UNIVERSITEIT VAN PRETORIA
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Research Project

GIBS MBA 2006/7

Research Project
November 2007

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MBA 2006/7

Consumer Adoption of an Aggregated Electronic Bill Presentment and Payment Solution in South Africa using the Technology Acceptance Model

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A research report submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration

November 2007

ABSTRACT

This study tries to identify the key factors that influence the acceptance of an aggregated electronic bill presentment and payment solution in South Africa. As technology acceptance models are primarily developed and validated in developed countries, a new model had to be respecified to fit the South African context. Two constructs, namely perceived usefulness from the Technology Acceptance Model and a new construct "confidence", including antecedents, were formulated from our literature review.

Using a research instrument of an online survey, we measured the 81 responses received from a judgemental sample of South African internet users. The data was analysed by using linear regression analysis to test the model as well as individual hypotheses.

Our respecified model was found to be highly significant providing 31, 2% explanatory power to influence adoption. The confidence construct was only marginally significant and may be an area for future research. The key themes emanating from our research indicates that consumers who value "time savings" and are "self-identified adopters" are likely to be the early adopters of EBPP. Concern for privacy and the perceived advantage to current methods of paying bills online are eminent; however, a majority (96, 3%) of the respondents indicated a willingness to adopt EBPP with 58% indicating regular levels of usage.

DECLARATION

I declare that this research project is my own, unaided work. It is submitted in partial fulfilment of the requirements of the degree of Master of Business Administration for the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other university.

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Velasen Coopoosammy Naidoo

Date: 2007/11/……

ACKNOWLEDGEMENTS

To the Glory of God, through whom all thing are possible, including this research.

This research project is dedicated to my wife Naeema, son Keano and daughter Mishka and a special acknowledgement is bestowed upon the rest of my family that sacrificed time and provided me with the support required.

An acknowledgement of thanks is conveyed to the team at Truebill, for their support whilst I was away from the office.

Finally, thanks to my supervisor Dr Helena Barnard, for her guidance and support provided to this research project.

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LIST OF ABBREVIATIONS

EBPP	:	Electronic Bill Presentment and Payment
C-TAM-TRA	:	Combination of Technology Acceptance and Theory of Reasoned Action model
IDT	:	Innovation Diffusion Theory
MBA	:	Master of Business Administration
PEOU	:	Perceived ease of use
PU	:	Perceived usefulness
SCT	:	Social Cognitive Theory
TAM	:	Technology Acceptance Model
TBP	:	Theory of Planned Behaviour
TRA	:	Theory of Reasoned Action
US	:	United States of America
WWW	:	World Wide Web

CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

Ecommerce is on another growth cycle internationally and a mass of hype is now flowing into the South African market. This is causing more and more South African companies to now explore delivering products and services online or via mobile channels. Although innovation and product developments are provided intentionally to enhance consumers and companies' benefits, they often require change, involvement or increased work on the consumers' part. Therefore, there is no guarantee that consumers will adopt a technology innovation.

Companies continue to invest in information in technology, such as electronic bill presentment and payments to reduce operational expense and create more customer convenient channels, however the value of these innovations are ultimately determined by the extent of consumers' acceptance of the technology and the subsequent level of it's use. Due to the fact that acceptance and use of technology is abound in information technology literature, there is a need for additional research to explore factors that hinder the acceptance of new technologies Furthermore, South Africa has lagged behind the rest of the developed countries in terms of internet accessibility, online offerings and internet user's eCommerce maturity.

The question than could be, what does this mean for a new innovation such as an aggregated electronic bill presentment and payment service in a South African market.

1.1. OVERVIEW OF ELECTRONIC BILL PRESENTMNET AND PAYMENT

Firstly, a synopsis of an aggregated electronic bill presentment and payment solution is warranted as well as identifying what consumer's benefits are evident from the use of such an innovation.

Electronic Bill Presentment and Payments (EBPP) entail the delivery and the payment of bills over the internet or through a proprietary network. This means that a consumer receives their bills electronically and after reviewing it, they may elect to settle the bill within the same channel. This service is primarily used in the business to consumer markets for bills such as credit cards, utility and communication service provider's, invoices or statements. Billing companies could benefit from quicker, cost effective delivery of invoices leading to faster payments by consumers. At the same time, billing companies are creating a cost effective self-service channel for consumer to manage account queries, payment history and other account related matters.

EBPP provides the following benefits to consumers:

- Ability to pay bills more efficiently and save on banking costs due to consolidated payment and other related costs
- Manage payments more easily resulting in saving time to perform the task of managing bills and personal finances
- Quicker access to historical bills and payments all within a single channel

There is a need to understand whether the benefits mentioned for consumers to convert to EBPP equates to an acceptable value proposition. In order to derive the benefits of such technology consumers would be required to make “trade offs” in learning and accepting new technologies. An understanding of the net result of these trades offs needs to be ascertained.

1.2. DESCRIPTION OF THE PROBLEM AND BACKGROUND

Leading from the consumer value proposition in adopting an aggregated online EBPP, one would expect consumers to adopt such a service quite readily. To gain a deeper appreciation for the extent of our problem we firstly need to investigate the international adoption rates and forecasts of EBPP. Thereafter we will explore the high-level online trends that are evident in South Africa. This allows us to identify key factors that could be relevant in enabling the adoption of EBPP.

1.2.1 INTERNATIONAL FORECASTS

Gartner (Flynn, 2005) predicted that 65 million U.S. adults would view their bills online, of which 65 percent will use a blended biller direct model (each company has their own website to present and collect payments) and a bank aggregation model online. More recently, Graber (2007) quoted, “robust adoption growth in the US market during the next five years is expected, as the number of EBPP users will grow by 63% to roughly 60 million households”. Are research companies now readjusting their consumer adoption rates in the US?

The optimistic forecasts of consumer adoption in the US by Gartner and Forrester from as far back as 1999 were questionable. Experts around the world on EBPP feel that current EBPP technology may not be perceived as being superior enough compared to the current paper billing. They also argue that the current services lack the compelling advantage to attract customers in large numbers (Bills, 2002). A comparative study to EBPP forecasts at 2003, conducted by Pitney Bowes on US postal volumes, showed very little erosion of mail volumes due to EBPP. In the periods 2000-2003 US mail volumes declined, however bills and statement mailings from businesses to households grew at 3.3% (Flynn, 2005).

Consumer adoption internationally, has therefore been lower than expected. It is clear, that besides the possibility of a lack of perceived benefits to consumers, other factors exist that hinder consumer adoption as well. Technology acceptance models developed from various studies include but are not limited to such factors as the complexity of the technology, the consumer's self-efficacy and security and trust as key determinants of the consumer's intention to adopt new technology.

1.2.1 SOUTH AFRICAN CONTEXT

In South Africa a key finding of an online survey conducted in 2003 by World Wide Worx (2003), found that South African consumers were very positive about receiving their bills electronically. They also found that 76% of the respondents preferred to receive their bills via email whilst 17%

preferred to retrieve their bills via a website (biller direct model). Companies whose primary reasons were to enable faster payments due to quicker deliveries have led the race of early implementers of EBPP in South Africa. According to the author's knowledge, South African companies that have adopted electronic billing solutions have not released empirical data on consumer adoption rates. Ebilling service providers blame low internet access and security issues as the primary reasons for the slow uptake than international markets forecast (Alfers, 2007).

South African internet research expert Goldstruck (2007) quoted in his report of online retail in South Africa 2007, the growth of online retail since 2006 is attributed to two key factors. The first factor he claimed was the introduction of broadband and the second being the "experience curve" of internet users. Goldstruck further explains the phenomenon of the experience curve to the fact that internet users that have been around for six years are only now becoming more comfortable with the challenges of the internet and ecommerce.

By using internet banking as a proxy to gauge, the technology adoption of EBPP in South Africa, one would predict that consumer adoption in EBPP to be also slow and below par compared to international forecasts. The average percentage of South African consumers that have adopted banking online versus those that have internet access in 2006 was only 49%, according to Webcheck (2006). In their study, they found that of the

51% of internet users that did not adopt online banking, 33% of users cited reasons of trust and privacy as a reason for not adopting the service.

Therefore, South African internet consumers have not been adopting online services at the rate that was expected. It is evident that South Africa Internet users are not as matured as users in developed countries and thus we cannot ignore these factors when trying to establish the factors that predict the consumer adoption of EBPP. How does a South African consumer's confidence in eCommerce enabling technologies, together with their trust towards a single channel to consolidate and provide access to all their billing information, hinder the adoption of EBPP?

1.3. PURPOSE OF THE STUDY

To determine the acceptance of innovation or new business developments the consumer's perception is the most critical factor. A number of empirical studies have investigated internet adoption of various online services and factors driving consumer acceptance using various models. An understanding of these models, the key factors contributing to acceptance and factors relevant to the South African context need to be firstly understood. Thereafter these factors will be empirically tested against the research questions formulated.

Early studies concentrated on demographic characteristics such as age, income, gender, race or a wired lifestyle as important predictors of internet usage. Modahl (2000), found attitudes towards technology is a more important determinant.

Various behavioural models thereafter has been utilised to determine consumers adoption of new ecommerce applications worldwide.

This study aims to use a model applicable to the South African context to provide a framework to determine the factors contributing to the acceptance of an aggregated EBPP solution in South Africa. The study endeavours to answer the following questions:

- What are the factors that are responsible for the adoption for EBPP?
- Is the consumer's perceived usefulness of an aggregated EBPP service a key factor in adopting?
- How important is a South African consumer's confidence relative to adoption?

The relevance for this research is useful in providing insights into the factors that drive the extent of use of an aggregated EBPP in South Africa. Furthermore this would be useful for any organization that may want to provide such a service in South Africa in terms of the consumer value proposition and strategic positioning in terms of an operational model e.g. website design, online interfaces and information technology architecture).

To inform and allow the author to develop a suitable model, a study of the literature review on the adoption of new technology and the South African context followed in Chapter 2. In Chapter 3, the author restates the research questions that have been formulated from our problem statement and confirmed within

literature review. In Chapter 4, we adopt a suitable research design and test the results of the research instrument in Chapter 5. Chapter 6 entails a more generalised discussion of the specific themes that evolve from our results. In Chapter 7, we conclude our research with limitations to this research, recommendation for business and we include the need for further research.

CHAPTER 2: LITERATURE REVIEW

The literature on the adoption of technology is very extensive and deals with a number of issues pertinent to this research. This research project aims at understanding the acceptance of an aggregated EBPP solution in South Africa. The relevant literature is reviewed in this chapter to provide a platform for a general discussion on technology adoption. Thereafter a review of various models and the South African context is undertaken to formulate a new respecified model to test the research questions.

2.1. CONSUMERS INTENTION TO PURCHASE/TECHOLOGY ADOPTION

There are several competing theoretical models that are currently being used to investigate the acceptance and use of new technologies. The main themes of these models focused on the determinants using behavioural intention as the dependent variable (Venkatesh, Morris, Davis and Davis, 2003). The approach followed in the masses of literature available on the adoption of technology is to firstly determine what influences consumers' behaviour to adopt. Once a link has been established between a user's intention to adopt and actual usage, we are than able to investigate key antecedents that are likely to influence intention to adopt or actual usage from various models available in information technology literature.

"A person's buying behaviour choices are influenced by four major psychological factors: motivation, perception, learning and beliefs and attitude" (Armstrong and

Kotler, 2000). According to Wells and Prensky (1996), these are the tools that consumers use to recognise their feelings, gather and analyse information, formulate thoughts, opinions and take action. That means that, through motivation, perception and learning, attitudes are formed and consumers make decisions (Wu, S 2003). Technology adoption can be seen as another form of buying behaviour. Attitude and its influence of behavioural intentions have also been widely researched and this relationship has been well grounded in information science literature in respect of the adoption of technology. (Allen, Machleit and Kliene 1992; Barki and Kharrtwick, 1994; Dabholkar, 1994; Harrison and Mykytyn, 1997; Taylor and Todd, 1995). Dameen, van der Lans and Midden (1990) also found that although the concept of attitude in general is not stable towards specific technologies, attitudes could still be adequately measured. Supporting the latter issue of attitude Curran, Meuter and Surprenant (2003), demonstrated that consumers could have distinguishable attitudes to different technologies.

2.1.2 ATTITUDE

After determining that attitude is a key factor in the adoption of technology, we review the complexities around attitude to gain a better understanding of antecedents, their effect on attitude and finally on actual usage.

"An attitude is a learned predisposition to behave in a consistently favourable or unfavourable way with respect to a given object" as quoted by Schiffman and Kanuk (1994). The ABC model of attitude consists of

three components namely the cognitive component; the affective component and the behavioural component that ultimately represents whether the consumers elects to buy or not to buy. Attitudes tend to be consistent and difficult to influence directly, therefore it is of primary concern in any new product adoption. (Cant, Brink and Brijbal, 2006)

Cognitive Component

This entails the knowledge and perceptions that a consumer may gain from various *experiences, references, information* and other sources. This forms the consumer beliefs about the object. According to Cant *et al.* (2006), cognition is deemed more critical for important or complex products such as computer systems for consumers to make a decision about.

Affective Component

A consumer's feelings and emotions towards an object may be as a result of the consumers' evaluations of the products performance to their needs at a certain state in time. Depending on the requirements at a certain state in time, the affective component may be heightened if an object can cater for a consumer's need.

Behavioural Component

This is based on the outcome of the affective and cognitive components and determines whether a consumer will buy or not buy a product.

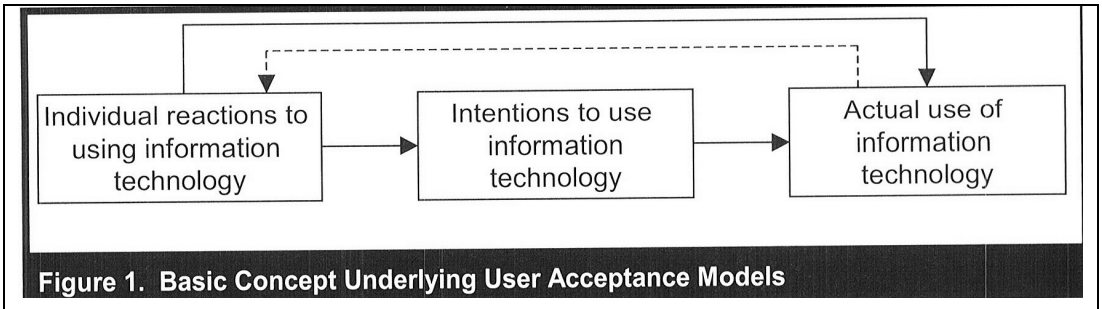
The behavioural component of attitude is therefore the "net result" of the affective and cognitive components of attitude. Consumers through references, experience, information and their own assessment of the needs

that can be fulfilled by products determine whether to adopt a certain product or not. As an aggregated EBBP has not yet been implemented in South Africa, thus this assessment may be limited by providing consumer's information related to EBPP and then testing their assessments of attitudes towards EBPP fulfilling their needs. Since we may not be able to test actual usage, our last link to actual usage would complete a consumer's adoption model whereby actual usage need not be directly measured.

