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FACTORS INFLUENCING ADOPTION OF HALAL APP IN A SMALL ISLAND DEVELOPING STATE (SIDS): THE CASE OF MAURITIUS. A CONCEPTUAL FRAMEWORK.

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ABSTRACT

Smartphone applications or Apps are a rage nowadays given the unrivalled degree of informativeness, convenience, connectivity and networking opportunities offered. They have been developed to address the needs of consumers in various sectors namely, banking, shopping, travel, fitness and health, food delivery, mapping, news and education, just to name a few. At the same time, the rising demand for halal consumption fuelled by the boom in the global halal industry and ethical consumerism, consumers of halal are in dire need of a one-stop medium where information about halal products is available within reach so as to safely maintain their religious commitments and dieting requirements. Despite the growing body of literature on App-centred research, scholarly attention towards halal-based Apps remains critically scant. Hence, the present research is one of the very first to hypothesize a conceptual framework which can be used to study the predominant factors which would motivate users to adopt halal-based Apps. At the same time, the objective is to enlarge the academic works on Apps. This study uses library search as a methodological approach where numerous past conceptual models have been carefully perused, and eventually an adapted framework is proposed to suit the halal context. This research has taken the case of a halal-based App, named HalaalMoris in a Small Island Developing State (SIDS); Mauritius. The model can be used by halal practitioners, halal-App developers, researchers and other stakeholders within the halal market worldwide, for more in-depth quantitative testing.

Keywords: Halal industry, Mobile Apps, Adoption, Technology Acceptance Model (TAM), Mauritius

INTRODUCTION

HalaalMoris is a smart mobile phone application developed by the Mauritius Islamic Chamber of Commerce and Industry (ICCI) and launched in 2020, which allows consumers to check the halal status of products through barcode scanning, search for halal certified fast-food outlets, restaurants, bakeries and poultries, consult the list for E-Numbers, and refer to the various categories of halal products notably; food, pharmaceuticals and personal care. The initiative was welcomed with a wave of acclaim and commendation and hopes to promote greater halal awareness, reducing halal logo tampering and safeguarding the interests of halal consumers in making safer purchase decisions. The smartphone application is dedicated to all consumers of halal, but the majority of target users remain predominantly Muslims. Such a purposeful technological innovation in a small Island country as Mauritius, bears testimony to the fact the global halal industry is gaining a solid foothold across all frontiers. In fact, as averred by Nawawi et al., (2019), “halal” is no more a word restricted to Muslim countries vernacular but has reached the status of a global phenomenon even in non-Muslim majority countries. With the unprecedented rise and market value of the global halal industry, tailgated by the effects of globalisation, consumers at the end of the halal supply chain are usually left to make uncertain and confusing purchase decisions.

Hence, the consumers need the information for them to be able to identify whether the products that they consume are halal or otherwise (Samsi et al., 2011). More so, Rahim & Shahwan (2013) point out that the updates from the halal authorities are also important so that consumers can verify halal status every time doubt or hesitation crop in during the moment of purchase. Consequently, the technologies of today's times have been put to use for the benefit of halal consumers and the stakeholders of the halal industry, leading to the spread of multi-purpose halal-based mobile apps. “App,” an abbreviation of the term “mobile application,” refers to software applications designed to run on smartphones, tablet computers, and other personal mobile devices (Tang, 2016). To that effect, Amir Heidi et al., (2016) categorise the types of halal Apps as follows:

Table 1
Types of Halal-based Apps in Google Play and Apps Store

Types	Description
Halal food geo-locator	Using GPS tracking to locate halal food products & services providers.
Halal scanner	Helps to scan halal products, barcode/ QR code/ labels and match with the online halal database.
Halal Directories	Used to check halal directories to find halal certificates and certified premises.
Halal Recipes	To search for halal food preparations and recipes.

Source: Amir Heidi et al. (2016)

Identifying the Research Gap and Setting the Objectives.

Research on various aspects of halal has over the years gained widespread scholarly interest. This escalating academic attention is strongly testified by the structured literature review of Secinaro and Calandra (2020) who used robust bibliometric analysis to identify the focal research streams in halal literature based on a sample of 221 scholarly journal articles between 1997 and 2020. Their analysis unveiled five main research areas namely: “halal food and the role of certifications”, “halal food and awareness”, “halal food production and quality”, “halal food in tourism management” and “halal food and the supply chain.” According to them, studies within the category “halal food and awareness”, deal primarily with Muslim consumers purchase intentions, factors affecting perceptions and behaviours towards halal products and the use of marketing tools to raise halal awareness amongst consumers.

In fact, the Theory of Planned Behaviour (TPB) is an established model used by researchers within the halal industry to investigate the factors influencing purchasing decisions amongst Muslims and even non-Muslims for halal products, as shown in Table 2 below:

Table 2

Studies Applying the Theory of Planned Behaviour Within the Halal Context.

