Hofstede 1980, 2001, 2010; Schwartz 1992; Trompenaars 1994; House et al., 2004, have not taken into the account Social

Media's contribution towards global convergence. More studies and revisions on the cultural frameworks may be needed and more emphasis may be required on measuring the shifts in values. The theoretical frameworks need to focus on below:

- **The integration of cultures can result a negotiated culture. A negotiated culture which is multi-layered, multi dimension and multi value oriented.**

In addition, our study included sample from participants aged 18-34. If the future study compares the cross-cultural behaviour of British and Saudi sample aged 45+. Will there be different findings as compared to current study? If this happens, then cultural frameworks will also need to also revise and include the effect of age towards its cultural values. It raises the question mark on the cultural theoretical frameworks that:

- **For example: British individual who is 18 years old, and a British individual who is 45+ years old. Are they both equally individualistic? Or one is more individualistic than another?**

Based on the above, the researcher identified **Age** and **Social media** as potential moderators which may affect the cultural dimensions. Below is the figure 7.2 which illustrates on how our theoretical implications have inspired and raised question on the cultural dimensions via **SAM** model. Our **SAM** confirmed the moderating effect of culture on the constructs; however, it raises the question that what factors can affect the moderators.

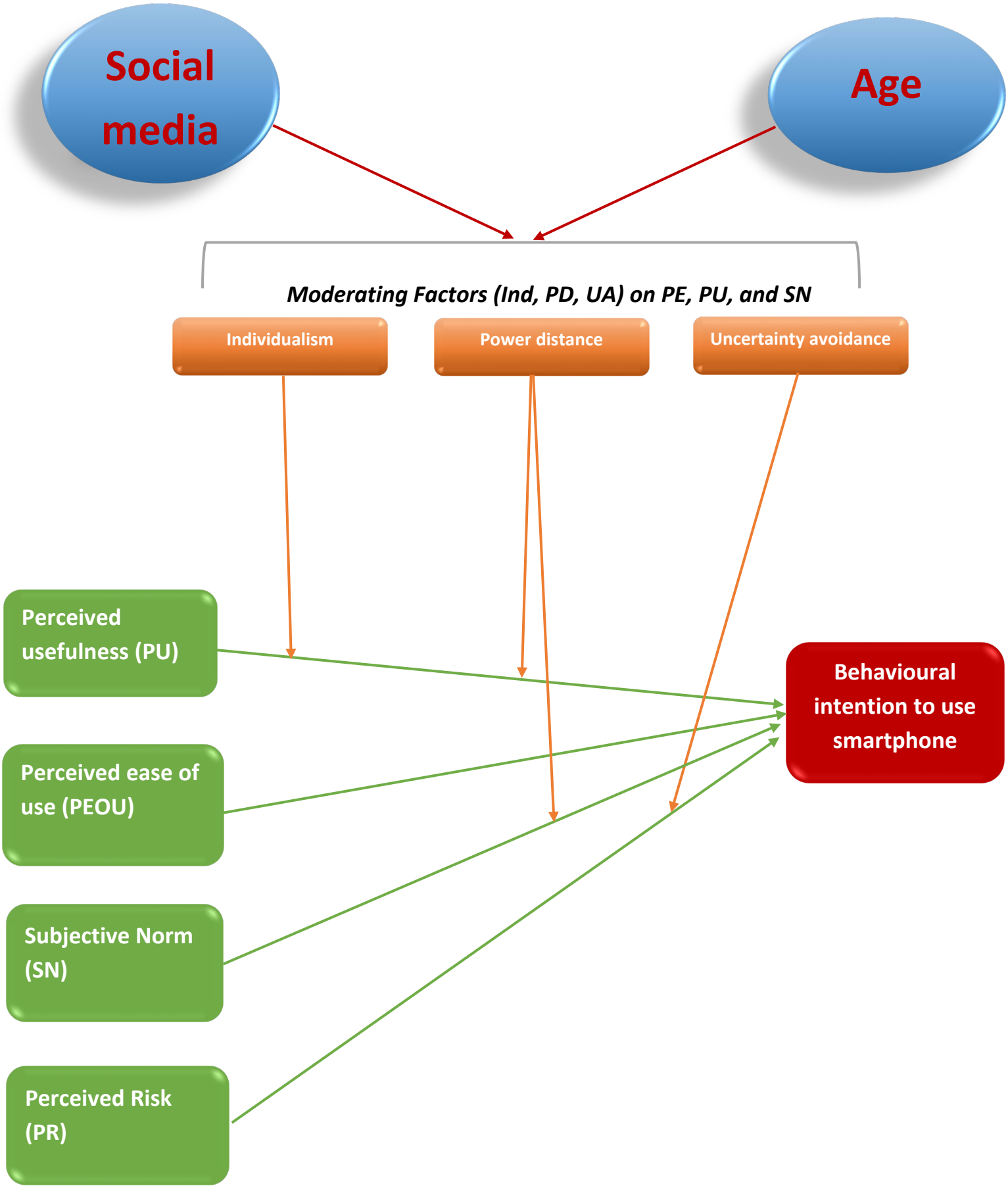

Figure 7.2: Age and Social media effect on Cultural dimensions (Author's own)

In addition, our study encourages cross cultural scholars to revisit the current cultural frameworks and explore the impact of **Social media** and **Age** on the values of culture. Research by McCoy, Galletta, & King (2005) also supports the notion and argues that shift may have occurred over the last 30 years in cultural values and those assumptions based on Hofstede's work may be questionable. Please see the Appendix T for Author's claim on Hofstede's dimension. To further elaborate on our claim, below is the Figure 7.3 which explains author's view.

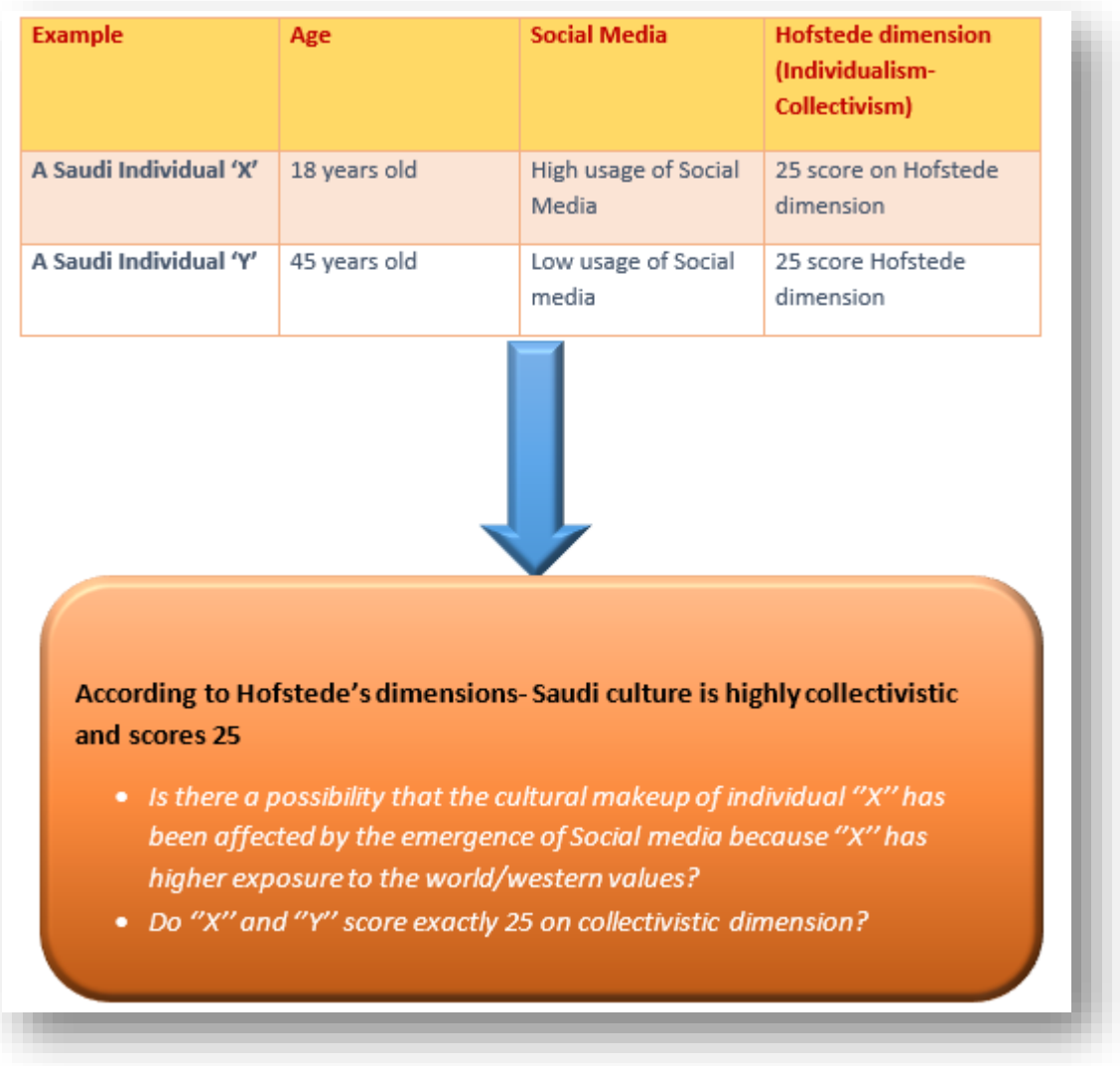

Figure 7.3: Author's question on Hofstede's dimensions (Author's own)

7.5.2 Implications to Practice/Managers

Secondly, our research has also presented several practical implications to policy makers in the smartphone industry, international marketing managers, and smartphone corporations.

Smartphone is a billion-dollar industry, and according to Statista the global revenue of smartphone industry in 2020 would amount to $409.1 billion (Statista, 2020). In addition, according to one of the latest projections, there will be 6 billion devices in circulation by 2020 (Kharpal, 2017). Smartphone industry is huge and brands operating in the industry are facing increased competition. Growth of smartphone market is heavily dependent on replacing existing phones. An average replacement of a smartphone according to Statista (2017) around the world is 28.1 months. Our findings have revealed that across both cultures there has been a resentment towards smartphone companies launching their model every year. There was also a congruence between perceptions when asked regarding how the participants view the level of innovation in smartphone industry within in last 5 years. There was an agreement across both cultures that:

- **There has not been a substantial and meaningful innovation in last 5 years.**

The smartphone users from both cultures agreed that there have been some improvements in areas such as: **5G**, **Design**, **Artificial Intelligence**, **Camera**, **Processor**, and **Battery**. The mutual reason behind resentment was lack of trust towards big tech corporations. Several respondents from both cultures perceived this as money making activity or a marketing tactic for businesses to reap profits.

By looking at our findings it appears that upgrade cycle of smartphone will increase, and consumer will persist to hold on to their current phone due to lack of innovation by smartphone manufacturers or trust towards smartphone them. If this trend persists across the world, it will send shockwaves to the bottom line of the smartphone corporations This can be further explained through an example of one of the biggest corporations operating in smartphone industry: ‘’**Apple**’’. Below is the figure 7.4 which illustrates the iPhone revenue as a percentage of Apple’s total revenue. It can be seen that 60% of the total revenue of Apple comes alone from its smartphone division. Our findings are reporting that the average cycle of replacing

the phone will increase, which means less people will buy new phones and more people will hold on to their current smartphones. This can have massive impact not just in the smartphone division, but across the whole business operation of Apple. The biggest question for smartphone companies is:

- **How can smartphone corporations push or entice smartphone users across the world to keep replacing/upgrading their phones year on year?**

The feature-oriented users' needs to be convinced that they need a new smartphone because of a new emerging feature or a service which adds novel value to the end user. The users need to be persuaded that this is the 'next big thing' and there is a tangible breakthrough in the market. Our findings reported that British respondents are 'Feature' oriented and one of the reasons why they are not fully early adopters in the smartphone industry is because they are not perceiving usefulness of the new smartphones. Companies such as Samsung and Apple need to spend more budget on Research and development. Currently, Apple spends $11.6 Billion, and Samsung spent $15.3 billion in research and development in 2018. This means Apple is only spending 5.1% of its revenue, while Samsung is spending 6.8% of its revenue on research and development (Dewitt, 2019).

This part of discussion adds to body of the knowledge that the perception of innovation in smartphone industry within last 5 years have been similar in Middle Eastern and Western culture. The smartphone corporations would need to work heavily on research and development and need to have a breakthrough in terms on innovation. In addition, smartphone corporations are in need to work on their perception of ''money making activities'' in mind of consumers. If these two ideas continue across the world, then there could be a decline in the overall sales revenue of smartphones which could affect the overall degree of innovation in the industry. People will hold on to their smartphones for long before they upgrade to a new one.

