

**How Religion Influences the Use of Social Media: The Impact of  
the Online User's Religiosity on Perceived Online Privacy and the  
Use of Technology in Saudi Arabia.**

**By: RAMI MOHAMMED BAAZEEM**

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## **Abstract:**

Religion has a significant effect on people's lives. It impacts human behaviour, thoughts, morale standards, attitudes and values. The literature shows that religiosity has an effect also on consumer behaviour. However, the concept of religiosity has been under-researched due to the sensitivity of religion (Swimberghe, Flurry, & Parker, 2011). According to Vitell (2009) there is still a need to develop a vigorous theoretical understanding of the impact of religiosity on the consumer behaviour. This thesis contributes to that knowledge by developing a model to explain the effect of the religiosity of the online user on their use of social media.

Current research does not fully explain the specifics of religious influences on online user behaviours. This thesis main goal is to build a model that can measure the effect of intrinsic religiosity on the use of social media. The proposed model uses the unified theory of acceptance and use of technology (UTAUT2) along with Privacy concern to measure the effect of religiosity on the use of social media. This thesis empirically tests the proposed model linking religiosity, privacy concerns, technology acceptance and the use of social media. Allport and Ross' (1967) religious orientation scale (ROS) is used to measure the intrinsic religiosity. Xu et al's., (2011a) model of privacy concern is used to measure privacy concerns when using social media. Venkatesh, Thong and Xu's (2012) unified theory of acceptance and use of technology (UTAUT2) is used to measure the user acceptance of social media.

Using partial least square structural equation modelling, intrinsic religiosity (ROS), and privacy concerns along with technology acceptance are shown to influence the use of social media. The results show that religion has an indirect effect on the use of social media through privacy concerns and technology acceptance. The results also show that the model can predict the effect of intrinsic religiosity on the use of social media to share and disclose information. The implications from this study are significant both for policy and practice for social media companies as well as users. Information from this study will help social media companies to maximize users' involvement with social media. It will also benefit the industry and the literature by providing a sound model that can measure the impact of religion on the behaviour of users.



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## **Dedication**

This thesis is dedicated to:

My parents, my father Fawzi and my mother Awatif, may ALLAH be generous and merciful with them at all times.

My sisters, Reham, Zain, Anafal, and my brother Zouhair.

My lovely wife Afnan, my three little princesses Toleen, Joudi, Wateen, and my little son, Ahmed. Love you no matter what.

## Abbreviations

<b>(.SAV)</b>	A file extension used for the saved date of SPSS.
<b>AVE</b>	The average variance extracted.
<b>AWARE</b>	Technology Awareness.
<b>BI</b>	Behaviour intentions.
<b>CB-SEM</b>	Covariance based structural equation modelling.
<b>CIA</b>	Central Intelligence Agency.
<b>CPM</b>	Communication Privacy Management.
<b>CSU</b>	Council of Senior Scientists.
<b>DOI</b>	Diffusion of innovation model.
<b>DTVP</b>	Disposition to Value Privacy.
<b>EE</b>	Effort expectancy.
<b><math>f^2</math></b>	Effect Size.
<b>FC</b>	Facilitating conditions.
<b>HM</b>	Hedonic Motivation.
<b>HTMT</b>	The heterotrait-monotrait ratio of correlation.
<b>ICT</b>	Information and communication technologies.
<b>INTR</b>	Intrinsic religiosity.
<b>IS</b>	Information System.
<b>IT</b>	Information technology.
<b>LBS</b>	location-based services.
<b>MM</b>	Motivational Model.
<b>MPCU</b>	Model of PC Utilization.
<b>OSN</b>	Online social networks.
<b>PBC</b>	Perceived behavioural control.
<b>PBUH</b>	Peace Be Upon Him.

<b>PCON</b>	Privacy Concerns.
<b>PCTL</b>	Perceived Privacy Control.
<b>PE</b>	Performance expectancy.
<b>PEOU</b>	Perceived ease of use.
<b>PLS-SEM</b>	Partial least squares structural equation modelling.
<b>PMBs</b>	Protection motivation behaviours.
<b>PMT</b>	Protection Motivation Theory.
<b>PU</b>	Perceived usefulness.
<b>Q<sup>2</sup></b>	Predictive Relevance.
<b>R<sup>2</sup></b>	The level of the coefficient of determination.
<b>RISK</b>	Perceived Privacy Risk.
<b>ROS</b>	Religious orientation scale.
<b>SCT</b>	Social Cognitive Theory.
<b>SEM</b>	Structural equation modelling.
<b>SI</b>	Social influence.
<b>SNS</b>	Social network sites.
<b>TAM</b>	Technology acceptance model.
<b>TPB</b>	Theory of planned behaviour.
<b>TRA</b>	Theory of reasoned action.
<b>USE</b>	Use of social media.
<b>USE Disc</b>	Use to disclose private information.
<b>USE Reli</b>	Use when permitted by religious scholars.
<b>USE Share</b>	Use to share information.
<b>USE Tec</b>	Use social media technology.
<b>UTAUT</b>	The unified theory of acceptance and use of technology.
<b>UTAUT2</b>	The unified theory of acceptance and use of technology 2.

## Publication

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## **Chapter 1: Introduction and research questions of the thesis.**

### **1.1 Introduction**

With the rapid growth of social media, such as Facebook, Twitter, Snapchat and YouTube, millions of people around the world have made social media part of their daily routines (Krasnova, Veltri & Günther, 2012). This increase in social media usage has greatly affected the lives of social media users in the way that they interact and socialize with others, attracting the attention of the researchers (Güven, 2019). Using social media allows people to interact and engage with family and friends, as well as meet new people from around over the world (Benson, Ezingear, & Hand, 2018; Güven, 2019). With massive users, social media companies have access to a myriad of data from its users. Guided by their terms and conditions to manage users' data (Güven, 2019; Ziegele & Quiring, 2011), these social media companies use these data to gain profit from lots of channels, including channels that show personalized advertisements (Qaffas, Cristea, & Shi, 2013; Tucker, 2014). During this time of data gathering and personalizing adverts, social media companies paying little, if any, attention to the user's religion (Baazeem, Benson, & Hand, 2018.).

According to Geertz (1973) religion is a system of symbols which acts to create pervasive powerful and long-lasting moods and motivation in people . When thinking of religion in the context of social media and the behaviour of online users, the perception may be that religious norms, guidelines and rules mainly affect a user's access to prohibited websites such as those containing pornography or using social media for illegal activities such as child abuse. However, the impact of religion on social media and online user behaviour is more complex. It goes beyond simply banning controversial products or services or pictures in keeping with the religious standards of individuals or communities (Vitell, 2009). The involvement of social media in people's daily lives is now routine, sharing, posting an updating their journey of life. The

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activities that users participate in can lead to issues with religious guidelines and expectations on privacy and security. Religion may dictate to its followers what information is considered private and which must be safeguarded from strangers or should be accessible only to close family members. Other areas of social media activities that may potentially breach users' religious beliefs include male-female interactions on social media.

According to Essoo and Dibb (2010), Religion is a major influence on human life. It plays a major role in the formation of behaviours and attitudes. Particularly, for conservative religious countries, religion plays a major role in shaping the people's online behaviours. For example, in Saudi Arabia, a conservative Islamic country, the use of new, modern technologies was banned on the basis of religion (Al-Kandari & Dashti, 2014; Chawki, 2010; Schanzer & Miller, 2012). Prohibiting these technologies affected the companies, individuals and the government.

Another example of religious guideless and expectations impacting users behaviour and choices was seen when western reality TV programmes such as Big Brother were introduced to middle eastern countries, particularly Saudi Arabia. These programmes received public criticism for their controversial inclusion of content deemed contrary to religious norms in the region, leading to a massive loss of viewership and the immediate shutdown of the programme (MEO, 2004). This example and many others show that religious norms and expectations affect people's behaviours and choices in real life and consequently, religion also affects why people interact with social media and how they participate.

The above examples are two of many that show how new technologies and products carry a level of uncertainty and risks to religious users (Al-Kandari & Dashti, 2014; Mukhtar & Butt, 2012). These risks and uncertainties stem from a fear of being in breach of their religious responsibilities by engaging in religiously perceived sinful or



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forbidden activities online. However, Religion by itself cannot be used as a mesurment to diterment wether the individual is commeted to his/her religion, instead the degree of the individual commetment to that religion , religiosity, is what can be measured (Mukhtar & Butt, 2012). According to Allport (1950) the individual religiosity consists of intrinsic religiosity and extrinsic religiosity. Intrinsic religiosity refers to the person who sees religion as a guideline and rule on how to live, while extrinsic religiosity is where the person uses his religion as a mean to ease his live (Allport and Ross, 1967). Extrinsic religiosity can be adopted or faked to suit the individual needs. For example, a person can attend a church or masjid only to befits from the social gathering. Hence, it will not be a clear measurement for the individual belief in a religion. On the other hand, intrinsic religiosity is a hidden belief where the individual does to follow his/her religion guidance. Since this study is focusing on social media, where the users can use it anonymously, intrinsic religiosity will be used in this thesis.

The relationship between individuals' religiosity and their online behaviours, in social media, remains unclear in the literature. Social media literature has surveyed behaviours of online users from many prospectives. However, to the best of the researcher's knowledge, behaviours of online users determined by the user's religiosity effect, has not yet been documented in the literature (Bélangier & Crossler, 2011b). As a result, this thesis seeks to understand and explain the nature of the association between religious factors and the use of social media. In doing so, the researcher makes use of insights from three theories, Religious orientation scale (ROS) (Allport & Ross, 1967), Privacy concerns model (Xu et al., 2011) and the unified theory of acceptance and use of technology 2 (UTAUT2) (Venkatesh, Thong, & Xu, 2012a).

## **1.2 Study Background**

Social media is today a vast phenomenon, impacting many aspects of human life. People from all over the world use social media and develop virtual communities;

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with teenagers as the most enthusiastic users according to Hansen, Saridakis, & Benson, (2018). Social media has become an integral part of the daily lives of many users and will remain with mankind. It breaks down barriers between the offline and the online world (Chang & Heo, 2014). It also transcends ethnicity, culture and religion. Muslim Arab users are now considered among the most active users on social media. According to Carter, Bullock and Chaffey (2018) 'Saudi Arabia has the largest social media penetration in 2019 at 99%, which is well above the global average of 45%'. Yet, almost no consideration is given to the religion of users in relation to policies and terms of services on major social media platforms like Facebook and Snapchat. History showed us that religion can affect the consumer behaviour as in the case of boycotting Danish products where the boycotting act came from a religious motivation (Maamoun and Aggarwal, 2008). At first sight, having so many Saudi users look good, but if something happened to provoke their beliefs or ignore it, social media companies will suffer a bad impact due to their ignorance of the user's religion.

Religions, if factored into these platforms, are likely to affect religious individuals' usage of social media. With religion as a major characteristic of the Arab world, where, according to Nydell (2011), atheists and agnostics are not welcome, religion is considered essential. The majority of Arabs follow the Islamic faith with Saudi Arabia considered the heart of the sunny Islamic religion. Saudi Arabia is the homeland of Islam, where prophet Muhammed (Peace Be Upon Him) started his revelation 1400 years ago.

Saudi Arabia is a conservative Islamic country with a monarchy type of governmental system, led by the Al Saud Royal Family. According to the Central Intelligence Agency (2016), the population of Saudi Arabia is 28 million, 33,091,113 as of July 2017, with only one religion, which is Islam. As much as 91.7 per cent of the population uses social media (Communications and Information Technology

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Commission, 2019; CIA, 2016). The most used social media websites and applications are Facebook, Twitter, Snapchat, Instagram and YouTube (Communications and Information Technology Commission, 2019).

Given the aforementioned, this thesis aims to investigate the effect of the individual's religion on the use of social media. With the use of perceived privacy and the acceptance of new technology theories, we aim to study the effect of religion on the individual's use of social media.

### **1.3 Research Questions**

As a part of many people's daily lives the social media world affects people and is affected by people. There are minimal consideration for the consumers religiosity which might affect the way they behave. The literature reveals minimal consideration for consumers' religion throughout the studies on consumer behaviour, even though religion plays a major role in shaping people's norms, behaviour and habits (Khraim, 2010). The same can be said about users behaviour on social media. Herein lies the concern of the research and leads to this thesis' main research question:

Q1: How does religion affect the use of social media?

In order to answer this question, there are several sub-questions that need to be answered:

Q2: Does Religiosity affect privacy concerns?

Q3: Does religiosity affect technology acceptance?

Q4: Does privacy concerns affect the use of social media?

Q5: Does technology acceptance directly affect the use of social media?

## **1.4 Research Aim**

The main aim of this study is to build a model that can measure the effect of religiosity on the use technology, specially the use of social media. This model will help to give a better understanding of religios users online behaviour. The model will be universal, it can be applied to most religions, technologies and context.

## **1.5 Research Objectives**

In order to achieve the aim of this thesis, investigate the relationship between religion and the use of social media, the following objectives should be met:

1. Revise the literature to support the proposed gap. The gap is that there are limited studies which cover the effect of religion on the use of social media. The search will be broader which will cover the literature of religion, technology acceptance and privacy concern.
2. Revise the religion literature review to find a suitable measurement scale. This thesis is looking for a universal working measurement scale that can be applied on many religions, not a scale that can only measure a specific religion.
3. Select a suitable measurement scale for privacy concerns. Since privacy concerns has an effect on the online communication, it is vital to this thesis to find a suitable pre-tested scale that can measure the effect on user's privacy concerns.
4. Select a suitable measurement scale for technology acceptance. Technology acceptance is one of the key constructs that affect the use of new technologies. People react differently when it comes to using new things. This thesis is trying to find the best working measurement scale which can measure the user's acceptance of new technology, especially social media.

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5. Develop a model which will explain the relationship between the online user's religion, privacy concerns, technology acceptance and how will affect their use of social media to test the hypotheses.
6. Evaluate the results and define the relationship between religion and the use of social media.

## **1.6 The importance of this research**

The importance of this research derives from the fact that social media is flourishing also with religions people among whom there is high usage, especially in Saudi Arabia. Most of the social media terms and conditions do not consider the religions of users. This leads to a misuse or underuse by users in fear of doing something against their religion. For example, some advertisements on social media promote alcoholic drinks, which are forbidden in the Islamic faith. Some social media websites advertise dating, a practice also forbidden in the Islamic faith.

This study built a model that can measure the effect of religiosity on social media users and it can be used to measure the religiosity effect on online user behaviour in general. This model will help see the effect of the online user's religion on their actual use of the social media. This model will help policy makers, application developer, online companies and government to better understand and count for the effect of religion so they could change or adapt their products to suites religious users. The theoretical framework and the measurement scales are compatible to all religions as well as online user behaviour. It can therefore be used to measure different religions, users and applications.

This study provides an understanding of the religiosity effects on the use of social media. This helps identify the constraints of fully functional use of social media by religious people. In addition, it helps to reshape the terms and conditions of social media websites to account for religious factors. Some social media activities that may

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be considered acts of sin in Islam push away the religious people from fully engaging in social media if not boycotting them (Almenayes, 2014). Although most Saudi's are using social media, they do not fully benefit from them due to their religion.

This study is a response to the need for further research and investigation of the religiosity effect on the use of social media, as demonstrated in the literature review chapter. It also contributes to knowledge by filling the gap in the religion and Saudi literature specifically, and general Arabic literature, by providing in-depth research on the relationship between religion, privacy, technology acceptance and use of social media. This opens the way for more research in the future relating to the effects of religion on online users, social media, privacy and technology acceptance.

## **1.7 Thesis Structure**

This thesis contains 8 chapters, with each chapter consisting of a number of Sections. Chapter 1 Introduction and research questions of the thesis. This chapter introduces the study, study background, research question, aims, objectives, the importance of the research and the thesis structure. The chapter explains the significance of the research and explains why the author selected this topic and how the thesis is presented.

Chapter 2 Literature review. This chapter comprises three Sections Technology acceptance, information privacy and religiosity . Technology acceptance is a review of the literature on the acceptance of new technology and the theories that explain users' acceptance of technology. Information privacy is a review of the literature on privacy concerns and theories of privacy. Religiosity is a review of the literature on the concept of religion, religiosity and the measurement scales of religion.

Chapter 3 Research problem definition discusses the research problem emerging from the literature review and links the three concepts together. Chapter 4 Hypothesis formulation explains the hypotheses formulation of the proposed model. Finally,

Chapter 1: Introduction and research questions of the thesis.

Chapter 5 methodology explains the research design, measures and measurement, sampling, data collection and analyses employed in the thesis.

Chapter 6 Data analyses. This chapter comprises two Sections, measurement model and structural model. They explain the data analyses and show the results of the PLS-SEM. This chapter explains the measurement model assessment (outer model) and the Structural Model Assessment (inner model).

Chapter 7 Findings. This chapter details all of the findings of the research. It also highlights the attributes that affect the use of social media. In addition, the chapter discusses the results in light of the existing literature.

Chapter 8 Conclusion. This chapter presents this study as a whole and summarizes the study process and results. Additionally, the major contributions to the research are presented in terms of knowledge, implications of the study, constraints, recommendations and proposed future work.

## **Chapter 2: Literature Review**

Given the research objectives presented in chapter 1, this thesis follows a deductive approach. Deductive approach where hypotheses are developed based on existing theories and then design a research strategy to test each hypothesis. Hence, the literature review aims to identify gaps in the knowledge and helps to set up the theoretical framework. Three main concepts are reviewed: religiosity, privacy and technology acceptance. These concepts are reviewed to establish the research gap and build the theoretical framework.

### **2.1 Technology Acceptance**

There are several technology acceptance models and behaviour intention models, which have been developed over time with different sets of acceptance determinates. These models have been improved through the years and changes according to the topics and times. The most outstanding models of behaviour intentions are theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), theory of planned behaviour (TPB) (Ajzen, 1985), and diffusion of innovation model (DOI) (Rogers, 2003). The most outstanding models of technology acceptance are technology acceptance model (TAM) (Davis, 1989), technology acceptance model 2 (TAM2) (Venkatesh & Davis, 2000), unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003) and unified theory of acceptance and use of technology 2 (UTAUT2) (Venkatesh et al., 2012).

The UTAUT goal is to analyse user intentions to use technology and then the (use behaviour). This model was created to present a clearer picture of the acceptance process. The model consists of four main constructs as direct determinants of intention to use and behaviour which are performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003). Venkatesh et al., (2003) studies four organizations for six months and found that UTAUT can explain 56 per



cent of the user's intentions to use IT. Venkatesh, Thong and Xu (2012) improved the original UTAUT model and added three more constructs which are hedonic motivation, price and habit to form UTAUT2. They suggested that by adding these three constructs, the model displays significant changes in the behaviour intention and use. They found that UTAUT 2 model explains 70 per cent of the intention to use variance, which is by far, a major improvement over any of the original models.

UTAUT2 have been used in many different fields of studies to determine the users' acceptance. These different fields include: education (Raman & Don, 2013; Yang, 2013), Social media (Oechslein et al., 2014a; X. Xu, 2014), mobile (Arenas-Gaitan, Ramirez-Correa, Rondan-Cataluña, & Alfaro-Perez, 2013; Baabdullah, Dwivedi, & Williams, 2014; Fuksa, 2013; Kang, Liew, Lim, Jang, & Lee, 2015), consumer behaviour (Alalwan, Dwivedi, & Williams, 2014; Shao & Siponen, 2011; Venkatesh et al., 2012a), web (Krishnaraju, Mathew, & Sugumaran, 2013; Vinodh & Mathew, 2012), and health (Ariaeinejad & Archer, 2014; Slade, Williams, & Dwivedi, 2013; Tavares, 2018). For the above-mentioned reasons, this thesis will use UTAUT2. In order to get a better understanding of UTAUT2, it is essential to first explain the other theories to get a better grasp of technology acceptance.

### **2.1.1 Theory of Reasoned Action (TRA)**

Theory of reasoned action (TRA) was developed in the social psychology field by Ajzen and Fishbein in 1980, and it was the earliest attempt used to predict the individual behaviour based on their behavioural intention and pre-existing attitudes. TRA was developed to "organize and integrate research in the attitude area within the framework of a systematic theoretical orientation" (Ajzen & Fishbein, 1980, p. 2). The theory's main purpose is to predict, explain and influence human behaviour by differentiating between the concepts of beliefs, attitudes, subjective norms, intentions, and behaviours. Ajzen and Fishbein (1980) argued that since TRA can predict and

explain behaviour across a wide variety of domains, it is a suitable model to use in studying the user behaviour determinants. According to the TRA, the main determinant of behaviour is the person's intention to perform the behaviour.

In TRA, there are two factors that explain behaviour intention, that is, the person's attitude towards the behaviour and subjective norm. These two factors are derived from sets of beliefs. The beliefs for the attitude are behaviour beliefs where the likelihood of performing a behaviour will lead to certain outcomes and the degree to which these outcomes are valued (Ajzen & Fishbein, 1980). On the other hand, subjective norm beliefs are normative beliefs that concentrate on the perceived social pressure from certain antecedents and what motivates the individual to comply with these antecedents (Ajzen & Fishbein, 1980).

Although TRA is, arguably, a good model to study the user behaviour determinants, it has some limitations. According to Ajzen (1985), TRA is limited by correspondence. For the TRA to predict certain behaviour, both attitude and intention must settle on the action, target, context, time frame, and specificity (Sheppard, Hartwick, & Warshaw, 1988). The major limitation of TRA is the assumption that the behaviour is under volitional control (Sheppard et al., 1988). In other words, TRA only applies to a careful will, thoughts and behaviour. Any different behaviours such as irrational decision, habitual actions or any other behaviour that are not carefully considered could not be explained by the Theory of Reasoned Actions (TRA theory) (Sheppard et al., 1988).

### **2.1.2 Theory of Planned Behaviour (TPB)**

TPB is an extension to the TRA proposed by Ajzen (1985) addressing the volitional control limitations. According to Ajzen (1985, 1991), TPB was designed to explain and predict people behaviour by taking into consideration the effect of the social system and the roles of the individual, organizational members. The main difference

between TPB and TRA is that TPB includes measures of perceived behaviour control (PBC) which accounts for cases where people have less control over their behaviour. TPB inserts PBC in a general framework of relationships with attitudes, behaviour, beliefs and intentions all of which affects intentions and behaviour (Ajzen, 1991).

TRA suggests that intentions alone could be more than enough to predict behaviour when the individual has complete control over behavioural performance. However, Ajzen (1991) proposed that PBC should solely predict the behaviour in situations where behavioural intention only accounts for a small amount of variance in behaviour. PBC and intentions are important to predict behaviour, but one of them might be more important than the other depending on the predominance of certain conditions.

TPB focuses on the antecedents of perceived behavioural control, attitude and subjective norms to predict and explain the behaviour (Ajzen, 1991). TPB hypothesized that behaviour is a function of salient beliefs related to the behaviour which are considered as the dominant determinants of the people actions and intentions (Ajzen, 1991).

Although TPB is an improvement to TRA, it still has some limitations. TPB does not examine the relations of intentions and behaviour, which leave a large amount of unexplained variance (Armitage & Conner, 2001; Taylor & Todd, 1995). Another limitation of the TPB is that it does not count for the change of demographic variables and deals with people under the assumption that everyone reacts to the model process in the same way (Sommer, 2011). TPB does not consider the change in behaviour (Armitage & Conner, 2001), and it only uses perceived behavioural control (PBC) as a deterrent to all behaviour elements that cannot be controlled (Taylor & Todd, 1995). The beliefs that affect the behaviour were combined to create a measurement scale, but

the combined beliefs could not identify certain factors which might predict behaviour (Armitage & Conner, 2001).

### **2.1.3 Diffusion of Innovation Theory (DOI).**

Rogers' (2003) diffusion of innovation Model (DOI), which was first published in 1962, demonstrates the way that innovation diffuses through society and the way that organizations and individuals accept new innovations. According to Rogers (2003), there are two different processes, the adoption process and the diffusion process. The adoption process occurs as a group process within society while the diffusion process is related to individuals. The diffusion is defined as is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 473). The adoption is defined as "a decision to make full use of an innovation as the best course of action available" (Rogers, 2003, p. 473).

The innovation-decision process of the DOI consists of five stages that show the different stages the decision-makers must go through to adopt or reject an innovation which is Knowledge, Persuasion, Decision, Implementation and Confirmation. The first stage, Knowledge, is where new innovation is introduced to the decision-makers with the knowledge of its functions. The second stage, persuasion, the innovation characteristics which makes it favourable or an unfavourable to the potential adopter. The third stage, decision, is the decision-maker activities which lead to a choice to adopt or reject an innovation. The fourth stage, implementation, is when the decision-maker decides to use an innovation. The final stage, confirmation, is where the reflection of the decision of adopting or rejecting the innovation is clear.

A number of researchers have highlighted some limitations of DOI such as Paul Attewell (1992) and Roger Clarke (1999). According to Clarke (1999), the classical DOI in the information system context is "at its best a descriptive tool, less strong in its explanatory power, and less useful skill in predicting outcomes and providing guidance

as to how to accelerate the rate of adoption". Furthermore, DOI has been criticized for being specified to the culture that it was derived from, which makes it less relevant to other diverse cultures (Clarke, 1999). In addition, Attewell (1992) suggested that DOI focus on the innovation demand rather than the innovation supply. The assumption of the demand view is that adoption will happen in a governed speed according to the knowledge of the innovation for the decision-makers. The innovation supplier influences the diffusion according to their marketing and educational interests in a specific business (Attewell, 1992).

#### **2.1.4 Technology Acceptance Model (TAM)**

Fred Davis developed the technology acceptance model (TAM) in 1989, and it is considered one of the influential and most used theories which relate information system and information technology acceptance to the user behaviour (Legris, Ingham, & Collette, 2003). TAM is an adaption of the theory of reasoned action (TRA) that is designed to help understand users' acceptance and use of technology and the factors that affect them (Davis, 1989). To adopt TRA in new context and to form a new model, a preliminary conducted to see the most suitable variables to include to understand the computer use behaviour (Ajzen, 1980). The selected variables that form TAM are use, behaviour intentions, attitude, perceived ease of use (PEOU) and perceived usefulness (PU).

The purpose of TAM is to produce a clarification of the computer acceptance causes, which can explain, in a wide range of end-user technology and population, user behaviour (Davis, 1989). in addition, according to Venkatesh and Davis (2000), TAM is a successful framework that can predict and explain user behaviour across different systems.

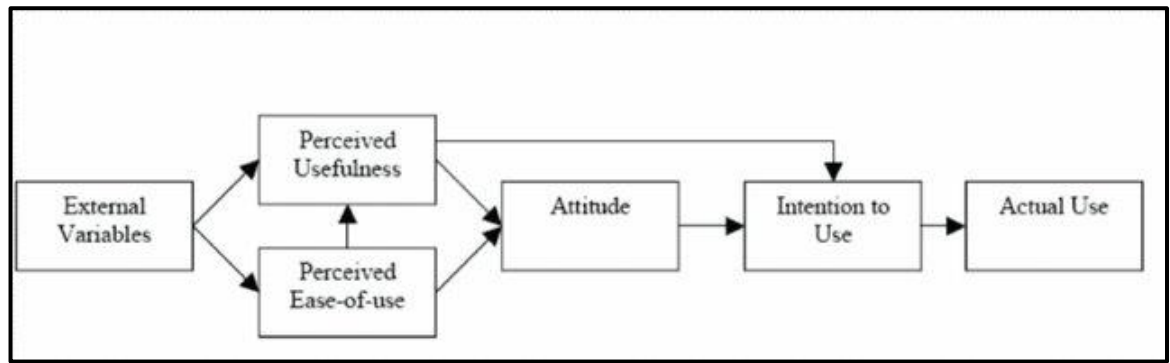


Figure 2.1: TAM Model (Davis, 1989).

Two constructs in TAM predict attitude as shown in Figure 3.1: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness (PU) is described as “the degree to which a person believes using a particular system would enhance his or her job performance” (Davis, 1989, p. 30). Where the perceived ease of use (PEOU) is defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 30). According to Davis et al., (1992), TAM is a powerful tool to represent the system usage antecedent through PU and BEOU beliefs. As shown in Figure 3.1 the actual use depends on intention to use, where PU and attitude predict the intention to use. The external variables in TAM refer to an array of variables such as objective system design characteristics, training, computer self- efficacy, user involvement in design, and the nature of the implementation process (Venkatesh & Davis, 1996). Nonetheless, TAM is continuous, evolving introduces new external variable like system quality, compatibility, computer anxiety, enjoyment, computing support, and experience (Lee, Kozar, & Larsen, 2003).

TAM has been extended by Venkatesh and Davis (2000) to include additional concepts covering social influence processes (subjective norm, voluntariness, and image) , cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use) and experience into the original TAM model and referred to as TAM2. The new model considers the subjective norm, in the early stages of implementation, will directly influence the intention to use. This

influence will decrease over time, and be replaced by experience (Venkatesh & Davis, 2000).

Despite being one of the top used models, TAM and TAM2 have some limitations, one of which is dependent on users' to report on themselves while hoping that this self-reporting actually reflects their online use (Legris et al., 2003). Another is related to the type of respondents, where some studies' samples were only students or only professionals, making it difficult to generalize the findings (Legris et al., 2003). Furthermore, TAM offers only limited guidance on the way to influence usage through design and implementation, which does not fully explain the acceptance (Venkatesh & Davis, 2000).

### **2.1.5 Unified Theory of Acceptance and Use of Technology (UTAUT)**

The unified theory of acceptance and use of technology (UTAUT) is one of the most used theories in technology acceptance, in a variety of fields and especially the information system field (see Appendix A, Table A1), developed by Venkatesh, Morris & Davis (2003). Similar to the previous models, UTAUT aims to analyse user intentions to use technology and then the (use behaviour). This model was created to present a clearer picture of the acceptance process. UTAUT is formed by merging eight previous models to cover the use and behaviour from 76 various viewpoints such as psychology, sociology and communication (Venkatesh et al., 2003; Venkatesh, Thong, & Xu, 2016; Williams, Rana, & Dwivedi, 2013). The eight models are TRA, TPB, TAM, TAM2, the Motivational Model (MM), the Model of PC Utilization (MPCU), DOI, and Social Cognitive Theory (SCT). The main focus of these models is to predict and explain user behaviour to accept technology by utilizing a mixture of independent variables. Venkatesh et al. (2003) developed a unified model based on the conceptual and empirical affinity across these eight models.

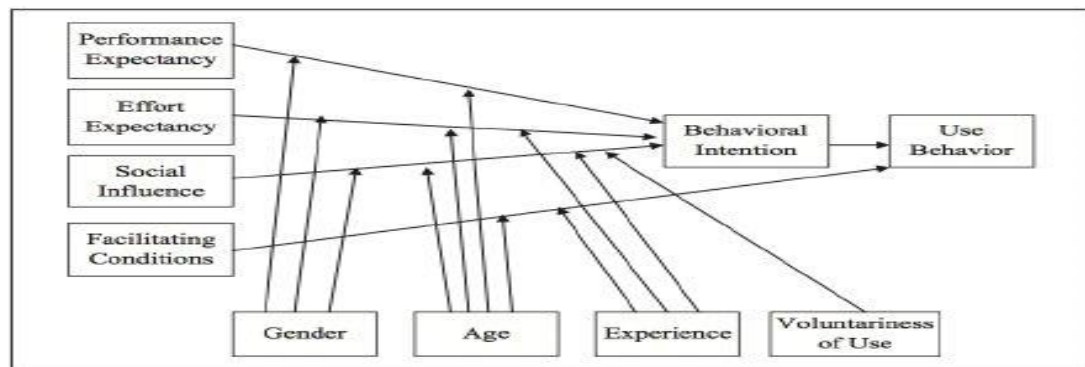


Figure 2.2: UTAUT model (Venkatesh et al., 2003)

UTAUT consists of four main constructs as direct determinants of intention to use and behaviour which are performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003, 2016; Williams et al., 2013). The model also uses gender, age, experience and voluntariness of use to mediate the effect of the main constructs on intention to use and behaviour as illustrated in Figure 3.2. In addition, the model attempts to explain the influence of individual differences in the use of technology. The four main constructs are defined as follows, according to Venkatesh et al. (2003, p. 447):

1. Performance expectancy (PE): "is the degree to which an individual believes that using the system will help him or her to attain gains in job performance".
2. Effort expectancy (EE): "is the degree of ease associated with the use of the System."
3. Social influence (SI): is the degree to which an individual perceives that [it is] important others believe he or she should use the new system."
4. Facilitating conditions (FC) "is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system."

Performance expectancy (PE) is derived from a mixture of five comparable constructs along with perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations (Oshlyansky, Cairns, & Thimbleby, 2007; Venkatesh et al., 2016; Venkatesh, Gordon, & Davis, 2003). Performance expectancy is considered one of the strongest predictors of intention among reviewed models. It also



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has a significant effect for voluntary and mandatory use (Venkatesh et al., 2016; Venkatesh, Morris, Gordon Davis, 2003; Williams et al., 2013). The variables included in Performance expectancy are the system's effectiveness, the system's improvement of work performance, the system's improvement of productivity, chance to gain transferable skills, and better control of work (Venkatesh et al., 2003; Algharibi and Arvanitis, 2011; Venkatesh et al., 2016).

Effort expectancy (EE) explains the concept of perceived ease of use and complexity. Ease of use is one of the main constructs in TAM, and it has a significant influence on perceived usefulness and technology acceptance (Davis, 1989; Venkatesh et al., 2016; Williams et al., 2013). When validating UTAUT, Effort expectancy has a significant effect in voluntary and mandatory usage contexts. The variables included in EE are easiness of accessing data, clarity of data, ability to identify relevant data, smoothness of interacting with the system, and the system's overall presentation and outline (Venkatesh et al., 2003; Algharibi and Arvanitis, 2011; Venkatesh et al., 2016).

Social influence main focus of is the person's perception of other individuals, groups or having a cultural image, especially the interpersonal agreement with others as well as the effect of using the technology for their self-image (Venkatesh et al., 2010; Venkatesh et al., 2016; Venkatesh, Morris, Davis, 2003; Williams et al., 2013). SI also, examines the impact of using innovation on the user's social image and whether it will enhance that image or not (Venkatesh et al., 2003; Williams, Rana & Dwivedi, 2013). SI covers previous constructs mainly subjective norms, social factors and images. Venkatesh et al. (2003) in the validating test found that SI was significant in the mandatory use but not voluntary use. The variables included in SI are organisational encouragement; organisational pressure for change; management communication and involvement in the change process; experiences of demonstrations beforehand, and

availability of an open-door policy to discuss aspects related to change (Venkatesh et al., 2003; Algharibi & Arvanitis, 2011; Venkatesh et al., 2016).

Facilitating conditions (FC) comprise of perceived behavioural control, facilitating conditions, and compatibility from previous models such as TAM, and TRA. The UTAUT validation shows that in both mandatory use and voluntary use Facilitating Conditions has a significant effect (Venkatesh et al., 2003; Venkatesh and Zhang, 2010; Williams et al., 2013; Venkatesh et al., 2016). The variables included in FC are completeness of manual or training sessions, the ability to imagine applying the system to tasks, mention of the extensiveness of the search criteria, the offer of steps that are logical to use, apply and recall, and cover of all essentials to perform tasks and overcome difficulty (Venkatesh et al., 2003; Algharibi & Arvanitis, 2011; Venkatesh et al., 2016).

### 2.1.6 Unified Theory of Acceptance and Use of Technology2 (UTAUT2).

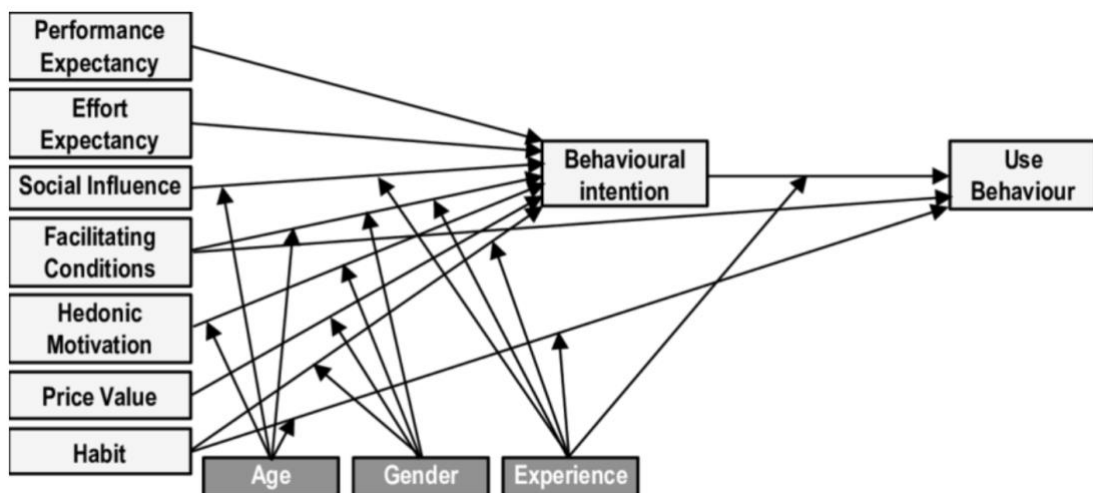


Figure 2.3: UTAUT2 model (Venkatesh et al., 2012)

Venkatesh, Thong and Xu (2012) improved the original UTAUT model and added three more constructs which are hedonic motivation, price and habit to form UTAUT2. They suggested that by adding these three constructs, the model displays

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significant changes in the behaviour intention and use. Hedonic motivation, the first added construct is defined by Brown and Venkatesh (2005) as the intrinsic happiness or joy which occurs as a result of using technology and plays a significant part in adopting new technology. Price, the second construct, is the anticipated profits of using technology given its cost (Venkatesh et al., 2012). The last construct, habit, is defined as spontaneous behaviour resulting from previous experiences and learning (Venkatesh et al., 2012). The UTAUT2 suggests that Habit has direct and indirect effects through behavioural intention.

Hedonic motivation is the excitement and pleasure felt after using technology, and it has been shown to have a major part in testing technology acceptance and use (Brown & Venkatesh, 2005). In information system research, this is one of the constructs, HM, that have a direct effect on technology acceptance and use, which is conceptualized as perceived enjoyment (e.g., Van der Heijden, 2004; Thong, Hong and Tam, 2006). HM has also been found to be an important determinant of technology acceptance and use in the consumer context (Brown & Venkatesh, 2005; Childers, Carr, Peck & Carson, 2001).

According to Limayem, Hirt & Cheung (2007), habit is the extent to which people are performing behaviours automatically due to having learnt those behaviours. Kim, Malhotra & Narasimhan (2005) linked habit with automation, things people do as an automatic routine or response. Habit has been operationalized in two obvious ways. The first one is dealing with habit as a previous behaviour (Kim & Malhotra, 2005). The second is dealing with habit as the automated behaviour that people do and believe that they are doing automatically (Limayem et al., 2007).

As a result, two main attributes, distinct habits and experiences have been found. The first one is a habit being formed entirely by experiences or experience is part of the reasons that the habit was formed. The second one is the passage of time (experiment)

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can result in different levels of habituation depending on the extent of interaction and familiarity developed with a targeted technique. For example, from January to March, three students are using Microsoft word. First one is using it for writing assignment, second one is using it for writing journal papers, and the last one is using it to write a book. The three of them can form different levels of habit although they are using the same technology for the same period of time. This might be one of the reasons that Limayem et al. (2007) included prior use as a predictor of habit. Similarly, Kim & Malhotra (2005) controlled for experience with targeted technology in an effort to understand the impact of habit on the use of technology.

Empirical findings have identified various basic processes whereby habit affects the use of technology. Related to the operationalization of habit as prior use, Kim & Malhotra (2005) found that previous use was a strong indicator of future technology use. Given that there are critics to the operationalization of habit as a reason for using technology (see Ajzen 2002), others like Limayem et al. (2007) have conducted surveys and perception approach to measure habit.

Such operationalizations have been shown to have a direct impact on the use of technology in addition to the effect of intention and also to mitigating the effect of intention on the use of technology so that the intention becomes less important when the habit increases (Limayem et al. 2007). In psychology research, similar findings have been reported in the context of other behaviour (see Ouellette & Wood 1998).

According to Venkatesh et al., (2012), UTAUT2's main purpose is to consider general adoption, use of technology and consumer adaptation to identify three key constructs. Furthermore, they adjust some of the UTAUT relationships and finally introduce new relationships. The UTAUT2 has seven constructs that affect behavioural intention and use, including: facilitating condition, performance expectancy, effort expectancy, social influence, hedonic motivation, price value, and habit. UTAUT 2

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model explains 70 per cent of the intention to use variance, which is by far, a major improvement over any of the original models (Venkatesh et al., 2003; Anderson, Schwager & Kerns, 2006; Wu, Tao & Yang, 2007; Venkatesh et al., 2012, 2016; Williams et al., 2013).

UTAUT2 have been used in many different fields of studies to determine the users' acceptance. These different fields include: education (Raman & Don, 2013; Yang, 2013), Social media (Oechslein et al., 2014a; X. Xu, 2014), mobile (Arenas-Gaitan, Ramirez-Correa, Rondan-Cataluña, & Alfaro-Perez, 2013; Baabdullah, Dwivedi, & Williams, 2014; Fuksa, 2013; Kang, Liew, Lim, Jang, & Lee, 2015), consumer behaviour (Alalwan, Dwivedi, & Williams, 2014; Shao & Siponen, 2011; Venkatesh et al., 2012a), web (Krishnaraju, Mathew, & Sugumaran, 2013; Vinodh & Mathew, 2012), and health (Ariaeinejad & Archer, 2014; Slade, Williams, & Dwivedi, 2013; Tavares, 2018). All of these studies show that UTAUT2 exogenous constructs (PE, EE, SI, FC, HM, Price value and Habit) positively affect the endogenous construct Behaviour Intentions (BI).

For the aforementioned reasons, UTAUT2 is used to study behavioural intention and use of social media. However, the Price construct is not included to this study due to the nature of the social media application in question, as they are all free to use. UTAUT focuses on the organizational context. The main focus of these models is to predict and explain user behaviour to accept technology in an organization. UTAUT2 extended the context to include the individual consumer by adding habit, experience, hedonic motivation and price as new constructs. In this thesis social media platforms are considered from the individual consumer. This study uses UTAUT2 given that the effect of one's intention to use social media is different from one individual to another. UTAUT2 considers seven different constructs that affect users' behaviour intentions. In

addition, it explains more than seventy per cent of usage and have been successfully applied to many IS fields including social media (see Table 2.1).

<b>Table 2.1: UTAUT/2 in different fields.</b>	
Field	Authors.
Communication systems	Van Biljon and Kotze (2008), Zhou et al. (2010), Tan and Wu (2010) and BenMessaoud et al. (2011)
Internet/Online Banking	Liu et al. (2008), Abu-Shanab et al. (2010), Al-Somali et al. (2009)
Information System/Technology	Bandyopadhyay and Bandyopadhyay (2010), Teo (2011)
E-Government Services	Chan et al. (2010), Al-Sobhi et al. (2011)
Internet/Intranet Technology	Dasgupta and Gupta (2010), Foon and Fah (2011)
Knowledge Management System	Jalaldeen et al. (2009), Li (2010)
Web-based Virtual M-Learning System	Nistor et al. (2010), Sumak et al. (2010), Tsai et al. (2009)
E-Commerce/Mobile Commerce	Uzoka (2008), Zhou (2008)
E-Health Services/Health IS	Chiu and Eysenbach (2010), Fitterer et al. (2010)
Mobile Services	Carlsson et al. (2006), Koivumaki et al. (2008)
Specialized business systems	Chen et al. (2008), Gunther et al. (2009), Li and Kishore (2006), Al-Harby et al. (2010),
Social Media	Curtis et al. (2010), Heikkila and Smale (2010), Sun, Liu, Peng, Dong, & Barnes (2014), Odewumi, M.O., Yusuf, M.O. and Oputa, G.O., 2018, Al-Azawei, A., 2018, Yahia, I.B., Al-Neama, N. and Kerbache, L., 2018, Li, H., He, X., Huang, L. and Xu, Y., 2019

## 2.2 Information Privacy

Privacy became an important social and ethical issue with the rapid growth of information and communication technologies (ICT). In early research in the field, individual privacy was largely ignored (Wilford, 2004). Although privacy is considered a right that everyone should have, the scope and extent of privacy were based on individual judgment. However, with the use of ICTs and the vast progress in ICTs, the nature of privacy has changed.

Online privacy is one of the major problems for internet users (LaRose & Rifon, 2006; Wirtz, Lwin, & Williams, 2007). It has attracted much of research attention, particularly in the online and e-commerce settings. Studies into information privacy have been conducted in corporate and commercial environments (Dinev & Hart, 1996; Smith *et al.*, 2004). In recent years the focus has shifted to individual privacy (Saridakis *et al.*, 2015). Surveys showed that online privacy concerns are the main reason for not using the internet or e-commerce (Digital Future Report, 2005; Metzger & Docter, 2003). Nowadays, in the information society, online privacy has become an international human rights issue (Smith, Milberg & Burke, 1996). This Section looks at the literature of the online information privacy and its relation to five most researched constructs, which are: technical, behaviour, companies, social network and religion. These affect online information privacy, a current gap in the literature.

A continuous re-evaluation of privacy is needed with the rapid growth of ICTs in order to protect individual privacy. With the huge amount of information being collected and readily accessible, private information in papers is not appropriate in the electronic format. It became easier to find private information about individuals in a matter of minutes looking around social media sites which violate the exclusivity of the information. According to Spinello (2010), 'if it just takes 15 minutes on the Internet, the temptation to snoop is greater' (p.105).