Author (year)	Paper title
Haro, (2016)	Understanding TPB model, availability, and information on consumer purchase intention for halal food.
Khibran, (2020)	An investigation toward purchase intention of halal beef from traditional market: A TPB perspective.
Suleman et al., (2021)	Religiosity, halal food consumption, and physical well-being: An extension of the TPB.
Aziz & Vui, (2012)	The role of halal awareness and halal certification in influencing non-muslims' purchase intention.
Damit et al., (2019)	What makes a non-Muslim purchase halal food in a Muslim country? An application of theory of planned behaviour.

Source: Author's compilation

Meanwhile, with the growing popularity of smartphone applications or Apps, their potential contribution to electronic marketing is seriously being recognised by marketers. As such, research on Apps within the academic community is supported by a burgeoning body of published articles across a wide variety of sectors, as depicted below in Table 3.

Table 3

Studies Focusing on Apps.

Author (year)	Paper title	Sector
Lee et al., (2019).	Determinants of continuous intention on food delivery apps: extending UTAUT2 with information quality.	Food delivery
Lu et al, (2015).	Goodbye maps, hello apps? Exploring the influential determinants of travel app adoption.	Travel

Al-Tarawneh, (2017).	Modelling the usage of mobile banking apps from the perspective of bank customers in Jordan.	Banking
Vahdat et al., (2020)	Would you like to shop via mobile app technology? The technology acceptance model, social factors and purchase intention.	Commerce (Shopping)
Yang, & Koenigstorfer, (2020) and Cho et al., (2014)	Determinants of physical activity maintenance during the Covid-19 pandemic: a focus on fitness apps. Determinants of Adoption of Smartphone Health Apps among College Students.	Fitness and health
Siyal et al., (2020)	Structural equation modeling and artificial neural networks approach to predict continued use of mobile taxi booking apps: the mediating role of hedonic motivation.	Transport (Taxi)

Source: (Author’s compilation).

Therefore, as it can be seen, there is a valuable research gap which deserves to be explored since the TPB has been predominantly used for analysing perceptions towards ‘food’ items as illustrated in Table 2. Thus, opportunities to alternatively consider the Technology Acceptance Model (TAM) for technological products in the halal context is further fortified. To this effect, Amir Heidi et al., (2016) sent a strong intent for increased future research on halal-based Apps.

Moreover, from the author’s critical perspective, awareness and adoption of HalaalMoris amongst the Mauritian Muslim community remain noticeably low. Besides, the foremost objective of halal-based Apps such as the HalaalMoris App, is to promote halal consumerism and more purchase of halal products. That is why, investigating factors which could possibly increase their adoption is essential in inducing further safe and informed halal purchases. The above concerns, therefore, reinforces the legitimate need for increased investigation in that specific domain of new technologies with an Islamic ethos, more so contextualized in a Small Island Developing State (SIDS). Based on the above reasoning, the following research gap has been identified:

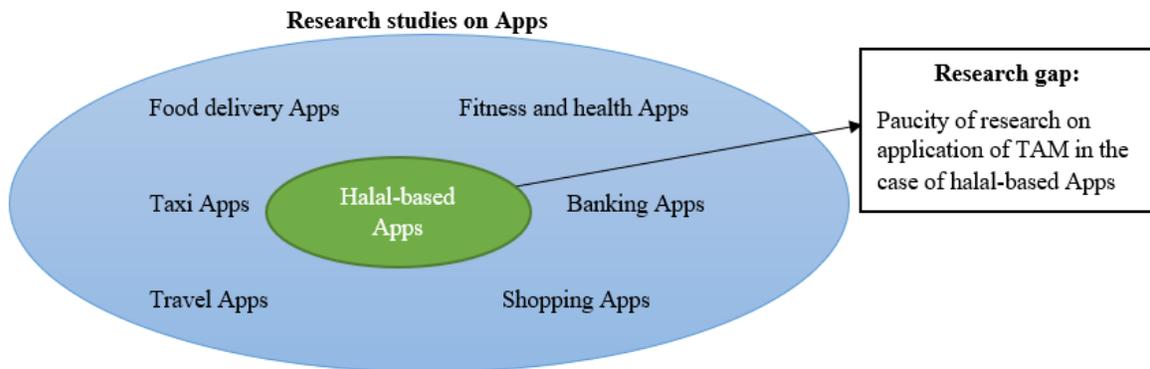


Figure 1. Identifying the research gap

Source: Author’s own illustration.

Therefore, the present study has the following:

1. To address the gap in the literature on halal-based Apps, especially by applying the Technology Acceptance Model (TAM).
2. To develop a conceptual framework to help understand the factors which would influence Muslims towards the adoption of HalaalMoris.
3. To develop a conceptual framework which can also help to test whether HalaalMoris would eventually lead to more halal purchase.

LITERATURE REVIEW

Islam and the Concept of Halal and Haram.