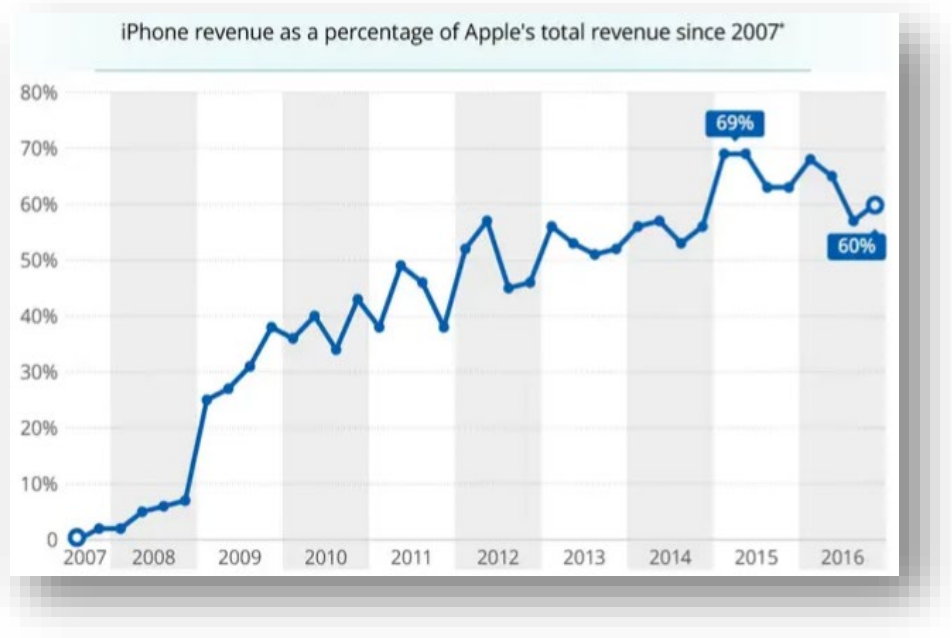

Figure 7.4: iPhone revenue as a percentage of Apple's total revenue since 2007 (Kim, 2017)

From a managerial perspective, our insights show that smartphone corporations, advertisers, hardware/software manufacturers should take into account cultural dimensions when incorporating new features in smartphones. Our study showed that interpretation and perception of things such as voice assistants, digital payments, m-shopping varied across the culture. It is quite interesting that more is being spent on innovation by corporations, but less is being spent on understanding what works for what market.

Our findings revealed that Saudi users spend on average 2.3 hours more per day than British respondents. The average screen time of British smartphone user was 328 minutes per day as opposed to 468 minutes by Saudi respondents. The reported screen time was higher than previous research and surveys and one of the reasons could be due to the research being conducted during COVID-19 and people aged 18-34 all around the world has more spare time. In addition, our findings also reported a difference of view regarding overusing of smartphone. The British reported higher rates of admitting and awareness of higher screen times, while Saudi participants reported that they do not view that they are overusing their smartphone.

This adds to the body of knowledge for marketers from smartphone companies such as Apple and Samsung, who should raise awareness on this matter in the Middle

Eastern cultures. More education, communication, and in device easy to use features are required which will assist consumers across the world to limit screen time and be aware of potential hazard of overusing. Reducing the over usage of screen time should be part of ethical responsibility by smartphone companies.

Our results regarding adoption and resistance towards various new features showed interesting trends which disregards and also supports previous literature.

The digital payment adoption rates were significantly higher among British respondents than Saudi respondents. One of the leading reasons behind adopting was COVID-19. This finding shows the benefit of the qualitative data because previous literature does not offer any insight about pandemic impacting the adoption of innovation.

In addition, Saudi respondents reported higher preference towards large screen smartphones than British and one of the reasons emerged was due to Social status. The participants from Saudi placed emphasis on 'Design', 'Making a statement', 'Visually appealing'' when talking about large screen smartphones (Phablets). The British respondents who preferred large screen smartphones were mainly due to 'Functional benefits. Saudi Arabia scores High on Power distance with the score of 95, while United Kingdom scores 35. This is in line with previous literature, the study by Kim and Zhang (2014) shown that people in high-power-distance contexts prefer status goods more than those in low-power-distance contexts. In addition, our findings are also aligned with a previous cross cultural study Rau et al. (2015) which concluded that Chinese consumers prefers large screen smartphones due to prestige factor and German respondents prefers large screen phones mainly due to for speed and battery life of large screen smartphone. Chinese culture scores high on power distance (80) dimension like Saudi Arabia (95). German and United Kingdom both scores (35) in Power distance dimension. This concludes that Saudi smartphone users perceive large screen phones socially desirable as opposed to British consumers who solely perceives them as better functionally. These findings expand on the existing knowledge in the context that even though China and Saudi Arabia are different countries in many ways, languages, values, norms etc. They still exhibited the similar behaviour due to Power distance dimension on Hofstede's model. Similarly, UK and Germany also have several differences such as: economic

structure, language, history etc. They still exhibited similar behaviour and preference towards functional benefits. International marketers should adapt their advertising and focus regarding large screen smartphones across the cultures. Based on our findings and previous literature, more feature-oriented advertisement will appeal to British, while lifestyle advertisements will appeal to Saudi smartphone users.

Our findings also suggested that British smartphone use voice assistants on their smartphone more than Saudi users. The low adoption rate was down to the perception of voice assistants as being for older generation by Saudi respondents. The users from British who did not use voice assistant was due to gap in expectation vs actual performance. This shows that smartphone companies need to work towards voice assistant category and on any other feature which incorporates artificial intelligence. It needs to improve the performance level of the technology and its' perceived positioning in the mind of consumers. Some Saudi respondents were not happy with voice assistant not detecting their accent of English and some Saudi respondents viewed this feature only useful for older consumers.

Similarly, about two thirds of the British respondents admitted to purchased something from their smartphone (M-shopping), as compared to 50% of the Saudi respondents. The reasoning for resistance was significantly higher in Saudi as compared to British respondents, and their reasonings were different as well. The major reason behind Saudi respondents showing reluctance were: Poor experience, Lack of touch feel factor, Lack of trust. High UA culture normally perceives higher risk associated with online shopping than Low UA culture (Park and Jun 2003; Park et al. 2004; Mandler et al., 2018; Dai and Palvia, 2008). According to Hofstede (2005) Saudi Arabian culture scores 85 under uncertainty avoidance dimension, while UK scores 35. This concludes the disparity in adoption across both cultures.

The findings and in-depth reasoning layer by layer behind adoption and rejection of technologies were possible in our research due to explorative qualitative nature of study. The traditional cross cultural quantitative study would have been limited in grasping the in-depth reasoning and psychology of consumer's mind set. The marketing managers can focus on the resistance/adoption factors and try to overcome and change the consumer behaviour based on the culture.

Our findings reported that majority British smartphone users expressed concerns and risks attached to innovation in smartphone, while 64% Saudi respondents expressed comfort towards future innovation when asked if participants view any potential risk attached to these latest features and innovation in smartphone industry. This disregards with previous studies by Trepte et al. (2017) which explained that countries with high uncertainty avoidance and collectivism tend to pose greater emphasis on privacy issues and research by Hofstede (2005) which suggested that low uncertainty avoidance culture (UK) demonstrates risk-taking and ease with unknown, while countries who score higher (Saudi Arabia) are hesitant towards new information and unknown. This was interesting to find, and it adds to the body of knowledge that Saud respondents did not view much of risks when talking about innovations theoretically but practically when using new innovations there was resistance (m-shopping). British respondents' main concerns were of Data Privacy and Hacking issues. The respondents mentioned that with the emergence of Artificial intelligence like voice assistant and digital payments, the amount of personal and sensitive information our smartphone has is concerning. The smartphone companies like Apple and Samsung should design a sustained- long term campaign which will address these risks and concerns by consumers especially in western society. For example, Apple has increased its advertising budget by 50 % from 2014 to 2015. Apple spends $1.8 Billion globally in its advertising alone as per its annual reports (Spanier, 2015). The $600 million increase, for the year ending Sept. 26, was six times larger than the $100 million rise seen a year earlier. There has not been any insight on what proportion of that advertising budget is spent on promotion of new smartphone models vs education about transparency issues.

7.6 Research Limitations

As with most studies, this research had number of limitations. Firstly, the current study conducted during the pandemic which pushed face to face semi structured interviews into skype interviews. Another limitation was the qualitative nature of the study which affects the sample size and generalizability. However, our research was explorative and focused on 'why 'rather 'what' and compared two opposing cultures as per Hofstede's model of national culture. Payne and Williams (2005) concluded that qualitative research provides thicker understanding about process, social life, and patterns of behaviour, which could be applied potentially in different settings.

Some of the findings can provide inspiration for other researchers and international marketers to start exploring innovation perception across the world. Another limitation is using Hofstede's model to understand the cultural differences. Some may argue that this model has been outdated and instead use the recent cultural frameworks such as Schwartz theory (1992) or GLOBE framework (House et al. 2004). However, after reviewing the technology acceptance literature, it was found that Hofstede's dimension to this date remains the most used model especially when extending any technology acceptance model (See- Table 3.1). Moreover, another limitation was language and form of expression by Saudi participants. This limitation was minimized by researcher to provide translation of semi structured interview beforehand and adapt the communication accordingly due to researcher being multilingual (Fluency in English and Arabic both). In addition, the interviews were one on one via online (Skype), however one of the problems raised when some of the Saudi Female respondents asked their partner (Husband) to accompany them during the interview. This was because, some of the Saudi female respondents felt more comfortable and willing to take part in the research when accompanied by their Husband. The researcher made sure that every effort is made to enhance the level of comfort, because this led to a pro longed discussions and helped really understand the multi-layered, complex issues such as ***Artificial intelligence***, ***Innovation***, ***Cultural Impact*** etc.

7.7 Future research recommendations

Based on our findings and discussion, it appears that cross cultural research is a crucial line of enquiry given that the study identified the cultural differences between Saudi and UK smartphone users. The future studies when comparing Eastern and Western cultures can adopt a mixed method approach which will increase the sample size and representation. Although generalizability was not the aim of this research, but the future studies could utilise the findings from this to design a random survey to increase the population sample. In addition, some gender differences were revealed regarding smartphone usage behaviour. It may be important for international marketers and smartphone corporations to explore gender differences in decision making and how they perceive innovation within smartphones. There have been previously studies done which showed female tend

to be more addicted to social media, while male users are more addicted to gaming (Andreassen et al., 2016).

Furthermore, our **SAM** model (Figure 3.1) could be applied in different regions to understand thought process regarding innovation in smartphone industry such as Smartphone users from *African region* vs Smartphone users from *Europe*an *region*, or future researcher can explore rural smartphone users vs urban smartphone users in context of innovation within smartphone industry. In addition, future research could also conduct explorative cross-cultural studies in emerging technologies which share similar characteristic to a smartphone industry such as **Smart watches**, **Voice assistant speakers**, **Virtual reality**, **Augmented reality headsets, Electric cars** etc. This will be an interesting line of enquiry because it will give an insight on how people across cultures currently perceive new technologies especially which incorporates **Artificial intelligence**. Moreover, future research could also explore cross cultural attitudes towards innovation with an older age group and examine their perception of innovation. In addition, as identified earlier (Appendix T) our study also encourages cross cultural researchers to revisit the current cultural frameworks (Hofstede, Schwartz, Globe) and explore if the emergence of social media had any effect on the cultural values and examine if there has been any shift in core cultural makeup of society.