### **2.2.1 Origins of Information Privacy**

Warren and Brandeis (1890) took the first step toward recognizing the right to be left alone. In their famous essay “the right to privacy” they believed that the existing law has a way to protect the individual privacy. However, new technology, such as photography and newspaper, create a necessity of having a more explicit and separate recognized protection under the name of privacy (Schoeman, 1984; Warren & Brandeis, 1890).

Other researchers argued that privacy and intimacy are related (e.g., Fried, 1970; Gerstein, 1978; Rachels, 1975; Schoeman, 1984). Fried (1970) stated that there is an intrinsic value of privacy which is a fundamental human value and related to the individual development, with an individual moral and social perspective, in forming intimate relationships that involve respect, love, trust and friendship. He argued that the value of privacy is in allowing individual to maintain a varying degree of intimacy. Gerstein (1978) supported the privacy intimacy connection by recognizing the importance of privacy in communication and interpersonal relationships (intimacy) for the individual to get full life experiences. Schoeman (1984) supported these views and emphasised that privacy gives a way to control the individual intimate information. This control has many benefits for the relationship with others and for the inner-self. Rachels (1975) widened the value of privacy to intimacy by emphasising the importance of developing many interpersonal relationships with others.

Privacy is a core element to maintaining a variety of social relationships not only the intimate ones (Rachels, 1975). Privacy bestows the ability to control personal information accessibility, i.e. who knows what about oneself. Thus, it allows individuals to behave differently with different people in order to preserve and control various types of relationships (Rachels, 1975). Rachels (1975) view privacy as control of information



and access to oneself which guarantee the control of the relationships with others. In other words, he connects privacy with individual behaviours and activities.

Definitions of privacy employed by researchers have developed alongside advances in technology. They define privacy as the freedom from judgment (Introna & Pouloudi, 1999), the right to exercise privacy trade-offs (Adams & Sasse, 1999), controlling the access to information (Bellotti & Sellen, 1993; Dourish, 1993) and the purpose and sensitive information in specific context (Adams & Sasse, 1999; Westin & Ruebhausen, 1967).

Researchers examined several approaches to maintain the balance between privacy and security especially with more advanced technology (Agre & Rotenberg, 1998; Brin, 1999). However, September 11, 2001 act of terrorism didn't pass by without affecting the balance between privacy and security; by favouring security and surveillance for public safety over privacy (Chandler, 2009). Favouring privacy over security or the other way around, instead of being a zero-sum approach, will strike the wrong balance.

### **2.2.2 Information Privacy**

With the rapid growth of ICT, huge amount of personal data is online and can be seen by the world. Thus, protecting individual data became a hard task, and harder with every security incident that happened in different parts of the world, new regulation or governmental demands on accessing private information occur every now and then.

According to Westin (1968), information privacy is the ability to control the individual private information in which they have full power over their information and can decide to share it or not. It is considered one of the top ethical, legal, social, and political issues of the information era (Cho & Hichang, 2010). Laufer and Wolfe (1977) stated that to understand privacy we must understand the concept of privacy from the individual view, and also consider the social-historical perspective. Four dimensions of

## Chapter 2: Literature Review

information privacy have been identified by (Smith, Milberg, & Burke, 1996a) which are data collection, unauthorized secondary use of the data, improper access, and errors. On the other hand, Solove (2005) found different dimensions which are information collection, information processing, information dissemination, and invasion. Mekovec and Hutinski (2012) stated that online privacy perception referred to online shopping and e-banking service users' anxiety about how an online company or bank (which is providing the e-service) handles information that they collect about users during their online interaction. Shilton (2009) defines privacy as the ability to understand, choose, and control what personal information can be shared, with whom, and for how long.

Some researchers have done a meta-analysis on the information privacy to locate what other researchers focused on or miss (e.g. Bélanger & Crossler, 2011; Smith, Dinev & Xu, 2011). Smith, Dinev and Xu (2011) undertook a metadata analysis of 320 articles and 128 books on information privacy. They classified the literature in two ways, using an ethical-based nomenclature and based on their level of analyses. As a result of this classification, they identified three main areas for streamlining former researcher contributions: the conceptualization of information privacy; the relationship between information privacy and other constructs; and the contextual nature of this relationship. They found that there were many theoretical developments in the body of normative and purely descriptive studies that had not been addressed in empirical research on privacy. They also found out that some analyses received less attention and researchers should focus on antecedents to privacy concern and its outcomes. Similarly, Belangar and Crossler (2011) performed a meta-analysis on 142 Journals and 102 conference papers. They asserted that information privacy is a multilevel concept, but rarely studied as such. Those researchers mainly focused on explaining and predicting theoretical contributions with less attention to action contributions. The paper also

found that information privacy research has been heavily reliant on student-based and USA-centric samples, which results in findings of limited generalisability.

Information privacy has been studied from different perspectives including e-commerce, organization, behaviour, and technical among others. Consequently, different approaches have been found to protect the privacy of users' information. Researchers have tried to secure and protect information privacy through different approaches and methods. Some researchers used technical solutions (e.g. Sutanto, Palme & Tan, 2013) others tried to change user behaviour (e.g. Gross and Acquisti, 2005; Johnston and Warkentin, 2010; Siponen and Vance, 2010; Boss *et al.*, 2015; Johnston, Warkentin & Siponen, 2015; Wang, Gupta & Rao, 2015). Furthermore, some researchers argued that it is the companies role to safeguard and secure users private information (e.g. Smith, 2010; Lee, Ahn & Bang, 2011).

### **2.2.3 Corporate information privacy**

According to Bennett (1992) decision-makers usually underestimate the public policy connotation of privacy. With information technology and information system, privacy concerns should be considered an issue within the domain of public policy. Although public policy is a practical discipline, Bennett (1992) suggested that focusing more on the theories rather than only practice enables the development and understanding of privacy as a main public policy matter. As a result, privacy concerns and user awareness are fundamental in police decisions.

Researchers such as Lee, Ahn and Bang (2011), Milne and Culnan (2004), and Smith Winchester, Bunker and Jaimeson (2010) in their studies on information systems, focus on companies' policies and strategies to improve privacy. Lee, Ahn & Bang (2011) found that firms can improve social welfare privacy at the expense of the personal welfare. They also found that regulation enforcing the implementation of fair information practices can be efficient from the social welfare perspective. They

conducted a strategic analysis and privacy perceptions to find a solution to consumer privacy invasion by firms. However, they considered the impact of the consumer information disclosure which will affect the company's income. To do so, they used the game-theoretic approach to explore the firm's motivation for privacy protection and its influence on the competition and social welfare.

Privacy policies will not be effective unless the users read and apply the policies in their jobs and practices. Milne & Culnan (2004), in their study to understand what motivates the end-users to read privacy policies in various situations and companies, found that users with previous experience working for the same company do not tend to read privacy policies. On the other hand, users who read the policy did so because they are concern about their financial details, how their personal details will be used, who will be granted access to their details or how to avoid junk mails. Users' perceived comprehensibility of the policy has an impact on their decision to read the policy or not despite initial concerns and motivators to read these policies in the first place.

Smith, Winchester, Bunker & Jaimeson (2010), a strategy based on organization subunit size is helpful in motivating and assisting an organization to move toward privacy accreditation. They came up with this finding by conducting a survey, interviews, observations and focus groups on 89 users.

#### **2.2.4 Personal information privacy**

The context of social network brings new challenges to information privacy. Ellison & Boyd (2013) distinguished three precise social network elements which makes it a network communication platform: 'firstly, participants have uniquely identifiable profiles that consist of user-supplied content, provided by other users, and/or system-provided data. Secondly, they can publicly articulate connections that can be viewed and traversed by others. Thirdly, participants can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site''

(Ellison & Boyd, 2013, p. 158). As a result, social network sites (SNS) are measured by the content that their users share (Hilsen & Helvik, 2014).

Social Network Sites have many features that stimulate users to disclose their contact and personal information, part of which is often mandatory (Lewis, Kaufman, & Christakis, 2008) These features include, but are not limited to, connecting people. Furthermore, in order to gain the benefits from SNS, users have to share an extensive amount of their private information (Ellison, Vitak, Gray & Lampe, 2014). Thus, SNS users share private information that they generally would not otherwise disclose in order to use the social network sites (SNS) (Van Gool, Van Ouytsel, Ponnet & Walrave, 2015).

Online users and e-commerce consumers become a main information provider to social media, blogs and websites which make their personal information vulnerable. Online social networks (OSN) are the online environments where people can introduce themselves on a platform through their profile, connect with others, and communicate with them (Gross and Acquisti, 2005). This social network may benefit various parties by using users' private information, where the users show and update it voluntarily. Other parties use people's data from online social networks (OSN) in data mining, online advertising or even psychological evaluation for job candidates. The online social networks themselves are evaluated according to active user participation instead of the financial performance (Krasnova, Kolesnikova, Guenther & Günther, 2009). Furthermore, personalized web services and business intelligence software are using users' personal information (Li & Sarkar, 2006), where the data can be collected without the individual users being aware; making it is a high risk to disclose private information to OSNs. However, people still do it.

Krasnova et al. (2010) states that users are motivated to disclose their information because it is easy to access and maintain, helps develop relations and for

platform enjoyment. However, their perception of risks can be reduced by their trust in the network provider and availability of control options.

Siponen and Vance (2010) used Neutralization theory, a criminology theory, in the information security context. The neutralization theory claim that both law-abiding citizens and rule-breakers believe in the same norms and the value of the society (Sykes & Matza, 1957). Sykes and Matza (1957) proposed five techniques of neutralization were appealing to higher loyalties is one of them. Appealing to higher loyalties is used by people who feel that they are in a predicament that must be solved by breaking the law or policy.

### **2.2.5 Technical Perspective on Privacy**

Protecting the information resources of the firm is the main goal in managing firms. Information security specialists and managers used to be responsible in protecting the privacy and confidentiality of the organization information (Dhillon & Backhouse, 2001). However, recently the individuals with access to sensitive organizational information share the same roles and responsibilities (Stanton, Stam, Mastrangelo, & Jolton, 2005). Old information technology (IT) security effort concentrate mostly on technical methods to achieve protection, but new research considers the individual, social, and organizational influences as features of achieving information security (Choobineh, Dhillon, Grimaila, & Rees, 2007; Dhillon & Backhouse, 2001).

Sutanto, Palme and Tan (2013) proposed a solution aimed to reduce user's privacy perception and led to an increase in process and content gratification. Their IT solution was a personalized, privacy-safe application. This application delivered personalized services without giving any private information to a third party.

### **2.2.6 Behaviour Perspective on Privacy**

Some researchers have looked at online privacy through the behaviour lens. They have used many theories and approaches to identify the relation between user

behaviour and privacy. Posey, Roberts and Lowry (2013) argued that using a systematic approach is the best way to understand protection motivation behaviours (PMBs). However, they pointed out that future researchers should consider the changes in the information security threats and that technology might need new PMBs. They focused on the organizations' insider's behaviours without considering their culture, gender or religion.

Privacy protection, generally, means managing the release of the personal information while diverting unwanted intrusions (Goodwin, 1991). Self-protection behaviour concerning privacy implies it is only multidimensional when looked at with other attitudinal variables. Two separate factors underpinning the action people may take to protect their online privacy, as identified by Joinson *et al.*, (2010), are general concern and technical protection of privacy. General concern is the logical steps that people use to protect their online privacy, while technical protection is the use of software and hardware as tools to protect their online privacy.

Three defensive measures, fabricating, protecting, and withholding, which can be used by individuals have been identified by other studies (e.g. Lwin, Wirtz and Williams, 2007). Fabrication is when the user attempts to disguise their identity by using false information; protecting is when the user uses technology to protect their privacy; and withholdings is when the user refuses to provide information or to patronize websites. Similarly, three privacy protection rules have been prescribed by Metzger (2007) withholding information, falsifying information, and information seeking. Furthermore, a simpler classification consists of two dimensions: passive protection and active protection. These have been introduced by Dolnicar & Jordaan (2006), and Yao, Rice & Wallis (2007). Passive protection is depending on others such as government law to protect the privacy, whereas active protection is when the users take action to protect their privacy.

Some information system researchers (e.g. Johnston and Warkentin, 2010; Siponen and Vance, 2010; Boss *et al.*, 2015; Johnston, Warkentin and Siponen, 2015) have used Fear appeal manipulation theory to change users behaviours by enhancing and protecting information privacy. These researches argued that by enhancing the fear appeal factor, online users will be more careful and comply with the privacy policy and countermeasures. Siponen and Vance (2010), by doing an experiment and a survey on 1449 users, showed that fear appeal does impact end user's behavioural intention to comply with recommended individual acts of security. However, the impact is not uniformed across all end users. Boss *et al.* (2015) gave a comprehensive review on 125 users and a field experiment on 327 using PMT (Protection Motivation Theory) and fear appeal manipulation to motivate individuals to use more secure behaviours. PMT basically is the use of convincing message which warn the user of a personal threat and describe balance measures which subsist of protective behaviour, (Floyd, Prentice-Dunn & Rogers, 2000). They found that IS PMT research should use PMT and fear appeal manipulation before adding non-PMT constructs. They also stated that IS researchers should use fear appeal manipulation and measure fear. Furthermore, they said that information security PMT research should model and measure users' behaviour.

On the other hand, fear appeals are "persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what the message recommends" (Witte, 1992, p. 329). The first study was a long term study which uses the main base of PMT and added fear appeal and the experience of fear to the situation of data backup. The second study used the full nomology of PMT to a malware situation in a short-term-cross-sectional experiment survey. It also has the fear appeal manipulation, but with adding measurement to maladaptive responses.

Johnston and Warkentin (2010) conducted an experiment and a survey on 780 participants using fear appeal to investigate its influence on the end-user compliance.



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The result of the study was that the end-user behaviour intention to comply with recommended individual acts of security is affected by fear appeal. However, the impact is not uniformed across all end users. They used a fear appeal model which is an extension of the danger control process as described by PMT. In the model, the concept of threat severity and susceptibility are located as direct antecedents of response efficacy and self-efficacy and do not immediately influence behavioural intent. Behavioural intent is directly influenced by perceptions of response efficacy.

Johnston, Warkentin & Siponen (2015) also used fear appeal theory and made an enhanced fear appeal rhetorical framework to motivate people compliance with information security policy and procedures. They argued that fear appeal and PMT have two major problems when applied to the information security. First, fear appeal has been used to make individuals aware of an existing threat without concern for behaviour change mechanism. Second, PMT assumed that all threats are personally related to the recipient. Thus, they made an enhanced fear appeal rhetorical framework where they add the elements of fear appeal to elements of formal and informal forms of sanction severity, certainty and celerity. They conducted a survey and interviews on 559 employees of Finnish city government and they found out that using the enhanced fear appeal rhetorical framework provides a significant positive influence on compliance intention. In other word, these studies have limited their focus primarily to the construct of PMT, thereby ignoring other determinants of behaviour that may be important such as religious beliefs. They mostly focused on employees who mainly had rules and policies to follow. Finally, they suggested a technical solution to change the behaviour without considering the variety of the context.

Siponen and Vance (2010) reviewed 174 ethical decisions making and surveyed 790 employee using Neutralization theory. Their results suggested that practitioners should work to counteract employees' use of neutralization techniques. The

neutralization theory, according to Sykes and Matza (1975), stated that law-abiding citizens and criminals or rule breakers believe in the norms and values of the society. Sykes and Matza (1975) suggested five techniques of neutralization: denial of responsibility, denial of injury, denial of the victim, condemnation of the condemners, and appeal to higher loyalties. This study applied only to a specific context and culture where it could not be generalized. It also, failed to show the cause of the noncompliance to the policy.

Wang, Gupta and Rao (2015) observed the behaviour of 14,680 online users and argued that the results of their study supported the empirical application of routine activity theory in comprehending insider threats and providing a vision of how various applications have a different level of exposure to threats. Gross and Acquisti (2005), analysed online behaviour of 4000 Carnegie Mellon University students. They found out that the majority of the students are willing to provide and share private information, and they don't change their privacy preferences. Although this study revealed that college-aged users are the ones mostly willing to disclose as much private information as possible to many people, this cannot be generalized.

### **2.2.7 Communication Privacy Management (CPM)**

Communication Privacy Management (CPM) is a method that gives control to users over the accessibility of their private information through sets of boundaries. It is an evidence-based systematic theory which explains the user decision process that leads to share or hide their private information (Petronio, 1991). This theory suggests that users control and set some limits (boundaries) over their private information that they are willing to share. CPM argues that sharing private information with others means extending the ownership rights of the information from managing and controlling that private information. In other words, when private information is disclosed to others it moved from a private boundary to a collectively-owned boundary that is managed

among the co-owners (Caughlin, Scott, Miller & Hefner, 2009; Petronio, 2017; Petronio & Gaff, 2010).

Petronio (1991) used boundaries as a metaphor to distinguish between public and private information. These boundaries regulate and manage the individual privacy and the collective privacy (Child, Pearson, & Petronio, 2009a; Durham, 2008; Petronio, 2002b). According to Petronio (1991) there are three boundaries: boundary rule formation, boundary coordination and boundary turbulence. Users develop their boundaries rule formation on criteria such as cultural norms, religion, gender, risk and context (Durham, 2008; Kanter, Afifi, & Robbins, 2012; Ngcongo, 2016; Osatuyi, 2014; Petronio, 1991, 2002a). The boundary coordination is the rules that should be agreed on by the owner of the information and the receiver of that information because they became a co-owner of that information. The co-owners must consider boundary linkage rules, boundary permeability rules, and boundary ownership rules (Child & Agyeman-Budu, 2010; Child, Pearson, & Petronio, 2009b; Child, Petronio, Agyeman-Budu, & Westermann, 2011). Finally, boundary turbulence refers to when the shared information is leaked or seen by an unwanted or unauthorised third party. This might be a result of failing to follow rules, violating agreed rules, or an external breach (Mazur & Ebesu Hubbard, 2004).

Although CPM studies focus on relationships due to the information disclosure (McBride & Bergen, 2008), the theory has been used in different context such as: family communication, social media, health communication, personal relationships, e-commerce, and work environments (Child, Haridakis, & Petronio, 2012; Kanter et al., 2012; Metzger, 2007; Miller & Weckert, 2000; Ngcongo, 2016; Osatuyi, 2014; Petronio, 2012; Xu et al., 2011). Xu *et al.* (2011) used CPM to study the effect of organizations' policies on the users' self-disclosure through the privacy concerns. Their model shows that individual privacy concerns form through a cognitive process

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involving user awareness, perceived privacy risk, privacy control and the user disposition to value privacy.

Petronio (2002a) argued that CPM's predictions are an effective theoretical framework which can describe information disclosure and privacy management. CPM uses boundary metaphor to propose a scheme in order to understand the way that users manage personal private information or other people's private information (Child et al., 2009a).

According to Child et al., (2012) there are six propositions derive from CPM theory:

Proposition 1: People believe that they are the owner of their private information.

Proposition 2: As the owner of their private information, they should control the flow of that information.

Proposition 3: To control the flow of the information, people develop and use privacy rules based on criteria important to them.

Proposition 4: When individuals grant access to their private information that information enters into collective ownership, which represents an extension of the privacy boundary.

Proposition 5: When the information becomes jointly held and co-owned, the owners agree on a privacy rule for third party distribution of information.

Proposition 6: Mostly, people do not consistently, effectively, or actively negotiate privacy rules for collectively held private information; consequently, there is a possibility of boundary turbulence.

CPM has been studied by many researchers and they adopted or used it to fit their work and context. Some of them tried to explain it more like Child et al., (2012) where they introduce the six propositions, while others adopted it to build their own model like Xu *et al.* (2011). This thesis will use Xu *et al.* (2011) model to measure privacy concern which will be explain more next.

### **2.2.8 Privacy Concerns**

There is an increased interest in privacy concerns for individuals and organizations with the rapid growth of information access, so that ‘concerns about privacy are increasingly about the improper access, use, and manipulation of personal information’ (Moor, 1997, p. 16). Westin, Harris and Association (1991) characterized individuals according to their privacy concerns. They categorised them into three groups: privacy fundamentalists, privacy pragmatists, and privacy unconcerned. Privacy fundamentalists are the individuals who are highly concerned with the way their personal information is used. As a result, they are unwilling to share it with anyone. Privacy pragmatists are those who share these concerns, but they make decision basis on the case. Privacy unconcerned is those who give away their information without consideration, even if it is not required. However, social media users often appear to be unconcerned about their privacy until they get their privacy breached (Regan, 2000). In other words, although users value their privacy, they cannot explain the meaning of it and how to deal with it until they face a privacy breach or incident which they can relate to. In addition, privacy itself is a changeable concept. Meaning that users’ idea of privacy can be changed according to the context and values which change over time.

According to Buchanan et al. (2007) privacy concern is “the desire to keep personal information out of the hands of others” (p. 158). Privacy concerns can measure the negative feeling, for example if the user is afraid that his/her data might be misused (Ferguson, Gutberg, Schattke, Paulin & Jost, 2015). Thus, privacy concerns can relate to the negative online phenomena that affect the users such as online identity theft and misuse of personal data (Ferguson et al., 2015). With the ICT continuous evolution and the invention of social media, gathering and analysing information have grown; privacy concerns issues have increased specially with sensitive information (Fairweather, 1999). Terrorist attacks or accounting scandals increase the demand of opening and accessing

information increases. This makes it difficult to protect individual online private information (Waldo, Lin & Millett, 2007).

To investigate privacy issues, researchers should identify main causes of the privacy concerns (Phelps, Nowak & Ferrell, 2000). Most empirical privacy research in social sciences depend on measurements of a privacy related proxy, due to the intricacy of and the divergence in defining and measuring privacy. In addition, individual relationships depend more on cognition and perception than on rational assessment which makes it difficult not to use privacy proxies (Xu et al., 2011). Although the proxies sometimes interact with beliefs, attitude and perceptions, researchers are moving toward measuring privacy concerns as the central construct (see Appendix A, Table A3). IS studies have conceptualized privacy concerns as common concerns that mirror users fear about the likelihood of loss of their information privacy (Malhotra, Kim, & Agarwal, 2004; Smith et al., 1996a).

Mohamed and Ahmad (2012) in their paper tried to gain insights into information concerns, their antecedents along with privacy measures used in social media. They found that “Information privacy concerns explain privacy measures used in social networking sites” (p. 2366). Other researchers disagree with that statement (e.g. Spiekermann, Grossklags and Berendt, 2001; Acquisti and Grossklags, 2005), they found no direct relation between privacy concerns and users behaviour. According to Ferguson et al., (2015) there is no direct relation between privacy concern and use, but there might be an indirect relationship. On the other hand Fodor and Brem (2015) in their study about location-based services (LBS) found that privacy concerns have an impact on the user behaviour intention. Liu, Marchewka and Ku (2004) also proposed a privacy-trust-behavioural intention model to explain consumer’s behavioural intention for online transaction. Their laboratory experiment showed that four dimensions of

privacy strongly influenced the level of trust, which in turn influenced a customer's behavioural intentions to purchase from or visit a website.

Legal and social researchers recently noted that privacy is more situation-specific than dispositional. As a result, a distinction between general concern in privacy and situational specific concerns is a must (Margulis, 2003; Solove, 2005). Other researchers have addressed the contextual nature of privacy such as (Bennett, 1992; Waldo et al., 2007), where they argued that it is more understandable to look at privacy concerns in a specific situation than looking at them abstractly or generally. Thus, this study adopts the contextual emphasis of privacy concerns into a situational specific context which is the user concerns about loss of privacy if using social media.

#### **2.2.8.1 Technology Awareness**

According to Dinev and Hu (2007), technology awareness defined as the user's raised consciousness of and interest in knowing about technological issues and strategies to deal with them. In many cases, consumers are explicitly aware that information about them is being collected. For example, a notice on a website may request that visitors provide information to access the site, and consumers may give their permission to have the information collected or decline to access the site requesting the information. Users will not be as concerned about privacy when marketers obtain permission (either explicitly or by default) from them to collect and use information (Nowak and Phelps 1995). In other cases, users do not become aware that information about them was collected until after the information is collected. Consumers generally become aware when they receive some type of marketing communication from an entity that has collected information about them. Consumers' privacy concerns are likely to increase as they become aware that marketers have somehow obtained information about them without their awareness or permission (Cespedes and Smith, 1993).

Consumers feel a growing lack of control over how their personal information is used by companies (Equifax-Harris, 1996; Nowak and Phelps 1992) and find it unacceptable for marketers to sell information about them (Nowak & Phelps, 1992). For example, many people believe that the sole legitimate use of credit card data by a company is to process the charges from a specific transaction (Cespedesy & Smith, 1993). Wang and Petrison (1993) note that a lack of consumer knowledge of secondary usage of information has caused "strenuous objections" among consumers. Using this data for other purposes - to compile shopping behaviour patterns, for example—is seen as an invasion of consumers' privacy and illegitimate use of information on the part of the company (Cespedes and Smith 1993). Privacy may be a concern when people are aware that information about them is being collected without their permission and/or they do not know specifically how the information is being used (Nowak and Phelps 1995). Internet users had indicated that they would be more willing to consider providing information when sites explicitly informed them how the information is going to be used (Kehoe, Pitkow & Morton 1997). Cranor, Reagle & Ackerman (1999) find that whether information was going to be shared with other entities was the most important factor influencing consumer information disclosure online.

#### **2.2.8.2 Perceived Privacy Risk**

A risk is defined as a potential negative uncertain outcome (Havlena & DeSarbo, 1991) and the likelihood of another group opportunistic behaviour that can cause harm for oneself (Ganesan, 1994). The office of government commerce in Great Britain defines risk as 'an uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives' (Commerce, 2010, p. 4). The individuals may be affected emotionally, materially and physically by the negative perceptions of risk (Moon, 2000). Personal information opportunistic behaviours include information collection, processing, dissemination, and invasion activities.



Bhatia *et al.*, (2016) defined privacy risk as ‘the act of identifying a choice or action that may have an impact on privacy’ (p.58). Xu *et al.* (2011a) defined privacy risk from the SNS perspective as ‘the expectation of losses associated with the disclosure of personal information.’ (p.804). The calculation of the individual privacy risk involves an assessment of the probability of negative consequences as well as the perceived asperity of these consequences. A number of information system studies empirically documented the negative effect of perceived risk on the intention to conduct an online act, e.g. transactions and discloser (Jarvenpaa and Leidner, 1999; Malhotra, Kim and Agarwal, 2004; Pavlou and Gefen, 2004; Norberg and Horne, 2007).

Along the line of the theory of reasoned action (TRA) (Ajzen, 1991), perceived privacy risk, viewed as the negative antecedent belief, is expected to affect a person’s attitude, which is defined as a learned predisposition of human beings (e.g., privacy concerns). Indeed, empirical studies in e-commerce generally support the positive relationship between risk perception and privacy concerns (Dinev & Hart, 2004, 2006a). When using social media individuals engage in an evaluation about the extent of the uncertainty involved – who has access to the information and how it is or will be used. The higher the uncertainty, the higher individuals perceive the privacy risk. With high risks perceived in disclosing personal information, the individual raises concerns about what may happen to that information (Laufer & Wolfe, 1977). In other words, he or she will raise their privacy concerns.

### **2.2.8.3 Perceived Privacy Control**

As discussed above, more frequently than not, the element of control is embedded in most privacy conceptual arguments and definitions and has been used to operationalize privacy in numerous studies (Culnan, 1993; Malhotra et al., 2004; Sheehan & Hoy, 2000). However, little research has clarified the nature of control in the privacy context. For instance, in the privacy literature, control has been used to refer to

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various targets such as social power studies (Kelvin, 1973), procedural fairness of organizational privacy practices (Malhotra et al., 2004), and lack of control over organizational information use (Sheehan & Hoy, 2000). Consequently, Margulis (2003a, 2003b) pointed out that the identification of privacy as a control-related phenomenon has not contributed as much to clarify the privacy issues as it should have. To fill this gap, Xu and Teo (2004) made one of the first attempts to look into the nature of control in the privacy context through a psychological lens. Following this perspective, “control,” interpreted as a perceptual construct with emphasis on personal information as the control target, is conceptualized as a related but distinct variable from privacy concerns. This distinction is consistent with Laufer and Wolfe (1977), who identified control as a mediating variable in a privacy system by arguing that “a situation is not necessarily a privacy situation simply because the individual perceives, experiences, or exercises control” (p. 26). Conversely, an individual may not perceive he or she has control, yet the environmental and interpersonal elements may create perceptions of privacy (Laufer & Wolfe, 1977). Therefore, this thesis argues that control should be a related but separate variable from privacy concerns. This thesis will use Xu et al.’s definition of privacy control “as a perceptual construct reflecting an individual’s beliefs in his or her ability to manage the release and dissemination of personal information” (2011, p.804 ). Empirical evidence in other studies revealed that control is one of the key factors that provide the greatest degree of explanation for privacy concerns (Dinev & Hart, 2004; Phelps et al., 2000). Moreover, consumers’ perceptions of control over dissemination of personal information have been found to be negatively related to privacy concerns (Milne & Boza, 1999; Xu, 2007). These considerations suggest that perceived privacy control is a separate construct from privacy concerns and that the two constructs are negatively related. Prior research has shown that, in general, individuals will have fewer privacy concerns when they have a greater sense that they

control the release and dissemination of their personal information (Culnan & Armstrong, 1999; Milne & Boza, 1999; Stone & Stone, 1990). In other words, perceived control over personal information is a contrary factor that is weighed against privacy concerns.

#### **2.2.8.4 Disposition to Value Privacy**

The CPM framework acknowledges the important role of an individual's inherent need to manage the opening and closing of information boundaries and the resulting disclosure or withholding of information (Petronio, 2002). The personal nature (self-expression or self-defence) of the boundary management rules is often reflected in the individual's past experiences, demographic characteristics, and personality factors. In the trust literature, a similar construct called propensity to trust (Mayer, Davis & Schoorman, 1995), or disposition to trust (McKnight, Choudhury & Kacmar, 2002), has been incorporated in trust theoretical models. Disposition to trust has been defined as "the extent to which a person displays a tendency to be willing to depend on others across a broad spectrum of situations and persons" (McKnight et al., 2002, p. 339), and has been found to influence trust-related behaviours by framing interpretations of interpersonal relationships (Gefen, 2000; McKnight et al., 2002). Likewise, the personal disposition to value privacy (DTVP) is a personality attribute reflecting an individual's inherent need to maintain certain boundaries that frame personal information space.

This study uses Xu et al., (2007) definition of DTVP, defined as 'an individual's general tendency to preserve his or her private information space or to restrain disclosure of personal information across a broad spectrum of situations and contexts' (2011, p. 805). As a result, DTVP directly affect the risk-control assessment. Individuals who have higher DTVP inherently cherish their personal boundaries more. Such individuals need more control over the disclosed information and over the personal information flow, in general. Therefore, they tend to perceive that they do not

have enough control over their own information, as opposed to individuals who, by nature, tend to be more open and sharing of their personal information. The latter group feels less need for enhanced control; that is, they will have higher perceived control than the former group. Additionally, given the same type of boundary penetration and control, an individual with greater DTVP will have a higher expectation of losses associated with the disclosure of personal information online. For an individual who guards his or her personal space, even a small compromise or opportunistic use of his or her personal information is seen as a big loss of privacy (Xu et al., 2011). Thus, such individuals will perceive higher privacy risks associated with information disclosure.

Based on earlier discussions, we can argue that when an individual uses social media, he/she evaluates the status of risk and control associated with potential information disclosure which informs a possible perception of intrusion into the personal space and, thus, raises privacy concerns. An individual who has a higher level of DTVP will be more likely to perceive the boundary penetration as intrusion and, thus, will be concerned about his or her privacy, while an individual who has a lower level of DTVP may be less likely to perceive the same penetration as privacy intrusion. Thus, this thesis posits that DTVP directly affects privacy concerns.

### **2.3 Religiosity**

This Section focuses on the effect of religiosity on user behaviour. The impacts of religiosity on user behaviour are likely to affect the use of social media. Islamic religion will be the primary focus in this Section and reviewed in the strict Islamic context of Saudi Arabia. According to the literature, people who strongly follow a religion tend to ignore rules and regulations if they contradict their religious teaching. Evidence in this Section supports this claim. Religion has an impact on the individual use of social media through user behaviour, the perception of online privacy and acceptance to use.

### **2.3.1 Religion**

Religion is a major influence on human life. It plays a major role in the formation of behaviours and attitudes (Essoo & Dibb, 2010). Berger (1961) shows that religion is a causal part of social behaviour. Researchers argued that individuals' behaviours and attitudes are justified by their religious beliefs (Foxall, Goldsmith, & Brown, 1998). Delener (1994) argue that religion is considered the rule guide for its followers.

There are 5.8 billion people who follow a religion such as Christianity, Judaism, Buddhism, and Islam, which is 84 per cent of the world's population (Harper, 2012). Religion, to some extent, helps to shape individual personality, moral standards, social norms, and behaviours. Furthermore, religion plays a major role in humans behaviours and attitudes (Essoo & Dibb, 2010). Cohen & Hill (2007) argued that the boundary of moral standards, thoughts, judgments, attitudes and actions of human behaviours are affected by religion, personal level and type of religiosity. In addition, Delener (1994) shows that religion comprises of beliefs and values performing the rule which people follow or use as a guide to their behaviour. For example, In Saudi Arabia, a Muslim country, people pray five times a day. Four of these prayers are conducted during business hours, yet all businesses close to allow people to pray. It became a social norm that all businesses, social gatherings, meetings and activities postpone for the time of prayer. Religious beliefs and practices change individual behaviours and attitudes (Foxall et al., 1998) affecting their social norms and shaping new ones.

There is familiarity with religion between academics and the general public. However, according to Guthrie et al. (1980), a clear definition of religion has eluded philosophers and social scientists for centuries. The interaction between religion, traditions, and cultures are the main cause of this confusion (Hood, Hill & Spilka, 2009). Durkheim (1912) define religion as 'a unified system of beliefs and practices

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relative to sacred things, that is to say, things set apart and forbidden – beliefs and practices which unite into a single moral community called a Church, all those who adhere to them’. The focus of religion in this work shifted from history and doctrine to the social function. The focus of religion in this work shifted from social facts which made of beliefs and practices which unite a community.

Tillich (2001) concentrates on faith rather than religion in a broader sense. He argues that faith is an act of the total personality that comes from the human mind. In his view, religion, like faith, helps humans cope existentially. According to Khraim (2010), religion is considered a major cultural factor due to its universality and its impact on human behaviour, attitudes and values both socially and individually. It is also, one of the basic elements of social behaviour (Berger, 1961). The religious values and beliefs affect the human norms and behaviours in different ways, such as shaping public opinion, dealing with others, using products and in other everyday life.

Geertz (1973) also defines religion as a system of symbols which acts to create pervasive, powerful and long-lasting moods and motivations in people. Geertz (1973) postulates that the religious symbols are created by formulating conceptions of a general order of existence which are approved as factual. This definition is substantial and functional; it explains what religion consists of and what it does in its psychological, cognitive and emotional functions. He emphasised that human culture and experience are shaped by religion.

Religion overlaps with some characteristics of socio-cultural life (Choi, 2010; Cohen & Hill, 2007; Muhamad & Mizerski, 2013; Schwartz, 1995; Tarakeshwar, Stanton, & Pargament, 2003). Behaviours of individuals and relationships within groups, communities, organisation and families are affected by religion (Tarakeshwar, Stanton, and Pargament, 2003; Fam, Waller and Erdogan, 2004; Choi, 2010). Religion contributes to forming and shaping the individuals’ norms, thoughts, opinions, beliefs,

decisions making, moral standards, socialisations and attitudes directly or indirectly (Wilkes, Burnett, and Howell, 1986; Fam, Waller and Erdogan, 2004; Choi, 2010). According to Khraim (2010), Religion is considered a major cultural factor due to its universality and its impact on human behaviour, attitudes and values both socially and individually. It is also, one of the basic elements of social behaviour (Berger, 1961). The religious values and beliefs impact human norms and behaviours in different ways, such as shaping public opinion, dealing with others, using products and in other everyday life activities. Furthermore, Hannah, Avolio, & May (2011) stated that the scope of beliefs and norms explain only 20% of the variation in individual behaviour. In addition to understanding the direct impact of user's religious beliefs on the use of social media, it is important to identify to what extent people will allow their religion to take effect.

### **2.3.2 Religiosity**

Looking back to Geertz (1973) definition of religion, it is a system of symbols which acts to create pervasive, powerful and long-lasting moods and motivation in people. The attitudes and motivations, which have been formed by the symbolic system of religion, lead to distinct levels of commitment to obey the values and philosophy of any religion which is religiosity. The same religion can affect two individuals differently, which means the effect of religion will differ from one person to another. Therefore, religion by itself cannot be used as a measurement to the personal commitment to that religion, but the degree of people's commitment, belief, practice and acceptance of that religion, known as religiosity, is what can be measured (Mukhtar & Butt, 2012). Khraim (2010) states that religiosity is a strong predictor of consumer behaviour. He found that religiosity is multidimensional. The best dimensions to measure religiosity are current Islamic issues, religious education and sensitive products. The current Islamic issue dimension consists of 20 different aspects of daily

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life issues that face Muslim individuals such as the Halal label on the food and preserving the Islamic manner in dressing. This dimension goes along with the view that considers religion as a way of life. The religious education dimension is about how the Muslim individual gets his religious education such as attending religious talks, reading religious books and watching religious TV programmes. The final dimension is sensitive products which consider the consumption of items that might have some prohibited ingredients.

In current research, disciplines consider religiosity rather than religion in studying behaviour. By looking at the literature, it became apparent that researchers are focusing on the concept of religiosity rather than religion; because it reflects how an individual's behaviour is affected by the degree to which he/she follows a religion, e.g. (Wilkes, Burnett, and Howell, 1986; McDaniel and Burnett, 1990; Vitell, 2009; Schneider, Krieger & Bayraktar, 2011; Swimberghe, Flurry & Parker, 2011).

McDaniel & Burnett (1990, p.103) define religiosity as a "belief in a God which comes along with a commitment to follow principles believed to be set forth by that God". Alongside that, Worthington et al. (2003, p.85) stated that personal religiosity is the extent to which a person complies with his or her religious values and beliefs, and practices them openly. By looking at these two definitions, it is clear that religiosity differs from spirituality in that spirituality engages in an exploration of 'meaning, unity, connectedness to nature, humanity and the transcendent' (Vitell, 2009, p. 156). On the other hand, religiosity provides faith which is devoted to beliefs, attitudes, and behaviours (Emmons, 2005; Vitell, 2009). People who practised religion highly are not necessarily religious, as this practice might be a daily routine action rather than a devoted one (Khraim, 2010). There is no standardised measure of religiosity, but researchers develop or adopt a measure that fits with their needs (Khraim, 2010). The religiosity dimensions are different and sometimes depend on the nature of the research.



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Thus, it is essential to see how researchers have developed methods for assessing people's religiosity.

According to Vitell & Paolillo (2003), religiosity represents a main determinant of values and human convictions. Previous studies show that individuals' levels of religiosity have obvious effects on attitudes and behaviours (McDaniel & Burnett, 1990; Weaver, 2002). Some researchers, since the mid-1970s, have attempted to explain the relationships between personal religiosity and personal characteristics, and whether such relationships provide a ground for examining individual decision making processes (e.g. Barton & Vaughan 1976; Choi, 2010; Clark & Dawson 1996; Donahue, 1985; Miller & Hoffmann, 1995; Swimberghe et al., 2011; Wiebe & Fleck 1980; Wilkes et al., 1986; Smith et al., 1979; Welch 1981; Tate & Miller 1971). However, these studies have produced mixed results due to the differences in the way religiosity is defined and measured (McDaniel & Burnett, 1990).

For example, McDaniel and Burnett (1990) claim that some studies have shown that the more religious people are, the more emotional they become (e.g. Barton & Vaughan 1976; Slater 1947). From another perspective, Ranck (1961) argue that highly religious people usually have lower self-esteem. It was later shown by Smith et al. (1979) that there is a positive association between religiosity and self-esteem. Kohlberg (1981) found that religious reasoning was based on the revelations of religious authorities while morality was based on rational opinions and influenced by cognitive development. This emphasized that morality and religiosity were not linked from their perspective. Despite the prior evidence, other studies confirmed a powerful connection between religion and morality and considered personal religiosity to be a platform for the moral nature of behaviour (Geyer & Baumeister, 2005; Magill, 1992). Regardless of the external influences, the mixed findings stipulate that religiosity is a subjective characteristic, profoundly natural to the individual and its dimensions of expression;

they are not similar in different disciplines and contexts (Donahue, 1985b; Wilkes, Burnett, and Howell, 1986; McDaniel and Burnett, 1990; Vitell, 2009).

### **2.3.3 Measuring Islamic religiosity**

The Muslim world population is more than 1.9 billion (Population, 2016) playing a major role in the consumer literature. Consumer behaviour researchers tried to develop a religiosity scale for Muslims to see the effect of Muslims religiosity on the consumer behaviour (see Appendix A, Table A4). Some researchers, (e.g. Khraim, 2010; McFarland, 1984) argue that scales designed for Christianity are useless for Islam due to cultural differences. Researchers have tried to develop a unique measurement for Islamic religiosity, (e.g. Albelakhi, 1988; Alsanie, 1989; Khraim, 2010; Taai, 1985; Wilde & Joseph, 1997). Most of their attempts cannot be generalised for many reasons including but not limited to customised dimensions to fit their topic, the reliability of the subscales, and the use of the holy Quran as a guideline for the scale.

Taai (1985) developed a scale for Islamic religiosity, derived from a theological Islamic teaching source. This scale treats both recommended practice and obligatory practice as one, which affects its validity. Not doing the recommended practice is not a sin where failing in doing the obligatory practices is a sin. Hence, they cannot be treated as one. Albelakhi (1988) designed a three dimensions scale, belief, attitudes, and practice, which has both Islamic belief and practice and the score of the main belief element measured with the rest of the other measures have not been included in the study. This increases the question of the functionality of measuring such dimension. Another scale has been developed by Alsanie( 1989), where he treated faith and practice as a unidimensional variable. In spite of the fact that faith (intrinsic) and practice (extrinsic) should be, according to Islam, part of the individual daily routine, but they are not totally indivisible. For example, a Muslim can have strong faith, but he misses some prayers. Khraim (2010) developed a scale which consists of four

dimensions which are Islamic financial services, seeking religious education, current Islamic issue, and sensitive products. This scale only focused on Islamic behaviour and did not measure beliefs. Furthermore, the dimensions are designed to fulfil the authors area of interest, which is consumer financial behaviour. Wilde and Joseph (1997) came up with a measurement called MARS (Muslim attitudes towards religion scale). They focused on the experiential dimension in preference to beliefs and practices of Islam.

However, there are many successful studies where the researchers applied Allport and Ross (1967) religious orientation scale which is a Christian scale to measure Islamic religiosity such as (Essoo & Dibb, 2010; Ghorbani, Watson, Ghramaleki, Morris, & Hood, 2002; Ji & Ibrahim, 2007; Mukhtar & Butt, 2012; Schneider et al., 2011). According to Donahue (1985a), religious orientation scale can be used for Christianity and other religions because of its absence of doctrinal subjects and unlimited definitions of religion.

Some studies have used ROS in Islamic countries and Muslim participants. Ghorbani et al., (2002) applied ROS on Iranian Muslims, and they found that empirical study of the psychology of religion in Iran confirmed the relevance of ROS thought for understanding Muslim religion. Mukhtar and Butt (2011) did a study to see the role of religiosity to choose Halal products They used ROS to determine consumer religiosity. Their results indicate that subjective norms ( $\beta=0.455$ ,  $p, 0.001$ ), attitude towards the Halal products ( $\beta=0.265$ ,  $p, 0.001$ ) and intrapersonal religiosity ( $\beta=0.167$ ,  $p, 0.001$ ) positively influence attitude towards the Halal products. Schneide et al ., (2011) studied the effect of intrinsic religiosity on the ethical consumer behaviour. They compare two religions from two different countries Islam in Turkey and Christianity in Germany. They used ROS to measure intrinsic religiosity on both group. They found that Consumers in the Turkish, Moslem subsample, exhibit an even stronger connection between religiosity and ethical consumer behaviour than Consumers from the German,

Christian subsample. All of the previous studies successfully applied ROS on Muslim Participants from different countries. Summary of the adopted scales for Islam is in appendix A Table A1 shows the use of ROS to measure the religiosity in the Islamic context.

### **2.3.4 Conceptualising religiosity**

In every attempt to conceptualise and measure religiosity as a construct, a vital challenge is the absence of a commonly accepted definition of religiosity (McDaniel & Burnett, 1990). Vast types of measurement approaches have been developed throughout the literature. For example, one of the approaches is the belief in God and church attendance (Adorno, Brunswik, Levinson, & Sanford, 1950; Allport & Kramer, 1946; Gough, 1951; Rockeach, 1960; Stouffer, 1955). Another approach is religious affiliation where being part of a group considered more religious than the rest (Delener, 1987; Farah & Newman, 2010; Hirschman, 1981; Hirschman, 1983a, 1983b; Thompson & Raine, 1976). Other approaches are church attendance, the importance of and confidence in the religious value and self-perceived religiousness (Wilkes et al., 1986). Belief in God and attending church was considered by the earlier approach as the only factors to distinguish highly religious people from the less religious one (Adorno et al., 1950; Allport & Kramer, 1946; Gough, 1951; Rockeach, 1960; Stouffer, 1955). Nevertheless, other studies argued that believing in God and attending churches doesn't reflect the involvement and commitment to religious values (Allport & Ross, 1967).

