REVIEW OF SRI LANKAN DIGITAL PAYMENTS INDUSTRY THROUGH TAM MODEL IN PREDICTING FUTURE DEMAND

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Abstract

The purpose of developing this concept paper is to find out the extent of applicability of TAM (Technology Acceptance Model) for interpreting future demand for digital banking industry in Sri Lanka. TAM is the essence of to which extent users accept new technologies that they are not familiar with and the process they follow to ultimately reach this final stage of either positive acceptance or negative rejection. Furthermore, understanding the key drivers of the industry and providing a guideline for industry stakeholders in investment decisions are considered as key outcomes of this concept paper. The study has been derived based on variables that explain the core that underline the TAM concept that ultimately lead to behavior of customers which is important to be understood by industry specialist in order to carry out effective sales and marketing campaigns in the banking industry. Therefore, this study is significant for the professionals of the banking industry. The variable through which this study is derived through are PU (Perceived Usefulness), PEOU (Perceived Ease of Use), PC (Perceived Compatibility and PT (Perceived Trust) that lead to formation of attitude that in turn lead to behavioral changes in users of new technology that finally determines the acceptance or rejection as per the TAM model. Although many research studies have been conducted to examine this in different international context, minimum studies have been done in the Sri Lankan context, which leads to the research gap. Therefore, this concept paper derives both from theoretical and empirical reviews to build the argument.

Key words

Internet banking, digital banking, digital payments, CBSL, TAM, E-commerce, entrepreneur, web banking, industry growth, digital marketing, digital acquisition, perceived use, perceived ease of use, behavior, intention, attitude
1.0 Introduction

Sri Lanka is identified as the first country in South Asian that initiated commercial internet services with unrestricted nature as early as in year 1995 (Jayamaha, 2008). However, the development has been stagnant thereafter and countries that initiated later on have developed much faster and their penetration levels have grown wider than in Sri Lanka over the years. However, with slower growth Sri Lanka has no reached a considerable level of development when it comes to technological innovation, especially in the finance sector. However, when compared to some other Asian countries such as Singapore, China and Japan, Sri Lanka is lagging behind. One of the main developments has been internet banking that attracted the attention of many customers due to its convenience and speed of service. However, still most customers are hesitant to use these and are stuck with traditional methods of banking due to change management resistance and will take a few more years for full transformation (Central Bank Annual Report, 2016). However, many researches done in this context has revealed that despite the resistance for change management, many local banks are now shifting toward technology-driven online banking services. However, although the internet user rate is increasing on a daily basis, the internet banking users have remained low relative to internet users and rather stagnant due to attitude issue and change management resistance (Jayamaha, 2008). Therefore, in this context, studying the applicability of TAM is of utmost importance to understand how this can be transformed toward betterment of the nation. TAM is the essence of to which extent users accept new technologies that they are not familiar with and the process they follow to ultimately reach this final stage of either positive acceptance or negative rejection (Davis, 1989)

With the integration of ICT (Information Communication Technology) in the Sri Lankan banking sector, it has undergone massive transformation, introducing many technology-driven innovations and banking solutions to its customers. The increasing internet penetration has supported this as many locals now have internet access even via multiple platforms and even the costs of internet usage have now reduced greatly (Central Bank Annual Report, 2016). This began with the first implementation of an ATM by HSBC in the year 1986 which paved way for other technology-driven banking solutions in Sri Lanka (Jayamaha, 2008). Internet based
banking was initiated in the USA as early as 1995 which grew into almost all countries by few years (Zarook, 2010). However, internet banking was first introduced to Sri Lanka in 1999 (Jayamaha, 2008).

Studies regarding acceptance of Internet banking has been widely carried out in many international contexts in the past few years due to the high significance it imposes (Bradley & Stewart, 2003; Gerrard, Cunningham, & Devlin, 2006; Jayasiri, 2008; Karjaluoto, Mattila, & Pento, 2002; Mattila, Karjaluoto, & Pento, 2003; Mukherjee & Nath, 2003; Polatoglu & Ekin, 2001; Robinson, 2000; Sathye, 1999; Tan & Teo, 2000). In spite of the fact that there are various benefits of internet banking there are many who reject this and refuse to adapt due to uncertain nature and not being comfortable as well as privacy concerns (Kuisma, Laukkanen, & Hiltunen, 2007; Littler & Melanthiou, 2006). Therefore, TAM was developed by Davis in 1989 to understand the process followed by users to adapt a new technology which is also useful in applying to the banking industry. The applicability of TAM to the internet banking industry has been studied thereon by many researches in international contexts (Gounaris & Koritos, 2008; Lee, 2009; Manzano, Navarre, & Sanz-Blas, 2009; Pikkarrainen, Pikkarrainen, Karjaluoto & Pahnila, 2004; Qureshi, 2008; Shih, 2004; Suh & Han, 2002; Sukkar & Hassan, 2005; Venketesh & Davis, 2000).