Indeed, I am Allah. There is no deity except Me, so worship Me and establish prayer for My remembrance (Chapter 20, verse 14, The Holy Quran). Islam is a monotheist religion which is built upon the ethos and fundamental principle that Allah (God) is only one and His right upon his creatures is that He should be worshiped without any form of “shirk”; polytheism. Islam enjoins Muslims to direct all their sorrows, grievances and thanks to Allah only, without ascribing any partners with Him.

Halal and Haram emanate from the preaching of Islam and the legal corpus which governs the daily lives of Muslims, known as the Shariah. halal and Haram represent Islamic law based on the teachings of The Holy Quran and Sunnah (the prophet’s way of life) and regulate every aspect of a Muslim’s life (Islam & Chandrasekaran, 2013). halal is usually translated as permissible and lawful, while its antonym is Haram, which is conversely understood as inadmissible and unlawful. As such, Muslims take it as obligatory to refrain from Haram actions and activities or anything leading to these, in order to protect their spiritual and religious commitment and cleanliness.

The Global Halal Industry: Opportunities Unearthed.

According to Reuters & Standard, (2019), the Islamic Economy is one of the foremost and highly lucrative markets in the world economy. According to the State of the Global Islamic Economy Report 2019/2020, US\$2.2 trillion, was the total spend of Muslim consumers for the year 2018 on a global scale ranging from food and pharmaceuticals and is expected to escalate to reach a whopping figure of US\$3.2 trillion by 2024, accompanied by consistent annual growth of 5.2%. With the expansion of the the Muslim demography across all borders, there are mounting pressures to respond to the phenomenon of ethical consumerism and faith-based diet. Consequently, multinational corporates are revamping their product propositions and marketing agenda. In fact, the lucrative global halal market contains tremendous opportunities, which have prompted around \$1.2 billion in investments for the year 2018/2019 with a 399% year on year growth (Reuters & Standard, 2019). Azam and Abdullah, (2020) make it clear that the global halal industry is no more restricted to food and consumables only, but rather encompasses logistics and supply chains, packaging, marketing, manufacturing, pharmaceuticals and health care products, branding, banking and finance. In fact, Laluddin et al., (2019) point out that with the momentum that the halal industry is experiencing on a global scale, it is becoming legitimate to broaden the scope of products that can be considered as halal. The widespread growth of the halal industry to such a global scale at an exponential rate is mainly attributed to numerous factors as pointed out by the State of Global Islamic Economy Report 2020/2021, emanating from both the demand and supply sides of the halal market, as illustrated in the following Table 4 and Table 5.

Table 4
Demand-side Drivers to the Global Halal Industry.

Demand-side Drivers	Impact
1. A large, fast-growing and young Muslim population.	<i>“With a Muslim population of over 2 billion, market for halal food and products occupies an important place in global trade” (Kabir, 2014).</i>
2. Islamic values driving lifestyle practices.	<i>“Religion is one of the potential individual factors that will shape consumption decisions, especially among the Muslims” (Rezai et al., 2012). Hence, Muslims would require products and services which meet their religious requirements.</i>
3. Digital connectivity	<i>“Today's digital economy gives Islamic economy opportunities to be able to take full advantage, especially in the area of Islamic banking which is starting to show its stretch” (Maharani & Ulum, 2019).</i>
4. Growth of ethical consumption	<i>“The halal market is non-exclusive to Muslims and has gained increasing acceptance among non-Muslim consumers who associate halal with ethical consumerism” (Mohamed Elias et al., 2017).</i>

Source: State of Global Islamic Economy Report 2020/2021 and author’s compilation for impacts.

Table 5
Supply-side Drivers to the Global Halal Industry.

Supply-side Drivers	Impact
1. Government regulations	<i>“Government involvement has raised awareness of specific halal product requirements and has led to increased compliance, leading to the growth of various sectors of the Islamic economy” (Dinar Standard, 2020).</i>
2. Intra-OIC trade growth	<i>“The establishment of various trade-agreements among the 57 mostly Muslim-majority member countries OIC countries is expected to increase the growth of global halal market” (Muhamad et al., 2017).</i>
3. Participation of Global top brands	<i>“The halal market offers many opportunities for firms with global reach and ambition, particularly multinational corporations with significant resources and marketing expertise” (Izberk-Bilgin & Nakata, 2016).</i>
4. National Islamic economy strategies	<i>“Searching for new economic growth areas, many countries, both Muslim-majority and otherwise, are now seriously focusing on the Islamic economy for economic diversification” (Dinar Standard, 2020).</i>

Source: State of Global Islamic Economy Report 2020/2021 and author’s compilation for impacts

Safeguarding halal Integrity through halal Regulatory Bodies.

