



Factors influencing the adoption of internet banking: a case study of commercial banks in Mauritius

Thanika Devi Juwaheer, Sharmila Pudaruth and Priyasha Ramdin
Faculty of Law and Management, University of Mauritius, Reduit, Mauritius

Abstract

Purpose – The purpose of this paper is to investigate the factors influencing the adoption of internet banking services in Mauritius. Drawing from the technology acceptance model, theory of reasoned action, theory of planned behaviour and the extensive literature on demographic profiling of internet banking users, trust and security aspects associated with adoption rate of internet banking, this paper combines various predetermined constructs in one model. The different constructs such as perceived ease of use, perceived usefulness, subjective norms, attitudes, behavioural intentions, security and trust aspects, the level of awareness on internet banking services and demographic variables such as age, income, gender and education into one integrated framework. Hence, the paper will deepen understanding of the specific factors underpinning the adoption of internet banking in Mauritius.

Design/methodology/approach – This paper reports upon the empirical findings of the customer survey on the various factors impacting on the adoption of internet banking by the questionnaire method. The Internet Banking Services Acceptance Model (IBSAM) is further validated through a survey instrument administered to 384 respondents visiting various banking institutions across the nine districts throughout Mauritius to ensure proper geographical coverage. The questionnaires were further processed and analysed with the statistical programme SPSS, by using descriptive and inferential analysis.

Findings – Data analysis showed that perceived ease of use and perceived usefulness have a direct influence on the adoption of internet banking in Mauritius. Results have also indicated that both trust and security aspects are deemed crucial factors to explaining internet banking adoption in Mauritius. Further examination of the inferential analysis highlighted that level of education and income level of respondents may be a major determinant in influencing the adoption of internet banking.

Practical implications – This research provides banking institutions with significant information on the various aspects that need to be highlighted in their banking communications strategies to increase the adoption rate of internet banking services. Banking institutions need to stress upon the benefits of internet banking services, ease to use, trust and security aspects. The findings of the research provide valuable insights for the banking industry and also urge upon a reshaping of their e-marketing strategy in relation to internet banking services in Mauritius. The research findings revealed that secured web contents and design are key tools to increase the adoption rate of internet banking. Practical recommendations to increase web usefulness and trust, and guidelines to reduce perceived risk are also provided in the present research paper.

Originality/value – The purpose of the study is to fill up significant gaps in the literature on internet banking landscape in the context of developing countries like Mauritius. The findings are expected to be of significant use to the commercial banks and other financial institutions offering or planning to offer internet banking solutions in the near future. An understanding of the factors influencing the adoption of internet banking services is essential for marketing practitioners so as to capitalize upon the underlying benefits of internet banking and hence, offer banking customers an online experience coupled with a greater level of personalization and customization.

Keywords Internet banking, Adoption rate of internet banking, Innovation, Trust and security issues, Demographic variables, Mauritius, Internet, Banking

Paper type Research paper



Introduction

The growing popularity of internet banks stems from the fact that their services are considered as more attractive than those offered by traditional banks. The internet is the fastest growing banking channel today, both in the fields of corporate and retail banking in developed countries such as USA and UK (Alam *et al.*, 2007). Similarly, internet banking is predicted to transform and revolutionize the traditional industry (Mols, 1999; Daniel, 1999). Banking activities are easily digitized and automated as argued by various researchers (Elliot and Loebbecke, 2000; Daniel, 1998; Cervantes, 1997; MSDW, 2000) and the widespread of internet banking is due to its benefits such as greater convenience and comfort (Nor *et al.*, 2010). Moreover, online banking is one of the fastest growing services that banks can offer in order to gain and retain new customers (Moody, 2002).

According to Polatoglu and Ekin (2001), internet banking is very attractive to banks and to consumers who display a higher acceptance of new technology and increasingly understand more complex banking products. This impressive growth of internet banking is not limited to the US and Canadian banking industries. Even, Europe and major Asian markets have also experienced such impressive growth in internet banking (Eurostat, 2008). It should be pointed out that this growth has occurred despite growing concerns for the confidentiality and security of financial transactions on the internet. In addition to the rapid acceptance of internet banking, banks are also investing massively in related information technology (IT) because they have realized that it is a major vehicle for cost-cutting and client retention (Zuccaro and Savard, 2010). Similarly, it was only in the mid-1990s that internet banking appeared in the developing countries (Peterson, 2006). The banking and finance world is unable to standstill with the internet revolution and banking institutions have to face the fact that there will be little return from investments in technology if customers fail to accept or fully utilize its capabilities (Yousafzai and Yani-de-Soriano, 2012). Consequently, recent research suggests that the financial services industry must place greater emphasis on proactively advertising the benefits of new technology, in an effort to encourage customers to adopt internet banking in preference to visiting a branch (Durkin *et al.*, 2008). Despite the steady growth of internet banking in the UK in the past few years, half of UK customers still visit a branch each month, which suggests that bank managers need to encourage customers to use the internet for routine operations in order to release branch and call-centre employees for higher-value interactions (Forrester Research, 2009). In addition, Forrester Research (2009) classified the UK as an internet banking laggard, falling well behind the USA and its European counterparts, such as Germany and France. Ziff-Davies (2000) argued that the concept of internet has outstretched customer's sensitivity to speedy customer service and many banks have been using this development to design and deliver new services.

In Mauritius, it is also expected that banking sector growth remains steady and that there will be an on-going regional expansion of banks (*The Mauritian Economy Outlook*, 2012). In 2011, the banking sector comprised of 20 banks licensed to carry out banking business in Mauritius. Besides traditional banking facilities, around 13 banking institutions also offer card-based payment services, such as credit and debit cards and they provide internet banking and phone banking facilities. Indeed, the number of internet banking users has increased from 131,648 in 2010 to 176,553 in 2011. Banks are encouraging more customers to use internet banking by providing an increasing range of services on the internet while the number of internet banking transactions has decreased from 197,452 in 2010 to 192,964 in 2011, the average value

of internet banking transactions has increased from Rs. 40,426 million in 2010 to Rs. 41,971 million in 2011 (Bank of Mauritius, 2011). Therefore, it can be inferred that internet banking as an innovative service has emerged during the past few years to keep pace with the changing and new requirements of the customers. Likewise, the concept of internet banking has been adopted by most of the important players of the banking industry of Mauritius.

Since the introduction of internet banking services, the majority of research has examined the precursors of the adoption and use of internet banking (Nor *et al.*, 2010). Several research works have explored the concept of internet banking in developed countries (Kwan, 2000; Courchane *et al.*, 2002; Pikkarainen *et al.*, 2004; Mattila and Mattila, 2005; Roussos, 2007; Forrester Research, 2009; The World Bank, 2009; Athanasios *et al.*, 2012; Yousafzai and Yani-de-Soriano, 2012). Yet, few studies have explored the factors influencing the adoption of internet banking for developing countries. In addition, many researchers have applied several theories to predict the factors that influence individuals to use internet banking and some of these theories include technology acceptance model (TAM) (Davis, 1989), theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) and theory of planned behavior (TPB) (Ajzen, 1991). These theoretical approaches have contributed significantly to the provision of significant guidelines to respective banking institutions to enhance the adoption of internet banking services. To the authors' knowledge, very few studies have combined the above-mentioned models and related theories with variables related to security and trust issues, the level of awareness of internet banking services and demographic variables such as age, income, gender and education into one single integrated framework to explore the factors influencing the adoption of internet banking in the context of developing countries such as Mauritius. Hence, this paper provides a deep insight into the factors influencing the adoption of internet banking among customers in Mauritius.

This paper presents a model to sharpen one's understanding of the factors influencing the adoption of internet banking among customers of commercial banks in Mauritius. In this context, the Internet Banking Services Acceptance Model (IBSAM) has integrated different factors such as perceived ease of use and perceived usefulness (TAM variables), subjective norms and attitudes (TRA variables), behavioural intentions, (TPB variable), security and trust aspects, the level of awareness on internet banking and age, income, gender and education (demographic variables). Moreover, there is scarce literature and validated models on the various factors which can influence the adoption of internet banking for developing countries. Hence, this paper contributes to the empirical scarce literature on internet banking by providing meaningful insights on the different factors influencing the adoption rate of internet banking for a developing country like Mauritius.

Objectives of the study

The primary objective of the research is to explore the factors influencing the adoption of internet banking in Mauritius. The main objectives of the study are outlined below:

- to explore whether perceived ease of use and perceived usefulness in the TAM can influence the intention of customers to use internet banking in Mauritius;
- to investigate the degree to which subjective norms and attitudes in the TRA can influence the adoption rate of internet banking;

- to examine the influence of behavioural intentions in the TPB on the adoption rate of internet banking services;
- to examine the extent to which “trust” and “security” factors can affect the adoption of internet banking in Mauritius; and
- to explore whether the level of awareness of internet banking services and demographic profile of customers can influence the adoption rate of internet banking.

Literature review

Understanding the digital journey of banking: internet banking

The competitive pressures and the changing requirements of consumers have urged upon the banking industry to develop new and innovative technologies and tools. Internet banking has revolutionized the banking industry worldwide (Malhotra and Singh, 2010). There are numerous papers that have studied internet banking internationally and the studies investigated the status of internet banking in developed countries like the USA, UK, Australia, New Zealand, Malaysia, United Arab Emirates and developing countries like Bulgaria, Saudi Arabia, Jordan, Tunisia, Greece and Zimbabwe (Vijayan and Shanmugam, 2003; Awamleh *et al.*, 2003; Bojinov, 2003; Yeap and Cheah, 2005; Awamleh and Fernandes, 2005a; Ayadi, 2006; Hamid *et al.*, 2007; Floros, 2008, and Thulani *et al.*, 2009).

Exploring the benefits and drawbacks of internet banking services

Internet banking is a service provided to bank customers on a 24-hour basis (Gurău, 2002 and Munusamy *et al.*, 2010) and seven days a week (Nasri, 2011). Customers can check their account information at any time of the day (Turban *et al.*, 2000) and they do not have to wait for banks to open for their transactions because as stated by Gerlach (2000), internet banking is a bank that never closes and, there is no need for waiting in line as the transactions are performed with just a click away (Lee and Lee, 2000; Al-Mudimigh, 2007; Dube *et al.*, 2009). Traditional banks are often characterized by long queues especially during peak hours (*The Times of India*, 2011). Hence, there are several customer complaints as they get tired in waiting for their turn or their time is wasted and they get delayed (Sulaiman, 2000). Internet banking services are very rapid and they enable the customers to do their transactions at their own time without having to wait in line. As suggested by Dixon and Nixon (2000), internet banking provides fast service and allows customers to do their transactions when and where they feel to do so. Kwan (2000) also affirmed that customers can access their accounts, make transfers or payment of their bills without having to wait in queue because they can do all these through the bank's web site and internet banking is tailored as per the customers' needs (Daniel, 1999).

Besides the benefits of viewing transactions online and paying for bills (Beer, 2006; Mohammed *et al.*, 2009), internet banking has gone a step ahead and it is now characterized by additional services such as payment on loans and mortgages (Singhal and Padhmanabhan, 2008; Haque *et al.*, 2009; Mohammed *et al.*, 2009). Nevertheless, as opposed to traditional banking, internet banking is considered as dehumanizing and impersonal service (Harris and Spence, 2002). Likewise, Hennigan and Gourvennec (1996) have stated that internet banking can further “dehumanize” banking activities because of the absence of social and personal contact. Furthermore,

several studies have focused on security issues and customers are reluctant to avail this service due to cyber threats as they have doubts about the security and they fear that hacking practices that can lead to embezzlement of funds (Courchane *et al.*, 2002; Redelinghuis and Rensleigh, 2010; Khare *et al.*, 2012). Internet banking as compared to traditional banking is characterized by the inability to make deposits and cash withdrawals (Maughan, 2012). Similarly, De Young (2001b) also argued that internet banking allows most transactions to be done at the click of a mouse, but, yet, this new service is assigned with the incapability of allowing cash withdrawals and deposits.

