The Influence of Self-Service Technology on Consumers' Privacy and Security's Threats in The Airline Industry

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ABSTRACT

A sophisticated world today is highly characterised based on technology-facilitated transactions that have changed ways the consumers interact with the employees and service providers. It has led to the transformation of service delivery from face-to-face to the use of self-service technology (SST). SST is becoming an important strategic asset for many hospitality organisations, in particular, the airlines industry. The use of SST in the airlines industry has gained enormous momentum in recent years through their company's website, mobile applications and airport kiosks, etc. However, as the adoption of technological advancement becomes worldly-wise and pervasive, concern on personal information are collected and shared widely with known and unknown entities that often without consumers' knowledge. These lead to a possibility of compromising the individual's personal information by third parties. Hence, the main aim of this study is to examine the overall overview of consumers' privacy and security's threat as a whole. The main objective is to examine the influence of SST on consumers' privacy and security's threat in the airlines industry. Therefore, based on previous studies, this paper will propose a new conceptual framework on the relationship of the influence of SST on consumers' privacy and will be using Privacy Calculus theory and APCO Model in determining the consumers' actual disclosure behaviour in the usage of SST. This paper provides consumers with a concise view and knowledge of the influence in using SST towards their privacy and threat's concern.

INTRODUCTION

Over the past decades ago, the advancements in information technology have changed the way consumers experience a service encounter and their relationship with service providers (Reinders, Dabholkar, & Frambach, 2008)traditional full service is increasingly replaced with technology-based self-service (TBSS. Consumers are no longer deal with them because of the adoption technology such as self-service that best at its convenience. The explosions of the Internet and other tools such as information system have made many companies incorporate technology into their operations and marketing. The impact has been keen in the service arena that has relied on close, personal contact between both consumers and employees traditionally. The technology is dramatically changing the way of services developed, conceived as well as delivered (Meuter, Bitner, Ostrom, & Brown, 2005). Technology, particularly information and communication technology (ICT), is becoming an important strategic asset for hospitality organisations, in particular, airlines industry as it is needed in improving their organisational performance and strategic competitiveness (Cho & Olsen, 1998).

A sophisticated world today is highly characterised based on technology-facilitated transactions. There are increasing numbers of consumers that interact with technology in creating service outcomes instead of interacting with the employee of the service firm (Meuter, Ostrom, Roundtree, & Bitner, 2000). The method of service has migrated from traditional interaction of human to a new substitution of machines that involves service employees, or, where feasible in anywhere-anytime electronic service (Fitzsimmons, 2003). With regards to the technological advances development, rapid growth in information technology along with the emergence of new business models, it has led the fast transformation of service delivery from face-to-face to the use of self-service technology (SST) method by the companies in taking on new roles in the provision of products and services (Lu, Chou, & Ling, 2009; Ramaseshan, Kingshott, & Stein, 2015).

However, consumers concern about privacy issues has arisen for many years back despite the benefits of technological advancement. The importance of privacy in today's globalisation world has been discussed widely and undisputed (Xu, Dinev, Smith, Hart, & Smith, 2008)the current understanding of privacy that emerges is fragmented and usually discipline-dependent. A systematic understanding of individuals' privacy concerns is of increasing importance as information technologies increasingly expand the ability for organizations to store, process, and exploit personal data. Drawing on information boundary theory, we developed an integrative model suggesting that privacy concerns form because of an individual's disposition to privacy or situational cues that enable one person to assess the consequences of information disclosure. Furthermore, a cognitive process, comprising perceived privacy risk, privacy control and privacy intrusion is proposed to shape an individual's privacy concerns toward a specific Web site's privacy practices. We empirically tested the research model through a survey (n=823. Recently, the explosive growth of information and communication technology (ICT) and the use of the Internet in obtaining information have fuelled debate towards the potential threats to privacy (Dinev & Hart, 2003). A borderless communication that connects people globally provides the needs for consumers to concern about their privacy issues (Friedewald & Pohoryles, 2013). According to De Cristofaro (2011)that is either motivated, or compelled, to share only the requested information. We define this problem as privacy-preserving sharing of sensitive information and are confronted with two main technical challenges: (1, technological advancement has amplified the issue of consumers' privacy risk. Data is exposed and could be retrieved and exchanged electronically

and could be collected by third parties such as companies. Privacy concerns are no longer held by consumers. Initially, consumers are exposed to privacy and security's threats in using SST in the airlines industry.

On the other hand, disclosure of information of the consumers becomes crucial in many aspects. Initially, technology has helped consumers dealing with their transactions without any human interaction (Mathew, 2008). Since it was a transformation from traditional services, a large number of airlines have introduced self-service technologies (SST) and encouraged their passengers in using these technologies widely (Gures, Inan, & Arslan, 2018). However, some of the consumers are willing to disclose their information as they gain benefit from the use of SST in return as long as there would be an outcome of using the SST. It has become an integral part of the airport facility along with the introduction of new E-ticket as one of the examples, as it allows the Internet's use for check-in method (Abdelaziz, Hegazy, & Elabbassy, 2010). Particularly, passengers can utilise the services by themselves without direct interaction with the employees (Beatson, Coote, & Rudd, 2006; Elliott, Hall, & Meng, 2012; Ku & Chen, 2013; Tam & Lam, 2004). Due to this, the consumers show the willingness to provide their sensitive data and personal information over the use of SST. Hence, there is a need to understand consumers' actual disclosure behaviour as many other consumers using the SST.