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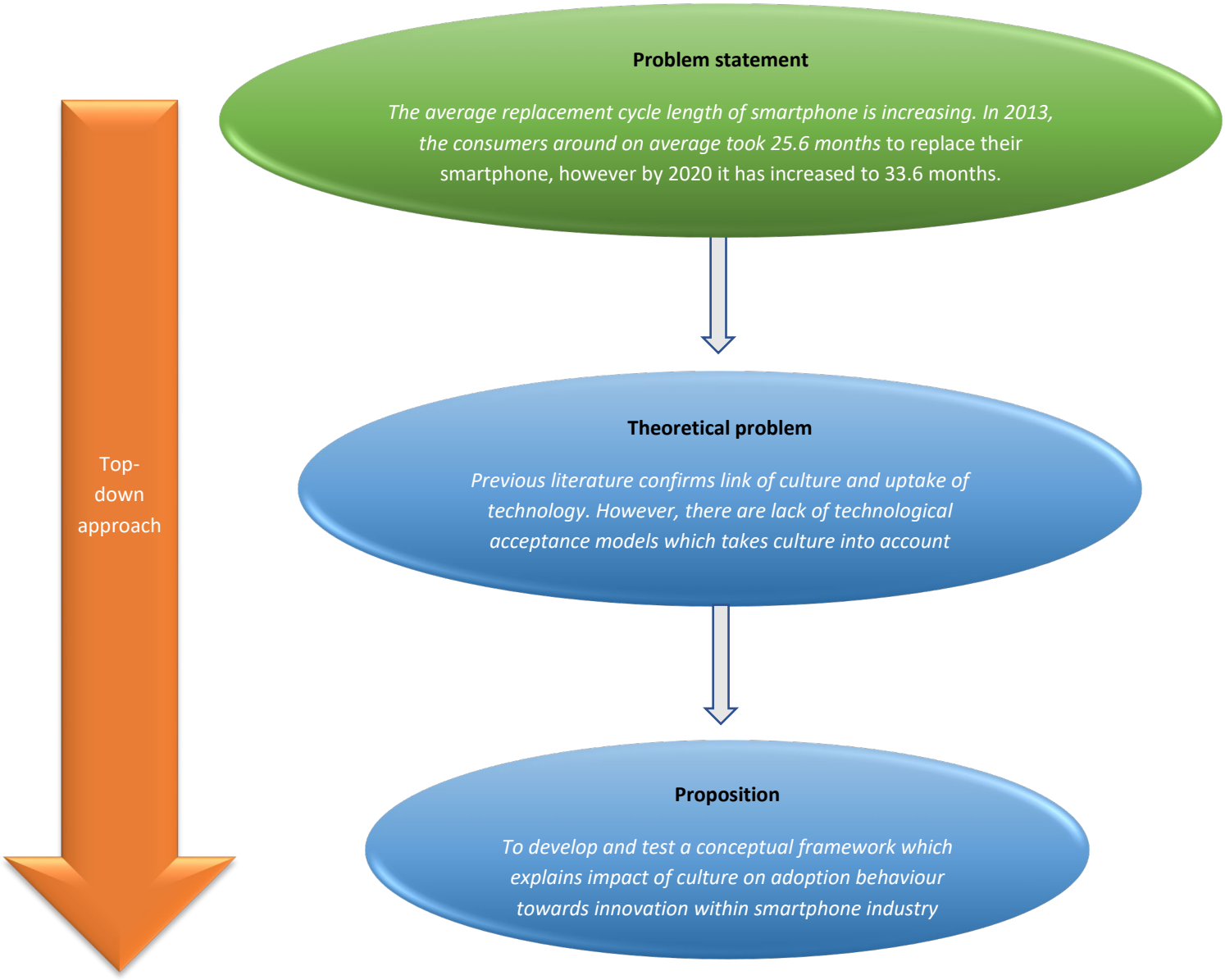
Appendix A: Problem Statement

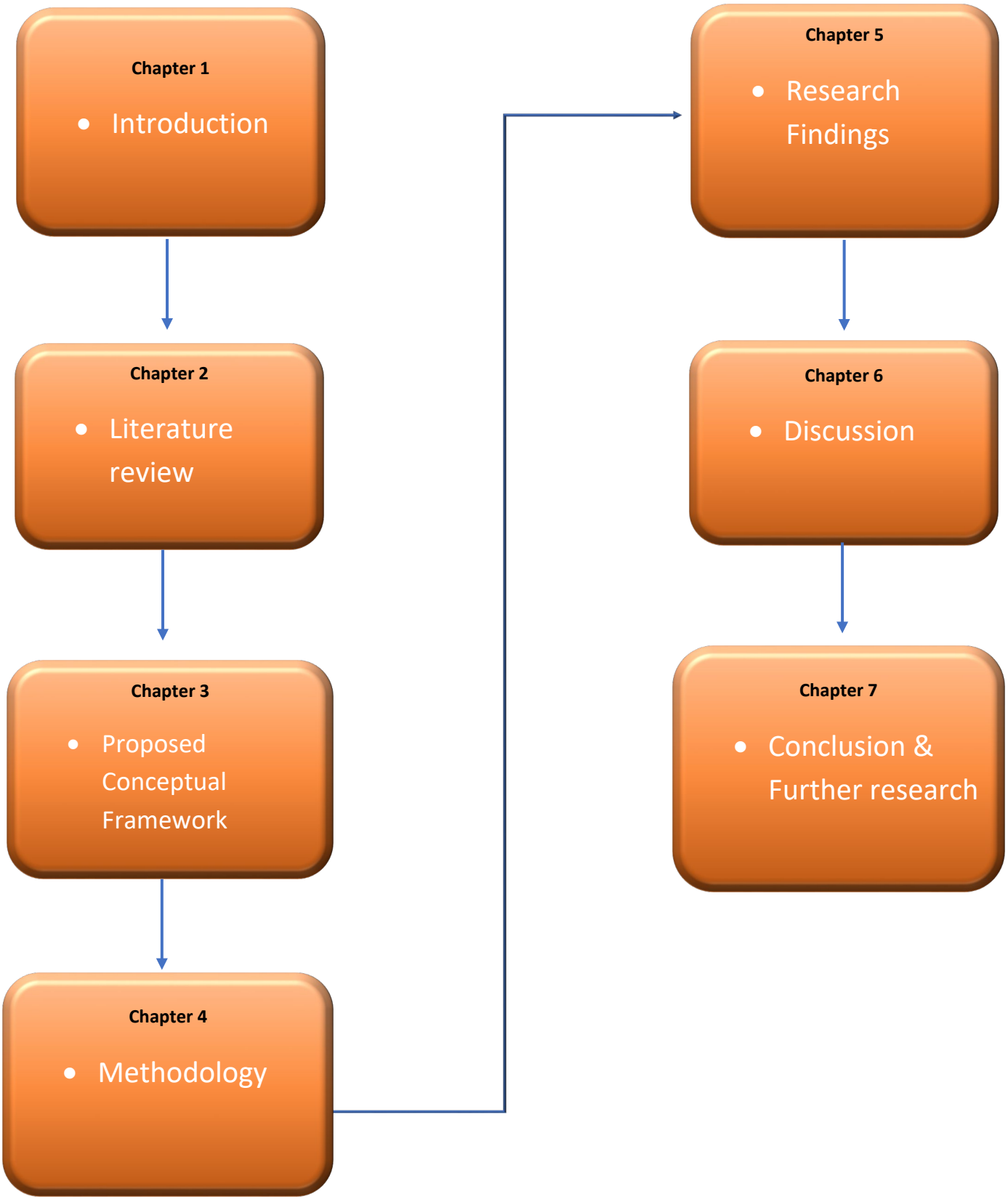


Appendix B: Gap in research

Authors	*Study outline*	*Deficiency of previous studies*
Al Mahfud (2014)	Conducted cross cultural study between Saudi and USA regarding usage of smartphone in learning between undergraduate students	The study was quantitative in nature and the researcher of this study directed future researchers to include interviews to better understand the perceptions of USA and Saudi smartphone users.
Akthar et al. (2018)	Investigating the moderating role of uncertainty avoidance on mobile banking adoption	The study was quantitative in nature and conducted a cross cultural (Pakistan vs China) on mobile banking adoption. The research lacked a ''how ''and ''why'' on the factors contributing towards adoption. In addition, the study was limited to one particular service and did not take smartphone as a whole into account.
Alfawareh and Jusoh (2017)	Investigated the use and effect of smartphone at Najran university in Saudi Arabia	The study was quantitative in nature and lacked in-depth insight of Saudi behaviour towards smartphone. The research did not answer ''how'' and ''why'' of Saudi smartphone users. The study also did not discussed innovation within smartphone industry in Saudi Arabia.
Apaci et al. (2015)	Conducted cross cultural analysis of smartphone adoption by organisations of Turkey and Canada	The study focused on examining the behaviour on private sector rather than consumer behaviour and study was limited to middle-upper management level and also organisational culture was taken into consideration.
Chen (2013)	Examined United States and Taiwan's tablet adoption attitude. The study was focused on comparing family behaviours regarding how they share their tablets by using ethnographic method.	The study did not explore the ''innovation'' element of tablets between cultures and offered no insight on how American and Taiwanese consumers perceive new features in Tablets, or what is their decision-making process when purchasing new Tablet.
Fullwood et al. (2017)	Conducted a qualitative analysis of smartphone users in UK by using focus groups comprising of 18 participants.	The study explored the degree of attachment UK smartphone users have with their smartphones. The study was limited within one setting and the researcher encouraged future studies to explore this phenomenon in a different setting such as in different culture.

Iqbal and Bhatti (2020)	Explored teacher's perspective on using smartphone in higher education for developing countries	The study recruited 22 participants for semi structured interviews. The study concluded that smartphone is useful for learning purposes, however, can be a source of distraction for students. The researcher directed future studies to explore this perception of faculty members in cross cultural setting and compare the findings.
Li and Lin (2019)	Conducted qualitative explorative study on Chinese consumers regarding smartphone addiction	The study was not cross cultural and had little insight on how Chinese consumers perceive innovation in their smartphones.
Peng et al. (2016)	Conducted qualitative study to explore the perception towards ''mobile health apps''. The study used focus groups and interviews to determine the design elements of the mobile apps in the eyes of users in Midwest region of US	The study did not had insight on the overall usage of smartphones among US users and not all participants recruited in study had a health app installed on their smartphone.
Steers et al. (2008)	Analysed the relationship between South Korea and Brazil regarding adopting new technologies	The research lacked being specific because it focused on technologies as overall rather than any particular industry of technology such as smartphones, gaming, tablets etc.
Walsh et al. (2008)	Explored problematic usage of mobile phone among Australian youth using focus groups with 32 participants	The study was focused on the psychological addiction aspect of mobile phones and had little insight on the overall behavioural usage of mobile phone. In addition, the study had no insight on innovation element within smartphones and decision-making process during purchase.
Yang et al. (2018)	Explored on the differences between British and Chinese students' smartphone usage.	The study was limited to undergraduate students and focused on problematic smartphone usage between British and Chinese students. In addition, different qualitative methods were applied which may have caused inconsistencies in data collection; Chinese students were interviewed, while British students were provided with questionnaire.

Appendix C: Thesis outline



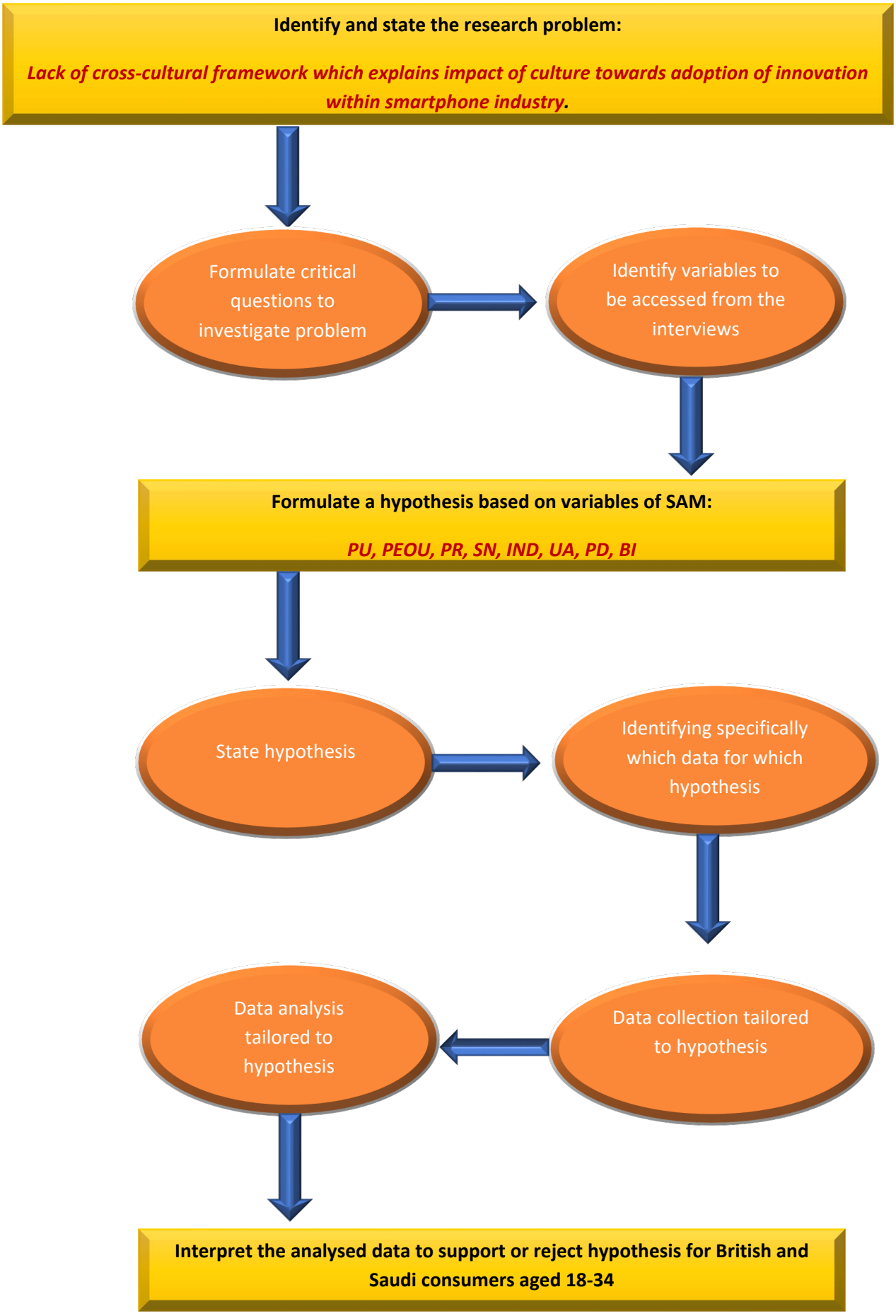
Appendix D: Summary of Theories which underpins our research