Therefore, purpose of this concept paper is to analyses and utilize TAM model to identify the e-commerce and digital payments adaptation in Sri Lanka. The secondary objective is to justify the investments towards digital payments/commerce products in Sri Lanka. As an Ecommerce entrepreneur it is in my professional and personal interest to study about the ecommerce and digital payments sector in Sri Lanka. During my short professional career in Sri Lanka I was involved in taking 3 major ecommerce products to market. They are as follows Daraz.lk, Retailgenuius.com and webxpay Private Limited and each company have collectively spent over LKR 300,000,000 over the past 3 years. Though the companies have disrupted the retail market in Sri Lanka and have experience a massive YOY growth over the past few years the expected ROI for investors is somewhat of a question. According to an interview article published by “LB Lanka business online, CEO of Takas.lk has commented that “Sri Lanka’s e-commerce market
has been estimated at around 40 million dollars with external and internal travel” This could grow tenfold to 400 million dollars by 2021/22. Traditional retail is estimated to grow 30 percent from 10 billion dollars to 13 billion dollars by 2021/22, according to estimates by Takas and York Street Partners” Which is in line with central bank figures which shows total digital transactions as LKR 482 billion in year 2016 as displayed in central bank report. Like the ecommerce sector, banking sector is also experiencing a huge growth due to the high interest from commercial banks and other fin tech related companies which has been spending billions and coming up with internet banking apps such as Sampath Vishwa, DFCC Wardana wallet, FriMi and many other apps in order to attract customers for online money transfer applications and other financial services. Key to success of these mobile or web banking apps is the customer adaptations of these applications and volume of transactions. According to the central bank statics only 5 percent of the GDP goes through Digital / mobile banking sensation. Through digital banks earn merely a 1 percent commissions as processing fees. (80*.05 =4 Billion USD) which means entire banking system could potentially earn (4*0.01 = 40 Million USD which is not enough to justify the investments which banks utilize to develop and promote such applications. Based on my experience and interviews with development companies, industry cost of developing a new digital banking system is well over 1 million USD. This concept paper will highlight the key numbers in digital banking and will analyses the returns VS project cost. The core for this concept paper will be customer adaptation of digital banking and that will be access through TAM model. It is therefore important for the implementers to fully understand the determinants of IT acceptance as they need to plan properly and have realistic ROI targets. Furthermore, Mr. “Davis-1989, Bagozzi& Warshaw-1989 were the inventors of technology acceptance model, which was inspired from Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and offers a very unique analysis and insight about user acceptance and usage behavior of information technology.
2.0 Industry Review

The total number of digital SLIP transfers has been 420 billion for the year 2016. In addition, based on an interview on digital transaction volume Visa country head Anthony Watson has mentioned that visa has recorded a LKR 300 billion transaction volume for the year 2017 and they have seen a 70 percent growth on Ecommerce transactions and Visa was able to achieve a 28 percent overall growth in credit card transaction volume (Daily News, Anthony Watson Country Manager Visa, Sri Lanka, 2018)

In order to determine the digital transactions volumes through technology acceptance, it is useful to recognize that the internet usage in Sri Lanka has been getting popular year by year, and the latest statistics indicate current internet usage at 7.1 million as of January 2018. This figure includes both fixed and mobile phone users who access internet through smart phones. This will continue to grow in years to come and thereby, technology acceptance and adoption is predicted to grow at a rapid pace.

There has been a considerable growth of the subscriber base to internet connection in Sri Lanka when 2006 – 2015 range is being considered. It has grown from 1,884,000 to 2,601,000 which is a staggering growth. This shows the increase in internet penetration in Sri Lanka. However, comparative to this, the user rate of online banking hasn’t increased much which means there is still a lag behind (Central Bank Annual Report, 2016)