One of the factors that influence consumers' actual disclosure behaviour is the different personalities' traits of individuals. Personality traits are defined as an individual's dispositions or tendencies that lead to certain behavioural patterns across situations. Personality traits have been found to be relatively stable in individuals. In the early 1980s, a number of personality traits examined in the personality psychology field showed inconsistent results until the Big Five model was developed to consolidate important

traits that were found to be reliable across domains. The Big Five model was a groundbreaking model in personality research that includes extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience which is intellect. The idea that personality traits might influence consumers' privacy has also been suggested by proponents of the consumers' privacy model (Osatuyi, 2015).

Nevertheless, SST is widely known as technological interfaces that enable consumers to gain benefits for themselves instead of dealing with organisations' personnel. Initially, SST is seen as perceived benefits and perceived usefulness (Meuter et al., 2000). Consumers do not just gain benefits through SST, it also gives consumer "usefulness" in which the use of SST is free of effort that indirectly improves consumers performance with this technological systembased. Consumers are no longer deal with any human interaction and interestingly, the use of SST is known as a user-friendly. In addition, consumers obtain the benefits that are userfriendly and they viewed the classifications of convenience, person or object, and delivery for SST differently than traditional services (Cunningham, Young, & Gerlach, 2009). There are three types of SST which are a self-service kiosk, internet-based self-service and mobilecommerce (Ong, 2010). Hence, self-service methods which are check-in via airlines website, mobile technology and airport kiosks are used in order to meet the growing demand for more self-service options (Strother, Fazal, & Rettich, 2010)especially during the transition from full- to self-service, customers may need help. In the airline industry, many companies position staff beside check-in kiosks to help their passengers. In the current study, our goal was to gain insight into how intensive the assistance is and how successful the transition from full-service to self-service has been for the airlines. Specifically, we conducted direct observations at airports to note the frequency with which airline employees help customers.

We found that airline employees are proactively assisting passengers through the kiosk check-in process. Much of the research on self-service focuses on the customer's perspective. The current study is different in that it examined the corporate perspective. Despite the increasing trend toward self-service technologies, organizations must communicate with and provide service to customers through multiple channels (such as e-mail and phone, in addition to self-service. Airline ticketing is one of the famous examples which the use of technology changed the consumers' interface to the point if replacing the traditional consumer interface completely. With the introduction of self-service technologies, it enables the airlines in reducing both time and number of staff required. Hence, it will save substantial costs in operations (Abdelaziz et al., 2010).

Despite SST's benefits and advantages, the technological advancement in service delivery has brought to insecurity and threats among the consumers (Zeithaml & Gilly, 1987). Initially, it has significantly amplified the issue of privacy risk. The airlines industry, in particular, holds massive consumers' personal data and information (Zulhuda & Delpisheh, 2011). These consumers' personal data and information are needed for specific reservation through self-service technologies (SST) including their name, date of birth, home address and phone numbers (Asinari & Poullet, 2004). However, as data is routinely exchanged electronically, it would be easy for the third parties to manipulate and collect consumers' personal data (De Cristofaro, 2011). For instance, few airlines such as US Airways, United Airlines and American Airlines have experienced data breaches in which the third parties had accessed to breach consumers' personal data and information that led to a massive exposure leakage. All passports, e-mails and personal details were found misuse (Millet, 2015). Based on the discussion stated above, the main objective of this study is to examine the influence of the usage of Self-service Technology (SST) towards the privacy concern among the consumers in the airlines industry. Finally, this study also examines the relationship between the relationship between privacy's antecedents and consumers' actual disclosure behaviour as well as to examine the mediating role of privacy concerns between the relationship of privacy's antecedents and actual disclosure behaviour.

LITERATURE REVIEW

Privacy Calculus Theory

According to Wirth (2018), privacy calculus is the most used theory that has been using by the previous researchers in regards to the issues of privacy related. It has been used about the last three times in explaining a dependent variable of privacy issue related. Initially, privacy calculus is used to explain the disclosure of information as a dependent variable. Disclosure of information is a crucial dependent variable as without disclosing information individuals' privacy is usually not threatened.

Privacy calculus is defined as a consequentialist trade-off of cost and benefits that is prominent to determine the behavioural reactions of the individual. Prior research has found these perspectives in various kinds of works (Klopfer & Rubenstein, 1977; Laufer & Wolfe, 1977; Posner, 1981; Smith, Dinev, & Xu, 2011) that view that the concept of privacy as not absolute but rather that the concept of privacy calculus is point to an interpretation in 'economic terms' (Klopfer & Rubenstein, 1977). With regard to this, this kind of calculus perspective of privacy stated that consumers will provide and disclose their personal data and information to corporations and the consumers would perform a risk-benefit analysis in order to asses any outcome they would get in return (Chellapa & Sin, 2005; Culnan, 1993; Dinev & Hart, 2006; Han Li, Sarathy, & Xu, 2010; Milne & Gordon, 1993).