Some academics tried to measure religiosity based on denominational membership or religious affiliation (e.g. Delener 1987; Farah & Newman 2010; Hirschman 1981; Hirschman 1983a; Hirschman 1983b; Thompson & Raine, 1976). The primary assumption that they used is that the power of religious affiliation is constant

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across religious clusters (Swimberghe et al., 2011). Nonetheless, this opinion can lead to some difficulties when trying to differentiate between the attribute effects of religious affiliation and those of actual religiousness (Swimberghe et al., 2011). Additionally, in some cases, believers may prefer a specific denomination but have an affiliation with another one (McDaniel & Burnett, 1990; Roof, 1980; Swimberghe et al., 2011). On the other hand, some researchers criticise religious affiliation as a too common definition which does not show the actual commitment to and practice of religion and its creeds (Himmelfarb, 1975; Muhamad & Mizerski, 2013).

The behavioural sciences' concept of conformity has been used by Wilkes et al. (1986). The concept of conformity, according to Engel & Roger (1995), states that an individual's complete psychological makeup is built around the 'self' concept. Therefore, it has been posited that religiosity is a highly individual and multidimensional nature rather than a unidimensional one (De Jong, Faulkner, & Warland, 1976). As a result, combined items have been developed by Wilkes et al. (1986) to evaluate religiosity: church attendance, the importance of religious values, confidence in religious values and self-perceived religiousness.

Religiosity, again, has been conceptualised as a multidimensional construct by McDaniel and Burnett (1990) and they identify two components of religiosity: religious affiliation and religious commitment. An open-ended questionnaire has been applied by them to measure religious affiliation. The religious commitment was addressed from both cognitive and conative perspectives. Later on, Worthington et al. (2003) developed this approach. A six-item, five-point scale was used to measure religious commitment. Other studies have also viewed religiosity through religious commitment (e.g. Essoo & Dibb 2010; Fam et al. 2004; Sood & Nasu 1995; Swimberghe et al. 2011). However, other researchers have needed to explain the main motivation for religiosity in terms of

differentiation between intrinsic and extrinsic religiosity (Allport & Ross, 1967; Schaefer & Gorsuch, 1991).

### **2.3.5 Intrinsic and extrinsic religiosity**

The concept of intrinsic religiosity, as the 'religious orientation scale,' has been introduced by Allport (1950). Allport and Ross (1967, p. 434) define an extrinsic and intrinsic person as 'extrinsically motivated person uses his religion, whereas the intrinsically motivated lives his religion.' In other words, the person who is extrinsically motivated uses the religion as a means to ease his life, whereas the intrinsically motivated person sees the religion as guideline and rule on how to live.

Intrinsic religiosity looks at religion as a meaning-endowing structure through which all of life is understood (Allport, 1950; Clark & Dawson, 1996; Donahue, 1985a). Extrinsic religiosity is personal and utilitarian, unlike intrinsic religiosity which is defined by internalised beliefs despite external consequences (Gordon W Allport & Ross, 1967; Schaefer & Gorsuch, 1991). On the other hand, extrinsic religiosity consists of two sub-dimensions : extrinsic social religiosity and personal extrinsic religiosity (Chen & Tang, 2013; Ghorbani et al., 2002; Ji & Ibrahim, 2007). According to Chen & Tang (2013), extrinsic social religiosity is about trying to achieve normal social goals like making friends, promoting personal interests and gaining social standing and acceptance in the community (Chen & Tang, 2013). Local church services, at some Christian communities, after Sunday service announce promotions and invite the people to try their services or products (Chen & Tang, 2013). Muslims are strictly prohibited from promoting business inside mosques, but they do promote their products or services directly after the prayers time and near to the mosques. Chen & Tang (2013) explain this phenomenon that the concept of extrinsic social religiosity is more concerned about the usage of religion as self-serving rather than practising religion purely to connect with God.

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The private individual gains such as happiness, relief, comfort and protection are the focus of the extrinsic religiosity (Chen & Tang, 2013; Laufer & Solomon, 2011). For example, some Muslims fast the month of Ramadan for personal gain such as losing Weight rather than fasting to follow the doctrine of their religion (El Ati, Beji, & Danguir, 1995; Roky, Houti, Moussamih, Qotbi & Aadil, 2004) . Personal and social extrinsic religiosity has always been combined by the researcher to investigate extrinsic religiosity as one overall construct (Chen & Tang, 2013). They do that because personal extrinsic religiosity sometimes functions similarly to intrinsic religiosity. The argument has been that gaining personal comfort and protection is the same as aiming for God's forgiveness and mercy by following religious doctrine. According to Chen and Tang (2013), this concept led to slender empirical research on personal extrinsic religiosity. Nevertheless, a research context should be considered before choosing to conceptualise extrinsic religiosity as one or two constructs.

Donahue (1985a) argue that participants are mostly classified by a four-fold typology created by median splits of scale scores when applying intrinsic and extrinsic religiosity as dimensions of religious motivation. Hence, a participant who gets the high intrinsic and low extrinsic score is categorised as an intrinsically religious person. On the other hand, a participant who gets the high extrinsic and low intrinsic score is categorised as extrinsically religious. Getting high scores in both intrinsic and extrinsic are considered to be 'indiscriminately pro-religious.' In contrast, a non-religious partisan gets low intrinsic and extrinsic scores (Clark & Dawson, 1996). According to Donahue (1985a), this religious motivation or orientation framework is considered as an influential and instructive tool in personality-social psychology. Yet, there is another opinion which states that all religious searches involve means and ends, a pathway and destination; therefore, defining religion as means (intrinsic) versus ends (extrinsic) is imperfect (Pargament, 1992; Slater, Hall, & Edwards, 2001).

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Allport and Ross' (1967) religious orientation scale is one of the most extensively used measurements in the literature, despite the rise of a multiplicity of religiosity measures (Donahue, 1985a; Vitell, 2009). In addition, more than one hundred studies supported this approach in terms of its reliability and validity of the concepts and measures (Muhamad & Mizerski, 2013). Intrinsic and extrinsic religiosity, based on the perception of human motivation, appear to be the measures used for studies involving nearly all religions (Gordon W Allport & Ross, 1967; Gorsuch & McPherson, 1989; Ji & Ibrahim, 2007; Muhamad & Mizerski, 2013). This approach can be applied to Muslims (Ghorbani et al., 2002; Ji & Ibrahim, 2007), Jews (Laufer & Solomon, 2011) as well as Christians (Chen & Tang, 2013; Putrevu & Swimberghek, 2013). Therefore, religious motivation will be the approach to conceptualise and measure religiosity in this research.



### **Chapter 3: Research Problem Definition.**

Chapter 1 of this thesis briefly presented the research problem, which has been established based on an extensive review of the literature. Chapter 2 expanded the discussion of three underlying concepts uncovered in the review: religiosity, privacy and technology acceptance. This chapter presents a thorough explanation of the research problem and related objectives, which advances the objectives and proposed contributions of this study.

#### **3.1 Definition Of The Research Problem**

Online users and e-commerce consumers are the main information providers of social media, blogs, and websites, making their personal information vulnerable over the Internet. An online social network (OSN) is a web-based environment where individuals can introduce themselves on a profile, and connect and communicate with others (Gross and Acquisti, 2005). Social networks may benefit various parties – users show and update their personal information voluntarily, while other parties use this private information for data mining, online advertising and even psychological evaluations for job candidates. Online social networks themselves are evaluated based on active user participation and less so on the basis of financial performance (Krasnova, Spiekermann, Koroleva, & Hildebrand, 2010). Personalized web-services and business intelligence software may make use of private information collected from users (Li & Sarkar, 2006), even where users themselves are unaware of the extent to which this information is mined and used. While this sheds light on the high risk and vulnerability associated with disclosing private information on OSNs, individuals still continue to contribute to and make use of OSNs. According to Krasnova et al. (2010), users are motivated to disclose their information online due to the ease of access, and ability to develop and maintain relations with other users, and for platform enjoyment. Users'

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perception of risk associated with OSNs can be reduced by perceived trust in the network provider and the availability of control options.

Individuals vary widely according to their online behaviour. Factors contributing to such behavioural differences include attitudes towards online privacy, technology acceptance and users' beliefs. This research focuses on religious beliefs, particularly as a factor that influences users' online behaviour in social media. As discussed in chapter 2, religion is defined as a system of symbols through which different motivations are created that in turn lead to varying levels of commitment. Such commitments herein referred to as religiosity, may have direct or indirect effects on users' attitudes, norms, and decision making. Underpinned by the established influence that religiosity has on shaping individuals' attitudes and behaviours, this study purports that religiosity will have a similar influence on users' online behaviour, particularly with respect to online information privacy and technology acceptance.

The population of Saudi Arabia is 33,091,113 as of July 2017; 91.7 per cent of the population use social media (Communications and Information Technology Commission, 2019; CIA, 2016). The five most used social media in Saudi Arabia are: Facebook, Twitter, Snapchat, Instagram and YouTube (Communications and Information Technology Commission, 2019). In line with good practice suggested by Blaikie (2009), the researcher started the study by undertaking an extensive review of the related body of literature. Based on this review, to the best knowledge of the researcher, the extant body of literature has given little research attention to religion as a factor that affects user behaviour in the context and use of social media. Some of the studies have examined the religious self-disclosure, where the social media users reveal their religious affiliations (Bobkowski and Pearce, 2011). Others study the effect of religiosity on the user's psychology when using social media (Almenayes, 2014), and using religiosity as a predictor of social media addiction (Almenayes, 2015). Although these studies have been

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using religiosity as a predictor link to social media, it gave us the opportunity to explore a new relationship between religiosity and social media.

This further highlights the need to investigate the related research question - does religion affects the use of social media? (see chapter 1). The use of social media is affected by privacy concerns and technology acceptance; focus is given to investigate whether and the extent to which the same is affected by religiosity.

### **3.2 Religion**

Over 5.8 billion people follow a religious belief such as Christianity, Judaism, Buddhism, and Islam, reflecting 84 per cent of the world's population (Harper, 2012). Religion, to some extent, shape individuals' personality, moral standards, social norms, and behaviours, and plays a major role in human behaviours and attitudes (Essoo & Dibb, 2010). This is reflected in Geertz (1973), who defines religion is a system of symbols that creates pervasive, powerful and long-lasting moods and motivations in people, consequently, shaping individuals' behaviour, norms and morale standards (see chapter 2). For religious people, following the teaching of their religion is a must. They practice and devote themselves to religious teachings, and the related norms guide their social lives and behaviours online. Such devotion has an effect on individuals' online behaviour, especially when using social media.

Religion has a major influence on human life. It plays a central role in the formation of behaviours and attitudes (Essoo & Dibb, 2010). Berger (1961) shows that religion is a causal part of social behaviour. Researchers argue that individual behaviours and attitudes are justified by religious beliefs (Foxall et al., 1998). Delener (1994) suggests that religion comprises beliefs and values that form underlying rules that people follow or use as a guide for behaviour.

This research uses the religion of Islam to test the hypotheses. Compared to followers of other religions, Muslims are considered to be more committed to their

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beliefs, practices, and the teaching of their religion (Bailey & Sood, 1993). For Arabs, religion plays a major role in their personal lives, and it is considered essential. There is no room for atheists or agnostics in the Arab world (Nydell, 2011). This is one of the reasons why Islam plays a dominant role in a conservative Islamic Arabic country like Saudi Arabia.

For the aforementioned reasons, religion has a powerful effect on individuals' behaviour, morale and ethical standards. The same effect can apply to the way in which online users view privacy and the use of new technology. As a result, this thesis hypothesises that religiosity has a direct effect on privacy concerns and technology acceptance. As discussed in Sections 3 and 4, privacy concerns and technology acceptance have a direct effect on the use of social media. Hence, religiosity has an indirect effect on the use of social media.

The study adopts Allport and Ross' (1967) religious orientation scale to capture religiosity of users. Allport and Ross (1967) used an adapted version of the religious orientation scale comprising 20 items, while Essoo and Dibb (2010) used the full version of the original scale. For this study, the items are measured along a Likert scale - 11 items capture extrinsic religiosity and nine items capture intrinsic religiosity. Minor adjustments are made to the wording of particular items in order to appropriately contextualize the scale to the Islamic context, for instance replacing the word 'Church' with 'Masjid', and the word 'Bible' with 'Holy Quran'. Applying a median split, Hood (1970) proposed the following fourfold religiosity typology which are intrinsic, extrinsic, indiscriminately pro-religious and not-religious.

### 3.3 Islam and Privacy

By reviewing the literature, it became clear that online users exhibit different behaviours and take varied precautionary actions when it comes to online privacy. Empirical studies show that Internet users take different proactive measures in order to protect their private information, while 50% of users occasionally falsify their data online (Culnan, 2001; Fox et al., 2000). Similarly, Lwin et al. (2007) report that majority of Internet users refuse to give accurate information to websites at one time or another due to privacy concerns. This makes it clear that online privacy represents a major concern for online users.

Islamic teachings value the fundamental human right of privacy. There are many verses of the Holy Quran that emphasise the importance of privacy: ‘Do not spy on one another’ (Qu’ran 49:12); ‘Do not enter any houses except your own homes unless you are sure of their occupants’ consent’ (Qu’ran 24:27). Even Prophet Mohammed (PBUH) instructed followers to not enter even their own houses suddenly or surreptitiously. The Islamic religion protects individual privacy and forbids the act of prying into the affairs of others. There are many examples in Islam that illustrate the importance of privacy.

Home privacy is valued in Islam, as stated in the Holy Qur’an: *‘O believers! Enter not the houses other than your own, until you take permission and salute the residents thereof. This is better for you, haply you may be heedful’* (24:27) *‘But if you find not anyone therein, then also enter them not without the permission of the owners; and if you are told to go back, then go back, this is cleaner to you. And Allah knows your deeds’* (24:28). The two foregoing verses give clear commandments to not enter the houses of others unless being explicitly invited and with appropriate consent; if a person is denied such privileges, he/she should leave. The verses imply that if there is no response, individuals in the house do not want intrusion at that time, and that a person does not has the right to enter into someone’s house without due permission,

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even if no one is inside. Other Islamic teachings highlight the importance of privacy between and within family members, and the need to announce oneself beforehand.

Islam strongly emphasizes the maintenance of chastity (for private parts) and humility, and followers are aware of the need to respect individuals' right to privacy. A number of verses in the Hadith accentuate the importance of this issue, for instance *'Order the Muslim men to lower down their sights a little and to guard their private parts. This is cleaner for them; undoubtedly, Allah is Aware of their deeds'* (Qur'an 24:30).

The sharing of private information also applies to the sharing of that of other individuals, as those individuals themselves are prohibited from declaring their own flaws and mistakes and are commanded to keep their sins private and hidden. Islam specifically condemns violating the privacy and steering closely at the lives of others - *'O ye who believe! Avoid suspicion as much (as possible): for suspicion in some cases is a sin: and spy not on each other, nor speak ill of each other behind their backs. Would any of you like to eat the flesh of his dead brother? Nay, you would abhor it... but fear Allah: for Allah is Oft-Returning, Most Merciful'* (Qur'an 49:12). In addition to espionage, Islam imposes a ban on scandal and defamation to protect people's privacy and the sanctity of life - *'O ye who believe! Let not some men among you laugh at others: it may be that the (latter) are better than the (former): nor some women laugh at others: it may be that the (latter) are better than the (former): Nor defame nor be sarcastic to each other, nor call each other by (offensive) nicknames: ill-seeming is a name connoting wickedness, (to be used of one) after he has believed: and those who do not desist are (indeed) doing wrong'* (Qur'an 49:11).

The preceding discussion establishes that individual privacy is central to Islam. Since online privacy forms part of individual privacy, Islamic belief affects online privacy. There is therefore a direct effect of Islam on privacy that Muslims are

commanded to value and protect. While privacy has a direct effect on the use of social media, religiosity (Islam) has an indirect effect on the use of social media through privacy.

### **3.4 Islam and Technology Acceptance**

With the emergence of new technologies, comes the resistance towards accepting technological initiatives. Such resistance often stems from the fear of using something new, the fear of change, or the fear of committing something against a user's beliefs. As explained in Section 2, Saudi Arabia is a conservative country, Islam is the dominant religion. Saudi Arabians follow the teaching of Islam and obey the government as instructed by the Holy Qur'an - *'O you who have believed, obey Allah and obey the Messenger and those in authority among you'* (Qur'an 4:59) - and seek guidance from Islamic scholars - *'so ask the people of the message if you do not know'* (Qur'an 16:43). Thus, before accepting new initiatives, individuals tend to wait for governmental and Islamic approval.

Islamic literature has many cases where religion affects the use of new technology through Fatwa (Muslim scholars' religious opinions). The official religious institution in Saudi Arabia is built on several institutions, the most important being the Council of Senior Scientists (CSU) and the Standing Committee for Research and Issuing Fatwas (Religious Decrees). These religious authorities issue Fatwas (religious edicts) that are approved by the state concerning social and political issues in the Kingdom, and are often direct advice to the Saudi King (Schanzer & Miller, 2012). This religious establishment directly influences the judiciary and education system, as well as governance for communication and national administration (Yildirim, 2019).

Early Fatwas introduced by the CSU prohibited the use of new modern technologies (Al-Kandari & Dashti, 2014). During the early dissemination of new media technologies that eventually transformed Saudi society, the general pattern of

attitudes expressed by the CSU was conservative, passive and rejectionist. Most technical initiatives were rejected upon introduction into Saudi society, notwithstanding in many ways reflecting the achievements of the human mind. For instance, telegrams were prohibited when first introduced, and similar resistance was exhibited when the radio, TV, satellite dish, video and smartphone with built-in cameras were first introduced. Particular Fatwas barred the entry and use of key technologies in Saudi Arabia (Al-Kandari & Dashti, 2014; IbnBaz, 2001; Jafari, 2015; Schanzer & Miller, 2012). The aforementioned incidents, among several others, demonstrate the historical position of Islamic Clerics (CSU) towards new communications technology and social media. The latter was particular controversial due to the Kingdom's limited control to censor social content. The foregoing thus advances the view that Religiosity affects technology acceptance.

#### **3.4.1 Islam and UTAUT2**

This study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT2) to measure technology acceptance. The UTAUT2, developed by Venkatesh, Morris & Davis (2003), is one of the most commonly used theories of technology acceptance in the field of the information system. Similar to UTAUT, it seeks to explain the user's intentions to use technology (use behaviour).

The UTAUT2 comprises several related constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation and habit (Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2016; Williams et al., 2013). In the context of technology, Islamic Cleric's Fatwa is underpinned by several principles, a central one being the usefulness of technology (Al-Kandari & Dashti, 2014). This study proposes a direct relationship between the usefulness of technology and the Islamic Fatwa, where Clerics change their Fatwa from banning the technology to allowing the use of the technology with restrictions (Al-Kandari & Dashti, 2014; Chawki, 2010).



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Since performance expectancy is based on the perceived usefulness, there is a direct effect between Religiosity and performance expectancy.

Effort expectancy is based on the ease of use of technology, and in turn a significant influence on perceived usefulness. Islamic teachings encourage followers to consider the ease of use and not to complicate things. The Prophet himself (PBUH) said, "*Facilitate things to people and do not make it hard for them and give them good tidings and do not make them run away (from Islam)*" (Al-Bukhari, 2017). His (ﷺ) instruction is to complete the act of making things easy for people (i.e. ease of use) so that they will not reject the Islam.

Social influence is situated around the perceptions of other people. According to Al-Kandari and Dashti (2014), Muslim clerics use Islam to legitimize social and cultural arrangements, resist heresies, preserve Orthodox values and minimize strife (opposing authorities). Technological innovation changes the dominant culture and ideological atmosphere, and clerics can often subjugate people to their influences. Social media have and continue to have strong influences on the social and cultural tenets of Arab society, offering a wide range of views on issues such as secularism, liberalism and the rights of women. Social media enable individuals to easily compare their lifestyles, behaviours and customs to that of individuals in other cultures (Al-Kandari & Dashti, 2014).

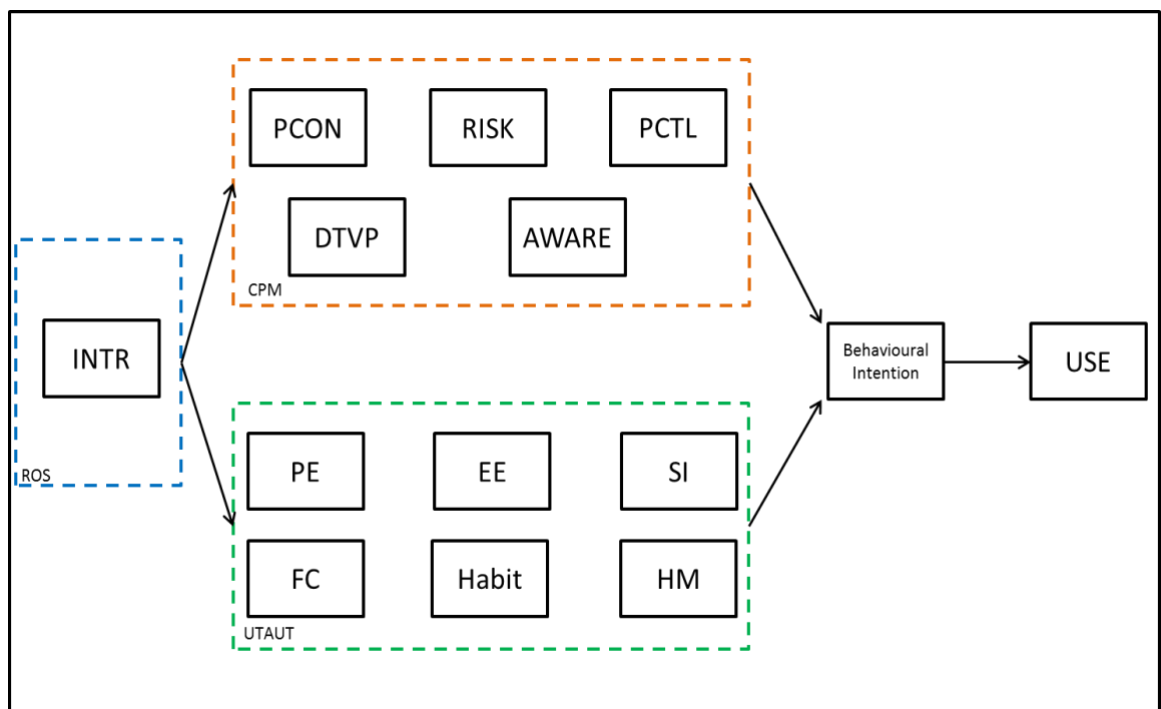
Facilitating conditions (FC) comprise perceived behavioural control and compatibility. Islam serves to control Muslim behaviour through the holy Qur'an and the Hadith, and as such, Muslims are prohibited to live and act in manner that contradicts Islamic teaching. Many online behaviours are not permitted in Islam, such as bullying, spying or trolling (Al-Kandari & Dashti, 2014). In consequence, the expectation is for Muslims to exhibit behaviours that are in line with to Islamic teachings, irrespective of means and mode of technology. Leading from the foregoing

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discussion, this study seeks to empirically test the relationship between Religiosity, hedonic motivation and habit. The study also examines direct and indirect effects among the related constructs.

## Chapter 4: Hypothesis Formulation

This chapter presents and explains the proposed research model and provides an account of the hypotheses. The model is underpinned by three theories: ROS, Privacy Concerns and UTAUT2 (see chapter 2 for a thorough explanation of theories). The independent variable is ‘Intrinsic Religiosity’, and the dependent variable is the ‘use of technology’. As illustrated in Figure 6.1, the model has two central pathways: the first is from Religiosity to ‘Perceive Privacy’ and then from Privacy Concerns to BI; the second is from Religiosity to ‘Technology Acceptance’ and then from ‘Technology Acceptance’ to BI. The remainder of the chapter presents the pathways and corresponding hypotheses: the set for Religiosity are presented in Section 6.1; those for ‘Privacy Concerns’ are presented in Section 6.2, and then those for UTAUT2 and technology acceptance are presented in Section 6.3.



**Figure 6.1:** Proposed Model

### **4.1 Religiosity**

As explained in Chapter 2, religion has a profound influence on human life, particularly on attitudes and social behaviour (Berger, 1961; Essoo & Dibb, 2010). Attitudes and behaviours are largely explained by religious beliefs (Foxall et al., 1998), given that religion constitutes a system of beliefs and values that serve as a rule that people follow (Delener, 1994). Harper (2012) points out that, religion, to some extent, helps to shape personality, moral standards, social norms and behaviours. Religion is therefore the rule that influences an individual's behaviour, attitudes, moral standards, thoughts and judgments (Cohen & Hill, 2007; Delener, 1994; Essoo & Dibb, 2010; Geertz, 1973).

According to Geertz (1973), religion is a system of symbols which acts to create pervasive, powerful and long-lasting moods and motivation in people. The attitudes and motivations, which have been formed by the symbolic system of religion, lead to distinct levels of commitment to obey the values and philosophy of any religion. This is religiosity. Researchers argue that religiosity is a predictor of an individual's behaviours, attitudes, human value and morality (Emmons, 2005; Huffman, 1988; Khraim, 2010; McDaniel & Burnett, 1990; Vitell, 2009; Weaver, 2002).

Religiosity affects the use of technology. Added to the reasons mentioned above, the literature reveals cases where religious beliefs have affected the use of technology. As mentioned in chapter 2, the dimensions of technology and religion are clearly illustrated in the case of a technology ban on religious ground. Religion and technology both have an impact the other, and are interrelated. Religion's impact on technology, was shown in the example of the internet ban in Saudi Arabia (see chapter 2). Some technologies have been banned by religious people for religious reasons, while others banned the bad use of technology. The Islamic teaching dictates to its followers acceptable behaviours and what acts or behaviours are considered sins. As a result,

#### Chapter 4: Hypothesis Formulation

intrinsic religiosity acts like an inner compass for individuals guiding how they should behave according to their religion. Therefore, Hypotheses 1, 2, 3, 4, 5, 6 and 12 are religiosity's effect on UTAUT2 constructs:

*H1: Intrinsic religiosity affects effort expectancy (EE).*

*H2: Intrinsic religiosity affects social influence (SI)*

*H3: Intrinsic religiosity affects performance expectancy (PE).*

*H4: Intrinsic religiosity affects hedonic motivation (HM).*

*H5: Intrinsic religiosity affect habit (Habit).*

*H6: Intrinsic religiosity affects facilitating conditions (FC).*

*H12: Intrinsic religiosity affects behaviour intentions (BI).*

Intrinsic religiosity looks at religion as a meaning-endowing structure through which all of life is understood (Clark & Dawson, 1996; Donahue, 1985a). As such, an intrinsically motivated person sees their religion as guidelines and rules on how to live. Intrinsically religious people tend to question themselves about whether they are doing the right thing or not based on their religious beliefs. For religious people, privacy is determined by religion. For example: in Islam, the female picture is private, and it is prohibited for a female to show her face and hair to strangers. Thus, some privacy matters have been established by religious causes. Technology has affected the privacy through cyber crimes and other means of invading privacy, and vice versa the fear of privacy invasion has affected the way people use technology. Privacy concerns are affected by the user's beliefs, values and morale. Hence, privacy concerns are affected by religiosity. Islamic teaching pays considerable attention to privacy (see chapter 2)

In Islam, invading others privacy is considered a sin and the individual must guard his/ her privacy. As a result, a highly intrinsic religious individual will pay much attention to their own privacy and would be careful to neither invade the privacy of others. Muslims are accountable for their actions, they must be aware of the risk and not

## Chapter 4: Hypothesis Formulation

be ignorant specially to the matters that affects their religion. They have to have control over their informations and behaviour. The risk of lossing some of their privacy should be considered at all time because it is a sin in Islam to invade others privacy or to disclose personal information for everyone. As a result, a highly intrinsic religious individuals have more value to their private information. Therefore, Hypothesis 7, 8, 9 ,10 and 11 are religiosity's effect on Privacy Concerns:

*H7: Intrinsic religiosity affects privacy awareness (AWAER).*

*H8: Intrinsic religiosity affects Privacy control (PCTL).*

*H9: Intrinsic religiosity affects disposition to value privacy (DTVP).*

*H10: Intrinsic religiosity affects privacy risk (RISK).*

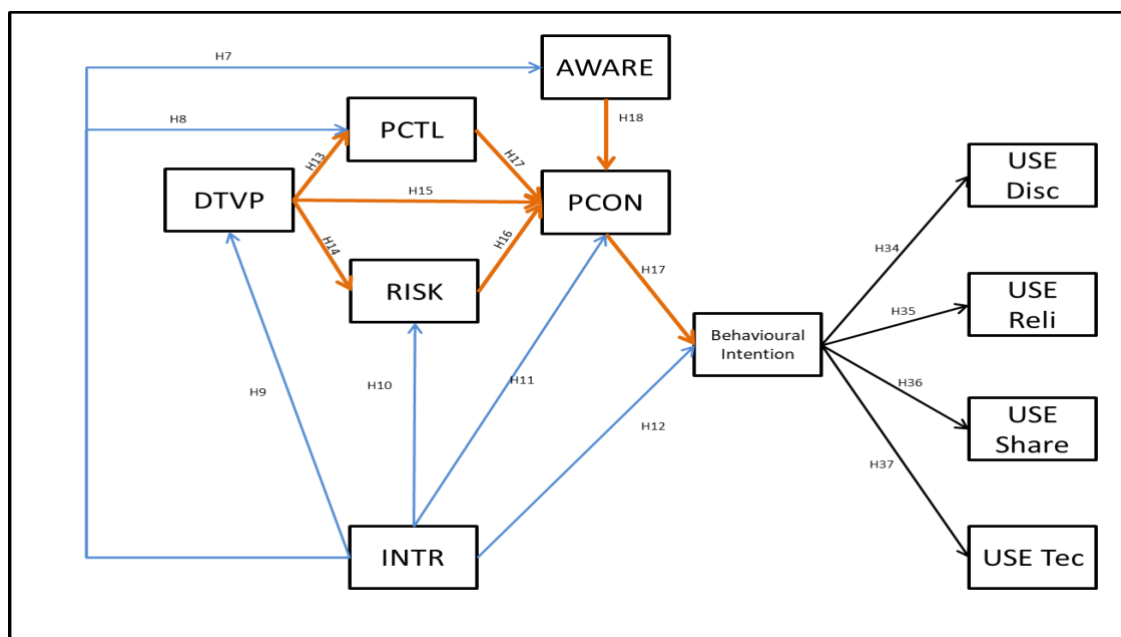
*H11: Intrinsic religiosity affects privacy concerns (PCON).*

**Table 6.1:** Religiosity Hypotheses

<b>Religiosity Hypotheses</b>	
H1	Intrinsic religiosity affects effort expectancy (EE).
H2	Intrinsic religiosity affects social influence (SI).
H3	Intrinsic religiosity affects performance expectancy (PE).
H4	Intrinsic religiosity affects hedonic motivation (HM).
H5	Intrinsic religiosity affects habit (Habit).
H6	Intrinsic religiosity affects facilitating conditions (FC).
H7	Intrinsic religiosity affects privacy awareness (AWAER).
H8	Intrinsic religiosity affects Privacy control (PCTL).
H9	Intrinsic religiosity affects disposition to value privacy (DTVP).
H10	Intrinsic religiosity affects privacy risk (RISK).
H11	Intrinsic religiosity affects privacy concerns (PCON).
H12	Intrinsic religiosity affects behaviour intentions (BI).

## 4.2 Privacy Concerns

According to Buchanan et al. (2007) privacy concern is “the desire to keep personal information out of the hands of others” (p. 158). Privacy concerns can measure the negative feelings, for example if the user is afraid that his/her data might be misused (Ferguson et al., 2015. Xu et al's. (2011) model is used in this thesis (Figure 6.2) to understand the decision relating to privacy. The model argued that individual privacy concerns are formed through a subjective process involving perceived privacy risk, control, awareness and the user disposition to value privacy.



**Figure 6.2:** Privacy concerns pathway

### 4.2.1 Disposition to Value Privacy

According to Xu et al., (2011) DTVP defined as ‘an individual’s general tendency to preserve his or her private information space or to restrain disclosure of personal information across a broad spectrum of situations and contexts’ (p.805). According to the privacy concern framework, DTVP is responsible for boundary control. It determines the boundary opening and closing, and consequently, directly affects one’s assessment of risk-control. The higher the users DTVP, the more they will treasure their personal boundaries. Generally, these users will require more control over

their disclosed private information. Hence, users will tend to feel the need for more control over their information.

On the other hand, users who are open in nature and like to share their information feel that they have enough control and do not care for extra control. As a result, they feel that they have higher perceived control than the former group. Moreover, in the identical type of boundaries and control, users with higher DTVP will have greater anticipation of losses related to the disclosure of personal information online. Even a small opportunistic use of a private user's information will be considered by them as a huge loss of privacy for overprotective users. Consequently, such users will feel greater privacy risks connected to information disclosure. Therefore, Hypotheses 13 and 14:

*H13: DTVP negatively affects perceived privacy control.*

*H14: DTVP positively affects perceived privacy risk*

Based on the earlier consideration, this thesis argues that upon detecting any boundary infiltration, the users will assess the percentage of risks and control linked to probable disclosure. This will show a potential perception of invasion of personal space. Hence, enhance privacy concerns. In the identical type of boundaries and control infiltration, users with higher DTVP will be more likely to see the boundary infiltration as an intrusion. As a result, they will be concerned about their privacy. On the other hand, users with a lesser level of DTVP might be less likely to feel the same infiltration as privacy intrusion. As a result, this thesis assumes that DTVP directly affects privacy concerns. Therefore, Hypothesis 15:

*H15: DTVP positively affects privacy concerns.*

#### **4.2.2 Perceived Privacy Risk**

Similar to the TRA, this model viewed perceived privacy risk as a negative antecedent of belief. It is predicted to affect the user's attitude, such as privacy



concerns. Studies generally support the claim of a positive relationship between risk and privacy concerns (Tamara Dinev & Hart, 2004, 2006a). This thesis expects that the same relation can be applied in this model. Users evaluate the uncertainties that happen when the information flows between the boundaries. In other words, users want to know who has access to their information and how it will be used. Perceived privacy risk increases with an increase in uncertainty. When users perceive high risk when disclosing their private information, the concern of what will happen to that information will increase (Laufer & Wolfe, 1977). In that case, the users will raise their privacy concern. Therefore, Hypothesis 16:

*H16: Perceived privacy risk positively affects privacy concerns.*

#### **4.2.3 Perceived privacy control**

This thesis uses Xu et al.'s (2011) definition of privacy control which is ‘a perceptual construct reflecting an individual’s beliefs in his or her ability to manage the release and dissemination of personal information’ (p.805). Studies show empirical evidence that privacy control is one of the main factors that explain, to a great degree, privacy concerns (Dinev & Hart, 2004; Phelps, Nowak, & Ferrell, 2000). In addition, privacy concern has a negative relationship with users control over the distribution of their private information (Milne & Boza, 1999; Xu, 2007). As a result of these considerations, privacy concern and perceived privacy control are separate constructs with a negative relationship. Previous research has suggested that the greater the sense of control that users have the less privacy concern they exhibit (Culnan & Armstrong, 1999; Milne & Boza, 1999; Stone & Stone, 1990; Xu et al., 2011). Therefore, Hypothesis 17:

*H17: Perceived privacy control negatively affects privacy concerns.*

#### **4.2.4 Technology Awareness**

According to Dinev & Hu (2007), Technology Awareness is ‘the user’s raised consciousness of and interest in knowing about technological issues and problems and strategies to deal with them.’ (p.402). Most of the time, users are aware of their information being collected online. The research has revealed that privacy can become a concern when the users are aware of unauthorised collection of their information, particularly when they have not knowledge about how this information will be used (Nowak & Phelps, 1995). Users indicate that they are prepared to consider providing information if they are being informed by the website of how the information will be used (Yao et al., 2007a). Therefore, Hypothesis 18:

*H18: Awareness positively affects privacy concerns.*

#### **4.2.5 Privacy Concerns**

Usually, people think that privacy is the right to be left alone (Warren & Brandeis, 1890). According to Wang, Lee, & Wang (1998), internet privacy is ‘the unauthorised collection, disclosure, or other use of personal information’(p.212). Social media applications collect personal data and use it to analyse personal references to help them direct proper advertisement to the correct audience. Although there is privacy agreement when using social media, personal data are being used without the user’s knowledge or get leaked from the social media servers, e.g. Facebook data breach (Murphy, 2019). As a result, people became more cautious when using social media. Therefore, Hypothesis 19:

*H19: Privacy concerns (PCON), negatively affect behaviour intentions.*

Table 6.2: summaries the privacy concerns hypotheses.

**Table 6.2: privacy concerns Hypotheses**

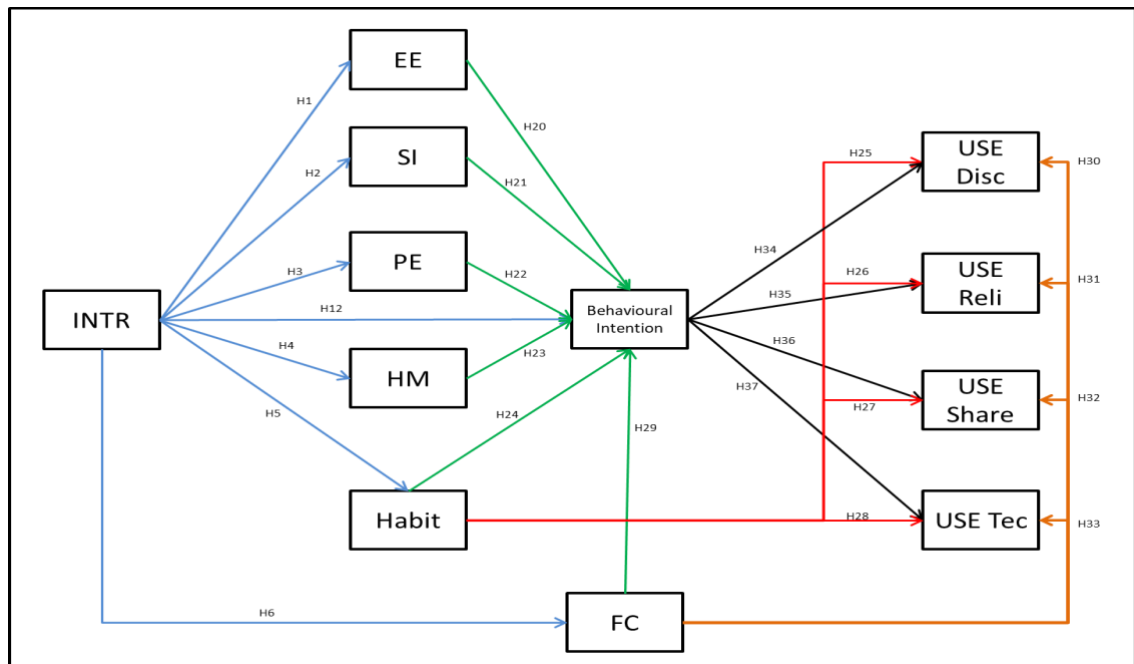
<b>Privacy Concerns Hypotheses</b>	
<b>H13</b>	DTVP negatively affects perceived privacy control.
<b>H14</b>	DTVP positively affects perceived privacy risk
<b>H15</b>	DTVP positively affects privacy concerns.
<b>H16</b>	Perceived privacy risk positively affects privacy concerns.
<b>H17</b>	Perceived privacy control negatively affects privacy concerns
<b>H18</b>	Awareness positively affects privacy concerns.
<b>H19</b>	Privacy concerns (PCON), negatively affect behaviour intentions

### **4.3 The unified theory of acceptance and use of technology (UTAUT 2)**

As mentioned in chapter 2, in regard to technology acceptance, UTAUT is recognized as one of the most used theory. This theory was developed by Venkatesh et al. (2003). The purpose of this theory is to illustrate the user's intentions to use technology and user behaviour. It was developed to display an explicit picture of the acceptance process. The theory consists of 9 constructs effort expectancy, social influence, performance expectancy, hedonic motivations habit, facilitating conditions, price, behaviour intentions and use. This thesis will not consider the price construct because the technology in question, the five most used social media in Saudi Arabia, is free.

The dependent variable (USE) in this thesis will be divided into four parts, used to disclose information (USE Disc); used in accordance to the religious teachings (USE Reli); used to share information (USE Share); and used for social media technology (USE Tec). USE Disc will focus on the use of social media to disclose private information. USE Reli will focus on the use of social media according to religious teaching, as illustrated in chapter 2, some Islamic religious scholars have banned or restricted the use of certain social media. USE Share will focus on the use of social

media to share information. Finally, USE Tec will focus on the use of social media itself, whether it will be used or not if prohibited by religion.



**Figure 6.3:** UTAUT2 pathway

#### 4.3.1 Effort Expectancy (EE)

According to Jambulingam (2013), effort expectancy is the extent to which a technology is easy to use. As previously explained in Section 3, many studies show that EE influence behaviour intention (BI) to use technology (e.g. Anderson, Schwager & Kerns, 2006; Kit, Ni, Badri & Yee, 2014; Teo, 2011; Wu, Tao, & Yang, 2007). According to Venkatesh et al. (2003), EE has a significant direct effect on behavioural intentions. Therefore, hypothesis 20:

*H20: Effort expectancy (EE), affect behaviour intentions.*

#### 4.3.2 Social Influence (SI)

Leong, Ooi, Chong & Lin (2013) define social influence as the users' impression of what their partners, friends and family members believe that they should adopt as an information system technology. The effect of the user's social connection influences the user to use or not to use social media. SI will be used to assess user social effects when using social media. Behaviour intention is directly affected by SI

(Venkatesh et al., 2003; Pahnla, Siponen & Zheng, 2011; Venkatesh et al., 2012; Harsono & Suryana, 2014).

*H21: Social influence (SI), affect behaviour intentions (BI).*

#### **4.3.3 Performance Expectancy (PE)**

According to Venkatesh et al. (2012), performance expectancy is the degree to which users gain benefits in using technology while carrying out activities. PE is derived from five similar constructs from different theories (see chapter 3). Most of the studies suggest that there is a direct positive relationship between PE and BI (e.g. Venkatesh et al., 2003; Pahnla, Siponen and Zheng, 2011; Venkatesh et al., 2012; Harsono and Suryana, 2014). Therefore, Hypothesis 22:

*H22: Performance expectancy (PE) positively affects behaviour intentions (BI).*

#### **4.3.4 Hedonic Motivation (HM)**

Brown & Venkatesh (2005) defined hedonic motivation as the fun, joy or pleasure that comes from using a certain technology. HM plays a significant part in adopting social media application (see chapter 3). Many studies suggest that HM directly affect BI (e.g. Pahnla, Siponen and Zheng, 2011; Venkatesh et al., 2012; Harsono and Suryana, 2014). Therefore, Hypothesis 23:

*H23: Hedonic motivation (HM) affect behaviour intentions (BI).*

#### **4.3.5 Habit (HT)**

Limayem, Hirt, & Cheung (2007), prescribed habit as the automatic behaviour applied by the individuals in a certain situation. HT has a direct effect on BI and a direct effect on the use. Venkatesh et al. (2012) detected that there is a direct and indirect effect of habit on BI to use technology. Habit has a direct effect on BI and a direct effect on the use. Behavioural intention and use of technology are significantly affected by habit (Pahnla, Siponen and Zheng, 2011; Venkatesh et al., 2012; Harsono and Suryana, 2014). Therefore, Hypotheses 24, 25, 26, 27 and 28:

## Chapter 4: Hypothesis Formulation

*H24: Habit (HT) affects behaviour intentions (BI)*

*H25: Habit (HT) affects the use of social media to disclose information (USE Disc)*

*H26: Habit (HT) affects the use of social media according to the religious teachings (USE Reli)*

*H27: Habit (HT) affects the use of social media to share information (USE Share)*

*H28: Habit (HT) affects the use of social media as a technology (USE Tec)*

### **4.3.6 Facilitating Conditions (FC)**

Venkatesh et al. (2003) describe facilitating conditions as the things that assist the individuals in using technology. For this thesis, FC will be defined as the devices that facilitate the use of social media such as internet connection, online support, the availability of the social media and the compatibility of the social media application to the devices. Behavioural intention and user behaviour are affected directly by FC (Venkatesh et al., 2003; Pahnla, Siponen and Zheng, 2011; Venkatesh et al., 2012; Harsono and Suryana, 2014). Therefore, Hypotheses 29, 30, 31, 32 and 33:

*H29: Facilitating conditions (FC) affect behaviour intentions (BI).*

*H30: Facilitating conditions (FC) affect the use of social media to disclose information (USE Disc).*

*H31: Facilitating conditions (FC) affect the use of social media according to the religious teachings (USE Reli).*

*H32: Facilitating conditions (FC) affect the use of social media to share information (USE Share).*

*H33: Facilitating conditions (FC) affect the use of social media as a technology (USE Tec).*

### **4.3.7 Behavioural Intention (BI)**

Venkatesh et al., (2003) defined behavioural intention as the individual plan to do a given act which can anticipate their behaviours. From a different perspective, Mun,

#### Chapter 4: Hypothesis Formulation

Jackson, Park, & Probst (2006), described BI as the subjective probability of doing a behaviour in addition to the reason for that behaviour. As a result, BI can demonstrate the motivational factors which shape the use and indicate the willingness and the effort individuals put into commit to a behaviour (Mafe, Blas, & Tavera-Mesías, 2010). Use of technology is affected directly by BI (Venkatesh et al., 2003; Pahnla, Siponen and Zheng, 2011; Venkatesh et al., 2012; Harsono and Suryana, 2014).