Internet penetration in Sri Lanka is found to be growing at a rate of 58 percent compare to decade ago. In the year 2000, penetration was 6% of the entire population and it has been estimated that by 2018 it has spread to 35 % of the population of Sri Lanka. But Sri Lanka as a country is far behind, compared to the internet penetration in developed countries and some of the developing countries. However, based on official site visit date of Ikman.lk almost 15 million unique users have visited the site in year 2017. This means there is a tendency people do access some relevance sites through internet cafes and work computers. When the global context is being considered, UK is at the top of internet penetration, recording a dramatic 93% internet
penetration which is a growth rate of 291% from 2000 – 2016. Sri Lanka hasn’t yet been listed in the top 20 internet penetration countries list in which India holds the 20th position with a internet penetration of 36% (Euro Monitor, 2017)

Many global companies and organizations use modified TAM as a key determinant in making investments in tech industry (Wu, 2009). However, based on authors background study of the model in related to Sri Lanka has found lack of literature. Most of the literature about Sri Lankan digital transactions has been revolved around the same stories such as. Quote

“Banking is experiencing a major transformation, with institutions adapting their structures to keep up to date with new demands and requirements from the public’s Sri Lanka is no exception: the country’s banking sector is now working hard not only to meet clients’ expectations, but also to be one step ahead in offering innovative products and services. In 2016 alone, internet and mobile banking grew by 75 percent in Sri Lanka, indicating that people and businesses are adopting new tools and facilities at a fast pace. Financial institutions have also been challenged to achieve sustainable and socially responsible goals in order to build stronger relationships with the environments in which they operate. World Finance spoke to Hemasiri Fernando, Chairman of People’s Bank, and N Vasantha Kumar, CEO/GM, about the digitalization process and the opportunities ahead”
3.0 Review of the cortex

Therefore it is important to conduct a proper review of the industry. Digital banking has transformed the way business and services are provided by companies and businesses all over the world. It provided numerous service revolutions for the consumer (Sabi, 2014). Furthermore, according to (George & Gireeshkumar, 2012) using the internet technology to deliver banking and financial services. The technological change has brought the rapid transmission of information, an easy way for marketing banking products and has enhanced the customer's access and awareness (George & Gireeshkumar, 2012). Banks can use the opportunities offered by the internet as strategic tools and revolutionized the way they operate. There is a quote from the Financial Times from the year 1996 where they said: “Banking is essential to a modern economy, banks are not” (Tan & Teo, 2000). The new type of service provided by the banks with the help of the internet technology is called “Internet Banking”. Internet Banking (IB) can be characterized as a financial transaction over the Internet through a bank’s website. It enables opportunities offered by the internet as strategic tools and revolutionized the way they operate. There is a quote from the Financial Times from the year 1996 where they said: “Banking is essential to a modern economy, banks are not” (Tan & Teo, 2000). The new type of service provided by the banks with the help of the internet technology is called “Internet Banking”. Internet Banking (IB) can be characterized as a financial transaction over the Internet through a bank’s website. It enables financial institution customers, individuals or business, to access accounts, transact money or gather information on financial products, at anytime and anywhere as long internet connectivity is available (Shao, 2007; Prakash & Malik, 2008). With Internet Banking, customers can conduct their banking activities quickly and efficient without leaving their homes or offices. Internet Banking decreases the transaction costs for the customer (Dong, 2008) The usage of Internet Banking has advantages for both parties. It has become one of the premier channels for institutions in the financial industry to conduct business. The speed of conduction of personal and commercial activities with their customers increased. The financial institutions can replicate the traditional activities, which take place in a bank, over the internet. This shift to online transactions lowers the operational and overhead costs for financial institutions. The reason for these cost savings is the automation of processing customer
transactions (Dong, 2008). For customers and financial institutions, to take advantage of this innovation, it is central to analyze the main reasons of why people are adapting to Internet Banking. In comparison to other online purchases, the adoption of Internet Banking is typically more complex. It initiates a long-term relationship between both parties. This process is important for customers, because they start to get into a business relationship with Internet Banking services, without having a personal connection to it (Lee, 2009; Liao, 1999)

4.0 Purpose of the study

Over the last five years many investors in public and government sector has spending millions of rupees and come up with many products to support the digital payments and E-commerce sector. However, based on literature and my personal experience, what we have seen is a lack of growth in most of the companies or over estimation of growth targets. Through TAM model author intend to identify the key drivers of digital payments industry and with the help of other literature author intend to do conduct a baseline study and assist stakeholders to make better decisions.
5.0 Literature review of Sri Lankan banking industry

Online banking is an Internet portal through which customers can use different kinds of banking services and has major effects on banking relationships. The main objective of this study is to describe undergraduates' adoption of online banking in Sri Lanka by identifying factors that explain their intention to use online banking services in Sri Lanka. This study covered five universities in Sri Lanka with 245 respondents to printed questioners and online mail survey. Sample was selected conveniently. Correlation and regression analysis were carried out to understand the insights. Results indicate that the factors significantly influencing the Behavioral Intention to adopt online banking include Performance Expectancy, Effort Expectancy, Social Influence & Bandwidth (Suraweera, 2008).