Theoretical approaches related to acceptance and adoption of new technology

User acceptance or adoption of IT is defined as “the act of receiving information technology use willingly” (Saga and Zmud, 1994). The empirical findings from user acceptance research suggest that when users are presented with a new software package, a number of factors influence their decision about how and when they will use it. In the past two decades several theories have emerged that offer new insights into acceptance of IT. Among these theories, the TAM has received more attention. Several theories reveal the factors that may affect consumers’ willingness to use an online financial service. They consist of TAM (Davis, 1986), TRA (Fishbein and Ajzen, 1975) and TPB (Ajzen, 1985). The TRA (Fishbein and Ajzen, 1975) and TPB (Ajzen, 1991) are especially well-researched intention models that have proven successful in predicting and explaining behaviour across a wide variety of domains. In fact, these multi-attribute models have long dominated attempts to predict technology acceptance behaviour (Chau and Hu, 2002; Gefen, 2002; Gefen and Straub, 2000; Igbaria *et al.*, 1995; Szajna, 1994). The next section outlines the main aspects of the TAM developed by Davis (1989).

TAM – perceived ease of use and perceived usefulness

The TAM was developed by Davis (1989) and Davis *et al.* (1989) to explain acceptance of IT for different tasks and it may be used to predict online banking adoption (Pikkarainen *et al.*, 2004; McKechnie *et al.*, 2006; Wang *et al.*, 2003). TAM establishes that user adoption of a new information system is determined by the user’s intention to use the system, which is in turn determined by the user’s beliefs about the system. Davis *et al.* (1989) identified perceived usefulness and perceived ease of use as the basic determining factors in information system acceptance. They defined perceived usefulness as “the degree to which a consumer believes that the use of a system will increase his or her performance” (Davis *et al.*, 1989, p. 320). Perceived ease of use refers to the degree to which a consumer believes that no effort will be required to use the system, with effort being understood to include both physical and mental effort, and how easy it is to learn to use the system (Davis *et al.*, 1989, p. 320).

Moreover, prior research concerning internet banking has verified the direct and indirect influence of perceived ease of use and usefulness on both intention and adoption behaviour (Wang *et al.*, 2003; McKechnie *et al.*, 2006; Pikkarainen *et al.*, 2004; Eriksson *et al.*, 2005; Gerrard and Cunningham, 2003; Guriting and Ndubisi, 2006; Laforet and Li, 2005; Howcroft *et al.*, 2002). In general, TAM has received considerable attention and empirical support among IT researchers in many settings and technologies. The model has been tested on technologies such as software applications, telemedicine, World Wide Web, mobile banking and internet banking to name a few. The strengths of TAM are its predictive power and the small number of constructs to predict intention (Agarwal and Prasad, 1999). In addition, it is quite robust and can be

applied to a wide range of technologies (Venkatesh and Davis, 2000). Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness (Agarwal and Prasad, 1999; Davis *et al.*, 1989; Hu *et al.*, 1999; Jackson *et al.*, 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). In order to prevent the “under-used” useful system problem, internet banking systems need to be both easy to learn and easy to use. ITs that are easy to use will be less threatening to the individual (Moon and Kim, 2001). This implies that perceived ease of use is expected to have a positive influence on users’ perception of credibility in their interaction with the internet banking systems. Furthermore, there is also extensive research in the Information System community that provides evidence of the significant effect of perceived usefulness on usage intention (Agarwal and Prasad, 1999; Davis *et al.*, 1989; Hu *et al.*, 1999; Jackson *et al.*, 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). The ultimate reason people exploit internet banking systems is that they find the systems useful to their banking transactions.

We therefore posited a similar effect in the following hypotheses:

H1. Perceived ease of use has an influence on the likelihood to use internet banking.

H2. Perceived usefulness has an influence on the likelihood to use internet banking.

TRA – subjective norms and attitudes

The TRA, developed by Fishbein and Ajzen (1975), is one of the most influential theories used to explain human behaviour (Venkatesh *et al.*, 2003). Simply put, according to this theory, the behavioural intention can be explained by the attitude towards behaviour and subjective norm. The attitude towards behaviour is defined as “an individual’s positive or negative feelings about performing the target behavior” (Fishbein and Ajzen, 1975, p. 216). Social norms are factors that relate to the influence of significant others such as family, relatives or friends, in the decision to use a product or service. Likewise, Pedersen and Ling (2002) suggested that external and social influence cannot be ignored in any adoption model because of their contribution to adoption behaviour. Social norms have been validated in studies such as e-mail usage (Karahanna and Limayem, 2000), wireless finance adoption (Kleijnen *et al.*, 2004) and internet banking (Chan and Lu, 2004). Yet, reference groups can also impact on consumer behaviour because people try to surround themselves with people and things that are consistent with their own identities in traditional banking environments (Tornatzky and Klein, 1982; Karjaluoto *et al.*, 2002). Kelman (1958) suggested that individual behaviour affected by social influence might occur at three different stages: compliance, identification and internalisation. Applied to a new information system, the social influence process determines the individual user’s commitment to the use of any new IT (Malhotra and Galletta, 1999). The salience of social influence on technology acceptance behaviours has been acknowledged (Schmitz and Fulk, 1991).

Moreover, the concept of attitude can be considered as another key factor in most consumer behaviour models. Attitude has long been shown to influence behavioural intentions and actual behaviour (Ajzen, 1991). Based on Venkatesh’s definition of attitude towards using technology (Venkatesh *et al.*, 2003), attitude towards internet banking is defined as an individual’s overall affective reaction to using the internet for his/her banking activities. The prevailing view of consumer trust in the e-commerce

literature contends that trust has a direct positive effect on attitudes and behaviour (Jarvenpaa *et al.*, 2004; Pavlou, 2002; Suh and Han, 2003; Teo and Liu, 2007). The consumer's trusting beliefs about the trusted party or trusted object affects their attitude towards the trusting behaviour.

In view of the above, we posited the following research hypotheses:

H3. Subjective norms have an influence on the intention to adopt internet banking.

H4. Attitudes have an influence on the likelihood to use internet banking.

The theory of planned behaviour – behavioural intentions

TPB (Ajzen, 1991) was developed in order to explain behaviour for technology-related services and products. TPB is a well-accepted intention model that has been successful in predicting and explaining human behaviour across various domains. The TPB suggests that a central factor in human behaviour is behavioural intention, which is affected by attitude towards behaviour, subjective norm, and perceived behavioural control (PBC) (Ajzen, 1985, 1991, 2002). Subjective norm expresses the perceived organizational or social pressure of a person who intends to perform the behaviour in question. PBC reflects a person's perception of the ease or difficulty of implementing the behaviour in question and it concerns beliefs about the presence of control factors that may facilitate or hinder their behaviour. Numerous studies demonstrated the applicability of TPB to various content domains (Ajzen, 2001). Indeed, abundant empirical evidence suggests that TPB effectively explains individual intentions and behaviour in adopting new ITs. Such evidence includes the acceptance of telemedicine technology by physicians (Hu *et al.*, 1999), the widespread adoption of virtual banking (Liao *et al.*, 1999), computer resource centre adoption and usage (Taylor and Todd, 1995), IT adoption in work settings (Venkatesh and Davis, 2000), acceptance of electronic brokerage services (Bhattacharjee, 2000) and others. As a general theory, TPB does not specify the particular beliefs that are associated with any particular behaviour, so determining those beliefs is left up to the researchers.

The following research hypothesis is derived from the preceding evidence:

H5. Behavioural intentions of customers have an impact on the adoption of internet banking

Security issues in internet banking

As pointed by Reavley (2005), security risk arises due to fraud and the presence of a hacker who might hack the account of internet users. There is a constant fear that their funds might be embezzled. They have the impression that the internet is not secure for banking transactions and fear that "someone will have unlimited access to personal financial information" (Peterson, 1997). In fact, Sathye's (1999) study revealed that 73 per cent of the customers were not willing to adopt this service because of security concern. Furthermore, Littler and Melanthiou (2006) purport that this issue is likely to generate a monetary loss in the mind of customers and as such, they believe that they are afraid from cyber threat. This perception is damaging the customer's assurance on the whole system of internet banking. Aladwani (2001) stated that security is one of the leading future challenges of online banking.

Mattila and Mattila (2005) advised that banks offering internet banking must initially persuade their customers that this service is a secured medium.

In view of the above, we posited the following research hypothesis:

H6. Security has an influence on the intention of customers to use internet banking.

211

The essence of trust and confidence in the adoption of online banking

The foundation of the banking system has been on the trust that customers have for it. Handing over large amount of money to the banks is due to the belief that they will safeguards these funds and they will get interest in return. The concept of e-trust is defined as “the degree of confidence customers have in online exchanges” (Ribbinket *et al.*, 2004). Urban *et al.* (2000) edify that customers make online decision nearly solely on the basis of trust. Trust is found to be more significant in online banking than traditional banking because customers are concerned about the sensitive data and the parties being involved in these transactions that are being sent through the internet (Suh and Han, 2002; Alsajjan and Dennis, 2006). Moreover, Stewart (1999) claimed that the failure of internet in the retail banking is due to lack of trust that bank customers have on electronic channels. Moreover, Thornton and White (2001) added that as consumers gain confidence in computer usage, they will consequently be more willing to adopt new technology. Likewise, Li and Worthington (2004) claimed that customer confidence on internet banking transactions also influenced its adoption rate. Theft of customer’s sensitive information can cause them to lost confidence in this internet banking system (Altıntaş and Gürsakal, 2007). Trappey and Trappey (2001) found that Chinese consumers had little confidence in e-commerce and internet technology mainly related to personal financial management. Customer confidence on internet banking would mainly rest on on how banks deal with incorrect transactional and security apprehensions that may occur during internet banking (Shanmugham and Sohail, 2003).

Hence, it is hypothesized that:

H7. Trust has an impact on the intention of customers to use internet banking.

Level of awareness on internet banking services

In this setting, Rogers and Shoemaker (1971) stressed on the fact that consumers undergo a process of knowledge, belief, decision making and confirmation before adopting a product or service. Similarly, Pikkarainen *et al.* (2004) enlightened the fact the adoption of internet banking will be determined by the level of information that a customer has about online banking and its likely benefits. Sathye (1999) added that low awareness of this concept is a critical reason for the non adoption of this service. That “shy away” from internet banking is explained by the absence of awareness of the service and its benefits (Howcroft *et al.*, 2002). However, banks are undertaking marketing campaigns to create awareness of their services and their likely benefits in most countries. In fact, Suganthi *et al.* (2000) supported this notion by stating that there is a rise in promotional efforts done by the banks to generate a greater awareness of internet banking and its paybacks in Malaysia. Therefore, awareness is an important element that needs to be considered before adopting any innovative products (Guiltnand and Donnelly, 1983).

Hence, it is hypothesized that:

- H8. Awareness of the concept of internet banking has an impact on consumer's choice of using internet banking.