This theory implies that individuals disclose the information if they gain benefits and outweigh the costs of disclosure. This study argues that the dependent variable should be separated into actual disclosure behaviour and intention to disclose. This researcher argues that despite the intention is a good predictor of behaviour, however, in privacy research and other research areas, intention-behaviour gaps have always been recognised in most of the areas of the study. This implies that individuals intend to behave privacy conform but the individuals actually behave in contrast ways. Thus, in this study, this theory is used in determining consumers' actual disclosure behaviour in using self-service technologies in the airlines industry.

Privacy Paradox

Privacy paradox refers to the phenomenon of contradictory ways by the consumers but at the same time have strong privacy concerns (Pavlou, 2011). Particularly, individuals demonstrate higher levels of actual information disclosure when they claim that they perceive high amounts of privacy risk and low intention to disclose information (Han Li, Sarathy, and Xu (2011) argued that privacy paradox could be referred to an attitude-intention rather than an intention-behaviour gap. One of the main research problems in privacy research is about explaining the reasons for the individuals who express their privacy-related concern but it actually differs from their disclosure behaviour.

Social Exchange Theory

The social exchange theory (Emerson, 1972; Homans, 1974) explains the value of social reward or cost to a person depends on how often and how recently the reward or cost was incurred. A person is less likely to perform actions, for instance, registering with a website that impose a similar cost if a person has encountered recently a cost information misuse. Therefore, this theory argued that there would be less expect disclosure from those who have experienced information misuse (Hui, Teo, & Lee, 2007).

Personalities Theory

The Big Five Model explains the personality theory and stated that personality is an individual trait which means an enduring disposition or propensity toward a given event or object (Kim & Jeong, 2015). In privacy studies, personality has been identified as a major determinant of information privacy concerns in that an individual trait could impact information processing style as well as a belief system (Mount et al., 2005; Smith et al., 1996). Five fundamental personalities have been investigated with most interests are include agreeableness, conscientiousness, extraversion, neuroticism and openness. The five personalities emerged as a widely accepted personality typology (i.e. Big Five model) in the late 1980s (Yeh et al., 2018).

Concept of Self-Service Technologies (SST)

It is a form of service of interaction directly between consumers and technological devices and systems (Beatson, Lee, & Coote, 2007). According to Reinders et al. (2008), technology is a definite term than self-service technology (SST) for most of the literature. This is because the majority of the studies examine different types of self-service based on technology (TBSS) and those are not particular technology themselves. Initially, the development of self-service has started when Clarence Saunders founded Piggly Wiggly in 1916 many decades ago. Piggly Wiggly was the first self-service grocery store then became famous and developed into a large franchise around America. The introduction of self-service has been introducing throughout all retail sector since it was first introduced. According to Shaw, Curth, and Alexander (2004), self-service was a significant factor for the growth of supermarkets in the United Kingdom in the late 1950s. Scherer, Wünderlich, and von Wangenheim (2015) suggest a positive

impact for both the economy and individual businesses from modular designs. In this study, it illustrates the emerging use of self-service for co-production. This study also illustrates the benefits for consumers and economic such as increasing productivity, cost reductions and the ability to use self-service machines without using the employees.

Technology Adoption

The use of SST offers benefits and goods to consumers. It is described as a time and cost savings as well as greater control over the service delivery. The other benefits include reduce waiting time, effective, efficiency, spontaneous delight and, fun and enjoy in using technology, attractive, convenient (Curran, Meuter, & Surprenant, 2003). The introduction of SST into the service encounter has brought to a threat issue. It causes anxiety and stress for the consumers who uncomfortable in using the technologies. The consumers have a doubt in dealing with the technology for any problems occur. There are some consumers who do not think that the introduction of technology brings many benefits (Curran et al., 2003). The classifications of SST may be varying in its usage. The consumers experience a variety of SST available in today's advanced world. There are many types of technology interfaces including telephone-based technologies, various interactive voice response systems, direct online connections and internet-based interfaces. The other examples are including interactive free-standing kiosks and video or compact disc (CD) technologies. The implementation of SST by the companies provides several purposes to the consumers. One of the reasons is the technology is seen as the form of many services for the consumer to experience with (Meuter et al., 2000).

Self-service Technologies in the Airlines Industry (SST)

Travelling and leisure are considered as one of the best-selling products on the Internet

(López-Bonilla & López-Bonilla, 2013). Travels and tourism accommodations have rapidly become the largest category of products sold on the Internet (Wolfe, Hsu, Kang, Wolfe, & Hsu, 2004). Airlines ticket in particular, appropriate for online distribution as it can be represented by electronic means (Klein, Köhne, Öörni, & Klein, 2004). Internet presents a distribution channel for consumers so it will enable a rapid and convenient to book online with substantial price savings. E-ticket is a commercial format that can be used by both service providers and intermediaries. In many years back, consumers had given no chance in taking part when the process of transport ticket was completely carried out by both service providers and intermediaries (López-Bonilla & López-Bonilla, 2013). The e-ticket is best considered as an innovative service and as a self-service technology system. SST used can be divided into their own classifications from the consumers' viewpoints. These include direct online connections and, interactive kiosks and video technologies (Meuter et al., 2000). In meanwhile, there are several purpose SST, such as direct transactions, self-help and gaining different service for consumers. The e-ticket is the best example of the online combination of the technological interface such as the Internet, the purpose of a direct transaction, allowing consumers to book their seats on a plane without interaction with the airlines' employees (López-Bonilla & López-Bonilla, 2013).