, Hypotheses 34, 35, 36 and 37:

*H34: Behaviour intentions (BI) affect the use of social media to disclose information (USE Disc).*

*H35: Behaviour intentions (BI) affect the use of social media according to the religious teachings (USE Reli).*

*H36: Behaviour intentions (BI) affect the use of social media to share information (USE Share).*

*H37: Behaviour intentions (BI) affect the use of social media as a technology (USE Tec).*

**Table 6.3:** UTAUT2 Hypotheses

UTAUT2 Hypotheses	
H20	Effort expectancy (EE), affect behaviour intentions.
H21	Social influence (SI), affect behaviour intentions (BI).
H22	Performance expectancy (PE) positively affects behaviour intentions (BI).
H23	Hedonic motivation (HM) affect behaviour intentions (BI).
H24	Habit (HT) affect behaviour intentions (BI)
H25	Habit (HT) affect the use of social media to disclose information (USE Disc)
H26	Habit (HT) affect the use of social media according to the religious teachings (USE Reli)
H27	Habit (HT) affect the use of social media to share information (USE Share)

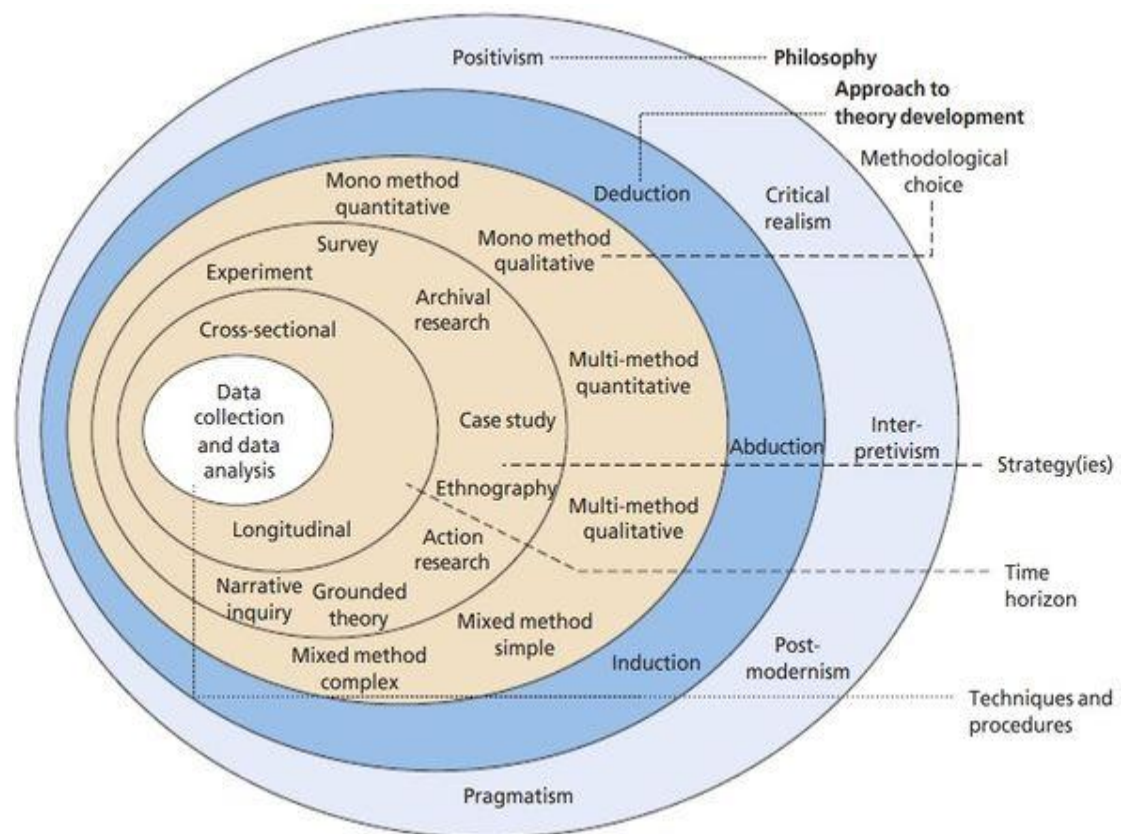
#### Chapter 4: Hypothesis Formulation

H28	Habit (HT) affect the use of social media as a technology (USE Tec
H29	Facilitating conditions (FC) affect behaviour intentions (BI).
H30	Facilitating conditions (FC) affect the use of social media to disclose information (USE Disc).
H31	Facilitating conditions (FC) affect the use of social media according to the religious teachings (USE Reli).
H32	Facilitating conditions (FC) affect the use of social media to share information (USE Share).
H33	Facilitating conditions (FC) affect the use of social media as a technology (USE Tec).
H34	Behaviour intentions (BI) affect the use of social media to disclose information (USE Disc).
H35	Behaviour intentions (BI) affect the use of social media according to the religious teachings (USE Reli).
H36	Behaviour intentions (BI) affect the use of social media to share information (USE Share).
H37	Behaviour intentions (BI) affect the use of social media as a technology (USE Tec).



## Chapter 5: Methodology

This chapter presents the adopted research methodology. The discussion is organized following the research onion proposed by Saunders et al. (2009) as illustrated in Figure 7.1. The chapter therefore explains the research philosophy, research approach, methodological choices, research strategy and the methods for data collection and analysis. The onion contains six layers that cover the research process. It provides an efficient platform on which to design a research methodology. According to Bryman and Bell (2015), the usefulness of the research onion lies in its adaptability for use in many contexts and nearly any type of research.



**Figure 7.1:** Research Onion; Sources: Saunders et al., (2009).

## 5.1 Research Philosophy

Saunders et al. (2009) define research philosophy as ‘a system of beliefs and assumptions about the development of knowledge’ (p. 124). It is a fundamental explanation of the nature of knowledge, and the justification for how the research is conducted is derived from the research philosophy (Flick, 2015). Different research goals require different research philosophy (Goddard & Melville, 2004). As a result, the researcher’s philosophical standpoint influences what is researched and how it is researched (May, 2011). The research philosophy explains the basis of the adopted research process and methodology. The research onion consists of five philosophies: positivism, critical realism, interpretivism, post-modernism and pragmatism (see Appendix B, Table B1).

Management and information system scholars generally apply the positivists paradigm to examine phenomena (Guba, 1990; Lincoln, Lynham, & Guba, 2011). Positivism is based on the relationships between social reality and its actors (ontology) that the researcher measure (epistemology). By adopting the positivist philosophy, social phenomena is explained by existing theories. Hypotheses are developed and then empirically tested following a systematic procedures. For the most part, the extant body of literature on information system focuses on hypotheses testing, the measurement of constructs and statistical analysis. An implication of adopting a positivist standpoint is that researchers should remain neutral and objective to order to avoid potential confounding effects (Saunders et al., 2009).

Positivistic research builds upon existing theories and scales; data are collected and empirically test specified hypotheses (Bryman & Bell, 2015; Lincoln et al., 2011; Saunders et al., 2009). Adhering to methodological conventions of prior studies in the domain of information systems, and in keeping with the underlying aim of the research (to test relationships between the constructs), the researcher adopts a positivist

perspective. The study is therefore underpinned by the assumption that the proposed relationships between user intrinsic religiosity, perceived privacy, technology acceptance and use of social media and other related constructs can be captured and empirically tested.

## **5.2 Research Approach**

According to Saunders et al. (2009), there are three general approaches for research approaches: deductive, inductive and abductive. The differences among the approaches are mainly situated around the use and relevance of hypotheses (see Appendix B, Table B2). The deductive approach starts by developing a theory from the literature and then tests that theory. The inductive approach starts by collecting data to build a theory. Finally, the abductive approach starts by collecting data, then identifying themes to develop and/or modify theory, and then test theory through additional data collection. For the purpose of this research, the relevant body of literature is reviewed about religiosity, perceived privacy and technology acceptance. The study then adopts established scales from the literature (ROS, Privacy Concerns and UTAUT2), and then develops and empirically test a conceptual framework.

### **5.2.1 Deductive Approach**

The deductive approach starts with an extensive review literature to develop hypotheses from existing theories (Ketokivi & Mantere, 2010). According to Wiles, Crow & Pain (2011), this approach is best suited where previous research work is used as a starting point to develop potential relationships concerning phenomena. Deductive is therefore best suited to the positivist research approach, which depends on pre-existing theories, statistical analysis and quantifiable observations (Saunders et al., 2009). However, the researcher acknowledges that qualitative techniques could be used for deductive research (Saunders et al., 2009).

## Chapter 5: Methodology

Blaikie (2009) presents six consecutive steps for conducting deductive research: identify a tentative idea, refine a testable proposition from previous literature, examine the argument against previous studies, evaluate whether the results of statistical analysis finds support that confirms or disproves hypotheses, and finally, assess the extent to which finding corroborates with existing theory. From these steps, it is clear that the deductive approach starts from general to particular, starting with establishing a theoretical and knowledge base through empirically testing relationships to advance new knowledge.

Adhering to Blaikie (2009), the researcher starts by reviewing the literature. This thesis started by looking at the use of social media literature and the online user behaviour literature. A gap came clear to the researcher which is the effect of religion on the user behaviour of the social media. This led to more research on the literature of the privacy concerns and technology acceptance. After reviewing the literatures, hypotheses have been formulated.

To best knowledge of the researcher, religion has not been considered a factor that affects user behaviour when using social media, therefore advancing the related research question, more specifically, does religion affect the use of social media? (see chapter 1). The use of social media affects perceived privacy and technology acceptance; these in turn, are affected by religiosity. According to the religion literature (Section 2), religion cannot be measured by itself, but the degree of people commitment, belief, practice and acceptance of that religion, known as religiosity, is what can be measured (Mukhtar & Butt, 2012). This study therefore measures religiosity using Allport and Ross (1967) religious orientation scale (ROS).

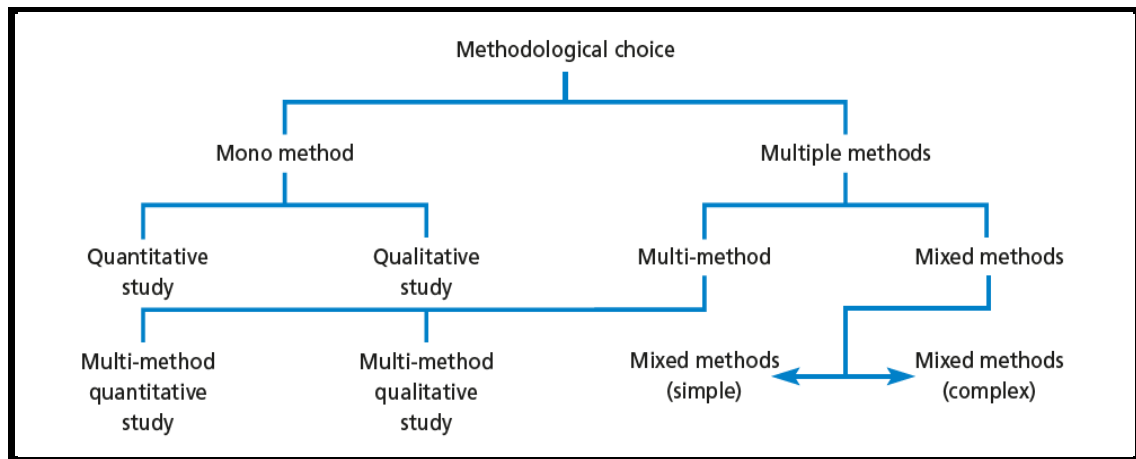
As explained in chapter 4, the model measures perceived privacy based on Xu *et al.*'s (2011a) work on privacy concerns. It is a systematic evidence-based model that explains a user's decision to share or hide private information (Petronio, 1991). Finally,

Venkatesh and Davis' (2000) unified theory of acceptance and use of technology (UTAUT2) is adopted to measure the technology acceptance. The related hypotheses are tested using empirical data from research samples.

The underlying purpose of hypothesis testing is 'to explain the nature of certain relationships or establish differences among groups or the interdependence of two or more factors in a situation' (Sekaran & Bougie, 2016, p. 124). This study seeks to verify the causal relationships among variables and test the adopted theories in a proposed conceptual model. The hypothesised are tested relationships using SmartPLS software.

### **5.3 Methodological Choices**

There are three main methodological choices as outlined in Figure 7.2: mono-methods, mixed methods and multi-methods (Saunders et al., 2009). Mono-method involves the exclusive use of a quantitative or qualitative method for research; mixed method involves the use of two or more methods for research; while multi-method research entails the wide use a selection of quantitative and/or qualitative methods to conduct the research (Bryman & Bell, 2015). The central difference between the mixed-method and the multi-method lies in the composition of the dataset. For mixed-method research, a single dataset is created by combining different forms of data that may have been collected using different data collection techniques (Flick, 2015); conversely, when using multi-methods, the study is divided into isolated sections with each having separate datasets (Feilzer, 2010).



*Figure 7.2: Methodological choice. Source:(Saunders et al., 2009).*

There are three types of research methods: quantitative, qualitative and mixed methods. The obvious difference between quantitative and qualitative methods is the collection of numeric data (numbers) versus non-numeric data (words, video, image), accordingly. On the one hand, quantitative methods involves the collection and analysis of numerical data; on the other, qualitative methods involves the collectio and analysis of non-numerical data. Mixed-methods involves the combined of use of both qualitative and quantitative data on the same research project.

As mentioned earlier in this Section , the researcher maintains a positivist outlook for conducting the research, and as such adopts a deductive research approach. For the most part, existing studies in the research domain have been developed based on existing theories and advanced using quantitative methodos. In line with these research conventions, this study adopts a mono-method quantitative research design.

### **5.3.1 The Quantitative Approach**

In order to use an appropriate methodology, researchers need to depend on the condition of knowledge regarding the occurrence, as well as the nature of the phenomenon under investigation (Edmondson & McManus, 2007). According to Bryman and Bell (2015), quantitative approach entails‘the collection of numerical data, as exhibiting a view of the relationship between theory and research a deductive and a

predilection for a natural science approach and as having an objectivist conception of social reality' (p. 160). The overarching goal of quantitative research is to study phenomena using numbers and statistics, as opposed to text and images. Quantitative research is in line with positivism; it starts with theory, and is guided by literature develops research questions and hypotheses that are empirically tested Robust procedures are applied to establish validity, such as adhering to recommended conventions to establish significant and valid results (Goddard & Melville, 2004; May, 2011). The study also test the hypotheses using a substantively large sample size of respondents (discussed later), which is in keeping with the conventions of quantitative research.

Quantitative research approach is recommended when there is adequate theoretical background to develop hypotheses, and to operationalize and empirically test the research constructs (Guba, 1990). The information system research domain generally uses a quantitative approach to study user behaviour thus providing further rationale for its application in this research (e.g. Boss et al. 2015, Johnston and Warkentin 2010, Johnston, Warkentin and Siponen 2015, Siponen and Vance, 2010). As a result, the researcher explore different quantitative scales to measure the three concepts of this thesis as explained earlier in this chapter. These scales have been adopted and some changes have been made on them to suit the nature and context of this thesis.

#### **5.4 Research Strategy**

Saunders et al. (2009) define research strategy as 'a plan of how a researcher will go about answering her or his research question' (p.177). The strategy can constitute one or more approaches and methods such as surveys, experimental research, case study research, interviews, or a systematic literature review. Structured surveys are generally used to collect data for quantitative research. Sampling, as detailed in the

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section that follows, involves the use of a relatively large sample to test research hypotheses (Bryman & Bell, 2015). In the following sections, issues concerning the research strategy, sampling, data collection, time horizon and data analysis are explained.

### 5.4.1 Samples

A sample is a subset of a research population (Bryman & Bell, 2015). Sample size and selection can be used to establish the reliability of quantitative research. The sample for this research is drawn from a research population of adult Saudi Arabian social media users. Data are collected in Saudi Arabia for several reasons discussed in chapter 2. Two additional reasons justify the use of this sample: first, the fact that the researcher identified the research phenomena in the Saudi context, and second, increasing debate around communication problems in Saudi Arabia and its association with religiosity, for instance, the male and female segregation in schools and the workplace (Doumato, 1999; Le Renard, 2008). Kraidy (2009) argues that gender segregation in Saudi Arabia affects the lines of communication among male and female members of the society.

Islam is considered one of the fastest-growing world religions (Essoo & Dibb, 2004), and is predicted to be the world's largest religion by 2023. The rise of Muslims users online, along with the expanding numbers worldwide, may present challenges when it comes to business. Muhamad and Mizerski (2013) claim that this is happening due to the increase in religious involvement and conservative views held by devout Muslims. As a result, conservatism is closely considered when researching issues involving Muslim users. The foregoing provides additional rationale for collecting the sample from Saudi Arabia.



### 5.4.2 Sample Size

The sample size constitutes the number of participants drawn from the research population (Bryman & Bell, 2015). An appropriate sample size is essential to establish reliability and validity of research results. A sample size containing less than 30 participants may potentially skew research results and findings. Generally speaking, large sample sizes tend to produce more valid and reliable results (Flick, 2011). The research population for this thesis is adult social media users in Saudi Arabia. The population of Saudi Arabia is 33,091,113 as of July 2017, and 91.7 per cent of the population are using social media (Communications and Information Technology Commission, 2019; CIA, 2016). This will leave 8.3 per cent of the total population who is not a social media user. By looking at the population of Saudi Arabia and the targeted participant in this study, over 18 years old, it is safe to say that the remaining 8.3 percent are underage, which makes it hard to reach them without their parents' consent or children who are not allowed to use social media, and the target of this thesis is the active social media users.

According to Nulty (2008), an acceptable response rate of online surveys is 33 per cent. The survey used in the present research yield 1120 respondents, with 509 usable responses, in turn representing the sample adopted for this research, covering adult Muslim Saudi nationals. This sample size is in line with that of previous studies, exceeding the suggested minimum of 400 participants for populations exceeding 100,000 (Isaac & Michael, 1995; Krejcie & Morgan, 1970).

There was 279 male participant (54.6%) and 232 female participants (45.4%). There was six age groups 18-22, 23-26, 27-35, 36-40, 41-60 and over 60 years old. The majority of the participants are in the age group 27-35 with 42,7%. The educational level of the participants has been divided into six groups elementary school, secondary

school, diploma, bachelor, master and PhD. The majority of the participants have a bachelor's degree 49% then master's degree 26%.

### **5.4.3 Sampling Techniques**

Administering the online survey via social media platforms such as Facebook, Twitter, and WhatsApp, served to increase the study's response rate. A convenience sampling approach have been used. This approach collect data from member of the population who are conveniently available to participate. Survey Gizmo (an online survey website) used to administer the online questionnaire. The survey was accessible only to Muslim Saudi citizens who are over 18 years old and active social media users. Participants not meeting the above criteria were directed to the end of survey, thereby eliminating them from the sample. Additional filter questions are applied in the first section of the survey to eliminate unusable responses - e.g. 'Do you have a social media account', and 'for how long you have had these accounts').

### **5.4.4 Time Horizons**

According to Saunders et al. (2009) time horizons can be cross-sectional or longitudinal. Cross-sectional involves studying a phenomena at a specific time, and most often employs the use of a survey research strategy (Saunders et al., 2009). On the other hand, longitudinal time horizon involves collecting sets of data over an extended period of time (Saunders et al., 2009). Due to the nature of this study and the limited timeframe given by the university to complete this thesis, the decision is taken to adopt a cross-sectional time horizon. The questionnaire has been distributed on social media for five months ,from June to October 2017.

### **5.5 Questionnaire design**

The questionnaire is widely used for primary data collection due to its inherent convenience, efficiency, and ability to gather valid and reliable data (Saunders et al., 2009; Neuman, 2011; Bryman and Bell, 2015). A researcher usually constructs a

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questionnaire containing relevant questions on the focal research constructs; in this instance ROS, privacy concerns and UTAUT2. It is important for the researcher to provide clear instructions to participants, and to ensure that personal bias arising from the investigator's influence does not affect the results and, ultimately, the credibility of the study (Bryman & Bell, 2015).

Given its standardised structure and format, a questionnaire can be conducted without the researcher being present (Flick, 2015). The type of questionnaire employed depends on the research aim, and the researcher is tasked to design an appropriately comprehensive set of questions (Bryman & Bell, 2015). To administer questionnaires, researchers use one of three methods: self-administration, where respondents are provided with questionnaires to fill in by themselves (online questionnaires take this form of administration); face-to-face administration, where the researcher interviews the respondents; and administration via telephone (Bryman & Bell, 2015).

Online questionnaires are designed to contain a list of questions that are prepared and sent to respondents by email or hosted on the Internet and accessible by a hyperlink or automatic pop-up (Duffy, 2002). They are predominantly employed in instances where the researcher are intent to collate data relating to user needs, and are most effective for studies where respondents are widely dispersed over a geographical location or region (Duffy, 2002; Saunders et al., 2009; Bryman and Bell, 2015). The most salient advantage of the questionnaire is that it can be used across a geographically widespread and relatively large group, without incurring high costs. For this thesis, an online questionnaire is deemed suitable for data collection, as it enables the researcher to engage with as many participants as possible and hence optimize the credibility and generalizability of the study. In addition, the purpose of this thesis is to look at online behaviour. Online questionnaires provide respondents with the opportunity to answer questions directly, without any assistance from the researcher. As a consequence, any

bias potentially occurring due to researcher influence is minimized. Survey Gizmo is used to administer the online questionnaire.

The questionnaire is designed in English and then translated into Arabic through direct and blind back-translation to ensure understanding, acceptability, importance and completeness (Brislin, 1986). A panel of experts in translation, linguistic, information system and religion studies reviewed the questionnaire (the English and the Arabic versions) and suggested some minor changes in the translation. The translated version was then reviewed by 'Arkan Al Hijaz translation office' an accredited translation office in Saudi Arabia.

The questionnaire includes a consent form, five main sections and one general section asking for the demographic information. The main sections are filtering question, intrinsic religiosity, privacy concerns and technology acceptance. All items are adapted from existing scales except that for demography. The intrinsic religiosity consists of nine questions adapted from Essoo & Dibb (2010). Privacy concerns consist of 21 questions, adapted from Xu *et al.* (2011), and technology acceptance consists of 28 questions adapted from Venkatesh and Davis (2000). A seven-point Likert scale ranging from 1 = Strongly disagree to 7 = Strongly agree is used for each statement in the scales (the full questionnaire is presented in Appendix C).

### **5.5.1 Consent form**

The questionnaire starts with a consent form where the purpose of the research is explained, and participants are assured of the anonymity of the study. The consent form articulates the voluntary nature of the research and informs participants of their right to withdraw from the study at any point. The form also provides instructions on how to complete the questionnaire and the approximate timeframe. The process of storing and handling data is then explained, emphasizing that the data will be stored on the university secure server, and that this will be password protected and encrypted. Finally,

the researcher's contact details are provided to answer any questions. This consent form aims to assure participants that the collected data will remain private, secure and anonymous. It also aims to encourage participants to complete the entire survey.

### **5.5.2 Filtering Questions**

The purpose of the filtering questions is to target the right sample. More specifically, the filtering questions comprise a set of 'Yes/No' questions about respondents' nationality, age and religion. If participants answer 'No' to any of these questions, the survey directs them to the end of the questionnaire with a thank you note. If participants answer 'Yes' to all of the questions, the survey directs participants to the next section concerning the use of social media.

Since the study revolves around the use of social media, participants must be active social media users. The second set of filtering questions thus asks participants to indicate what social media platform they use; participants can choose more than one of the predefined options. The survey advances by asking participants to indicate when they would have started using social media, reasons for using social media, and then the frequency of using social media. Finally, participants are asked about the number of followers they have on each social media platform. All of the above questions are asked to confirm that participants are active users of social media.

### **5.5.3 Intrinsic Religiosity**

The focus of the next section of the survey is intrinsic religiosity. The scale is adopted from Essoo & Dibb (2010), who used the ROS scale originally developed by Allport & Ross (1967). As explained in chapter 2, this scale captures intrinsic and extrinsic religiosity of Christian individuals. Notwithstanding this application, scale has been used in the context of Ibrahimic religions. The scale is thus further adapted to the Islamic context (see chapter 2). The intrinsic religiosity scale consists of nine questions. Table 7.1 shows the original scale and the modified version used for this study.

**Table 7.1:** Religiosity scale

<b>The original scale</b>	<b>The modified version</b>
I enjoy reading about my religion	I read the literature and books about my faith
It is important for me to spend time in private thought and prayer.	It is important for me to spend periods of time in private religious practices (Doaa, Thiker, Qiam allayl...etc)
I would prefer to go to church a) A few times a year. b) Once every month or two. c) Two or three times a month. d) About once a week. e) More than once a week	If not prevented by unavoidable circumstances, I attend the masjid for the five daily prayers.
I have often had a strong sense of God presence.	Quite often, I have been keenly aware of the presence of Allah.
I try hard to live all my life according to my religious beliefs.	I try to carry my religion over into all other dealings in life.
My religion is important because it answers many questions about the meaning of life.	Religion is especially important to me because it answers many questions about the meaning of life.
I would rather join a Bible study group than a church social group.	If I were to join a masjid group, I would prefer a Quran study group rather than a social fellowship
My whole approach to life is based on my religion.	My religious beliefs are what really guide my whole approach to life
Prayers, I say when I am alone are as important to me as those I say in church.	Doaa/ Thiker I say when I alone have as much meaning and personal emotion as those said by me during Sallah.

### 5.5.4 Privacy Concerns

The third section of the questionnaire focuses on the construct of privacy concerns. The scale is adapted from Xu *et al.*'s (2011). As explained in chapter 2, the scale measures the effect of an organization's policies on users' self-disclosure of privacy concerns. In their model, Xu *et al.* (2011) purport that individual privacy concerns are formed through a cognitive process involving user awareness, perceived privacy risk, privacy control and the user's disposition to value privacy. The privacy concerns scale is adopted and modified to fit the social media context. Table 7.2 shows the original and modified versions of the scale.

Table 7.2: Privacy Concerns Scale

The original scale	The modified version
<b>Privacy Concerns (PCON)</b>	
1. I am concerned that the information I submit to this website could be misused.	I am concerned that the information I submit to social media could be misused.
2. I am concerned that others can find private information about me from this website.	I am concerned that others can find private information about me from social media.
3. I am concerned about providing personal information to this website, because of what others might do with it.	I am concerned about providing personal information to social media, because of what others might do with it.
4. I am concerned about providing personal information to this website because it could be used in a way I did not foresee.	I am concerned about providing personal information to social media because it could be used in a way, I did not foresee
<b>Privacy Risk (RISK)</b>	
1. In general, it would be risky to give personal information to this website.	In general, it would be risky to give personal information to social media.
2. There would be a high potential for privacy loss associated with giving personal information to this website.	There would be a high potential for privacy loss associated with providing personal information to social media.
3. Personal information could be inappropriately used by this website.	Social media could inappropriately use personal information.
4. Providing this website with my personal information would involve many unexpected problems.	Providing social media with my personal information would involve many unexpected problems.
<b>Privacy Control (PCTL)</b>	
1. I believe I have control over who can get access to my personal information collected by this website.	I believe I have control over who can get access to my personal information collected by social media.

2. I think I have control over what personal information is released by this website.	I think I have control over what personal information is released to social media.
3. I believe I have control over how personal information is used by this website.	I believe I have control over how personal information is used by social media
4. I believe I can control my personal information provided to this website.	I believe I can control my personal information provided to social media.
Disposition to Value Privacy (DTVP)	
1. Compared to others, I am more sensitive about the way companies handle my personal information.	Compared to others, I am more sensitive to the way social media companies handle my personal information.
2. To me, it is the most important thing to keep my information private.	To me, it is the most important thing to maintain my information privacy.
3. Compared to others, I tend to be more concerned about threats to my information privacy	Compared to others, I tend to be more concerned about threats to my information privacy.
Privacy Awareness (AWARE)	
1. I am aware of the privacy issues and practices in our society.	I am aware of the privacy practices and issue in our society.
2. I follow the news and developments about privacy issues and privacy violations.	I follow the news and developments about privacy issues and privacy violations.
3. I keep myself updated about privacy issues and the solutions that companies and the government employ to ensure our privacy.	I keep myself updated about privacy issues and the solutions that companies and the government employ to ensure our privacy.

### 5.5.5 Technology Acceptance

The technology acceptance scale is adapted from Venkatesh et al.'s (2012) UTAUT2 theory. As explained in chapter 2, UTAUT is one of the most widely used theories of technology acceptance in the research field of information systems. UTAUT explains users' intentions to use technology and users' behaviour of the same. The scale originates from a model intended present a clearer picture of the acceptance process. UTAUT consists of four main constructs as direct determinants of intention to use and user behaviour: performance expectancy, effort expectancy, social influence, and facilitating conditions. UTAUT2 is a modified version of the scale, comprising three additional constructs: hedonic motivation, price and habit. There is agreement in the literature that by adding these three constructs, the model exhibits substantive



improvements in its ability to explain behavioural intention and use. For the purpose of this study, the UTAUT2 scale is adopted and contextualized to fit the context of social media. Table 7.3 shows the original and modified versions of the scale.

**Table 7.3:** UTAUT 2 Scale

<b>The original scale</b>	<b>The modified version</b>
<b>Performance Expectancy</b>	
1. I find the mobile Internet useful in my daily life.	I find social media useful in my daily life.
2. Using mobile Internet increases my chances of achieving things that are important to me. (dropped)	Using social media increases my chances of achieving things that are important to me.
3. Using mobile Internet helps me accomplish things more quickly.	Using social media helps me to accomplish things more quickly.
4. Using mobile Internet increases my productivity.	Using social media increases my productivity.
<b>Effort Expectancy</b>	
1. Learning how to use the mobile Internet is easy for me.	Learning how to use social media is easy for me.
2. My interaction with mobile Internet is clear and understandable.	My interaction with social media is clear and understandable.
3. I find mobile Internet easy to use.	I find social media easy to use.
4. It is easy for me to become skilful at using mobile Internet.	It is easy for me to become skilful at using social media.
<b>Social Influence</b>	
1. People who are important to me think that I should use the mobile Internet.	People who are important to me think that I should use social media.
2. People who influence my behaviour think that I should use the mobile Internet.	People who influence my behaviour think that I should use social media.
3. People whose opinions that I value prefer that I use mobile Internet.	People whose opinions that I value prefer that I use social media.
<b>Facilitating Conditions</b>	
1. I have the resources necessary to use mobile Internet.	I have the resources necessary to use social media.
2. I have the knowledge necessary to use the	I have the knowledge necessary to use social

mobile Internet.	media.
3. Mobile Internet is compatible with other technologies I use.	Social media is compatible with other technologies I use.
4. I can get help from others when I have difficulties using the mobile Internet.	I can get help from others when I have difficulties using social media.
<b>Hedonic Motivation</b>	
1. Using the mobile Internet is fun.	Using social media is fun.
2. Using the mobile Internet is enjoyable.	Using social media is enjoyable.
3. Using the mobile Internet is very entertaining.	Using social media is very entertaining.
<b>Habit</b>	
1. The use of the mobile Internet has become a habit for me.	The use of social media has become a habit for me.
2. I am addicted to using the mobile Internet.	I am addicted to using social media.
3. I must use the mobile Internet.	I must use social media.
4. Using the mobile Internet has become natural to me.	Using social media has become natural to me.
<b>Behaviour Intentions</b>	
1. I intend to continue using the mobile Internet in the future.	I intend to continue using social media in the future.
2. I will always try to use mobile Internet in my daily life.	I will always try to use social media in my daily life.
3. I plan to continue to use the mobile Internet frequently.	I plan to continue to social media Internet frequently.

### 5.5.6 Demographics

This final section of the survey captures demographic information of participants - gender, age and marital status. Participants are also asked to indicate their last level of education, main job and finally the job sector - i.e. whether within the public or private sector.

### 5.6 Data Collection and Analysis

According to the methodological approach adopted for the research, the researcher decides how to collect and analyse data (Bryman & Bell, 2015). The

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questionnaire was compiled using items (written statements) to capture and measure the research constructs. Primary data are data collected from first-hand sources (Bryman & Bell, 2015). Once collected, data are exported from SurveyGizmo (as .sav) file and subjected for analysis using SmartPLS. Descriptive analysis is applied in the first phase of analytical process, followed by reliability and validity checks. The reliability and validity of the study depend on data collection and analysis (Saunders et al., 2007). Finally, PLS-SEM is applied to test the research model.

### **5.6.1 The Primary Data**

Primary data are derived from first-hand sources, most commonly via survey or interview (Saunders et al., 2009; Bryman and Bell, 2015; Flick, 2015).

The target population comprises adult (over 18) Saudi nationals who are social media users. Participants who meet these criteria are allowed to continue to complete the questionnaire. Participants not meeting the criteria are automatically within removed from the study with a thank you message.

### **5.6.2 Structural equation modelling (SEM)**

SEM is used to assess multiple relationships among latent constructs. It is an extension of multivariate techniques such as regression analysis. Multiple indicators are allowed to measure unobserved variables, taking into account measurement errors when analyzing data (Hair, Hult, Ringle & Sarstedt, 2014). Its application to interpret a wide range of multivariate data is one of the most important improvements in quantitative research. SEM is used to determine the validity of the theoretical model by identifying, assessing and evaluating linear relationships between a set of observed and unobserved variables and to assess the predictive power of reasoned pathways (Hair, Sarstedt, Ringle & Mena, 2012). Linear relationships and mean causal links form the basis for hypothesis testing. Several related studies have applied SEM techniques, in turn providing further rationale for its application to the study (Abou-Youssef, Kortam,

Abou-Aish, & El-Bassiouny, 2011; Chen & Tang, 2013; Deandrea, Ellison, Larose, Steinfield & Fiore, 2012; Dinev, Hart, Url, Dinev & Hart, 2005; Lebek, Degirmenci & Breitner, 2013; Lee & Ma, 2012; Muhamad & Mizerski, 2013; Putrevu & Swimberghek, 2013; Shillair et al., 2015; Venkatesh et al., 2016; Venkatesh & Zhang, 2010).

There are two approaches for SEM: Partial Least Squares (PLS) and covariance-based (CB) (see Appendix B, Table B3). PLS was developed by Wold (1974, 1980); it is an SEM multivariate technique that uses an iterative approach that increases the variance shown for internal structures (Fornell & Bookstein, 1982). PLS-SEM works like multiple regression analysis (Hair et al., 2014), and is particularly useful for exploratory analysis. There are many different disciplines that use PLS-SEM such as marketing (Hair et al., 2012), strategic management (Hair, Sarstedt, Pieper, & Ringle, 2012), management information system (Ringle, Sarstedt, & Straub, 2012), operations management (Peng & Lai, 2012) and accounting (Lee, Petter, Fayard, & Robinson, 2011). Much of the growing use of PLS-SEM stems from its ability to address problematic modelling problems that commonly exist in social sciences, such as unusual data properties (abnormal data) and highly complex modelling.

There are several reasons for using PLS-SEM. It has vast scope and flexibility (Eriksson et al., 2006), and can be used with complex models that consist of many constructs, indicators and inner model relationships (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). According to Hair *et al.* (2014), PLS-SEM is used when the focus of the model is on prediction and theory development. For the above reasons, PLS-SEM is used for data analysis.

Researchers generally follow two basic steps for PLS-SEM analysis: first, validate the measurement model (outer model), and second, assess the structural model (inner model). In the first phase, the reliability and validity of the model is tested. The

second phase comprises a number of tests, including assessing the significance of the path coefficients and  $R^2$  values, the  $f^2$  effect size and the predictive relevance  $Q^2$  (Hair et al., 2014). All of the tests results are presented and discussed in the Data Analysis section of the thesis.

### **5.6.3 Reliability and validity**

According to Malhotra et al. (2012), reliability is ‘the extent to which a scale produces consistent results if repeated measurements are made’ (p. 357). For results to be trusted, adopted scales must be reliable. Conducting a reliability test on the measurement scale before analysing the results will lead to trustful outcomes. This study uses internal consistency reliability to check the model reliability. Cronbach’s alpha and composite reliability are considered as the most used approaches to test internal consistency, especially for PLS-SEM analysis (Hair et al., 2014).

The other approach is composite reliability, which measures overall reliability of a collection of heterogeneous but similar items, without assuming equal items loading (Hair, Hult, Ringle, & Sarstedt, 2014). Composite reliability considers the indicator variable outer loading differences. Both Cronbach’s alpha and composite reliability are used to check for internal consistency of the scales.

According to Sekaran and Bougie (2016), validity measures the extent to which the scale measures the intended constructs rather than something else. Malhotra and Birks (2007) explain validity as ‘the extent to which differences in observed scale scores reflect true differences among objects on the characteristics being measured, rather than systematic or random error’ (p.358). The main types of validity are criterion validity, content validity, construct validity and discriminant validity.

Criterion validity is confirmed when the scale operates as anticipated with other variables (Malhotra & Birks, 2007). Since the scales used in this thesis were adopted from previous, pre-tested scales, criterion validity is confirmed. Content validity (also

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referred to as face validity) evaluates the extent to which a scale is related to the domain of a specific construct (Malhotra & Birks, 2007). To establish content validity, two steps are employed – (i) adopting the use of measures and measurements to operationalize and measure the research constructs; and (ii) using an expert panel to validate adapted scales.

There are three types of construct validity: nomological, convergent and discriminant. Nomological validity is established when a scale correlates with different constructs as depicted by underpinning theory (Hair et al., 2010). An extensive review of the literature led to the careful development of framework adopted for the research, thus establishing nomological validity. Convergent validity demonstrates that two items in a scale are related to each other (Chin, 1998; Hair et al., 2014). Chin (1998) points out that convergent validity can be assessed in PLS-SEM by reviewing the average variance extracted (AVE). Finally, discriminant validity is assessed in three ways: (i) Fornell and Larcker criterion (1981) (ii) via cross-loading analysis, and (iii) via the Heterotrait-monotrait ratio of correlation (HTMT) (Henseler et al., 2015). This study applies the abovementioned tests, and the results are presented at the Data Analysis chapter of the thesis.

## **Chapter 6: Data Analysis**

After developing the research instrument and collecting data, analysis is conducted. Data analyses considered an essential step in the research process. This step involves empirically testing the hypotheses and the conceptual framework.

This next section is organized as follows:

- 6A presents the analysis and results of the measurement model (the outer model); the results of reliability and validity tests are presented.
- 6B presents the analysis and results of the Structural Model (the inner model); the model pathways are tested and the results of the proposed relationships among the research are presented.

### **6A: Measurement Model Assessment**

This Section presents a discussion of the outer model, including an evaluation of reliability and validity, which is assessed using Smart PLS (Version 3.2.7). is used to test reliability (Ringle, Wende, & Becker, 2017). According to Lohmöller (2013), path coefficients and model parameters are estimated by PLS algorithm, where the variance of the endogenous dependent variable is maximised. The method of determining structural relationships must be selected before running the PLS algorithm. Hair et al. (2014) point out that centroid, factor and path methods are the appropriate methods for determining structural relationships (known as ‘weighting schemes’). The weighting scheme is flexible and easy to implement with formative and reflective model specifications and higher-order constructs. Also, the paths between endogenous and exogenous variables are accounted for by the path weighting scheme. The endogenous constructs may have higher R-square values in the path weighting scheme, but the approaches have consistent results (Hair et al., 2014). Due to the previous argument, path weighting scheme is applied.

### **6A.1 Reliability**

According to Malhotra et al. (2012), reliability is ‘the extent to which a scale produces consistent results if repeated measurements are made’ (p. 357). For results to be trusted, reliability must be confirmed. Conducting reliability test on the measurement scale before analysing the results leads to trustful outcomes. Many approaches are used to assess reliability, including test-retest reliability, alternative forms of reliability, and internal consistency (Babin & Zikmund, 2015; Hair et al., 2014; Malhotra et al., 2012). The next section presents a discussion of the various forms of reliability.

#### ***Test-retest Reliability***

Test-retest reliability is assessed by testing the same measure on the same participants at two different times within similar conditions (Malhotra et al., 2012). The same process is applied to ‘alternative form’ reliability with a small change – testing the same participants at different times where the scales are equal (DeVellis, 2016; Malhotra et al., 2012). The time between the two tests, according to Malhotra, Birks and Wills (2012), ideally should be between two to four weeks. A high degree of reliability is depicted by strong correlations between results. However, the test-retest approach has several limitations, such as the time interval and the effect of the first scale on the second. The time interval between the two tests may have confounding effects on the results. According to Malhotra, Birks and Wills (2012), the longer the time interval between the two tests, the lower the reliability might be. Moreover, the results of the first test occurrence might affect that of the second, due to participant ignorance, change of mind, or participants might have wrong impressions of the results for both tests. Furthermore, the effect of the two tests occurrences might result in misleadingly high correlation coefficients. Considering these limitations, test-retest reliability is not applied herein.



### ***Alternative Forms Reliability***

For alternative forms reliability, two different sets of scales are issued to participants at different times. Accordingly, reliability is established when the different scales exhibit strong correlation (Malhotra et al., 2012). The participants are anonymous and cannot be reached more than once. Also, constructing two different scales and administering them at different time intervals is time-consuming. For these reasons, alternative forms reliability test is not employed for study.

### ***Internal Consistency Reliability***

Malhotra et al. (2012) convey the importance of measuring internal consistency, particularly when using calculated scales. The items are tested from different angles of the construct and summed to form a score. Internal consistency demonstrates the consistency of what is measured in a construct or a latent variable by the measurement items. One way of measuring internal consistency is split-half reliability, where scale items are split into two parts, and the correlations between these two halves are measured. A scale is considered reliable if the two halves are highly correlated. Malhotra et al. (2017, p. 358) define Cronbach's alpha as 'the average of all possible split-half coefficients resulting from different ways of splitting the scale items. It is calculated as follows:

$$\text{Cronbach's } \alpha = \left( \frac{M}{M-1} \right) \cdot \left( 1 - \frac{\sum_{i=1}^M S_i^2}{S_t^2} \right).$$

In this formula,  $S_i^2$  is the variance of the indicator variable  $i$ , measured with  $M$  indicators, where  $S_t^2$  is the variance of the sum of all  $M$  indicators of the construct.

Albeit one of the most widely used measures for internal consistency, Cronbach's alpha is not without limitations. For instance, increasing the number of scale items leads to increased values for Cronbach's alpha. Henseler et al. (2009) argue that internal consistency reliability can be underestimated by Cronbach's alpha. Hence, it is more efficient to apply an additional measure of internal consistency such as

composite reliability. The latter measures the overall reliability of a collection of heterogeneous yet similar items, and does not assume equal items loading (Hair et al., 2014). Composite reliability considers differences related to outer loadings. It is calculated as follows:

$$P_c = \frac{(\sum_{i=1}^M l_i)^2}{(\sum_{i=1}^M l_i) + \sum_{i=1}^M var(e_i)}$$

Cronbach's alpha and composite reliability are widely used to test internal consistency reliability, especially for PLS-SEM. Both are therefore applied in the current research. The next section presents the results of reliability tests.

According to Hair et al. (2014), Cronbach's alpha and composite reliability scores over .70 are acceptable indicators for internal consistency. The lower limit of acceptability is between .60 and .70. Table 8.1 presents summary results of the reliability tests. The item loadings were all above the acceptable benchmark of .60 as shown in Table 8.1. The results confirm the reliability of the measurement model.

**Table 8.1: Construct Reliability**

<b>Constructs</b>	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>
<b>Aware</b>	0.75	0.84
<b>Behaviour Intention</b>	0.89	0.93
<b>DTVP</b>	0.77	0.86
<b>Effort Expectancy</b>	0.85	0.90
<b>Facilitating Conditions</b>	0.86	0.90
<b>Habit</b>	0.84	0.89
<b>Hedonic Motivation</b>	0.91	0.95
<b>Intrinsic</b>	0.84	0.88
<b>PCON</b>	0.84	0.89
<b>PCTL</b>	0.81	0.88
<b>Performance Expectancy</b>	0.84	0.89
<b>Risk</b>	0.81	0.88
<b>Social Influence</b>	0.82	0.89
<b>Use Disc</b>	0.72	0.83
<b>Use Reli</b>	0.70	0.84
<b>Use Share</b>	0.69	0.83
<b>Use Tech</b>	0.98	0.98

## **6A.2 Validity**

According to Sekaran and Bougie (2016), validity measures the accuracy of focal constructs. Malhotra and Birks (2007) define validity as ‘the extent to which differences in an observed scale scores reflect the true differences among objects on the characteristics being measured, rather than systematic or random error’ (p.358). The main types of validity are criterion validity, content validity, construct validity and discriminant validity. The section that follows provides a discussion of the different types of validity, and their relevance and applicability to the present study.

### *i. Criterion Validity*

Criterion validity is confirmed when the scale operates as anticipated with other variables (Malhotra and Birks, 2007). There are two forms of criterion validity: concurrent validity and predictive validity. Concurrent validity happens when collecting the predictor data and the criterion data concurrently, while predictive validity tests the extent to which the adopted scale predicts another criterion. The scales adopted for the present research are widely used in the extant body of literature (see chapter 2) and their psychometric properties are well established. Peter (1979) claims that when the research constructs conceptual domain distinctly construe, it helps determine the validity of a measure, criterion validity is therefore confirmed.