Halal Certifying Bodies (HCBs) have a protagonist role in upholding halal awareness, integrity and maintaining trust in halal certified products, by publicising and disseminating reliable, easy-to-access and up-to-date information on the affairs of the halal industry. Moreover, Verbeke et al., (2013) clarifies that Halal possess credence attributes which essentially are intangible and invisible characteristics which are difficult to capture by consumers even after consuming the good. That is, halal and non-halal foods would bear no difference at all neither in taste, flavour or any other tangible or physical aspects, hence consumers have no way to attest to the halalness of a product, but to rely on the information provided by the authorised HCBs. The most common media of communication used by HCBs is their websites or Facebook page, where updates are provided on products, ingredients, halal certified businesses amongst others, in view to enhance halal awareness, safeguard consumer interests and prevent fraudulent practices such as using fake or unauthorised halal logos and misleading the public.

This very halal integrity is maintained and preserved by abiding to the protocols and standards set by local or international HCBs. The definitive and most recognised mark of such conformance is the halal certificate or logo, which affirms that the product has been sourced, manufactured, packaged, transported, and delivered in ways which satisfy the rulings of Islam. The halal logo is an authoritative, independent, and reliable testimony to support halal food claims (Hanzaee & Ramezani, 2011). As such, consumers of halal products feel assured and confident that their religious and consumption needs are not being compromised. halal integrity offers reassurance to those of Muslim faith and creates further demand for quality halal products (Zulfakar et al., 2012), and the halal logo remains an unflinching testimony to the halalness of a product.

Considering the Jamiat-UI-Ulama of Mauritius (JUM) which is one of the three HCBs of Mauritius, the primary channel is their e-portal where users have access to a plethora of Islamic articles in English, French or Creole (Mauritian native language), Q & A on halal and Haram consumables with over 15 categories, medical products, personal care, toiletries, list of halal certified fast food outlets, procedures for application for halal certificate, latest halal news and various publications.



Figure 2. *Worldwide halal logos in used*

Source: Hashim (2010)

Mobile Phone Halal Applications.

Mobile phone halal applications are categorized as M-Learning (Mobile-Learning) tools which allows consumers to check for the halal status of products via wireless networks, anytime and anywhere they may be, and thus with information being mobile and accessible on demand. In fact, as averred by Amir Heidi et al., (2016) mobile apps are one most effective channels of communication used by businesses to bridge the gap between them and their customers. As emphasized by Kartiwi et al., (2018), Muslims today are faced with tremendous dilemmas in food choices since more and more manufactured foods are imported from non-Muslim countries, and thus identification of halal products is a challenging issue especially for the Muslim community (Arshad et al., 2017). As such, with the rising needs to address halal consumers' concerns, modern sophistication of IT tools has promulgated the development of smart mobile phone applications (Apps) which can check for the halal status of a product based on a database.

In fact, Arshad et al., (2017), in their research paper: "An Interactive Application for halal Products Identification based on Augmented Reality", propose the conception of a new mobile application to verify the halal status of products, with the help of AR (Augmented Reality) for the Malaysian halal market. Likewise, Lam et al., (2017) have conceptualised a framework for an interactive halal application to check the halalness of a product, by using Optical Character Recognition (OCR) and Augmented Reality (AR), by scanning its E-code label or brand. A similar mobile phone application was proposed by Kartiwi et al., 2018, known as halalDish. The HalaalMoris application is the brainchild of the Mauritius Islamic Chamber Islamic Chamber of Commerce and Industry (ICCI) and contains a repertoire of halal certified products based on the data base of the three local HCBs (Jumma Masjid, halal Research Committee and Jamiat UI Ulama of Mauritius) and from international halal agencies also, listed in categories; food, personal care, pharmaceutical, bakery, poultry and restaurants. Users of the application can equally search for E-Numbers, scan product barcodes and QR-codes of outlets to verify their halal status and also initiate investigations.

Electronic-marketing and Mobile Apps.

Today, mobile phones and other smart electronic gadgets play an active role in the daily lives of people everywhere and anytime across the globe. It is a device many consumers cannot seem to do without; they always have it on and check it almost everywhere they go (Jham, 2018). In fact, the ubiquity of mobile phones has brought novel dimensions to mobile, electronic, and online marketing. This type of marketing aims at delivering information to promote for a product, idea, or service to customers by sending them to their mobile phones (Al-Hazmi, 2021). Developments in mobile applications (apps) have created a new realm of possibilities in mobile relationship marketing (Watson et al., 2013).

Smartphone users are increasingly shifting to using apps as "gateways" to Internet services rather than traditional web browser (Xu et al., 2011) since these apps are considered as a pool of easy access information within a few "touches", eventually assisting users in their routine activities while improving their lifestyles, given the advantages of portability, and saving of time. Abundant research has examined apps as a promotional tool in mobile advertising or mobile marketing (Tang, 2016). For instance, Al-Hazmi (2021), while studying the use of apps in tourism marketing in Saudi Arabia concluded that: "the majority of the study sample prefers the tourism apps available on smartphones to obtain information about the tourist trip and complete the purchase process through these applications." Similarly, Vahdat et al., (2020) have noted that users who perceived apps positively are more likely to make an in-app purchase eventually. As such the marketing potential of smartphone apps is considerable.