Information Technologies and the Phase and Evolution of Technology and Systems

In the early 1950s, the reservations were made on manual display boards and the list passengers were listed. It took some process to get everything done in good ways and methods. In issuing the tickets manually, the travel agencies had to find the best fares and routes for the consumers manually such as World Airways Guide ABC and Official Airline Guide (OAG) and made a phone call asking for availability, reservation and confirmation

(Buhalis, 2000). The airlines industry all over the world is gaining an utmost trend in adopting a sophisticated self-service automated ticketing and check-in-systems as the approaches in today's world advances. This is needed in enabling the employees to cope with high demand in air travel. Douglas F Kelly was the one who introduced "sky-link, self-service ticketing computer terminal". It was an intelligent and programmable self-service that was highly flexible. The system was invented with the functions of flight enquiries, printing and issuance of tickets, reservations through the computer and payment via inquiries. The functions are including self-service check-in, baggage tags and boarding cards (Kelley, 1984)**.** The first history took place with the introduction of Computer Reservation System (CRS), the emerging of the internet and the world wide web and followed by the four global distribution system (GDS) in the travel industry.

Airlines Industry in Malaysia

The airline industry in Malaysia has been developing hugely for the last many years ago. Malaysia Airlines and AirAsia are best known as the main players in the industry. Malaysia Airlines Berhad is the national carrier and founded as Malayan Airways in 1947. After many years ahead, in 1973 the company reorganise and known as Malaysia Airline Limited and then afterwards renamed as Malaysian Airline System Berhad (MAS) which is simply known Malaysia Airlines (Zulhuda & Delpisheh, 2011) On the other hand, AirAsia Berhad has been known as a best low cost carrier around the world and become the best leading cost carrier in the world. They have flown over 70 destinations in more than 20 countries around the world. AirAsia becomes a pioneer of low-cost flights in Asia. They were also the first airline that implements fully ticketless travel in the region (Zulhuda & Delpisheh, 2011).

Impact of Technology Advancement Evolvement

One of the earliest impacts of the use of SST is the fact that it is changing the way consumers interact with the employees or service providers that enable consumers to do a self-service method without dealing with any human interaction. The uses of SST among the consumers provide huge benefits to consumers as it is perceived as easy and give benefits to the consumers. The researchers have revealed that the absence of SST possesses benefits the consumers in dealing with the technology (Curran et al., 2003; Meuter et al., 2000). Previously, it is defined as easiness to use a particular system without put any effort as it is easy to utilise (Davis, 1989). It is defined as a believed by a person that the use of a particular system would enhance their performance (Kim, Kim, & Shin, 2009; Davis, 1989).

Consumer Information Privacy and Security's Threats

Information privacy is defined as the desire of individuals in controlling and having some influence over data about themselves (Belanger & Crossler, 2011). The concept of privacy is viewed differently and can be interpreted in many ways (Stone, Gueutal, Gardner, & Mcclure, 1983). There are four dimensions of privacy which are the privacy of the persons, privacy of personal behaviour, the privacy of personal communications and privacy of personal data (Clarke, 1999).

Consumers' Actual Disclosure Behaviour

Most organisations require the consumers to disclose items of personal data or to accept the organisations' collection by other means such as automated in providing the service to consumers. The consumers assess both social and economic benefits of comply the data practice weigh it against the privacy cost of the disclosure. Consumers will disclose their data if they perceive the benefits of the exchange are bigger than the costs itself.

There have been little and limited studies done on prior research about the consumers' actual closure behaviour. Despite the limitation of the study, a study by Sayre and Horne (2000) found that consumers would freely trade their personal data and information in exchange for small discounts at a grocery store. According to Patricia A., Daniel R., and David A. (2007), when an individual is in a disclosure situation in which the consumers are asked for information during a marketing exchange, trust as an environmental cue is expected to be relied upon and significantly influence response.

Disclosure as Behaviour

The act of disclosure could be considered similar to the actual behaviour construct that which is found in the theory of planned behaviour (Ajzen, 1991). Literally, disclosing any sensitive information is the concept of the individual that realises that their information is being disclosed and exposed. This is due to the consequences and effects that are associated with the disclosure of sensitive information. Initially, the act of disclosure is preceded by the intention to disclose that assumes by the current research model. This aspect provides for a similar construct in the TPB framework called intention. The intention in the TPB framework is succeeded by the actual behaviour. A subject's intent (ion) to perform a particular behaviour is assumed to derive the motivation to perform that behaviour and the amount of effort the subject will exert to perform that particular behaviour (Ajzen, 1991).