The Internet technology is playing a major role for the business world especially in banking activities. There is a development in applications of e-commerce in businesses in the past years. Online banking or e-banking is one of e-commerce tool that are being adopted by the banking industry. Online banking has provided an improvement in services among the banking industry. Online banking is the modern delivery channel for banking services (Suraweera, 2008).

The definition of online banking varies among researches partially, because online banking refers to several types of service through which bank customers can request information and carry out most retail banking services via computer, telephone or mobile phone. Online banking has changed the way of services provided by the banking sectors to their customers (Suraweera, 2008).

By offering online banking services, banks seek to lower operating costs, improve customer banking services, retain customer and increase customer awareness and satisfaction, reduce banks’ branch networks, and decrease the number of their service staff, location and time convenience, and the ease and speed of completing transactions (Suraweera, 2008).

Today, the entire banking sector in Sri Lanka offers the automated banking systems with ATMs for customers, for faster, and after-hour services. The working hours of the Sri Lankan banking sector have now changed from 8 hour, 5 days a week system to a 24/7 service. Online banking...
facilities have become more popular as added features of the banking industry with the growing popularity of modern telecommunication technology among Sri Lankans. Today the term “Any Time Any Where Banking” is more popular than “Branch Banking” as customers do not need to go to bank premises (Suraweera, 2008).

Number of services have covered under the online banking and is becoming more popular among customers due to the fast growth of internet usage. The objectives of the study are to find out the level of online banking adoption among Undergraduates in Sri Lanka and also to find out the influential relationship between the factors and undergraduates’ adoption of online banking. 2 Review of Literature. The concept of e-banking systems began after installing the first Automated Teller Machines (ATMs) in the 1970s. Electronic banking is also called as “Virtual Banking” or “Online Banking” which is a result of the developing expectations of banks customers. It involves information technology based banking. Under this information technology system does involve direct interface with the customers so they do not have to visit bank’s premises. Normal banking services covered under online banking is Automated Teller Machines, Credit Cards, Debit Cards, Smart Cards, Electronic Funds Transfer System, Cheques Transaction Payment System, Mobile Banking, Internet Banking and Telephone Banking. In Sri Lanka, the adoption rate of internet banking was inadequate according to the bank sources. Thus, banks need to boost their understanding of why some people adopt an innovation and others did not and the factors that may influence the adoption decision which is of considerable practical value. A research on Factors Effecting on Internet Banking Adoption in Sri Lanka was conducted by Sivapragasam and Peiris. The characteristics related to demographic gender, age, educational level, and monthly income were significantly influenced on IB. According to the study of Factors affecting to customer adoption of Internet banking in Sri Lanka by and results revealed that attitudinal and perceived behavioral control factors were significantly influenced on adoption of internet banking rather than social influence (subjective norms). The research on Customer Adoption and Use of E-banking conducted by and result were as perceived usefulness, perceived ease of use, awareness had a positive and significant impact and perceived risk had negative impact on customers’ attitude toward E-banking Services (Suraweera, 2008).
Information and Communication Technology (ICT) plays a vital role in sophisticated livelihood in the world. As a result, many commercial and non-commercial activities heavily rely on novel and advanced technologies. The Internet, on the other hand, has made an immense influence on people’s day to day activities. In fact, it changes the way that business is conducted in almost all the industries. Mohamed (2010) has highlighted that with the growth of the Internet organizations in many industries have become more literate electronically than the past, in particular the industry of banking and other financial services. Among those businesses, banking sector uses new computer based technologies to provide a highly personalized service at a higher level of customer satisfaction. In this regard, banks have developed a range of products attributed with new technology of computer network communications. According to Suraweera et al. (2011), banks in Sri Lanka are evident that advanced technologies are heavily applied for their services. However the majority of customers use ATM services, only a very few users utilizes other services attached the Internet banking. This scenario is different in the developed counties and substantial number of customers uses the online banking services. Suraweera et al. (2011) stated that “majority of Sri Lankans are not technology savvy the banks tend to adopt a wait and see attitude. Is this is a plausible argument from the banking point of view? If so why do the banks make high investments on IT driven banking services?” (Suraweera, 2008)