2.1.3 ATTITUDES, BEHAVIOURAL INTENTION TO USE AND ACTUAL USE

Various models on technology acceptance has adopted principles from social psychology and marketing literature developed over time to examine attitudes of consumers, their relation to the behavioural intention to use and consumers actual use of new products and technology. Figure 1 depicts the basic concepts underlying user acceptance models.

Figure 1: Basic Concept Underlying Acceptance Models



Source: Venkatesh et al (2003)

One such model developed in the seventies is the Theory of Reasoned Action (TRA). The TRA was developed from social psychology and is one

of the most fundamental theories of human behaviour that is used to predict a wide range of behaviours (Venkatesh *et al* 2003). According to Fishbein and Ajzen (1975), the thoughts and feelings toward alternative behaviour, if they have any influence at all, only influence performance through their effect on individuals' attitudes and subjective norms towards the particular behaviour of interest. Thus, when attempting to assess the immediate determinants of a given behaviour, researchers need only be concerned with attitudes, subjective norms, and intentions towards that particular behaviour. The more positive these factors are the more likely consumers will perform the behaviour. (Fishbein and Ajzen, 1975).

Another influential and widely researched model in marketing literature is Fishbein's behavioural intention model (Burnkrant and Page, 1982). Martin Fishbein's attitude model investigated the causal relationship between attitudes on the basis of their beliefs, perceptions and knowledge of these objects. This model articulates that the two constructs, attitude to behaviour and the subject norm has a linear relationship to intention and behaviour. Attitude towards behaviour is made up of *a)* the belief that consequences result in outcomes*, b)* evaluation of the outcomes and *c)* the number of beliefs that reinforces the attitude towards the behaviour.

The second construct is the subjective norm that refers to persons important to the consumer that thinks that they should perform the behaviour. Bagozzi (1981), firstly argued that this direct effect of attitude on

behaviour might have been due to response as demand characteristics inherent in the measure of behaviour was based on self-reports. He later used a measure of behaviour based on actual observation and found that the effect of attitude was fully mediated by intention.

2.2. DISCUSSION OF THE VARIOUS MODELS

Having defined a typical consumer behaviour model to the adoption of technology, at this stage, we now evaluate various models that adopted the premise of attitude, behavioural intention and actual usage.

These models varied in the types, number of constructs and variables that hypothesised the determinants of acceptance. An analysis of the following key models has been selected:

- Theory of Reasoned Action (TRA),
- Theory of Planned Behaviour (TPB),
- Technology Acceptance Model (TAM)
- A model combining the Technology Acceptance Model and Theory of Reasoned Action(C-TAM-TRA),
- The Innovation Diffusion Theory (IDT) and
- The Social Cognitive Theory (SCT)

An evaluation of each model is undertaken and a synopsis of the findings of the various models are summarised in section 2.2.7

2.2.1 THEORY OF REASONED ACTION (TRA)

TRA is based on the reasoning that consumers behave rationally and systematically process all the information that is available to them. Based on their evaluation and possible actions they make decisions. TRA consists of the core constructs of attitude towards behaviour (individual's positive or negative feeling about performing the behaviour) and a subjective norm that refers to persons important to the consumers think that they should perform the behaviour. Whilst TAM (discussed in section 2.2.3) and TRA are quite similar, the major difference is that beliefs are bound to the context of attitude and cannot be generalised. The major debate around TRA is that all the beliefs are summed together and this will not allow us to determine the key variables (factors) as antecedents to the major construct (Pikkarainen, Karjaluto and Pahnila, 2004). The belief constructs within TRA are summed together unlike TAM, thus TRA limits a researchers ability to trace influences of all the affecting factors on information acceptance (Davis, Bagozzi and Warshaw, 1989) further substantiating our argument.

2.2.2 THEORY OF PLANNED BEHAVIOUR (TPB)

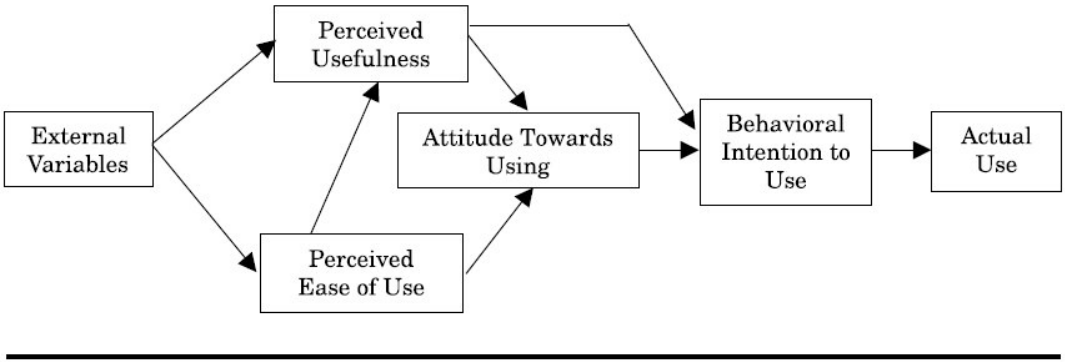
TPB is an extension of the TRA that included an additional construct of perceived behavioural control. Perceived behavioural control describes the perceived use or difficulty of performing the behaviour. Perceived behavioural control originates from the self-efficacy theory proposed by Bandura (1997), in the social cognitive theory. According to Bandura, expectations such as motivation, performance, and feelings of frustration

associated with repeated failures affect behavioural reactions. Two distinct expectations were identified; self-efficacy and outcome expectancy. Bandura defined self-efficacy as one who can successfully execute the behaviour required to produce the outcomes. The outcome expectancy refers to a person's belief that a given behaviour will result in certain outcomes. Bandura (1997) argued that self-efficacy is the most important precondition for behavioural change, since it determines the initiation of coping behaviour.

2.2.3 TECHNOLOGY ACCEPTANCE MODEL (TAM)

Davis (1989) later used the TRA model to test an individual's acceptance of technology and found that the variance explained was consistent with the TRA. This formed the basis of the original Technology Acceptance Model (TAM). According to TAM perceived usefulness and perceived ease of use influences a consumer's attitude towards a system's usage which behavioural intention in turn determines actual system usage. After refinement, it was found that attitude had a weak correlation with behavioural intention and perceived usefulness, thus attitude towards usage was eliminated from the model. Figure 2 below depicts a typical TAM model.

Figure 2: Technology Acceptance Model



Source : Davis (1989)

TAM postulates that the intention to use new information technology is determined by the attitude towards the system and its perceived usefulness. Attitude is preceded by the consumer's perceived usefulness of the system and their perceived ease of use. The effects of external variables such as individual differences as described in other technology acceptance models are also expected to impact on a user's acceptance however, these influences would be mediated by the two main constructs of perceived usefulness and perceived ease of use according to TAM.

2.2.4 COMBINATION OF TAM AND TPB (C TAM-TPB)

The major constructs of TPB was later combined with perceived usefulness from TAM to provide a hybrid model (Taylor *et al*, 1995)

2.2.5 INNOVATION DIFFUSION THEORY (IDT)

According to IDT the rate of diffusion is affected by an innovation's relative advantage; complexity, compatibility, triability and observability. Rogers

(1995), defines relative advantage as the degree that the innovation is seen to be superior to its predecessor; complexity as the degree that the innovation is seen to be relatively difficult to use or understand and compatibility as degree with which existing values, beliefs, experiences and needs of adopters are met. Triability is explained as the degree of experimentation of an innovation by consumers whilst observability is described as the degree that which the results of the innovation are visible. Tornattzy & Klein (1982) researched IDT and found that relative advantage, compatibility and complexity were the most significant constructs to adoption research. The theoretical models of IDT and TAM have overlapping constructs; complexity is similar (reverse direction) to perceived ease of use and relative advantage is similar to the construct of perceived usefulness. Venkatesh et al, (2003) included both these construct in their Unified Theory of Acceptance and Use of Technology model and renamed it performance expectancy.

2.2.6 SOCIAL COGNITIVE THEORY (SCT)

Whilst Compeau and Higgins (1995) model studied actual computer use, the theory allows it to be extended to the acceptance of technology in general. Core constructs include outcome expectations (performance), outcome expectations (personal), self-efficacy, affect and anxiety. Performance outcomes are defined as the consequences of the behaviour to performance expectation and specifically job related outcomes whilst personal expectation outcomes focuses on personal consequences as far as individual esteem and accomplishment is concerned. Self-efficacy,

affect and anxiety deals with the consumers ability to use the technology to accomplish a task; a liking to that behaviour (e.g. computer use) and the evoking of anxiety or emotions when it comes to performing a behaviour.

2.2.7 SUMMARY OF MODELS

Table 1 provides a summary of the models discussed previously. We then proceed to a justification of a based model.

Table 1: Summary discussion of Acceptance Models

Model	Author(s)	Key Constructs
Theory of Reasoned Action (TRA)	Fishbein and Ajzen (1975)	**Attitude to behaviour** –feelings to performing the behaviour **Subjective norms**: persons important to consumer think consumer should perform behaviour.
Theory of Planned Behaviour (TPB)	Ajzen (1991)	Extended from TRA: Additional construct added **Perceived behavioural control** - self-efficacy and outcome expectancy. Confidence in performing behaviour and trust that behaviour will result in the outcomes.
Technology Acceptance Model (TAM)	Davis (1989)	**Perceived usefulness**: degree enhance job performance **Perceived ease of use**: perceive technology easy to use
Combination TAM and TRA	Taylor and Todd (1995)	Major construct of TPB plus **Perceive usefulness:** degree enhance job performance
Innovation Diffusion Theory (IDT)	Rodgers (1995)	**Relative advantage**: degree superior to predecessor **Complexity**: difficulty to use **Compatibility:** alignment to existing beliefs, experiences and needs **Triability:** degree of voluntariness **Observability:** visibility of results

Model	Author(s)	Key Constructs
Social Cognitive Theory (SCT)	Bandura (1986)	**Outcome expectations** (performance): job related outcomes **Outcomes expectations** (personal): personal consequences (self esteem, accomplishment etc) **Self efficacy:** use technology to accomplish task **Affect:** a liking to the behaviour **Anxiety;** evoking anxious or emotions when performing the behaviour

Interestingly to the author, the results of the longitudinal studies that Venkatesh et al (2003), conducted at four organizations by comparing the use of different models unintentionally also depicted the reliability of the TAM model. In voluntary settings, TAM explained a variance (r^2) of 38%, 36% and 37%, which was higher when compared to models such as TRA (30%, 26% and 19%), TPB (37%, 25% and 21%) and SCT (37%, 36% and 36%). Although C-TAM-TPB (39%, 36% and 39%) and IDT (38%, 37% and 39%) explained usage slightly better this was achieved with an increased amount of variables (seven more variables in the latter model).

TAM was introduced in 1986 and it still continues to be the most widely applied model that includes over one hundred published articles by leading IS journals and conferences. Lee, Kozar, Larsen (2003), TAM has also been applied to different technologies (including WWW, office systems, specialised business systems and communication systems) under different control factors (e.g. gender, organizational type and size) and different subjects (MBA students, knowledge

workers, undergraduate students) proving its robustness. TAM consistently explained a substantial proportion of the variance (i.e. 40%) in usage intentions and behaviour (Venkatesh and Davis 2000).

Although the model was initially developed for measuring adoption in new computer based technologies within the workplace, it has been successfully proven to be a suitable theoretical foundation for the adoption of ecommerce applications. (Chen, Gilleson, Sherrel, 2002; Moon and Kim, 2001; Lederer, Maupin, Sena and Zhunag, 2000). Several studies later extended the original TAM model by focussing on antecedents of the perceived usefulness and perceived ease of use constructs. (Venkatesh and Morris 2000; Keiljnen, Wetzels and Ruyter, 2004).

2.3. KEY CONSTRUCTS OF TAM

In the following section, the author discusses the key constructs of TAM in more detail, after establishing TAM as an appropriate base model to utilise. Antecedents to the constructs of perceived usefulness and perceived ease of use, relevant to EBPP are also discussed below.

2.3.1 PERCEIVED USEFULNESS

Davis (1989) and more recently Kleijnen *et al*, (2004), referred to perceived usefulness as the degree to which consumers expect that the adoption of a particular technology will enhance their job performance. In terms of an aggregated online EBPP, this could be related to the consumers ease in managing their bill payments more efficiently, cost effectively and with

much, more ease. Pikkarainen *et al,* (2004), when conducting an empirical study in the adoption of online banking in Finland found that perceived usefulness (PU) was the second most important factor in predicting adoption and was more influential than perceived ease of use. Gefen and Straub (2003) also found the influence of the type of task responded differently. Moon *et al*, (2001), in an internet context found that perceived usefulness for work related tasks were most pivotal compared to perceived playfulness that was relevant for entertainment tasks. The author expects that perceived usefulness would be a key factor in the adoption of EBPP due to the relative advantages over the current methods of receiving, paying bills and storing historical information.

According to Barczak Ellen, Pilling (1997) a consumers motives are pre determined by consumer attitude and behaviours to a certain technology. As EBPP is synonymous with online banking in respect of its money management philosophies, his segmentation of consumers being “security conscious”, “maximisers”, “instant gratification” and “hassle avoiders” could be related to EBPP perceived usefulness factors

2.3.2 PERCEIVED EASE OF USE

Perceived ease of use which also affects perceived usefulness, explained the degree consumers perceive the technology as easy to use. An aggregated EBPP service is typically an online web channel. This requires a consumer to have a computer efficacy in using online websites or the

technology should be relatively easy for the consumers to learn. Wang, Wang, Lin and Tan (2003), found that perceived ease of use is a stronger factor than perceived usefulness, although lower than perceived credibility (which embodies trust and privacy) in predicting adoption of internet banking in Taiwan. Venkatesh *et al*, (2000), showed that ease of use is related to self-efficacy, which relates to the ease with which to interact with a system. For consumers to adopt; they firstly require the necessary tools to access the internet (reliable fast internet access and the necessary software), they should be able to easily use similar eCommerce websites or learn to use online functional components such as registration, enrolment (search) and online payments. These are typically the same consumer functionality present in an aggregated EBPP solution. A South African industry expert Goldstruck, (2007) posits that SA consumers are only now becoming experienced and mature on eCommerce. However, this may be mediated by the fact that consumers have used similar components/functionality via other online services such as social networks, online shopping and banking services. This may heighten their perception of being able to use EBPP and may mediate the importance that perceived ease of use may have on the actual intention to use.