### *ii. Content Validity*

Content validity, also referred to as face validity, is achieved when the content of scale items reflects the domain of a focal construct (Malhotra and Birks, 2007). Notwithstanding its merits, the subjective nature of content validity is considered a weakness. Nonetheless, Bryman and Bell (2015) argue that content validity is critical to ensuring that the questions appropriately reflect focal constructs under investigation.

Content validity for this study is assessed using a two-step process. First, the researcher undertook an extensive review of relevant literature on key concepts surrounding the study including, religion, privacy and the use of technology. This review helped to establish the conceptual domain of each construct, and through this, the researcher was able to adopt best practices to engage the research constructs. Second, the researcher engaged an expert panel to validate the adapted scales. The panel members are experts in religion, information technology, information system, translation and marketing. Among other issues, the panel addressed the need to contextualize the ROS scale to fit the Islamic culture. After an iterative process of amendments, the expert panel reviewed the measures measurement, and approved, confirmed content validity.

*iii. Construct Validity*

Construct validity refers to the degree to which a scale measures the construct it claims and intend to measure (Hair et al., 2014; Malhotra & Birks, 2007). There are three types of construct validity: nomological, convergent, and discriminant validity. A scale exhibits nomological validity when it correlates with different constructs as suggested by the underpinning theory (Hair et al., 2010). Convergent validity evaluates the degree to which an item in one scale positively correlates with another item in the same scale (Hair et al., 2010). Discriminant validity is the degree to which a construct actually differs from another construct (Hair et al., 2010). In this thesis, an expanded review of the literature led to the proposed framework; preliminary analyses establishes nomological validity.

Convergent validity demonstrates that two items of the same construct are correlated (Chin, 1998; Hair et al., 2014). Chin (1998) suggests that convergent validity can simple be assessed in PLS-SEM by looking at the average variance extracted (AVE). AVE is calculated as follows:

$$AVE = \left( \frac{\sum_{i=1}^M l_i^2}{M} \right)$$

Table 8.2 shows that AVE for the model constructs ranges from .52 to .92. The values are over the recommended benchmark of 0.5 (Chin, 1998; Hair et al., 2014), in turn confirming convergent validity. The results also establish that the scale items effectively explain the intended constructs.

In PLS-SEM, discriminant validity is measured in three ways: (i) Fornell and Larcker criterion (1981), (ii) cross-loading analysis, and via (iii) the heterotrait-monotrait ratio of correlation (HTMT) (Henseler et al., 2015). Fornell and Larcker (1981) claim that discriminant validity is confirmed when the square root of the AVE for every construct in the model is larger than the constructs' bivariate correlations with the rest of the model constructs. In other words, a construct shares more variance with its items than other constructs in the model. (Hair et al. (2014) argue that in cross-loading, the correlation of the items with the measured construct (loading) is greater than items correlated with the rest of the construct in the model (cross-loading); thus, confirm discriminant validity. Henseler et al. (2015) states that in the heterotrait-monotrait ratio of correlation (HTMT), discriminant validity is confirmed when the items in one construct have a stronger relationship with each other than the items across constructs.

Table 8.3 relates to Fornell-Larcker criterion of the model. The results show that the square root of the AVE for each construct is larger than the correlations with all different constructs in the model, indicating that the constructs share more variance with their items than the rest of the constructs. Therefore, discriminant validity is confirmed.

The results of the cross-loading analysis are illustrated in Table 8.4. The information demonstrate that correlations between the measured constructs and their

corresponding items are greater than correlations between the same items on other constructs in the model. According to Hair et al. (2017), the acceptable benchmark is .50 for the loading. The outer loadings are all above the .50 benchmark, indicating that all loadings are acceptable (see Table 8.4) - the items loaded high on the constructs they intended to measure. Thus, discriminant validity is confirmed.

Finally, Table 8.5 presents results for Heterotrait-monotrait ratio of correlation (HTMT). As shown, the results of each construct are under the conservative threshold of 0.85. This indicates that the items for each construct have relatively stronger relationships between each other than that of other constructs. Hence, discriminant validity is confirmed.

**Table 8.2: Convergent Validity**

<b>Constructs</b>	<b>Average Variance Extracted (AVE)</b>
<b>Aware</b>	<b>0.64</b>
<b>Behaviour Intention</b>	<b>0.82</b>
<b>DTVP</b>	<b>0.68</b>
<b>Effort Expectancy</b>	<b>0.69</b>
<b>Facilitating Conditions</b>	<b>0.70</b>
<b>Habit</b>	<b>0.67</b>
<b>Hedonic Motivation</b>	<b>0.85</b>
<b>Intrinsic</b>	<b>0.52</b>
<b>PCON</b>	<b>0.68</b>
<b>PCTL</b>	<b>0.64</b>
<b>Performance Expectancy</b>	<b>0.68</b>
<b>Risk</b>	<b>0.64</b>
<b>Social Influence</b>	<b>0.74</b>
<b>Use Disc</b>	<b>0.54</b>
<b>Use Reli</b>	<b>0.64</b>
<b>Use Share</b>	<b>0.62</b>
<b>Use Tech</b>	<b>0.92</b>

**Table 8.3: Fornell-Larcker criterion**

Constructs	Aware	Behaviour Intention	DTVP	EE	FC	Habit	HM	Intrinsic	PCON	PCTL	PE	Risk	SI	Use Disc	Use Reli	Use Share	Use Tech
Aware	0.81																
Behaviour Intention	0.12	0.90															
DTVP	0.60	0.04	0.81														
EE	0.19	0.39	0.16	0.83													
FC	0.22	0.44	0.16	0.71	0.84												
Habit	0.11	0.65	0.05	0.45	0.51	0.82											
HM	0.16	0.62	0.14	0.57	0.66	0.68	0.92										
Intrinsic	0.17	0.32	0.18	0.32	0.29	0.29	0.36	0.72									
PCON	0.43	0.06	0.55	0.08	0.10	0.07	0.11	0.10	0.82								
PCTL	0.15	0.17	0.14	0.31	0.28	0.19	0.23	0.22	-0.03	0.80							
PE	0.21	0.53	0.16	0.47	0.38	0.39	0.50	0.31	0.14	0.23	0.83						
Risk	0.51	0.03	0.57	0.11	0.17	0.06	0.14	0.17	0.60	0.05	0.11	0.80					
SI	0.19	0.34	0.17	0.31	0.34	0.37	0.33	0.23	0.18	0.10	0.40	0.14	0.86				
Use Disc	0.13	0.23	0.01	0.13	0.09	0.21	0.18	0.15	0.01	0.12	0.20	-0.06	0.18	0.74			
Use Reli	-0.01	0.15	-0.02	0.06	0.14	0.24	0.14	-0.03	0.09	0.02	0.12	0.06	0.14	0.17	0.80		
Use Share	0.07	0.08	0.13	0.03	0.00	0.01	0.07	0.16	0.13	0.10	0.15	0.06	0.08	0.07	0.10	0.78	
Use Tech	0.09	0.07	0.07	0.08	0.05	0.04	0.04	0.39	0.04	0.05	0.11	0.10	0.09	0.08	0.05	0.20	0.96

**Table 8. 4:** Cross-Loading analysis

	Aware	BI	DTVP	EE	FC	Habit	HM	PCON	PCTL	PE	Intrinsic	Risk	SI	Use Tech	Use Disc	Use Reli	Use Share
AWARE1	<b>0.78</b>	0.07	0.59	0.19	0.26	0.12	0.18	0.41	0.13	0.13	0.20	0.52	0.09	0.10	-0.02	-0.01	0.01
AWARE2	<b>0.85</b>	0.11	0.43	0.14	0.14	0.08	0.12	0.33	0.14	0.20	0.10	0.36	0.18	0.05	0.22	0.01	0.08
AWARE3	<b>0.81</b>	0.12	0.41	0.13	0.11	0.06	0.06	0.29	0.10	0.20	0.11	0.33	0.22	0.06	0.18	-0.01	0.10
BI1	0.12	<b>0.90</b>	0.06	0.45	0.50	0.60	0.65	0.07	0.18	0.53	0.30	0.04	0.27	0.02	0.19	0.12	0.06
BI2	0.08	<b>0.92</b>	0.02	0.31	0.34	0.60	0.53	0.06	0.15	0.48	0.28	-0.01	0.32	0.09	0.24	0.13	0.07
BI3	0.13	<b>0.89</b>	0.03	0.29	0.36	0.55	0.48	0.04	0.13	0.44	0.28	0.04	0.32	0.07	0.20	0.16	0.08
DTVP1	0.47	-0.03	<b>0.76</b>	0.09	0.05	0.01	0.04	0.44	0.07	0.11	0.11	0.50	0.13	0.03	-0.01	-0.02	0.11
DTVP2	0.51	0.07	<b>0.92</b>	0.17	0.18	0.07	0.17	0.46	0.17	0.15	0.20	0.44	0.11	0.08	0.01	-0.03	0.12
DTVP3	0.55	0.02	<b>0.74</b>	0.12	0.11	0.00	0.06	0.49	0.05	0.15	0.08	0.53	0.24	0.06	0.01	0.05	0.07
EE1	0.17	0.32	0.14	<b>0.81</b>	0.57	0.33	0.42	0.07	0.25	0.43	0.26	0.08	0.21	0.08	0.07	0.08	0.05
EE2	0.18	0.34	0.10	<b>0.79</b>	0.54	0.38	0.48	0.09	0.24	0.42	0.30	0.08	0.30	0.12	0.19	0.02	0.02
EE3	0.17	0.35	0.15	<b>0.88</b>	0.65	0.41	0.52	0.08	0.25	0.36	0.28	0.12	0.23	0.04	0.08	0.04	0.03
EE4	0.12	0.26	0.15	<b>0.83</b>	0.60	0.36	0.46	0.03	0.28	0.35	0.21	0.08	0.28	0.03	0.09	0.06	-0.01
FC1	0.18	0.34	0.09	0.54	<b>0.83</b>	0.43	0.49	0.10	0.17	0.27	0.20	0.15	0.30	-0.01	0.08	0.16	-0.04
FC2	0.20	0.36	0.13	0.69	<b>0.88</b>	0.41	0.57	0.06	0.26	0.29	0.21	0.15	0.23	0.01	0.05	0.09	-0.03
FC3	0.17	0.39	0.13	0.69	<b>0.89</b>	0.47	0.62	0.11	0.25	0.31	0.26	0.14	0.26	0.01	0.07	0.12	0.00
FC4	0.19	0.38	0.16	0.45	<b>0.74</b>	0.38	0.53	0.08	0.24	0.39	0.29	0.14	0.34	0.14	0.10	0.11	0.07
HABIT1	0.08	0.50	0.03	0.41	0.49	<b>0.79</b>	0.59	0.07	0.10	0.25	0.19	0.06	0.27	-0.03	0.14	0.21	-0.05
HABIT2	0.04	0.40	-0.02	0.25	0.26	<b>0.78</b>	0.42	0.05	0.11	0.17	0.12	0.02	0.22	0.01	0.19	0.30	-0.04
HABIT3	0.11	0.57	0.07	0.33	0.36	<b>0.82</b>	0.54	0.07	0.22	0.42	0.29	0.04	0.35	0.11	0.17	0.15	0.09
HABIT4	0.11	0.60	0.06	0.44	0.52	<b>0.88</b>	0.65	0.04	0.16	0.38	0.30	0.06	0.35	0.02	0.18	0.16	0.02
HM1	0.17	0.60	0.15	0.57	0.66	0.64	<b>0.93</b>	0.12	0.25	0.51	0.36	0.12	0.31	0.06	0.19	0.10	0.08
HM2	0.12	0.55	0.12	0.52	0.61	0.62	<b>0.93</b>	0.10	0.19	0.42	0.31	0.13	0.30	0.03	0.15	0.12	0.06
HM3	0.14	0.56	0.11	0.49	0.56	0.64	<b>0.91</b>	0.08	0.19	0.45	0.32	0.14	0.31	0.03	0.15	0.17	0.04
PCON1	0.18	0.06	0.25	0.07	0.03	0.04	0.05	<b>0.75</b>	-0.01	0.08	0.11	0.26	0.11	0.02	0.05	0.07	0.05
PCON2	0.39	0.06	0.44	0.07	0.09	0.06	0.08	<b>0.79</b>	-0.11	0.14	0.05	0.53	0.15	0.06	0.06	0.06	0.12
PCON3	0.45	0.04	0.58	0.06	0.09	0.05	0.10	<b>0.86</b>	-0.04	0.15	0.06	0.61	0.17	0.05	-0.04	0.10	0.16
PCON4	0.47	0.04	0.59	0.08	0.13	0.09	0.15	<b>0.86</b>	0.03	0.13	0.08	0.66	0.17	0.03	-0.04	0.07	0.12
PCTL1	0.16	0.10	0.21	0.19	0.23	0.11	0.14	0.07	<b>0.65</b>	0.14	0.10	0.14	0.02	-0.05	0.03	0.03	0.05
PCTL2	0.11	0.13	0.09	0.26	0.28	0.15	0.16	0.00	<b>0.80</b>	0.15	0.15	0.08	0.10	0.02	0.12	0.03	0.04
PCTL3	0.12	0.13	0.10	0.24	0.16	0.15	0.18	-0.04	<b>0.85</b>	0.20	0.19	0.02	0.11	0.09	0.09	0.03	0.12
PCTL4	0.12	0.17	0.10	0.28	0.25	0.17	0.24	-0.06	<b>0.87</b>	0.23	0.23	-0.02	0.09	0.05	0.12	0.00	0.08
PE1	0.11	0.54	0.12	0.42	0.35	0.41	0.47	0.09	0.18	<b>0.76</b>	0.28	0.09	0.27	0.05	0.11	0.14	0.04
PE2	0.22	0.41	0.11	0.46	0.36	0.33	0.41	0.10	0.24	<b>0.86</b>	0.27	0.11	0.35	0.08	0.16	0.05	0.09
PE3	0.18	0.39	0.16	0.34	0.29	0.27	0.39	0.16	0.19	<b>0.86</b>	0.28	0.11	0.34	0.13	0.17	0.09	0.22
PE4	0.20	0.39	0.14	0.31	0.23	0.25	0.34	0.14	0.15	<b>0.81</b>	0.19	0.06	0.38	0.11	0.24	0.09	0.18
R1N	0.03	0.21	0.06	0.19	0.24	0.19	0.27	0.00	0.12	0.16	<b>0.68</b>	0.09	0.10	0.26	0.07	-0.01	0.04
R2N	0.07	0.24	0.13	0.18	0.16	0.20	0.26	0.03	0.16	0.22	<b>0.72</b>	0.09	0.19	0.24	0.10	-0.02	0.12
R3N	0.06	0.24	0.10	0.26	0.22	0.22	0.26	0.03	0.15	0.20	<b>0.70</b>	0.12	0.15	0.14	0.10	-0.03	0.08
R4N	0.14	0.21	0.16	0.24	0.19	0.21	0.25	0.08	0.09	0.20	<b>0.82</b>	0.13	0.20	0.34	0.09	-0.05	0.14
R5N	0.17	0.19	0.11	0.23	0.22	0.18	0.24	0.04	0.21	0.23	<b>0.74</b>	0.11	0.14	0.37	0.12	-0.04	0.17
R6N	0.19	0.20	0.19	0.15	0.15	0.14	0.20	0.16	0.14	0.24	<b>0.54</b>	0.12	0.19	0.25	0.13	-0.02	0.16
R8N	0.19	0.28	0.16	0.32	0.27	0.28	0.33	0.13	0.21	0.31	<b>0.82</b>	0.17	0.19	0.33	0.13	0.01	0.12
RISK1	0.44	0.06	0.50	0.14	0.19	0.12	0.18	0.55	0.08	0.13	0.14	<b>0.86</b>	0.14	0.07	-0.10	0.04	0.07
RISK2	0.44	0.04	0.47	0.10	0.18	0.08	0.17	0.54	0.05	0.10	0.16	<b>0.87</b>	0.10	0.09	-0.07	0.03	0.08
RISK3	0.27	-0.01	0.31	0.02	0.08	-0.02	0.04	0.33	-0.02	0.04	0.09	<b>0.66</b>	0.06	0.05	0.03	0.10	-0.07
RISK4	0.46	-0.03	0.51	0.06	0.07	-0.03	0.02	0.47	0.03	0.07	0.14	<b>0.79</b>	0.12	0.11	0.00	0.03	0.05
SI1	0.19	0.30	0.17	0.35	0.36	0.35	0.34	0.18	0.09	0.39	0.20	0.15	<b>0.86</b>	0.04	0.14	0.11	0.02
SI2	0.13	0.25	0.10	0.20	0.21	0.30	0.23	0.11	0.03	0.28	0.19	0.07	<b>0.87</b>	0.11	0.15	0.14	0.08
SI3	0.17	0.31	0.16	0.23	0.30	0.30	0.28	0.17	0.14	0.36	0.20	0.13	<b>0.85</b>	0.09	0.18	0.13	0.10
SRT9	0.08	0.07	0.07	0.07	0.02	0.05	0.04	0.05	0.02	0.09	0.37	0.09	0.09	<b>0.95</b>	0.07	0.07	0.20
SRT10	0.09	0.08	0.07	0.10	0.06	0.05	0.06	0.03	0.04	0.14	0.39	0.09	0.09	<b>0.97</b>	0.09	0.06	0.21
SRT11	0.07	0.06	0.06	0.07	0.04	0.02	0.03	0.04	0.06	0.11	0.35	0.09	0.08	<b>0.97</b>	0.08	0.03	0.18
SRT12	0.09	0.04	0.07	0.07	0.04	0.01	0.02	0.04	0.07	0.09	0.35	0.10	0.06	<b>0.97</b>	0.08	0.03	0.19
SRT13	0.10	0.05	0.07	0.08	0.06	0.03	0.04	0.05	0.06	0.09	0.37	0.12	0.10	<b>0.93</b>	0.08	0.04	0.15
SRT1	0.06	0.21	-0.06	0.05	0.04	0.16	0.13	-0.04	0.02	0.18	0.07	-0.11	0.13	0.01	<b>0.71</b>	0.14	-0.07
SRT4	0.14	0.16	0.05	0.11	0.07	0.16	0.12	0.09	0.12	0.11	0.08	0.05	0.14	0.02	<b>0.74</b>	0.15	0.11
SRT5	0.12	0.13	0.05	0.12	0.09	0.15	0.13	0.02	0.14	0.16	0.15	-0.04	0.14	0.10	<b>0.78</b>	0.08	0.11
SRT6	0.10	0.16	0.00	0.14	0.09	0.13	0.14	-0.01	0.09	0.12	0.15	-0.05	0.12	0.14	<b>0.72</b>	0.09	0.11
SRT17	-0.06	0.09	-0.10	0.02	0.07	0.12	0.04	0.03	-0.06	0.09	-0.18	-0.05	0.10	-0.09	0.11	<b>0.60</b>	-0.03
SRT19	0.02	0.14	0.01	0.06	0.14	0.23	0.15	0.10	0.02	0.12	0.02	0.08	0.17	0.07	0.14	<b>0.90</b>	0.12
SRT20	0.01	0.12	0.03	0.06	0.11	0.20	0.13	0.08	0.08	0.06	0.05	0.08	0.07	0.11	0.14	<b>0.87</b>	0.13
SRT2	0.05	0.08	0.11	0.05	0.04	0.02	0.08	0.10	0.11	0.15	0.14	0.03	0.03	0.13	0.04	0.07	<b>0.92</b>
SRT3	0.07	0.04	0.13	-0.01	-0.04	-0.01	0.05	0.19	-0.02	0.12	0.08	0.10	0.10	0.16	0.06	0.14	<b>0.68</b>
SRT7	0.07	0.04	0.08	0.00	-0.02	0.00	0.02	0.06	0.10	0.08	0.16	0.03	0.09	0.21	0.09	0.07	<b>0.73</b>



**Table 8.5:** Heterotrait-Monotrait Ratio (HTMT)

Constructs	Aware	Behaviour Intention	DTVP	EE	FC	Habit	HM	Intrinsic	PCON	PCTL	PE	Risk	SI	Use Disc	Use Reli	Use Share	Use Tech
Aware																	
Behaviour Intention	0.15																
DTVP	0.79	0.05															
EE	0.23	0.44	0.19														
FC	0.26	0.50	0.17	0.83													
Habit	0.13	0.73	0.06	0.51	0.58												
HM	0.18	0.68	0.14	0.64	0.74	0.76											
Intrinsic	0.21	0.36	0.20	0.36	0.34	0.32	0.41										
PCON	0.56	0.07	0.73	0.09	0.13	0.08	0.13	0.11									
PCTL	0.20	0.19	0.17	0.37	0.34	0.21	0.26	0.25	0.09								
PE	0.28	0.60	0.20	0.55	0.43	0.43	0.55	0.36	0.18	0.27							
Risk	0.62	0.06	0.75	0.12	0.20	0.09	0.15	0.19	0.74	0.13	0.13						
SI	0.25	0.39	0.24	0.37	0.40	0.43	0.38	0.27	0.22	0.12	0.48	0.16					
Use Disc	0.24	0.28	0.08	0.18	0.12	0.26	0.22	0.19	0.09	0.17	0.26	0.12	0.24				
Use Reli	0.05	0.19	0.07	0.08	0.18	0.32	0.17	0.14	0.12	0.09	0.15	0.13	0.19	0.22			
Use Share	0.12	0.09	0.18	0.05	0.10	0.09	0.07	0.21	0.20	0.15	0.21	0.13	0.13	0.19	0.20		
Use Tech	0.10	0.07	0.08	0.08	0.06	0.06	0.04	0.42	0.05	0.08	0.12	0.11	0.10	0.11	0.14	0.25	

### 6A.3 Summary of the outer model.

In this Section , reliability and validity have been measured, and the results showed that the scales and the study as a whole are reliable and valid. For reliability, Cronbach's alpha and composite reliability have been used as a measurement. The data scores over 0.60 in Cronbach's Alpha and composite reliability, according to Hair et al., (2011) confirm that the scales are reliable. To evaluate validity, content validity and construct validity have been employed. The adopted scales in this thesis are the most used measures and measurements in the related literature, and the psychometric properties of these scales are confirmed, finding support for criterion validity. A thorough literature review of key constructs, including religion, privacy and use of technology, assist to establish the conceptual domain of the research framework; this also enabled the researcher to adopt best practices in the conceptualization of relevant

constructs. Thereafter, an expert panel validated the adapted scales, hence, confirming content validity.

Nomological, convergent and discriminant validity have been used to establish construct validity. An extensive review of the literature led to the proposed framework (see chapter 2), which established nomological validity. In PLS-SEM, convergent validity was assessed by examining the average variance extracted (AVE). The AVE estimates ranged from .52 to .92 which is over the benchmark of 0.5 suggested by Chin (1998) and Hair *et al.* (2014). Hence, convergent validity is confirmed. When using PLS-SEM, discriminant validity is assessed using Fornell and Larcker criterion (1981), cross-loading analysis, and the Heterotrait-monotrait ratio of correlation (HTMT) (Henseler *et al.*, 2015).

The results of Fornell-Larcker criterion in Table 8.3 show that the square root of each construct AVE is larger than the correlations with other constructs in the model, in turn confirming discriminant validity. The results of the cross-loading analysis in Table 8.4 demonstrate that correlation between the measured constructs and their corresponding items are greater than the correlations between the same items on different constructs, thus confirming discriminant validity. The Heterotrait-monotrait ratio of correlations (HTMT) of each construct in Table 8.5 is under the conservative threshold of 0.85, again establishing discriminant validity. Since the outer model has been confirmed, attention turns to examining the inner model.

## **6B: Structural Model Assessment**

This Section presents the results of the inner model, which is examined using SmartPLS. Researchers use PLS-SEM for theory testing, in addition to its original design for predictive modeling. Model fit measures are used to test theory, and assess the degree to which the hypothesised model structure applies to empirical data. According to Hair *et al.* (2014), four general criteria are used to assess structural models in PLS-SEM: (i) significance of the path coefficients; (ii) the level of the coefficient of determination ( $R^2$  value); (iii) the  $f^2$  effect size, and (iv)  $Q^2$  predictive relevance. The sections that follow presents the tests and the related results.

### **6B.1 Structural model path coefficients**

Chin (2010) argues that PLS-SEM is a soft modelling approach. Thus, PLS-SEM does not assume that data are normally distributed. Accordingly, parametric significance tests are not used to evaluate the significance of the loadings and the structural paths (Hair *et al.*, 2014). Instead, a nonparametric bootstrap test is applied (Chin, 1998). Hair *et al.* (2014) suggest that when conducting a bootstrap, 'a large number of subsamples (i.e. bootstrap samples) are drawn from the original sample with replacement' (p. 130), and that the number of samples are higher than the number of observations, ranging between 500 and 5000.

The significance of the structural path is tested by applying the bootstrap procedure (in SmartPLS) using 1000 subsamples and at a significant level of 10%. In agreement with Hair *et al.* (2014), the p-value, 'the probability of erroneously rejecting a true null hypothesis' (p.196), is used to assess significant levels. As reported in Table 9.1, all individual paths were directed as hypothesised. Out of 37 paths, only 25 paths were significant ( $p < .10$ ), and remaining 12 are not significant. In the paths from INTR to privacy concern, all the paths were significant with the exception of the path between

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intrinsic religiosity and privacy concerns (PCON). Intrinsic religiosity and PCON (negative) is not significantly, where the p-value is 0.48 which is not  $p < 0.10$ .

The paths concerning UTAUT2 consist of 14 paths – six are found to be significant and the remaining eight are not significant. *P* values for the significant paths are  $< .10$  with a positive relationship except one. Effort Expectancy has a significant negative relationship with Behaviour Intention. The next paths relate to privacy concern, where seven paths of the eight paths are found to be significant.

**Table 9.1:** Path Coefficients

Paths	Original Sample	T Statistics	P Values
<b>Behaviour Intentions</b>			
Behaviour Intention -> Use Disc	0.17	2.53	<b>0.01**</b>
Behaviour Intention -> Use Reli	-0.02	0.26	0.40
Behaviour Intention -> Use Share	0.12	1.78	<b>0.04**</b>
Behaviour Intention -> Use Tech	0.07	1.02	0.16
<b>Privacy Concerns</b>			
DTVP -> PCON	0.36	7.63	<b>0.00***</b>
DTVP -> PCTL	0.10	1.39	0.85
DTVP -> Risk	0.59	17.20	<b>0.00***</b>
PCON -> Behaviour Intention	-0.05	1.55	0.06*
PCON -> Self Disc	-0.18	3.42	<b>0.00***</b>
PCTL -> PCON	-0.09	2.41	<b>0.01**</b>
Risk -> PCON	0.45	9.96	<b>0.00***</b>
AWARE -> PCON	0.07	1.74	<b>0.04**</b>
<b>(UTAUT2)</b>			
Effort Expectancy -> Behaviour Intention	-0.09	1.93	<b>0.04**</b>
Facilitating Conditions -> Behaviour Intention	0.04	0.87	0.38
Facilitating Conditions -> Use Disc	-0.05	0.77	0.44
Facilitating Conditions -> Use Reli	0.03	0.46	0.65
Facilitating Conditions -> Use Share	-0.04	0.49	0.62
Facilitating Conditions -> Use Tec	0.03	0.51	0.61
Habit -> Behaviour Intention	0.39	7.85	<b>0.00***</b>
Habit -> Use Disc	0.12	1.86	<b>0.06*</b>
Habit -> Use Reli	0.24	3.66	<b>0.00***</b>
Habit -> Use Share	-0.05	0.70	0.49
Habit -> Use Tec	-0.02	0.34	0.73
Hedonic Motivation -> Behaviour Intention	0.21	3.15	<b>0.00***</b>
Performance Expectancy -> Behaviour Intention	0.29	5.71	<b>0.00***</b>
Social Influence -> Behaviour Intention	0.02	0.47	0.64
<b>Religious Orientation Scale (ROS)</b>			
Intrinsic -> Behaviour Intention	0.06	1.80	<b>0.07*</b>

<b>Intrinsic -&gt; Aware</b>	0.18	3.37	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; PCTL</b>	0.19	3.38	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Risk</b>	0.08	2.30	<b><u>0.02**</u></b>
<b>Intrinsic -&gt; DTVP</b>	0.16	3.09	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; PCON</b>	-0.03	0.71	<u>0.48</u>
<b>Intrinsic -&gt; Habit</b>	0.28	4.65	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Hedonic Motivation</b>	0.36	6.22	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Social Influence</b>	0.23	4.51	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Facilitating Conditions</b>	0.29	3.86	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Performance Expectancy</b>	0.31	5.79	<b><u>0.00***</u></b>
<b>Intrinsic -&gt; Effort Expectancy</b>	0.32	4.93	<b><u>0.00***</u></b>

\*p<.10; \*\*p, .05; \*\*\*p, .01; Under lined numbers are results of two tailed tests.

The non-significant path is Disposition to Value Privacy (DTVP), which has a positive non-significant relationship with Privacy Control (PCTL). With respect to the four behavioural intention paths, two have significant positive relationships - behaviour intention with Use Disc and behaviour intention with Use Share. The path 'Use Reli' has a negative relationship with behaviour intention; and path, 'Use Tech', has a positive relationship with behaviour intention and shows no significant relationship with behaviour intention.

The foregoing results in the main model (see Figure 9.1) were exogenous predictor variables that directly affect endogenous criterion variables. According to Sharma et al. (1981) 'in some cases the predictive efficacy of an independent variable and/or the form of the relationship may vary systematically as a function of some other variable(s)' (p. 291). Although there is a direct relationship between predictor and criterion variables, the social phenomenon could not be explained very well. Next, coefficient of determination ( $R^2$  value) is explained.

### **6B.2 The level of the coefficient of determination ( $R^2$ value)**

The coefficient of determination ( $R^2$  value) is the most commonly used approach to evaluate structural models (Hair et al., 2014).  $R^2$  is used to measure the model's predictive power by calculating the squared correlation between the actual value of a specific endogenous construct and the predictive values, and ranges from zero to one (Hair et al., 2014). The close  $R^2$  value of one (1) means the model has substantive (more) predictive power and the close  $R^2$  value of zero (0) means the model has less predictive power. Although  $R^2$  is the most commonly used measure, some problems might occur when it is used to compare models with different exogenous constructs predicting the same endogenous construct (Hair et al., 2014). Thus, other measurements should be applied; however, this is not the case in the current model. The  $R^2$  value of the endogenous latent variable is increased when it is linked by more nonsignificant constructs (Hair et al., 2014). In other words, the more paths directed to a construct, the higher  $R^2$  value it has and vice versa. As shown in Table 9.2, the  $R^2$  values of the constructs that have more paths linked to it are higher than the others.

**Table 9.2: (R<sup>2</sup> value)**

	<b>R Square</b>
<b>Aware</b>	0.03
<b>Behaviour Intention</b>	<b>0.54</b>
<b>DTVP</b>	0.02
<b>Effort Expectancy</b>	0.10
<b>Facilitating Conditions</b>	0.09
<b>Habit</b>	0.08
<b>Hedonic Motivation</b>	0.13
<b>PCON</b>	<b>0.51</b>
<b>PCTL</b>	0.05
<b>Performance Expectancy</b>	0.10
<b>Risk</b>	<b>0.37</b>
<b>Self Disc</b>	0.09
<b>Social Influence</b>	0.05
<b>UseDisc</b>	0.06
<b>UseReli</b>	0.06
<b>UseShare</b>	0.01
<b>UseTech</b>	0.01



### 6B.3 Effect Size ( $f^2$ )

The ( $f^2$ ) is another criteria used to evaluate the structural model. It assess the degree to which the use of predictors increases the divergence explained for the endogenous constructs. According to Hair *et al.* (2014) effect size means ‘the change in the  $R^2$  value when the specified exogenous construct is omitted from the model can be used to evaluate whether the omitted construct has a substantive impact on the endogenous construct’ (p.201). In other word,  $f^2$  shows the changes or effect that happened to the  $R^2$  when one of the predictors is deleted from the model. The ( $f^2$ ) is calculated by the following formula:

$$f^2 = \frac{R_{included}^2 - R_{excluded}^2}{1 - R_{included}^2}$$

In this formula,  $R_{included}^2$  is the  $R^2$  value of a specific endogenous construct with the predictor in the model.  $R_{excluded}^2$  is the  $R^2$  value of a specific endogenous construct while excluding the predictor from the model. According to Cohen (1988), effect size value of 0.02 and over indicate that there is an substantive effect, an effect size value of less than 0.02 indicates no effect. The greater the number, the greater the effect becomes. Following the above formula, and rule, the effect size is calculated using SmartPLS.

**Table 9.3:** Effect Size  $f^2$  Square

	Aware	Behaviour Intention	DTVP	Effort Expectancy	Facilitating Conditions	Habit	Hedonic Motivation	Intrinsic	PCON	PCTL	Performance Expectancy	Risk	Social Influence	UseDisc	UseReli	UseShare	UseTech
Aware																	
Behaviour Intention														0.02	0.00	0.02	0.00
DTVP									0.16	0.01		0.53					
Effort Expectancy		0.02															
Facilitating Conditions		0.00												0.00	0.00	0.00	0.00
Habit		0.17												0.03	0.03	0.00	0.00
Hedonic Motivation		0.03															
Intrinsic	0.04	0.02	0.03	0.11	0.09	0.09	0.15	0.00	0.04		0.11	0.02	0.06				
PCON		0.00															
PCTL									0.02			0.00					
Performance Expectancy		0.11															
Risk									0.27								
Self Disc																	
Social Influence		0.00															

The information in Table 9.3 shows that the inclusion of intrinsic religiosity to all of the privacy concerns and UTAUT2 constructs shows significant effect size ( $f^2 \leq 0.02$ ). This is with the exception of PCON with no effect ( $f^2=0.00$ ), based on Cohen's (1988) benchmark. When it comes to privacy concerns, the results show that including DTVP as an indicator to PCTL shows no effect ( $f^2=0.01$ ). By contrast, the inclusion of DTVP to PCON and RISK shows medium and large effect ( $f^2=0.16$  and  $f^2=0.53$ ). Finally, including PCON as an antecedent of Behaviour intention shows no effect ( $f^2=0.00$ ).

As mentioned before, the inclusion of Intrinsic religiosity as an antecedent of UTAUT2 have an effect ( $f^2 \leq 0.02$ ). The six UTAUT2 constructs are considered indicators of behaviour intentions with the exception of Habit and Facilitating Condition; they are also considered indicators of USE Disc, USE Reli, USE Share and USE Tec (USE) along with Behaviour intentions. The inclusion of effort expectancy as an indicator of behaviour intentions has a small effect ( $f^2=0.02$ ). The inclusion of performance expectancy as an antecedent to behaviour intentions shows a medium effect ( $f^2=0.11$ ). The inclusion of hedonic motivation as an antecedent to behaviour

intentions shows small effect ( $f^2=0.03$ ). In contrast, the inclusion of social influence as an antecedent to behaviour intentions shows no effect ( $f^2=0.00$ ). Habit and Facilitating Conditions are considered indicators of behaviour intentions and use. The inclusion of Habit as an antecedent to behaviour intentions shows medium effect ( $f^2=0.17$ ), while the inclusion of habit as an antecedent to USE shows small effect on USE Disc and USE Reli ( $f^2=0.03$ ), however, there is no effect for USE Share and USE Tec ( $f^2=0.00$ ). Finally, The inclusion of facilitating condition as an antecedent to behaviour intentions and to the USE shows no effect ( $f^2=0.00$ ).

#### **6B.4 Predictive Relevance ( $Q^2$ )**

One of the useful measures of the model predictive power is the Stone–Geisser Q- square value ( $Q^2$ ) (Stone, 1974; Geisser, 1974). According to Hair et al. (2014) the Q-square measure is ‘ an indicator of the model's out-of-sample predictive power or predictive relevance’ (p.202). This measure removes one case at a time from the data set and re-estimate the statistical relationship. A blindfolding procedure is used to estimate the  $Q^2$  value in SmartPLS (Hair et al., 2014). Blindfolding omitted indicators based on the blindfold omission distance D, and parameters are calculated based on the remaining data points (Chin, 1998; Hair et al., 2014).

The blindfolding procedure in SmartPLS, runs according to the times indicated by the blindfold omission distance. Hair et al. (2014) suggest that for a large sample, the omitting distance should be between five and ten. However, the omitted distance should not result in an integer when dividing the total number by the omission distance. The blindfolding approach can be used with single or multi-item endogenous reflective constructs (Hair et al., 2014). There are two ways to calculate  $Q^2$ : cross-validity redundancy and cross-validity commonality. Cross-validity commonality only includes endogenous constructs estimates, while cross-validity redundancy includes estimates of measurement and structural model which fits with PLS-SEM, thus the recommended

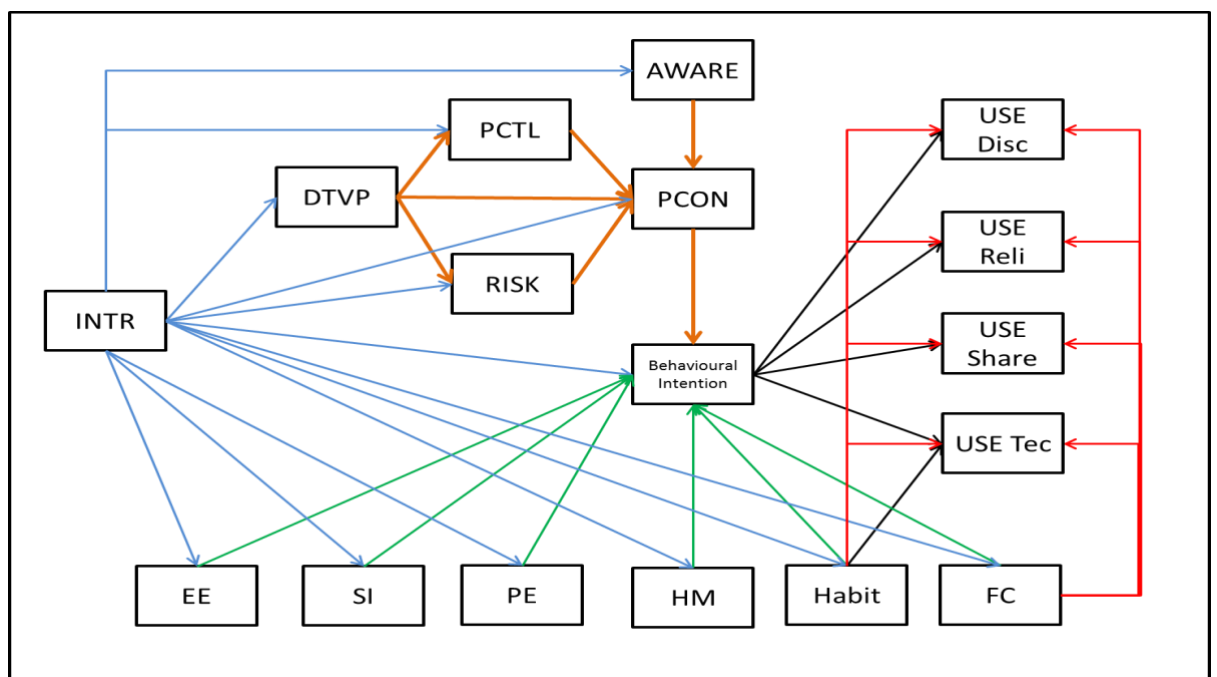
approach according to Hair et al. (2014). The  $Q^2$  value indicates that the model has predictive relevance when it is larger than zero ( $Q^2 > 0$ ) (Hair *et al.*, 2014). The blindfolding approach is applied because of the reflective nature of the constructs. The omission distance was set at seven given that the total number of the cases divided by seven did not result in an integer. Table 9.4 shows that all of the constructs  $Q^2$  values are larger than zero, except that for USE Share and USE Tec. The results indicate that the model has predictive relevance except for two abovementioned constructs.

**Table 9.4:** Construct Cross-validated Redundancy ( $Q^2$ )

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
<b>Aware</b>	1,527.00	1,500.97	0.02
<b>Behaviour Intention</b>	1,527.00	901.74	0.41
<b>DTVP</b>	1,527.00	1,503.26	0.02
<b>Effort Expectancy</b>	2,036.00	1,906.92	0.06
<b>Facilitating Conditions</b>	2,036.00	1,928.73	0.05
<b>Habit</b>	2,036.00	1,940.55	0.05
<b>Hedonic Motivation</b>	1,527.00	1,373.74	0.10
<b>Intrinsic</b>	3,563.00	3,563.00	
<b>PCON</b>	2,036.00	1,383.10	0.32
<b>PCTL</b>	2,036.00	1,976.19	0.03
<b>Performance Expectancy</b>	2,036.00	1,911.75	0.06
<b>Risk</b>	2,036.00	1,594.97	0.22
<b>Self Disc</b>	3,054.00	2,908.83	0.05
<b>Social Influence</b>	1,527.00	1,474.38	0.03
<b>UseDisc</b>	2,036.00	1,985.38	0.02
<b>UseReli</b>	1,527.00	1,479.50	0.03
<b>UseShare</b>	1,527.00	1,526.15	0.00
<b>UseTech</b>	2,545.00	2,537.95	0.00

### 6B.5 Summary of the results

According to Hair *et al.* (2014), the outer and inner models must be evaluated. The outer model should be measured first by checking the reliability and validity. In Section 8, the reliability and validity of the model have been confirmed. The inner model has been checked earlier in this Section. According to Hair *et al.* (2014), there are four criteria to assess the structural (inner) model in PLS\_SEM: (i) the significance of the path coefficients; (ii) the level of the coefficient of determination ( $R^2$  value); (iii) the  $f^2$  effect size, and (iv)  $Q^2$  predictive relevance. The significance of the structural path was tested by applying the bootstrap procedure (in SmartPLS) using 1000 subsamples and at a significant level of 10% while using the p-value to assess the significant level. As shown in Figure 9.1, there are 37 pathways. Out of 37 paths, only 25 paths were significant ( $p < .10$ ) which support the corresponding hypotheses, and 12 were not found to be significant (see Table 9.5).