Demographic profiling and adoption of internet banking

Demographic factors have also been found to be associated with adoption of different banking channels, especially internet banking (Al-Ashban and Burney, 2001; Karjaluoto *et al.*, 2002; Sathye, 1999). Generally, more males than females tend to use internet banking (Akinci *et al.*, 2004). Akinci *et al.*'s (2004) findings in Turkey showed that mid-aged consumers are more likely than younger or older consumers to use internet banking. Customers who are younger, more educated and wealthier are more likely to use internet banking (Karjaluoto *et al.*, 2002; Mattila *et al.*, 2003; Sathye, 1999) and those who belong to the upper middle class and have high-level occupations are more likely to use internet banking (Jayawardhena and Foley, 2000; Karjaluoto *et al.*, 2002). In Italy, younger consumers more than older consumers like to use ATMs (Filotto *et al.*, 1997) whilst, the adoption of tele-banking is negatively associated with age and positively associated with income and educational level in Saudi Arabia (Al-Ashban and Burney, 2001). Furthermore, the target user groups of internet banking usually have a more diversified education and socio-economic background than those of other information systems (Hartwick and Barki, 1994). There have been several studies on the customer's demographic characteristics such age, gender, income and educational level when determining the factors impacting on the customer's attitudes to use internet banking. In their study, Lee and Lee's (2000) found that most of the internet banking adopters tend to be very much educated, more affluent, younger and computer-literate.

Age related factors and internet banking

Wang *et al.* (2003) reported that age significantly influences a customer's choice of adopting internet banking. Older people tend to have a negative attitude towards the use of new technologies and they seem to be reluctant to accept innovation (Bauer and Heinh, 2006) as compared to younger ones who are very much at ease with these changes. Alagheband (2006) supported this view by adding that younger individuals are more likely to adopt online banking. They are very interested to use these technologies to conduct activities like searching new products, comparing them and evaluating their choices (Czaja *et al.*, 2001; Lu *et al.*, 2003). Several research works have also linked age and adoption of technologies, with younger persons being more likely to adopt (Zeithaml and Gilly, 1987; Trocchia and Janda, 2000; Karjaluoto *et al.*, 2002; Lee *et al.*, 2002). However, other researches revealed that the statement that young people previously knew about internet and older ones are resistant was incorrect (Smith and Comstock, 1995; Zhang, 2005; Roussos, 2007). Al-Somali *et al.* (2009) did a survey among some e-banking experience clients. They found that age was not interrelated with attitudes and hence, did not influence their behaviours.

Hence the following research hypothesis:

- H9. Age has an impact on the choice of using internet banking.

Income related factors and internet banking

The Gartner Group carried out a survey in 2009 to determine the number of internet banking users in UK. The results showed that around 30-40 per cent of the population

used this service but the survey also revealed that the use of internet banking is not the same among all income earners. Only 17 per cent of the respondents who used this service were low-income earners while the majority were high-income earners. Income is reflected in one's professional position or social class. Different professions entail dissimilar income level as well as different IT knowledge and experience. These diverse categories can result in different attitudes and behaviours towards the use IT (Hubona and Kennick, 1996; Chau and Hu, 2002). However, other studies found that once the customer was experienced, income could no longer influence their technological behaviours (Al-Somali *et al.*, 2009). Hence, it revealed that income has no significant influence on perceptions once the customer is experience with the technology.

We therefore posited a similar effect in the following hypothesis:

H10. The level of income has an impact on customers' choice of using internet banking.

Gender related factors and internet banking

Various studies have shown that there are differences in the way male and female use the different types of technology (Li *et al.*, 1999; Burke, 2000). The acceptance of a new technology, its characteristics and use depend on the gender of the individual (Gefen and Straub, 1997; Venkatesh and Morris, 2000; Sun and Zhang, 2006). However, recent surveys revealed that this gender gap in this field is decreasing (Eurostat, 2009) or some even stated that there is no statistically noteworthy difference between males and females concerning the use of internet banking. Yet, some studies have shown that gender has not been found to have a direct effect on adoption of technology in general (Taylor and Todd, 1995; Gefen and Straub, 1997), but men and women appear to have different acceptance rates of specific computer technologies, with men more likely to adopt new technological innovations (Gefen and Straub, 1997).

All the above lead us to conjecture that:

H11. Gender has an impact on the adoption of internet banking.

Education-related factors and internet banking services

Education also plays an important role as far as attitudes for technology use is concerned. Several studies have shown that higher level of education tend to be positively related to the adoption of a technological innovation (Donnelly, 1970; Uhl *et al.*, 1970; Labay and Kinnear, 1981; Kennickell and Kwast, 1997; Daniel, 1999; Lee and Lee, 2000; Jayawardhena and Foley, 2000; Mattila, 2000; Lee *et al.*, 2002; Karjaluoto *et al.*, 2002). It has also been discovered that the level of education impacts on the decision of adopting internet banking (Al-Somali *et al.*, 2008). Yeung *et al.* (2006) asserted that highly educated customers normally accept changes more enthusiastically. Customers with a good education profile are likely to adopt technology application such as internet and internet banking. The reason is that education is positively correlated with the customer's literacy rate (Burke, 2002).

Thus, we hypothesized that:

H12. Education has an impact on customer's choice of using internet banking.

The above literature has provided a comprehensive review on internet banking adoption and it further discusses various determining factors impacting on the adoption of internet banking in the light of changing online communication climate in the banking landscape. It further presents a research model for the present study as illustrated clearly in Figure 1.

Research methodology

In line with this study’s main objective of exploring the factors influencing adoption of internet banking in Mauritius, a questionnaire comprising of several sections was developed. The various sections of the questionnaire relates to general information on internet banking, factors influencing adoption of internet banking, overall satisfaction of internet banking users and behavioural intentions of non-users to adopt internet banking. The last part of the questionnaire has addressed on the demographic characteristics of respondents. In the present study, the constructs used were adapted from previous studies and customers’ perceptions relating to factors influencing their adoption of internet banking were measured by a five-point Likert scale (1 = strongly agree to 5 = strongly disagree). The range of responses for overall satisfaction with internet banking experience was equally on a five-point scale (1 = not satisfied to 5 = very satisfied). Prior to data collection for the internet banking survey, a pilot test was conducted to ensure comprehensiveness, clarity and reliability of the questionnaire. The pretesting of the questionnaire was carried out among ten customers randomly chosen in one banking institution, resulting in some minor modifications of the wordings of some survey items on perceived ease of use and perceived usefulness. Internal consistency and reliability of the scale was measured by the use of Cronbach’s α (Hair *et al.*, 2000).

Sampling plan

Given that the main purpose of the paper is to investigate upon the factors influencing the adoption of internet banking in Mauritius, the target population consists of customers of commercial banks of Mauritius. In the present research, the targeted

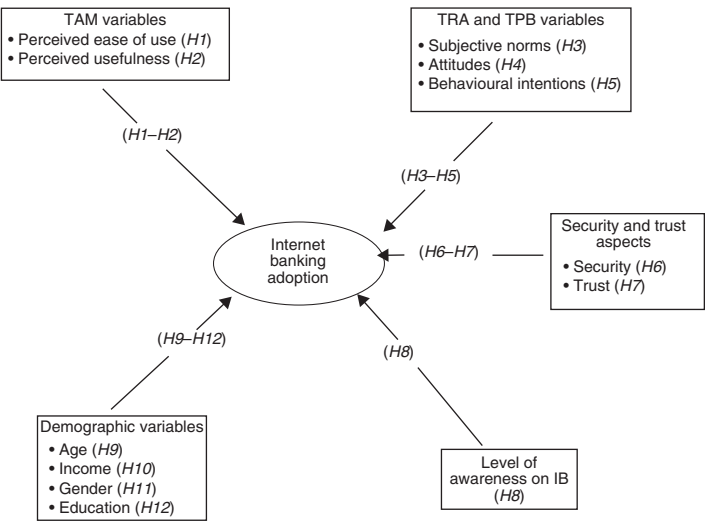


Figure 1.
Proposed research model –
internet banking services
acceptance model

population of the study consisted of banking customers who are above 18 years in Mauritius as this segment is familiar with various service offerings of banking institutions, and empowered in their decisions for choosing the right products and services offerings between many available choices. The target population sampled was the customers visiting various banking institutions across the nine districts of Mauritius to ensure adequate geographical coverage. Owing to the need for a relatively large sample size while at the same time keeping the research costs down, the sample size of this study amounted to 384 customers through judgemental sampling technique. The response rate for the present study was 78.65 per cent and banking customers across the nine districts of Mauritius were surveyed to empirically test the proposed conceptual model.

Internal consistency of the questionnaire

The Cronbach's α overall value for the entire questionnaire was 0.890 and such a high figure indicates that the questionnaire is a good indicator of what the researcher wants to investigate. According to Hair *et al.* (1995), a coefficient of <0.6 indicates marginal to low internal consistency and a value of 0.60 or more indicates satisfactory internal consistency reliability (Churchill, 1979).

Statistical tests

In the present study, analysis of variances (ANOVAs) were used to test the extent to which TAM variables such perceived ease of use and perceived usefulness can influence the adoption of internet banking. Correlation analysis was used to test the significance of TRA and TPB-related constructs such as subjective norms, attitudes and behavioural intentions on the adoption of internet banking. Factor analysis was developed to validate security and trust constructs on the adoption of internet banking. Factor analysis was carried out on the 16 items on security and trust issues found in the questionnaire relating to competence of bank to protect customers' privacy, customers' level of trust in the web site and in the banks' technology in providing internet banking, adoption of latest encryption technology by the bank to stop unauthorized intrusion, provision of reliable internet banking services and overall security measures adopted by banks to ensure customers' privacy over sensitive information amongst others. Two items were deleted in this process due to negative loadings. The factor analysis was used to identify the different security and trust dimensions deemed to be influencing the adoption of internet banking in Mauritius. Furthermore, *t*-test has been used to determine the influence of income-related factors on the adoption of internet banking services and χ^2 test was carried out to depict whether education-related factors can influence the adoption of internet banking services in Mauritius.

Empirical findings

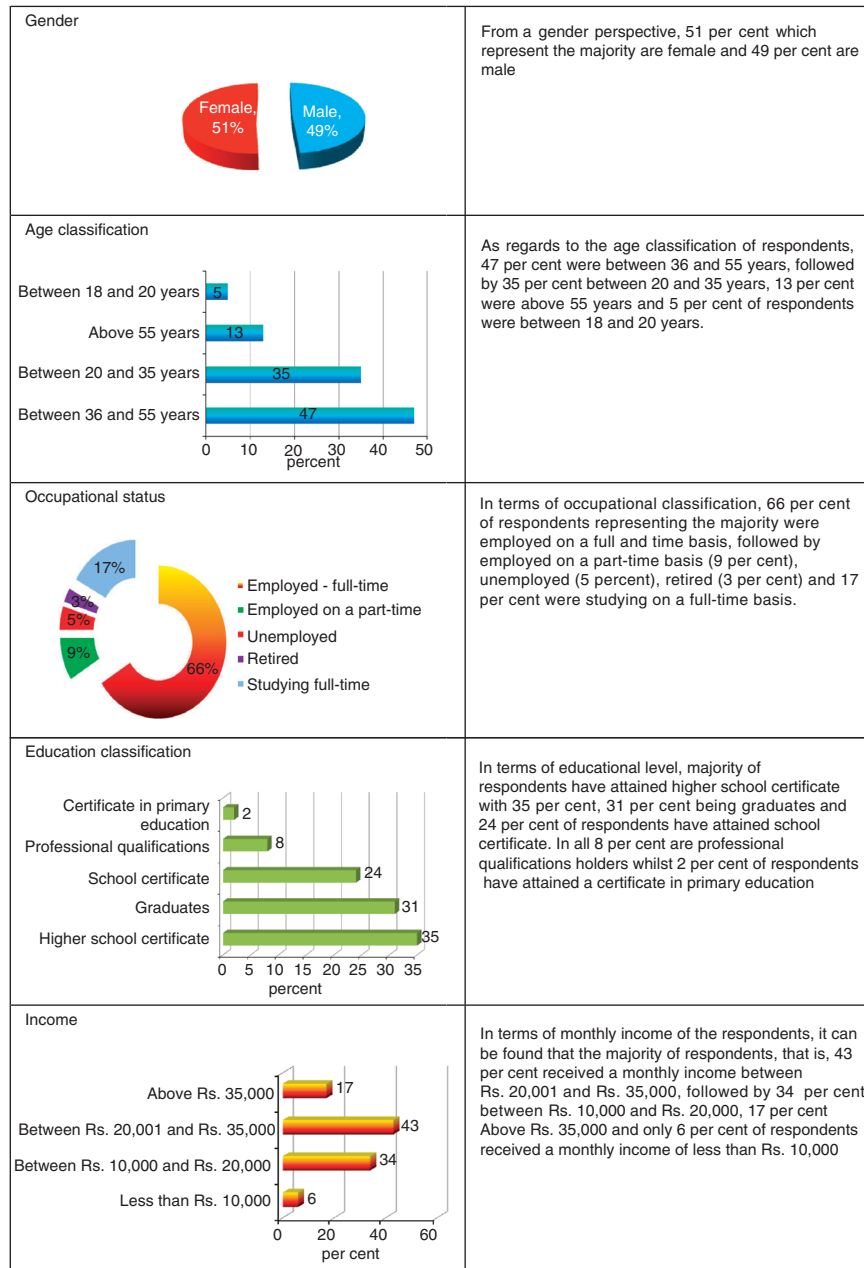
Part A: Demographic profile of respondents

See Figure 1.