CONCEPTUAL FRAMEWORK

The research framework for the present study is adapted from the conceptual model as proposed by Malik et al., (2017) in their study: “Factors influencing consumers’ attitude towards adoption and continuous use of mobile applications: a conceptual model”, which is specifically for understanding the influences towards the usage of smartphone applications and is noted for its extension beyond the conventional Technology Acceptance Model (TAM). The proposed model considers five factors from that of Malik et al., (2017); Perceived Ease of Use, Perceived Usefulness, Social Influence, Trust and Aesthetics, while two are presently added namely, Innovativeness and Religiosity, for the purposes of this study. To address the third objective of the current study; to propose a model where there can be a link between adopting the halal-based App on halal purchase intention, the research of Vahdat et al., (2020) is taken as inspiration.

Theory Building and Propositions Formulation.

The technology acceptance factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)

With the unprecedented growth in new technologies, online platforms and wireless connectivity, there has been a growing interest in scholastic research to identify the factors which may or may not motivate users to adopt these ubiquitous new tech-gadgets. Numerous theories have been conceptualised to understand those factors but by far, the most widely used model is the Technology Acceptance Model (TAM) proposed by Davis (1989). The model consists of two elements; Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) which directly impact the rate of adoption.

Effect of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) on adoption of HalaalMoris

PEOU is referred as to the concerted efforts both mental and physical exerted in understanding and using the new technology, while PU is defined as the degree to which the user believes that using the new system would enhance his/her project performance (Davis, 1989). In fact, the TAM predicts that a high PU and PEOU will eventually lead to increased positive attitudes, and eventually higher rates of adoption of the new technologies, in this case the HalaalMoris App. Attitude is defined as the degree to which a user is interested in using the system, and attitude toward the system determines behavioral intentions, which, in turn, lead to actual system usage (Cheung & Vogel, 2013).

In the context of halal consumption, international trade has been a boon in the economic sense, yet somewhat of a bane for halal consumers given the complexity of ingredients, sources of origin, logo counterfeiting, lack of understanding of terminologies and poor knowledge of halal standards, is a real daunting challenge for authenticating whether a product is halal or not. Therefore, Muslims and consumers of halal are in dire need of easy to understand and highly accessible up to date data which can allow them to verify the halal status of what they purchase, at all times, especially when making the purchasing decision.

Hence, mobile technologies in the form a smart halal status checker, such as HalaalMoris, which is easy to manipulate and fulfils the need of Muslims and halal consumers, are expected to be major factors in influencing intentions to adopt the new application. Therefore, the following hypotheses are proposed:

Proposition 1: Perceived Ease of Use (PEOU) will positively influence the intentions to use the HalaalMoris App.

Proposition 2: Perceived Usefulness (PU) will positively influence the intentions to use the HalaalMoris App.

Social Factors

Internet users, through E-WOM (Electronic Word of Mouth), are heavily and easily influenced by what the societal trends tend to promote and equally by the recommendations, advice and under the influence of their peers or close family and friends. Social factors largely contribute in shaping the behaviour of people towards new products, and eventually become a deciding factor in adoption and usage.

Effect of Social Influence (SI) on adoption of HalaalMoris App.

Social influence captures the ways in which people affect each other's' opinions, emotions, and behaviors (Zhang et al., 2013). As put by Filieri & McLeay, (2013) social media, blogs and online reviews are highly popular and globalized platforms which allow customers to share information on products, services, brands and also their opinions and knowledge. Hence, the more a novelty fairs well in the general opinions of the people, especially when considering the reviews and recommendations of one's peers, the more likely one will consider acceptance and usage. The HalaalMoris App clearly touches a vital part of Muslim consumers' life; their religious diet. In Islamic law, Muslims stress on the importance of the permissibility of sources of food to be consumed (Fadzlillah et al., 2011), and thus the judgement of others and relatives or friends is deemed to matter even more.

Consequently, the higher are the positive reviews and attitudes towards the application in the Muslim community, the greater is expected to be the social and peer influence, since the Muslim consumer feels more assured that the application will safeguard his religious diet from being tampered. More so, the social and peer effects are expected to be stronger given the deep concept of Ummah (community) in Islam, where brotherhood, fraternity and unity are poignant tenets. Leveraging on the above discussion, the following hypothesis is made:

Proposition 3: Social Influence (SI) will positively influence the intentions to use the HalaalMoris App.

Effect of trust on adoption of HalaalMoris App

The effect of trust on the adoption of new technologies, online tools and e-services is well documented in academic literature. For instance, Alalwan et al., (2018) in their study which examined the factors influencing the adoption of mobile internet Saudi Arabia, considered trust as a persuading element and concluded that trust played a determining role in influencing the usefulness of mobile internet. In the same way, Kaur & Rampersad, (2018), found that trust, as expected, is a critical factor in influencing the intentions to use driverless cars. Likewise, Nayanajith et al., (2019) concluded that trust positively influences the adoption of computer aided learning in the Sri Lankan International schools. As such, the higher the level of trust users depict towards the new technology, in this case the HalaalMoris App, the greater is its influence in persuading Muslim consumers to use the application.