**Figure 9.1:** Paths Model

**Table 9.5:** Summary of the Hypotheses

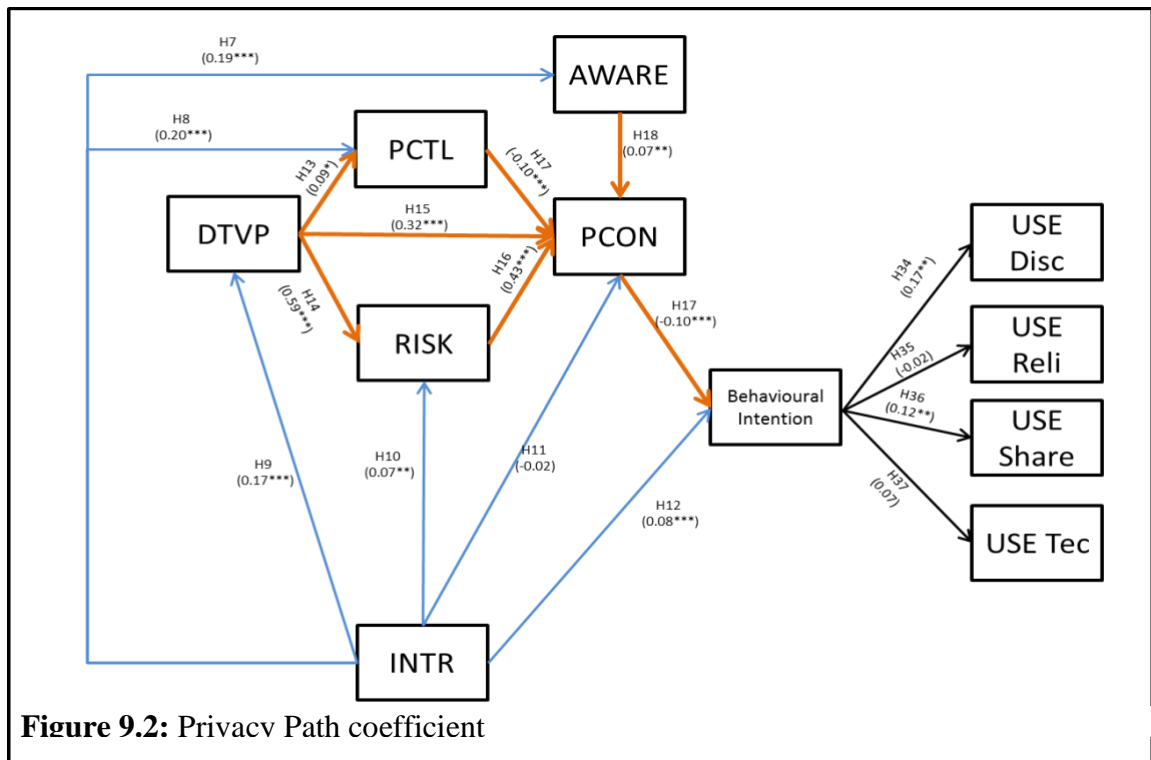
<b>H</b>	<b>Hypotheses</b>	<b>Path coefficient</b>	<b>P-value</b>
<b>Religiosity</b>			
<b>H1</b>	Intrinsic religiosity, affect effort expectancy (EE).	4.93	<b>0.00***</b>
<b>H2</b>	Intrinsic religiosity, affect social influence (SI).	4.51	<b>0.00***</b>
<b>H3</b>	Intrinsic religiosity, affect performance expectancy (PE).	5.79	<b>0.00***</b>
<b>H4</b>	Intrinsic religiosity, affect hedonic motivation (HM).	6.22	<b>0.00***</b>
<b>H5</b>	Intrinsic religiosity, affect habit (Habit).	4.65	<b>0.00***</b>
<b>H6</b>	Intrinsic religiosity, affect facilitating conditions (FC)	3.86	<b>0.00***</b>
<b>H7</b>	Intrinsic religiosity, affect privacy awareness (AWAER).	0.18	<b>0.00***</b>
<b>H8</b>	Intrinsic religiosity, positively affect Privacy control (PCTL).	0.19	<b>0.00***</b>
<b>H9</b>	Intrinsic religiosity, positively affect disposition to value privacy (DTVP).	0.16	<b>0.00***</b>
<b>H10</b>	Intrinsic religiosity, negatively affect privacy risk (RISK).	0.08	<b>0.02**</b>
<b>H11</b>	Intrinsic religiosity, positively affect privacy concerns (PCON)	-0.03	0.48
<b>H12</b>	Intrinsic religiosity, affect behaviour intentions.	0.06	<b>0.07*</b>
<b>Privacy</b>			
<b>H13</b>	Disposition to value privacy (DTVP), negatively affect perceived privacy control (PCTL).	0.10	0.85
<b>H14</b>	Disposition to value privacy (DTVP), positively affects perceived privacy risk (RISK).	0.59	<b>0.00***</b>
<b>H15</b>	Disposition to value privacy (DTVP), positively affect privacy concerns (PCON).	0.36	<b>0.00***</b>
<b>H16</b>	Perceived privacy risk (RISK), positively affects privacy concerns (PCON).	0.45	<b>0.00***</b>
<b>H17</b>	Perceived Privacy control (PCTL), negatively affect privacy concern (PCON).	-0.09	<b>0.01**</b>
<b>H18</b>	Privacy Awareness (AWARE), positively affects privacy concerns (PCON).	0.07	<b>0.04**</b>
<b>H19</b>	Privacy concerns (PCON), negatively affect behaviour intentions.	-0.05	0.06*
<b>UTAUT2</b>			
<b>H20</b>	Effort expectancy (EE), affect behaviour intentions.	-0.09	<b>0.04**</b>
<b>H21</b>	Social influence (SI), affect behaviour intentions.	0.02	0.64
<b>H22</b>	Performance expectancy (PE), affect behaviour intentions.	0.29	<b>0.00***</b>
<b>H23</b>	Hedonic motivation (HM), affect behaviour intentions.	0.21	<b>0.00***</b>
<b>H24</b>	Habit (Habit), affect behaviour intentions.	0.39	<b>0.00***</b>
<b>H25</b>	Habit (Habit), affect USE Disc.	0.12	<b>0.06*</b>
<b>H26</b>	Habit (Habit), affect USE Reli.	0.24	<b>0.00***</b>
<b>H27</b>	Habit (Habit), affect Use Share	-0.05	0.49
<b>H28</b>	Habit (Habit), affect USE Tec.	-0.02	0.73
<b>H29</b>	Facilitating conditions (FC), affect behaviour	0.04	0.38

	intentions.		
<b>H30</b>	Facilitating conditions (FC), affect USE Disc.	-0.05	0.44
<b>H31</b>	Facilitating conditions (FC), affect USE Reli.	0.03	0.65
<b>H32</b>	Facilitating conditions (FC), affect Use Share	-0.04	0.62
<b>H33</b>	Facilitating conditions (FC), affect USE Tec.	0.03	0.61
<b>Behaviour Intentions</b>			
<b>H34</b>	Behaviour intentions affect the use of social media to disclose information (Use Disc).	0.17	<b>0.01**</b>
<b>H35</b>	Behaviour intentions affect the use of social media in line with the religion teaching (Use Reli).	-0.02	0.40
<b>H36</b>	Behaviour intentions affect the use of social media to share information (Use Share)	0.12	<b>0.04**</b>
<b>H37</b>	Behaviour intentions affect the use of social media itself as a technology (Use Tec)	0.07	0.16

\*p<.10; \*\*p, .05; \*\*\*p, .01

The paths between intrinsic religiosity and privacy were significant, which support the corresponding hypotheses. This is with the exception of the path between intrinsic religiosity and privacy concerns (PCON) as shown in Table 9.5. Intrinsic religiosity has a significant positive relationship with privacy awareness (Aware) (Path coefficient = 0.18,  $p < .10$ ), privacy control (PCTL) (Path coefficient = 0.19,  $p < 0.10$ ) and disposition to value privacy (DTVP) (Path coefficient = 0.16,  $p < 0.10$ ), in turn supporting H7-H9. Intrinsic religiosity has a positive relationship with privacy risks (RISK) (Path coefficient = 0.08,  $p < 0.10$ ), revealing support for H10. On the other hand, Intrinsic religiosity has no significant relationship with privacy concern (PCON) (Path coefficient = -0.031,  $p > 0.10$ ), (H11). The paths between intrinsic religiosity and UTAUT2 reveal significance ( $p < 0.10$ ) (positive relationship), which supports the Hypotheses H1-H6.

All paths within the privacy concerns, as shown in Figure 9.2, were significant except one (see Table 9.5). Disposition to value privacy (DTVP) has a significant positive relationship with perceived privacy risk (RISK) and privacy concerns (PCON) (Path coefficient = 0.59 ,  $p < 0.10$ ), revealing support for H14-H15. Perceived privacy risk (RISK) has a high coefficient significant positive relationship with privacy concerns (PCON) (Path coefficient = 0.45 ,  $p < 0.10$ ), which support H16. Perceived Privacy control (PCTL), has a negative significant relationship with privacy concerns (PCON) (Path coefficient = -0.09 ,  $p < 0.10$ ), confirming supports for H17.

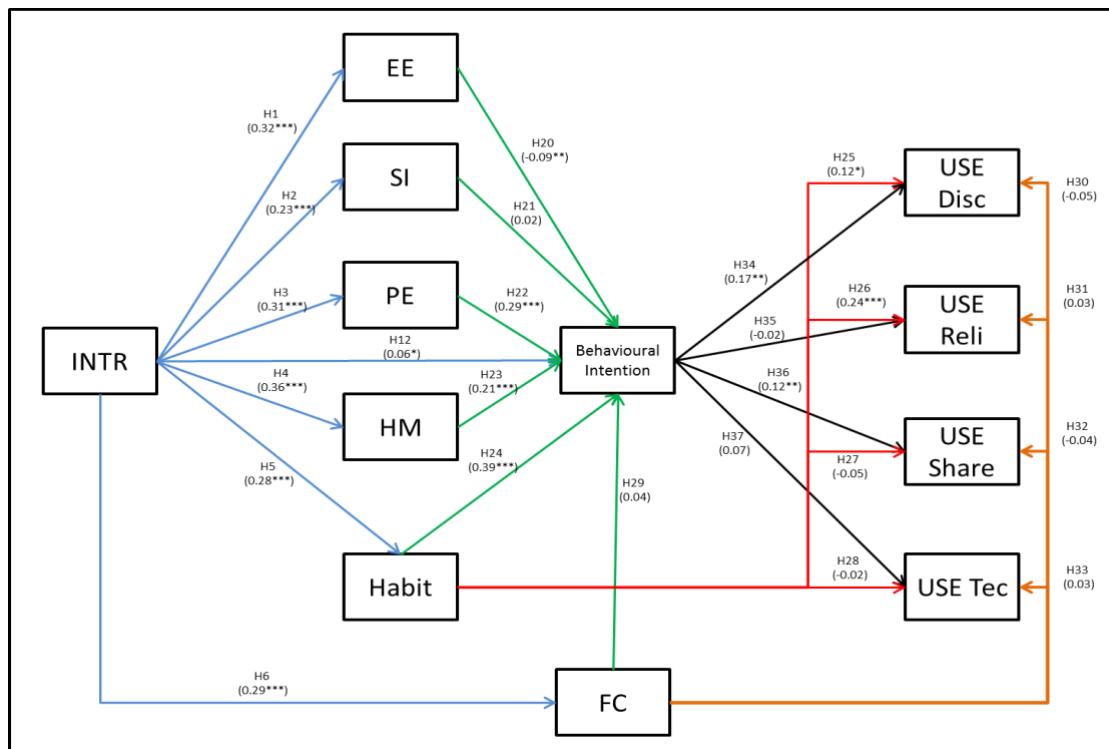


Privacy Awareness (AWARE) has significant relationship with privacy concerns (PCON) (Path coefficient = 0.07 ,  $p < 0.10$ ), supporting H18. Privacy concerns (PCON) has negative significant relationship with behaviour intentions (Path coefficient = -0.05 ,  $p < 0.10$ ), which reveals support for H19. In contrast, the hypothesize relationship between Disposition to value privacy (DTVP) and perceived privacy control (PCTL) is not significant (Path coefficient = 0.10 ,  $p > 0.10$ ), which reject the H13. In other word,



valuing personal privacy does not affect the individual concerns on how to control his privacy.

The paths within the UTAUT2 have two destinations (see Figure 9.3). The results show that the six UTAUT2 latent variables are directly related to behaviour intentions. Beside these relationship, only Habit and Facilitating conditions has another direct relationship with the four USE variables (see Table 9.5). Effort expectancy (EE), has a significant (negative) relationship with (BI), (Path coefficient = -0.09,  $p < 0.10$ ), revealing support for H20. The relationship between Social Influence (SI) and Behaviour Intentions is not significant, (Path coefficient = 0.02 ,  $p > 0.10$ ), not finding evidence in support for H21. Performance expectancy (PE) (Path coefficient = 0.29 ,  $p < 0.10$ ), Hedonic motivation (HM) (Path coefficient = 0.21 ,  $p < 0.10$ ), and Habit (Habit) (Path coefficient = 0.39 ,  $p < 0.10$ ), have positive significant relationship with behaviour intentions (BI) which support H22-H24. Furthermore, Habit has positive significant relationship with USE Disc (Path coefficient = 0.12 ,  $p < 0.10$ ), and USE Reli (Path coefficient = 0.24 ,  $p < 0.10$ ), respectively, which supports the H25 and H26. Nonetheless, Habit has a non-significant relationship (negative) with USE Share (Path coefficient = -0.05 ,  $p > 0.10$ ), and USE Tec (Path coefficient = -0.02 ,  $p > 0.10$ ), failing to find support for H27 and H28. Finally, the proposed relationship between facilitating conditions (FC) and behaviour intentions and the four USE variables are not significant, ( $p > 0.10$ ) failing to find support for H29-H33.



**Figure 9.3:** UTAUT2 Path coefficient

The final paths are the ones between behavioural intentions and the four USE variables. The results show that behaviour intentions have positive significant relationships with the use of social media to disclose information (Use Disc) (Path coefficient = 0.17 ,  $p < 0.10$ ), supporting H34. Behaviour intention has a positive significant relationship with the use of social media to share information (Use Share) (Path coefficient = 0.12 ,  $p < 0.10$ ), which support H36. In contrast, the relationship between behaviour intentions and the use of social media in line with the religion teaching (Use Reli) and use of social media itself as a technology (Use Tec) are a non-significant ( $p > 0.10$ ), failing no evidence in support for H35 and H37.

$R^2$  measures the model's predictive power by calculating the squared correlation between the actual value of a specific endogenous construct and the corresponding predictive value. Values for  $R^2$  range from 0 to 1 (Hair et al., 2014). The results in Table 9.2 show that all of the constructs have relatively weak predictive powers. This is with the exception of Behaviour Intention, PCON and Risk. The  $R^2$  values for the constructs that have linked pathways have relatively higher values.

The  $f^2$  shows the changes or effects occurring in  $R^2$  when one of the predictor variables is deleted from the model. The results in Table 9.3 show that the inclusion of particular constructs have significant effects ( $f^2 < 0.02$ ). The inclusion of intrinsic religiosity to PCON shows no effect ( $f^2 = 0.00$ ). Including DTVP as an indicator to PCTL show no effect ( $f^2 = 0.01$ ). Including PCON as an antecedent of Behaviour, intention shows no effect ( $f^2 = 0.00$ ). The inclusion of social influence as an antecedent to behaviour intentions show no effect ( $f^2 = 0.00$ ). The inclusion of habit as an antecedent to USE Share and USE Tec shows no effect ( $f^2 = 0.00$ ). The inclusion of facilitating condition as an antecedent to behaviour intentions and the USE shows no effect ( $f^2 = 0.00$ ). Thus, removing these relations will not affect the predictive power of the model.

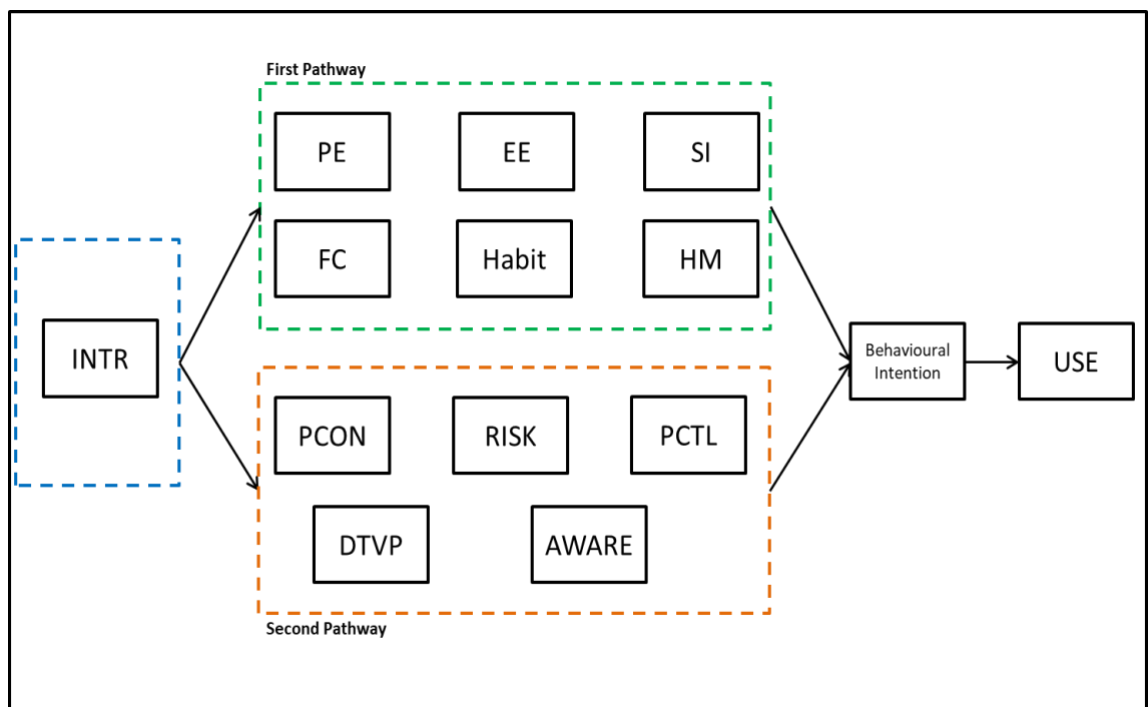
Stone-Geisser Q- square value ( $Q^2$ ) measures the predictive power of the model. Herein one case is removed at a time and the statistical model is re-estimated to evaluate the relationships. The results in Table 9.4 shows that the removing USE Share and USE Tec from the model does not affect the predictive power of the model.

Four criteria were used to assess the inner model. The results indicate that the model effectively measure the effect of religiosity on two types of use for social media. The model can be used to measure the effect of religiosity on the use of social media to disclose information (USE Disc), and also the use of social media to share information (Use Share). However, removing USE Share does not affect the model. In this Section , the inner model has been measured by the four criteria to assess the structural (inner) model in PLS\_SEM. The criteria are (i) the significance of the path coefficients; (ii) the level of the coefficient of determination ( $R^2$  value); (iii) the  $f^2$  effect size, and (iv)  $Q^2$  predictive relevance. The results indicate that the model measures the effect of religiosity on the use of social media to disclose information (Use Disc), and the use of social media to share information (Use Share).

## Chapter 7: Findings and discussion.

Research findings are discussed, and conclusions are drawn after completing the data analysis. The research hypotheses are confirmed or rejected when discussing the findings. Furthermore, the research results will be compared with the original theories and previous studies in the field. After comparing the research finding to the existed theories and studies, a conclusion can be drawn.

This chapter will be divided into three Sections. Since the research model (Figure S5.1) consists of two groups of parts (Religion-Privacy and Religion-Technology acceptance), these two Sections will present and discuss the results of their parts of the model. Section 7A and 7B will present the results of the parts and compare it to the original theory and the existing literature. The Behavioural Intention-USE relationship will be discussed at the end of Section 7A because it is originally part of UTAUT2. Section 7C will present the research conclusion.



**Figure S5.1:** Proposed model pathways

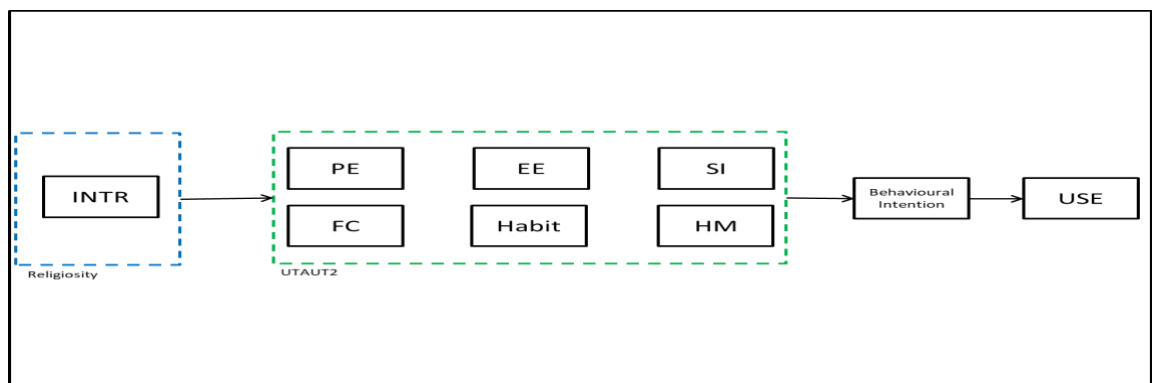
The outline of the Section is as follows:

**Section 7A: Technology acceptance Pathway.** This Section presents the results of hypothesis testing. It also compares the existing theories and literature with the research finding.

**Section 7B: Privacy Pathway.** This Section will present the hypothesised results. It will also compare the existing theories and literature with the research finding.

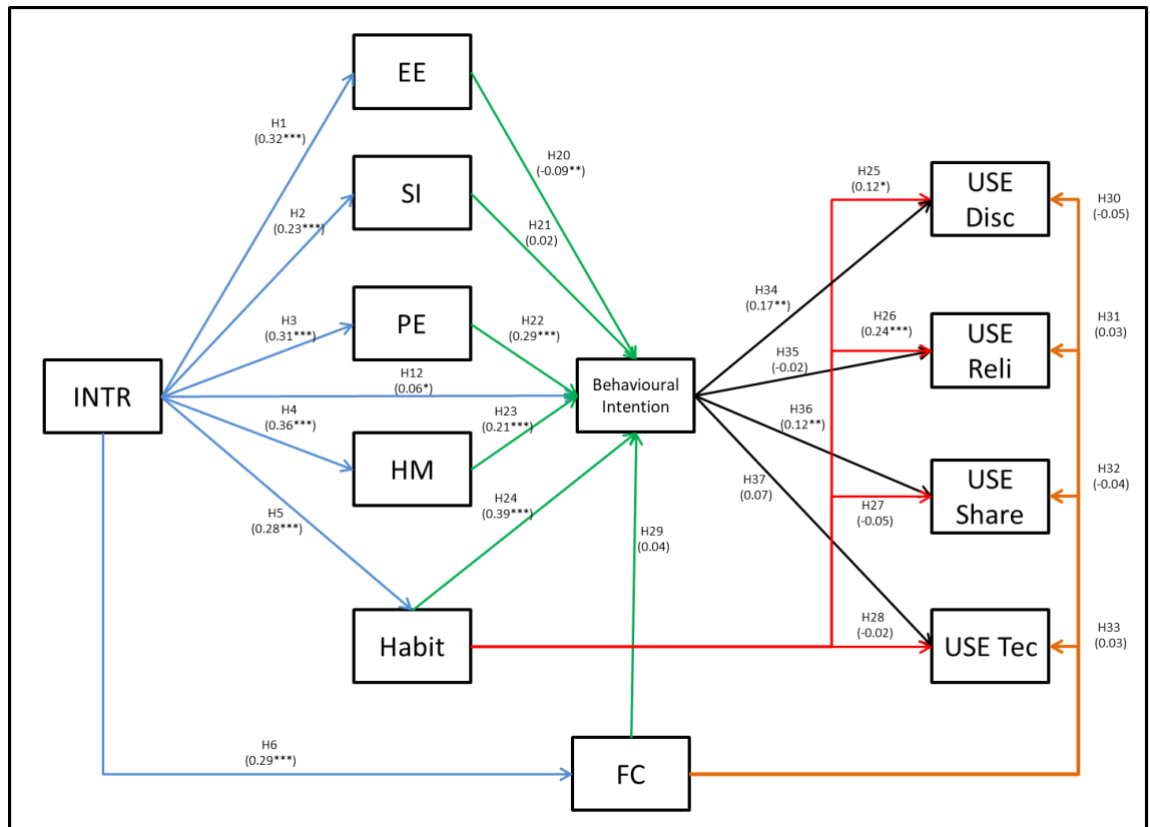
### 7A Technology Acceptance Part.

Section 10 will discuss the research finding of the second pathway of the proposed model (Religiosity-Technology Acceptance-Use) see figure10.1. The Section presents the results of each hypothesis and the relation of the pathway. After that, the results will be compared and contrast to the original theories. Finally, the results are explained in light of the aims of the research and answer the research questions.



**Figure 10.1:** Technology Acceptance Pathway

The first pathway is studying the relations between intrinsic religiosity and technology acceptance in order to find the effect of intrinsic religiosity on the use of social media (Figure10.2). To measure the technology acceptance UTAUT2 model (Venkatesh et al., 2012) has been adopted, as explained in Section 2, Section 3. This pathway has twenty-four relations, which means there are twenty-four hypotheses in this pathway, see Table 10.1.



**Figure 10.2:** First Pathway (Intrinsic religiosity and UTAUT2)

**Table 10.1** Summary of the first pathway (Intrinsic religiosity and UTAUT2) findings

<b>Research Hypotheses</b>		<b>Finding</b>
H1	Intrinsic religiosity affects effort expectancy (EE).	Supported
H2	Intrinsic religiosity affects social influence (SI).	Supported
H3	Intrinsic religiosity affects performance expectancy (PE).	Supported
H4	Intrinsic religiosity affects hedonic motivation (HM).	Supported
H5	Intrinsic religiosity affects habit (Habit).	Supported
H6	Intrinsic religiosity affects facilitating conditions (FC)	Supported
H12	Intrinsic religiosity affects behaviour intentions.	Supported
H20	Effort expectancy (EE) affects behaviour intentions.	Supported
H21	Social influence (SI) affects behaviour intentions.	NOT Supported
H22	Performance expectancy (PE) affects behaviour intentions.	Supported
H23	Hedonic motivation (HM) affects behaviour intentions.	Supported
H24	Habit (Habit) affects behaviour intentions.	Supported
H25	Habit (Habit) affects USE Disc.	Supported
H26	Habit (Habit) affects USE Reli.	Supported
H27	Habit (Habit) affects Use Share	NOT Supported
H28	Habit (Habit) affects USE Tec.	NOT Supported
H29	Facilitating conditions (FC) affects behaviour intentions.	NOT Supported
H30	Facilitating conditions (FC) affects USE Disc.	NOT Supported
H31	Facilitating conditions (FC) affects USE Reli.	NOT Supported
H32	Facilitating conditions (FC) affects Use Share	NOT Supported
H33	Facilitating conditions (FC) affects USE Tec.	NOT Supported
H34	Behaviour intentions affect the use of social media to disclose information (Use Disc).	Supported
H35	Behaviour intentions affect the use of social media in line with the religion doctrine (Use Reli).	NOT Supported
H36	Behaviour intentions affect the use of social media to share information (Use Share)	Supported
H37	Behaviour intentions affect the use of social media itself as a technology (Use Tec)	NOT Supported

### **7A.1 Intrinsic religiosity and UTAUT2.**

The relationships between intrinsic religiosity and UTAUT2 were hypothesised as follow:

**H1: Intrinsic religiosity affects effort expectancy (EE).**

Effort expectancy (EE) explains the concept of perceived ease of use and complexity (see chapter 2). This study hypothesised that there is a relationship between intrinsic religiosity and EE. The results of that data analysis show a significant positive relationship between intrinsic religiosity and EE. Hence, Hypothesis 1 is supported. The results illustrate that the more intrinsically religious the user is, the more educated they became on how to use social media applications and websites; and it becomes easy for the user.

Islamic teaching encourages their followers to make things easy for people because human tempted to reject or resist difficulties. The Prophet (PBUH) said, "*Facilitate things to people and do not make it hard for them and give them good tidings and do not make them run away (from Islam)*" (Al-Bukhari, 2017). One of the main concepts of Islam is to make things easy for people. Amin et al., (2008) studied the adoption of mobile banking in Malaysia using TAM. They found that perceived usefulness and perceived ease of use are strong determinants of behaviour intention and one of the reasons that Muslim accepting the e-banking is the ease of use. As a result, Muslims will tend to ease things and accept easy commandment, technologies or laws. The results of the data analyses are consistent with the literature.

Muslims who score high in intrinsic religiosity, see social media as websites or applications that are easy to use. This could be a result of the nature of social media websites and applications where they have been built to accommodate all users regardless of their technical background and skill level. The availability of social media on any handheld device is another probable reason for the ease of use. Finally, Muslims are more careful with emerging technologies (see chapter 2), they tend to learn about them before using them in order to protect themselves from committing any sins that might occur by using the new technology.



**H2: Intrinsic religiosity affects social influence (SI).**

Social influence (SI) examines the effect of using innovation on the user's social image and whether it will enhance that image or not (Venkatesh et al., 2003; Williams, Rana & Dwivedi, 2013). This thesis hypothesised that there is a relationship between intrinsic religiosity and SI. The results of that data analyses show a significant positive relationship between intrinsic religiosity and SI. Hence, Hypothesis 2 is supported. The results support the claim that the more intrinsically religious the user is, the more he or she will value their social image.

According to Al-Kandari and Dashti (2014), Muslim clerics used Islam to legitimize social and cultural arrangements to resist heresies, to preserve Orthodox values and to minimize any strife (opposing the authorities). This act created an Islamic social image that distinguished Saudi Arabia from other Islamic countries. Saudi Muslims are very protective of their social image and religious persona. This statement can be supported by looking at the Saudis culture and way of life. For example, women in Saudi Arabia cannot walk around without wearing headscarf and Abaya; Men cannot be seen with a women friend in public places. There are more examples which support the claim that SI is an important aspect in Saudi Arabia. The results of this study are consistent with the evidence.

Muslim users who score high in intrinsic religiosity are more careful about social influence. The use of nicknames and avatar in social media are a way for them to avoid social influences. However, the results show that high intrinsic users pay more attention to the social influence regardless of anonymity features of social media. This is the results of the inner moral and religious compass of the users. Although in social media, the anonymity is guaranteed, high intrinsic religious users value the social influence and choose to consult their close circle and obey the social norms.

**H3: Intrinsic religiosity affects performance expectancy (PE).**

Performance expectancy (PE): "is the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447) (see chapter 2). This thesis hypothesises that there is a relationship between intrinsic religiosity and PE. The results of that data analyses show a significant positive relationship between intrinsic religiosity and PE. Hence, Hypothesis 3 is supported. The results support the claim that the more intrinsically religious the users are, the higher their expectancy of social media efficiency to accomplish their goals will be.

Performance expectancy (PE) is derived from a mixture of five comparable constructs; one of them is perceived usefulness (Venkatesh et al., 2003) (see chapter 2). Many studies considered PE as one of the strongest predictors of intention in all of the reviewed models and for voluntary and mandatory use it has a significant effect (Venkatesh et al., 2016; Venkatesh, Morris, Davis, 2003; Williams et al., 2013). Islamic clerics fatwa is based on many things; one of them is the usefulness of the technology (Al-Kandari & Dashti, 2014). There is a direct effect between the usefulness of the technology and the Islamic fatwa where clerics change their fatwa from banning the technology to allowing the use of the technology with restrictions (Al-Kandari & Dashti, 2014; Chawki, 2010).

Muslim users who score high in intrinsic religiosity are more concerned about the value of social media in their life. The use of social media to boost their career and their social persona is one of the main consideration when using social media. The results show that most of the high intrinsic users mainly use social media to benefit their career or social persona. In Saudi Arabia, the segregation between male and female is one of the reasons that Saudis uses social media to interact virtually with the opposite sex. Direct interaction for reasons related to official job matter is limited but permitted by Islamic scholars. This is due to the Islamic rules that males and females are not

Chapter 7: Findings and discussion.

allowed to interact face to face without a male guardian for the female. However, with new technologies, many scholars change their Fatwa from prohibited to acceptable with the condition that online interaction should not be a romantic one (Bin-Baz, n.d.). Hence, PE in social media is high for intrinsic users.

#### **H4: Intrinsic religiosity affects hedonic motivation (HM).**

Hedonic motivation (HM) is the intrinsic happiness or joy which occurs as a result of using technology and plays a significant part in adopting new technology (Brown & Venkatesh, 2005) (see chapter 2). This study hypothesises that there is a relationship between intrinsic religiosity and HM. The results of that data analyses show a significant positive relationship between intrinsic religiosity and HM. Hence, Hypothesis 4 is supported. The results support the claim that the more intrinsically religious the users are, the higher their enjoyment became when using social media.

In Islam, for a Muslim to have fun and enjoy their time, they should not commit a sin or neglect a religious duty. The prophet (PBUH) said *'What is lawful is that which Allah has permitted, in His Book and what is unlawful is that which Allah has forbidden in His Book. What He remained silent about is what is pardoned'* (Ibn-Majah, n.d.). This hadith is used as a rule in Islam, where everything that not mentioned by name or organ in Islamic literature is permitted if not breaking the Islamic rules. As a result, having fun by using new technology is permitted in Islam with the condition of not breaking the Islamic rules.

With the invention of social media and other technologies, Muslim scholars start revving the new invention in light with the Islamic teachings. Mostly, having fun and enjoyment using social media does not break any Islamic rules unless the users decided to do so. For example, talking with the opposite sex through social media is acceptable unless the topic of the discussion is prohibited in Islam like sexual talk. Another example is playing social media games are permitted unless it breaks Islamic rules like

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gambling. Social media provide more options for highly intrinsic people to enjoy their time without breaking any of the Islamic rules. Hence, HM in social media is high for intrinsic users.

#### **H5: Intrinsic religiosity affects habit (Habit)**

Habit is defined as spontaneous behaviour resulting from previous experiences and learning (Venkatesh et al., 2012) (see chapter 2). This study postulates that there is a relationship between intrinsic religiosity and Habit. The results of that data analyses show a significant positive relationship between intrinsic religiosity and Habit. Hence, Hypothesis 5 is supported. The results support the claim that the more intrinsically religious the users are, the higher their habit becomes to use social media.

As explained in Section 2, Section 3, Habit is viewed as prior behaviour (Kim & Malhotra, 2005) and as an automated behaviour (Limayem et al., 2007). Since social media is a new technology, easy to access, free and available 24/7, it became an automated behaviour for Saudi users. By looking at the number of the active accounts on social media, we can assume that it became a habit for Saudis to use social media.

The results show that high intrinsic users developed a habit of using social media. However, they are careful about not committing sins while using social media. As mentioned at H4, social media became a good way to communicate with the opposite sex within the Islamic teachings. Also, Social media became the official debate site for Saudi to talk about the current issues, see what is happening around the kingdom without the government censorship. It became a trusted, safe, reliable source for Saudis. Thus, they develop a habit of using social media.

#### **H6: Intrinsic religiosity affects facilitating conditions (FC).**

Facilitating conditions (FC) "is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system."

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(Venkatesh et al., 2003, p. 253). FC is looking at how the technology is useable, accessible and beneficial (see chapter 2). This thesis hypothesised that there is a relationship between intrinsic religiosity and FC. The results of that data analyses show a significant positive relationship between intrinsic religiosity and FC. Hence, hypothesis 6 is supported. The results support the claim that the more intrinsically religious the users are, the easier they could use and effectively interact with social media.

FC consist of multiple variables such as comprehensiveness of manual or training session, ability to imagine applying the system to attempt tasks, mention of the extensiveness of search criteria, the offer of steps that are logical to use, apply and recall, and cover of all essentials to perform tasks and overcome difficulty (Venkatesh et al., 2016). Due to the easiness of social media platforms and the setting options that they have, users can control and benefits from using social media.

Teaching computer skills as a mandatory subject in Saudi Arabia school\s started in the 1980s (Oyaid, 2009). The students start learning the essential computer skills at the elementary level. This increases computer literacy among Saudis. Therefore, more than 91 per cent of the Saudi population has active social media accounts (Communications and Information Technology Commission, 2019) (see chapter 1). Using social media became important in Saudi Arabia. With early education in information technology, Saudi Arabians start using social media effectively and can adapt to technology changes more easily.

Many religious scholars have joined the social media world. They permitted the use of social media with the condition of not committing sins or illegal activities. Thus, many high intrinsic users start using social media effectively in their jobs, and for other purposes. Given the computer skills development of of Saudi Arabians have, we can

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assume that all Saudi users (high intrinsic or not) will have a significant positive relationship with FC.

### **H12: Intrinsic religiosity affects behaviour intentions (BI).**

Behavioural intention (BI) is the likelihood or probability of a person to act in a certain behaviour (Venkatesh et al., 2003). BI is looking at how likely users intend to use and continue using social media. This study hypothesised that there is a relationship between intrinsic religiosity and BI. The results of that data analyses show a significant positive relationship between intrinsic religiosity and BI. Hence, Hypothesis 12 is supported. The results support the claim that the more intrinsically religious the users are the more purposeful intention they will have to use and continue using social media.

In this thesis, the behaviour intention was measured by a direct question such as 'I intend to' and 'I will always use.' According to Ajzen (1991), BI reflects the effort that the person is willing to do to behave in a certain way and how motivated they are to perform the behaviour. For Muslims, behaving, in accordance with Islamic teaching, is a must. Also, Muslims believe that having good intentions is rewarded and having bad intentions is punished. The prophet (PBUH) said '*The value of) an action depends on the intention behind it. A man will be rewarded only for what he intended*' (Muslim, 1907). The intention to use or keep using social media is valued among highly intrinsic users. Because Islamic teaching states that Muslims must have good intention, so that they will be rewarded not punished.

## **7A.2 UTAUT2**

The unified theory of acceptance and use of technology (UTAUT) is one of the most used theories in technology acceptance, specifically in the information system file (see chapter 2). UTAUT aims to analyse user intentions to use technology and then the (user behaviour). UTAUT2 is an improved version from the UTAUT model where three or more constructs have been added; which are hedonic motivation, price and habit.

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Williams did a literature review of UTAUT where they find out that the best predictors are performance expectancy (PE), social influence (SI) and behaviour intention (BI). However, the other constructs did predict the use of behaviour but not as strong as PE, SI and BI.

The relationships in UTAUT2 were hypothesised as follows.

#### **7A.2.1 Effort Expectancy (EE).**

Effort expectancy (EE) explains the concept of perceived ease of use and complexity (see chapter 2). This thesis hypothesised that there is a relationship between EE and BI.

#### **H20: Effort expectancy (EE), affect behaviour intentions.**

The results of that data analysis show a significant negative relationship between intrinsic religiosity and BI. Hence, Hypothesis 20 is supported. The results support the claim that the less effort the users have to put in when using social media platform, the more intention users will have to use that social media platform.

Al-Gahtani, Hubona and Wang (2007) used UTAUT to validate the model in the Saudi context. The study hypothesises that EE has a positive relationship with BI. However, the result did not support their claim. So, there is no positive relationship between EE and BI in the Saudi context. On the other hand, studies such as (Kit et al., 2014; Venkatesh et al., 2012a) and many others find that EE has a significant relationship with BI. They argued that the less effort the user puts in to use the technology in question, the higher the intention to use that technology. These results align with the findings of the thesis.

Social media platforms are made to be easy to use and can work on any operating system. They can be accessed from all internet-connected devices such as mobile phones, tablets, laptops and many others. In addition, the platforms are usually easy to interact with and have simple commands which allow all kinds of users to

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engage with them effortlessly or with minimal effort. As mentioned earlier, Saudi Arabians are taught computer information technology in primary school and as a result have an early basic knowledge of the internet and technology devices. This prepares them to engage with social media platforms and a variety of devices. Consequently too, Saudi Arabians spend less effort to learn or adapt to social media platforms, which increases their intention to use these platforms.

### **7A2.2 Social Influence (SI).**

Social influence (SI) examines the effect of using innovation on the user social image and whether it will enhance that image or not (Venkatesh et al., 2003; Williams, Rana and Dwivedi, 2013). This thesis hypothesised that there is a relationship between SI and BI.

#### **H21: Social influence (SI), affect behaviour intentions.**

The results of that data analyses however showed no significant relationship between SI and BI. Hence, Hypothesis 21 is not supported. The results do not support the claim that social image and influence when using social media platform have an effect on the intention to use social media.

SI is considered one of the strong predictors of UTAUT (Venkatesh et al., 2012a). Williams et al., (2013) conducted a literature review of UTAUT. The review included 174 studies that use UTAUT in different context and subjects. They found that 86 studies results show a significant relation between SI and BI. On the other hand, 29 studies show no significant relation between SI and BI (e.g. Louho, Kallioja and Oittinen, 2006; Hutchison and Bekkering, 2007; Chiu and Wang, 2008; Duyck *et al.*, 2008, 2010; Chan *et al.*, 2010; Laumer, Eckhardt and Trunk, 2010; Vatanasakdakul, Aoun and Li, 2010; Dulle and Minishi-Majanja, 2011). The results of this thesis show that SI has no significant effect on BI.



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Islamic countries, especially Saudi Arabia, derived their social values and norms from their religion (see chapter 2). For high intrinsic people in Saudi Arabia, Islamic teachings are the main source of their social norms and behaviour. This means, their social statuses are linked with their religiousness. Their social status does not guide nor affect their behaviour or acts, but their religion is the driver of those. As a result, their social image doesn't affect their intention, but their religion does.

In addition, in Saudi Arabia, the social media is persuasive. The online world is like a stage where anonymity is guaranteed, and people can play whatever role they want and use any name (Goffman, 1978). They also can use nicknames and avatar to hide their identity, which gives them the freedom to act without worrying about their social status. With social media features that guarantee anonymity for users, 'good' behaviour is still displayed because of a high intrinsic factor. In this case, it is the intrinsic religiosity, not social influence.

### ***7A.2.3 Performance Expectancy (PE).***

Performance expectancy (PE): "is the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447) (see chapter 2). This study hypothesised that there is a relationship between PE and BI.

### **H22: Performance expectancy (PE), affect behaviour intentions.**

The results of that data analyses show a significant positive relationship between PE and BI. Hence, Hypothesis 22 is supported. The results support the claim that the higher their expectancy of social media efficiency to accomplish their goals, the higher their intention to use social media.

Performance expectancy is considered the strongest predictor of behaviour intentions (Venkatesh et al., 2003; Venkatesh et al., 2012). Williams et al., (2013) literature review on UTAUT found that 93 studies out of 174 found a significant

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relationship between PE and BI and only 23 studies did not find a significant relationship between them. The results of this thesis are in accordance with these claims, where PE has a significant positive relationship with BI.

Intrinsic religiosity has a positive effect on PE. As mentioned earlier, Islam encourages people to use technology that benefits them in their jobs and daily life with the condition that this technology does not contradict Islamic teachings. Muslims with high intrinsic religiosity will use any technology that will help them to perform a job since it is recommended by their religion while maintaining the one role. As a result, the more beneficial the technology, the higher their intention to use that technology. In addition, social media can help Muslim to perform their job without committing a sin. For example, a female cannot do some of her job obligations due to Islamic restrictions like in sales. Sales need a persuasive approach where might lead to a gentle or private talk between the salesperson and the customer, which is prohibited in Islam to do so directly between male and female. However, using social media eliminate that thread which increases PE.

#### **7A.2.4 Hedonic Motivation (HM).**

Hedonic motivation (HM) is the intrinsic happiness or joy which occurs as a result of using technology and plays a significant part in adopting new technology (Brown & Venkatesh, 2005). This thesis hypothesised that there is a relationship between HM and BI.

#### **H23: Hedonic motivation (HM), affect behaviour intentions.**

The results of those data analyses show a significant positive relationship between HM and BI. Hence, Hypothesis 23 is supported. The results support the claim that the higher the user's enjoyment became when using social media, the higher their intention to use social media becomes.

Previous studies show that there is a significant relationship between HM and BI (Baabdullah et al., 2014; Harsono & Suryana, 2014; Venkatesh et al., 2012a; Yuan et al., 2015). When people find happiness or joy when using technology, they will intend to use that technology even if the act can be seen as immoral by certain people; for example, using the internet to watch porn or gamble. For some culture, age group or religious teaching, watching porn and gambling are prohibited or unacceptable. However, some people who are neither of those groups find their joy at these things. As a result, whenever the user finds joy and happiness in using technology, they will intend to use it.

The Islamic religion has rules and guidelines for everything, including joy and happiness. In Islam having fun and enjoyment is not prohibited unless by doing so, you will break an Islamic rule or commit sin. Thus, the high intrinsic religious people will always have a hedonic motivation when using technology without committing a sin. Since using social media is easy, cheap, fun and available, users will always enjoy their time while using them. Thus, they will have the intention to use them over and over.

#### **7A.2.5 Habit.**

Habit is defined as spontaneous behaviour result from previous experience and learning (Venkatesh et al., 2012). This thesis hypothesised that there is a relationship between Habit and BI and a relationship between Habit and USE.

#### **H24: Habit (Habit), affect behaviour intentions.**

The results of those data analyses show a significant positive relationship between Habit and BI. Hence, Hypothesis 24 is supported. The results support the claim that when using social media became a habit, the greater their intention to use social media.

Venkatesh et al. (2012) found that habit has a direct and indirect effect on BI and what leads to the habitual use of technology is the experience increases. Kit *et al.* (2014)

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performed a study using UTAUT2 on adopting mobile application where they found that habit has significant positive relations with BI. Another study conducted by Liao, Palvia and Lin (2006) to measure the intention to use e-commerce found that habits positively affect the intention to use e-commerce. The result of this thesis is aligned with the finding of previous studies and support H24.

As mentioned before, social media platform are easy to use, available, bring joy and does not contradict with the Islamic religion. It can be found on every handheld device, and most of the social media platforms are free of charge. As a result, Saudi users start having the habit of engaging with social media. Another evidence of the habitual use is the number of active accounts in Saudi Arabia. When developing the habit to use social media, users BI to use social media will increases.

Habit has been used to predict the use of technology (e.g. Kim and Malhotra, 2005; Kim, Malhotra and Narasimhan, 2005; Limayem, Hirt and Cheung, 2007; Venkatesh, Thong and Xu, 2012). UTAUT2 included habit as a construct and suggested a direct relation between habit and the use of technology (see chapter 2). They found that habit has a direct effect on use and an indirect effect through BI.

Use in this thesis has been divided into four constructs USE Disc, USE Reli, USE Share and USE Tec (see chapter 3). USE Disc will focus on the use of social media to disclose private information. USE Reli will focus on the use of social media according to religious teaching. USE Share will focus on the use of social media to share information. Finally, USE Tec will focus on the use of social media itself, whether it is prohibited or not by religion. Finally, this study hypothesises that habit affects the four aspects of USE. The results supported H25 (Habit affect USE Disc) and H26 (Habit affect USE Reli). On the contrary, the results did not support H27 (Habit affect USE Share) and H28 (Habit affect USE Tec).

**H25: Habit affects USE Disc.**

**H26: Habit affects USE Reli.**

To measure USE Disc, the survey asked about disclosing the user's religion that they follow, their names, professional life, and picture (see appendix C). To measure USE Reli, the survey asked about using social media to do prohibited things or against the fatwa of Islamic scholars (see appendix C ). Saudi Arabia is a family-oriented country, where they keep in direct and continues contact with their family member. Inside the family, the same age group tends to be best friends and discloses their information to each other. For intrinsic religious users, using social media is permitted with the condition of not breaking any Islamic rules or committing sins. We established that intrinsic religious users are using social media in a professional manner and not breaking any Islamic rules. In addition to all those reasons, having a habit of using social media will result in disclosing information among friends and family members; and using social media in line with religious teachings. Therefore, H25 and H26 are supported.

**H27: Habit affects USE Share.**

**H28: Habit affects USE Tec.**

On the other hand, the results show no significant relationship between habit USE Share and USE Tec. As mentioned earlier, USE Share will focus on the use of social media to share general information while USE Tec will focus on the use of social media itself, whether it is prohibited or not by religion. To measure USE Share, the survey asked about sharing information such as sexual preference, religious views and private pictures (see Appendix C). To measure USE Tec, the survey asked about using technology even though it was prohibited by religion or religious scholars (see Appendix C).