Part B: Empirical survey findings

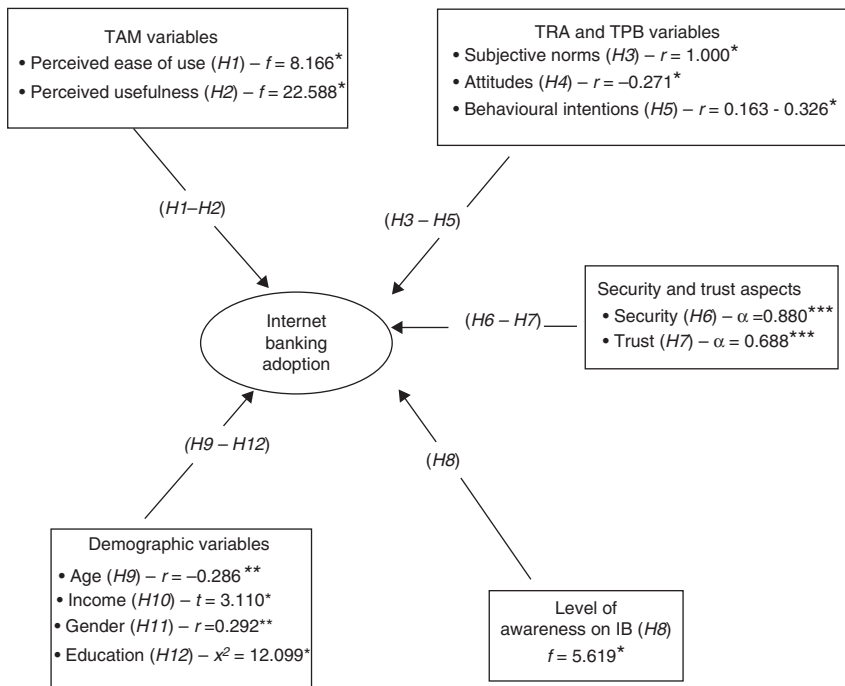
The proposed conceptual model (Figure 2) was tested by using inferential analysis such as correlation, *t*-test, χ^2 and factor analysis. The empirical estimates for the main-effects model are shown in Figure 3. The results indicate that, from a statistical

Figure 2.
Demographic
classification of
respondents



point of view, the data fit the conceptual model acceptably, though as if it will be seen, not all the hypotheses were supported fully.

TAM, TRA and TBP variables and adoption of internet banking. Empirical results have shown a positive significant relationship between perceived ease of use and the



Notes: * $p < 0.05$; ** $p > 0.05$; *** $\alpha > 0.06$

Figure 3.
Explored conceptual
framework – internet
banking services
acceptance model

likelihood to adopt internet banking ($F=8.116$) at the significance level (0.000) < 5 per cent ($p < 0.05$ level), proving that $H1$ should be supported. The results corresponded with Hill *et al.* (1986) who advocated that self-efficacy predicted the likelihood to use advance technological products. Bandura (1982) and Ajzen (2002) stated that this variable was likely to result in the formation of behavioural intention to use the product. Rogers (1962) and Consult (2002) acknowledged that PEOU determine the degree to which technological innovation is perceived as being hard to apprehend, easy to learn and to understand how to operate it.

It is interesting to note that perceived usefulness has an influence on the likelihood to use internet banking. The survey results have established that there is a significant relationship between perceived usefulness and the likelihood to adopt internet banking in Mauritius ($F=22.588$). ANOVA test has been performed to test $H2$ and the result showed that significance level (0.000) was < 5 per cent ($p < 0.05$ level), meaning that the relationship between the two variables was truly significant, proving that $H2$ should be supported. This result corresponded with Harper (1997) report that stated that customers will try only those products or services from which they will achieve maximum returns.

Spearman correlation was used to test the influence of subjective norms on the intention to adopt internet banking. Subjective norms was found to be an irrelevant construct in influencing the adoption of internet banking in Mauritius ($r=1.000$, $p > 0.05$), that is, significance value (0.984) was > 5 per cent, indicating that $H3$ should be rejected. This contradicted that the beliefs of these people might impact his or

behavioural intention to use was subject to the importance he or she gives to their opinions (Miller, 2005). Moreover, Chua (1980) advocated that friends/colleagues and family will potentially influence adoption of internet banking.

Moreover, our results demonstrate the theoretical relevance of conceptualizing attitudes as an important construct for adoption of internet banking services. Survey findings have also depicted that attitudes can influence the adoption of internet banking in Mauritius ($r = 0.271, p < 0.05$), hence, supporting *H4*. As stated by Fishbein and Ajzen (1975), attitude was related to behavioural intention to use. The positive feeling that customers have towards internet banking, will induce them to adopt it, hence customers' attitudes is also a key factor in explaining adoption of internet banking in Mauritius.

Behavioral intentions were hypothesized to have a significant positive influence on adoption of internet banking in Mauritius as illustrated in Table I. The quantitative results clearly demonstrate that behavioural intentions of customers has a significant impact on the adoption of internet banking in Mauritius with r -values ranging from 0.163 to 0.326 at $p < 0.01$. As proposed in the model, behavioral intentions of customers influence the adoption of internet banking, supporting *H5*. These findings are similar to past research, which suggested that self-efficacy predicts intention to adopt advanced technological products (Bandura, 1982; Hill *et al.*, 1986).

Factor analysis – security and trust aspects and adoption of internet banking. We tested the hypothesis on security and trust aspects in our proposed model by using factor analysis. Cronbach's α has been computed and the value was 0.878 which means that the statements were reliable for further analysis since Cronbach's α value exceeds Nunnally's and Bernstein's (1994) recommendation of at least 0.7. A principal component analysis with varimax rotation was conducted on 16 items. Only factors with eigenvalue ≥ 1 were considered significant and chosen for interpretation. A variable with factor loadings of 0.40 was considered, that is, items < 0.40 were excluded. The Kaiser-Meyer-Olkin measure of sampling adequacy is 0.872 and it can be thus deduced that the sample is adequate. In addition, the Bartlett's test of sphericity has a significance of 0.00. In summary, it would mean that all the variables correlates

Table I.
Behavioral intentions
of customers

	Adoption of internet banking on a regular basis in the future	Reliance on internet banking to handle banking transactions in the future
Internet banking is available 24 hours a day and seven days a week	0.243**	0.173**
Internet banking enables me to save time as there is no need of visiting the bank's branch personally	0.306**	0.217**
Internet banking makes my life easier as there is no need to queue up	0.326**	0.240**
There is no need for me to carry large amount of money with internet banking	0.163**	0.177**
Internet banking enables me to do my banking transactions in private	0.315**	0.256**
Internet banking allows me to manage my money well by viewing my account online	0.167**	0.254**

Note: **Correlation is significant at the 0.01 level (two-tailed)

fairly well with all others and none of the correlation coefficients are particularly large. Therefore, both the Keiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity shows that factor analysis will be useful with the hypothesis testing data. From the varimax rotated matrix, two factors representing 59.950 per cent of the explained variance were extracted from the 16 statements as shown in Table II and some explanations are given regarding the labels assigned to them and two statements were eliminated due to negative loadings. The empirical estimates for the influence of security and trust aspects on internet banking adoption are shown in Table I and the results indicate that, from a statistical point of view, the data fit our conceptual model, supporting both hypotheses on trust and security aspects. The results evidence the key role of security and trust in adoption of internet banking services in Mauritius.

Factor items	Loadings	Eigenvalues	% of variance explained	Cronbach's α
<i>Factor 1 – customers' trust on banking institutions' security measures</i>		5.529	39.489	0.880
I feel reassured with the security aspects of internet banking services in Mauritius	0.820			
I trust my banking institutions web site	0.818			
My banking institution provides reliable internet banking services	0.790			
Internet banking site keeps its promises and commitments in Mauritius	0.760			
Other people will not be aware of my banking transactions	0.724			
I trust my bank's technology in providing internet banking services	0.705			
I know there is no risk in using internet banking in Mauritius	0.695			
The current security measures taken by bank to protect internet banking are sufficient	0.673			
I would feel secure sending sensitive information like my account number, pincodes etc. over the internet	0.610			
<i>Factor 2 – customers confidence on banking institutions' security measures</i>		2.164	15.460	0.688
In case that my online bank account has been hacked into and money stolen, I am confident that the bank will help me to recover my money	0.838			
I am confident that my bank offers the latest encryption technology to stop unauthorised intrusion	0.625			
I am certain that internet banking services are financially secured in Mauritius	0.586			
I am confident about the competence of my bank to protect my privacy	0.561			
The security aspects of internet banking is important in Mauritius	0.440			
		7.693	59.950	

Table II.
Factor items and loadings

Factor 1 – customers' trust on banking institutions' security measures. Factor 1 has an eigenvalue 5.529 and explains 39.489 per cent of the variance. This factor groups nine attributes related to trust towards internet banking's security. Assurance with security aspects of internet banking has the highest loading factor (loading = 0.820), followed by the trust on the banking web site (loading = 0.818). Other attributes that boost trust in internet banking is the reliability of the internet banking services (loading = 0.790), the commitment and delivered promises of the banking institutions' web site (loading = 0.760), privacy protection in internet banking (loading = 0.724), trust in bank's technology (loading = 0.705), no risks associated with internet banking (loading = 0.695) and overall security while sending sensitive information over the internet (loading = 0.610). The results reflected on the study made by Urban *et al.* (2000) who edified that customers make online decision on the basis of trust. Likewise, Suh and Han (2002) and Alsajjan and Dennis (2006), trust was found to be more significant in online banking than traditional banking. Moreover, Stewart (1999) claimed that the failure of internet banking was explained by the lack of trust in electronic channel. Therefore, *H6* is favoured; supporting that trust influenced the intention of using internet banking in Mauritius.

Factor 2 – customers confidence on banking institutions' security measures. Factor 2 has an eigenvalue of 2.164 and explains 15.460 per cent of the variance. This dimension groups five attributes related to customers' confidence on banking institutions security measures. Confidence about banks will help in funds recovery in case of fraudulent issue has the highest loading factor (loading = 0.838), followed by bank's latest implementation of security measures to prevent illegal intrusion (loading = 0.625). Other factors influencing confidence and hence, adoption of internet banking are the confidence that internet banking is financially secured (loading = 0.586), confidence in bank's competence for privacy protection (loading = 0.561) and the overall importance of security (loading = 0.440). This is consistent with the work of Li and Worthington (2004) who claimed that customer confidence on internet banking transactions also influenced its adoption rate. Theft of customer's sensitive information can cause them to lost confidence in this internet banking system (Altıntaş and Gürsakal, 2007). This finding related to security supported Sathye's (1999) work as well as Littler and Melanthiou (2006) who found that security had a significant impact on the use of internet banking service. Moreover, Aladwani (2001) stated that security was one of the leading future challenges of internet banking. Mattila and Mattila (2005) advised that banks offering internet banking must initially persuade their customers that this service is a secured medium. Hence, *H7* is supported and security aspect is an important factor for the adoption of internet banking services in Mauritius.