In fact, in the case of halal food, Muslims are called upon to regulate their diet according to Islamic teachings, and thus if they perceive that the HalaalMoris App can help them in preserving their consumption requirements, the level of trust is expected to rise and hence engender adoption. Consequently, the following hypothesis is made:

Proposition 4: Trust will positively influence the intentions to use the HalaalMoris App.

Effect of Perceived Innovativeness (PI) on HalaalMoris App adoption.

Perceived innovativeness (PI) is the degree or extent to which a consumer of a product view that the latter is novel, unique and futuristic, and is known to directly influence the adoption behaviour, as propounded by the Innovation Diffusion Theory (Rogers, 1995). Mobile phone technologies in the form of apps (m-internet technology) have revolutionised the way consumers nowadays can engage in shopping and the higher the extent of convenience, ease of use, usefulness, merits of saving time, portability and information within reach, the higher the perceived innovativeness which itself promotes increased adoption of such new technologies.

For Natarajan, (2017), mobile phones are such convenient and ergonomically friendly gadgets allowing customers to engage in information sharing, verification and processing of transactions almost anywhere and everywhere. More so, the global halal industry is seen as fertile grounds for innovation in various aspects, notably the case of halal-checker apps. At the same time, HalaalMoris being locally developed in a small island like Mauritius, further enhances the innovative appeal of the latter and creates interest, attraction and curiosity amongst Mauritian Muslims especially since it meets their religious demands. Subsequently, the following hypothesis is considered:

Proposition 5: Perceived Innovativeness (PI) will positively influence the intentions to use the HalaalMoris App.

Effect of religiosity on adoption of HalaalMoris App.

People consume food not only to satisfy hunger but also for cultural, religious and social reasons (Adekunle & Filson, 2020), and Islam fundamentally regulates the permissibility and impermissibility of what Muslims consume. Therefore, unarguably the matter of food for Muslims is a religious affair. The concept of Islam in food is similar in essence as other concepts of Islam, namely the concept that maintains the safety of the soul, body, and mind (Farid & Basri, 2020).

Consequently, Muslims consider the subject of food and consumption highly serious. Undoubtedly, the HalaalMoris App is peculiar and distinct in the sense that it is connected to religious commitments and sentiments, and thus it can be argued that religiosity can be a pertinent reason why Muslims and halal consumers would seek to adopt such a new technology. In fact, Muslichah & Sanusi (2020) found that the attitudes towards Islamic banking products was positively influenced by religiosity. Likewise, Suleman et al., (2021) showed in their study that religiosity has a significant influence on behaviour towards buying halal food. As such, religion is undoubtedly a vital consideration when choosing Islamic products as averred by Yusoff & Kamdari (2014), and the HalaalMoris App is essentially an Islamic product. Subsequently, a hypothesis can be presented in the form below:

Proposition 6: Religiosity will positively influence the intentions to use the HalaalMoris App.

Effect of design aesthetics on adoption of HalaalMoris App.

Aesthetics can be narrowly defined as the theory of beauty, or more broadly, the philosophy of art (Le Hoang, 2020). Aesthetics is a multifaceted concept and contains aspects such as colour, design, overall appearance, touch/material, beauty, and style (Bell et al. 1991; Cox and Cox 2002; Swilley 2012; Toufani et al. 2017 and Wehmeyer, 2008). Aesthetically pleasing designs concoct assuagement in the users and makes customers care more about the product and becomes loyal to the brand (Padhi, 2018), thereby accentuating user satisfaction which directly impacts the intention to adopt a particular technological product namely mobile phone applications, in this case the HalaalMoris App, especially in today's era of sophistication and digitalization. A recent study by Muller & de Klerk, (2020) showed that design aesthetics and brand name have a significant impact on the intention of consumers to use wearable activity trackers (fitness trackers) among Generation Y students in South Africa. Similarly, the influence of aesthetics on purchase intention of smartphones was found to significant in the study of Ayodele and Ifeanyichukwu, (2016).

HalaalMoris is essentially a utilitarian App, where consumers use it for information-seeking purposes to make their halal purchases. As put by Tang, (2016), aesthetic appeal is highly influential amongst users of Apps which are informative by nature, since friendly user interface is critical in facilitating navigation, while searching for much needed information. Hence, it can be inferred that, users of HalaalMoris will greatly consider the design aesthetics of the App if they want to have access to information in an appealing and convenient manner.

Proposition 7: Design aesthetics will positively influence the intentions to use the HalaalMoris App.

Effect of adoption of HalaalMoris App on halal Purchase Intentions.