2.4 MODEL EXTENSION

Although TAM has proven itself to be a parsimonious model that is viable for predicting consumers acceptance of new technologies, it is necessary to define more specific drivers for consumer acceptance and extend the model where required in the research framework. (Monsuwe, Benedict, Dellaert and Ruyter 2004).

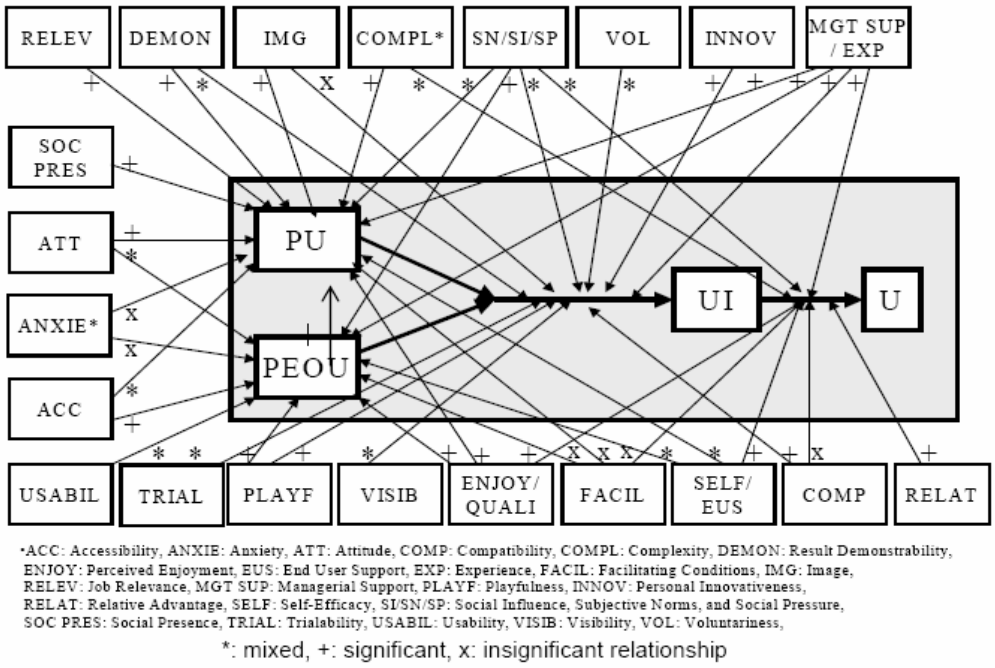
In the model extension period of TAM (1994-2003), many researchers began to introduce new variables and their relationships with the constructs as well as including antecedents for perceived usefulness and perceived ease of use. (Lee, *et al*, 2003). Variables such as prior experience, role in technology, level of education, culture and gender were all found to play an important role in attitude (Agarwal and Karahanna, 2000). These variables were distinctively included by researchers in an attempt to extend the model with external variables relative to the individuals, organization and the task characteristics. Straub, Limayem and Karahanna (1995), also found that culture played an important role in attitude towards and choice of communication media. He found that Japanese workers perceived fax to be more useful than did US worker whilst in the case of email the perception was reversed.

Later on during the model elaboration period of TAM, researchers such as Venkatesh et al (2000) and Venkatesh (2000) developed TAM II, which defined antecedents to perceived usefulness as subjective norms, such as social influence and cognitive instruments such as job relevance, image, quality and result demonstrability. This increased the variance explained by the model to

60%. Antecedents to perceived ease of use were computer self-efficacy, perception of external control, computer anxiety and computer playfulness (Venkatesh, 2000).

However, in most studies of external factors TAM has lacked a consistent pattern of external variables Lee et al (2003). A summary of variables used in various TAM models are depicted in figure 3 below and the variables are more fully articulated in table 2 below.

Figure 3: Summary of variables used in TAM



Source: Lee et al (2003)

Table 2: Summary of variables used in extended TAM

Variable	Definition	Referred Articles
Voluntariness	Degree to which innovation is perceived as being voluntary or free of will	Barki and Hartwick (1994) and Davis (2000)
Relative Advantage	Degree to which an innovation is perceived as better than the precursor	Moore and Benbasat (1991); Premkumar and Potter (1995)
Compatibility	Degree innovation is consistent with existing values, needs and past experiences of potential adopters	Chin and Gopal (1996); Xia and Lee (2000)
Complexity	Degree to which innovation is perceived as being difficult to use.	Premkumar and Potter(1995), Igbaria et al (1996)
Observability	Degree results of an innovation are observable to other	Moore and Benbasat (1991)
Trialability	Degree innovation can be experimented on before adoption	Moore and Benbasat (1991;Karahanna et al (1999)
Image	Degree innovation enhances one's image	Karahanna et al (1999),Venkatesh and Davis (2000)
Self Efficacy	Belief that one has the capability to perform a particular product	Fenech (1998), Venkatesh and Spier (2000)
End user support	High levels promote more favourable beliefs	Igbaria et al (1996); Karahanna and Limayen (2000)
Objective usability	Comparison of systems on actual level of effect regarding certain tasks	Venkatesh and Davis (1996); Venkatesh (2000)
Personal Innovativeness	Individual's trait that reflects a willingness to try out new technology	Agarwal and Parsad (1998); Agarwal and Karahanna (2000)
Computer Playfulness	Degree of cognitive spontaneity in computer interactions	Moon and Kim (2001); Agarwal and Karahanna (2000)
Social Presence	Degree a medium permits users to experience other as being psychologically present	Karahanna and Straub (1999); Karahanna and Limayen (2000)
Social Influence	Person's perception that people important to him should perform the behaviour	Malhotra and Galletta (1996);Venkatesh and Morris (2000)
Visibility	Degree innovation is visible in the organization	Xia and Lee (2000) Karhanna et al (1999)
Job Relevance	Capabilities of a system to enhance an individual's performance	Venkatesh and Davis (2000); Thompson et al (1991)
Computer Attitude	Degree to which a person likes or dislikes the object	Chau (2001)
Accessibility	Physical accessibility to use the system. Information accessibility to retrieve the desired information	Karahanna and Straub (1999); Karahana and Limayem (2000)
Results Demonstrability	Degree to which results are observable and communicatable to others	Karahanna et al (1999); Venkatesh and Davis (2000)
Computer Anxiety	Individuals fear when faced with the possibility of using computers	Montazemi et al (1996); Gopal et al (1994)
Perceived Enjoyment	Extent to which activity of using a system is perceived to be enjoyable in its own right.	Chin and Gopal 1(995); Teo et al (1998)
Facilitating Conditions	Control beliefs relating to resource factors such as time, money and IT compatibility issues	Taylor and Todd (1995); Karahanna and Straub (1999)
Prior Experience	Experience gained	Jackson et al (1997); Dishaw and Strong (1999)

Source: Lee et al, (2003)

2.5 SOUTH AFRICAN CONTEXT

Whilst TAM has been widely utilised as a model, various researchers have included additional factors that may be relevant to the adoption of the "object", EBPP in this case. For EBPP, consumer confidence in the aggregator of billing information and the enabling technologies is hypothesised to be the primary issues that may also affect the adoption of EBPP.

Srinivasan (2004) identified two factors that significantly contributed to the success of e-business; how secure they feel when transacting and the trust consumers place in the online business. Wang *et al*, (2003), found that trust and privacy determinants were the highest factors amongst their five in determining the adoption of online banking in Taiwan using TAM. However, in an empirical study in Finland (Pikkarainen *et al*, 2004), using the TAM model found security and trust was surprising lower than perceived usefulness and ease of use.

The statistics from the online survey undertaken by World Wide Web tend to favour a more "push type ebilling model" as a majority of respondents (76%) preferred to receive their bills via email. This may suggest that South African consumers wish to receive their statements sooner, however they are not likely to perceive the benefits of saving costs and time by making payments online and managing the aggregation of bills and payments in a single channel.

In South Africa given the statistics as quoted by Webcheck (2006), the study found that of the fifty one percent of the respondents that did not adopt online

banking, thirty-three percent cited reasons of trust and privacy. Also, to date only 49% of internet users have adopted internet banking since the launch of the service ten years ago (excludes the number of dormant/inactive users). In addition to the above, South African research expert Arthur Goldstruck, attributed the growth of online retail since 2006 to the "experience curve" of internet users (Vecchiatto, 2007). This means that South African internet users that have been around for six years are only now becoming more comfortable with the technology and are contributing to the adoption or even higher frequency of usage of online transactions. This concurs with studies by Thornton and White (2001) who also found in their study of online and telephone banking that as the use of new technology or channels occurred as the population matured, knowledge, confidence and computer usage increased.

Apparent from the list of additional variables included in TAM studies over time (table 2), common themes seems to exists and have now been grouped under a new construct called confidence. The key factors include:

- Prior experience
- Personal innovativeness and computer playfulness
- Computer attitude, computer anxiety and enjoyment

Given the situation of South African online services, SA consumers experience and the common themes of variables included to the original TAM for specific research studies, the construct confidence is therefore added to the model.

2.6 CONTROL VARIABLES

To complete the model we need to control for variables such as age, gender, income and educational level that were not included in the original TAM model (Venkatesh *et al*, 2003). These were found in various research studies to be important determinants.

Venkatesh and Morris (2000), investigated gender differences, found that it was an important determinant, and can be used to predict sustained usage behaviour of technology. Age could have a direct effect on perceived usefulness as early adopters are normally thought to be young males with higher income levels. Similarly, Howcroft, Hamilton and Hewer (2002), found that younger consumers valued convenience or timesavings more than older consumers did when it came to adopting mobile banking. They also found that younger consumers perceived the lack of face-to-face contact less important than older type consumers did. Online bankers in Finland were also found to be highly educated, relatively young and a wealthy person with a good knowledge of computers and the internet (Kajaluto, Mattila and Pento 2002).

Although in most studies, demographic characteristics have been found to have a weak correlation, and the literature review is undecided as whether demographic factors such as age and gender will have an effect (Mckechnie, Winklhofer and Ennew, 2006). Thus, one cannot rule out the affect of these variables completely, and they are therefore included in our respecified model.

2.7 RESPECIFIED MODEL

The literature review has now allowed that a respecified model (an extension to TAM) be formulated to predict the key factors that influence South African consumers' adoption of an aggregated EBPP solution. The model consists of two constructs, perceived usefulness from the original TAM and confidence as an additional construct to cater for the South African context.

The following variables are hypothesised to **positively** influence perceived usefulness and influences actual usage:

- **Relative Advantage** (degree that EBPP will save the consumer time, financial costs compared to previous methods)
- **Visibility** (benefits are visible to the consumer-single channel)

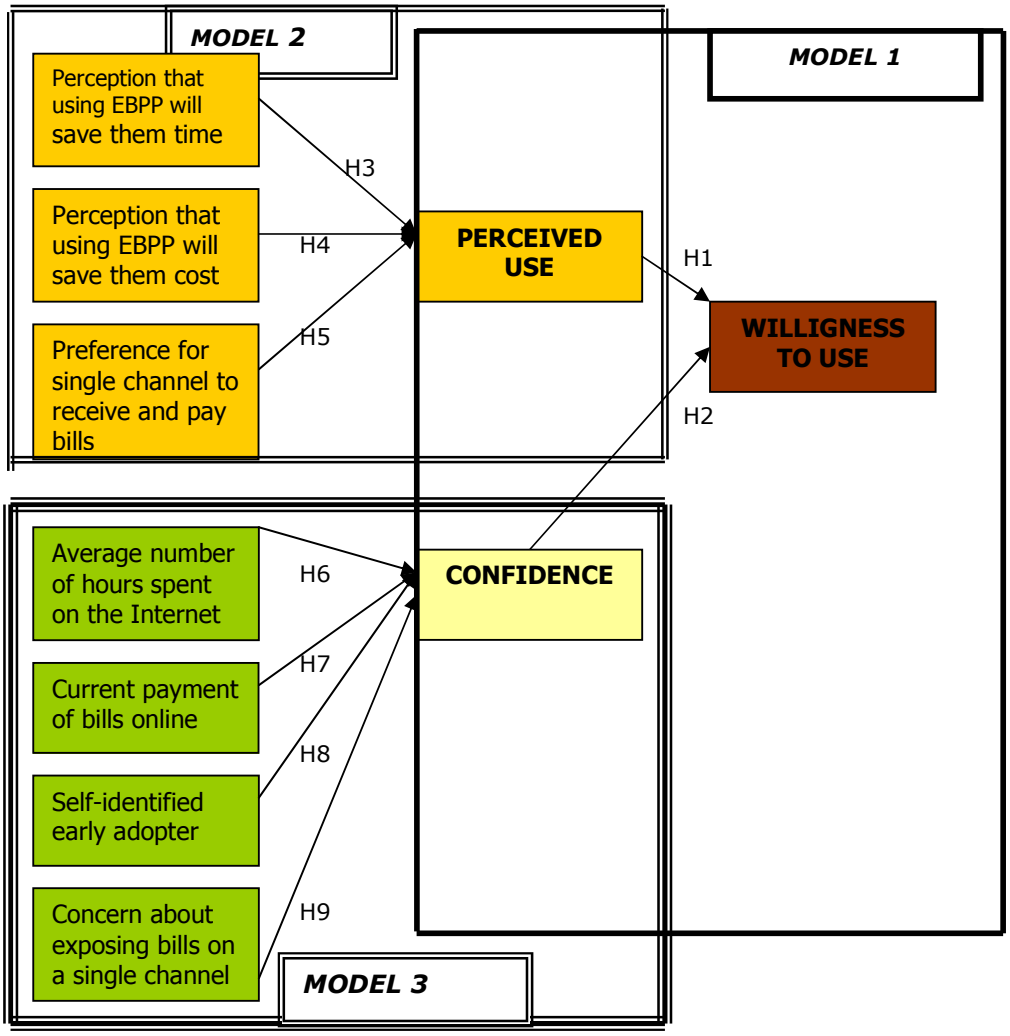
The consumer's confidence construct may be related to a consumers "likes or dislikes" towards the computer as the enabling technology or the entity involved in providing the EBPP channel. Perceived ease of use is normally a construct on its own in TAM studies and selected antecedent variables has been included in the confidence construct. This is because an online EBPP solution is not readily available to actually gauge consumers' ease of use of the system. Consumer confidence in using related services and their own personal assessment of self-efficacy will act as a proxy for these variables. At this stage, studies have also found non-significance in some TAM studies for perceived ease of use. Subramanian (1994) found that when the systems were inherently easy to use perceived ease of use has little or no impact on the acceptance decision.