Adoption of technology is the key component of the use of Information and Communication Technology (ICT). Technology Acceptance Model (TAM) has widely been used in many empirical studies that focused the people’s tendency to accept and adopt new technologies. According to the TAM model, beliefs, perceived usefulness and perceived ease of use, and trust are to be two sets of underlying antecedents in determining behavioral intention to use technology and effectively attract customers (Baraghani, 2007). However, the TAM traditionally focuses on the aspect of system features and thus, is insufficient in capturing the roles individuals in the Internet-based system usage, in particular internet banking. Suraweera et al. (2011) have stated that use of online banking services in Sri Lanka is extremely low. Respondents for their study have reported that lack of awareness, difficult to adopt, security and technical difficulties are major constraints not to use internet banking facilities. Even though the overall technological acceptance has a fine growth in business industries positive results, progress of online banking
are very slow in Sri Lanka. According to the preliminary study carried out using selected Medical officers, it was mentioned that their awareness about the Internet banking usage is less and have fewer confidence. This is evident in the recent study of Mohamed (2010) and he states that banks in Sri Lanka do not conduct awareness programs that improve the knowledge of customers on the secured aspect of the Internet banking facilities and other privacy concern. This study aims to examine the Internet banking experience among the medical officers’ in North Central Province in Sri Lanka. The rest of the paper is organized as follows. Next section reviews the literature that relates the present inquiry. Methodology used in study including data collection and analysis procedures are briefly presented in third section. Final section concludes the study along with the implications of the study (Suraweera, 2008)

5.1 Case 01 – Introduction of mobile banking by HSBC through the implementation of the first ATM

At an era where mobile banking concept was novel to Sri Lanka, HSBC was a pioneer in introducing the concept ATM as well as of using the mobile phone to simply receive text messages regarding their credit card usage, payment conformation and swiped amount notifications. This was the initiation of the technology-based mobile banking concept where the TAM model was intensely utilized as it was important for HSBC to understand how the non teach-savvy customer at that era would embrace or accept this new technology (Daily Ft, 2015)

5.1 Case 02 – Introduction of Sampath Vishwa payment gateway for mobile transactions

With the development of internet based transactions such as making mobile bill settlements and electricity bill settlement, Sampath Bank was the pioneer of introducing a complete platform to carry out all transactions related to the different accounts of an individual which combines all accounts and deposits held against that person. For example, within just one internet based platform through a registered profile, a user could transfer money from their savings account to a fixed deposit, obtain an instant loan against the fixed deposit, hold a standing order to pay off the instant loan through the credit card, standing order or settle the credit card through the savings
account and many more such as pay off mobile bills, transfer across third party accounts and manage the credit card settlements (Sampath Corporate Website, 2018)

5.3 Case 03 – Introduction of Sampath slip-less transactions

Not limiting from the Sampath Vishwa pioneering, Sampath Bank came up with another blue ocean strategy in the internet banking solutions which is slip-less transaction where through a simple mobile app, users can deposit cheques, deposit money and withdraw money simply by scanning a Q code (Sampath Corporate Website, 2018)

6.0 Evolution of the TAM Model

This section explains how the TAM model has been evolved over the years, as derived from different theoretical models that explain the core principles of the TAM model and how it has been evolved for the betterment

6.1 Initial conception of the TAM Model and derivation from TRA Model

The term TAM stands for the abbreviation of Technology Acceptance Model and it elaborates different aspects of a user as and when the user comes into contact with a latest technology that they are not familiar with previously. Over many decades ago there have been models introduced to explain the process followed by the user when accepting the new technology in the context of Information Technology and Management Information Systems, however, the TAM model has been the of the most successful and most widely applied. Initially proposed and developed by Fred Davis and Richard Bagozzi, this was derived from the previous concept in the form of a TRA (referred to as Theory of Reasoned Action) which was developed by Fishbein and Ajzen (Venkatesh, 2000). This model explains that when a new user is faced with a new technology, the level of acceptance of that new technology is based on two key features. Those are perceived usefulness of the technology and perceived ease of use of the technology (Venkatesh, 2000).
6.2 Key features of the TAM Model

Perceived usefulness means the extent to which the new user believes in the fact that this new technology will improve and enhance the overall performance of the task through improving the efficiency of the task being done by using this technology whereas perceived ease of use refers to the level of comfort and convenience felt by the user when exploring the new features of the new technology in hand. These two factors are believed to be acting as mediating variable that combine to collectively determine the overall attitude of the new user regarding the new technology that is being experienced. Furthermore, as per the theoretical approach, it is evident that perceived usefulness also gives rise to another mediating factor termed as behavioral intention to use which then again mediates the overall attitude of the new user toward the new technology. Thereafter, the attitude leads to influencing the behavior of the new user toward the new technology and ultimately the actual level of acceptance exhibited by the user toward the new technology. Therefore, this process of technology acceptance has been developed into a theory which is depicted by Davis in the year 1989 as illustrated below (Venkatesh, 2000).