The literature accounts for numerous studies carried to understand the determinants of halal purchase intention among consumers of halal products. Yunus et al., (2014) found that halal awareness and product ingredients have positive relationships with halal purchase intention, and further argue that it is important for Muslims should endeavour to understand what halal is really about, instead of being satisfied with the basic knowledge of wine or pork, as haraam. Consumers of halal products are dedicated in enhancing their halal awareness capacity so as to make informed halal purchasing decisions, avoiding ambiguous consumables and promote rewarding consumer experiences. Likewise, unfamiliar ingredients tend to be perceived as suspicious in term of its "halalness" (Yunus et al., 2014) and therefore consumers will prefer to avoid purchasing such products with doubtful colourings, additives, emulsifiers and other unheard terminologies. Similarly, the element of trust, which is the very essence of halal is noted to have positive and significant relationships with consumer attitude and purchase intention among Muslim consumers as was shown by Sosianika & Amalia, (2020). In effect, by adopting and using the HalaalMoris App, Muslims and halal consumers can rely on trustworthy and authoritative information to make their halal purchases, and thus develop positive attitudes to this new technology. Subsequently, the intention to buy halal and make repeated purchases safely without prejudice is maximized. The following hypothesis is then made:

Proposition 8: HalaalMoris App adoption will positively influence the halal purchase intentions.

In accordance to the formulated propositions above and the relevant discussions, the conceptual framework is established. The model is divided into two parts with two dependent variables, namely part A which consists of factors which are intended to predict HalaalMoris App adoption largely borrowed from Malik et al., (2017), while part B aims at assessing the impact the subsequent usage of the application on future intentions to purchase halal products, inspired from Vahdat et al., (2020) while assessing the impact of attitude towards mobile shopping Apps on intention to purchase products on the Apps.

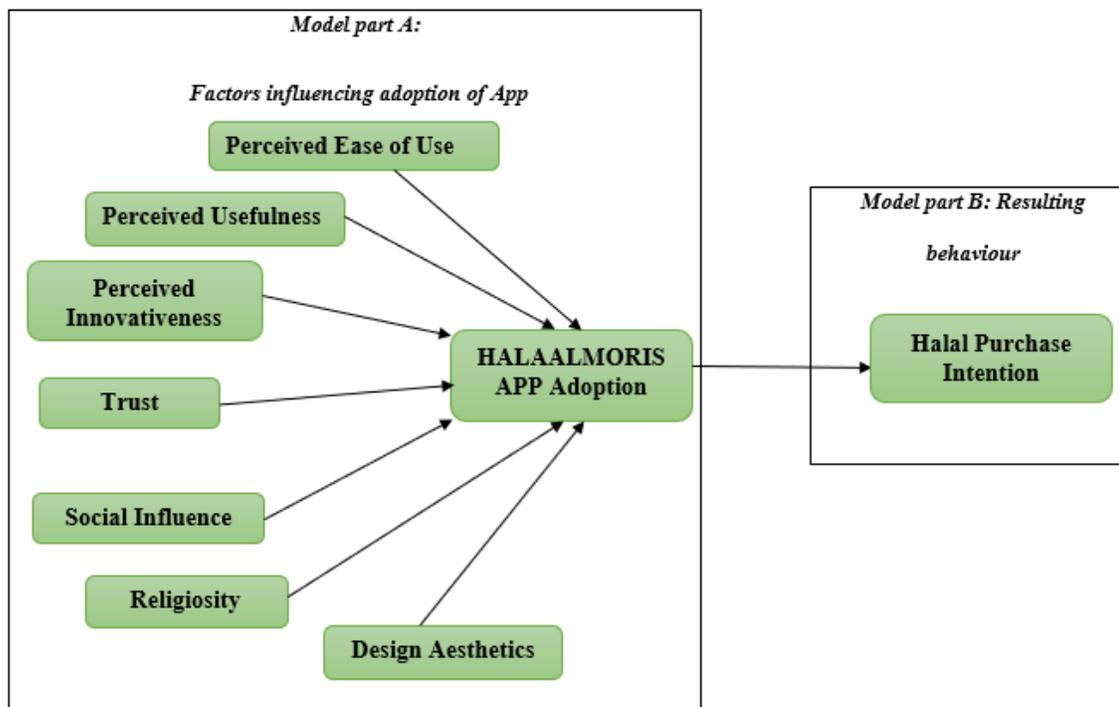


Figure 3. The proposed conceptual framework.

The variables for the conceptual model have been taken from past studies as shown below in Table 6 and are adapted to the halal context. Also, the same conceptual framework can be used for two different population targets, either present users or non-users of the application. In case users of the application are taken as samples, then results would conclude which factors have influenced users to adopt the latter the most. In contrast, in case non-users have been considered, then results would demonstrate which factors would most likely influence them to eventually adopt the application. In either scenario, the statements would be slightly formulated differently, as depicted in Table 7.