Perceived ease of use was also found to be a significant antecedent of perceived usefulness instead of it being a mutually exclusive construct to acceptance (Davis et al 1989).On that basis perceived ease of use is not included as a separate construct but incorporated with the confidence construct together with the following variables;

- Self Efficacy (early adopter of self identified adopters)
- Personal Innovativeness (early adopter of similar online services-pay bills online)
- Experience - Consumers that already pay their bills online will be positively related to the adoption of an aggregated EBPP service
- Trust -Consumers may only adopt EBPP if they can trust a single entity to making their bills available online
- Consumers that spend more time on the Internet are more inclined to adopt EBPP above others.

Figure 4 represents our extended TAM model (respecified model).

Figure 4: Respecified Model



CHAPTER 3: HYPOTHESES

The objectives of this research are to identify the factors responsible for the adoption of an aggregated EBPP service in South Africa. From the literature review analysed, it has been determined that TAM is a robust model to utilise and that the elaboration of the TAM model may provide a greater explanation of a consumer's behavioural intention to adopt EBPP. The following two main constructs included in the respecified model are:

- Perceived Usefulness
- Confidence of the consumer

The following model hypotheses are therefore formulated;

Model 1: What determines willingness to use?

H1: Consumers that perceive a higher degree of usefulness of EBPP will be a key factor in the adoption of EBPP above others.

H2: Consumers that have a higher confidence loaded by factors such as trust of the technology, single channel, and previous experience will adopt EBPP above others

Model 2: What determines consumers' perceived usefulness?

H3: Consumers that perceive that using EBPP will save them time will be more likely to adopt EBPP above others

H4: Consumers that perceive that using EBPP will save them costs will be more likely to adopt EBPP above others

H5: Consumers that prefer receiving and paying bills in a single channel is more likely to adopt EBPP

Model 2: What determines consumers' confidence?

H6: Consumers that spend a higher number of hours per week on the internet will adopt EBPP above others

H7: Consumers that currently pay bills online will adopt EBPP above others

H8: Consumers that consider themselves as early adopters of new technology will adopt EBPP above others

H9: Consumers that are less concerned of exposing all their bills on a single online channel are more likely to adopt EBPP

CHAPTER 4: RESEARCH METHODOLOGY

The objective of this research is aimed at quantifying the factors affecting the consumer adoption of EBPP in South Africa. From previous international studies and factors discussed in the literature review, the author hypothesized that the factors affecting SA would be different in respect to a lesser significance of perceived ease of use, lower consumer confidence levels in trusting enabling technologies and a single channel to aggregate their bills and payments. Thus focusing on these factors, the author elected to test various hypotheses formulated to gain a better understanding of the dimensions of a consumer's adoption of EBPP in South Africa. The final outcome of this research is a model consisting of key factors that best describes South African's consumers' intention to adopt EBPP.

4.1. RESEARCH DESIGN

As there are no secondary data or cases studies available on South African consumers' adoption of EBPP, a survey option was selected because most psychological variables cannot be observed directly. To measure an attitude, we must infer from the way that individual responds (verbal expression or overt behaviour) to some stimulus (Zikmund, 2003). Also, attitudes are an expression of inner feeling and psychological processes that cannot be directly observable, therefore they must be inferred from what people do or say (Schiffman *et al*, 1994). A survey also allows one to ask customized questions, which precisely

measure the hypothesized constructs and variables that informs us what factors actually determines whether a consumers adopts online services such as EBPP. A quantitative approach was also elected to allow the author to generalize and infer trends from the sample chosen.

Similar to other research on online banking using TAM, conducted by Howcroft *et al*, (2002) an additional construct of confidence (proxy to trust) was included in the original TAM. The variables chosen were primarily compiled based on previous studies of a consumer's adoption of similar online services and previous TAM studies to ensure content validity. An advantage of TAM as argued by Davis (1989) is that TAM has a well-validated measurement inventory. As found in TAM and other behavioural models, the dependent variable used was the consumers' intention to adopt EBPP. The table 3 below describe the constructs, variables and variables as discussed in the Literature Review Section.

Table 3: Table of Construct s and Variables included in survey

Table Constructs and Variables		
	Factors/ Constructs	**Variables**
Attitude towards using an aggregated EBBP service	**Perceived Usefulness**	Perception that using EBPP will save them time Perception that using EBPP will save them costs Preference for a single channel to receive and pay bills *Usefulness of obtain historical and new bills online*
	Confidence	Average number of hours spent on the Internet per week Current payment of bills online Self identified early adopter Concerns about exposing bills on a single channel Perception of ease of use of bill pay Confidence in ability to use eCommerce websites such as Kalahari, eBucks or other online stores Confidence in eCommerce websites in terms of registering and purchasing products online

	Number of years that you had Internet Access Average number of bills received (total) per month Total number of bills received by email Access to latest software Fast and reliable internet access Preference for own bank to be a single entity to aggregate all bills online Willingness to use EBPP only if payments via Internet banking Willingness to use EBPP only once other people start using it Confidence of security of credit cards and other online payments Willingness to promote service
Demographics-Control variables Age Income Education Gender	
Dependent variable	Willingness to use a EBPP to access bills and pay them online

Demographic variables such as gender, age, level of education, income, and the average number of hours spent on the internet were also included in the survey. These variables were included because they confirm the profile of the sampling frame.

4.2. RESEARCH INSTRUMENT

In its simplest form, attitude scaling requires that an individual agrees or disagree with a statement or respond to a single question. A Renis Likert is an extremely popular method for measuring attitudes because they are simple to administer, (Zikmund, 2003). Therefore, a five point Likert scale was used ranging from

strongly agree, agree, uncertain, disagree, and strongly disagree, to measure the two constructs and antecedents of perceived usefulness, confidence.

A self-administered survey (see Appendix 1), hosted on a dedicated website (monkeysurvey.com) was used as a data collection method. This method of data collection was especially suitable to the sample frame, since the research revolved around a consumer's attitude to an online service such as EBPP. Research in the e-commerce research favours an online data collection methodology instead of mail surveys. (Szymanski and Hise, 2000) and (Jayawardehena, 2004). An email survey hosted on a website was carefully considered as it was also the best possible manner to elicit responses and provide the trust and confidentiality of responses gathered. The author elected to send out an email invitation that contained a hyperlink that redirected respondents to the survey and the website guided them through all five sections of the survey.

4.3. POPULATION, SAMPLE SIZE AND SAMPLING METHOD

The unit of analysis is a South African consumer who receives bills and is responsible for paying them on a regular basis. The consumer also has access to internet as a channel to receive these bills electronically and pay for them online. The exact size of unique internet users above the age of eighteen and who are responsible for paying bills in South Africa is not available; however using 2006 figures quoted by Webcheck (2006), it is estimated around a total of 2, 9 million users. Internet Service Providers are in the best position to identify users that are

older than eighteen years however email lists of internet users are not publicly available. Also due to consumer privacy issues according to the Electronic Communication Act, the sending out emails inviting internet users to participate in an online survey was not a viable option. Secondly, unsolicited email invitations to participate in an online survey may not have resulted in an acceptable response rate.

Therefore, the author used a non-probability sampling technique (judgmental sampling) to distribute and collect responses to the email survey. In an article that appeared in the Business Report (July 25th, 2007) an extract from Nielsen/Netrating was published on the demographic profile of South African internet users:

- Fairly even gender distribution
- Average age is between 25-29
- 64% had internet access from place of work
- 31% had internet access at home
- 61% are employed full time and works for more than 30 hours per week
- 17% had an annual household income of R400, 000 or more, 15% preferred to not say what their income was and 10% earned less than 50,000 per year.

A sample relevant to the total population based on the author's personal judgment was selected, as it was consumers that:

- Have access to the internet from work and home
- They receive bills on a regular basis
- They are responsible for paying bills on a regular basis
- Are in white collar and professional occupations
- Representative of the age, income, educational levels and gender profiles of the typical South African internet user

Respondents included MBA students, friends and work colleagues that conform to the sample profile. The value of this sample ensured a higher response rate, as the respondents were known to the author.

4.4. VALIDATION AND PRE TESTING OF RESEARCH INSTRUMENT

Steps were taken to ensure that the survey actually measures what is supposed to measure (validity). A pre–test of the survey was conducted on ten (10) internet users from the MBA group who did not form part of the population sample. The findings were quite relevant and the following actions were taken to enhance the survey:

- Additional response choices were added to certain questions – the inclusion of a 'none' option to questions relating to number of bills received per month; the number of bills received by email per month and the number of bills retrieved via a company's website per month.
- Certain headings from the survey were removed because it unnecessarily grouped the constructs that were being measured

- Questions were rephrased to be less ambiguous
- A more detailed definition of electronic bill presentment and payments was included in the introduction of the survey to ensure that respondents understood the concept.

4.5. DATA COLLECTION

The survey was hosted on monkeysurvey.com and a total of 136 email invitations containing a link to the survey, were sent out. After an initial response rate of 22,8% (31/136), a second reminder was sent out to all respondents that had not yet responded to the survey two weeks before the closing date. A final reminder was sent to respondents three days before the closing date, the 17 August 2007. At closing of the survey, a total of 81 (59, 5%) responses were received of which 2 responses were not fully completed by respondents. All response were captured and coded within an electronic database.

4.6. DATA ANALYSIS

The objective of the research is to infer characteristics of the factors identified as antecedents to a consumer's adoption of an EBPP service; therefore, a regression analysis was best suited for this analysis. A regression analysis would assist in determining the affects of all the potential independent variables and their effect on the dependent variable. This will assist the author in determining which potential independent variables belong to the regression analysis equation to best describe their relationship to the dependent variable (intention to adopt EBPP service). This is consistent with other empirical studies used to determine the

adoption of consumers via the TAM. In previous international research the profile of internet, users for online financial services were better educated, males from higher social classes with higher levels of income (Devlin and Yeung, 2003). Therefore, the author controlled for these variables with the exception of income. This was as a result of income not having a variance and therefore it was excluded.

The responses per question from the sample data was coded according to the scale adopted. The means of each independent (predictor) variable was calculated. Scatter plots were evaluated to determine any relationship between the two variables; independent variable versus (horizontal axis) the dependent variable (vertical axis). Based on the scatter plots outliers were identified and determined if they are relevant to the population.

A statistical software package (SPSS) was utilized to determine the regression analysis by inputting the values of all the independent variables and the corresponding independent variable. The regression output was than evaluated as follows:

1. We interpreted the regression equation by finding the intercept and the slopes of each independent variable
2. Next we observed the usefulness of the regression analysis by calculating the standard error of estimate (standard deviation of residuals)

3. The r^2 (coefficient of determination) was evaluated to determine the value between 0 and 1. This explains the variation (%) of the dependent variable explained by the regression line. A figure closer to zero indicates a higher variation. Preference is given for a r^2 to be as close to 1 to indicate a good fit.
4. Next, some potential explanatory variables (categorical) are changed to dummy variables. (Usually 0 indicating observation is out and 1 indicating observation is in). Gender and Income levels were converted into dummy variables.
5. The hypothesis for the whole model was tested using ANOVA and the evaluation of the coefficients (T-tests)
6. The final step was to determine the fit of the regression.
7. Inferences were made based on the results obtained.

4.7. SUMMARY OF RESERCH METHODOLOGY

The objectives of the research, the available data sources, the urgency of the decision and the costs of obtaining the data determine the most appropriated research method (Zikmund, 2003). Zikmund (2003), also argues that knowing and selecting the most appropriate design is achieved with experience and there was no single standard for given research. Given the depth of previous TAM studies with a high similarity of this research's objectives and that TAM is a well-validated and parsimonious model for explaining the adoption of information technology by users (Davis 1989), the research design and methodology adopted is therefore substantiated.

CHAPTER 5: RESULTS

To analyse the results the author followed an approach of firstly conducting descriptive statistics to identify general trends emanating from the data. Thereafter the entire model consisting of all twenty-three variables were tested via a regression analysis. Subsequent tiered models had to than be formulated based on the models included in our respecified model in order to answer the research questions. Model one consisted of the perceived usefulness and confidence construct with the intention to adopt as the dependent variable. Similarly, separate regression analysis were conducted on the antecedents of perceived usefulness and confidence as model two and three respectively. Our evaluation of the results of the regression analysis as to whether we can accept the hypotheses is based on the significance of the model and adjusted r^2 value obtained.