Figure 1 - TAM Model. Source: (Venkatesh, 2000).
6.3 Further development of different phases of TAM Model

With the successful interpretation of the technology acceptance procedure followed by a user when faced with a new technology, this model was being utilized in many industries to understand the behavioral motives of customers that would affect the final decision making process. Therefore, with that significance, the TAM model has evolved continuously since the year 1989. The year 2000 saw the development of second phase of TAM model termed as TAM 2 which was an enhanced version of the TAM model, introduced by Venkatesh & Davis. The advancement of TAM 2 was that the antecedent variables were identified for Perceived Usefulness and were added to the procedure of technology acceptance model (Venkatesh, 2000).

6.4 Core principles of the TAM Model

This model suggests that the level of acceptance of a user regarding a newly presented technology is affected by a collaboration of factors. It is based on the core of reasoned action which explains that each action or response by a user toward a new technology is reasoned with the user’s pre-dispositions of the perception of the benefits and values of the new technology. It is evident that the two key features of the TAM model that are perceived usefulness and perceived ease of use will results in an attitude formation that would lead to either negative or positive behavior toward the acceptance of the new technology. In a nutshell, the theoretical framework of TAM developed by Davis in 1989 suggested that there lies a relationship between the level of acceptance of a user regarding the new technology and the perceptual value of the user regarding the technology (Venkatesh, 2000).

Therefore, based on theoretical reviews, it has been identified that the TAM model has been derives from TRA model which explains the reasoned actions followed by users. Thereby, the TAM model has two key features termed as perceived usefulness of the new technology and perceived ease of use of the new technology as perceived by the user that go on to form the attitude of the user and lead to behavior of the use that would determine the level of acceptance of user regarding the new technology (Venkatesh, 2000).
7.0 Review of the digital banking in economy or banking industry

This section explains the evolution of the TAM model as referred to empirical reviews such as past research done in the same content and recent studies or innovations carried out in similar content related to the TAM model.

7.1 Internet banking environment in Sri Lanka

Unlike in the international market, Sri Lankan banking and finance sector is in a stage of rapid development. Banking and Fin tech has now become one of the heaviest users of the technology. The Information technology used for core business functions in the banking sector began in the late 1980s, and created a paradigm shift in the industry, by extending advanced financial services to a section of population such as EPF, ETF and utility bill payments, for whom such facilities were not accessible till then, whilst not making the customer services richer. The internet was available for commercial purposes in the early 1990's Internet Commerce appeared in the mid-90s. Financial Services over the Internet, or in other words E-Commerce has now been accepted as a global standard in electronic transactions. Internet Banking was first introduced to the country in late 1998. Sri Lankans are now enjoying both Internet Banking through Credit Card payment Gateway services over the Internet and peer to peer slip transfers. Not surprisingly, they are still in their inception. For a country with one Internet user per every 200 in the total population it will take few more years for exclusive online banks and fully pledged Internet Banking services to come into existence. The way a Bank uses Internet to offer services to its customers can vary either through using Internet for promotional purposes only or by and using Internet for financial transactions. Though almost all the commercial banks in the island offer the first two categories of services, only thirteen local banks are offering the Internet Banking services at transactional level. However, due to legal and technical limitations, the transactions are confined within their own banking networks. The dark side of Internet Banking in Sri Lanka is, that only a small fraction of banking population has shown interest in using the new services. Under the context, this review examines few strategic areas that trigger the thinking processes...
aimed at developing the Sri Lankan Internet Banking Industry firm from the perspective of both Financial Service Institutions and policy maker. The advantages of Internet banking services to the customers and banks was analyzed by the central bank. The results indicate that powerful banks with a larger number of branches achieve greater gains in performance than less powerful banks with a less number of branches through Internet channel offering. In terms of introduction timing, early followers have a competitive advantage vis-a-vis on both innovators and later followers. It was also found that banks, which provide additional advertising support through their Internet services, achieve greater financial gains. Finally, in terms of marketplace characteristics, firms operating in a fast growing Internet environment benefit more than players operating in less munificent markets. The generation Y or Z from birth are growing up with the modern technology. The internet is freely available for them from the birth. In addition, technologies such as smart phones, smart watches and laptops are given to them from infant times. Furthermore, they are actively participating in social network sites such as Facebook, WhatsApp and chatting with their relatives and friends using Skype, WhatsApp, and Viber. Video gaming and watching videos and movies has become an integral part of their lives. They can live without food for few days but not without internet. “Modern adolescents are the first to grow up with the Internet as part of their daily lives. Much like radio in the 1920s or television in the 1950s, the Internet rapidly has become an integral part of life and currently is present in homes, schools, libraries, businesses, and coffee shops for work and play”. Bremer (2005). As per Livingstone (2003), usual internet banking usage of young adults can be categorized into following three classifications: (1) entertainment related payments such as games and movies (2) education related payments such as library subscriptions, and (3) edutainment. As per Bremer (2005), the impact of internet usage on adults can be identified under the following topics (1) Cognitive, (2) Social, (3) Mental and (4) Physical. There are numerous advantages as well as disadvantages associated with internet usage.