Theories	*Relevance to our study*	*Explanation*
Hofstede's Cultural Dimensions Theory	Below constructs used in our conceptual framework **SAM**: • Individualism • Power Distance • Uncertainty Avoidance	This theory was used in our research as a foundation for cultural understanding and therefore assisted in development of our conceptual framework (**SAM**)
TAM (1989)	Below constructs were used in our conceptual framework **SAM** and are derived from TAM: • PU • PEOU • BI	This theory was used as a baseline for technology acceptance. The reasons to use this was due to its' reliability, simplicity, and widescale applicability. In addition, it has been successfully applied in smartphone related studies (See table 2.3) Furthermore, this theory also assisted researcher in developing questions for Semi Structured Interview guide. Below is the example of one of the questions which is related to **PU**: ***How useful do you find features such as Apple Pay, Samsung Pay, Google pay or any other phone wallet mode? How often you use them? Probe further, why do you use them or not use?***
Sheth Model (1981)	The PR construct is derived from Sheth model (1981) for our **SAM** conceptual Framework.	The PR construct was added to incorporate the resistance element in our adoption model. In addition, this theory also helped developed our questions which were related with resistance for our semi structured interview guide
RAM Model (1987)	This theory assisted researcher to understand consumer resistance in more detail and also assisted in developing questions	Below is the example of one of the questions which was inspired by this theory for our Semi Structured interview guide:

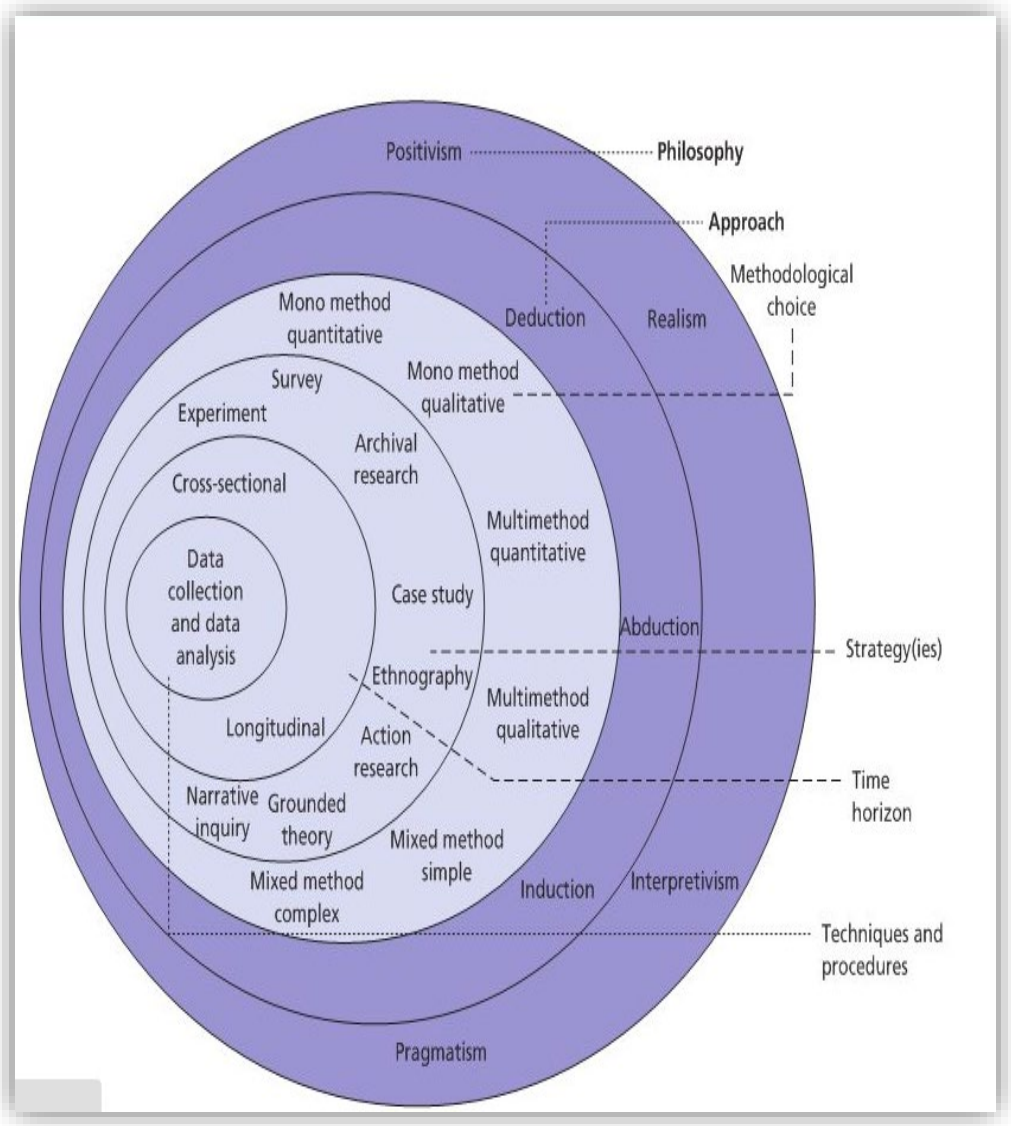
		Do you see any risks attached to these innovation features in your smartphone?
TRA (1975)	The SN construct was derived from TRA for our **SAM** Model. Moreover, it also helped developed questions for our Semi Structured interview guide.	The SN construct was added to incorporate the environmental impact in our adoption model. Also, it assisted the researcher to develop questions for our Semi Structured interview. Below is the example of one of our questions from semi structured interview: ***Where do you look for recommendations when you buy new smartphone (Online reviews, Friends and Family, Instore salesperson, Brand website, Social Media) Why?***
TBP (1975)	This model is the extension of TRA and was reviewed in our literature to understand and confirm the role of intention on actual behaviour.	This theory assisted researcher in confirming that behaviour of individuals is determined by intention.
Berlyne Theory (1960)	This theory is used predominantly for researcher's own understanding of newness and the cognitive psychology behind it.	This theory inspired the researcher to deep dive into the psychology of human behaviour and developed questions which were linked to the psychology of consumer brain Below is the example of one of the questions which was inspired by this theory: ***First few words come into your mind when you hear the word ''innovation''. Probe further, Why and How these words came into your mind?***
DOI (2003)	This theory used for development of questions for Semi Structured interview guide	The researcher used this theory, specifically for the concept of early adoption and late majority. Below is the example of one of our questions from Semi Structured interview guide

		Do you wait for other people to get smartphone first and then purchase or you prefer to buy as early as possible? Discuss views about early adopting?
UTUAT Model (2003)	This theory was used by researcher to compare with it with TAM and decide which is more suitable for our study	Table 2.4 presented literature which used UTUAT model in smartphone related studies and Table 2.3 presented literature which used TAM model in smartphone related studies. This helped researcher to better understand different technology adoption models and chose which is the right fit for the context of study.
Kano Model (1984)	This theory used by researcher for developing questions which were related to features.	Kano model emphasises on what features are classified as attractive, must be, reverse attributes Below is the example of one of the questions which was inspired by this theory for our Semi Structured interview guide: ***What is your main motivation behind upgrading your smartphone from following options? (Faster processor, Better camera, Improved Battery life, More Memory, New design/colour, Bored of current phone, Faster charging, it is just cool to upgrade, 5G etc). Probe further why?***

Appendix E: Qualitative research hypothesis formulation



Appendix F: Research Onion



Appendix G: Semi Structured Interview Guide

Warm-up questions

- *What do you do (e.g., **Banker, Salesperson, Teacher, Student, Trainer**…)?*
- *When was the last time you purchased a smartphone for yourself?*
- *What is your daily average smartphone usage in hours?*
- *Which electronic devices are most important to you? (**Laptop, Smartphone, Gaming Console, Tablet, Personal Computer, Kindle, etc**)? Why?*

Motivation behind using smartphones

- *What are you 3 most used apps in your smartphone? For what purpose do you use your smartphone the most? Why? (**Social Media, Emails, Texting, Gaming, Photography, Music).***
- *How often do you shop online using your smartphone? Why?*
- *What is the duration of videos on average when you watch on your smartphone? On which platform do you watch your videos most? (**Social Media, YouTube, Netflix, or any other streaming services or platforms)***
- *How often you share/post pictures and videos on social media? Which social networking site do you use the most?*
- *How important is your smartphone to you? Probe further (Do you use smartphone while walking? Do you check your smartphone while watching television/ while at bed before going to sleep at night?)*
- *In your opinion, to what extent you are dependent to your smartphone? Do you think are you overusing your smartphone?*
- *Did smartphone impact your life in a positive way, negative way, or both? Probe further, why do you feel that way? Explore the positive things and negative things.*

Attitudes and perception towards innovation

- *First few words come into your mind when you hear the word **''innovation''**. Probe further, Why and How these words came into your mind?*

- Based on your own experience, when you see a new smartphone what emotion and feeling you get (e.g**.,** ***Excited, Boring, Curious, Confused, Happy, Sad***). Why?
- *In your opinion, what do you think of the latest feature such as voice assistants: Siri, Bixby, Google Assistant? Are you aware of these features and to what degree you find them useful?*
- How useful *Do you find features such as Apple Pay, Samsung Pay, Google pay or any other phone wallet mode? How often you use them? Probe further, why do you use them or not use?*
- *Do you see any risks attached to these innovation features in your smartphone?*
- *What do you think about smartphone companies upgrading their smartphone models every year? Discuss further the opinion on the pricing of these new smartphones?*

Purchasing new smartphone decision making process

- *What is your main motivation behind upgrading your smartphone?* ***(Faster processor, Better camera, Improved Battery life, More Memory, New design/colour, bored of current phone, Faster charging, it is just cool to upgrade, 5G etc).***
- *How often you change your smartphone? Why?*
- *Where do you look for recommendations when you buy new smartphone (****Online reviews, Friends and Family, Instore salesperson, Brand website, Social Media****) Why?*
- *Which is your most favourite smartphone brand? Why? Which of the following has the most influence when you purchase new smartphone?* ***(Price, Brand, Social influence, Features****) Why this has the most influence?*
- *Do you share your smartphone with your family? Why yes or Why not? Do you consult with your family when you buy new smartphone?*
- *Do you prefer to buy branded smartphone? Why?*
- *Do you prefer to buy large screen smartphones?*

Resistance to innovation

- *In your opinion, do you think new smartphones are complicated to use? Do you get used to new smartphones easily?*
- *Do you wait for other people to get smartphone first and then purchase or you prefer to buy as early as possible? Discuss views about early adopting?*
- *Do you think these new smartphones are much different or an improvement from previous smartphones features wise such as* ***iPhone 6 vs iPhone11 or Samsung S6 vs Samsung S10****? Probe further, Why?*
- *Which of the following statement below is the strongest reason for rejecting a new smartphone? Discuss, Why?*

  1) I do not want to pay lot of money and I am not even sure if it is any good

  2) I will wait for other people to get it first and then buy

  3)The latest phone is no different and happy with current

  4)The new phone might be complicated

Demographics

- Age?
- Male/ Female?
- What is the highest degree you obtained?
- When was the last time you purchased a new smartphone?
- Live in UK or Saudi Arabia?

Appendix H: British Respondent (B1) transcript

- Age? 34
- Male/ Female? M
- What is the highest degree you obtained? Undergraduate
- When was the last time you purchased a new smartphone? 2018
- Live in UK or Saudi Arabia? UK

- *What do you do (e.g., **Banker, Salesperson, Teacher, Student, Trainer**…)?*

  Salesperson

- *What is your daily average smartphone usage in hours?*

  I spend about 4 hours per day

- *Which electronical devices are most important to you? (**Laptop, Smartphone, Gaming Console, Tablet, Personal Computer, Kindle, etc**)? Why?*

  Smartphone takes most of my time because it has everything/accessible and Gaming console is the least time I spend on; it is probably down to not being interested in a gaming console that much anymore. The second most important device is PC because I am used to old habits sometimes.