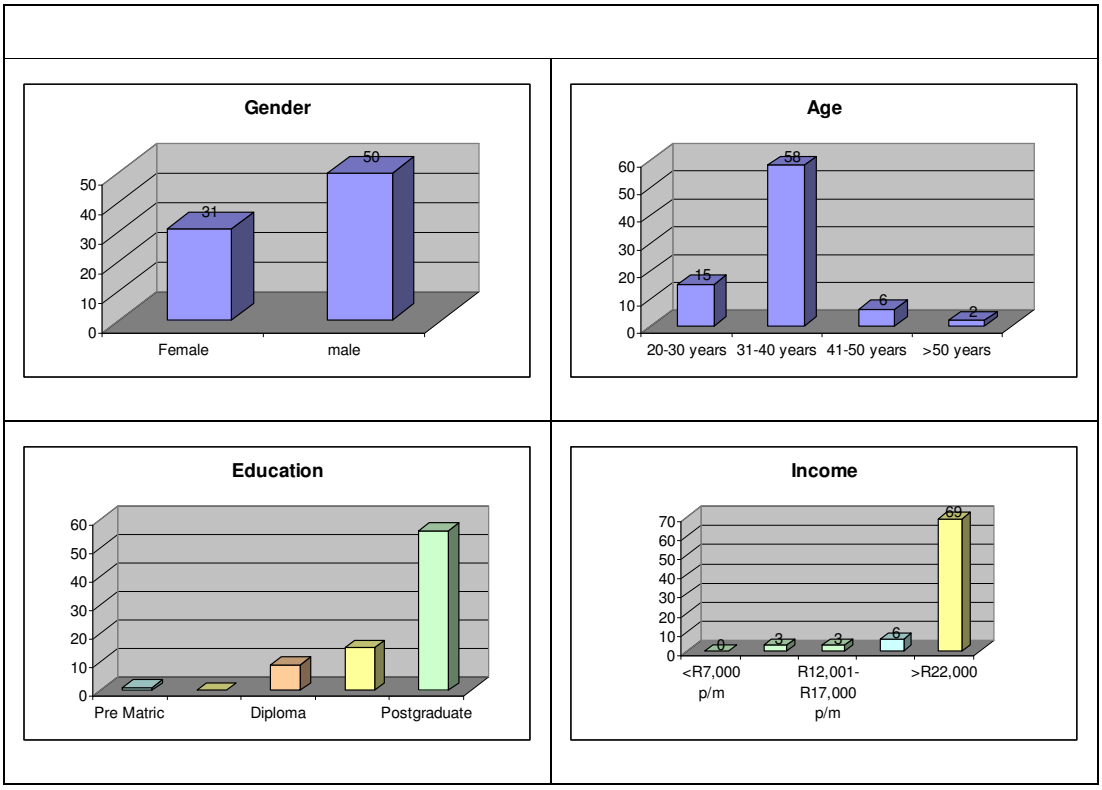
5.1. DESCRIPTIVE STATISTICS

To obtain an understanding of the data an understanding of the demographic variables of the respondents are firstly analysed via descriptive statistics. This is also the control variables that were included in our respecified model. Key concepts postulated are also analysed in this manner; such as consumers' experience of paying bills online and the dependent variable "intention to adopted EBPP".

5.1.4 DEMOGRAPHIC VARIABLES

Of the 81 responses analysed 61.7% of the respondents were male; 71 % were between the ages 31-40; 69, 1 % of respondents have a postgraduate degree and 85, 2 % earned a gross income above R22, 000. This could be expected given that the majority of respondents were from a postgraduate school and whilst the population selected was not biased, the author could not control for the responses received.

Figure 5; Demographic Variables

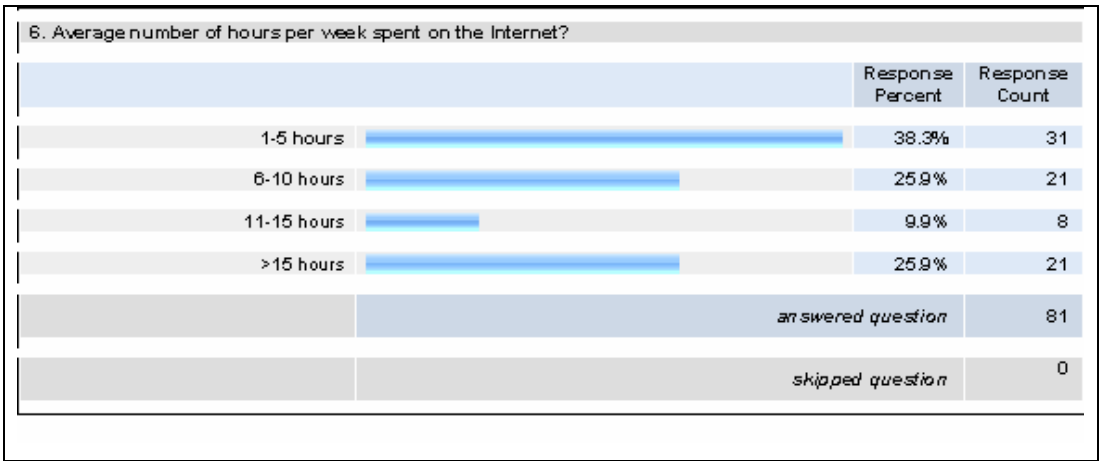


5.1.4 INTERNET ACCESSIBILITY AND TIME SPENT ONLINE

Of the 81 respondents 74% had internet access from both work and home; 38, 3 % spent 1-5 hours a week on the Internet, and 88, 9 % had internet access for a period longer than 4 years. Interestingly, whilst internet access is available at both

the consumers' place of work and home the majority of consumers spend less than 10 hours per week on the Internet (64.2%).

Figure 6: Number of hours spent on the Internet



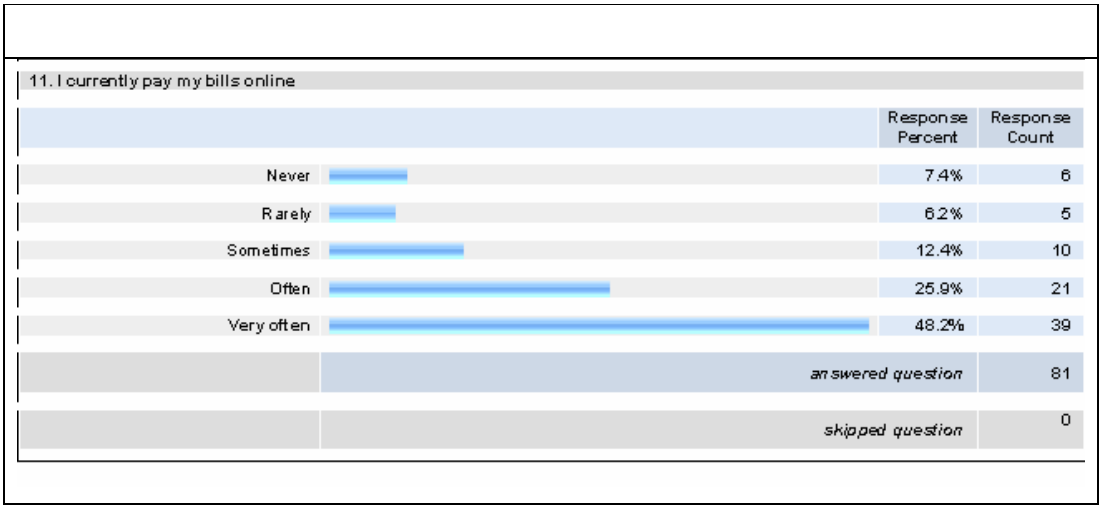
6. Average number of hours per week spent on the Internet?

	Response Percent	Response Count
1-5 hours	38.3%	31
6-10 hours	25.9%	21
11-15 hours	9.9%	8
>15 hours	25.9%	21
answered question		81
skipped question		0

5.1.4 PAYMENT OF BILLS ONLINE

Of the respondents 48, 2 % very often paid bills online and 25, 9% paid often. This means 74, 1% of the respondents, cumulatively paid bills online on a regular basis. Only 7, 4% never paid bills online.

Figure 7: Payment of Bills Online



11. I currently pay my bills online

	Response Percent	Response Count
Never	7.4%	6
Rarely	6.2%	5
Sometimes	12.4%	10
Often	25.9%	21
Very often	48.2%	39
answered question		81
skipped question		0

5.1.4 INTENTION TO ADOPT EBPP

The dependent variable "intention to use EBPP" responses was not totally skewed to the positive response thus minimising the possibility of acquience bias which could have occurred given that the sample consumers were known to the researcher. The results demonstrate to have a higher selection of responses to the scales of "sometimes" 24.7% and "rarely" 13, 6% compared to the question "currently pay bills online". However only 3, 7% (3 respondents) responded that they would never use an online EBPP channel to access and pay bills online. Of these 35, 8% responded that they would use EBPP very often and (22, 2%) indicated they would use EBPP often (cumulative use on a regular basis- 58%).

Figure 8: Intention to adopt EBPP

13. I will utilise an online EBPP channel to access my bills and pay them online

	Response Percent	Response Count
Never	3.7%	3
Rarely	13.6%	11
Sometimes	24.7%	20
Often	22.2%	18
Very often	35.8%	29
answered question		81
skipped question		0

5.2. OVERALL MODEL: KEY FACTORS AND ADOPTION OF EBPP

In the first step of the analysis, the author ran diagnostics on the variables that did not have well-defined factorial loads in their respective constructs. Inflation factors below 10 were thus removed as these indicate multi collineratity. This is because two variables measuring the same thing will result in an unstable beta thus distorting the results. The only variable that fell into this criterion was “access to latest software” which was removed from the model.

A linear regression analysis was thus used to explain the overall model. The overall model, which measured all twenty-three variables included in the questionnaire, had an explanatory power of 27.4% as indicated by the adjusted r^2 in table 4 below. The model is highly significant given a significance level of 0.013 and an F value of 2.051.

The problem with the overall model is that we only found very marginally significant individual factors. The factors identified were preference for retrieving and payments within the same channel and willingness to use EBPP only if payments via Internet Banking channel (negatively correlated).

Table 4: Results of Overall Model

Model Summary

Model	R	R Square	Adjusted R2	Std. Error of Estimate
1.0	0.731	0.535	0.274	1.002

Predictors: (Constant) Current payments online (log); Concern about exposing all bills at one online channel; Number of years that you had Internet Access
Dependent Variable Willingness to use

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig
1.0	Regression	57.680	28.0	2.060	2.051	0.013
	Residual	50.218	50.0	1.004		
	Total	107.899	78.0			

Predictors: (Constant) Current payment online (log), Concern about exposing all bills at a single online channel, Number of years that you have had Internet Access.
Dependent Variable Willingness to use a EBPP to access bills and pay them online

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig
Constant	0.309	1.945		0.159	0.874
Age	-0.187	0.252	-0.096	-0.741	0.462
Gross Income per month	-0.168	0.198	-0.102	-0.847	0.401
Education	0.000	0.192	0.000	0.001	1.000
Gender	-0.298	0.300	-0.123	-0.992	0.326
Average number of hours per week spent on the Internet	-0.032	0.120	-0.034	-0.269	0.789
Number of years that you have had Internet Access	-0.595	0.466	-0.162	-1.278	0.207
Average number of bills (total) received per month	0.060	0.196	0.038	0.307	0.760
Total number of bills received by email per month	0.113	0.248	0.057	0.458	0.649
Current payment of bills online	-0.052	0.296	-0.024	-0.175	0.862
Perception that using EBPP will save time	0.599	0.450	0.637	1.330	0.190
Perception that using EBPP will save costs	0.121	0.240	0.084	0.505	0.616
Usefulness of obtain historical and new bills online	-0.091	0.181	-0.078	-0.502	0.618
Perception of ease of use of billpay through EBPP	0.062	0.243	0.040	0.254	0.801
Preference for retrieving and payment of all bills electronically within the same channel	0.531	0.329	0.354	1.611	0.113
Willingness to promote this service	-0.039	0.279	-0.026	-0.140	0.889
Confidence in ability to use eCommerce websites such as Kalahari, eBucks or other online stores	0.240	0.212	0.171	1.137	0.261
Confidence in eCommerce websites in terms of registering, searching and	0.167	0.247	0.114	0.676	0.502

purchasing products online					
Self-identified early adopter	0.279	**0.223**	0.202	1.253	0.216
Access to latest software	**-0.267**	0.156	-0.244	-1.709	0.094
Fast and reliable internet connection	0.061	0.129	0.057	0.476	0.636
Acceptance of a single entity aggregating , storing and having access to personal billing data	-0.136	0.183	-0.102	-0.743	0.461
Preference for own bank to be single entity to aggregate all bills online	0.243	0.184	0.206	1.324	0.191
Willingness to use EBPP only if payments via Internet Banking channel	-0.238	0.146	-0.209	-1.627	0.110
Willingness to use EBPP only once other people start using it	0.112	0.170	0.087	0.656	0.515
Concern about exposing all bills at a single online channel	-0.001	0.164	-0.001	-0.004	0.997
Confidence of security of credit card and other online payment methods	0.171	0.215	0.153	0.794	0.431
Current payment online (log)	-0.052	0.140	-0.048	-0.371	0.712
Dependent Variable: Willingness to use a EBPP to access bills and pay them online	-2.821	2.841	-0.474	-0.993	0.326

The overall model provided a lower than expected adjusted r^2 when compared to other TAM studies. Venkatesh (2003) found that TAM explained about 40 %. Also only, few factors proved to be marginally significant and on that basis, we decided to follow a tiered model approach.

5.3. TIERED MODEL APPROACH

A tiered model approach was then followed to increase the model's r^2 to obtain a more significant model and provide an opportunity to identify more significant variables as antecedents to the adoption of EBPP. All three tiered models were than individually tested and separate regression analyses were conducted.

5.3.1 PU AND CONFIDENCE CONSTRUCTS–INTENTION TO USE

The first tiered model (model one) has an adjusted r^2 of 31, 2 % that represent the explanatory power of the two constructs, perceived usefulness and confidence to the behavioural intention to adopt EBPP. The model is highly significant (0.000 significance level) with an F value of 6,890. This model when compared to the overall model is found to be more significant, a more acceptable adjusted r^2 value and we are also able to identify more significant factors that influence the consumers' adoption to EBPP.

Control variable "Age" is marginally significant to the model (0.074). The t value is -1,815 indicating a negative correlation. This means that the younger the age the more likely the variance explained to the dependent variable. Other control variables such as gender, income and education were not significant.

5.3.3 PU AND THE INTENTION TO ADOPT EBPP

Predictor variable "perception of perceived usefulness" was found to be highly significant 0.000 (t value of 5.176). Therefore, we cannot reject the hypothesis "Consumers that perceived a higher degree of usefulness of EBPP will be a key factor in the adoption of EBPP above others"

The results of the perceived usefulness construct validate once more the parsimonious and well-tested original TAM model. The perceived usefulness construct consisted of the following variables, which will form individual hypotheses 4-7:

- Perception that billpay will save them time through EBPP
- Perception that EBPP will save them costs
- Concern of single online channel consolidating their bills

5.3.3 CONFIDENCE -INTENTION TO ADOPT EBPP

The predictive variable "confidence in eCommerce sites in terms of registering, searching and purchasing products online" is very marginally significant (0.157 and a t value of 1.429). The hypothesis that "Consumers that have a higher confidence loaded by factors such trust of the technology, single channel, and previous experience will adopt EBPP above others" cannot be rejected. The latter variance of 14.29% can be attributed to the fact that this is a new item as an addition to the very well established TAM model and it may or may not be accurate. This construct and predictive variables were not pre-tested in other earlier TAM studies.

Given the unique South African context in terms of the non-pervasiveness of internet access, the author needed to include a confidence construct into the model. TAM does not discuss confidence and the nearest construct included is computer efficacy, which may not fully explain the factors within a South African context. Previous TAM models concentrated on developed countries where there are higher internet access levels, greater IT

infrastructure and more online business development, which cannot be assumed not to have any mediating effects on the intention to adopt EBPP.