Privacy Concern

Prior several studies have operationalised privacy concerns in-depth and thorough. There are four data related dimensions of privacy concerns which are the collection, errors, secondary use and unauthorised access to information. This refers to the concern for information privacy (CFIP) scale that was developed by Smith et al. (1996). These dimensions were revalidated by Stewart and Segars (2001) and have served as some of the most reliable scales in measuring the individuals' concerns toward organisational privacy practices (Smith et al., 2011). The dimensions are recently adapted the CFIP into the context of the Internet in order to operationalise a multidimensional scale of Internet users' information privacy concerns (IUIPC). Despite the prominent focus on general privacy concerns, emerging evidence suggests that individuals' general privacy concerns might not be entirely sufficient in explaining privacy-related behaviour in a specific transaction. Indeed, several scholars underscore the importance of considering transactional privacy concerns in explaining individuals' privacy trade-off, which is predominantly transaction-specific (Choi & Land, 2016).

Trust

Prior researches have defined the term of trust in many different ways. According to Moorman, Deshpande, and Zaltman (1993), trust is defined as a willingness to rely on an exchange partner in whom one has confidence. There was a study by Garbarino and Olivia (2003) that have measured trust directly particularly in consumer privacy and in online context as well as operationalised as the reputation of a company (Andrade, Kaltcheva, & Weitz, 2002). However, as it is noted that trust operates differently in an online and offline environment, there was a substantial list of factors impacting online trust

Risk

Privacy risk is the degree to which an individual believes that there would be a high potential loss if there is a release of personal information to a firm. In the privacy literature, although the privacy concern itself has often be treated as a multidimensional construct, privacy risk has always been treated as a single-dimensional construct that measures

the potential loss of control over personal information. Risk has been generally defined as uncertainty resulting from the potential for a negative outcome and the possibility of the other party's opportunistic behaviour that can result in losses. Privacy risk could also include the misuse of personal information, such as insider disclosure or unauthorized access and theft. There was also a study that found a number of e-commerce studies empirically verified the negative effect of perceived risk on privacy concerns (Xu et al., 2008)the current understanding of privacy that emerges is fragmented and usually discipline-dependent. A systematic understanding of individuals' privacy concerns is of increasing importance as information technologies increasingly expand the ability for organizations to store, process, and exploit personal data. Drawing on information boundary theory, we developed an integrative model suggesting that privacy concerns form because of an individual's disposition to privacy or situational cues that enable one person to assess the consequences of information disclosure. Furthermore, a cognitive process, comprising perceived privacy risk, privacy control and privacy intrusion is proposed to shape an individual's privacy concerns toward a specific Web site's privacy practices. We empirically tested the research model through a survey (n=823.

Benefits

Following the notion of privacy calculus, the individuals tend to behave in ways that they believe will result in the most favourable net level of outcomes. The scholars have identified three major components of the benefit of information disclosure. These are including personalisation, financial rewards and social adjustment benefits (Smith et al., 2011). Recent studies provide empirical evidence that consumers will foster their information disclosure by compensating them through financial rewards.

Personality Differences

Big-Five personality traits have been found to influence individual privacy concerns. Personality is an individual trait which means an enduring disposition or propensity toward a given event or object. In privacy studies, personality has been identified as a major determinant of information privacy concerns in that an individual trait could impact someone's behaviour to disclose their personal data and information. There are five fundamental personalities have been investigated with most interests which are agreeableness, conscientiousness, extraversion, neuroticism and openness. The five personalities emerged as a widely accepted personality typology (i.e. Big Five model) in the late 1980s. Based on numerous empirical evidence, the structures or dimensions of the Big Five personality were consolidated. Multiple studies have attempted to understand how each of the five personalities influences individuals' information privacy concerns (Yeh et al., 2018).

Privacy Experiences

Privacy experiences have been studies by previous studies respectively. The individuals who have been exposed or been a victim of the personal information abuses must have stronger concerns regarding the privacy of information. Some of the consumers encountered loss of their data with their previous experience in using the technologies respectively (Smith et al., 2011).

Privacy Awareness

In a meanwhile, privacy awareness refers to the awareness of individual that is informed about the privacy practices of the particular organisational. Research suggests that the consumers would only trigger their concern on privacy when the organisations have collected or used their personal information without their permission. Particularly, consumers who are aware of the name removal procedures

tend to be more concerned about their privacy compared to the consumers who are unaware of the name removal procedures.

Cultural Differences

Prior research showed that Italian society has a different concept of privacy which leads to lower privacy concerns but also to higher perceived risk. Hence, it shows that the differences inform weaker relationships between e-commerce use and privacy concerns, institutional trust and e-commerce, and a stronger relationship between privacy concerns and perceived risk.

Demographic

In the previous studies, the demographic differences could affect the degree of stated privacy concerns. For instance, previous studies have found that women to be more generally concerned than men about the impact of privacy's information collection. The other study found that young, poor, less educated and African-American who were less likely to be concerned about their privacy.