- *What are you 3 most used apps in your smartphone? For what purpose do you use your smartphone the most? Why? (**Social Networking, Emails, Texting, Gaming, Photography, Music).***

  I mainly listen audible books, podcasts, keeping an eye on financial trading and communication. The 3 most used apps; Audible books/ financial trading app/ WhatsApp. I use mainly for knowledge/information/communication. I am not a fan of social media. I do not use Facebook, Instagram, or any other social media apps.

- *How often do you shop online using your smartphone? Why?*

  I do shop online using smartphone every month, obviously it depends on how quickly I need an item. If it is not that urgent, then I might use my computer for online shopping or even go instore. I would say I do shop online through smartphone once a month.

- *What is the duration of videos on average when you watch on your smartphone? On which platform do you watch your videos most? (**Social Media, YouTube, Netflix, or any other streaming services or platforms)***

  Depends on the content of the video, it if is informative which will enhance my knowledge then it can go over 25+ minutes, however on average if you ask me it is 1:30 minutes- quick and short videos. YouTube is the one where I watch my most of videos.

- *How often you share/post pictures and videos on social media? Which social media site do you use the most?*

  I do not t use social media; it is a waste of time.

- *How important is your smartphone to you? Probe further (Do you use smartphone while walking? Do you check your smartphone while watching television/ while at bed before going to sleep at night?*

  This is an interesting question because it is no black and white answer. I would say yes to all the things regarding walking while using smartphone/watching television and using smartphone/ before going to bed at night and using smartphone. It is routine now. Overall, I would say smartphone is ''important'', however I can live without it.

- *In your opinion, to what extent you are dependent to your smartphone? Do you think are you overusing your smartphone?*

Yes, I am overusing my smartphone. This mainly happens when I am trying to get distracted from something. I do end up playing some random games on my smartphone. In terms of being dependent, it is a key tool for communication and during travelling. If I am out all day, I will need my smartphone with me, but If I am going out for a short period, then I do not necessarily need smartphone with me

- *Did smartphone impact your life in a positive way, negative way, or both? Probe further, why do you feel that way? Explore the positive things and negative things.*

  Although there are negative things about smartphone such as distraction, but for me since I do not use social media, I would say I get to avoid unnecessary screen time. I believe the best thing for smartphone has been communication/ keeping in touch. I always believe people should have discipline on using their smartphones. Although, I for example do use smartphone while at bed before night, but I use for few minutes and then go to sleep straight away. It is not like I will fight against my sleep. I do not wakeup and check my notification first thing in the morning.

- *First few words come into your mind when you hear the word* ***"innovation"****. Probe further, Why and How these words came into your mind?*

  Someone trying to sell me something/ Marketing/ nowadays this word has lost its meaning, or shall I say it has been diluted. Innovation strictly is something brand new, but these days I do not see that.

- Based on your own experience, when you see a new smartphone what emotion and feeling you get (e.g***., Excited, Boring, Curious, Confused, Happy, Sad***). Why?

  Annoyed. The reason being from experience businesses are now using this word for making more money. If you look at smartphones, there is not much difference between a smartphone in 2015 as compared to smartphone launched in 2020.

- *In your opinion, what do you think of the latest feature such as voice assistants: Siri, Bixby, Google Assistant? Are you aware of these features and to what degree you find them useful?*

When these features came out, I was extremely excited but now I have realised it does not offer advantage over traditional methods such as typing. It now looks as ''Gimmicky'' it does not do what it is supposed, you must repeat several times for Bixby to understand what I am saying. This makes me frustrated and I end up typing.

- How useful *do you find features such as* ***Apple Pay, Samsung Pay, Google pay*** *or any other phone wallet mode? How often you use them? Probe further, why do you use them or not use?*

  I do not use this feature because I always have a wallet, I do not see a point. Why do I need a digital payment method when there is already a fully functioning system of bank cards there?

- *Do you see any risks attached to these innovation features in your smartphone?*

  Yes, I do see ulterior motives sometimes behind these innovations. Corporations trying to solve problems which does not exist. I am also not too sure how secure is paying through your smartphone.

- *What do you think about smartphone companies upgrading their smartphone models every year? Discuss further the opinion on the pricing of these new smartphones?*
  Pricing is overpriced. Smartphone upgrading models every year is hypocritical because there is not much innovation within smartphones and all these companies tends to push '' free carbon emission'', if they are serious then they should probably not make smartphone every year

- *What is your main motivation behind upgrading your smartphone?* ***(Faster processor, Better camera, Improved Battery life, More Memory, New design/colour, Bored of current phone, Faster charging, it is just cool to upgrade, 5G etc).***

  I would change my smartphone purely because of '' being bored of it''. Features are almost same and there has not been a radical change. I can do the same thing with a

5-year-old smartphone, as compared to a smartphone of today. In terms of feature memory is something which I look into before making decision

- *How often you change your smartphone? Why?*

  Before I was used to change every 2 years, but now it has been over 2 years and My upgrade is due, still have not upgraded because lack of exciting features/design.

- *Where do you look for recommendations when you buy new smartphone (**Online reviews, Friends and Family, Instore salesperson, Brand website, Social Media**) Why?*

  Online reviews will be the first go to. Then probably Friends and Family. I will not look at brand websites or in store salesperson. In general, I do not prefer going to instore anyway.

- *Which is your most favourite smartphone brand? Why? Which of the following has the most influence when you purchase new smartphone? **(Price, Brand, Social influence, Features**) Why this has the most influence?*

  Features will impact me the most. At the end of the day, they make the product functioning. Social influence will be least impactful, if my whole family buy apple smartphone, I will still not switch from Samsung.

- *Do you share your smartphone with your family? Why yes or Why not? Do you consult with your family when you buy new smartphone?*

  No, I do not. Privacy. My work messages are continuous on my smartphone. I do not consult with my family either, why would I?

- *Do you prefer to buy branded smartphone? Why?*

  Samsung, been with them for 6-7 years. Software is easy to use, customizable. You can do more with their operating system as opposed to Apple IOS.

- *Do you prefer to buy large screen smartphones such as Note+ or iPhone max?*

I do prefer to buy large screen smartphone such as Samsung Note – reason is ease of use, its more practical when I am browsing financial trading apps.

- *In your opinion, do you think new smartphones are complicated to use? Do you get used to new smartphones easily?*

  Easy to use they are, and I will get used to them easily.

- *Do you wait for other people to get smartphone first and then purchase or you prefer to buy as early as possible? Discuss views about early adopting?*

  I would say 10 years ago, I would say I was an early adopter when it comes to smartphone. I always wanted to be the first one to buy. From past few years there has not been much improvement or innovation in smartphones, so I have been holding off my purchase of new smartphone. The moment I found something interesting, the design I like, I will buy it, I will not wait for other people to get it

- *Do you think these new smartphones are much different or an improvement from previous smartphones features wise such as* ***iPhone 6 vs iPhone11 or Samsung S6 vs Samsung S10****? Probe further, Why?*

  There is not much of an innovation in smartphones. Nothing new

- *Which of the following statement below is the strongest reason for rejecting a new smartphone? Discuss, Why?*

  Option3

  1) I do not want to pay lot of money and I am not even sure if it is any good

  2) I will wait for other people to get it first and then buy

  3)The latest phone is no different and happy with current

  4)The new phone might be complicated

Extra comments by respondent B1 during the interview:

Not just in smartphones, but business corporations are producing lots and lots of products which gives more choice to the people, but not sure if so, many choices are any good for the consumers. This is focus on quantity rather quality is not only diminishing level of innovation in industry, but also customer satisfaction People are always left dissatisfied and confused when they are buying products, especially technology. When you buy Smartphone A, you think about the things you missed out on Smartphone B and so on and so forth

The end

Appendix I: Saudi Respondent (S1) transcript

- Age? 32
- Male/ Female? M
- What is the highest degree you obtained? Undergraduate
- When was the last time you purchased a new smartphone? 2020
- Live in UK or Saudi Arabia? Saudi Arabia

- *What do you do (e.g., **Banker, Salesperson, Teacher, Student, Trainer**…)?*

  Banking

- *What is your daily average smartphone usage in hours?*

  7 hours per day based on screen time.

- *Which electronical devices are most important to you? (**Laptop, Smartphone, Gaming Console, Tablet, Personal Computer, Kindle, etc**)? Why?*

  I spent 8-9 hours on Desktop Pc 5 days a week (religiously for work).7 hours on smartphone base digital well feature on my phone. Even though I use Pc a bit more, smartphone is still most important and especially during COVID-19.

- *What are you 3 most used apps in your smartphone? For what purpose do you use your smartphone the most? Why? (**Social Media, Emails, Texting, Gaming, Photography, Music).***

  WhatsApp, Instagram/ Facebook. Lots of texting / work group / not phone calls / everyone loves texting from what I have seen. I think communication is the main reason. All my life is linked to this small device now. Working from home makes smartphone even more important and helps connect with work and leisure easily.

- *How often do you shop online using your smartphone? Why?*

I am not the biggest supporter of e commerce. I had horrible experiences in past such as late delivery or product not as shown on the web. I am a bit old school especially when it comes to clothing. I would like to see the fit first clothing and then buy it. These days brand 'A' will have different fit as compared to brand 'B' which makes it harder. In food also, I tried ordering online and food delivered was cold. Overall, people are lazy, but I like the idea of going out on shopping.

- *What is the duration of videos on average when you watch on your smartphone? On which of following platform do you watch your videos most? (**Social Network, YouTube, Netflix, or any other streaming services or platforms)***

  The video needs to be with interesting caption or headline which will attract my attention. I would say generally attention between 3-8 minutes. If its 30sec – 1 minutes, then it must be a joke or funny video which drops my attention. YouTube is the primary source for watching videos.

- *How often you share/post pictures and videos on social media? Which social networking site do you use the most?*

  Instagram. Every other day. Inspired motivation fitness videos I share. I like to share my life with the community/followers I have.

- *How important is your smartphone to you? Probe further (Do you use smartphone while walking? Do you check your smartphone while watching television/ while at bed before going to sleep at night?*

  Extremely important. Yes, I do use smartphone while walking if there is no traffic otherwise, I will not use because there have been few hits and run cases. Yes, while watching television. Yes, I use smartphone every night a before going to sleep while on bed, It serves a purpose of lullaby for me on bed over 80 -90 minutes.

- *In your opinion, to what extent you are dependent to your smartphone? Do you think are you overusing your smartphone?*

Yes and no. My average usage is divided into work and leisure. Browsing memes during work and compilation videos is negative but It is a necessity to relax from work. I see people talk about we use a lot but then there is always resistance about new technology. I am fine with it. I do not think I am overusing smartphone. I am connected to it. I am connected to my work and family through this. It is predominantly a communication medium. I hold my smartphone more than my kids and dumbbell

- *Did smartphone impact your life in a positive way, negative way, or both? Probe further, why do you feel that way? Explore the positive things and negative things.*

  Way more Positive. Negatives – are negligible. Way more positive. In my age scale – more pros than cons. Yes, I get concerned for my kids' screen time but not for mine.

- *First few words come into your mind when you hear the word **''innovation''**. Probe further, Why and How these words came into your mind?*

  Smartphones is all I can think with the word innovation. The best example will be 5G currently, because there have been huge billboards of 5g all over the Riyadh city. The moment you say innovation, it also reminds me of technology, tool or a device which basically cuts down original process into shorter time. I also think of computers when someone says innovation. When I was growing up computers were the next big thing

- Based on your own experience, when you see a new smartphone what emotion and feeling you get (e.g**., *Excited, Boring, Curious, Confused, Happy, Sad***). Why?

  Everyday there is new smartphone. I will not react until or unless I see something which is different. It will not make me excited but more curious

- *In your opinion, what do you think of the latest feature such as voice assistants: Siri, Bixby, Google Assistant? Are you aware of these features and to what degree you find them useful?*

Artificial intelligence has lots of benefits. I am not against using. People especially who have disability, is doing wonders for them. For me and my personal lifestyle, I do not like this lazy stuff of doing things. I do not mind typing. I think we are not there yet. Voice assistant is luxury but not a need. Having a fast car 250 mph is a good but would you be driving on a road every day.

- How useful *do you find features such as **Apple Pay, Samsung Pay, Google pay** or any other phone wallet mode? How often you use them? Probe further, why do you use them or not use?*

  Three important things which I never forget: wallet, smartphone, and keys. I do not need technology to make it complicated.