Saudi Muslims are committed to their religion, and they always ask the Islamic scholars about new technology. As we established earlier, If one technology is banned, high religiously intrinsic people will not use that technology due to their religious

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teachings. Thus, they will not have the habit to use it in the first place. Therefore, H27 is not supported. Islam has a clear rule about what is private and must not be shared or visible, for example, women's faces according to some Islamic interpretations. Women who lived in western countries by themselves or with their families, where the law guarantees total freedom of the choice to wear any clothes, you will find Muslim women cover their faces and follow the Islamic rules to the letter. The social media world is no different for Muslims because the Islamic rules still apply in the virtual world. Malik et al., (2016) argue that Habit has a negative correlation with sharing information. They studied the users behaviour (sharing photos) on face book. they found that the number of photos shared was negatively correlated with habit and information sharing gratifications. Their results support this theses findings. Therefore, having the habit of using social media does not affect the rules made by Islam. Hence, H28 is not supported.

#### ***7A.2.6 Facilitating Conditions (FC)***

Facilitating conditions (FC) "is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system." (Venkatesh et al., 2003, p. 253). FC is looking at how the technology is useable, accessible and beneficial (see chapter 2). This study hypothesised that there is a relationship between FC-BI and FC-USE (H29, H30, H31 and H32). The results of those data analyses show no significant relationship between FC-BI and FC-USE. Hence, Hypotheses 29 to 32 are not supported.

29: Facilitating conditions (FC) affects behaviour intentions.

30: Facilitating conditions (FC) affects USE Disc.

31: Facilitating conditions (FC) affects USE Reli.

32: Facilitating conditions (FC) affects Use Share

33: Facilitating conditions (FC) affects USE Tec.

Venkatesh et al. (2003) introduced UTAUT in a study to understand the driver of accepting a new technology in organizations. They found that FC has no significant relationship with BI. They also find that there is a significant relationship between FC and USE. Kit *et al.* (2014) used UTAUT2 to find the key determinants that influence behavioural intention to adopt mobile applications. They found that FC has no significant relations with BI.

The new generation has the ability to use new technology without referring to the manual (Jambulingam, 2013). New technology became easy to use, and the new generation gets used to them easily due to their education and massive technology exposure from an early age. On social media, users can easily create a profile, view visit, engage and control their profile without referring to the manual (Boyd & Ellison, 2007). Social media offers a new modern way for interacting such as video, emoji's and many others (D. Hansen, Shneiderman, & Smith, 2010). All of these ways are simple to use, and the user does not have to be a computer professional to do it. There are many devices that give the users access to social media like laptops, smartphones even watches; the only thing needed is the internet (C. Anderson & Wolff, 2010). The goal behind these utilities is to increase the use of social media while minimizing the difficulty of using them. Therefore, we can say that social media is easy to use through multiple devices and does not require any kind of education or training to use them.

The internet was introduced to Saudi people in 1997 (Al-Kandari & Dashti, 2014). Since that day, Saudi Arabians became a group of active people in the online world (Al-Kandari & Dashti, 2014). Long before that day, the 1980s, Saudi government introduce computer education to the school system and made it compulsory (Oyaid, 2009). So, it is safe to say that, Saudi citizens are used to the computer and the internet; have the proper education and training to use them. Combining this reason with the strategy of social media companies, to build a compatible with all devices and easy to

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use platforms, Saudi Arabians do not need any assistance to use social media in general. In the case of social media being used by highly intrinsic religious Muslims, FC has no effect on BI and USE.

#### **7A.2.7 Behaviour Intention (BI).**

Behavioural intention (BI) is the likelihood or probability of a person to act in a certain behaviour (Venkatesh et al., 2003). BI is looking at how it is possible that the user will intend to use and continue using social media. This thesis hypothesised that there is a relationship between BI and USE as follow:

- 34: Behaviour intentions affect the use of social media to disclose information (Use Disc).
- 35: Behaviour intentions affect the use of social media in line with the religion doctrine (Use Reli).
- 36: Behaviour intentions affect the use of social media to share information (Use Share)
- 37: Behaviour intentions affect the use of social media itself as a technology (Use Tec)

Use in this thesis has been divided into four constructs USE Disc, USE Reli, USE Share and USE Tec (see chapter 3). This study hypothesises that BI affects the four section of the USE. The results supported H35 (BI affect USE Disc) and H36 (BI affect USE Share). On the contrary, the results did not support H35 (BI affect USE Reli) and H37 (BI affect USE Tec).

To measure USE Disc, the survey asked about disclosing the user's religion that they follow, their names, professional life, and picture (see appindex C). To measure USE Reli, the survey asked about using social media to do prohibited things or against the fatwa of Islamic scholars (see appindex C). To measure USE Share, the survey asked about sharing information such as sexual preference, religious views and private pictures (see Appindex C). To measure USE Tec, the survey asked about using technology even though it was prohibited by religion or religious scholars (see



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Appendix C). Finally, BI was measured by a direct question such as ‘I intend to’ and ‘I will always use.’ (see Appendix C).

Results from various studies suggested that BI has positive effect on USE (e.g. Venkatesh et al., 2003; Al-Gahtani, Hubona and Wang, 2007; Venkatesh, Thong and Xu, 2012; Baabdullah, Dwivedi and Williams, 2014; Oechslein, Fleischmann and Hess, 2014; Zalah, Greener and Gill, 2017; Lee, Sung and Jeon, 2019). The behaviour theories, which are the base of UTAUT2, along with UTAUT2, argued that the user behaviour (USE) is determined by their intention to perform that behaviour (see chapter 2). People, mostly, do not behave in a certain way without having the intention to do so.

The USE Disc and USE share are behaviours related to personal information. USE Disc is the act of disclosing private information on social media. The information is sensitive, and usually people do not share in the real world to everyone. People would not share this sensitive information unless they intend to. For example, people usually do not disclose their political ideologies without having the intention to do so. On the other hand, USE Share is the act of disclosing personal but not private information on social media. The information in nature are not sensitive, and usually, people share them with others. For example, the music they like. The results of this study suggest that users have the intention to disclose and share their information with others on social media, and if they do not have the intention, they will not do so.

The USE Reli and USE Tec are behaviours connected to the user’s faith. They are focusing on the user's behaviour on social media with religious influence. USE Reli is focusing on individual behaviour when using social media; making sure that on social media Muslim users are not committing any sins or do a prohibited acts such as gambling. USE Tec is focusing on the use of social media platform in relation to the user's faith. For example, if Islamic teaching or fatwa banned Facebook, Muslims will not use Facebook for religious reasons. The results show no significant relationship

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between BI and USE RELI or USE Tec. One of the probable reason is that all of the samples are Muslims and in Islam having a bad intention is considered a sin. The Saudi Muslims have been raised to listen and act to what Muslim scholars Fatwa, especially if it came from the grand mufti. Therefore, they will not have the intention to act against their Islamic teaching and mufti. Finally, the government of Saudi Arabi used to enforce Islamic teaching and the grand mufti fatwa making it a rule. Hence, acting or behaving against Islamic teaching or against the fatwa becomes an incriminating act by law. Therefore, BI doesn't have an effect on USE Reli or USE Tec.

### **7A.3 Summary of the first part (Religiosity and UTAUT) findings.**

Religion is a major influence on human life. It plays a major role in the formation of behaviours and attitudes (Essoo & Dibb, 2010). Berger (1961) shows that religion is a causal part of social behaviour. Religion cannot be measured by itself. Hence, the use of religiosity (see chapter 2). The proposed model of the first pathway is Religiosity- UTAUT2-USE (figure 10.1). The hypotheses of the first model are twenty-four, where six hypotheses between intrinsic religiosity and UTAUT2, 14 hypotheses between UTAUT2 and use and 4 shared hypotheses for both pathways between BI and USE. Allport and Ross' (1967) religious orientation scale was used to measure the intrinsic religiosity. Venkatesh et al. (2012) UTAUT2 was used to measure the technology acceptance.

All hypotheses between intrinsic religiosity and UTAUT2 are supported by the results. Intrinsic religiosity has a direct effect on the UTAUT2 constructs. As explained earlier in the chapter , Islamic teaching affect and manage the people's behaviour and relationships. Islamic religion encourages people to facilitate things, make it easier, act according to their religion and develop a habit that does not contradict with the Islamic teachings. Therefore, there is a clear effect of the intrinsic religiosity on technology acceptance which answers **RQ3: Does religiosity affect technology acceptance?**

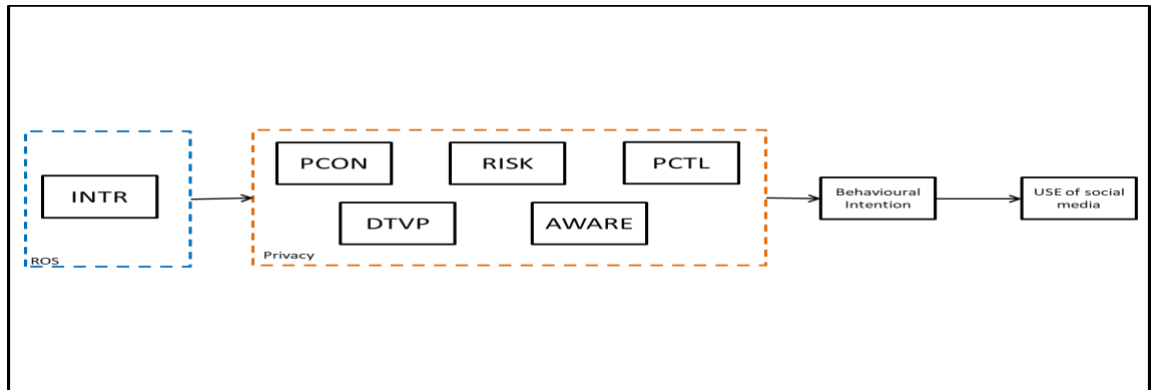
Technology acceptance affect the user intention to behave in a certain way in this case using social media (see chapter 2). Since the data support the claim that religiosity has a direct effect on the technology acceptance , UTAUT2 construct, the next step is to see the effect of technology acceptance on the actual use (UTAUT2 and USE). UTAUT2 has been used to measure the user's technology acceptance. Most of the hypotheses were supported by the data except Habit and FC. UTAUT2 construct is affected by the user level of religiosity. This effect creates different prospective of the UTAUT2 constructs by the users. However, the results of EE, SI, PE, HM and Habit are similar to the literature results where they have a significant relationship with BI. Habit has a significant direct relationship with one of the use constructs which is USE Disc. FC has no significant direct relationship with USE. Finally, BI has a direct effect on USE Disc and USE Share. Hence, behaviour intention affects the use of social media in the case of sharing and disclosing information. Since all of the construct except FC has a significant direct relationship with BI, which in turn affects the USE, it is safe to say that technology acceptance affects the use of social media which answer RQ5: Does technology acceptance directly affect the use of social media?

By answering RQ3 and RQ5, which relates to the first part of the model religiosity- technology acceptance- use of social media, it is clear from the first part that Religion does not affect the use of social media directly. Instead, religion affects the use of social media indirectly by affecting technology acceptance. So, the answer to RQ1 is that religion has an indirect effect on the use of social media. However, this answer is not a complete one. We need to see the second part of the model to say for sure that religion has an affects on the use of social media.

## **7B: Privacy Part.**

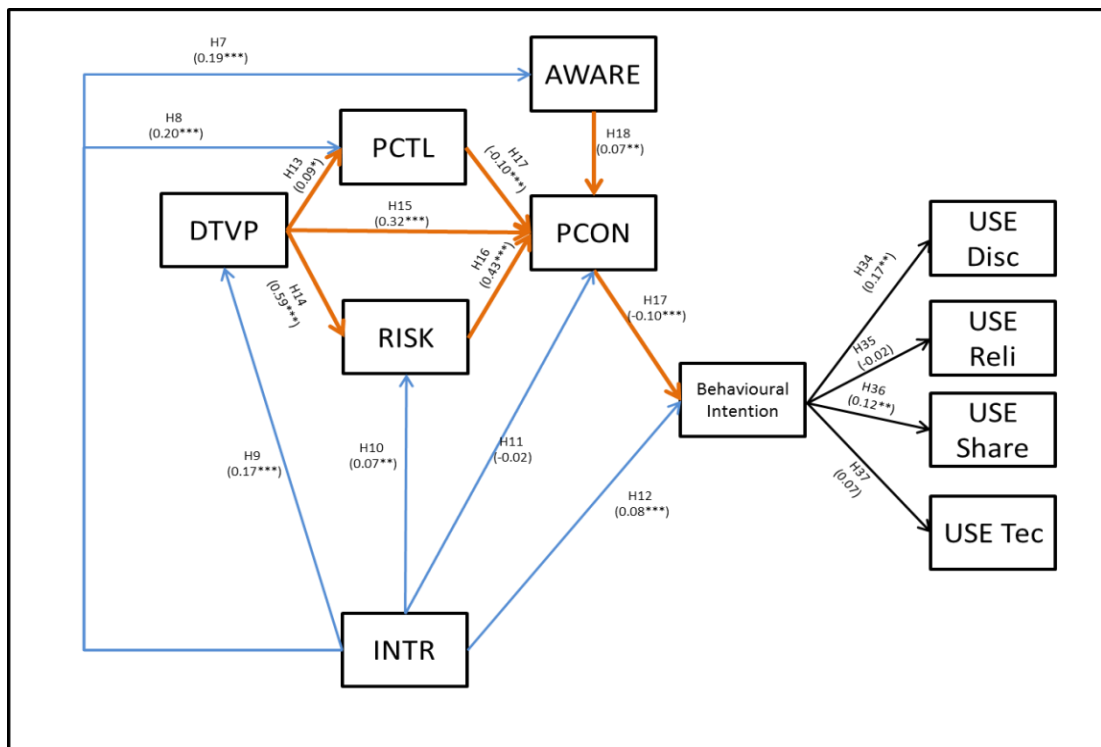
Section 11 presents a discussion the research finding of the second pathway of the proposed model (Religiosity-Privacy-Use) see figure11.1. The Section recaps the

results of each hypothesised relationship. After that, the results will be compared to the original theories. Finally, the results will be explained in light of the aims of the research and answer the research questions.



**Figure 11.1:** Privacy pathway

The second pathway is studying the relations between intrinsic religiosity and the privacy concern in order to find the effect of intrinsic religiosity on the use of social media (Figure11.2). To measure the privacy concerns, (Xu et al., 2011) model have been adopted, as explained in Section 2, Section 4. This pathway has seventeen relations, which means there are 17 hypotheses in this pathway, see Table 11.1.



**Figure 11.2:** Second pathway (Intrinsic Religiosity and Privacy Concerns)

**Table 11.1** Findings of the second pathway (*Intrinsic Religiosity and Privacy Concerns*)

<b>Research Hypotheses</b>		<b>Finding</b>
H7	Intrinsic religiosity affects privacy awareness (AWAER).	Supported
H8	Intrinsic religiosity positively affects Privacy control (PCTL).	Supported
H9	Intrinsic religiosity positively affects disposition to value privacy (DTVP).	Supported
H10	Intrinsic religiosity negatively affects privacy risk (RISK).	Supported
H11	Intrinsic religiosity positively affect privacy concerns (PCON)	NOT Supported
H12	Intrinsic religiosity affects behaviour intentions.	Supported
H13	Disposition to value privacy (DTVP), negatively affect perceived privacy control (PCTL).	NOT Supported
H14	Disposition to value privacy (DTVP), positively affects perceived privacy risk (RISK).	Supported
H15	Disposition to value privacy (DTVP), positively affect privacy concerns (PCON).	Supported
H16	Perceived privacy risk (RISK), positively affects privacy concerns (PCON).	Supported
H17	Perceived Privacy control (PCTL),	Supported

negatively affect privacy concern (PCON).

H18	Privacy Awareness (AWARE), positively affects privacy concerns (PCON).	NOT Supported
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### **7B.1 Intrinsic religiosity and privacy concerns.**

The relationships between intrinsic religiosity and privacy concern model were hypothesised as follow:

#### **H7: Intrinsic religiosity affects privacy awareness (AWAER).**

According to Dinev and Hu (2007) technology awareness is defined as the user's raised consciousness of and interest in knowing about technological issues and strategies to deal with them (see chapter 2). This thesis hypothesised that there is a relationship between intrinsic religiosity and AWAER. The results of these data analyses show a significant positive relationship between intrinsic religiosity and AWAER. Hence, Hypothesis 7 is supported. The results support the claim that the more intrinsically religious the user is, the more he or she will be aware of technical issues when using social media.

Social media platforms are collecting users data (Hassanpour, Tomita, DeLise, Crosier, & Marsch, 2019; Jimenez-Marquez, Gonzalez-Carrasco, Lopez-Cuadrado, & Ruiz-Mezcua, 2019). In the users' agreement social media companies inform people that they are collecting data when registering on social media platforms. For example, Facebook's terms of services state that they collect data from users for advertisement while keeping users' identity anonymous (Facebook, 2019). Hence, social media users are provided with information to be aware of the data collection process on the social media platform.

Islam rules and teaching encourage people to be aware and learn about their religion by reading or asking the scholars '*ask the people of the message if you do not know*' (Qur'an 21:7). The prophet (PBUH) said "*That which is lawful is clear and that*

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*which is unlawful is clear*' (Al-Nawawi, n.d.) acceptable things and prohibited things are clear and have been clarified by the holy Quran and by the Prophet Mohammed (PBUH). Every Muslim is careful when using social media, so they don't commit sins or provide private information that is considered unshareable in Islam. Hence, the more religiously intrinsic the person is, the more careful he will be to increase his or her awareness.

Users awareness increases as a result of newspapers, websites, religion and the law. By law, social media platforms must clarify the data collection process and ask for users' consent to collect their data. Newspapers and websites investigate social media platform and expose any problems or data misuse, like the recent Facebook incident covered by many newspapers, such as the Sun 'Huge Facebook leak reveal phone numbers of 400MILLION users – including 18 million Brits' (Edwards, 2019). Finally, Islamic religion encourages Muslim to always be aware of new technology before using them. As a result, they are aware of social media data collections processes and term of services. The results of this thesis supports this argument.

#### **H8: Intrinsic religiosity positively affects Privacy control (PCTL)**

Privacy control is defined as '*as a perceptual construct reflecting an individual's beliefs in his or her ability to manage the release and dissemination of personal information*' (Xu et al., 2011, p. 804). Privacy control has been embedded in many privacy studies (see chapter 2). This study hypothesised that there is a relationship between intrinsic religiosity and PCTL. The results of that data analysis show a significant positive relationship between intrinsic religiosity and PCTL. Hence, Hypothesis 8 is supported. The results support the claim that the more intrinsically religious the users are, the more they will have control over their private information and account.

Social media platforms have been built in a way that allows users to have control over their private information and accounts. With governmental regulations such as General Data Protection Regulation (GDPR), social media platforms are required to explain their privacy policies and enable users to have control. There are many effective ways to control and protect the privacy on social media platforms such as unique passwords and two-factor authentication option. Social media platforms give the user full access and control over their information where they can decide who has access to the information, share the information or change the information. With the easiness of social media platform control, users have control over their information and can change their privacy settings.

As mentioned in Section 6, Section 10, Islam encourages the concept of privacy and considers the breach of privacy a sin. Moreover, Islam holds users accountable for their own private information in a way that they should keep it private and not share it with anyone. High intrinsic religious Muslims tend to want control over their private information, so as to not fall into sin. For example, some female Muslims do not show their faces to strange men, as this will be considered a sin; hence they use avatars for their picture profiles instead of personalised photos. They may post their own pictures but make it accessible to a select group of people. In order to not commit prohibited acts on social media, Muslims have to ensure that they take control over their private information. For this reason, privacy control is an important value for highly intrinsic religious Muslims, as supported by the data for this study.

**H9: Intrinsic religiosity affects disposition to value privacy (DTVP).**

Disposition to value privacy (DTVP) is ‘a personality attribute reflecting an individual's inherent need to maintain certain boundaries that frame personal information space’ (Xu et al., 2011, p. 805). DTVP directly affects the risk control assessment for the user to share information (see chapter 2). This thesis hypothesised



that there is a relationship between intrinsic religiosity and DTVP. The results of these data analyses show a significant positive relationship between intrinsic religiosity and DTVP, thereby supporting Hypothesis 9. The results support the claim that the more intrinsically religious users are, the more they value their private information.

Xu et al. (2011) argued that DTVP is the construct that determines whether the user will share information or not and affects the risk assessment directly. DTVP is connected to the trust concept where it influences the rules of interpersonal relationship whether or not to trust a person with one's private information (Gefen, 2000; McKnight, Choudhury & Kacmar, 2002; Xu et al., 2011). Users with high DTVP value their information and may be strict about their privacy, demanding more control over their private information and more control over the data flow. In other words, they want to have control over what they post, share, and what can be collected.

The user's DTVP is based on the user's previous experience, culture, beliefs and personality (Xu et al., 2011). It is an accumulative experience and set of beliefs that shape the users DTVP. Islam acts as a regulation or a constitution for all Muslims. Islam encourages people to value their own and the privacy of others. As a result, religion has a direct effect on DTVP as evidenced by the results of this thesis.

**H10: Intrinsic religiosity affects privacy risk (RISK).**

Bhatia *et al.*, (2016) defined privacy risk as 'the act of identifying a choice or action that may have an impact on one's privacy' (p.58). This thesis hypothesised that there is a relationship between intrinsic religiosity and risk. The results of these data analyses show a significant positive relationship between intrinsic religiosity and Risk; thereby supporting Hypothesis 10. The results support the claim that the more intrinsically religious users are, the more they will evaluate the risk associated with sharing private information in social media.

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Calculation of individual privacy risk involves an assessment of the probability of negative consequences as well as the perceived asperity of these consequences. Sharing information online involves risks of losing or exposing information to unintended people. There have been social media cases where private information that was safe and secure on social media platforms became exposed (Facebook leak incident 2019), heightening people's awareness of the risks associated with private information on social media platforms. Privacy risks in social media include, and are not limited to, authorised information collection, processing, dissemination, and invasion activities.

Risk is affected by users' beliefs and is also expected to affect their attitudes and behaviours (Ajzen, 1991; Xu et al., 2011). For Muslims, the concept of not taking risks and playing it safe is a fundamental rule. The rule states that warding off corruptions and evils takes precedence over bringing benefits. According to Ibn-Baz (The previous grand mufti of Saudi Arabia), this rule is a fundamental concept in Islam, where avoiding the risk of harm or committing a sin is a must even if the act will bring some goods (Ibn-Baz, n.d.). The rule came from the Holy Qur'an where it said *'They ask you about wine and gambling. Say, "In them is great sin and [yet, some] benefit for people. But their sin is greater than their benefit." And they ask you what they should spend. Say, "The excess [beyond needs]."* Thus Allah makes clear to you the verses [of revelation] that you might give thought' (Qur'an 2:219). The Islamic scholars took the rule of avoiding risk from this verse where Allah stated that wine and, gambling has some benefits, but the risk and evil came from drinking and gambling is greater than the benefits. Hence, it is forbidden. Muslims who are highly intrinsic are expected to consider the risk of committing a sin or disobeying god before behaving in a certain way. The concept of risk is associated with any activity that might lead to sinful behaviour. As a result, people with a high score in intrinsic religiosity tend to have a higher value of risk assessment before sharing information on social media.

**H11: Intrinsic religiosity positively affects privacy concern (PCON).**

According to Buchanan et al., (2007), privacy concern is “the desire to keep personal information out of the hands of others” (p. 158). Privacy concerns can relate to the negative online phenomena that affect users, such as online identity theft and misuse of personal data (see chapter 2). This thesis hypothesised that there is a relationship between intrinsic religiosity and PCON. The results of that data analyses show no significant relationship between intrinsic religiosity and PCON. Hence, Hypothesis 10 is not supported. The results do not support the claim that the more intrinsically religious the users are, the more they will be concerned about their privacy when using social media.

Social media users may appear to be unconcerned about their privacy until their privacy is breached (Regan, 2000). In other words, although users value their privacy, they are often unable to explain its meaning and implications until affected by a privacy breach or incident they are able to relate to. In addition, privacy itself is a variable concept, which means that users’ idea of privacy can be changed according to the context and values which may change over time. Moreover, users tend to trust social media companies to protect and save their private information (Fodor & Brem, 2015b) which reduces the privacy concerns of using social media.

Islamic faith, however, emphasises the concept of privacy (see chapter 3). Muslims are required to be careful using social media and sharing information. Consequently, they tend to evaluate the risks and levels of control before sharing any information on social media platforms. Data analysis results for H11 may be explained by users having trust in social media companies through which they feel some control over information shared to strangers in both the physical and virtual worlds. Saudi Arabians tend to trust big western companies particularly within technology (Mansur, 2013). They tend to believe in the technology and regulation of huge social media

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companies to protect their information and thus ease their concerns about the misuse or leak of their data saved with social media companies. Finally, social media platforms have given control to users over their privacy settings and the selection of people who can view their data. Therefore, intrinsic religiosity does not directly affect the privacy concerns.

## **7B.2 Privacy Concerns**

There is an increased interest in privacy concerns for individuals and organizations with the rapid growth of information access. Consequently, ‘concerns about privacy are increasingly about the improper access, use, and manipulation of personal information’ (Moor, 1997, p. 16). According to Buchanan et al., (2007), privacy concern is “the desire to keep personal information out of the hands of others” (p. 158). Xu *et al.*, (2011) whose privacy concerns model have been adopted in this thesis show that individual privacy concerns form through a cognitive process involving user awareness, perceived privacy risk, privacy control and the user disposition to value privacy.

The relationships between privacy concern models were hypothesised as follows:

**H13: Disposition to value privacy (DTVP), negatively affect perceived privacy control (PCTL).**

This study hypothesised that there is a negative relationship between DTVP and PCTL. The results of data analyses show no significant relationship between DTVP and PCTL; hence, Hypothesis 13 is not supported.

According to Xu et al. (2011), Users with high DTVP will cherish their personal information more. Those users will demand more control over their private information and the flow of the information. As a result, they have the feeling that they do not have enough control over their private information. In contrast, users with low DTVP are less concerned about sharing their private information and will feel less need for full control

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over their private information. Xu *et al.*, (2011) found that DTVP has a significant negative relationship with PCTL when disclosing information at the social media platforms. This thesis result is opposite to what they found.

As discussed earlier in Section 11, Islam teaching encourages Muslims to value their privacy. In Islam, it is considered a sin to share private information with everyone or to expose private information of others. It is also the user's obligation not to disclose any private information. For example, if a social media user posted private information and that information gets leaked or shared by others without the consent of the owner, Islam holds the user accountable for the leak or spread of the information because the user should not share any private information in the first place. As a result, Muslims who value their privacy have less concern about privacy control. Another reason is the trust in the big western companies to save and protect the user's private information. Furthermore, social media platforms are built in a simple way that allows the users to select and control information shared and permitted viewers. Finally, this thesis is using the model to see the effect of the use of social media, not disclosing information.

**H14: Disposition to value privacy (DTVP), positively affects perceived privacy risk (RISK).**

The study hypothesised that there is a positive relationship between DTVP and risk. The results of these data analyses show a significant positive relationship between DTVP and PCTL, thereby supporting Hypothesis 14. The results support the claim that users who value their privacy more are aware of the risk associated with using social media.

Disposition to value privacy (DTVP) is 'a personality attribute reflecting an individual's inherent need to maintain certain boundaries that frame personal information space' (Xu et al., 2011, p. 805). Users with high DTVP cherish their information more than those who have low DTVP. The higher the users DTVP the

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greater their realization that using social media comes with risks associated with it. When the users cherish their information, even a small chance of harmful interaction with social media is considered a risk. As a result, they will perceive a higher privacy risk associated with using social media. Xu *et al.*, (2011) found that DTVP has a significant positive relationship with RISK when disclosing information at the social media platforms. This thesis result shows the same effect between DTVP and RISK when using social media.

The religiosity and the context of the study contribute to these results. Section 11.1 illustrates the impact of Islam on the risk and on the DTVP. Muslims are expected to always be aware of the risks associated with using any new technology. They are held accountable for their actions even if they did not consider the risks associated with that action, because it is a religious obligation to assess the risk of doing anything. One of the fundamental rules of Islam is avoiding the risk of getting harm or committing a sin, even if the act will bring some good. Hence, the more valued the information is, the more concerned users will be about risk.

**H15: Disposition to value privacy (DTVP), positively affects privacy concerns (PCON).**

According to Buchanan *et al.*, (2007), privacy concern is the need to keep private information safe. Privacy concerns can relate to the negative online phenomena that affect users, such as online identity theft and misuse of personal data (see chapter 2). This thesis hypothesised that there is a positive relationship between DTVP and PCON. The results of these data analyses show a significant positive relationship between DTVP and PCON; supporting Hypothesis 15. The results support the claim that users who value their privacy more are concerned about the loss of their private information. Xu *et al.*, (2011) found that there is a significant positive relationship between DTVP and PCON. They contend that users who value their private information

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are expected to be more concerned about their privacy. They tested their model within 5 different contexts: a dataset, e-commerce, social network, finance and healthcare. All five of them supported the existence of a positive relationship between DTVP and PCON. This thesis results are supporting the same hypotheses.

Although Muslims trust the big western social media companies to save and not misuse their information, they tend to have a concern about their private information. Saudi users are careful with their private information which is not shared with others. For example, pictures of female Muslims who cover their faces, are only shared in a closed circuit, meaning that only select users can access their pictures. However, the social media platform has their photos stored in their database or cloud, and the company is able to access them. Therefore, people who value their information have a greater concern about their privacy.

**H16: Perceived privacy risk (RISK) positively affects privacy concerns (PCON).**

This study hypothesised that there is a positive relationship between RISK and PCON. The results of that data analyses show a significant positive relationship between RISK and PCON, supporting Hypothesis 16. The results support the claim that users who are aware of the risk associated with using social media are more concern about their private information.

Risk has been defined as ‘the act of identifying a choice or action that may have an impact on privacy’ (Bhatia et al., 2016, p. 58). The calculation of the individual privacy risk involves an assessment of the probability of negative consequences and the perceived asperity of these consequences. Xu *et al.* (2011) found that there is a significant positive relationship between RISK and PCON. They contend that the user who is more aware of the risks associated with sharing private information would be more concern about privacy. Other studies in information system generally support the positive effect of risk and privacy concern (Tamara Dinev & Hart, 2004; Tamara Dinev,

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Hart & Mullen, 2008). Sharing information online has a risk of losing or exposing this information to unintended people. There are recent social media cases where private information that was kept safe and secure was leaked (Facebook leak incident 2019). Users may be unaware of how social media companies are saving, using, analysing, transferring their data. This increases the amount of uncertainty or risk which affects users' concerns about privacy.

**H17: Perceived privacy control (PCTL) negatively affects privacy concerns (PCON).**

This thesis hypothesised that there is a negative relationship between PCTL and PCON. The results of these data analyses show a significant negative relationship between PCTL and PCON supporting Hypothesis 17. The results support the claim that the more control users have on their information, the less they will be concerned about privacy.

Control is embedded in most of the privacy definitions and arguments and has been used to operationalize privacy in many studies (Malhotra et al., 2004; Milne & Culnan, 2004; Xu et al., 2011). This thesis defines control as the users' belief in their ability to manage their private information. PCTL is one of the main constructs that explain privacy concerns to a high degree (Dinev & Hart, 2004; Phelps et al., 2000; Xu et al., 2011). Furthermore, PCTL has a negative effect on privacy concern, where the more control over private information the users have, the less concerned about their private information they become (Milne & Boza, 1999; Xu et al., 2011). The results of this thesis are aligned with the literature.

Social media platforms are built in a way that gives the users control over their private information, allowing users to choose the people who can access, share or view their information. Before collecting or accessing users' information by other applications (e.g. games), in social media platforms, they ask for the users' consent.



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Moreover, the terms of services and privacy policies of social media platform together with the governmental rules and regulations, guarantee control over private information. For all these reasons, social media users become less concerned about their private information when they have more control.

**H18: Privacy awareness (AWARE) positively affects privacy concerns (PCON).**

This thesis hypothesised that there is a positive relationship between AWARE and PCON. The results of these data analyses show a significant positive relationship between AWARE and PCON supporting Hypothesis 18. The results support the claim that the more awareness the users have about privacy issues and violations, the more concerned they become about their privacy.

This thesis defined technology awareness as the user's effort to know about the issues with the platform they use and means to navigate them. Social media remains under extensive media coverage, newspapers and TV shows mention social media frequently (every day during the Facebook 2019 breach media coverage). Awareness campaigns organized by universities, schools, NGO's and government organisations also educate people about social media issues and how to avoid them. Social media companies, themselves, have their own programmes and help features in order to raise the users' awareness. With all of these efforts to raise users' awareness, social media users have become more educated and aware of privacy issues and how to avoid or solve them; and consequently, less worried about the invasion of their private information.

**H19: Privacy concerns (PCON) negatively affects behaviour intentions (BI).**

This study hypothesised that there is a negative relationship between PCON and BI. The results of these data analyses show a significant negative relationship between PCON and BI, thereby supporting Hypothesis 19. The results support the claim that users who are concerned about their privacy will have less intention to use social media.

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Privacy concern is the need to keep private information safe (Buchanan et al., 2007). Privacy concerns can relate to the negative online phenomena that affect users, such as online identity theft and misuse of personal data on social media platforms (see chapter 2). On the other hand, behaviour intention (BI) is the likelihood or probability of a person to act in a certain way (Venkatesh et al., 2003). BI looks at the user's will and intention to use and continue using social media.

When using social media, users are divided into different types. Some users protect their private information, and others are act recklessly about their private information. When users became more concerned about their private information, they tend to become more protective and less engaged in order to keep their private information safe. In the social media context, people with high PCON tend to use protective measures such as avatars, nicknames or even providing false information or avoiding social media platforms entirely. The findings in this thesis suggest that the less concern users are about privacy, and the more they intend to use or continue using social media platforms.

### **7B.3 Summary of the second pathway findings**

Religion is a major influence on human life. It plays a significant role in the formation of behaviours and attitudes (Essoo & Dibb, 2010). Berger (1961) shows that religion is a causal part of social behaviour. Religion cannot be measured by itself. Hence, the use of religiosity (see chapter 2). The proposed model of the second pathway is Religiosity- PCON—BI-USE (figure 11.1). There are 15 hypotheses for the first model, with four hypotheses between intrinsic religiosity and PCON, six hypotheses between PCON constructs, one hypothesis between PCON and BI and 4 shared hypotheses for both pathways between BI and USE. Allport and Ross' (1967) religious orientation scale was used to measure the intrinsic religiosity. Xu *et al.* (2011) privacy concern model was used to measure privacy concerns.

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All of the hypotheses between intrinsic religiosity and PCON are supported by the results except one. Intrinsic religiosity has a direct effect on DTVP, RISK, PCTL and AWARE. However, there is no significant direct relationship between Intrinsic and PCON. As explained earlier in the chapter, Islamic teaching affects and serves to manage people's behaviours and relationships. Islamic religion encourages people to value privacy; be aware of privacy issues, assess the risks before doing anything, have control over their private information and respect that of others. As the model indicates, all of these have a direct and indirect effect on PCON. Therefore, there is a clear effect of the intrinsic religiosity on PCON which answers RQ2: Does Religiosity affect privacy concerns?

As mentioned in chapter 2, users have used multiple ways to ensure that their privacy is safe while using social media. The literature shows that privacy concern has an effect on the use of online communication, e-commerce and social media. Xu *et al.* (2011) privacy concern model has been used to measure PCON. Most of the hypotheses were supported by the data except DTVP and PCTL. The construct is affected by the user level of religiosity. This effect built a different perspective of PCON by the users. The results of the PCON model are similar to the literature results, where there is a significant relationship between all except one. PCON has a significant direct effect on BI, and BI has a direct effect on USE Disc and USE Share. Hence, privacy concerns affect the use of social media in the case of sharing and disclosing information. Using Xu *et al.* (2011) PCON model to measure privacy concern, the researcher is able to explain the effect of intrinsic religiosity on privacy concern. Privacy concern affects the use of social media which answers RQ4: Does privacy concerns affect the use of social media?

By answering RQ2 and RQ4 it is clear from the second part of the model that Religion does not affect the use of social media directly. Instead, religion affects the use

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of social media indirectly by affecting privacy concerns. So, the answer to RQ1 is that religion has an indirect effect on the use of social media. By looking at the results of the first and second parts of the model we can give a complete answer to RQ1: Does religion affect the use of social media? The answer is that religion has an indirect effect on the use of social media by affecting the technology acceptance behaviour of users and the users' privacy concerns.

## **Chapter8 : Conclusion.**

Individual levels of religiosity have an obvious effect on a person's thoughts, attitudes and behaviours (McDaniel & Burnett, 1990). Privacy concerns and technology acceptance are powerful tools used by researchers to explain online user behaviour (see chapter 2). This research studied the religiosity effect on aspects of privacy concerns and technology acceptance to find the effect of religiosity on user behaviour. This Section provides a discussion of the main theoretical implications of the study.

The purpose of this study is to investigate the religiosity effect of using social media platforms. Two secondary objectives emerged: i) to examine the effect of religiosity on privacy concerns; ii) to examine the religiosity effect on technology acceptance.

A proposed model and a survey were used to answer these questions. The following section highlights the contribution of this thesis as it relates to the relationship between religiosity, privacy concerns, technology acceptance and the use of social media.

### **8.1 Contributions to the theories**

The thesis model confirms that people with high intrinsic religiosity tend to be careful when sharing or disclosing private and general information. This thesis made a significant contribution to the theoretical perspective of online user behaviour in social media platforms; as it is the only study conducted in a conservative Muslim country. In addition, it is the first study to examine the impact of intrinsic religiosity on privacy concern and technology acceptance. Finally, it is the first study that examines the effect of intrinsic religiosity on using social media.

The first main theoretical contribution of this thesis is explaining the relationship between religiosity and using social media. This explanation can be used to amend or create terms and service policies for social media platforms to consider religion as a

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factor. People who follow a religion represent 84% of the world's population; and social media platforms are used by numerous people in the world (Pew Research Centre, 2010). It is vital for the spread and continuous engagement with social media that policymakers and designers of platforms consider users' religions. The results of this study show that Muslims in Saudi Arabia are intrinsically religious. This indicates that even with the misconception of the role of religion on people's lives, there are people who declare themselves as religious people. As a result, users' religiosity should be considered and incorporated by business owners, policymakers and platform designers.

The second main theoretical contribution of this thesis is explaining the relationship between religiosity and technology acceptance. This explanation helps understand the mindset of religious users and see how their religiosity affects their decisions to accept new technology. It also suggests that religiosity is a factor that affects accepting new technologies.

The third main theoretical contribution of this thesis is explaining the relationship between religiosity and privacy concerns. This helps to explain the effect of religion and the level of religiosity on the concept of privacy. The concept of privacy is different from one religion to another, and not everyone who is categorized as religious follows the teaching of their religion. Hence, the level of religiosity plays a vital role in examining the effect of religion on privacy concerns.

The fourth theoretical contribution of this thesis is the proposed model. Although the sample was collected from one country and one religion, Islam in Saudi Arabia, the model can be used on all religions and different populations. Due to the diversity of religions and the differences in beliefs and practices from one religion to another, a universal pre-tested scale was used to measure only intrinsic religiosity. This scale was used and tested on different religions, and it predicted the level of religiosity

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for each study. Hence, the model can be used on different religions and different populations.

## **8.2 Study Limitations**

There are some limitations that have been recognized in the study. The first limitation is that the study was conducted on one religion, which is Islam, and in one country, Saudi Arabia. The religiosity scale used in this study has been used successfully in previous studies on different religions. Doing this study on one religion and one country limited the study from comparing the results of different religions and different countries. In addition, one religion might have a different group Sunnah and Shia in Islam as is similar to Catholicism and Protestantism in Christianity. Although, in theory, these groups follow the same umbrella religion, they do have different interpretations and day-to-day practices. These differences may also affect users' religiosity, beliefs and attitudes.

Different countries have different cultural and educational backgrounds which has also had an impact on the study. Due to the political situation, it is impossible for the researcher, a citizen of Saudi Arabia, to collect data from Iran, considered the centre of the Islamic Shia world. Instead, the data in this study reflects Islam as in Saudi Arabia, considered the centre of the Islamic Sunnah world. A similar problem is likely to occur if collecting data from Israel, the centre of Judaism.

The second limitation is the lack of low intrinsic participants. In the study, more than 97 per cent of the participants are highly intrinsic. This is due to the nature of Saudi Arabian culture, and the rules of the government, which is based on the religion of Islam. However, the results limited the study to one group, which made it impossible to compare the effect of the high intrinsic users against low intrinsic users. That comparison may have helped the study to better understand the effect of users with high religiosity compared to users with low religiosity.

The third limitation is that Islamic teaching does not differentiate between male and female. Muslim males and females have to believe and commit in the same way (Baz, 2000). Male and female have to believe in god in the same way, they have to believe in Six Articles of Faith belief in Allah as the one and only God, belief in angels, belief in the holy books, belief in the Prophets, belief in the Day of Judgement and belief in Predestination (Zaynu, 1996). In Islam, the difference between males and females is how the religion is practiced. Some practical obligations are mandatory only for males and not for female, e.g. praying five times in the mosque, while females pray at home. For this reason, with other practical differences between male and female practices, there is no merit in comparing the results between genders.

### **8.3 Study Recommendations.**

This research studied the effect of religiosity on the use of social media to help understand the extent to which users' beliefs affect the use of social media. Based on the researcher's findings, the following are the study recommendations:

- 1- This research data analysis shows that Saudi Muslims are mostly classified as intrinsically religious people. However, social media platforms are made by western companies in different countries. These countries tend to have people of diverse beliefs about religion. These beliefs range from those who believe in God, those who follow a religion to atheists who do not believe in God and agnostics who do not know whether or not there is a God. Social media platforms are used globally and not limited or restricted to certain groups. Because of the inclusive nature of social media platforms, engineers of these platforms and policymakers should attempt to purposely consider religion or account for religious practices. For example, although gambling and betting on horse races are legal and acceptable in many countries it is forbidden in the Islamic faith. Therefore, promoting horse race gambling should be excluded



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from the pages or experiences of Muslim users. Another example is the using participants' pictures to promote the platforms. Some Muslim females consider covering their hair as part of their faith, and using their pictures for any reasons, even if it was in the background is not acceptable. As a result, platform content and advertisements should be streamlined when users select their religion as part of their profile.

- 2- When improving or creating a new device or using new technology, companies must consider religiosity as a factor that will affect the acceptance of that technology. Launching or advertising a technology that contradicts with certain religions in a region where the majority of the people believe in that religion counts as negligence. Resistance to that technology is likely to be high, which could potentially affect the company's reputation, along with other products and services the company offers. For example, company A invented a new device that can keep a wine bottle cool by using a portable USB charger. Regardless of the promotions and demonstrations of this product to boost sales and use of the device in Saudi Arabia, the company is likely to suffer from high resistance from the community and may suffer huge financial loss because alcoholic drinks are forbidden according to Islamic faith.
- 3- Privacy has emerged as a significant issue, which is reflected in policy makers' continued attention to the regulatory frameworks on privacy protection. Policymakers should consider religion when they make privacy policies, whether it a national privacy policy, company privacy policy or platform privacy policy. People have different beliefs, faiths and religions which makes it difficult to comply with a privacy policy that does not account for their beliefs. For example, a Muslim on Facebook with low intrinsic religiosity is following a dating page; however, this act is forbidden by his religion, this user will be

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excluded from his society if anyone knows that he is following a dating page. Facebook promotes pages of interests to other users by informing them about which 'friends' in their contact list who are following the particular page. Therefore, religion must be considered by policymakers given that the user's experiences are not solely determined by his or her own selections.

- 4- The study recommends that social media platforms consider religion when promoting their services. This can be done by giving more control to the users over their pages, so that they are able to set up their preferences in accordance with their religion or preferences. Many social media platforms did not succeed in the Islamic world due to the contradiction with Islamic teachings. Hence, the recommendation for social media companies to consider and account for religion when developing platforms in order to have more successful expansion among people of different religions and backgrounds.

### **8.4 Future Research.**

With every new study, more questions are raised which need to be answered; and present good opportunities for future studies. The results of this study offer further research opportunities and open questions for academic debate. Here are some points that could be considered in future studies:

1. The study was conducted on one religion (Islam) and one country (Saudi Arabia); the results show that intrinsic religiosity has an effect on the use of social media to disclose and share information. The model was built to be valid for all major religions. Future research could be conducted on different religions and in different countries. It also can be used with different religions in one country, particularly multi-cultural countries.

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2. The study was conducted on the use of social media to share and disclose information as a dependent variable. Future research can change the dependent variable to measure other aspects of the use of social media.
3. Studies can be conducted to compare two or more religions. This will give a more general view of how different religions could affect the use of social media, particularly if that religion has a different set of beliefs and practises, which will affect the users differently.
4. Using different moderators such as age and gender could give a new insight into these phenomena. This study did not use any moderators due to Islamic teaching. Islam does not differentiate between gender and age in regard to the sets of beliefs. Once a Muslim, male or female, reaches puberty, the same sets of beliefs apply to both. Gender and age may be suitable to use as a moderator in other religions.
5. The model can be divided into two pathways, technology acceptance and privacy concern. These models could be used to measure the relationship between religiosity and different technology other than social media. This thesis used will established scales to measure religiosity, privacy concern and technology acceptance, which made the model applicable to different religions and technologies.
6. The limitation of this thesis could be overcome if applied to different circumstances and by different people, particularly the difficulties of collecting data from different religions or different groups under the umbrella of the same religion, as was the case with the researcher based on nationality and political issues, which are complex and not likely to be resolved. This could be an opportunity for other researchers to conduct the same model and overcome these limitations.