Whilst using a proxy for confidence such as 'currently pay bills online" resulted in a more significant measure, it was decided to use the confidence construct and not the proxy as to more clearly understand the big picture relevant to SA, thereby more accurately determining the model.

Table 5: Results of Model One

Model Summary

Model	R	R Square	Adjusted R2	Std. Error of Estimate
1.0	0.604	0.365	0.312	0.976

Predictors: (Constant)	Confidence in eCommerce websites in terms of registering, searching and purchasing products online, Gender, Gross Income per month, Age, Perception of ease of use of billpay through EBPP, Education
Dependent Variable	Willingness to use

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig
1.0	Regression	39.354	6.00	6.559	6.890	0.000
	Residual	68.545	72.00	0.952		
	Total	107.899	78.00			

Predictors: (Constant)	Confidence in eCommerce websites in terms of registering, searching and purchasing products online, Gender, Gross Income per month, Age, Perception of ease of use of billpay through EBPP, Education
Dependent Variable	Willingness to use a EBPP to access bills and pay them online

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig
(Constant)	-0.906	1.221		-0.742	0.461
Age	-0.340	0.187	-0.175	-1.815	0.074
Gross Income per month	0.037	0.162	0.022	0.226	0.822
Education	0.026	0.147	0.018	0.176	0.861
Gender	0.050	0.232	0.021	0.215	0.830
Perceived usefulness of billpay through EBPP	0.754	0.146	0.503	5.176	0.000
Confidence in eCommerce websites in terms of registering, searching and purchasing products online	0.202	0.141	0.146	1.429	0.157
Dependent Variable	Willingness to use a EBPP to access bills and pay them online				

5.4. VARIABLES /ANTCENDENTS TO PU

The second model tested consisted of the variables that influence the perceived usefulness construct. The variables influencing this construct have been customised to EBPP, however the principle concepts of these variables are no different to the variables tested and validated in previous TAM studies. The dependent variable in the model is the preference for retrieving and payments within the same channel.

The model has a high-adjusted r^2 of 57, 3 % that explains the variance relating to the perceived usefulness construct. This model is also highly significant (0.000) and has an F value of 15.931. None of the variables is significant in this model and all three predictive variables are highly significant and positively correlated to the behavioural intention to adopt.

5.4.1 PERECPTION THAT USING EBPP WILL SAVE THEM TIME

The predictive variable “perceptions that bill pay will save them time using EBPP” is highly significant (0.000 with a t value of 5,747). Thus, hypothesis three “consumers that perceive that using EBPP will save them time will more likely adopt EBPP than others ” cannot be rejected.

5.4.2 PERCEPTION THAT USING EBPP WILL SAVE THEM COSTS

The variable “perceptions that using EBPP will save them costs” is also highly significant; significance 0.001 and a t value of 3.321.Thus

hypothesis four “consumers that perceive that using EBPP will save them costs will be more likely to adopt EBPP above others” cannot be rejected.

5.4.3 ACCEPTANCE OF A SINGLE CHANNEL

The predictive variable “acceptance of a single channel aggregating storing and having access to personal billing data” is also highly significant (0.023) and a t vale of 2.320. This means that the hypothesis “consumers that prefer receiving and paying bills in a single channel is more likely to adopt EBPP” cannot be rejected.

Table 6: Results of Model Two

Model Summary						
			R	**R Square**	**Adjusted R2**	**Std. Error of Estimate**
1.0			0.782	0.611	0.573	0.514
Predictors: (Constant)	Acceptance of a single entity aggregating , storing and having access to personal billing data, Age, Gross Income per month, Gender, Perception that using EBPP will save costs , Education, Perception that using EBPP will save time					
Dependent Variable	Willingness to use					
ANOVA						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
1.0	Regression	29.421	7.000	4.203	15.931	0.000
	Residual	18.731	71.000	0.264		
	Total	48.152	78.000			
Predictors: (Constant)	Acceptance of a single entity aggregating , storing and having access to personal billing data, Age, Gross Income per month, Gender, Perception that using EBPP will save costs , Education, Perception that using EBPP will save time					
Dependent Variable	Willingness to use a EBPP to access bills and pay them online					

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig
(Constant)	0.757	0.636		1.190	0.238
Age	0.017	0.097	0.014	0.181	0.857
Gross Income per month	-0.051	0.086	-0.047	-0.600	0.550
Education	0.084	0.076	0.086	1.114	0.269
Gender	-0.101	0.123	-0.062	-0.823	0.413
Perception that using EBPP will save time	0.487	0.085	0.508	5.747	0.000
Perception that using EBPP will save costs	0.223	0.067	0.288	3.312	0.001
Acceptance of a single entity aggregating , storing and having access to personal billing data	0.143	0.062	0.181	2.320	0.023
Dependent Variable	Willingness to use a EBPP to access bills and pay them online				

5.5. VARIABLES TO THE CONFIDENCE CONSTRUCT

Model three includes the predictive variables that explain the confidence construct that was included in the respecified model.

The adjusted r^2 of the model is 0.208 which means that the variables utilised explains 20.08 % of the confidence. This is highly significant (significance 0.002 and an F value of 3.565).The control variable “Age” is moderately significant 0.149 and is negatively correlated to the construct. This indicates that younger consumers are more confident. Education (a control variable) is also significant (significance of 0.044 and a t value of 2.052). The correlation is positively correlated indicating that the better educational qualifications consumers have, the more likely they are to be confident in adopting EBPP.

Table 7: Results of Model Three

Model Summary					
		R	R Square	Adjusted R2	Std. Error of Estimate
1.0		0.538	0.289	0.208	0.759
Predictors: (Constant)	Concern about exposing all bills at a single online channel, Current payment of bills online, Education, Gender, Self-identified early adopter, Gross Income per month, Average number of hours per week spent on the Internet, Age				
Dependent Variable	Willingness to use				

ANOVA Model		Sum of Squares	Df	Mean Square	F	Sig
1.0	Regression	16.409	8.000	2.051	3.565	0.002
	Residual	40.275	70.000	0.575		
	Total	56.684	78.000			
Predictors: (Constant)	Concern about exposing all bills at a single online channel, Current payment of bills online, Education, Gender, Self-identified early adopter, Gross Income per month, Average number of hours per week spent on the Internet, Age					
Dependent Variable	Willingness to use a EBPP to access bills and pay them online					

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig
(Constant)	2.492	0.925		2.695	0.009
Age	-0.234	0.160	-0.166	-1.458	0.149
Gross Income per month	0.155	0.135	0.129	1.143	0.257
Education	0.233	0.113	0.218	2.052	0.044
Gender	-0.040	0.190	-0.023	-0.208	0.836
Average number of hours per week spent on the Internet	-0.118	0.079	-0.169	-1.499	0.138
Current payment of bills online	0.054	0.081	0.079	0.662	0.510
Self-identified early adopter	0.244	0.085	0.309	2.880	0.005
Concern about exposing all bills at a single online channel	-0.155	0.093	-0.191	-1.675	0.098
Dependent Variable	Willingness to use a EBPP to access bills and pay them online				

5.5.1 AVERAGE NUMBER OF HOURS SPENT ON THE INTERNET

The predictive variable “average number of hours per week spent on the internet “is firstly negatively correlated to the model. The variable is very marginally significant (0.138 with a t value -1.499). Thus, the

hypothesis “consumers that spend a higher number of hours per week on the internet will adopt EBPP above others” cannot be accepted.

5.5.2 CURRENT PAYMENT OF BILLS ONLINE

The variable “current payment of bills online” is not significant (significance level 0.510 and a t value of 0.662). Thus, the hypothesis “consumers that currently pay bills online will adopt EBPP above others” has to be rejected.

5.5.3 SELF IDENTIFIED ADOPTER

The hypothesis eight refers to the more likely, a consumer considers himself or herself to be a self-identified adopter the more likely the consumer will be confident in registering, searching and purchasing products online. This is a proxy for the self-efficacy of the consumer in transacting online. The predictive variable is highly significant (0.005 and a t value of 2.880). The hypothesis “consumers that consider themselves as early adopters of new technology will adopt EBPP above others “cannot be rejected

5.5.4 CONCERN OF EXPOSING ALL BILLS VIA A SINGLE CHANNEL

Hypothesis number nine is related to the concern that consumers have in exposing all their bills in one single online channel. The less concerned consumers are, the more likely that they are to be confident in EBPP. The variable is marginally significant and is

negatively correlated (significance level of 0.098 and a t value of -1,675). Therefore, hypothesis "consumers that are less concerned of exposing all their bills on a single online channel is more likely to adopt EBPP" cannot be rejected.

5.6 SUMMARY OF RESULTS

Of the nine hypotheses, only two were very marginally significant and one had to be rejected, as it was not significant. Of the remaining hypotheses, five was found to be highly significant.

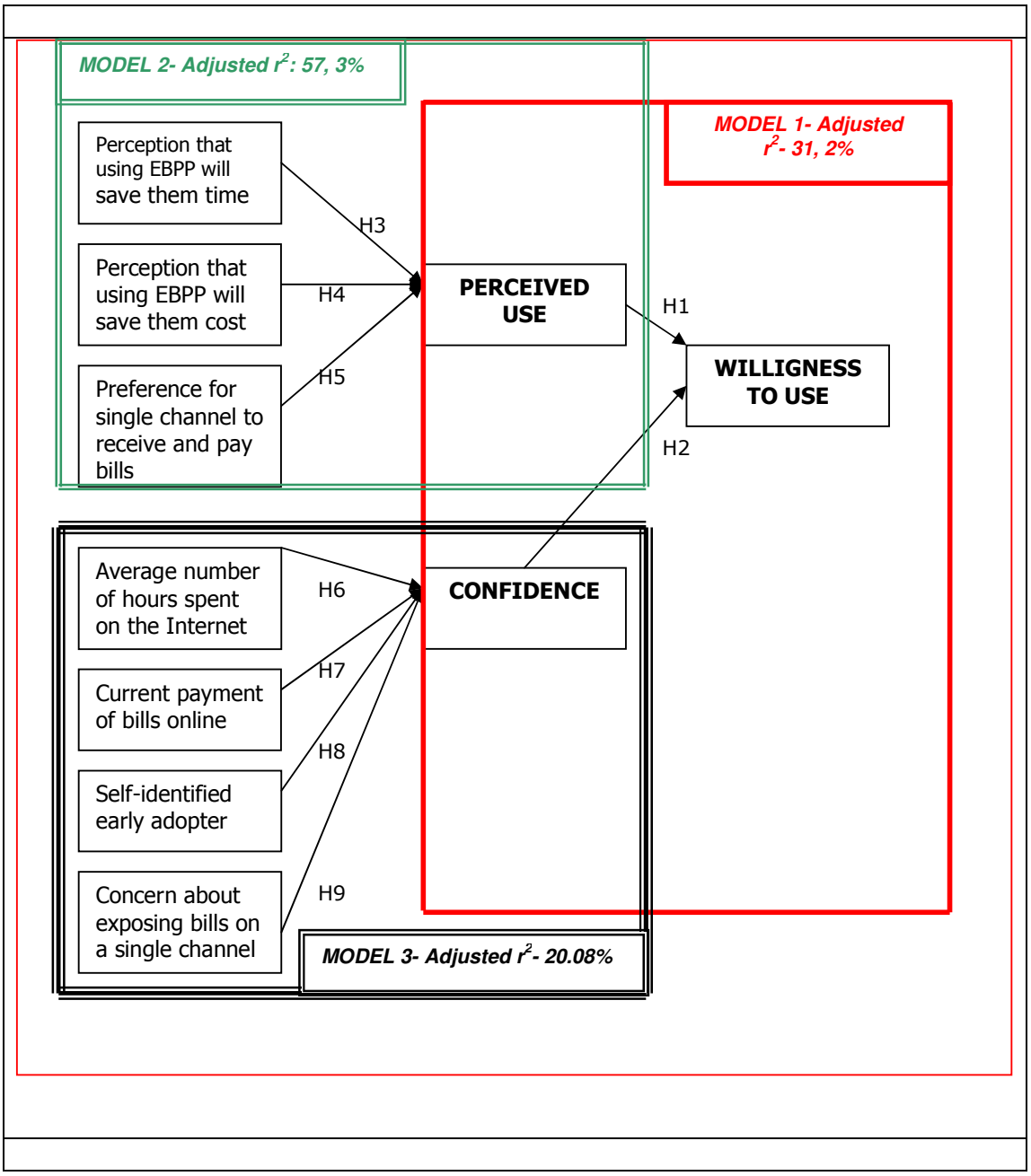
Table 8: Summary of hypotheses results

No.	Hypotheses	Relationship	Supported
1	Consumers that perceived a higher degree of usefulness of EBPP will be a key factor in the adoption of EBPP above others	Highly significant , positively related	✓
2	Consumers that have a higher confidence loaded by factors such trust of the technology, single channel, and previous experience will adopt EBPP above others	Very marginally significant and positively correlated	✓
3	Consumers that perceive that using EBPP will save them time will more likely adopt EBPP than others	Highly significant , positively related	✓
4	Consumers that perceive that using EBPP will save them costs will be more likely adopt EBPP above others	Highly significant , positively related	✓
5	Consumers that prefer receiving and paying bills in a single channel is more likely to adopt EBPP above others	Highly significant , positively related	✓
6	Consumers that spend a higher number of hours per week on the internet will adopt EBPP above others	Very marginally significant and negatively correlated	?

No.	Hypotheses	Relationship	Supported
7	Consumers that current pay bills online will adopt EBPP above others	Not significant therefore rejected	×
8	Consumers that consider themselves as early adopters of new technology will adopt EBPP above others	Highly significant and positively correlated	✓
9	Consumers that are concerned of exposing all their bills on a single online channel is more likely to adopt EBPP	Marginally significant and negatively correlated	✓

The constructs of perceived usefulness and confidence (model one) explained a 31% explanatory value to a consumers intention to adopt EBPP to access and pay bills online. Model two articulates a 57, 3% explanatory power of the variables of to the ease of use construct. Model three's variables explain a 20.08% explanatory value to the construct of confidence. The summary of results in terms of the models formulated is depicted in the figure 9 below;

Figure 9: Respecified Model



CHAPTER 6: DISCUSSION OF THE RESULTS

The goal of this research is to increase our understanding of the key factors that may influence the adoption of EBPP in South Africa. To enable us to determine the key factors the author firstly undertook to find a technology acceptance model that would be relevant to the South African context. Our respecified model formulated, which is an extension of TAM, provided a highly significant model with an adjusted r^2 (model one) that is congruent with other TAM findings. The individual antecedents of both constructs (perceived usefulness and confidence) were then hypothesized to answer the research questions. The results of our hypotheses supported the construct of perceived usefulness as found in TAM. Our new construct "confidence" was found to be very marginally significant in influencing adoption and two hypotheses relating to the construct was not supported, counterintuitive to findings in our literature review. To discuss the propositions emanating from the results obtained; a synopsis of our research questions, results and literature review is preceded for each model.