- *Do you see any risks attached to these innovation features in your smartphone?*

  Yes, you are putting in compact device. We jump from one mobile to another. There are hazard and data leakages. However, for new things there are always threats if you plane or crossing road.
  For me mitigating risk is important than eradicating them because that is impossible

- *What do you think about smartphone companies upgrading their smartphone models every year? Discuss further the opinion on the pricing of these new smartphones?*
  I personally feel smartphone companies hold on the release of technologies. For example, if they have 20-megapixel resolution technology available in 2010 for smartphone cameras, they will deliberately release only 10 megapixels at that time. They will divide the innovation over the period of years which makes more money for companies over long period of time''. They keep making small screen differences and pricing is ridiculous. Although I agree inflation is everywhere in terms of industries. I will still buy high-end smartphone because the number of things it can do for me. Price is inelastic for smartphone.

- *What is your main motivation behind upgrading your smartphone from following options?* ***(Faster processor, Better camera, Improved Battery life, More Memory, New design/colour, Bored of current phone, Faster charging, it is just cool to upgrade, 5G etc).***

  It would be better camera and faster processor.

- *How often you change your smartphone? Why?*

  2 years. Even smartphone companies say your phone is good for 3 years at least. That is what I heard.

- *Where do you look for recommendations when you buy new smartphone (**Online reviews, Friends and Family, Instore salesperson, Brand website, Social Media**) Why?*

  Salesperson is off the charts now. Everything is available online. I find user reviews on Tech blogging and gadgets related websites (Gsm arena) which allows me to quickly compare and see what gadget gurus think of it'. Secondly, I do ask my wife for her opinion – influence to some extent. Community plays huge – if everyone buying three camera phone – then you end up being accustomed to it. Online reviews, Friends and Family, and then Social Influence.

- *Which is your most favourite smartphone brand? Why? Which of the following has the most influence when you purchase new smartphone?* ***(Price, Brand, Social influence, Features**) Why this has the most influence?*

  I do not have a favourite. But holding a good brand like Samsung is a good choice here in Saudi Arabia. Price is suitable and have up to date features.
  Samsung fits my lifestyle and price. Price plays crucial part and then brand play the most important factor.

- *Do you share your smartphone with your family? Why yes or Why not? Do you consult with your family when you buy new smartphone?*

Yes, I do share my smartphone with my wife and kids. When you go out to be entertained and if they in car alone. I have 3 kids and it can be hard to handle them when we are outside or in a car. It keeps them distracted.

- *Do you prefer to buy branded smartphone? Why?*

  Yes. Samsung is easily repairable. After sales service. Easy to get repaired.

- *Do you prefer to buy large screen smartphones such as Note + or iPhone max?*

  Yes, big phones are better (S20+). You get something bigger for small premium to pay. Lots of people have asked me in office when I bought my new phone. It makes a statement.

- *In your opinion, do you think new smartphones are complicated to use? Do you get used to new smartphones easily?*

  Convenient. if I stick with Samsung. However, my parents switch from J to S series. There is difference. It can become complicated to certain age group, because my parents struggled when they switched from J to S series within Samsung. It depends on age group. For me it is easiest thing to use.

- *Do you wait for other people to get smartphone first and then purchase or you prefer to buy as early as possible? Discuss views about early adopting?*

  I wait and see the reviews. Price is added benefit if it drops.

- *Do you think these new smartphones are much different or an improvement from previous smartphones features wise such as* ***iPhone 6 vs iPhone11 or Samsung S6 vs Samsung S10****? Probe further, Why?*

  From 2015- 2020. There has been not a major innovation. how I describe is as moving on straight line. Need a new Steve Jobs or Bill Gates which can spike innovation exponentially in smartphone sector. Going forward there might one camera and all

does it. they are holding. Software updates. They not investing in older software – S10 will not have software update. They want people to buy new phone

- *Which of the following statement below is the strongest reason for rejecting a new smartphone? Why?*

  Option 1: Money. ---- retailers decrease price. I do not want to pay premium.

  1) I do not want to pay lot of money and I am not even sure if it is any good
  2) I will wait for other people to get it first and then buy
  3)The latest phone is no different and happy with current
  4)The new phone might be complicated

The end

Appendix J: Semi structured interview guide- Arabic translation

مقابله

أسئلة الإحماء

ماذا تفعل؟

متى كانت آخر مرة اشتريت فيها هاتفاً ذكياً لنفسك؟

ما هو متوسط استخدامك اليومي للهاتف الذكي في ساعات العمل؟

ما هي الأجهزة الإلكترونية الأكثر أهمية بالنسبة لك ولماذا؟

الاسئله؟

ما هي أكثر التطبيقات استخداماً في هاتفك الذكي 3؟ لأي غرض تستخدم هاتفك الذكي أكثر من غيرها؟لم؟ وسائل الاعلام الاجتماعية رسائل البريد الإلكتروني، الرسائل النصية، الألعاب، التصوير الفوتوغرافي، الموسيقى

كم مرة يمكنك التسوق عبر الإنترنت باستخدام هاتفك الذكي؟ لم؟

ما هي مدة مقاطع الفيديو في المتوسط عند المشاهدة على هاتفك الذكي؟أي منصة تشاهد مقاطع الفيديو الخاصة بك أكثر (*Social Media, YouTube, Netflix, or any other streaming services or platforms)*

كم مرة تقوم بمشاركة/ نشر الصور ومقاطع الفيديو على وسائل التواصل الاجتماعي؟ما هو موقع الشبكات الاجتماعية الذي تستخدمه أكثر من غيرها؟

هل تستخدم الهاتف الذكي أثناء المشي؟ هل تحقق من هاتفك الذكي أثناء مشاهدة التلفزيون /أثناء النوم قبل النوم في الليل؟
ما مدى أهمية هاتفك الذكي بالنسبة لك؟

إلى أي مدى تعتمد على هاتفك الذكي؟ هل تعتقد أنك تبالغ في استخدام هاتفك الذكي؟

هل أثر الهاتف الذكي على حياتك بطريقة إيجابية أو سلبية أو كليهما؟

الكلمات القليلة الأولى تأتي في عقلك عندما تسمع كلمة ''innovation''- الابتكار?

عندما ترى الهاتف الذكي الجديد ما العاطفة والشعور الذي تحصل عليه؟

ما رأيك في أحدث ميزة مثل المساعد الصوتي؟
Siri/Bixby/Google assistant?

كيف تجدون ميزات مفيدة مثل Apple Pay/Samsung Pay, Google Pay?

هل ترى أي مخاطر مرتبطة بميزات الابتكار هذه في هاتفك الذكي؟

ما رأيك في شركات الهواتف الذكية التي تقوم بتحديث طرازات الهواتف الذكية الخاصة بها كل عام والسعر؟

ما هو السبب الرئيسي لتغيير هاتفك الذكي؟

كم مرة قمت بتغيير هاتفك الذكي؟ لم؟

أين تبحث عن توصيات عند شراء الهاتف الذكي الجديد ؟

ما هي العلامة التجارية الأكثر المفضلة لديك الهاتف الذكي؟ لم؟ أي من التالي له أكبر تأثير عند شراء هاتف ذكي جديد؟

(السعر، العلامة التجارية، التأثير الاجتماعي، الميزات)

هل تشارك هاتفك الذكي مع عائلتك؟

هل تتشاور مع عائلتك عند شراء الهاتف الذكي الجديد؟

هل تفضل شراء الهاتف الذكي وصفت؟ لم؟

هل تفضل شراء الهواتف الذكية الشاشة الكبيرة؟

Appendix K: Consent form for participating in interview

Title of Study: *The impact of cultural differences towards product innovation in smartphone industry: A cross cultural study on consumers from Saudi Arabia and United Kingdom.*

Aim of study: The aim of study is to explore on how consumers from UK and Saudi Arabia use their smartphones. It is to examine also how consumers from different cultures view innovation in smartphone industry.

Name of researcher: *Tajwar Malik (Doctor of Business Studies).*

Thank you for participating in this research and information you provide will be kept confidential and used for research purposes only.

I agree to participate in a research project above. The purpose of this document is to specify the terms of my participation in the project through being interviewed.

1. I have been given sufficient information about this research project. The purpose of my participation as an interviewee in this project has been explained to me and is clear.

2. My participation as an interviewee in this project is voluntary and that I am free to withdraw at any time without giving reason

3. Participation involves being interviewed by **Tajwar Malik**. The interview will last approximately 20- 60 minutes.

4. I allow the researcher to take written notes during the interview.

5. I understand that the notes taken from this will only be used for analysis and that the extracts from the interview including direct quotations, from which I will not be personally identified, may be used in any conference presentation, report, or journal article developed as a result of this research. I understand no other use will be made of the notes/transcripts without my written permission.

5. I have the right not to answer any of the questions. If I feel uncomfortable in any way during the interview session, I have the right to withdraw from the interview without any negative consequences.

6. I have read and understood the points and statements of this form. I have had all my questions answered to my satisfaction

7. I have been given a copy of this consent form co-signed by the interviewer.

8. I agree to take part in this interview

By singing this I agree to the above.

Interviewee Name **Interviewee Signature**

_____ _____

Date

_____

Appendix L: Email Invitation letter

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Dear XXXX,

I am a doctoral student studying at University of Wales Trinity Saint David in the United Kingdom.

I am currently working towards my research: **Impact of cultural differences towards product innovation in smartphone industry**.

I am very much interested in exploring how innovation is viewed by consumers who fall in between the age group of 18-34, purchased smartphone in last 3 years, and live in either UK or Saudi Arabia.

If the above topic and criteria fits you, I would like to have an interview with you which will last maximum up to 1 hour. I am more than happy to send you beforehand the interview guide to familiarize you with the types of question and points of discussion.

Please note the participation is voluntary and you are free to withdraw from the interview at any time. The data will be kept confidential and used for research purposes only.

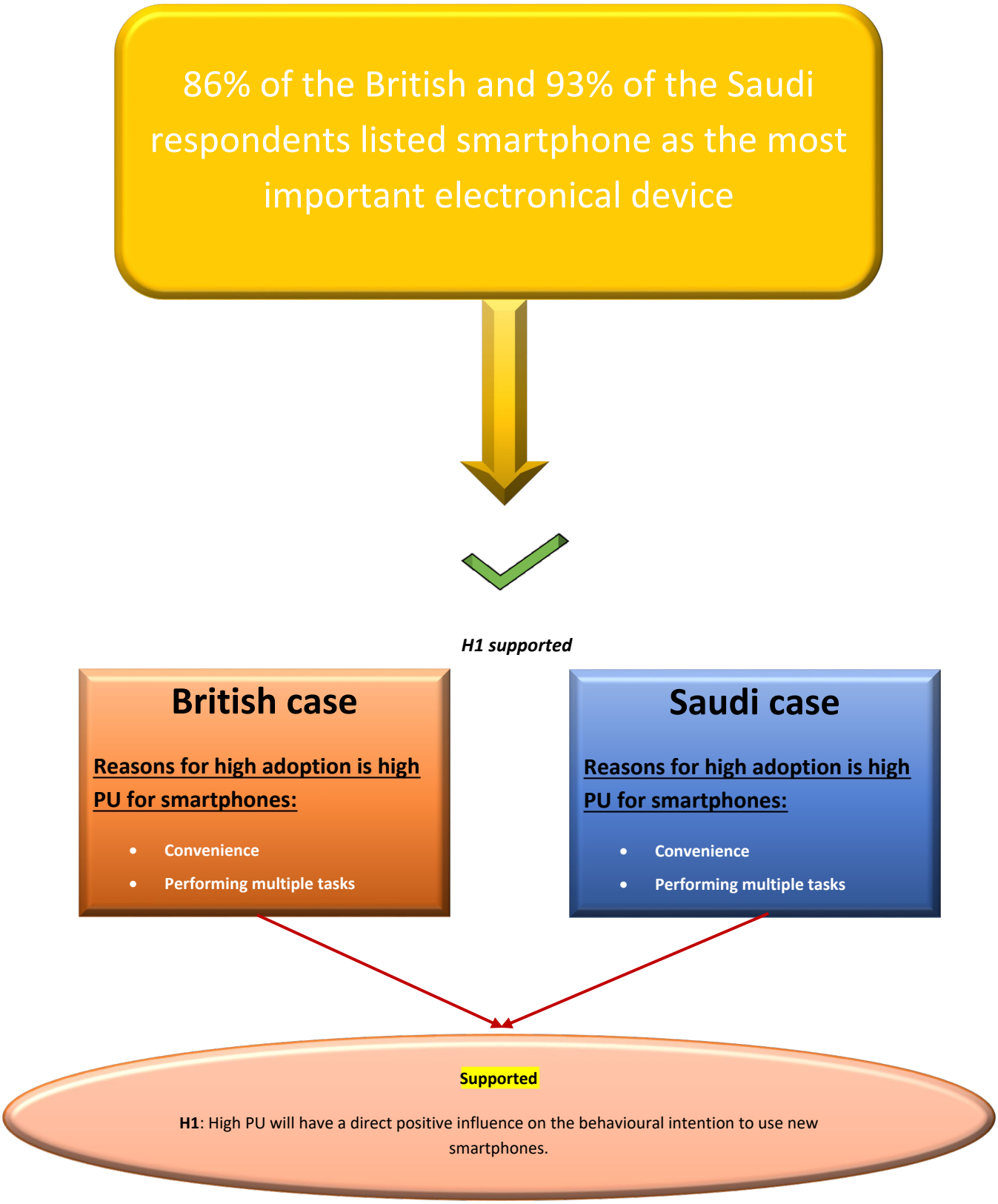
If this is something which interests you, please reply back and then we can arrange a skype interview at your convenient time.