## **8.5 Conclusion.**

Religion played an prominent part in the formation of knowledge, values and norms (Swimberghe et al., 2011). Previous researches have pointed out the importance of religiosity on individual behaviours, but the relationship between the online user's behaviour and religiosity remained untouched until now. Technology acceptance is an important part of knowing if the users will accept the technology or not (chapter 2). Exploring the impact of the user's religiosity on the acceptance of technology would be beneficial, enabling the researcher to understand the association between religiosity and online user behaviour.

Privacy concerns have been studied to see the effect of online user behaviour (chapter 2). Researchers argued that privacy concerns relate to the negative online phenomena that affect the users, such as online identity theft and misuse of personal data (Ferguson et al., 2015). Exploring the impact of the user's religiosity on their privacy concerns would benefit the field to understand the association between religiosity and privacy concerns.

Based on the literature review and the effect of religion on people's behaviours, norms and attitudes, a proposed model has been developed to test the effect of religiosity on the use of social media. Several hypotheses were developed from a Positivism philosophical perspective. The hypotheses were tested on Saudi Muslims using social media. The model adopted three scales, ROS to measure religiosity, Xu *et al.* (2011) model to measure privacy concerns, and UTAUT2 to measure the technology acceptance.

The results of the model presented in Section 4 provided evidence that supports the validity and reliability of the model. In Section 5 the findings showed that the research questions have been answered properly. The results show that highly intrinsic users tend to use social media in a way that does not contradict with their religious

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beliefs. It also shows that intrinsic religiosity has an effect on all of the privacy concerns antecedents, which in turn affect the user's privacy concerns. The results also show that intrinsic religiosity affects the user's acceptance of technology, by having a direct influence on UTAUT2 constructs.

In conclusion, this study has filled the gap in the literature by proposing a valid model to measure the effect of religiosity on online user behaviour. As mentioned in chapter 7, the model has been divided into two parts intrinsic religiosity-technology acceptance-use and intrinsic religiosity - privacy-use. All hypotheses between intrinsic religiosity and technology acceptance are supported by the results. Intrinsic religiosity has a direct effect on the UTAU2 constructs. All of the hypotheses between intrinsic religiosity and PCON are supported by the results except one. Intrinsic religiosity has a direct effect on DTVP, RISK, PCTL and AWARE. The model also can measure the effect of religiosity on the user's privacy concerns and technology acceptance. Considering religiosity when conducting any study about online users or starting an online business will help researchers, policymakers, business owners and companies to maximize their benefits and reduce the risk of losing potential users or customers.

During the four years of doing this thesis, some hardships came across. It was difficult to look into a delicate topic like religion due to the sensitivity of the topic. Most of the religion information came from books which could not be acquired easily. The data collection process was difficulty specially translating the questionnaire and validating it by a panel of experts. However, there was so many benefits that was gained in the process. Learning more about different topics, publishing conference paper and book chapters and learning how to use SmartPLS. Doing a PhD is a beautiful journey which will have its ups and downs. However, achieving a dream is always worth it.

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## Appendix A

**Table A1:** Islamic Religiosity Measurement Scale

Author	Year	Scale
Ghorbani, N; Watson, P.J; Ghramalek, A	2002	Allport & Ross (1967) Religiosity orientation scale
Worthington, J et al.	2003	Religion commitment inventory
Essoo,N; Dibb, S	2004	Allport & Ross (1967) Religiosity orientation scale
Krauss, S; Hamzah, A; Juhari, R; Hamid, J	2005	Muslim religiosity personality inventory
Krauss, s et al.	2006	Muslim religiosity personality inventory
Ji,C; Ibrahim, Y	2007	Allport & Ross (1967) Religiosity orientation scale
Masri,A; Priester,P	2007	Religiosity of Islamic scale
Abu-Raiya, H	2008	Psychological Measure of Islamic Religiousness
Tiliouine, H; Cummins, R; Davern, M	2009	Islamic Religiosity scale
Tiliouine,H; Belgoomdi, A	2009	A comprehensive measure of Islamic religiosity
Rehman, A; Shabbir, M	2010	Glock and Stark's (1964) dimensions
Khraim, H	2010	Islamic practical behaviour
Abou-Yousef, M et al.	2011	Modified Islamic religiosity scale
Mukhtar, A; Butt, M	2011	Allport & Ross (1967) Religiosity orientation scale
Schneider, H; Krieger, J; Bayraktar, A	2011	Allport & Ross (1967) Religiosity orientation scale
Dasti,r; Sitwat, A	2014	Multidimensional Measurement Scale
Bachleda, C; Hamelin, N; Benachour, O	2014	Religious commitment inventory
El-Menouar, Y	2014	Glock and Stark's (1964) dimensions

**Table A2: Previous UTAUT/UTAUT2 studies**

#	Author	Theme	Concepts	Model/Theory used	Finding
1.	Venkatesh, Michael, Morris & Davis et al. (2003)	Formulate a unified model of user acceptance of information technology from the organizational prospective and empirically validate the model.	1- Theory of reasoned action (TRA) 2- The technology acceptance model (TAM). 3- The motivational model. 4- Theory of planned behaviour (TPB). 5- A combination model of TAM and TPB. 6- PC utilization model. 7- The innovation diffusion theory (IDT). 8- The social cognitive theory. (SCT).	UTAUT: 1- Performance expectancy. 2- Effort expectancy. 3- Social influence 4- Facilitating condition. 5- Behavioural intention.	The UTAUT model will help managers to assess the success of new technology and help them understand the motivation of the acceptance in order to proactively design interventions to the users who are less interested using the new technology.
2.	Lin, Chan and Jin, (2004)	To validate the UTAUT model in a new environment which is not work related.	The Unified Theory of Acceptance and Use of Technology (UTAUT) model is used to study acceptance and usage of instant messaging among college students.	UTAUT	The results show that functional capability (the presence of various functions in the application) has a direct effect on behaviour intention as well as on performance and effort expectancies. The results also show that performance expectancy does not have the hypothesized effect on behavioural intention. The model explains more than 60% of the variance in behavioural intention.
3.	Wu, Tao and Yang, (2007)	How telecommunication companies design the	UTAUT is used as the model to carry out expert interviews and	UTAUT	This study found that the factors that significantly influenced the "behavioural

Appendix A

		marketing tactics closer to the consumers' need under the dual influences of the decreasing individual's contribution and the low utility rate, as well as how to improve customers' willingness to adopt 3G mobile telecommunication services.	consumers' questionnaire investigation.		intention" including "performance expectancy," "social influence," and "facilitating conditions" while the traditional knowledge "effort expectancy" did not
4.	Xu and Gupta, (2009)	Develop and test a conceptual model to explore the effects of privacy concerns and personal innovativeness on customers' adoption of location-based services (LBS).	examine the adoption of LBS through a privacy lens	1-UTAUT 2-Smith et al. (1996)'s conceptualization of concerns for information privacy (CFIP).	Privacy concerns significantly influenced continued adoption compared to initial adoption.
5.	Curtis <i>et al.</i> , (2010)	Adoption of social media for public relations by non-profit organizations	applying the Unified Theory of Acceptance and Use of Technology (UTAUT) on of non-profit public relations practitioners	UTAUT	Women consider social media to be beneficial whereas men exhibit more confidence in actively utilizing social media. Organizations with specified public relations departments were more likely to adopt social media.
6.	Venkatash and Zhang, (2010)	Examining culture as a boundary condition and identifies the bounds of	Social influence effect in UTAUT.	UTAUT	Social influence is more important across all employees from China with no relation to gender, age,

Appendix A

		generalization of UTAUT.			and voluntariness.
7.	Al-Sobhi and Weerakody, (2010)	Examines the role of intermediaries, which can be played by a third party; in bridging the gap between e-government implementation and social reality and looks at the roles a third party can add within the e-government services mechanism.	uses a case study approach in order to reflect e-government progress within the context of the Kingdom of Saudi Arabia (KSA) as one developing country	UTAUT	Intermediaries play an important role in the diffusion of e-services in relation to improving the availability, accessibility and enhancing privacy and security.
8.	Pahnila <i>et al.</i> (2011)	To study the influence of the value dimensions on the UTAUT model.	Developed an integrated model and then tested it in the context of the Chinese auction site Tao Bao.	UTAUT	Individualistic and collectivistic values yield important influences on the constructs of the UTAUT.
9.	Algharibi and Arvanitis, (2011)	Presenting an adapted version of the Unified Theory of Acceptance and Use of Technology Model to be utilised as a validation tool of captured user needs and requirements of particular interactive software technologies.	Using UTAUT as a validation tools in e-health information system.	1-UTAUT 2-Individual factors 3-Technology anxiety 4-Adaption timeline.	Presenting a modification on the UTAUT variables in a study primary care and clinical research.
10.	Venkatesh, Thong and Xu, (2012)	To extend UTAUT to study acceptance and use of technology in consumer context.	1-Utility. 2-Price/Cost. 3-Intentionality.	UTAUT2: 1-UTAUT 2- Hedonic motivation 3- Price value. 4- Habit.	UTAUT2 will help assess the success of using new technology in consumer context. It also explained 74% of the behavioural intentions and 56% of the technology use

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11.	Yang, (2013)	Understanding Undergraduate Students' Adoption of Mobile Learning.	An adoption model that reflects the determinants of undergraduate students' mobile learning acceptance in a consumer context was developed and empirically tested against data collected from 182 undergraduate students in China.	UTAUT2	Hedonic motivation performance expectancy social influence, and price value positively affect students' mobile learning adoption. Surprisingly, self-management of learning was found to have both direct and indirect negative influences on undergraduate students' adoption of mobile learning.
12.	Raman and Don, (2013)	To investigate the relationships between the constructs that may influence preservice teachers' acceptance of Learning Zone (Moodle) in their learning process.	Learning management system (Moodle).	UTAUT2: 1-Performance expectancy 2-Effort expectancy. 3-Social influence. 4-Facilitating condition. 5-Hedonic motivation 6-Habit.	UTAUT2 is verified and found that the regression model revealed 29.5% the variance in students' intentions with facilitating conditions and hedonic expectancy as considerable predictors of the behavioural intention.
13.	Harsono and Suryana, (2014)	To examine the use behaviour of LINE via UTAUT2	1- Facilitating condition. 2- Performance expectancy 3- Effort expectancy 4- Social influence 5- Hedonic motivation 6- Price value. 7- Habit.	UTAUT2	All the independent variables affect the behavioural intention and use except price value.
14.	Oechslein, Fleischmann and Hess, (2014)	An Application of UTAUT2 on Social Recommender Systems	Utilizes UTAUT2 to explore the user acceptance of social recommender systems that have become more attractive owing to	UTAUT2	UTAUT2 is applicable in the context of social recommender systems. Furthermore, the user's social network information profile information, and

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			improved content personalization and adaptation to user preferences.		reading behavior positively influenced performance expectations and the intention to adopt social recommendation system.
15.	Yuan et al., (2015)	Discover Users' Perception of Health and Fitness Apps with the UTAUT2 Model	Adopted the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) Model to examine the predictors of the users' intention to adopt health and fitness apps.	UTAUT2	Performance expectations, hedonic motivations, privacy value, and habit were significant predictors of users' intention to continue usage of health and fitness apps. However, effort expectancy, social influence, and facilitating conditions were not found to predict users' intention of continued usage of health and fitness apps.
16.	Venkatesh, Thong and Xu, (2016)	Review and synthesize the IS literature on UTAUT from September 2003 until December 2014, perform a theoretical analysis of UTAUT and its extensions, and chart an agenda for research going forward.	Reviewing UTAUT in the IS literature by performing theoretical analyses.	1-Weber, (2012)framework of theory evaluation. 2-UTAUT	The analysis reveals several limitations that lead to proposing a multi-level framework that can serve as the theoretical foundation for future research. Specifically, the framework integrates the notion of research context and cross-contextual theorizing with the theoretical evaluation framework to: 1) synthesize the existing UTAUT extensions across both the dimensions and the levels of the research context and 2) highlight promising research

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					directions.
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**Table A3 : Previous privacy concern studies**

#	Author	Theme	Concepts	Model/Theory used	Finding
1.	Smith, Milberg, & Burke, (1996b)	Measuring Individuals' Concerns About Organizational Practices^	Developed and validated an instrument that identifies and measures the primary dimensions of individuals' concerns about organizational information privacy practices.	15-item instrument with four subscales tapping into dimensions of individuals' concerns about organizational information privacy practices.	The instrument was rigorously tested and validated across several heterogeneous populations, providing a high degree of confidence in the scales' validity, reliability, and generalizability.
2.	Sheehan & Hoy, (2000)	Investigating the influences on consumer privacy online, taking into consideration the current body of literature on privacy and the Internet and the FTC's core principles of fair information practice.	Analysing these influences to assess the underlying factors of privacy concern online and examining the current recommendations and actions of the FTC in light of the results of an e-mail survey of online consumers in the United States that assessed their attitudes toward privacy online.	1-Awareness 2-Usage 3-Sensitivity 4-Familiarity 5-Compensation	The FTC's core principles address many of online consumers' privacy concerns. However, two factors not directly incorporated in the five principles, the relationships between entities and online users and the exchange of information for appropriate compensation, may influence consumers' privacy concerns.

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3.	Bellman, Johnson, Kobrin, & Lohse (2004)	International Differences in Information Privacy Concerns	examine three possible explanations for differences in Internet privacy concerns revealed by national regulation	Concern for information privacy (CFIP)	Privacy concerns decline with Internet experience. Controlling for experience, cultural values were associated with differences in privacy concerns.
4.	Tamara Dinev & Hart, (2004)	Internet privacy concerns and their antecedent's measurement validity and a regression model	To develop and validate an instrument to measure the privacy concerns of individuals who use the Internet and two antecedents, perceived vulnerability and perceived ability to control information.	Proposed model that proposes to understand the underlying antecedents to privacy concerns, namely perceived vulnerability and perceived ability to control submitted personal information when using the Internet.	The regression analysis results of a model including the three constructs provide strong support for the relationship between perceived vulnerability and privacy concerns, but only moderate support for the relationship between perceived ability to control information and privacy concerns.
5.	Malhotra et al. (2004)	The Construct, the Scale, and a Causal Model of IUIPC.	1-Offer a theoretical framework on the dimensionality of Internet users' information privacy concerns (IUIPC). 2- Operationalize	Internet users' information privacy concerns (IUIPC).	The second order IUIPC factor exhibited desirable psychometric properties in the context of online privacy. The causal model centring on IUIPC fits the data

			<p>the multidimensional notion of IUIPC using a second-order construct and develop a scale for it.</p> <p>3-Propose and test a causal model on the relationship between IUIPC and behavioural intention.</p>		<p>satisfactorily and explains a large amount of variance in behavioural intention, suggesting that the proposed model will serve as a useful tool for analysing online consumers' reactions to various privacy threats on the Internet.</p>
6.	(Tamara Dinev et al., 2005)	Internet Privacy Concerns and Social Awareness as Determinants of Intention to Transact	<p>Focuses on antecedents to Internet privacy concerns and the behavioural intention to conduct on-line transactions.</p>	<p>1-Dinev and Hart's (2004) instrument for measuring the two Internet privacy concerns, PCIA and PCIF</p> <p>2-The computer literacy instrument.</p> <p>3-social-awareness instrument was</p>	<p>Social awareness was positively related and Internet literacy was negatively related to Internet privacy concerns. Moreover, Internet privacy concerns were negatively related and Internet literacy positively related to intention to transact on-line.</p>
7.	Nam et al., (2006)	Developing trust relationship between businesses and customers.	<p>proposed and empirically tested a model that incorporates three antecedents and their impact on</p>	<p>Developed based on the literature review. The items related to the three</p>	<p>The model suggests that governments should consider establishing comprehensive and clear-cut policies</p>

			customers' willingness to disclose their personal information through a mediator, perceived privacy concerns	antecedents perceived ease of using the Website, perceived reputation of the Web site, and third-party certificates in the Website	regarding consumer privacy issues in e-businesses and direct marketing. This way consumer would become less reluctant to make business transactions on the Internet, thereby assisting the expansion of e-business.
8.	(Tamara Dinev & Hart, 2006b)	An Empirical Investigation of Intended e-Services Use	Report on a classification scheme of intended e-services use based on levels of information exchange between users and Web sites.	Dinev and Hart's (2004) instrument for measuring the two Internet privacy concerns, PCIA and PCIF	Privacy concerns increase as the amount and sensitivity of personal information submitted through Web sites increases.
9.	(Tamara Dinev et al., 2006)	Internet Users' Privacy Concerns and Beliefs About Government Surveillance	Examines differences in individual's privacy concerns and beliefs about government surveillance in Italy and the United States. By incorporating aspects of multiple cultural	Dinev and Hart's (2004) instrument for measuring the two Internet privacy concerns, PCIA and PCIF	Italians exhibit lower Internet privacy concerns than individuals in the U.S., lower perceived need for government surveillance, and higher concerns about government intrusion.

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			theories.		
10.	(Yao, Rice, & Wallis, 2007b)	Predicting User Concerns About Online Privacy	Developing a model involving gender, generalized self-efficacy, psychological need for privacy, Internet use experience, Internet use fluency, and beliefs in privacy rights as potential influences on online privacy concerns.	19-item Need for Privacy Scale (Buss, 2001) 2- 10-item Generalized Self-Efficacy Scale (Jerusalem & Schwarzer, 1992). 3- 17 items were taken from the Computer–E-mail–Web Fluency Scale developed by Bunz (2004) 4-A dozen questions were taken from the Georgia Tech (1998) Web survey 5-Participants’ concerns about organizational privacy were measured by 11 items taken from Smith et al.’s (1996) 15-item scale.	The results showed that beliefs in privacy rights and a psychological need for privacy were the main influences on online privacy concerns. The proposed structural model was not well supported by the data.
11.	(Tamara	Internet privacy	To develop and	Dinev and	Privacy concerns have

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	Dinev et al., (2008)	concerns and beliefs about government surveillance – An empirical investigation Tamara	empirically test relationships between internet privacy concerns, government surveillance beliefs, and how they influence the willingness to provide personal information to transact on the Internet.	Hart's (2004) instrument for measuring the two Internet privacy concerns, PCIA and PCIF	an important influence on the willingness to disclose personal information required to transact online. The perceived need for government surveillance was negatively related to privacy concerns and positively related to willingness to disclose personal information. On
12.	Child, Pearson and Petronio, (2009)	Development of the Blogging Privacy Management Measure.	Applying Communication Privacy Management (CPM) theory to the context of blogging and developed a validated, theory-based measure of blogging privacy management.	Communication Privacy Management (CPM)	The Blogging Privacy Management Measure (BPMM) is a multidimensional, valid, and reliable construct. The BPPM provides a theoretically based perceptual instrument to gauge how college students manage online privacy boundaries primarily occurring through mediated disclosure processes.
13.	(Ledbetter, 2009)	Measuring online communication attitude	Reporting a series of studies that develop an empirically	Measure of online communication attitude	Identifying motives underlying media choice, and the instrument possesses

			derived instrument for assessing online communication attitude, a multidimensional set of individual cognitive-affective constructs that influence media choice.	(MOCA).	heuristic potential for clarifying media choice theory and elaborating the association between communication competence and media choice.
14.	(Xu et al., 2011)	Linking Individual Perceptions with Institutional Privacy Assurances	Exploring the link between individuals and organizations regarding privacy, by studying how institutional privacy assurances such as privacy policies and industry self-regulation can contribute to reducing individual privacy concerns.	Communication Privacy Management (CPM)	An individual's privacy concerns form through a cognitive process involving perceived privacy risk, privacy control, and his or her disposition to value privacy. Individuals' perceptions of institutional privacy assurances are posited to affect the risk-control assessment from information disclosure, thus, being an essential component of privacy concerns.
15.	(Dong-Joo Lee, Ahn, & Bang,	A Strategic Analysis of Privacy	Using a game-theoretic approach to	Game-theoretic approach	Privacy protection can work as a competition-

	2011)	Protection.	explore the motivation of firms for privacy protection and its impact on competition and social welfare in the context of product and price personalization.		mitigating mechanism by generating asymmetry in the consumer segments to which firms offer personalization, enhancing the profit extraction abilities of the firms. Regulation enforcing the implementation of fair information practices can be efficient from the social welfare perspective mainly by limiting the incentives of the firms to exploit the competition-mitigation effect.
16.	(Robinson, 2013)	Implications for Interpersonal and Online Communication for Consumers and Marketers.	Arguing that consumers who are willing to disclose personal information online may often be unaware of the full implications of such disclosure	communication privacy management (CPM)	CPM can help lead to a more balanced and open dialogue around proactive consumer self-regulation, providing benefits to both sides.
17.	(Saeri, Ogilvie, Macchia, Smith, & Louis,	Predicting Facebook Users' Online Privacy Protection	Adopting an extended theory of the planned behaviour model that included	Theory of the planned behaviour (TPB)	The data show partial support for the theory of planned behaviour and strong support for the independence of



	2014)		descriptive norms, risk, and trust to investigate online privacy protection in Facebook users.		subjective injunctive and descriptive norms. Risk also uniquely predicted intentions over and above the theory of planned behaviour, but there were no unique effects of trust on intentions, nor of risk or trust on behaviour.
18.	(Tucker, 2014)	Social Networks, Personalized Advertising, and Privacy Controls	Investigating how internet users' perception of control over their personal information affects how likely they are to click on online advertising.	Data from a randomized field experiment that examined the relative effectiveness of personalizing ad copy to mesh with existing personal information on a social networking website.	Giving users the perception of more control over their private information can be an effective strategy for advertising-supported websites.
19.	(Feng & Xie, 2014)	An analysis of socialization agents and relationships with privacy-protecting behaviours	investigated the socialization agents of teens' level of online privacy concern, and the relationship between teens' level of online	Path analysis. Using data of Facebook teen users and their parents in the U.S. from the Pew Internet's Teens & Privacy Management	Revealing the role of parents' privacy concern and the role of SNS use in motivating teens to increase online privacy concern, which, in turn, drives teens to adopt various

			privacy concern and their privacy-protecting behaviours on SNSs.	Survey (N = 622)	privacy-setting strategies on SNSs and to set their Facebook profiles to private.
20.	(Y. Li, 2014)	The impact of disposition to privacy, website reputation and website familiarity on information privacy concerns	Examining the impact of disposition to privacy, perceived reputation of a website, and personal familiarity with the website on a person's privacy concerns about the website. Also analysing the key attributes of disposition to privacy and its antecedents. Using	1-Laufer and Wolfe's disposition to privacy theory. 2-Altman's disposition to privacy theory. 3-Westin's disposition to privacy theory.	The moderating effects of website reputation and personal familiarity on disposition to privacy are not supported, suggesting that the three antecedents exert their impact on privacy concerns independently.
21.	(Fodor & Brem, 2015a)	Results from an empirical analysis of Location-Based Services adoption in Germany.	Several security threats and the disclosure of extensive personal data have raised the question, if location data are considered as sensitive data by	1-Concern for Information Privacy (CFIP). 2-Internet Users' Information Privacy Concerns (IUIPC)	Privacy concerns have been found to have an impact on behavioural intentions of users for LBS adoption. Furthermore, other risk dimensions may play a role in determining usage intention

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			users. Thus, using CFIP and IUIPC to answer that.		
22.	(Bergström, 2015)	A broad approach to understand the online privacy concerns of different groups for different uses	Giving an overall picture of how privacy concerns are perceived in different online contexts and how socio-demography, internet experience, trust, and political orientation contribute to the understanding of privacy concerns in different settings.	Swedish national SOM survey (Society, Opinion, Media).	Privacy concerns are very diverse and dependent on the applications in question. All dimensions that are used to explain privacy concerns are partly supported in the study. But their explanatory powers differ and not all areas of concern are affected by the same explanatory factors.

**Table A4: Previous Islamic religiosity studies**

#	Author	Theme	Concepts	Model/Theory used	Finding
1.	(Ghorbani et al., 2002)	Muslim-Christian Religious Orientation Scales: Distinctions, Correlations, and Cross-Cultural Analysis in Iran and the United States	Religious extrinsicness was associated with self-reported symptoms of psychological disturbance; with the Iranians, intrinsicness predicted adjustment. Most relations among the religious variables were positive with the two samples displaying similar, though not identical, patterns of correlations.	1-Religious-Orientation Scale 2- Muslim-Christian Religious Orientation Scales (MCROS)	This first systematic, empirical study of the psychology of religion in Iran confirmed the relevance of Allport's thought for understanding Muslim religion and established an empirical foundation for further explorations of the MCROS.
2.	Krauss et al., (2005)	Understanding differences in the Islamic religiosity among the Malaysian youth	two-and-a-half year IRPA initiative to develop the religiosity 'norms' for selected groups of Malaysian Muslim youth as a first step toward	Muslim Religiosity-Personality Inventory (MRPI)	Higher scores by the respondents on the Islamic Worldwide construct (Islamic understanding) than on the Religious Personality

			understanding their religiosity in a broader context		construct (application of Islamic teachings in everyday life).
3.	Krauss et al., (2006)	Exploring Regional Differences in Religiosity among Muslim Youth	Comparing religiosity among young Muslims from urban and rural areas of Malaysia, utilizing a multi-dimensional religiosity model and scales developed specifically for the Malaysian Muslim community	The Muslim Religiosity-Personality Inventor (MRP)	Higher levels of religiosity for rural Muslim youth than their urban counterparts across all of the religiosity variables. The findings are significant for the formulation of Islamic education and practice strategies for the promotion of positive behavioural and moral development among Malaysian Muslim youth
4.	Ji and Ibrahim, (2007)	Applying the extrinsic, intrinsic and quest religiosity to islamic faith	Investigate the structural validity and internal consistency of Islamic version of religious	1-Religious-Orientation Scale (ROS) 2-Quest religiosity	The scales were found to be psychometrically adequate Muslims, doctrinal beliefs

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			orientation scale.		are largely independent of extrinsic, intrinsic, and quest religiosity and that the three forms of religiosity are three autonomous but continuous dimensions of personal religiosity.
5.	Jana-Masri and Priester, (2007)	The Development and Validation of a Qur'an-Based Instrument to Assess Islamic Religiosity	A 19-item instrument with two subscales: Islamic Beliefs and Islamic Behavioural Practices have been developed.	the Religiosity of Islam Scale (RoIS)	The low level of reliability for the scale weakened the scale acceptability.
6.	Abu Raiya et al.,(2008)	To develop the Psychological Measure of Islamic Religiousness (PMIR)	To further develop the Psychological Measure of Islamic Religiousness (PMIR) that was constructed based on previous research and to assess its relevance,	Psychological measure of Islamic religiousness (PMIR)	1- The PMIR was relevant to Muslim participants 2- Islam is multidimensional 3- The subscales of the PMIR demonstrated discriminant, convergent, concurrent, and

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			reliability and validity as a scientific tool for the study of the psychology of Islam.		incremental validity
7.	Tiliouine and Belgoumidi, (2009)	An Exploratory Study of Religiosity, Meaning in Life and Subjective Wellbeing in Muslim Students	Relying on experts' judgments and pilot-testing, a Comprehensive Measure of Islamic Religiosity (CMIR) has been developed. It consists of 60 items covering four broad areas with high inter-correlations: Religious Belief, Religious Practice, Religious Altruism, and Enrichment of religious experience.	1-Measure of Islamic Religiosity (CMIR) 2- 'Presence of Meaning in Life' (PML) 3- Satisfaction With Life Scale (SWLS) 4- Personal Wellbeing Index (PWI)	Religious Belief and Religious Altruism significantly contribute in providing subjects with meaning in life.
8.	Tiliouine, Cummins and Davern, (2009)	Islamic religiosity, subjective well-being, and health	Religiosity clusters work as an important segmentation criteria for	1-Islamic Religiosity scale (IRS) 2-Subjective well-being	Religiosity at some level is ubiquitous through this sample, and it

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			marketers as there is significant difference between behaviour of moderate and high religiosity clusters.	(SWB)	has a strong positive relationship with Subjective Well-Being (SWB). Moreover, this relationship is relatively unaffected by health deficiencies, even though such deficiencies generally have a negative influence on SWB scores.
9.	Essoo and Dibb, (2010)	Religious Influences on Shopping Behaviour:	Examines the influence of religion on consumer choice and is based on the proposition that adherence to a particular religious faith significantly influences shopping behaviour.	Religious-Orientation Scale (ROS)	Religious affiliation should be included in future cross cultural research and that there is considerable potential for extending research into the influence of religious affiliation on consumer behaviour.
10.	Rehman and	To investigate the relationship between	300 questionnaires	1-(Glock & Stark, 1966) five	Religiosity affects NPA



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	Shahbaz Shabbir, (2010)	religiosity and new product adoption (NPA) among Muslim consumers.	were distributed to university students. Religiosity represented the independent variable and was measured using five dimensions: ideological, ritualistic, intellectual, consequential and experimental dimensions. NPA represented the dependent variable.	dimensions. 2-New product adoption (NPA)	among Muslim consumers; their beliefs influence how and what products they adopt.
11.	Khraim, (2010)	Measuring Religiosity in Consumer Research from an Islamic Perspective	Measuring religiosity from Islamic perspective. All possible alternatives within different dimensions were assessed to find out the most suitable combination of dimensions that gives the best results in measuring Islamic	Seven Factors were extracted by factor analysis form four dimensions. 1-Islamic financial services. 2-current Islamic issues. 3-religious education. 4-sensitive products	The combination of three dimensions namely, current Islamic issues, religious education, and sensitive products, produced the best results among other dimensions.

			religiosity		
12.	Abou-Youssef <i>et al.</i> , (2011)	Measuring Islamic-Driven Behavioural Implications	Modification to the Islamic religiosity scale presented in 2007 by Chang-Ho C. Ji and Yodi Ibrahim to measure the degree of Muslims' religiosity from the behavioural perspective.	Modified Islamic religiosity scale.	Religiosity clusters work as an important segmentation criterion for marketers as there is significant difference between behaviour of moderate and high religiosity clusters.
13.	(Schneider <i>et al.</i> , 2011)	The Impact of Intrinsic Religiosity on Consumers' Ethical Beliefs	Including Christian Consumers from Germany and Muslim Consumers from Turkey to determine if a specific religious community moderates the connection between intrinsic religiosity and consumer ethics	Religious-Orientation Scale	Consumers in the Turkish, Muslim subsample, exhibit an even stronger connection between religiosity and ethical consumer behaviour than Consumers from the German, Christian subsample.
14.	Mukhtar and Butt, (2012)	The role of religiosity on the Intention to choose Halal product	Investigate the role of Muslim attitude towards Halal pro	1-Religious-Orientation Scale (ROS) 2-theory of	The results indicated that theory of reasoned action

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		s.	ducts, their subjective norms and religiosity in predicting intention to choose Halal products.	reasoned action (TRA)	(TRA) is a valid model in predicting intention to choose Halal products. The results further indicate that subjective norms, attitude towards the Halal products and intra personal religiosity positively influence attitude towards the Halal products
15.	Dasti and Sitwat,(2014)	Development of a Multidimensional Measure of Islamic Spirituality	Domains of spirituality were operationalized and items were developed, followed by the evaluation of the questionnaire by religious/spiritual scholars and mental health experts.	Multidimensional Measure of Islamic Spirituality (MMS)	Eight clear factors were extracted: (1) Self-Discipline, (2) Quest and Search for Divinity, (3) Anger and Expansive Behaviour, (4) Self Aggrandizement, (5) Feeling of Connectedness with Allah, (6)

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					Meanness-Generosity, (7) Tolerance-Intolerance, and (8) Islamic Practices. Moderate to high internal reliability, good construct, and content validity were found.
16.	Bachleda, Hamelin and Benachour, (2014)	to explore whether religiosity impacts the clothing style Moroccan Muslim women choose to wear in the public setting.	Using the TPB as a framework to see the effect of religiosity on female Muslims clothing choices.	1-Theory of planned behaviour 2-Religious commitment inventory (RCI)	Woman's religiosity cannot be determined simply by what she wears, with age, marital status and education found to have far greater impact on a woman's choice of clothing than religiosity.
17.	El-Menouar, (2014)	Results of an empirical study on The five dimensions of Muslim religiosity.	A new instrument measuring Muslim religiosity is presented. Drawing on Glock's multidimensional	(Glock & Stark, 1966) five dimensions.	The function of the fifth dimension of secular consequences was modified. In Islam this dimension is

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			<p>concept of          religiosity, a          quantitative          paper-and-pencil          study among 228          Muslims living in          German cities          was carried out</p>		<p>regarded to be as          unique and          independent as          the other four.</p>
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**Appendix B:**

<b>Table B1: Comparison of five research philosophies in business and management research</b>			
<b>Ontology</b> (nature of reality or being)	<b>Epistemology</b> (what constitutes acceptable knowledge)	<b>Axiology</b> (role of values)	<b>Typical methods</b>
<b>Positivism</b>			
Real, external, independent One true reality (universalism) Granular (things) Ordered	Scientific method Observable and measurable facts Law-like generalisations Numbers Causal explanation and prediction as contribution	Value-free research Researcher is detached, neutral and independent of what is researched Researcher maintains objective stance	Typically, deductive, highly structured, large samples, measurement, typically, quantitative methods of analysis, but a range of data can be analysed
<b>Critical realism</b>			
Stratified/layered (the empirical, the actual and the real) External, independent Intransient Objective structures Causal mechanisms	Epistemological relativism Knowledge historically situated and transient Facts are social constructions Historical causal explanation as	Value-laden research Researcher acknowledges bias by world views, cultural experience and upbringing Researcher tries to minimise bias and	Retroductive, in-depth historically situated analysis of pre-existing structures and emerging agency. Range of methods and data

Appendix B:

	contribution	errors Researcher is as objective as possible	types to fit subject matter
<b>Interpretivism</b>			
Complex, rich Socially constructed through culture and language Multiple meanings, interpretations, realities Flux of processes, experiences, practices	Theories and concepts too simplistic Focus on narratives, stories, perceptions and interpretations New understandings and worldviews as contribution	Value-bound research Researchers are part of what is researched, subjective Researcher interpretations key to contribution Researcher reflexive	Typically, inductive. Small samples, in- depth investigations, qualitative methods of analysis, but a range of data can be interpreted
<b>Postmodernism</b>			
Nominal Complex, rich Socially constructed through power relations Some meanings, interpretations, realities are dominated and silenced by others Flux of processes, experiences, practices	What counts as ‘truth’ and ‘knowledge’ is decided by dominant ideologies Focus on absences, silences and oppressed/ repressed meanings, interpretations and voices Exposure of power relations and	Value-constituted research Researcher and research embedded in power relations Some research narratives are repressed and silenced at the expense of others	Typically, deconstructive – reading texts and realities against themselves In-depth investigations of anomalies, silences and absences Range of data types, typically, qualitative methods of analysis

Appendix B:

	challenge of dominant views as contribution	Researcher radically reflexive	
<b>Pragmatism</b>			
Complex, rich, external 'Reality' is the practical consequences of ideas Flux of processes, experiences and practices	Practical meaning of knowledge in specific contexts 'True' theories and knowledge is those that enable successful action Focus on problems, practices and relevance Problem solving and informed future practice as contribution	Value-driven research Research initiated and sustained by researcher's doubts and beliefs Researcher reflexive	Following research problem and research question Range of methods: mixed, multiple, qualitative, quantitative, action research Emphasis on practical solutions and outcomes
Source: Saunders, Lewis and Thornhill (2009)			

<b>Table B2: Deduction, induction and abduction</b>			
	Deduction	Induction	Abduction
Logic	In deductive inference, when the premises	In inductive inference, known premises are	In an abductive inference, known premises are



Appendix B:

	are true, the conclusion must also, be true	used to generate untested conclusions	used to generate testable conclusions
Generalisability	Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new

Appendix B:

			theory or modify existing theory
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Source: (Saunders et al., 2009)

**Table B3: Comparison of PLS-SEM and CB-SEM**

<b>Criterion</b>	<b>PLS-SEM</b>	<b>CB-SEM</b>
Objective:	Prediction oriented	Parameter oriented
Approach:	Variance based	Covariance based
Assumptions:	Predictor specification (nonparametric)	Typically, multivariate normal distribution and independent observations (parametric)
Parameter estimates:	Consistent as indicators and sample size increase (i.e., consistency at large)	Consistent
Latent variable scores:	Explicitly estimated	Indeterminate
relationship between a latent variable and its measures:	Can be modelled in either formative or reflective mode	Typically, only with reflective indicators
Epistemic Implications:	Optimal for prediction accuracy	Optimal for parameter accuracy
Model complexity:	Large complexity (e.g., 100 constructs and 1000 indicators)	Small to moderate complexity (e.g., less than 100 indicators)
Sample size:	Power analysis based on the portion of the model with the largest number of predictors.	Ideally based on power analysis of the specific model. Recommendations for the

Appendix B:

	Recommendations for the minimum number of observations range from 30 to 100 cases.	minimum number of observations generally range from 200 to 800.
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Source: (Chin & Newsted, 1999)

## **Appendix C:**

### Religiosity and privacy Questionnaire

The purpose of this study is to explore online privacy, use of technology and online self-disclosure. You are invited to take part in this research study.

Your participation in this research study is voluntary. If you decide not to participate in this research survey, you may withdraw at any time.

The procedure involves filling an online survey that will take approximately 10 minutes to complete. Your responses will be confidential, and we do not collect identifying information such as your name, email address or IP address. Your answers will be completely anonymous.

All data is stored in a password-protected electronic format and encrypted. The survey will not contain information that will identify you personally. The results of this study will be used for scholarly purposes only and will be kept anonymous.

If you have any questions, please contact Rami Baazeem at [K1436386@kingston.ac.uk](mailto:K1436386@kingston.ac.uk).

By click on 'next', you agree to participate.

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Are you over 18?\*

( ) Yes

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No - please go to page 9.

Are You a Saudi National?\*

Yes

No - please go to page 9.

What is your religion?

Muslim

Other

Doesn't apply.

Current Use of Social Media

1) Which of the following social media do you use? (Check all that apply)

Facebook

Twitter

Snapchat

Instagram

Google+

WhatsApp

LinkedIn

YouTube

Other - Write In: \_\_\_\_\_

2) Approximately how long ago did you first start using social media (e.g. Facebook, Twitter, etc.)?

Less than a month ago

1 Month-6 Month ago

7 Month- 12 Month ago

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( ) 1 Year- 2 Years ago

( ) 2 Years- 4 Years ago

( ) More than 4 Years ago

**3) Why do you use social media? (Check all that apply)**

	<b>Facebook</b>	<b>Twitter</b>	<b>Snapchat</b>	<b>Instagram</b>	<b>Google+</b>	<b>LinkedIn</b>	<b>WhatsApp</b>	<b>Y</b>
To find information.								
To play games.								
To make professional and business contacts.								
To keep in touch with family and friends.								
To make new friends.								
To get opinions.								
To share								

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videos/ pictures/ music.								
To share your experience.								
Others								

5) How frequently do you use the following social media?

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6) On the social media, you use, how many friends/ followers do you have?

	Facebook	Twitter	Snapchat	Instagram	Google+	LinkedIn	WhatsApp
Don't use							
Very Rarely							
Rarely							
Occasionally							
Frequently							
Very Frequently							
All the time							

	Facebook	Twitter	Snapchat	Instagram	Google+	LinkedIn	WhatsApp	YouTube	Other
Less than 10									
11-50									
51-250									
251-400									
400-1000									
More than 1001									



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Religiosity

7) As a Muslim to what extent do you personally agree or disagree with the following general statements? Please select one option in each line where 1 (strongly disagree) and 7 is (strongly agree).

	1	2	3	4	5	6	7
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Religion is especially important to me because it answers many questions about the meaning of life.							
Doaa/ Thiker I say when I alone have as much meaning and personal emotion as those said by me during Sallah.							
The main reason for my interest in religion is that my masjid has pleasant social activities							
One reason for me being a							

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member of a masjid is that such membership helps to establish a person in the community.							
Quite often I have been keenly aware of the presence of Allah.							
My religious beliefs are what really guide my whole approach to life							
Although I am a religious person, I refuse to let religious consideration influence my everyday affairs							
It is important for me to spend periods of time in private religious practices (Doaa, Thiker, Qiam allayl...etc)							
The masjid is most important as a place to formulate good social relationships							
What religion offers me most is comfort when sorrows and							

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misfortune strike							
I read the literature and books about my faith							
If I were to join a masjid group, I would prefer a Quran study group rather than a social fellowship							
It does not matter so much what I believe as long as I lead a moral life							
I try to carry my religion over into all other dealings in life							
If not prevented by unavoidable circumstances, I attend the masjid for the five daily prayers.							
Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic interests							
Although I believe in my religion, I feel there are many more important things							

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in my life							
I pray mainly because I have been taught to pray							
The purpose of prayer is to secure a happy and peaceful life							
The primary purpose of prayer is to gain relief and protection							

Privacy

8) Considering the social media, you selected in Q1; to what extent do you agree or disagree with the following statements? Please select one option in each line where 1 (strongly disagree) and 7 is (strongly agree).

	1	2	3	4	5	6	7
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor	Somewhat agree	Agree	Strongly agree

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				disagree			
I am concerned that the information I submit to the social media could be misused.							
I am concerned that others can find private information about me from the social media.							
I am concerned about providing personal information to social media, because of what others might do with it.							
I am concerned about providing personal information to social media because it could be used in a way I did not foresee.							
In general, it would be risky to give personal information to social media.							
There would be a high potential for privacy loss							

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<p>associated with providing personal information to social media.</p>							
<p>Social media could inappropriately use personal information.</p>							
<p>Providing the social media with my personal information would involve many unexpected problems.</p>							
<p>I believe I have control over who can get access to my personal information collected by social media.</p>							
<p>I think I have control over what personal information is released to social media.</p>							
<p>I believe I have control over how personal information is used by social media.</p>							
<p>I believe I can control my personal information provided to social media.</p>							

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<p>Compared to others, I am more sensitive to the way social media companies handle my personal information.</p>							
<p>To me, it is the most important thing to maintain my information privacy.</p>							
<p>Compared to others, I tend to be more concerned about threats to my information privacy.</p>							
<p>I am aware of the privacy practices and issue in our society.</p>							
<p>I follow the news and developments about privacy issues and privacy violations.</p>							
<p>I keep myself updated about privacy issues and the solutions that companies and the government use to ensure our privacy.</p>							



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I have been a victim of an improper invasion of privacy							
I have heard or read, during the past year, about the misuse of information collected from the social media							
I have experienced incidents where my personal information was used by a social media company without my authorization.							

Technology acceptance

9) Considering the social media, you selected in Q1; to what extent do you agree or disagree with the following statements? Please select one option in each line where 1 (strongly disagree) and 7 is (strongly agree).

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
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	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I find social media useful in my daily life.							
Using social media increases my chances of achieving things that are important to me.							
Using social media helps me accomplish things more quickly.							
Using social media increases my productivity.							
Learning how to use social media is easy for me.							
My interaction with social media is clear and understandable.							
I find social media easy to use.							
It is easy for me to become skilful at using social media.							
People who are important to me think that I should use							

Appendix C:

social media.							
People who influence my behaviour think that I should use social media more often							
People whom I value their opinion prefers that I use social media.							
I have the necessary resources to use social media.							
I have the knowledge needed to use social media.							
The social media I use is compatible with technologies I have.							
I can get help from others when I have difficulties using social media.							
Using social media is fun.							
Using social media is enjoyable.							
Using social media is very entertaining.							
The use of social media become a habit for me.							
I am addicted to using social							

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media.							
I must use social media.							
Using social media has become natural to me.							
I intend to continue using social media in the future.							
I will always try to use social media in my daily life.							
I plan to continue to use social media frequently.							

Appendix C:

	1	2	3	4	5	6	7
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
My social media profile tells a lot about me.							
I use an avatar instead of my real picture on my social media account.							
I use a nickname instead of my real name in social media.							
From my social media profiles, it would be easy to find out my preferences in:							
1- music, movies, books							
2- Religion, political views.							

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3- Friends' genders							
Showing my photo on social media is against my religious belief.							
Communicating with the opposite gender on social media is against my religious belief.							
I will not use mobile phones if my religious belief prohibits it.  I would avoid using mobile phones that are equipped with the camera if my religious belief prohibited it.							
I would avoid using the internet If my religious beliefs prohibit it.							
I would avoid using social media If my religious beliefs prohibit it.							
I would avoid using							

Appendix C:

technology If my religious beliefs prohibit it.							
I don't use any feature of the social media that might contradict my religion e.g. gambling games.							
Using social media doesn't affect my religious beliefs and practice.							
I believe that social media privacy policy is respecting my religious beliefs.							
I occasionally visit or sign up on social media websites that I consider prohibited in my religion.							
I sometimes participate in online activities that I considered prohibited in my religion.							
Sometimes Social							

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media distract me from some of my religious duty or practices.							
Using handheld devices, sometimes, affect my religious duty.							

Social Media, Religion, and Technology:

11) To what extent do you agree or disagree with the following statements? Please select one option in each line where 1 (strongly disagree) and 7 is (strongly agree).

Demographic

12) Gender:

Male

Female

13) Age

Under 18

18- 22

23-26

27-35

36-40

41-60

Over 60

14) Martial Statues:

Single

Married



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Divorced

Widow/er

Other - Write In: \_\_\_\_\_

15) Number of children if any (      )

16) The Last Level of Education or the Level you are doing:

Secondary school or less

Diploma

Bachelor

Master

PhD

Other - Write In: \_\_\_\_\_

17) Main occupation status:

Full time employment

Full time self-employment

Part time employment

Part time self-employment

Full time student

Part time student

Unemployed

Retired

Other - Write In: \_\_\_\_\_

18- Job Sector:

private sector.

public sector.

Thank You

Thank you for taking our survey. Your response is critical to us.