Internet banking awareness, demographic related variables and adoption of internet banking. The survey results reveal that level of awareness of the concept had an impact on the choice of using internet banking in Mauritius ($F = 5.619$). ANOVA test has been performed to test *H8* and the result showed that significance level (0.018) was < 5 per cent ($p < 0.05$ level). This means that the relationship between the two variables was truly significant, validating *H8* and further indicating a good fit of *H8* in our proposed framework. Rogers and Shoemaker (1971) also stressed on the fact that consumers undergo a process of knowledge, belief, decision making and confirmation before adopting a product or service. The results tallied with the work of Pikkarainen *et al.* (2004) and Guiltinand and Donnelly (1983) who enlightened the fact the adoption of internet banking would be determined by the level of information that a customer had about internet banking and its likely benefits. Likewise, Sathye (1999) added that

low awareness of this concept was a critical reason for the non adoption of this service. That “shy away” from internet banking is explained by the absence of awareness of the service and its benefits (Howcroft *et al.*, 2002).

From the empirical survey findings, the Spearman rank ρ coefficient on age is weak and low ($r = -0.286$, $p > 0.05$), indicating that the hypothesized direct effect was not supported as proposed in our conceptual model; hence, *H9* should be rejected. Age did not turn out to be a significant variable affecting internet banking services in Mauritius. Therefore, we can infer that age is an absolutely irrelevant construct influencing the adoption of internet banking services in Mauritius and in turn, these results supported the studies of Smith and Comstock (1995), Zhang (2005), and Roussos (2007) who said that the statement that young people previously knew about internet and older ones were resistant was incorrect. Moreover, Al-Somali *et al.* (2009) revealed that age did not influence their behaviours towards using internet banking. Conversely, these outcomes denied the reports of Wang *et al.* (2003), Bauer and Heinh (2006), Alagheband (2006), Czaja *et al.* (2001) and Lu *et al.* (2003) who stated that age significantly influenced a customer's choice of adopting internet banking. Moreover, they even claimed that elderly people tended to have a negative attitude towards the use of new technologies as compared to youngsters.

Moreover, *t*-test has been used to determine the significance of income level on customer's choice of using internet banking in the present study. From the outcomes of the empirical evidence, it can be deduced that the relationship between the two variables was noteworthy because significance value (0.02) was < 0.05 at ($t = 3.110$), proving that *H10* should be accepted. Moreover, users of internet banking were more likely to be influenced by their income level in their choice of adopting internet banking (mean = 2.94) which was higher than that of non-users of internet banking (mean = 2.62). Such results tallied with what Gartner Group's (2009) study which revealed that the use of internet banking was not the same among all income earners. Only 17 per cent of the respondents who used this service were low income earners while the majority of respondents were high income earners. Likewise, Hubona and Kennick (1996), Chau and Hu (2002) added that diverse income categories can result in different attitudes and behaviours towards the use IT. Alternatively, the results of this survey refuted Al-Somali *et al.* (2009) who suggested that income has no significant influence on perceptions once the customer was experience with the technology.

It is also interesting to note that gender has no impact on the adoption of internet banking in Mauritius ($r = 0.292$, $p > 0.05$), therefore, *H11* is not supported. These findings were in line with what Eurostat's (2009) verdicts which observed that gender gap in this field was decreasing or some even stated that there was no statistically noteworthy difference between males and females concerning the use of internet banking. Therefore, this contradicted authors like Li *et al.* (1999), Burke (2000), Gefen and Straub (1997), Venkatesh and Morris (2000) as well as Sun and Zhang (2006) who believed that the acceptance of a new technology, its characteristics and use rested on gender.

In relation to the hypothesis, education has a significant positive effect on customers' choice to adopt internet banking as outlined in our proposed framework ($\chi^2 = 12.099$, $p < 0.05$), supporting *H12*. Results also evidence the key role of education on the usage and adoption of internet banking services. These findings corresponded with the work of Al-Somali *et al.* (2008) who found that education influenced the adoption of internet banking. Also, Yeung *et al.*, (2006) added that highly educated customers were likely to accept changes more enthusiastically. Customers with a good

education profile tend to adopt technology application such as internet and internet banking. Likewise, Burke (2002) asserted that education was positively correlated with the customer's literacy rate.

To deepen the understanding on the various factors influencing adoption of internet banking in Mauritius, this paper suggest a new angle for internet banking adoption by combining various constructs such as perceived ease of use, perceived usefulness, subjective norms, attitudes, behavioural intentions, security and trust aspects, the level of awareness on internet banking services and demographic variables such as age, income, gender and education into one integrated framework and thus, proposing the IBSAM.

Managerial implications and recommendations

In today's highly competitive banking landscape market, it is essential that banks continue to develop their internet banking capabilities by identifying strategies to increase adoption, access and usage of this low-cost channel in Mauritius. This is because the use of the internet as a shopping medium is still at an early stage of development in the context of Mauritius. Our results present an opportunity to better understand customers' perceptions towards internet banking services in Mauritius. It is equally important for banking institutions to be able to predict the acceptance of internet banking by their customers, and to understand why the adoption of internet banking is still partial in a developing nation like Mauritius. Banks are offering internet banking services because this service is expected to improve their profits, which makes increasing the adoption rate a central issue. Internet banking provides both a communication and a distribution channel. Policy makers and banking executives could therefore use the findings of this study as an additional input into their respective banking strategies.

Empirical results have shown a positive significant relationship between perceived ease of use and the likelihood to adopt internet banking ($F = 8.116$). The results are aligned with Bandura (1982), Hill *et al.* (1986) and Ajzen (2002) who advocated that self-efficacy predicted the likelihood to use advanced technological products. Therefore, the technical banking designers should provide one-month trial basis application of internet banking services for customers to be user-friendly with the internet banking system. A simple internet banking interface should be designed with several demos integrated on how to use internet banking and the various steps to follow once the customers are online. In this respect, banking institutions will ensure that the internet banking is easy to use. Consequently, this may influence the banking customers to use the internet banking.

It is also interesting to note that perceived usefulness has an influence on the likelihood to use internet banking. The results confirmed that there is a significant relationship between perceived usefulness and the likelihood to adopt internet banking in Mauritius ($F = 22.588$) and this finding is in line with the study of Harper (1997). The key role of perceived usefulness on the likelihood to adopt internet banking demonstrates that it is crucial that the design and layout of internet banking interface enable customers to easily locate the information content they require when they are adopting internet banking services. Banking executives should take into account that web content information richness plays a crucial role in shaping customers' decisions to use internet banking services. Therefore, providing detailed and up-to-date information on internet banking services can further empower customers to adopt internet banking in Mauritius. Banking institutions should provide customers with

more financial control, convenience and further enable them to perform their transactions quickly, effectively and efficiently compared to the traditional banking landscape.

The empirical findings provide a greater insight into seemingly established relationships between attitudes and the adoption of internet banking in Mauritius ($r = 0.271, p < 0.05$). Research by Fishbein and Ajzen (1975) has also highlighted that positive or negative feelings influence the behaviour of doing something. Therefore, banking executives should advertise the benefits of internet banking services, such as avoiding jammed telephone lines and queues in brick-and-mortar bank offices in order to shape positive customers' attitudes towards internet banking services in Mauritius. In turn, customers should be empowered with key information on internet banking in terms of providing fast, transparent and updated information and banking customers will further enjoy greater convenience and comfort while making online transactions at home.

The findings of this study imply that trust (loadings ranging from 0.610 to 0.820) and security (loadings ranging from 0.440 to 0.838) are key variables that act to reduce the perceived risk of using internet banking in Mauritius. It is suggested that as trust and security in the bank is the pre-requisite of both pathways to increase the behavioural intention of using internet banking, this should be the major focus of trust building strategies and security enhancement activities. These results allow banking practitioners to focus their efforts on safeguarding trust and security in an online banking landscape instead of wasting resources on the irrelevant communication strategies. This finding is in line with previous studies on internet banking, which also found that it is crucial to inspire trust by making customers feel secure, for example, by keeping them informed, in a simple to understand language, of how their interests and privacy are safeguarded (Yousafzai and Yani-de-Soriano, 2012). Likewise, Sathye's (1999) study revealed that 73 per cent of the customers were not willing to adopt internet banking because of security concerns. Hence, bank managers should provide customer assurance on trust and security aspects associated with internet banking. Banking practitioners should discuss with technical programmers and they should use the latest encryption, illegal intrusion detection and sophisticated firewall programs across all banking institutions in Mauritius. Technical programmers of banking institutions should increase customer authentications such as PIN code and banking customers should be provided with helpful suggestions and guidelines on how to enhance security aspects of internet banking services at home. For instance, use of safe computers with updated antivirus software and firewalls, manual entry of internet banking address and maintaining the confidentiality of PIN code will further restore security concerns among banking customers in Mauritius.

Our results revealed that that level of awareness of the concept had an impact on the choice of using internet banking in Mauritius ($F = 5.619$). This coincides with Pikkarainen *et al.* (2004) and Guiltinand and Donnelly (1983) who have affirmed that adoption of internet banking are determined by the level of awareness that a customer has about internet banking and its likely benefits. Moreover, empirical evidence also suggested that non-users would like to adopt internet banking given its underlying benefits. Therefore, banking executives should emphasize on the various benefits associated with internet banking both in different traditional and online advertising mediums. Moreover, banking representatives should further remind customers the benefits of internet banking services and focus on the convenience aspect related to internet banking.

Another very noteworthy result is the income level being key construct to influence the adoption of internet banking services in Mauritius ($t = 3.110$). Likewise, the results also confirmed the key role of education on the usage and adoption of internet banking services ($\chi^2 = 12.099$, $p < 0.05$). These findings corresponded with Gartner Group's (2009) study and the work of Al-Somali *et al.* (2008), implying that that income and educational level have influenced the adoption of internet banking. Hence, banking executives can extrapolate key information pertaining to the income and educational level of their existing customers from their actual database system. They can send personalized brochures on internet banking services to specific highly educated customers with higher income levels to further empower them with strategic information pertaining to the adoption of internet banking as a fresh and innovative approach for their unique banking solutions in Mauritius.

The practical implications of the present study have addressed that banking institutions need to highlight the benefits of internet banking, enhance its ease of use and banking security in order to improve banking customers' trust. Banking institutions should also highlight the benefits of internet banking in their promotional and advertising activities. The benefits such as 24 hours a day accessibility, ability to self-manage and consolidate financial transactions conveniently at home and availability of add-on services are few benefits that can be highlighted in the communication campaigns of banking institutions in Mauritius.

Conclusion, limitations and directions for future research

The proposed framework was validated to explore the factors influencing adoption of internet banking in Mauritius. Hence, it can be further implied that there is a powerful urge for banking institutions to re-orient their existing marketing strategies towards internet banking services in order to empower customers on the various benefits of internet banking. Far from having reached its pinnacle, internet banking has still a long road to travel in both research and practice in both developed and developing countries. The present study has highlighted the importance of internet banking services among banking customers in Mauritius. There is equally strong empirical evidence in the study concerning the adoption of internet banking services for a developing country like Mauritius. It is highly recommended that banking professionals emphasize on trust and security aspects when communicating the benefits of internet banking services to customers. Banking customers should be provided with sophisticated encryption illegal intrusion detection and firewall programs to further reassure them on security and trust aspects. The research results will also form useful and practical tools for the policy makers who are responsible for designing and marketing internet banking services in Mauritius.