As per the above findings we can safely argue that generation X, Y and Z behavioral patterns could lead to higher internet banking penetration. In addition, since their lives revolve around internet based goods and services, perceived usefulness of digital banking products could be very high.
7.2 Perceived ease of use of digital banking and technology

Since its introduction, of technology acceptance model by (Davis 1989; Davis et al. 1989)—TAM has received considerable attention in the IT community. Recent studies suggest it applies also to e-commerce and to the adoption of Internet technology (Gefen 1997). In essence, TAM posits that IT adoption is affected by prior use-related beliefs. TAM identified two such beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). The former is “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis 1989, p. 320); while the latter is “the degree to which a person believes that using a particular system would be free of effort” (Davis 1989, p. 320). These two philosophies create an acceptable outlook or intention toward using the Digital technology that later affects its self-reported use (Davis et al. 1989). Studies that have investigated self-reported system usage and intended use have found that perceived usefulness plays a significant role in determining such downstream effects. However, most of the studies, beginning with Davis himself, have not found a direct linkage between PEOU and IT adoption. Indeed, Davis suggested that “ease of use operates through usefulness” (p. 332), a thesis that has also been posited by later research (e.g., Adams et al. 1992; Gefen 2000; Keilet at. 1995; Venkatesh and Davis 1994). Not surprisingly, some research has questioned the overall importance of PEOU in IT adoption (e.g., Keil et al. 1995). The role of PEOU in TAM, however, remains controversial in that some studies show that PEOU does directly affect either self-reported use or intended IT use. The objective of this study is to propose a theoretical explanation of the varying effects of PEOU on IT adoption by differentiating between tasks that are intrinsic and tasks that are extrinsic to the IT. Tasks that are intrinsic to IT are tasks where IT itself provides the primary ends to the product or service for which IT is ultimately being used. Tasks that are extrinsic to IT, on the other hand, are those in which IT is only the “means” to achieving the primary product or service, where IT is not the central component of the process but is instrumental in achieving it, such as when IT is the interface through which one accomplishes a goal.
7.3 Attitude towards Digital banking adaptation

Digital adaptation is an ongoing development. However, it has evolved into an essential requirement in every bank’s agenda around the globe, as end-clients such as personal consumers, businesses, and government organizations are quickly accepting trends spilling from the digital banking sector. Many SME and large scale companies have already adopted digital banking to pay EPF, ETF, Salaries and many other recurring payments. With the digitally know-how competitors coming of age, the manifestations of the rapidly evolving technological changes across all aspects of our lives pose fascinating challenges and opportunities alike in the end-clients’ digital ecosystem. “Basyir, A. (2000). A Model of Consumers Acceptance”

Large scale banks in the south east Asian region has been largely perceived to be concentrated on improving current banking solutions. This internal system development focus may not be sufficient in addressing the end-clients’ such as e-commerce market places and SAAS software developers demand for digital functionality and cost-efficiency moving forward. Sensing a quick shift in the client’s growing demand for technological capabilities, emerging alternative non-bank players more commonly known as Fin techs are beginning to convert the commercial banking sector by revamping offerings and solutions in the new digital landscape, some creating sustainable disruption practices while others enabling their clients to do more with less. “Adults Internet Use and banking habits” Wang R, et al, (2005).