Perceived Ease of Use

Perceived ease of use is seen as a basic and fundamental construct in most innovation adoption models. A technology acceptance model (TAM) that was contributed by Davis, Bagozzi, and Warshaw (1989) is the best that suits this term and definition. It refers to the degree to which a given user feels convenience because of the use and effort of technology application. There was a study showed that because of the ease of use of the certain technology application it then become a strong factor for the consumers in purchasing the tickets online (López-Bonilla & López-Bonilla, 2013).

Perceived Usefulness

Perceived usefulness is the extent to which users believe the technology will help them perform their job better. In the context of airline ticket sales, the individual perceives that tickets can be bought faster, at a better price or that more flights can be accessed than through a traditional travel agency since the Internet.

RESEARCH FRAMEWORK AND HYPOTHESES

To date, most extant studies about SST have focused on the difference in its comparison of both traditional and SST usage as well as its advantages and disadvantages. Despite the perception and the benefits in using technology such as SST are essential for the consumers in today's world, the research on empirically examining consumers' actual behaviour of their privacy concern is sparse and limited (He Li, Wu, Gao, & Shi, 2016)this paper explores the predictors of individuals' adoption of healthcare wearable devices. Considering the importance of individuals' privacy perceptions in healthcare wearable devices adoption, this study proposes a model based on the privacy calculus theory to investigate how individuals adopt healthcare wearable devices. Method: The proposed conceptual model was empirically tested by using data collected from a survey. The sample covers 333 actual users of healthcare wearable devices. Structural equation modeling (SEM. By conducting a literature review of the usage of SST research, this study found that most extant related studies investigate the consumers' adoption and intention in using SST, particularly in the airlines industry. Although the benefits of comparison both traditional and technology play an important role in determining the consumers' intention, only a few studies have studied consumers' privacy concern in using the SST.

This study regards consumers' actual disclosure behaviour as the dependent variable as shown in the conceptual model. In line with previous related studies, this study hypothesizes that consumers' actual disclosure is determined by the privacy concern as a mediator, particularly their trade-offs between perceived risk, perceived benefits (privacy calculus) and trust. In addition, this study predicts the antecedents or factors of personality differences, privacy experiences, privacy awareness, cultural differences, demographics, perceived ease of use and perceived usefulness on consumers' actual disclosure behaviour (He Li et al., 2016)this paper explores the predictors of individuals' adoption of healthcare wearable devices. Considering the importance of individuals' privacy perceptions in healthcare wearable devices adoption, this study proposes a model based on the privacy calculus theory to investigate how individuals adopt healthcare wearable devices. Method: The proposed conceptual model was empirically tested by using data collected from a survey. The sample covers 333 actual users of healthcare wearable devices. Structural equation modeling (SEM.
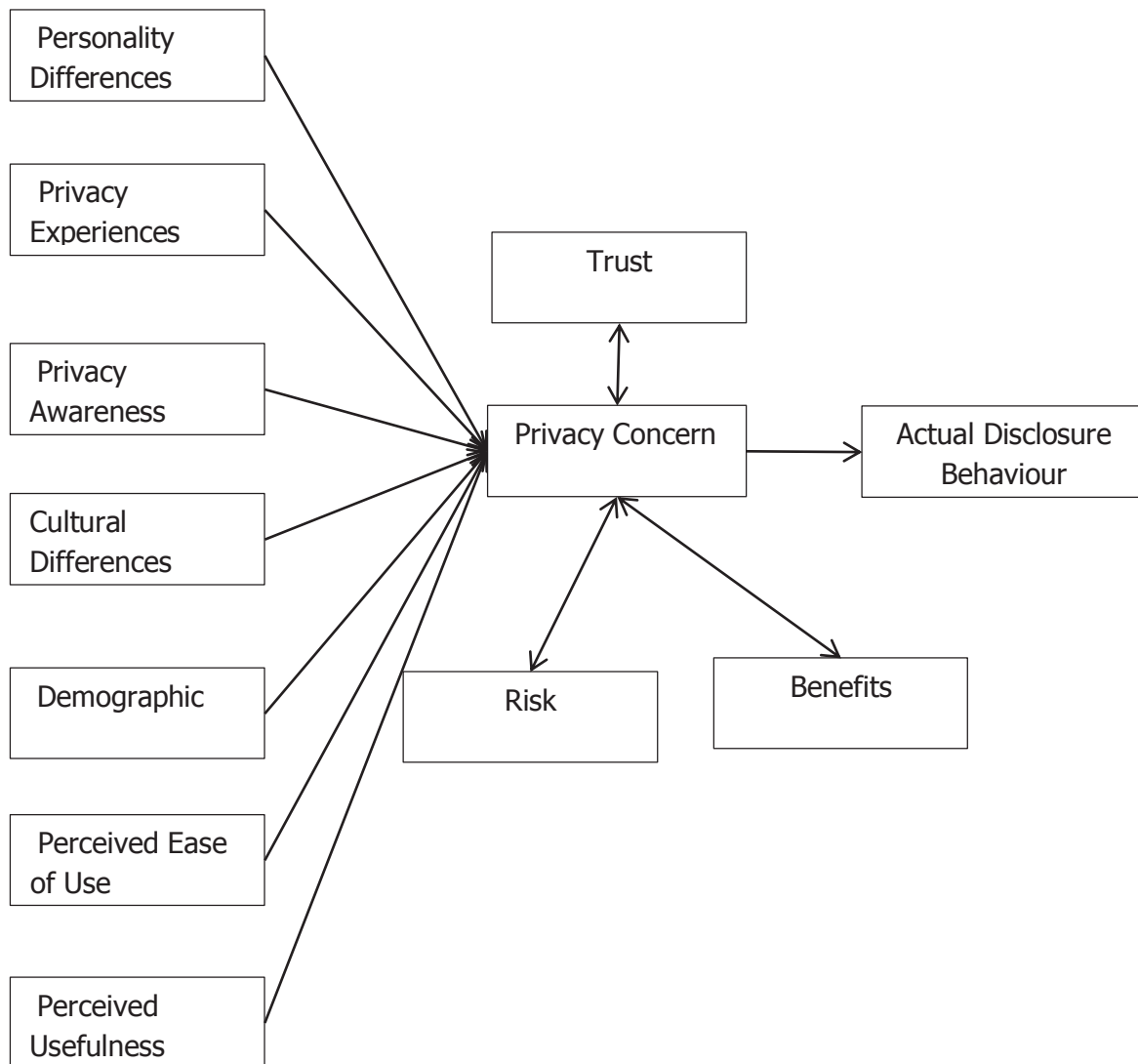