6.1 ADOPTION OF EBPP IN SOUTH AFRICA

Before delving into the key factors that influence the acceptance of an aggregated EBPP solution, it is apt to firstly establish whether South African consumers will actually want to adopt an aggregated EBPP solution or not. From the descriptive statistics, we find that 96, 3% of the respondents actually would adopt an online EBPP channel to access and pay their bills. This information that we infer on the

general South African internet population bodes quite well for any organization that intends to launch an aggregated EBPP solution.

Whilst intention to use and actual use is not the only determining factor of the success of consumers' acceptance to an aggregated EBPP solution, we need to determine the extent of usage as well. Fifty eight percent (58%) indicated that they would use an EBPP solution on a regular basis (often and very often scales selected on the survey questionnaire). Those who would use EBPP on a less regular basis are 38, 3% and only 3, 7 % indicating that they will not adopt EBPP at all.

6.2 OVERALL MODEL- KEY FACTORS

The overall model containing all twenty-three variables was initially tested to answer our research questions. Although, the model found was highly significant, the r^2 achieved was lower when compared to past TAM studies and only two very marginally significant factors could be identified in the overall model. The factors identified were preference for retrieving and payments bills within the same channel and willingness to use EBPP only if payments are made via an internet-banking channel (negatively correlated).

This hinted to the author that the perceived usefulness of an EBPP solution provides consumer value but could not answer the research questions formulated. Consumers who would adopt EBPP are likely to be those who were less concerned of adopting EBPP on the pre condition that the payments only be

effected from their Internet banking channel. All other variables relating to perceived ease of use or control variables within the overall model was not significant indicating its weak relation to influence adoption.

We however discarded this overall model as it was not sufficient in answering our research questions due to the lower explanatory values, the absence of significant factors that influenced the model and a tiered model approach that was formulated in our respecified model.

6.3 TIERED MODEL ONE: PU, CONFIDENCE AND USE

In formulating our research questions, we studied the predictions of international research companies on EBPP and actual usage, as well as expert opinions who felt that there were not enough benefits for consumers that will spur on adoption (Bills, 2002). We also considered the South African context by means of expert opinions, online retail market turnover and surveys on the consumer adoption of South African online services. This led us to formulate our research questions that perceived usefulness and confidence would be key determinants in the adoption of EBPP in South Africa. This allowed us to formulate a tiered model approach, thus modelling three separate models that included the antecedents to both constructs (models one to three of the respecified model).

Our regression analysis for model one which consisted of the constructs perceived usefulness and confidence had an explanatory power (adjusted r^2) of

31, 2 %. This explains the explanatory power of the two constructs, perceived usefulness and confidence to the behavioural intention to adopt EBPP better than our initial overall model. Perceived usefulness as a construct also contributed a higher explanation beta of 0.503, whilst confidence a new construct provided a standardised beta of 0.146. The control variable “Age” is marginally significant to the model and negatively correlated to adoption. This means that the younger the consumer the more likely they are to perceive the usefulness of EBPP and have confidence in online applications, that ultimately explains the adoption of EBPP.

Previous TAM studies also found perceived usefulness to be highly significant and were either the strongest or the second strongest factor in such studies. The positive correlation implies that as perceived usefulness increases the intention to adopt EBPP also increases. Our results are congruent with literature review in respect of perceived usefulness influencing the adoption of an aggregated EBPP solution. This is confirmed by:

- Consumers’ motivation to adopt new technologies based on fulfilment of their needs.
- Perceived usefulness as a well validated construct within TAM.
- The finding of the significance of perceived usefulness, in previous. TAM studies relating to similar online applications.
- Perceived usefulness being heightened by the less significant perceived ease of use factors as found in our study.
- Perceived usefulness is heightened by task-orientated activities online such as EBPP as stated by Moon *et al*, (2001).

Perceived usefulness is therefore a key factor in our model that explains the adoption of EBPP. It is also the more significant of the two constructs. This proves the well-tested construct within TAM and its significance in explaining adoption and the customers ranking of key factors that motivate adoption.

As discussed in the results section, other proxies for confidence could have resulted in a more significant construct; however, this may have distorted the realties of the South African context. Thus, confidence is found to be a factor in determining adoption of EBPP and we support hypothesis two as having a positive correlation between higher confidence levels and the intention to adopt. Age proved to be a significant factor in influencing model one, with a negative correlation. This once again concurs with some of the research on mobile banking in developed countries, which found younger consumers to prefer convenience or timesavings to older consumers (Hamilton *et al*, 2002).

6.3.1 ANTECEDENTS TO PU

The variables of perceived usefulness related around the ability of the consumer to save time, money and have more functionality of aggregating and storing bills more conveniently than previously.

Our results from the survey indicated that the three factors selected to test the perceived usefulness construct resulted in a highly significant model. Model two was found to have a high-adjusted r^2 of 57, 3 meaning that

these three factors accounted for 57, 3% of the variance explained to the perceived usefulness construct by the antecedents that consumers associated with EBPP. Of the three factors, all were found to be highly significant with significance values ranging from 0.000 and 0.023. The perception that using EBPP will save time contributed the highest standardised beta of 50.08 followed by the perception that using EBPP will save costs 28, 8. The acceptance of a single channel aggregating storing and having access to billing information had a standardised beta of 18, 1. None of the control variables of age, gender, income and education proved to be significant in this model and all three factors were positively correlated to the intention to adopt EBPP.

This allows us to make propositions that consumers value timesavings over costs in their ranking of benefits derived from an EBPP solution. The consumer value proposition of saving time when receiving and paying bills are found to be most important theme to consumers compared to other advantages such as saving money or the convenience of accessing their bills via a single channel. Therefore, consumers value their time. Receiving and paying bills as previously discussed, is also defined as a task type activity and consumers may be more inclined to take care of tasks much quicker than for example shopping online.

The predictive variable relating to the preference of receiving and paying bills within a single channel, was confirmed by the model to be a key factor

in explaining perceived usefulness. Although the factor has the least influence on model two, it was still found to be highly significant with a standardised beta of 18, 1. Consumers that have confidence in a single channel aggregating and storing their bills are more inclined to adopt EBPP. This factor uncovers the trust and privacy factors as identified by Srinivasan (2004), who determined that the success of e business is related to how secure consumers feel when transacting and whether they trust the online business. Although this factor was not as significant in as the study conducted by Srinivasan (2004), at the same time also not congruent with studies in Finland where Pikkarainen *et al*, (2004) found that security and risk factors were even lower than perceived ease of use. South African consumers are much more mindful of security and risk in online services as can also be substantiated by their actual adoption rate of internet banking as quoted by Webcheck, (2006).

Whilst timesavings is a key factor as well as financial savings we cannot be totally blinded to the fact that consumers still inherent in their minds are mindful of the issues of trust and security in ecommerce.

6.3.2 ANTECEDENTS TO CONFIDENCE

Model three, includes the antecedents to the confidence construct that was hypothesized to have a positive correlation to adoption. The model that was found to be highly significant and it explained 20, 8% of the influence to the

confidence construct, that indirectly influenced adoption. The most significant factor to the confidence construct was the more a consumer considers themselves to be a self-identified adopter the more likely the consumer will be confident in registering, searching and purchasing products online, an apt proxy for the confidence of the consumers and computer self efficacy factor. This personality trait would mediate any concerns around trust and confidence and anxiety in using ecommerce services.

The factor relating to “the less concerned consumers are of exposing their bills in a single channel” describes if trust and privacy is mediated the more likely that consumers are to be confident and adopt EBPP. The factor is found to be only marginally significant though. The factor related to the “average number of hours consumers spent online” was postulated to increase customer confidence and in turn influence adoption; however, the model is only very marginally significant and negatively correlated. Thus, this hypothesis had to be rejected on those grounds. Similarly, the factor ‘current payment of bills online” is not significant meaning that if consumers currently pay their bills online they are not likely to adopt EBPP. The control variable “Age” is moderately significant to the model indicating that younger consumers are more prone to be confident. Another control variable “Education” is also significant indicating that consumers with higher educational qualifications are more likely to be confident and similar to the age variable this indirectly influences the adoption of EBPP.

These finding support marketing research in some respects suggesting that consumers that are more knowledgeable of a particular domain are likely to be early adopters (Rodgers, 1995). The finding of trust from the research is still aligned to literature review, as the more secure consumers feel online the more prone they are to adopt. The less concern of exposing billing data privacy still supports the findings of Srinivasan (2004).

Disparate to finding in literature review that postulated that previous experience (currently pay bills online) would have led to a more likely adoption of EBPP. This could relate to the probability that consumers are satisfied with the current methods or do not see much benefits to substantiate migrating to new online channels. This may be congruent with the findings of the online survey conducted by World Wide Web (2003) who found that consumers favour a more “push type ebilling model” as a majority of respondents (76%) preferred to receive their bills via email. This may suggest that South African consumers wish to receive their statements sooner and they are comfortable in their current method of paying bills online.

Experience and confidence that could be related to the amount of time spent on the internet was also counterintuitive to literature review and South African expert opinions. The study found that consumers that spent less time online were more prone to adopt EBPP. This further substantiates our theme of a “time savings” consumer.

6.4 OVERALL DISCUSSION OF FINDINGS

Our key findings of key factors that could enable the adoption of EBPP in South Africa are an EBPP solution that provides sufficient usefulness in terms of consumer “timesavings” and “financial cost”. The convenience of an EBPP solution and its usefulness is mediated by the fact that a level of trust and security needs to be present before adoption will take place. Computer self-efficacy as found via the factor of a self-identified adopter is also important and once again, the issue of trust and security is well mediated by the personality traits of self-identified adopters.

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CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

The overall results indicate that an aggregated EBPP solution will be adopted by the majority (96, 3%) and that the level of use is likely to be reasonably high (58, 3 usage on regular basis). We found the key factors of usefulness in terms of consumer timesavings, financial cost savings, convenience and self-efficacy with a presence of trust and security to largely influence adoption and thereby answering our research questions. We are now able to theorise a customer value proposition for an aggregated EBPP solution from the factors influencing adoption. Also from the common themes emanating from the control variables as well as from themes relevant to the customer value proposition, we are able to compose a basic profile of a typical early adopter of EBBP in South Africa. This would all be quite useful for managerial use for organizations that may want to roll out an aggregated EBPP solution or other similar online applications. This chapter concludes with suggestions for future research that may be warranted from limitations as found generally with any research conducted.

7.1 CUSTOMER VALUE PROPOSITION

In terms of how consumers rationalise and make decisions relating to the adoption of technology, is confirmed by the importance of perceived usefulness in the adoption process. Consumers are primarily led by their desire to satisfy needs first. This could be linked to Maslow's hierarchy of needs, where humans satisfy

their basic needs before trying to satisfy higher needs. Common themes relating to these are “time savings” “financial costs” and “convenience”.

7.1.1 TIME SAVINGS CONSUMER

It is quite evident that South African consumers that are prone to adopt EBPP are likely to be segmented as “instant gratification” and “hassle avoiders “instead of security conscious as define by Barczak *et al*, (1997). Consumers in their ranking of usefulness factors in adopting EBPP, ranked timesaving higher than financial cost savings, convenience or security and trust. The theme of timesavings is also eminent from the findings found on the level of time spent on the internet relative to adoption.

Organizations need to prioritise the value of consumers’ time into all facets of their operational model when developing and designing new online products, services and applications. This could be related to all the technicalities of the design, architecture, user interfaces including and consumer support peripherals. The counterintuitive finding of consumers that pay bills online and their correlation to adoption was not found to be significant, is still an area that may require more investigation. Organizations may need to highlight the relative advantages as information and benefits about the service may affect consumers’ attitude towards the online service.

7.1.2 CONVENIENCE TO CONSUMER

Convenience is likely to be a key theme in the value proposition that also occurs as a result of South African consumers' quest to perform tasks such as receiving, archiving and paying bills with the least possible time and effort. Convenience was found to be highly significant to the perceived usefulness construct and judging from consumers' propensity to sacrifice mature online services such as Internet banking payments for a consolidated solution, depicts the extent of trade offs that customers are willing to make if the usefulness of timesavings relative to other benefits are available.

However, within the factor of convenience it is quite clear that trust and security should be built inherently into the system to enable adoption. This is validated by the positive correlation of our hypothesis of "the less concerned consumers are of exposing billing data in a single channel the more likely they will adopt EBPP above others". Trust and security in the South African context are heightening on a regular basis from media releases of online fraud and breach of privacy in eCommerce. Organizations need to carefully ensure that security and trust is a required component however, it may not significantly affect actual adoption on its own.

7.2 PROFILE OF A TYPICAL EBBP ADOPTER

The common themes discussed above also forms a pattern of behavioural traits that are likely to be found in early adopters of EPPB. Control variables also related

to demographical variables in our research study; further informing our discussion of the profile of an early EBPP adopter.

7.2.1 DEMOGRAPHIC VARIABLES

Our hypothesis on control variables paints a picture of a younger consumer as the factor “age” is negatively correlated to the model and significant in influencing the adoption of EBPP. Although literature review is not totally one sided to the fact that younger consumers are likely to adopt online services above others, empirical studies in developed countries such as Finland and the US have found online users to be relatively younger, well educated and wealthy. None of the other demographical variables had an influence directly on adoption. Therefore, education, income and gender was not significant, however both education and age were found to directly influence confidence (marginally), which in turn intention to adopt.

Organizations need to clearly identify early adopters as, well-educated and relatively younger consumers from South African’s internet population that t will likely adopt EBPP above others.

7.2.2 SELF IDENTIFIED ADOPTER AND LESS SECURITY CONCIOUS CONSUMER

One of the hypotheses that we had to reject relates to “customers that currently pay bills online were more likely to adopt EBPP”. However, on the other hand, consumers that are likely to adopt EBPP are also willing to

affect payments via an aggregated EBPP channel and not necessarily via their Internet banking channel (overall model findings). This disparate finding still echo a need for trust and security and once these 'facilitating conditions' have been met, consumers are more likely to migrate from existing payment methods.