Limitations of the research

The present study has analyzed the factors influencing the adoption of internet banking in Mauritius. The study had some potential limitations as focus was only on investigating the adoption of internet banking services from customers' perspective in Mauritius and the underlying perceptions of banking executives, business customers or other corporate entities executives on internet banking services have not yet been tapped. The findings need to be further validated as the empirical results have only provided a broad investigation on the factors influencing the adoption of internet banking services for the consumer market. Only some specific constructs and predictors for promoting internet banking adoption been predetermined and thus,

the research has some conceptual limitations in the arena of internet banking services for developing countries since the model has been validated only for commercial banks in Mauritius.

Future research

In this respect, further research is clearly needed in order to enhance the understanding of internet banking services in Mauritius. Research should extend to banking executives and managers in order to allow a comparative analysis on the adoption of internet banking services in Mauritius. Future qualitative studies could focus on specific behavioural intentions of adopters and non-adopters of internet banking services in Mauritius. Moreover, supplementary qualitative research in terms of focus group discussions with adopters and non-adopters of internet banking services can provide additional evidence to support the existing findings relating to the adoption rate of internet banking and their underlying user experience with innovative banking technologies. The study can be extended to business customers, government bodies and corporate entities. Likewise, other factors such as user experience and the different features of the innovation theory influencing the adoption of internet banking services can be supplemented in order to make the model more rounded and the research can be extended to other developing countries.

References

- Agarwal, R. and Prasad, J. (1999), "Are individual differences germane to the acceptance of new information technologies?", *Decision Sciences*, Vol. 30 No. 2, pp. 361-91.
- Ajzen, I. (1985), "From intentions to actions: a theory of planned behavior", in Kuhi, J. and Beckmann, J. (Eds), *Action – Control. From Cognition to Behaviour*, Springer, Heidelberg, pp. 11-39.
- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Ajzen, I. (2001), "Nature and operation of attitudes", *Annual Review of Psychology*, Vol. 52 No. 1, pp. 27-58.
- Ajzen, I. (2002), "Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior", *Journal of Applied Social Psychology*, Vol. 32 No. 4, pp. 665-83.
- Akinci, B., Kiziltas, S., Ergen, E., Karaesmen, I. and keceli, F. (2004), "Modeling and analyzing the impact of technology on data capture and transfer processes at construction sites", *Journal of Construction Engineering and Management*, Vol. 132 No. 11, pp. 1148-57.
- Aladwani, A.M. (2001), "Online banking: a field study of drivers, development challenges, and expectations", *International Journal of Information Management*, Vol. 21 No. 3, pp. 213-25.
- Alagheband, P. (2006), "Adoption of e-banking services by Iranian customers", Master thesis, University of Technology, Lulea, available at: <http://epubl.ltu.se/16530187/2006/49/LTUPB-EX-0649-SE.pdf> (accessed on 12 February 2012).
- Alam, S.S., Khatibi, A.A., Santhapparaj, S. and Talha, M. (2007), "Development and prospects of internet banking in Bangladesh", *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*, Vol. 17 Nos 1/2, pp. 56-66.
- Al-Ashban, A.A. and Burney, M.A. (2001), "Customer adoption of tele-banking technology: the case of Saudi Arabia", *International Journal of Bank Marketing*, Vol. 19 No. 5, pp. 191-200.
- Al-Mudimigh, A.S. (2007), "E-business strategy in an online banking services: a case study", *Journal of Internet Banking and Commerce*, Vol. 12 No. 1, pp. 1-8.

- Alsajjan, B. and Dennis, C. (2006), "The impact of trust on acceptance of online banking", in *European Association of Education and Research in Commercial Distribution*, Brunel University, West London, pp. 1-15.
- Al-Somali, S.A., Gholami, R. and Clegg, B. (2008), "Internet banking acceptance in the context of developing countries: an extension of the technology acceptance model", European Conference on Management of Technology, Nice, 17-19 September.
- Al-Somali, S.A., Gholami, R. and Clegg, B. (2009), "An investigation into the acceptance of online banking in Saudi Arabia", *Technovation*, Vol. 29 No. 2, pp. 130-41.
- Altıntaş, M.H. and Gürsakal, N. (2007), "Phishing attacks and perceptions of service quality: a content analysis of internet banking in Turkey", *Journal of Internet Banking and Commerce*, Vol. 12 No. 2, pp. 2-13.
- Athanasios, G.P., Hughes, T. and Webber, D.J. (2012), "Adopters and non-adopters of internet banking: a segmentation study", *International Journal of Bank Marketing*, Vol. 30 No. 1, pp. 20-42.
- Awamleh, R. and Fernandes, C. (2005), "Internet banking: an empirical investigation into the extent of adoption by banks and the determinants of customer satisfaction in the United Arab Emirates", *Journal of Internet Banking and Commerce*, Vol. 10 No. 1, available at: www.arraydev.com/commerce/JIBC/ (accessed 23 March 2012).
- Awamleh, R., Evans, J. and Mahate, A. (2003), "Internet banking in emergency markets: the case of Jordan – a note", *The Journal of Internet Banking and Commerce*, Vol. 8 No. 1, pp. 41-62.
- Ayadi, A. (2006), "Technological and organizational preconditions to Internet banking implementation: case of a Tunisian bank", *Journal of Internet Banking and Commerce*, Vol. 11 No. 1, available at: www.arraydev.com/commerce/JIBC/ (accessed 25 February 2012).
- Bandura, A. (1982), "Self-efficacy mechanism in human agency", *American Psychologist*, Vol. 37 No. 2, pp. 122-47.
- Bank Of Mauritius (2011), "Annual report of the bank for the year ended 30 June 2011", Bank of Mauritius Annual Report, available at: www.bom.mu/?id=40470 (accessed 16 February 2012).
- Bauer, K. and Heinh, S. (2006), "The effect of heterogeneous on the early adoption of internet banking technologies", *Journal of Banking and Finance*, Vol. 30 No. 6, pp. 1713-25.
- Beer, S. (2006), "Customers preference on internet banking, survey", available at: www.itwire.com/content/view/4570/53 (accessed 12 March 2012).
- Bhattacharjee, A. (2000), "Acceptance of e-commerce services: the case of electronic brokerages", *IEEE Transactions on Systems, Man, and Cybernetics: Part A. Systems and Humans*, Vol. 30 No. 4, pp. 411-20.
- Bojinov, B. (2003), "What Bulgarian banks offer via internet: an overview", Working Paper No. 0310014, Economics Working Paper Archive (EconWPA), Finance, Svishtov.
- Burke, R.R. (2002), "Technology and the customer interface: what consumers want in the physical and virtual store", *Journal of the Academy of Marketing Science*, Vol. 30 No. 4, pp. 411-32.
- Burke, S. (2000), "In search of Lesbian community in an electronic world", *Cyberpsychology and Behavior*, Vol. 3 No. 4, pp. 591-604.
- Cervantes, M. (1997), "Diffusing technology to industry", *The OECD Observer*, Vol. 207 (August/September), pp. 20-3.
- Chan, S.C. and Lu, T.M. (2004), "Understanding internet banking adoption and use behaviour: a Hong Kong perspective", *Journal of Global Information Management*, Vol. 12 No. 3, pp. 12-43.

- Chau, P.Y.K. and Hu, J.H. (2002), "Investigating healthcare professionals' decisions to accept telemedicine technology: an empirical test of competing theories", *Information & Management*, Vol. 39 No. 4, pp. 297-311.
- Chua, E.K. (1980), "Consumer intention to deposit at banks: an empirical investigation of its relationship with attitude, normative belief and confidence", Academic Exercise, Faculty of Business Administration, National University of Singapore, Singapore.
- Churchill, G.A. Jr (1979), "A paradigm for developing better measures of marketing constructs", *Journal of Marketing Research*, Vol. 16 No. 2, pp. 64-73.
- Consult, A.N. (2002), "China online banking study", available at: <http://estore.chinaonline.com/chinonlbanstu.html> (accessed 12 April 2012).
- Courchane, M., Nickerson, D. and Sullivan, R. (2002), "Investment in internet banking as a real option: theory and tests", *Journal of Multinational Financial Management*, Vol. 12 Nos 4-5, pp. 347-63.
- Czaja, S.J., Sharit, J., Ownby, R., Roth, D.L. and Nair, S. (2001), "Examining age differences in performance of a complex information search and retrieval task", *Psychology and Aging*, Vol. 16 No. 4, pp. 564-80.
- Daniel, E. (1998), "Who dares wins? Online banking services and innovation types", working paper, Cranfield University, School of Management, Cranfield.
- Daniel, E. (1999), "Provision of electronic banking in the UK and the republic of Ireland", *International Journal of Bank Marketing*, Vol. 17 No. 2, pp. 72-82.
- Davis, F.D. Jr (1986), "A technology acceptance model for empirically testing new end-user information systems: theory and results", Doctoral dissertation, Sloan School of Management, Massachusetts Institute of Technology, Cambridge.
- Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319-40.
- Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science*, Vol. 35 No. 8, pp. 982-1003.
- De Young, R. (2001), "The internet's place in the banking industry", Chicago Federal Letter No. 163, Federal Reserve Bank of Chicago, IL, March.
- Donnelly, J.H. (1970), "Social character and acceptance of new products", *Journal of Marketing Research*, Vol. 7 No. 1, pp. 111-3.
- Dube, T., Chitura, T., Chitura, T. and Langton, R. (2009), "Adoption and use of internet banking in Zimbabwe: an exploratory study", *Journal of Internet Banking and Commerce*, Vol. 14 No. 1, pp. 1-13.
- Durkin, M., Jennings, D., Mulholland, G. and Worthington, S. (2008), "Key influences and inhibitors on adoption of the internet for banking", *Journal of Retailing & Consumer Services*, Vol. 15 No. 5, pp. 348-57.
- Elliot, S. and Loebbecke, C. (2000), "Interactive, inter-organisational innovations in electronic commerce", *Information Technology & People*, Vol. 13 No. 1, pp. 46-67.
- Eriksson, K., Kerem, K. and Nilsson, D. (2005), "Customer acceptance of internet banking in Estonia", *International Journal of Bank Marketing*, Vol. 23 No. 2, pp. 200-16.
- Eurostat (2008), "European economic community", Eurostat, available at: <http://epp.eurostat.ec.europa.eu> (accessed 14 January 2012).
- Eurostat (2009), "Internet usage in 2009 – households and individuals", available at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-QA-09-046/EN/KS-QA-09-046-EN.PDF (accessed 12 January 2012).
- Filotto, U., Tanzi, P.M. and Saita, F. (1997), "Customer needs & front-office technology adoption", *International Journal of Bank Marketing*, Vol. 15 No. 1, pp. 13-21.

- Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention, and Behaviour: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- Floros, C. (2008), "Internet banking websites performance in Greece", *Journal of Internet Banking and Commerce*, Vol. 13 No. 3, pp. 1-8.
- Forrester Research (2009), "Internet banking is booming", Forrester Research, available at: www.internet-banking.com/tag/gartner-group/ (accessed 24 December 2011).
- Gartner Group (2009), "Internet banking is booming", Gartner Group, available at: www.internet-banking.com/tag/gartner-group/ (accessed 12 December 2012).
- Gefen, D. (2002), "Customer loyalty in e-commerce", *Journal of the Association for Information Systems*, Vol. 3 No. 1, pp. 27-51.
- Gefen, D. and Straub, D. (2000), "The relative importance of perceived ease of use in IS adoption: a study of e-commerce adoption", *Journal of the Association for Information Systems*, Vol. 1 No. 8, pp. 1-28.
- Gefen, D. and Straub, D.W. (1997), "Gender differences in the perception and use of e-mail: an extension to the technology acceptance model", *MIS Quarterly*, Vol. 21 No. 4, pp. 389-400.
- Gerlach, D. (2000), "Special report: the web and you", available at: www.computerworld.com.au/article/60937/special_report_web/ (accessed 15 January 2012).
- Gerrard, P. and Cunningham, J.B. (2003), "The diffusion of internet banking among Singapore consumers", *International Journal of Bank Marketing*, Vol. 21 No. 1, pp. 16-28.
- Guiltnand, J.P. and Donnelly, J.H. (1983), "The use of product portfolio analysis in bank marketing planning", in Shanmugam and Burke (Eds), *Management Issues for Financial Institutions*, p. 50.
- Gurău, C. (2002), "E-banking in transition economies: the case of Romania", *Journal of Financial Services Marketing*, Vol. 6 No. 4, pp. 362-79.
- Guriting, P. and Ndubisi, N.O. (2006), "Borneo online banking: evaluating customer perceptions and behavioural intention", *Management Research News*, Vol. 29 Nos 1/2, pp. 6-15.
- Hair, J., Anderson, R., Tatham, R. and Black, W. (1995), *Multivariate Data Analysis with Readings*, Prentice-Hall International, Englewood Cliffs, NJ.
- Hair, J.F., Bush, R.P. and Ortinau, D.J. (2000), *Marketing Research: A Practical Approach for the New Millennium*, McGraw-Hill, New York, NY.
- Hamid, M.R.A., Amin, H., Lada, S. and Ahmad, N. (2007), "A comparative analysis of internet banking in Malaysia and Thailand", *Journal of Internet Business*, Vol. 4 No. 1, pp. 1-19.
- Haque, A., Ismail, A.Z.H. and Daraz, A.B. (2009), "Issues of e-banking transaction: an empirical investigation on Malaysian customers perception", *Journal of Applied Sciences*, Vol. 9 No. 10, pp. 1870-9.
- Harper, R.I. (1997), "An overview of Wallis Report", *Australian Economic Review*, Vol. 30 No. 3, pp. 288-300.
- Harris, L. and Spence, J. (2002), "The ethics of banking", *Journal of Electronic Commerce Research*, Vol. 3 No. 2, pp. 59-66.
- Hartwick, J. and Barki, H. (1994), "Explaining the role of user participation in information system use", *Management Science*, Vol. 40 No. 4, pp. 440-65.
- Hennigan, M. and Gourvennec, Y. (1996), "Internet banking in Europe", *Internet Magazine*, December.
- Hill, I.S., Ikuta, S., Kawasaki, A. and Ogino, T. (1986), "Universals of linguistic politeness: quantitative evidence from Japanese and American english", *Journal of Pragmatic's*, Vol. 10 No. 3, pp. 347-71.
- Howcroft, B., Hamilton, R. and Hewer, P. (2002), "Consumer attitude and the usage and adoption of home-based banking in the United Kingdom", *International Journal of Bank Marketing*, Vol. 20 No. 3, pp. 111-21.

- Hu, P.J., Chau, P.Y.K., Sheng, O.R.L. and Tam, K.Y. (1999), "Examining the technology acceptance model using physician acceptance of telemedicine technology", *Journal of Management Information Systems*, Vol. 6 No. 2, pp. 91-112.
- Hubona, G.S. and Kennick, E. (1996), "The impact of external variables on information technology usage behaviour", *29th Annual Hawaii International Conference on System Sciences, Maui, Hawaii, Institute of Electrical and Electronics Engineering Computer Society, January 3-6, 1996*, Vol. 4, IEEE Press, Los Alamitos, CA, pp. 166-75.
- Igbaria, M., Iivari, J. and Maragahh, H. (1995), "Why do individuals use computer technology? A Finnish case study", *Information & Management*, Vol. 29 No. 5, pp. 227-38.
- Jackson, C.M., Chow, S. and Leitch, R.A. (1997), "Toward an understanding of the behavioral intention to use an information system", *Decision Sciences*, Vol. 28 No. 2, pp. 357-89.
- Jarvenpaa, S.L., Shaw, T.R. and Staples, D.S. (2004), "Toward contextualized theories of trust: the role of trust in global virtual teams", *Information Systems Research*, Vol. 15 No. 3, pp. 250-67.
- Jayawardhena, C. and Foley, P. (2000), "Changes in the banking sector – the case of internet banking in the UK", *Internet Research*, Vol. 10 No. 1, pp. 19-31.
- Karahanna, E. and Limayem, M. (2000), "E-mail and v-mail usage: generalising across technologies", *J. Org. Computer Elect. Com.*, Vol. 10 No. 1, pp. 49-66.
- Karjaluoto, H., Mattila, M. and Pentto, T. (2002), "Factors underlying attitude formation towards online banking in Finland", *International Journal of Bank Marketing*, Vol. 20 No. 6, pp. 261-72.
- Kelman, H.C. (1958), "Compliance, identification, and internalization: three processes of attitude change", *Journal of Conflict Resolution*, Vol. 2 No. 1, pp. 51-60.
- Kennickell, A.B. and Kwast, M.L. (1997), "Who uses electronic banking?", Finance and Economics Discussion Paper Series No. 1997/35, Results from the 1995 Survey of Consumer Finances. Board of Governors of the Federal Reserve System.
- Khare, A., Mishra, A. and Singh, A.B. (2012), "Indian customers' attitude towards trust and convenience dimensions of internet banking", *International Journal of Services and Operations Management*, Vol. 11 No. 1, pp. 107-22.
- Kleijnen, M., Wetzels, M. and De Ruyter, K. (2004), "Consumer acceptance of wireless finance", *Journal of Financial Services Marketing*, Vol. 8 No. 3, pp. 206-17.
- Kwan, S.S.Y. (2000), "A comparative study of the retail online banking sector in UK", Master's thesis, University of Sheffield.
- Labay, D.G. and Kinnear, T.C. (1981), "Exploring the consumer decision process in the adoption of solar energy systems", *Journal of Consumer Research*, Vol. 8 No. 3, pp. 271-7.
- Laforet, S. and Li, X. (2005), "Consumers' attitudes towards online and mobile banking in China", *International Journal of Bank Marketing*, Vol. 23 No. 5, pp. 362-80.
- Lee, E. and Lee, J. (2000), "Haven't adopted electronic financial services yet? The acceptance and diffusion of electronic banking technologies", *Financial Counselling and Planning*, Vol. 11 No. 1, pp. 49-60.
- Lee, M., Martin-Ruiz, C., Graham, A., Court, J., Jaros, E. and Perry, R. (2002), "Nicotinic receptor abnormalities in the cerebellar cortex in autism", *Brain*, Vol. 125 No. 7, pp. 1483-95.
- Li, H., Kuo, C. and Russell, M.G. (1999), "The impact of perceived channel utilities, shopping orientations, and demographics on the consumer's online buying behaviour", *Journal of Computer-Mediated Communication*, Vol. 5 No. 2, pp. 1-20.
- Li, S. and Worthington, A.C. (2004), "The relationship between the adoption of Internet banking and electronic connectivity: an international comparison", Discussion paper, School of Economics and Finance, Queensland University of Technology, Brisbane, QLD.

- Liao, S., Shao, Y.P., Wang, H. and Chen, A. (1999), "The adoption of virtual banking: an empirical study", *International Journal of Information Management*, Vol. 19 No. 1, pp. 63-74.
- Littler, D. and Melanthiou, D. (2006), "Consumer perceptions of risk and uncertainty and the implications for behavior towards innovative retail services: the case of internet banking", *Journal of Retailing and Consumer Services*, Vol. 13 No. 6, pp. 431-43.
- Lu, J., Yu, C.S., Liu, C. and Yao, J.E. (2003), "Technology acceptance model for wireless internet", *Internet Research: Electronic Networking Applications and Policy*, Vol. 13 No. 3, pp. 206-22.
- McKechnie, S., Winklhofer, H. and Ennew, C. (2006), "Applying the technology acceptance model to the online retailing of financial services", *International Journal of Retail & Distribution Management*, Vol. 34 Nos 4/5, pp. 388-410.
- Malhotra, P. and Singh, B. (2010), "An analysis of internet banking offerings and its determinants in India", *Internet Research*, Vol. 20 No. 1, pp. 87-106.
- Malhotra, Y. and Galletta, D.F. (1999), "Extending the technology acceptance model to account for social influence: theoretical bases and empirical validation", Proceedings of the 32nd Hawaii International Conference on System Sciences, Maui, Hawaii, 5-8 January.
- Mattila, A. and Mattila, M. (2005), "How perceived security appears in the commercialisation of internet banking", *International Journal of Financial Services Management*, Vol. 1 No. 1, pp. 89-101.
- Mattila, A.S. (2000), "The role of narratives in the advertising of experiential services", *Journal of Service Research*, Vol. 3 No. 1, pp. 35-45.
- Mattila, M., Karjaluoto, H. and Pento, T. (2003), "Internet banking adoption among mature customers: early majority of laggards?", *Journal of Services Marketing*, Vol. 17 No. 5, pp. 514-28.
- Maughan, J. (2012), "Pros and cons of online banking", available at: www.life123.com/career-money/credit-debt/bank/pros-and-cons-of-online-banking.shtml (accessed 3 April 2012).
- Miller, K. (2005), *Communications Theories: Perspectives, Processes, and Contexts*, McGraw-Hill, New York, NY.
- Mohammed, S.K., Mahapatra, S.S. and Sreekumar, S. (2009), "Service quality evaluation in internet banking: an empirical study in India", *International Journal of Indian Culture and Business Management*, Vol. 2 No. 1, pp. 30-46.
- Mols, N.P. (1999), "The internet and the banks' strategic distribution channel decisions", *International Journal of Bank Marketing*, Vol. 17 No. 6, pp. 295-300.
- Moody, J. (2002), "Traditional banks gain edge with electronic banking", available at: www.cendant.com/media/trends_information/trends_information.cgi/Marketing+Services/59 (accessed 18 December 2011).
- Moon, J.-W. and Kim, Y.-G. (2001), "Extending the TAM for a world-wide-web context", *Information & Management*, Vol. 8 No. 4, pp. 217-30.
- Morgan Stanley Dean Witter (2000), *The Internet and Financial Services*, MSDW, New York, NY.
- Munusamy, J., Chelliah, S. and Mun, H. (2010), "Service quality delivery and its impact on customer satisfaction in the banking sector in Malaysia", *International Journal of Innovation, Management and Technology*, Vol. 1 No. 4, pp. 398-403.
- Nasri, W. (2011), "Factors influencing the adoption of internet banking in Tunisia", *International Journal of Business and Management*, Vol. 6 No. 8, pp. 143-50.
- Nixon, B. and Dixon, M. (2000), *Sams Teach Yourself E-Banking Today*, Sams Publishing, Washington, DC.
- Nor, Md.K., BărbuLă-MIȘU, N. and Stroe, R. (2010), "A model for analysing the determinant factors of adoption e-banking services by Romanian customers", available at: www.ecocyb.ase.ro/nr4%20eng/Radu%20Stroe.pdf (accessed 14 January 2012).