Figure 1 Conceptual framework

Actual disclosure behaviour is seen as dependent variables as it is a key variable to determine consumers' actual disclosure in considering their privacy concern using self-service technologies (Barth, Barth, & Jong, 2017). Independent variables in this study include personality differences, perceived usefulness, and perceived ease of use and privacy awareness. It is viewed as a key variable to determine the relationship towards the dependent variables. The independent variables influence how consumers behaviour causes variation independent variables. Mediator variable can be explained as the mechanism that influences both the independent variable and dependent variable (Hayes, 2013). Initially, it is a variation in the independent variable that causes variation in one or more mediators that influence variation in the dependent variable. Previous studies have recommended that the privacy concern is needed to determine consumers' actual disclosure so that in return they will get the benefits using self-service technologies.

A study by Ferwerda and Schedl (2016) found that personality traits are correlated with consumers' actual disclosure behaviour. Most significant correlations are found for openness to experience, extraversion, and agreeableness. This study indicated a relationship between openness to experience and non-disclosure behaviour while for extraversion it is mainly disclosure behaviour in the like section of a profile. A non-disclosure relationship was found for the agreeableness. Additionally, this study also found that the conscientiousness trait shows overlapping disclosure behaviour with the openness to experience trait, whereas the neuroticism trait shows a more distinct pattern which was a positive relationship was found that neuroticism tends to disclose the birth date. This study also supported by (Bansal, Zahedi, & Gefen, 2010) that different personalities literally have different characteristics eventually would lead to their actual disclosure behaviour. Thus, it was hypothesized that:

H1: There is a significant relationship between personality differences and actual disclosure behaviour

This hypothesis is supported by Jia, Carroll, Wisniewski, Rosson, and Xu (2015) that there is a significant relationship between privacy experiences and actual disclosure behaviour. Consumers experience different types of life experiences. Hence, when it comes to a matter of disclosing personal data and information, consumers would consider their decision wisely because of the previous experience they had prior in life. Another study by Iyamu and Ngqame (2017) also stated that privacy experiences have a significant relationship with actual disclosure behaviour. Thus, it was hypothesized that:

H2: There is a significant relationship between privacy experiences and actual disclosure behaviour

Dinev et al. (2006) found that privacy awareness is correlated with actual disclosure behaviour. The individuals that have a higher awareness are more likely to not disclose their personal information data. They gained the experienced in using self-service technologies and aware of the usage pertaining to any disclosing personal data and information. A study by Inkook Sim (2010) found the significant relationship between privacy awareness and actual disclosure behaviour. Thus, it was hypothesized that:

H3: There is a significant relationship between privacy awareness and actual disclosure behaviour

A study by Smith et al. (2011) showed that some society has a different concept of privacy. People tend to disclose their personal data and information because of the trust they put on the technology's usage respectively. For example, Italian societies have lower concerns about their privacy and less to do a disclosing. There is another study by Dinev et al. (2006)

also found a significant relationship between cultural differences and actual disclosure behaviour. Thus, it was hypothesized that:

H4: There is a significant relationship between cultural differences and actual disclosure behaviour

A study by Culnan and Armstrong (1999) stated that demographics such as genders have a significant relationship with actual disclosure behaviour. Women are more likely to reveal and disclose their personal data and information compared to men. This is also supported by another study by Gerber, Gerber, and Volkamer (2018). Thus, it was hypothesized that:

H5: There is a significant relationship between demographic and actual disclosure behaviour

Prior studies have examined the significant relationship between perceived ease of use and actual (Lwin & Williams, 2003). Consumers would disclose their personal data and information since the usage of the technology itself is easy and convenience at its best. This is also supported by another study by H. Xu and Gupta (2009) that consumers would tend to disclose their information because they are attracted towards the usage of particular technologies that is easy without involving complicated methods of usage. Thus, it was hypothesized that:

H6: There is a significant relationship between perceived ease of use and actual disclosure behaviour

The trust their gain from using the self-service technologies tends to get more people to disclose their personal data and information. Since it is free of the effort of using the SST, the actual disclosure behaviour can be determined. This is also supported by Kokkinou and Cranage's (2015) study that the consumers do not need to involve with complicated methods

in using technology such as SST since its usage is known as the free of effort that eventually will lead them to disclose their information. Thus, it was hypothesized that:

H7: There is a significant relationship between perceived usefulness and actual disclosure behaviour

People that tend to concern higher about their risk tend to not disclose their personal disclosure information since they have higher concerns of privacy. People would consider benefits and risk before disclosing their information (Smith et al., 2011). Some people would rather not to disclose their information because they perceived risk as their main concerns. This is also supported by Xu, Michael, and Chen (2013) that privacy concern has a significant relationship with the actual disclosure behaviour. Thus, it was hypothesized that:

H8: There is a significant relationship between privacy concern and actual disclosure behaviour

Personality differences have been found to have a significant relationship with privacy concern (Smith et al., 2011). Another study by Osatuyi (2015) found that the big five personalities also have a significant relationship with privacy concern. Another study by Jin (2016) also has found a significant relationship with privacy concern. These are more likely due to an individual's preferences and personality towards their perception of privacy concern. Thus, it was hypothesized that:

H9: There is a significant relationship between personality differences and privacy concern

This is supported by Kehr, Wentzel, and Mayer (2013) that the consumers' privacy experiences have a significant relationship with privacy concern. Another study by Smith et al. (2011) supported this significant

relationship stating that consumers have the experience about their information privacy and aware that privacy concerns are issues that need to be taken care of before disclosing any personal data and information. Literally, consumers would experience different things, in particular, privacy issues that would raise their concern in using particular technologies. Thus, it was hypothesized that:

H10: There is a significant relationship between privacy experiences and privacy concern

Dinev et al. (2006) found that privacy awareness is correlated with privacy concern. The individuals that have a higher concern on social awareness are more likely aware of privacy issues developments and privacy policies. This is also supported by Offor (2016) that the more people aware of their surroundings and environment the more they alert and concern their privacy to prevent any misconduct and misuse information. Thus, it was hypothesized that:

H11: There is a significant relationship between privacy awareness and privacy concern

The study found that cultural differences are correlated with privacy concerns. For example, Italian societies have different perspectives of privacy concept. They have lower privacy concerns as well as have a higher perceived risk (Dinev & Hart, 2006). This is also supported by another study Dinev (2014) that cultural differences are correlated with privacy concern. Societies in Europe would probably have different concerns about their privacy compared to the societies in Asia.

H12: There is a significant relationship between cultural differences and privacy concern

Previous studies have found that demographic differences can affect privacy concern (Culnan & Armstrong, 1999). For example, women have been found to be more concerned about their privacy compared than men. This is supported by Boje and Version (2009) that different genders have different perceived on their privacy concerns. Thus, it was hypothesized that:

H13: There is a significant relationship between demographic and privacy concern

This relationship is supported by the previous study by (Han Li et al., 2011). Perceived ease of use has a significant relationship with privacy concern. Another study by Lwin and Williams (2003)has also supported this relationship. There is also another study that supports this relationship by Xu and Gupta (2009). Literally, the higher the advancement of the technologies, the higher consumers perceived their privacy concern. Consumers would perceive that the convenience of the technology would provide higher and safer privacy rather than using traditional methods previously. Thus, it was hypothesized that:

H14: There is a significant relationship between perceived ease of use and privacy concern

The study showed that perceived usefulness has a significant impact on privacy concern. Since the usage of self-service technologies is useful without so many efforts to be done, it makes the consumers believe and trust in the technology itself. The consumers believe that the technology would serve their privacy concerns well and trust the usage respectively (Iyamu & Ngqame, 2017). Thus, it was hypothesized that:

H15: There is a significant relationship between perceived usefulness and privacy concern

Significance of the Study

This study offers some important insights for both academics and practitioners to understand the impact of self-service technology to consumers' privacy information. From the theoretical perspectives, this study will contribute to the concept and principles of hospitality literature by providing empirical evidence to support the impact of self-service technology on consumers' privacy information in the airlines industry of Malaysia.

Nonetheless, this study would be useful for both academics and practitioners in the following ways. The findings of the study may provide guidelines to airlines industry in Malaysia towards employing the impact of self-service technology's use in their organisations. The findings of the study may provide guidelines to airlines industry in Malaysia towards the consumers' privacy concern in their organisations (Masran, 2019).

CONCLUSION

Privacy issues in the usage of SST are becoming increasingly prevalent. This study is one of the first attempts to develop a holistic view to understand and examine on these consumers' actual disclosure behaviour by extending the theory of privacy calculus to the context of SST in the airlines industry. Based on the literature review, an integrated conceptual framework is developed to consolidate the theories for a better understanding of consumers' actual disclosure behaviour of their privacy concern in using SST. Two interrelated trade-offs in privacy decision are focused on the privacy calculus model

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