Regards,

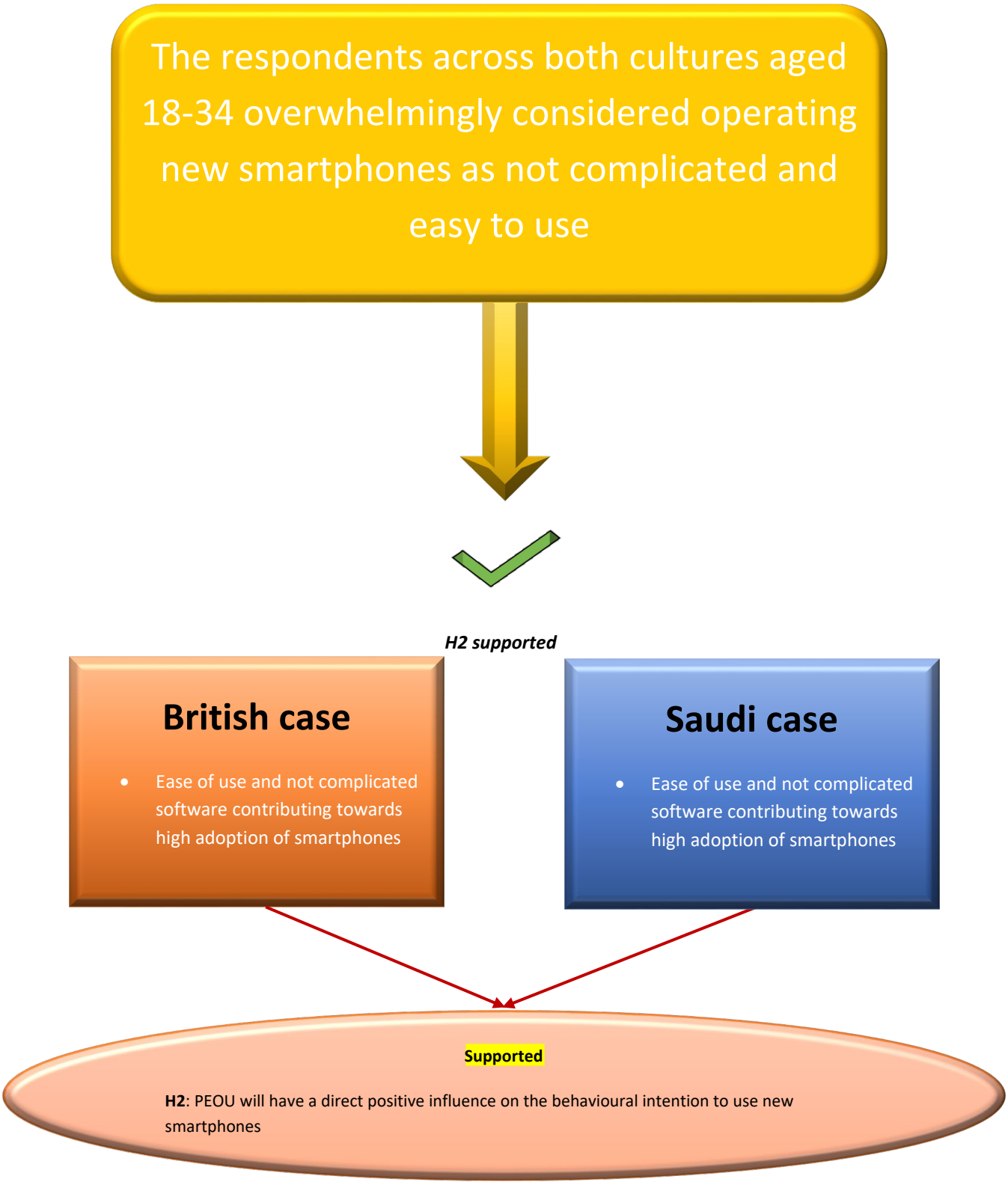
Mohammad Tajwar Malik

1603140

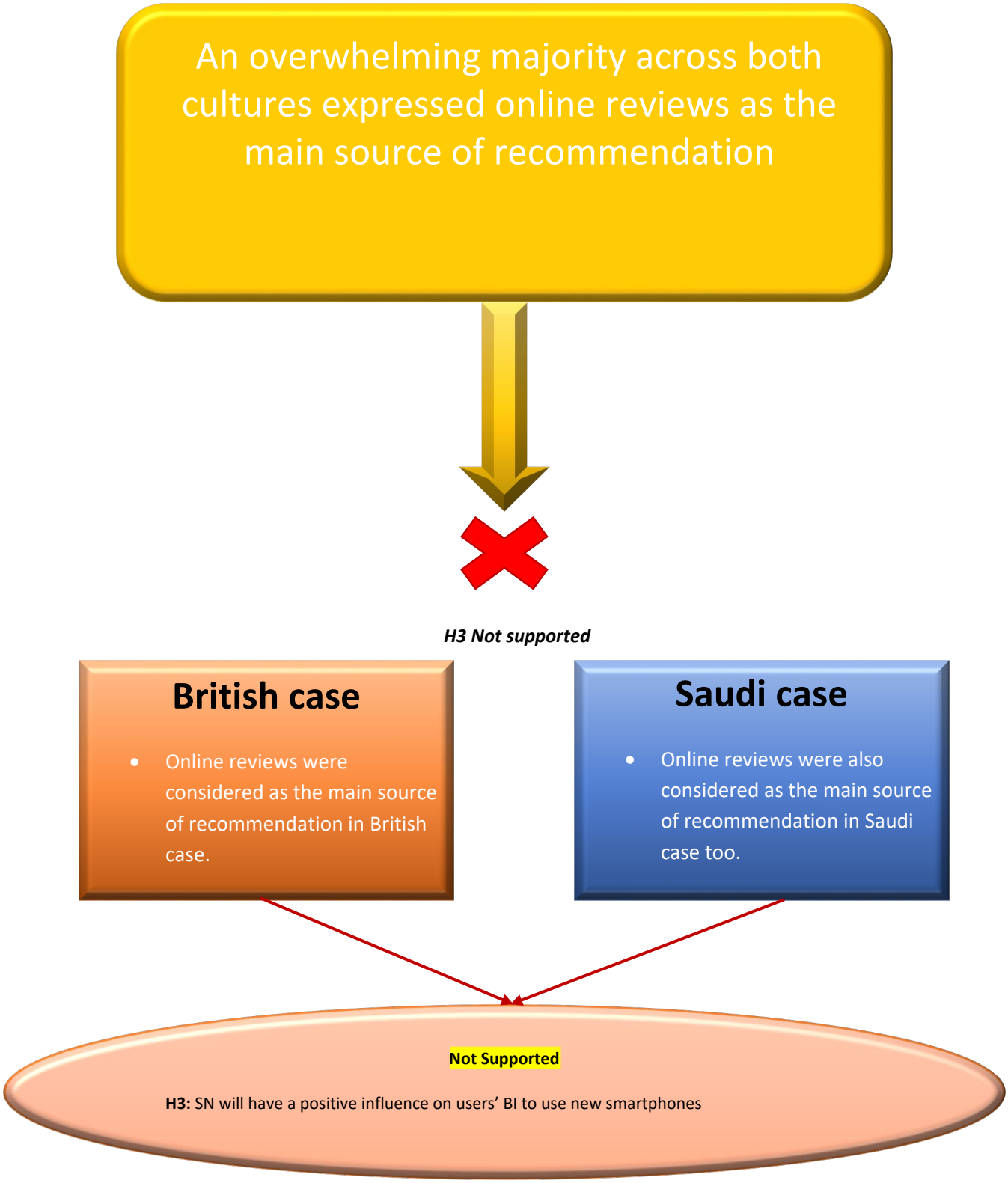
Appendix M: SAM (H1)



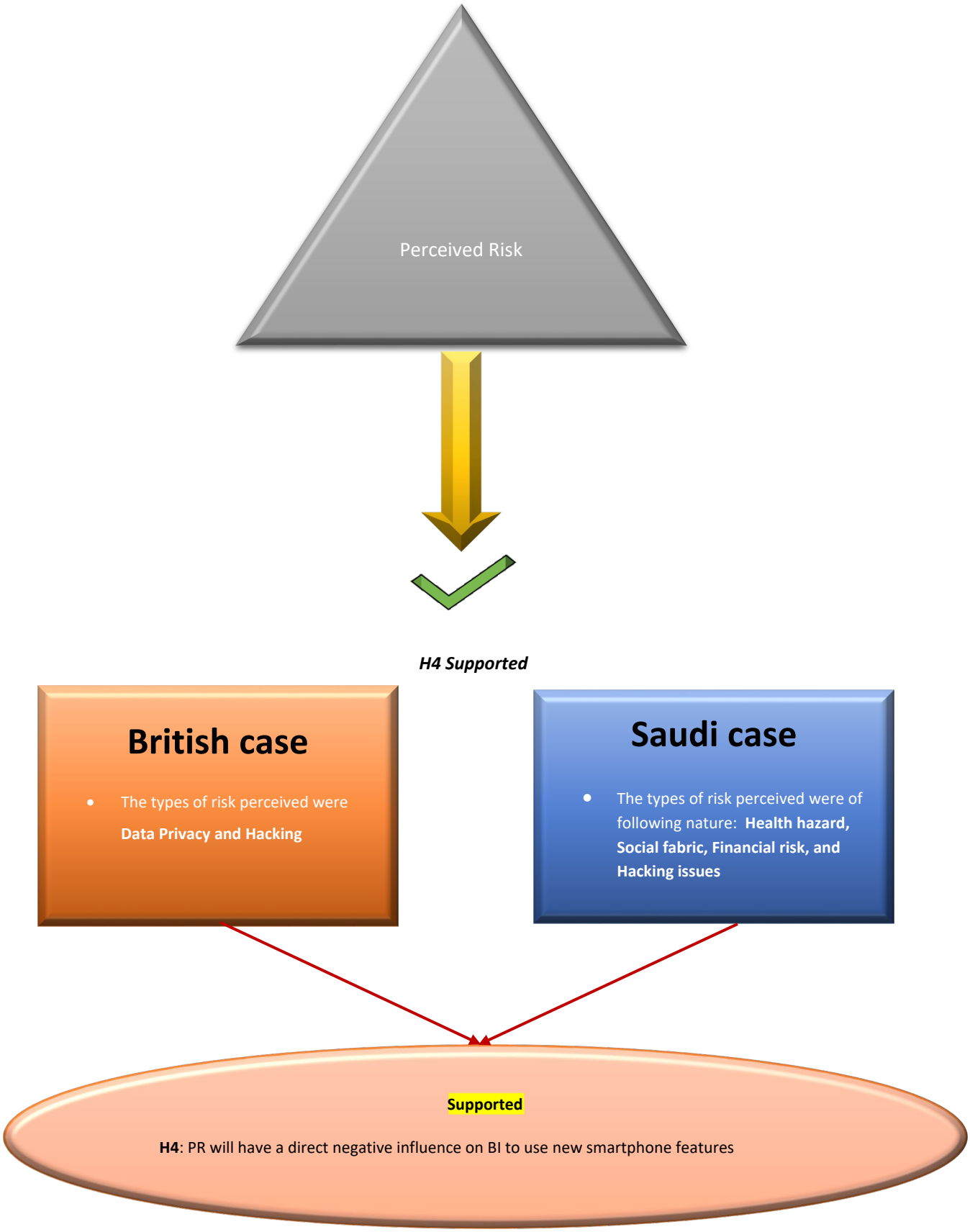
Appendix N: SAM (H2)



Appendix O: SAM (H3)



Appendix P: SAM (H4)



Appendix Q: SAM (H5)

57% of the British and 36% of the Saudi users uses voice assistants at least once a week