According to “Mohit Mehrotra, Deloitte Consulting” It is important for banks to It is imperative for banks to recognize and act upon fulfilling the growing digital needs of end-clients in this time of rapid change by seizing the opportunity to establish themselves as early adopters using their incumbent advantage in the financial services sector. It is inevitable that banks will need to ramp up investments in their digital agenda. The transaction banking space holds great potential and we anticipate the space to develop at an intense pace and result in an increase in the number of ubiquitously digitized products and offerings. While banks may take comfort in their incumbent advantage, technologically-enabled non-bank challengers have been ramping up their capabilities in a significantly faster pace and are notably stronger today, challenging the privileged access and relationships traditional transaction banks currently enjoy with their institutional clients.
The verdict is clear: banks can either seek to gain the first-mover advantage, or remain on the sidelines and be forced to play catch up eventually. In this study, we explore in-depth the digital phenomenon developing in the transaction banking landscape by identifying key global technology trends and changes to the end-clients’ ecosystem, as well as the different degrees of trend prevalence and maturity across key industries. We then examine the current state of the incumbents and alternative service providers in the industry, and finally, we take a glimpse into the road ahead. As technology continues to advance and consumers’ demands become more sophisticated, the winners will be those who can keep themselves one step ahead.

7.4 Behavioral intention to use

According to “Ajzen and Fishbein” assumed that individuals are usually quite rational and make systematic use of available information. They developed a theory that could predict and understand behavior and attitudes. The TRA looks at the behavioral intentions rather than the attitude as the main predictors of behaviors. In their theoretical model, Ajzen and Fishbein suggested that a person’s actual behavior could be determined by considering her/his prior intention along with beliefs that the person would have for the given behavior. According to their theory, a main predictor of the behavior is the behavioral intention, while the influence of the attitude on the behavior is mediated through the intention. As the TRA began to take hold in social science, it became obvious that this theory was not adequate and had several limitations. One of the main limitations was with people who have a little or feel they have little power over their behaviors and attitudes. Ajzen described the aspects of behavior and the attitudes as being on a continuum from one of little control, to one with great control. To balance these observations, Ajzen added a third element to the original theory. This element is the “concept of the perceived behavioral control”. The addition of this element has resulted in a newer theory known as the TPB.
8.0 Key issues

This paper discussed the use of TAM as a methodology to investigate and explain factors that lead to use and acceptance of IB. A previous IB study was used as an exemplification to illustrate the discussion. As mentioned above, TAM has been widely used in IB research since 1989. However, when this model is very useful in providing an initial theoretical lens for studying user acceptance towards new technologies, it was criticized to be too simple to cover all important elements of the phenomenon being investigated (Wu, 2009; Bagozzi 2007). As a result, there is always a need to customize and extend the TAM model when applying it in IS studies, as proposed by previous researchers (Legris et al., 2003; Turner et al., 2010). Moreover, and as demonstrated in the above IB project, customization and extension of the TAM model should be done based on the nature of the research subject and the actual context of the study. An extensive literature review should be carried out to support the establishment of such an extended model.

However, based on the literature TAM model is a great tool to identify key drivers in the digital banking industry in Sri Lanka? However, these variables need to be further researched in all demographics in Sri Lanka which has built a research gap to be further explored.
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Appendix 1

| Description                                      | 2016  | Q1 2016 | Q1 2017 (a) | Percentage Change  |
|--------------------------------------------------|-------|---------|-------------|-------------------|
| 1 Number of cards issued during the period       | 264,058 | 44,557 | 65,171 | 3.6 | 46.3 |
| 2 Total number of cards in use (as at end period)| 1,315,915 | 1,169,616 | 3,355,704 | 10.7 | 15.9 |
| 3 Total volume of transactions (million)         | 31.9 | 7.0 | 8.4 | 20.6 | 20.1 |
| 4 Total value of transactions (Rs. billion)      | 182.1 | 41.0 | 44.6 | 22.5 | 8.9 |

(a) Provisional

Source: Licensed Commercial Banks

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Appendix 1.1

| Description                                      | 2016  | Q1 2016 | Q1 2017 (a) | Percentage Change  |
|--------------------------------------------------|-------|---------|-------------|-------------------|
| 1 Number of cards issued during the period       | 3,025,664 | 756,896 | 864,627 | 5.4 | 14.2 |
| 2 Total number of cards in use (as at end period)| 17,732,516 | 15,859,322 | 17,093,259 | 17.1 | 7.8 |
| 3 Total volume of transactions (million)         | 38.1 | 8.5 | 10.9 | 33.6 | 27.9 |
| 4 Total value of transactions (Rs. billion)      | 108.0 | 24.1 | 34.1 | 38.5 | 44.5 |

(a) Provisional
(b) Transactions carried out at POS terminals during the period

Sources: Licensed Commercial Banks
Licensed Specialised Banks
Finance Companies

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Appendix 1.2