-
- Nunnally, J.C. and Bernstein, I.H. (1994), *Psychometric Theory*, 3rd ed., McGraw-Hill, New York, NY.
- Pavlou, P.A. (2002), "Institution-based trust in interorganizational exchange relationships: the role of online B2B marketplaces on trust formation", *Journal of Strategic Information Systems*, Vol. 11 No. 3, pp. 15-243.
- Pedersen, P.E. and Ling, R. (2002), "Mobile end-user service adoption studies: a selective review", *Scandinavian Journal of Information Systems*, Vol. 14 No. 1, pp. 3-17.
- Peterson, M. (2006), "A brief history of internet banking", EzineArticles, available at: <http://ezinearticles.com> (accessed 24 January 2012).
- Peterson, P.T. (1997), "Doing business in a web-based world", *Mortgage Banking*, Vol. 58 No. 2, pp. 58-68.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. and Pahnla, S. (2004), "Consumer acceptance of online banking: an extension of the technology acceptance model", *Internet Research*, Vol. 14 No. 3, pp. 224-35.
- Polatoglu, V.N. and Ekin, S. (2001), "An empirical investigation of the Turkish consumers' acceptance of internet banking services", *International Journal of Bank Marketing*, Vol. 19 No. 4, pp. 156-65.
- Reavley, N. (2005), "Securing online banking", *Card Technology Today*, Vol. 17 No. 2, pp. 2-3.
- Redelinghuis, A. and Rensleigh, C. (2010), "Customer perceptions on internet banking information protection", *SA Journal of Information Management*, Vol. 12 No. 1, pp. 1-6.
- Ribbinket, D., Van Riel, A., Liljander, V. and Streukens, S. (2004), "Comfort your online customer: quality, trust and loyalty on the internet", *Managing Service Quality*, Vol. 14 No. 6, pp. 446-56.
- Rogers, E.M. (1962), *Diffusion of Innovations*, Free Press, New York, NY.
- Rogers, E.M. and Shoemaker, F.F. (1971), *Communication of Innovations*, 2nd ed., The Free Press, New York, NY.
- Roussos, P. (2007), "The Greek computer attitude scale: construction and assessment of psychometric properties", *Computers in Human Behavior*, Vol. 23 No. 1, pp. 578-90.
- Saga, V.L. and Zmud, R.W. (1994), "The nature and determinants of IT acceptance, routinization, and infusion", in Levine, L. (Ed.), *Diffusion Transfer, and Implementation of Information Technology*, PA7 Carnegie Mellon University, Software Engineering Institute, Pittsburgh, PA, pp. 67-86.
- Sathye, M. (1999), "Adoption of internet banking by Australian consumers: an empirical investigation", *International Journal of Bank Marketing*, Vol. 17 No. 7, pp. 324-34.
- Schmitz, J. and Fulk, J. (1991), "Organizational colleagues, media richness, and electronic mail: a test of the social influence model of technology use", *Communication Research*, Vol. 8 No. 4, pp. 487-523.
- Shanmugham, B. and Sohail, S.M. (2003), "E-banking and customer preferences in Malaysia: an empirical investigation", *Information Sciences*, Vol. 150 No. 3, pp. 207-17.
- Singhal, D. and Padhmanabhan, V. (2008), "A study on customer perception towards internet banking: identifying major contributing factors", *The Journal of Nepalese Business Studies*, Vol. 5 No. 1, pp. 101-11.
- Smith, S. and Comstock, D. (1995), "Teaching internet use to adult learners: the LANL experience", Proceedings for the 1995 Conference of the Council for the Higher Education Computing Services (ERIC Document Reproduction Series No. ED 398 916), 8-10 November, Roswell, NM.
- Stewart, K. (1999), "Transference as a means of building trust in world wide web sites", Proceedings of the 20th ICIS, Charlotte, NC, 13-15 December.

- Suganthi, R.K., Balachandher, G. and Balachandran, V. (2000), "Internet banking patronage: an empirical investigation of Malaysia", *Journal of Internet Banking and Commerce*, Vol. 6 No. 1, pp. 75-91.
- Suh, B. and Han, I. (2002), "Effect of trust on customer acceptance of internet banking", *Electronic Commerce Research and Applications*, Vol. 1 No. 3-4, pp. 247-63.
- Suh, B. and Han, I. (2003), "The impact of customer trust and perception of security control on the acceptance of electronic commerce", *International Journal of Electronic Commerce*, Vol. 7 No. 3, pp. 135-61.
- Sulaiman, T.D.A.A.H. (2000), "Governor's keynote address at the fourteenth conference with financial institutions – towards a more efficient, effective and stable financial system", available at: www.bnm.gov.my/index.php?ch=9&pg=15&ac=42 (accessed 4 March 2012).
- Sun, H. and Zhang, P. (2006), "The role of moderating factors in user technology acceptance", *International Journal of Human-Computer Studies*, Vol. 64 No. 2, pp. 53-78.
- Szajna, B. (1994), "Software evaluation and choice: predictive evaluation of the technology acceptance instrument", *MIS Quarterly*, Vol. 18 No. 3, pp. 319-24.
- Taylor, S. and Todd, P. (1995), "Assessing IT usage: the role of prior experience", *MIS Quarterly*, Vol. 19 No. 5, pp. 561-56.
- Teo, T. and Liu, J. (2007), "Consumer trust in e-commerce in the United States, Singapore and China", *Omega*, Vol. 35 No. 1, pp. 22-38.
- The Mauritian Economy Outlook* (2012), "The Mauritian economy: 2012 outlook", *The Mauritian Economy Outlook* (online), available at: www.axys-group.com/photo/News/Pdf/doc24.pdf (accessed 23 March 2012).
- The Times of India* (2011), "Gen next banks for tech savvy youths", available at: <http://articles.timesofindia.indiatimes.com/keyword/vijaya-bank> (accessed 5 December 2011).
- The World Bank (2009), "The infinite potential of mobile banking", The World Bank, available at: <http://psdblog.worldbank.org/psdblog/2009/11/the-infinite-potential-of-mobile-banking> (accessed 9 February 2012).
- Thornton, J. and White, L. (2001), "Customer orientation and usage of financial distribution channels", *Journal of Services Marketing*, Vol. 15 No. 3, pp. 168-85.
- Thulani, D., Tofara, C. and Langton, R. (2009), "Adoption and use of internet banking Zimbabwe: an exploratory study", *Journal of Internet Banking and Commerce*, Vol. 14 No. 2, pp. 1-13.
- Tornatzky, L.G. and Klein, R.J. (1982), "Innovation characteristics and innovation adoption-implementation: a meta-analysis of findings", *IEEE Transactions on Engineering Management EM*, Vol. 29 No. 11, pp. 28-45.
- Trappey, C.V. and Trappey, A.J.C. (2001), "Electronic commerce in greater China", *Industrial Management and Data Systems*, Vol. 101 No. 5, pp. 201-20.
- Trocchia, P.J. and Janda, S. (2000), "A phenomenological investigation of internet usage among older individuals", *Journal of Consumer Marketing*, Vol. 17 No. 7, pp. 605-16.
- Turban, E., Lee, J., King, D. and Chung, H.M. (2000), *Electronic Commerce: A Managerial Perspective*, Prentice-Hall, Upper Saddle River, NJ.
- Uhl, K., Andrus, R. and Poulson, L. (1970), "How are laggards different? An empirical inquiry", *Journal of Marketing Research*, Vol. 7 No. 1, pp. 51-4.
- Urban, G.L., Sultan, F. and Qualls, W. (2000), "Making trust the center of your internet strategy", *Sloan Management Review*, Vol. 42 No. 1, pp. 39-48.
- Venkatesh, V. (1999), "Creation of favorable user perceptions: exploring the role of intrinsic motivation", *MIS Quarterly*, Vol. 23 No. 2, pp. 239-60.

- Venkatesh, V. (2000), "Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model", *Information Systems Research*, Vol. 11 No. 4, pp. 342-65.
- Venkatesh, V. and Davis, F.D. (1996), "A model of the antecedents of perceived ease of use: development and test", *Decision Sciences*, Vol. 27 No. 10, pp. 451-81.
- Venkatesh, V. and Davis, F.D. (2000), "A theoretical extension of the technology acceptance model: four longitudinal field studies", *Management Sciences*, Vol. 46 No. 2, pp. 186-204.
- Venkatesh, V. and Morris, M.G. (2000), "Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior", *MIS Quarterly*, Vol. 24 No. 1, pp. 115-39.
- Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User acceptance of information technology: toward a unified view", *MIS Quarterly*, Vol. 27 No. 3, pp. 425-78.
- Vijayan, P. and Shanmugam, B. (2003), "Service quality evaluation of internet banking in Malaysia", *The Journal of Internet Banking and Commerce*, Vol. 8 No. 1, available at: www.arraydev.com/commerce/JIBC/
- Wang, Y.S., Wang, Y.M., Lin, H.H. and Tang, T.I. (2003), "Determinants of user acceptance of internet banking: an empirical study", *International Journal of Service Industry Management*, Vol. 14 No. 5, pp. 501-19.
- Yeap, B.H. and Cheah, K.G. (2005), "Do foreign banks lead in internet banking services?", *The Journal of Internet Banking and Commerce*, Vol. 10 No. 2, available at: www.arraydev.com/commerce/JIBC/ (accessed 15 January 2012).
- Yeung, A.C.L., Cheng, T.C.E. and Lam, D.Y.C. (2006), "Adoption of internet banking: an empirical study in Hong Kong", *Decision Support Systems*, Vol. 42 No. 3, pp. 1558-72.
- Yousafzai, S. and Yani-De-Soriano, M. (2012), "Understanding customer-specific factors underpinning internet banking adoption", *International Journal of Bank Marketing*, Vol. 30 No. 1, pp. 60-81.
- Zeithaml, V.A. and Gilly, M.C. (1987), "Characteristics affecting the acceptance of retailing technologies: a comparison of elderly and nonelderly consumers", *Journal of Retailing*, Vol. 63 No. 1, pp. 49-68.
- Zhang, Y. (2005), "Age, gender and internet attitudes among employees in the business world", *Computers in Human Behavior*, Vol. 21 No. 1, pp. 1-10.
- Ziff-Davies (2000), "Hold please", *PC Week*.
- Zuccaro, C. and Savard, M. (2010), "Hybrid segmentation of internet banking users", *International Journal of Bank Marketing*, Vol. 28 No. 6, pp. 448-64.

About the authors

Thanika Devi Juwaheer, PhD is Associate Professor of the Department of Management, Faculty of Law and Management, University of Mauritius. She has several years of experience in tourism and hospitality in Mauritius and the Indian Ocean Islands. She has extensive teaching, industrial and consulting experience in the hospitality and tourism field. She has published articles in academic journals, conference proceedings and trade journals in the field of tourism and hospitality management and on the impact of green marketing and the environmental management strategies of hotels of Mauritius. She serves on the Editorial Board of several refereed academic journals. Her additional research interests include green marketing, ecotourism, service quality, customer satisfaction, CRM and health care management.

Sharmila Pudaruth is Lecturer in Marketing at the Department of Management, Faculty of Law and Management, University of Mauritius. She has published articles in conference proceedings in the field of viral marketing, customer relationship management and

e-government uptake in Mauritius. She is also involved in project management for some consultancy works in different fields of management pertaining to customer care and developing coaching skills. She has conducted surveys and research work on customer satisfaction for organizations in different sectors of Mauritius. Her additional research interests include customer relationship management, internet marketing, customer experience management, consumer behavior, green marketing and services marketing. Sharmila Pudaruth is the corresponding author and can be contacted at: sh.pudaruth@uom.ac.mu

Priyasha Ramdin, degree holder in Management (Minor: Finance), is currently collaborating on a consultancy project as Research Assistant at the University of Mauritius. She is responsible for coordinating the field work of the survey team and consolidating the final report on the consultancy project pertaining to assessing the shopping experiences of Mauritians. She has been also an active trainee in a prestigious banking institution where she was able to enhance her professional skills and applied her academic knowledge in the banking landscape. During her six-month internship, she had a keen interest for the various e-banking products and services that all the banks were offering in Mauritius. She always enjoys the challenges of creativity together with a touch of originality. She is highly motivated to work in the banking industry while she is pursuing her postgraduate studies.