Table 6
Sources of Variables

Variables	Number of items	Sources
Perceived Ease of Use	4	Kucukusta et al. (2015)
Perceived Usefulness	4	Kucukusta et al. (2015)
Social Influence	3	Venkatesh et al., (2003)

Trust	3	Zarmpou et al., 2012
Perceived Innovativeness	3	Fu & Elliot, (2013)
Religiosity	3	Basri & Kurniawati (2019)
Design aesthetics	4	Cyr et al., (2004); Cyr et al; (2005) and Van der Heijden (2003)
Attitude towards mobile app use	5	Lee et al., (2015)
Purchase intention	4	Erkan and Evans (2016).

Source: (Author's compilation)

Table 7
Research Statements

Variables	Statements
1. Perceived Usefulness	<ul style="list-style-type: none"> • I think using this App to shop would make halal shopping easier. • I think using this App to shop would be useful for my shopping of halal products. • I think using this App to shop would help me to shop halal products more quickly. • I suppose using this App to shop would help me to shop halal products more efficiently.
2. Perceived Ease of use	<ul style="list-style-type: none"> • I think using this App to shop halal products would be easy for me to learn. • I think using this App to shop halal products would not require much mental effort. • I think using this App to shop halal products would be simple to do. • I suppose using this App to shop halal products would be easy following the instructions of the application.
3. Social Influence	<ul style="list-style-type: none"> • People who are important to me would appreciate that I should use this App to shop halal products. • People who influence my behavior would prefer that I should use this App to shop halal products. • People whose opinions I value would prefer that I should use this App to shop halal products.
4. Trust	<ul style="list-style-type: none"> • I think that I would trust this App in shopping halal products. • I think that shopping halal products with this App would be trustworthy. • I think that I would strictly follow information on halal products given in this App.
5. Religiosity	<ul style="list-style-type: none"> • I think that I would use this App because of my religious beliefs. • I think that I would use this App to follow religious principles of consuming halal products. • I think that I would use this App to avoid Haraam (impermissible) and Makruh (disliked) products.

6. Perceived Innovativeness	<ul style="list-style-type: none"> • This App seems unique. • This App seems new. • This app seems creative.
7. Design Aesthetics	<ul style="list-style-type: none"> • The screen design (i.e., colors, boxes, menus, etc.) is attractive. • This App looks professionally designed. • The graphics are meaningful. • The overall look and feel of the site are visually appealing.
8. App Adoption	<ul style="list-style-type: none"> • I intend to adopt this App in the future. • I predict that I will frequently use this App to shop halal products in the future. • I will strongly recommend others to use this App.
9. Halal Purchase Intention	<ul style="list-style-type: none"> • I think I will buy products that are found on this App. • I think I desire to buy products that are found on this App. • I think I am likely to buy products that are found on this App. • I think I plan to purchase products that are promoted on this App.

CONCLUSION

Originality, Implications and Directions for Future Research

The literature review has revealed a flourishing pool of research dealing with factors influencing the adoption of various products, in the field of technologies, notably smartphone applications such as food delivery Apps (Lee et al., 2019), travel Apps (Lu et al, 2015), mobile banking Apps (Al-Tarawneh, 2017), shopping Apps (Vahdat et al., 2020), fitness and health Apps (Yang, & Koenigstorfer, 2020; Cho et al., 2014) and taxi Apps (Siyal et al., 2020). Yet, research on the adoption of halal-based Apps seems critically scant despite the academic attention to various other aspects on halal, just to mention researches on halal food purchase (Tieman and Ghazali, 2013), halal traceability in supply chains (Samsi et al, 2011), halal logistics (Tan et al, 2012), halal orientation strategy (Zailani et al, 2015) and halal certification (Ab Talib et al, 2017; Ab Talib et al, 2016 and Ratnasari et al, 2019).

Consequently, this study has attempted to fill this gap in scholarly research while laying the primary theories in hypotheses formulation to build the conceptual framework, and equally providing an insight on a halal-based App in a Small Island Developing State (SIDS). Noteworthy, the paper is equally one of the first in the current literature to propose a conceptual model adapted to the halal context for halal-based Apps. The proposed conceptual framework comes in handy for practitioners, halal App developers and scholars in assessing the factors which most influence the adoption of such App. Therefore, more emphasis can be laid by halal App developers on the most critical factors to further increase the adoption rates of such Apps. More so, the conceptual framework needs to be empirically tested through quantitative analysis, possibly through Structural Equation Modelling (SEM) which is as noted Fan et al., (2016) is one of the most used techniques to study causal relationships with different causality routes, and it merges factor analysis and multiple linear regression. As new digital ways by which organisations can interact with consumers emerge, it is important for researchers to explore and investigate the trends (Malik et al., 2017), especially in the fields of halal which is gaining tremendous momentum in the literature. Any acknowledgments by the author may appear here. The Acknowledgments of people, grants, funds, etc. should be brief and concise.

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