H5 supported

British case

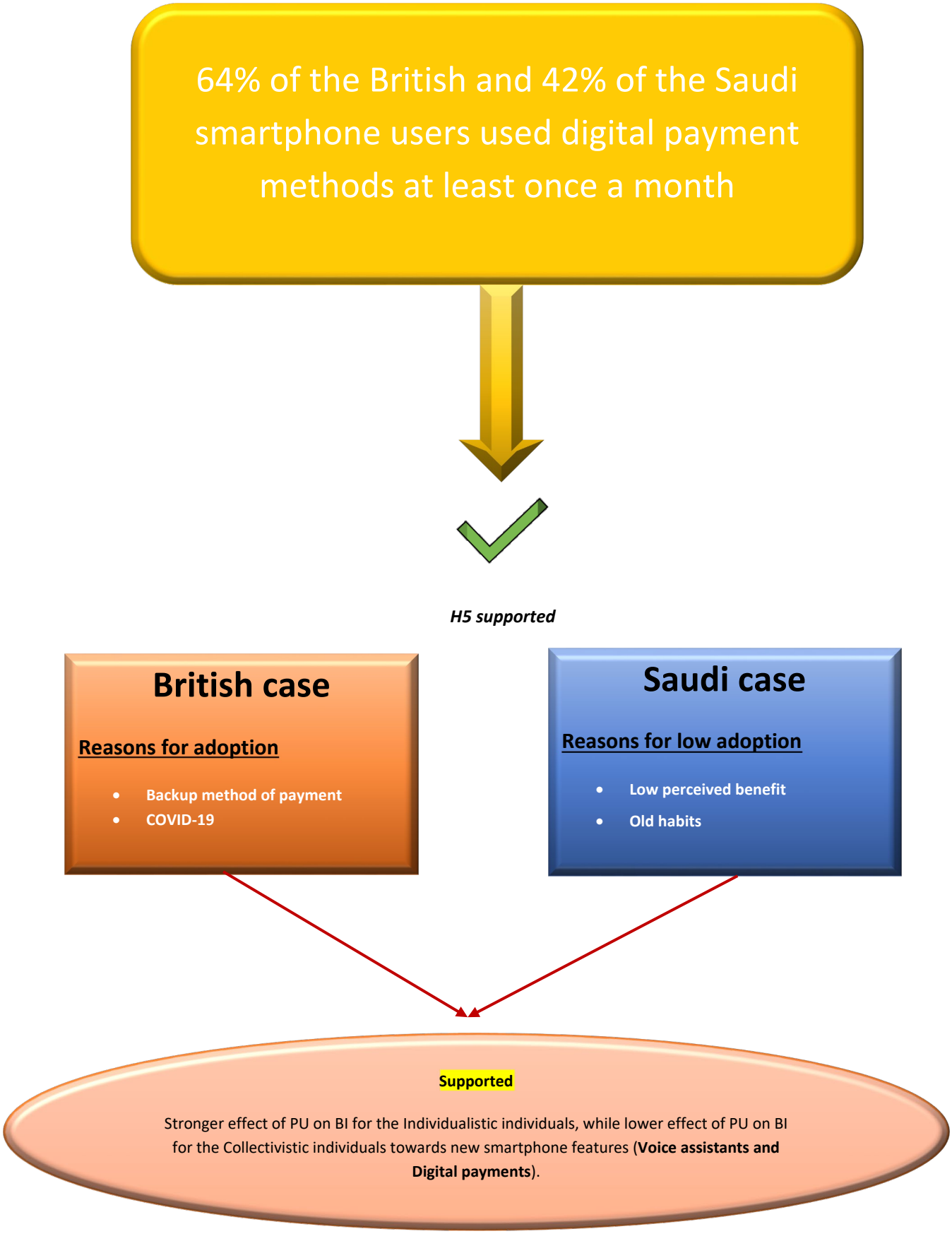
Reasons for high adoption

- Useful in responding to calls/texts during driving
- Playing music, checking weather

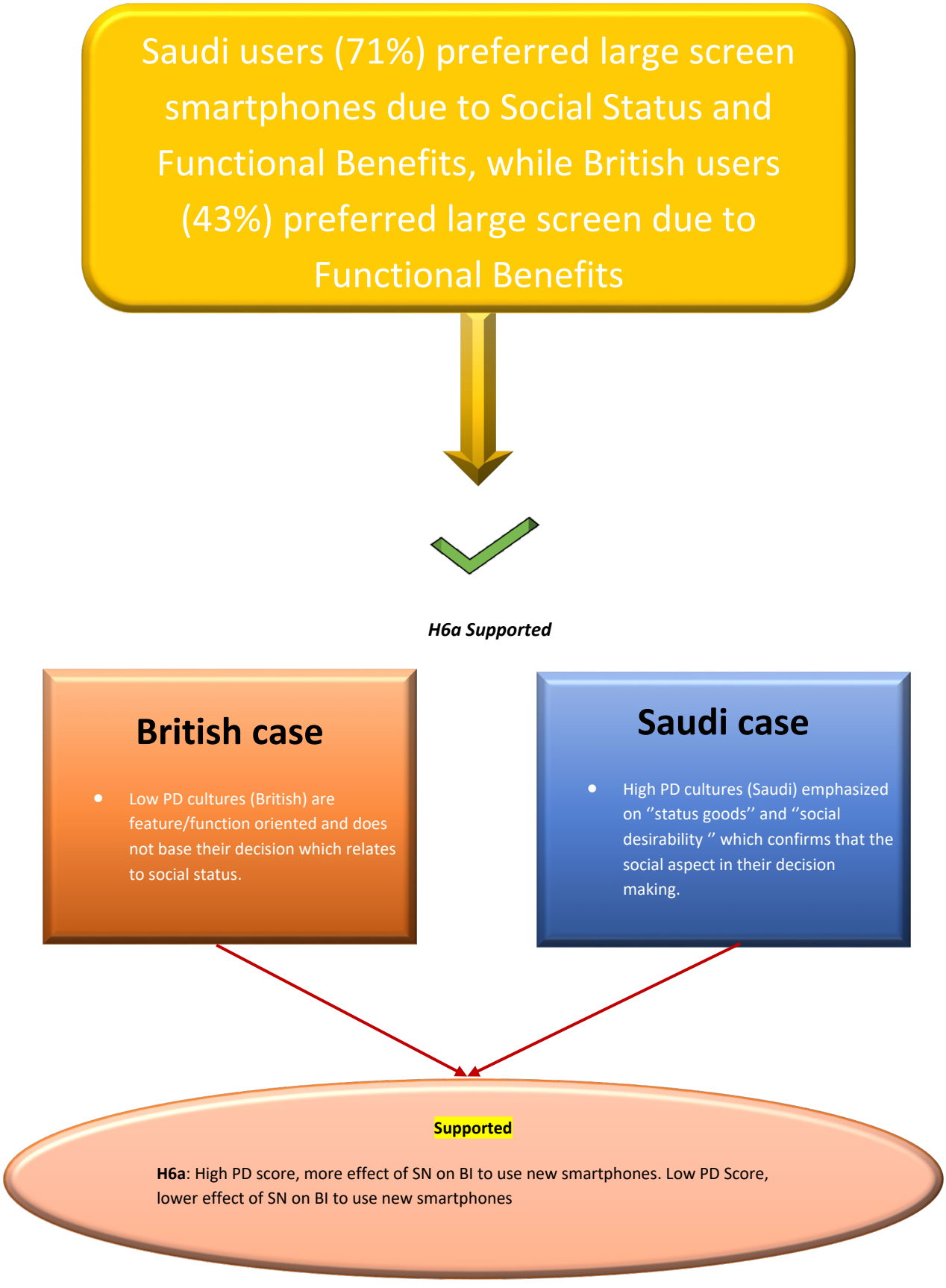
Saudi case

Reasons for low adoption

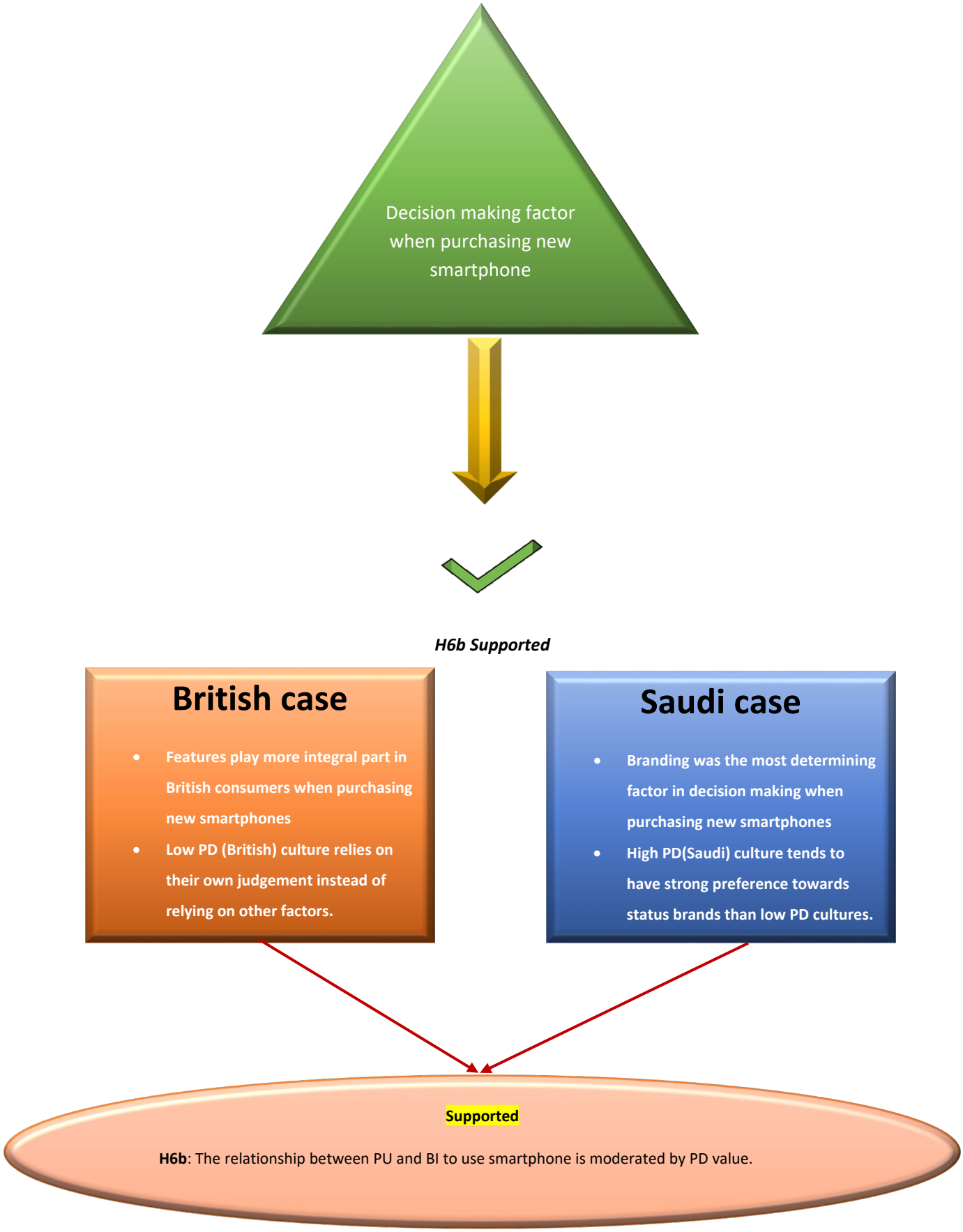
- Low perceived value/perceived performance are low
- Views technology for older generation


64% of the British and 42% of the Saudi smartphone users used digital payment methods at least once a month
H5 supported
British case
Reasons for adoption
Backup method of payment
COVID-19
Saudi case
Reasons for low adoption
Low perceived benefit
Old habits
Supported
Stronger effect of PU on BI for the Individualistic individuals, while lower effect of PU on BI for the Collectivistic individuals towards new smartphone features (Voice assistants and Digital payments).

Appendix R.1: SAM (H6a)

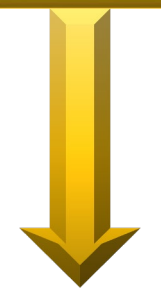


Appendix R.2: SAM (H6b)



Appendix S: SAM (H7)

British smartphone users aged 18-34 are significantly ahead when it comes to M-Shopping (79%) as compared to Saudi smartphone users. Our study found that UK (Low UA) adopted M-Shopping because they displayed little or no perceived risk and used it due to the usefulness



H7 Supported

British case

Reasons for high adoption

- Convenience
- Quick delivery

Saudi case

Reasons for low adoption

- Poor experiences
- Lack of confidence towards online payments system
- Lack of touch feel factor

Supported

H7: The relationship between PR and Bi to use is moderated by UA value.

Appendix T: Author's claim on Hofstede's Dimensions