Is quite clear from literature review that a self-identified adopter is generally a consumers that is less concerned with security probably due to the high computer self efficacy present. This variable of a self-identified adopter was more significant than all the other factors influencing confidence.

Therefore, organizations should hone in on information technology savvy, young consumers that probably does not currently pay their bills online. At the same time, self-adopters are less likely to be conscious of the security issues if they can perceive usefulness in saving time, cost savings and convenience.

7.2 LIMITATIONS AND FUTURE RESERACH

As no research is without any limitations, there are one or two areas that may be improved upon that became evident during the course of our study and these may provide for useful future research.

- Given that Confidence is a new construct as proposed by the author, further research of the confidence construct and all antecedents,

including the testing of the scales used to measure the outcomes, may be improved upon to provide as a more significant and robust construct for testing adoption in South Africa.

- Despite the model results obtained by our respecified model (model one), this model must be tested on the adoption of other online services in South Africa to test the robustness of the model.

- As for EBPP and consumer adoption research, the benefits of further research may not provide substantially different outcomes at this stage. It is the authors' opinion that too often "we try to build Rome too quickly". Prototyping an EBPP solution to he early adopters does not have required a substantial investment and time to implement. An acceptable uptake of consumers need to be a established by targeting early adopters that would "rub off" to later adopters.

Too often, we are paralysed by our need to obtain all the information , build the most powerful systems and create the most advanced online functionality, when we have case studies such as PB Wiki, Facebook and even Google on our doorsteps. These online services were literally "born out" of dormitories of university students who first identified the need and protyped quickly. The founding members within twenty-fours of identifying a market need, launched the first prototype of the PB Wiki service. Enhancements were later made via

feedback from early adopters and this has led to their substantial uptake of the service. In an interview with the founding members of PB Wiki, who also happen to be Information Technology gurus, admitted that the consumer value proposition was the most important factors to the success of their venture.

REFERENCES

Alfers, D. (2007) *Saving a tree one bill at a time* .Intelligence Publishing March 07, 32-35.

Allen, C. T., Machleit, K,A., and Kliene, S.S. (1992), A comparison of attitudes and emotions as predictors of behaviour at diverse levels of behavioural experience *Journal of Consumer Research*, 18, 493- 504.

Agarwal, R. and Karahanna, E.(2000) Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage *MIS Quartley*, 24, 665-694.

Armstrong, G and Kotler, P.(2000) *Marketing, 5th edition.* New Jersey: Prentice Hall, Engelwood Cliffs

Barczak G, Allen, P.S and Pilling B.K (1997) Developing typologies of consumer motives for use of technologically based banking services *Journal of Business Research*, 38(2), 131-9.

Barki, H., and Hartwick, J. (1994) Measuring user participation, user involvement and user attitudes *MIS Quartley* ,18(1), 59-82.

Bills, S. (2002) *"Will MasterCard Speed Past EBPP' Snails?"* American Banker 167 (1), 1-12.

Bagozzi,R..P. (1981) The self-regulation of Attitudes, Intentions, and Behavior *Social Psychology Quarterly*, 55 (2), 178-204.

Bandura, A. (1997) Self Efficacy: The exercise of control New York: W.H Freeman

Burnkrant, R., E. and Page, J. T. (1982) An Examination of the Convergent, Discriminant, and Predictive Validity of Fishbein's Behavioral Intention Model *Journal of Market Research*, 19 (4), 550-561.

Cant,M,C., Brink, A., and Brijbal,S. (2006) *Consumer Behivour.* Cape Town :Juta & Co.

Chen, L., Gilleson, M.I. and Sherrel, D.L. (2002) Enticing online consumers: an extended technology acceptance perspective. *Information Management*, 39 (8), 705-719.

Compeau, D.R.and Higgins,C.A. (1995) Application of social cognitive theory to training for computer skills *Information System Research*, 6(2) 118-143.

Curran, J. M., Meuter, M. L. and Surprenant, C.F. (2003) Intentions to use self-service technologies: A confluence of multiple attitudes *Journal of Service* Research, 5 (3), 209-204.

Dabholkar, P. A. (1994) Incorporating choice into an attitudinal framework: analysing models of mental comparison processes *Journal of Consumer Research*, 10 (6) 100-118.

Dameen, D., van der Lans, I. and Midden, C. (1990) Cognitive structures in the perception of modern technologies *Science Technology and Human Values*, 15, 202-25.

Davis, F. D., Bagozzi, R.P. and Warshaw, P.R. (1989) User Acceptance of Computer Technology: A comparison of two theoretical *models Management Science*, 35 (8),1111-1132

Davis, F.D. (1989) Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly,* 13(3), 319-339.

Devlin, J.F. and Yeung, M. (2003) Insights into customer motivations for switching to internet banking *The international Review of Retail, Distribution & Consumer Research* ,13(4), 375-392.

Fishbein, M. and Ajzen, I. (1975) Belief, Attitude, Intention and Behavior: An introduction to theory and research, Addison-Wesley, Reading

Flynn, S. (2005) Bill Presentment & Payment; Electronic vs. Mail. *Pitney Bowes Research Project,* 9, 1-23.

Gefen,D. and Staub,D.W.(2003) Managing user trust in B2C *E-services Journal,* 2(2), 7-24.

Graber, G. (2007) *EBPP Forecast: 2006 To 2011. Forrester*. Summary at http://www.forrester.com/Reserach/document/excerpt/0,7211,40611,00html (accessed 3 June 2007).

Goldstruck, A (2003) *E Billing in South Africa 2003*. World Wide Worx. Summary available at http://www.theworx.biz/ebilling02.htm (Accessed 21 September 2007)

Harrison, D. A., Mykytyn, .P.P., and Riemenschneider, C.K. (1997) Executive decision about adoption of information technology in small business: theory and empirical tests *Information System Research*, 8 (6),175-195.

Howcroft, B., Hamilton, R., Hewer, P. (2002) Consumer attitude and the usage and adoption of home-based banking in the United Kingdom *International Journal of Bank Marketing*, 20(3),111-21.

Jayawardhena, C. (2004) Measurement of service quality in Internet-delivered services: the development and validation of an instrument, *Journal of Marketing Management* (forthcoming)

Karjaluoto, H., Mattila, M., Pento, T. (2002) Factors underlying attitude formation towards online banking in Finland *International Journal of Bank Marketing*, 20(6), 261-72.

Kleijnen, M., Wetzels, M. and Ruyter, K. (2004) Consumer acceptance of wireless finance *Journal of Financial Services Marketing*, 8(3), 206-217.

Lederer, A.L., Maupin D., Maupin, D.J., Sena, M.P. and Zhunag, Y. (2000) The technology acceptance model and the World Wide Web, *Decision Support Systems*, 29 (3), 269-282.

Lee, Y., Kozzar, K.A and Larsen, K.R.T.(2003) The technology acceptance model:past, present, and future Communications of the Association for Information Systems, 12(50), 752-780.

Modahl, M. (1999) *Now or Never: How Companies Must Change Today to Win the Battle for Internet Consumers,* New York US: Harper Collins

Moon, J.W. and Kim, Y. G. (2001) Extending the TAM for a worldwide context. *Information & Management,* 38(4), 217-230.

Monsuwe, Y., Benedict,G.C., Dellaert K.(2004*)* What drives consumers to shop online *International Journal of Service Industry Management,* 15(1), 102-121.

McKechnie, S.; Winklhofer, H.; Ennew, C. (2006) Applying the Technology Acceptance Model to Online Retailing of Financial Services *International Journal of Retail and Distribution Management*, 34 (4/5), 388-410.

Pikkarainen,T.K., Kajaluto, H. and Pahnilia, S. (2004) Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research*, 14(3), 224-235.

Rodgers, E. (1995). Diffusions of Innovations, New York: Free Press

Schiffman, L. G. and Kanuk, L.L. (1994) Consumer Behavior, 5th edition. Engelwood Cliffs: Prentice Hall

Srinivasan, S. (2004) Role of trust in e-business success *Information Management and Computer Security*,12 (1), 66-72.

Straub,D.,Limayem,M., and Karahanna,E.(1995) Measuring system usage: Implication for IS theory testing *Management Science*, 41(8),1328-1342.

Subramanian,H.G. (1994) A Replication of Perceived Usefulness and Perceived Ease of Use Measurement *Decision Sciences*, 25 (5-6), 863–875.

Szymanski, D. M and Hise, R.T. (2000) E-satisfaction: an initial examination *Journal of Retailing,* 76(3), 309-322.

Taylor, S. and Todd, P.A. (1995) Understanding information technology usage; a test of competing models" *Information System Research*, 6 (6), 144-76.

Thornton, J., White, L. (2001) Customer orientations and usage of financial distribution channels *Journal of Services Marketing*, 15(3), 168-85.

Tornatsky, L.G. and Klein R.J. (1982) Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*, 29, 28-45.

Vecchiatto, P (2007) Dramatic e business growth expected. Cape Town: IT Web. Summary at http://www.itweb.co.za/sections/internet/2007/0710021042.asp?S=e-Business&A=EBU&O=FRGN (accessed date 14/10/07)

Venkatesh,V.and Davis,F.D.(2000) A theoretical extension of the technology acceptance model: Four longitudinal field studies Management Science, 45(2),186-204.

Venkatesh,V., Morris, G.M., Davis, B.G., and Davis, D.F. (2003) User Acceptance of Information Technology: Towards a unified view *MIS Quartley* 27(3), 425-478.

Wang, Y. Wang, Y., Lin, H. and Tan, T. (2003) Determinants of a users acceptance: an empirical study. *International Journal of Service Industry Management*, 14(5), 501-519.

Webcheck (2006) *Latest SA Web User survey results released. Summary a*vailable at http;//www.webcheck.co.za/about_press%20saweb206.html (Accessed 1 June 2007)

Wells, W, D. and Prensky, D. (1996) *Consumer Behaviour*. New York, NY :John Wiley & Sons

Zikmund, W.G (2003) *Business Research Methods, 7th edition*. USA: Thomson South Western

APPENDICES

APPENDIX A: BLANK SURVEY QUESTIONNAIRE

Consumer Adoption of Electronic Bill Presentment and Payment

1. Introduction

Thank you for participation in this research. The questionnaire is anonymous and the data captured will be combined with other data to enable generalisation. This is important to allow for conclusions about South African consumers adoption of an aggregated electronic bill presentment and payment (EBPP) service.

Definition of aggregated online EBPP channel-An online channel where consumers can register, enroll, retrieve multiple bills (current and historical) that are relevant to them. This channel will also offer the opportunity for the consumer to pay for these bills within the same channel via various online payment instruments. This online channel actually replaces your postbox for receiving bills, invoices or statements that you receive on a regular baisis.

This survey should not take you more than 10 minutes to complete.It consists of two Sections(Section A and Section B). Please complete all answers.

2. Section A (Page One)

1. Age?

- ◯ 20 - 30 years
- ◯ 31-40 years
- ◯ 41-50 years
- ◯ >51 years

2. Gross Income per month?

- ◯ <R7,000 per month
- ◯ R7,001-R12,000 per month
- ◯ R12,001-R17,000 per month
- ◯ >R17,001 per month

3. Education

- ◯ Pre Matric
- ◯ Matric
- ◯ Diploma
- ◯ Degree
- ◯ Postgraduate

4. Gender

- ◯ Female
- ◯ Male

5. Internet Acess from?

- ◯ Work
- ◯ Home
- ◯ Both

6. Average number of hours per week spent on the Internet?

- ◯ 1-5 hours
- ◯ 6-10 hours
- ◯ 11-15 hours
- ◯ >15 hours

7. Number of years that you have had Internet Access?

- ◯ <1 year
- ◯ 1-4 years
- ◯ >4 years

3. Section A (Page Two)

1. Average number of bills received per month?

- ◯ None
- ◯ 1-5 bills per month
- ◯ 6-10 bills per month
- ◯ 11-15 bills per month
- ◯ >15 bills per month

2. Total number of electronic bills received by email per month ?

- ◯ None
- ◯ 1-5 bills
- ◯ 6-10 bils
- ◯ 11-15 bills
- ◯ >15 bills

3. Total number of electronic bills retrieved via a company's(billing company) website, per month?

- ◯ None
- ◯ 1-5 bills per month
- ◯ 6-10 bills per month
- ◯ 11-15 bills per month
- ◯ >15 bills per month

4. I currently pay my bills online

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Very often

5. Type of Internet Connection?

- ◯ Dial Up
- ◯ ISDN
- ◯ ADSL
- ◯ Diginet
- ◯ Wireless (IBurst/Sentech)
- ◯ Mobile (GPRS)

- ◯ Mobile(HSDPA)
- ◯ Mobile 3G

6. I will utilise an online EBPP channel to access my bills and pay them online

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Very often

4. Section B (Page One)

1. Using an aggregated online EBPP channel will save me time

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

2. Using an aggregated online EBPP channel will save me financial costs (banking transaction costs, time on the internet etc)

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

3. I find it useful to obtain (retrieve) historical and new bills online

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

4. Obtaining my bills via an aggregated online EBPP channel will allow me to pay my bills online much easier

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

5. I would prefer to retrieve all my bills electronically and pay it within the same online channel

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

6. I will promote this service to my friends, family, etc

◯ Strongly Disagree ◯ Disagree ◯ Uncertain ◯ Agree ◯ Strongly Agree

Consumer Adoption of Electronic Bill Presentment and Payment

5. Section B (Page Two)

1. I can easily utilize eCommerce websites such as Kalahari, eBucks or other online stores

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

2. I do not have difficulty in using eCommerce websites to register, search for products and purchase products online

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

3. I am an normally the first amongst my friends to use a new eCommerce services or websites that appeal to me

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

4. I have the latest software such as internet browser, anti virus, software etc, to enable me to use online websites easily

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

5. My internet connection is fast and reliable

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

Consumer Adoption of Electronic Bill Presentment and Payment

6. Section B (Page Three)

1. I have no problem with a single entity aggregating , storing and having access to my billing data

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

2. I prefer that my bank is the single entity to aggregate all my bills online

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

3. I will only use the an online EBPP service if I can make payment via my Internet Banking channel

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

4. I would not use such an online EBPP channel until other people start using it

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

5. I do not feel safe exposing all my bills at a single online channel

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree

6. I am not sure on the security of credit card and other online payment methods

Strongly Disagree | Disagree | Uncertain | Agree | Strongly Agree