

## **Consumers' Continued Usage of Internet Banking: Australian Context**

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### **Abstract**

The purpose of this paper is to investigate the impact of technology, channel, social and value dimensions on the continued usage of internet banking by consumers' in Australian context controlling for demographic characteristics. It is only recently that researchers realized the need to study post adoption behaviour of consumers. Therefore, the present study highlights the factors that determine the consumers' continued usage of internet banking in Australian context. Data were obtained from 372 internet banking users in Sydney through a mall intercept survey and subjected to hierarchical multiple regression analyses. Results obtained reveal that continued usage of internet banking will exhibit no differences on the basis of the demographic characteristics and social dimensions. Technology (attraction to usability and attraction to trialability), channel (perceived safety and perceived specialty) and value dimensions positively and significantly relate to the continued usage of internet banking.

**Keywords:** Consumers' continued usage, internet banking, technology, channel, social, value dimensions

## Consumers' Continued Usage of Internet banking: Australian Context

### Introduction

Traditionally banks used to offer their services to consumers' through a single channel and that is through bank branches. The rapid transformation of banks is evident due to influential changes in the economic environment, innovations in information technology, innovations in financial products; liberalisation and consolidation of financial markets, deregulation of financial intermediaries etc., Modern businesses heavily rely on technology based applications that are integral to product and services marketing and distribution (Tih and Ennis 2007). The advent of internet provided firms with an added advantage to enlarge their market base by marketing their products and services online (Geyskens *et al.*, 2002). Thus many firms once that have concentrated their efforts on traditional channels are now moving rapidly to include online channels in their approach towards marketing (Frambach *et al.*, 2007). The retail banking sector has been using a wider array of information systems over many years (Wresch and Fraser 2006).

Today's banking information systems enable services such as automatic transfer machines, telephone banking, internet banking and mobile banking (Reid and Levy 2008). Existing research indicates that despite these service delivery channels being readily available, they are not accessed and fully utilized by consumers as anticipated (Cazier *et al.*, 2006). Researchers have long been interested in identifying factors that affect consumers' adoption and non-adoption of internet banking. Despite initial adoption, acceptance and use of internet banking, unless and until the use continues, desirable managerial outcome is not expected. Thus, there exists a heightened need in internet banking research to understand those important factors that might have a profound impact on individuals' decision to use such technology associated service delivery channels on a continual basis (Reid and Levy 2008, Amin 2007, Gefen *et al.*, 2003). For the purpose of this research internet banking is identified as the act of conducting financial intermediation on the internet (VanHoose 2003).

### Literature Synthesis

Several businesses are utilising technological advancements in order to make their services more accessible to consumers as well as to improve their business performance and increase their productivity (Reid and Levy 2008). Thus from the existing research, possible theoretical models that provide a comprehensive understanding of the user acceptance has roots in information systems, psychology and sociology. The present study proposes the application of integrated consumer decision making, technology acceptance and diffusion of innovations models in order to capture factors which might have a significant impact on the continued usage of internet banking by consumers' in Australia. Extant studies assert the importance of demographics and its possible influence on consumer adoption and intention to adopt internet banking. However the results obtained were mixed and often inconsistent. Some studies indicate a positive impact of gender, age, level of education and income, occupation and ethnicity on consumer adoption of internet banking (Gan *et al.*, 2006, Foucault and Scheufele 2002). The results obtained from other studies exhibited no significant influence of the demographics on the consumer adoption of internet banking (Gan *et al.*, 2006, Howcroft *et al.*, 2002). In the present study demographic variables are controlled in order to achieve more powerful tests of the theoretical variables that are of specific interest.

#### Technology dimensions

Existing studies highlighted the need for inclusion of the additional variables in order to explain variances in behavioural intention and subsequent actual usage, apart from the

existing fundamental variables in technology acceptance model (TAM) (Wang *et al.*, 2003). External variables may be added to TAM as a way of improving the models' predictive power (Reid and Levy 2008). According to diffusion of innovations theory, individuals develop certain perceptions towards an innovation and based on these perceptions, an individual makes a decision whether to accept or reject an innovation (Agarwal and Prasad 1997, 1998, Moore and Benbasat 1991). An innovation is more likely to be adopted based on the innovation characteristics such as relative advantage, compatibility, complexity, trialability and result demonstrability, which are critical for potential adopters' perceptions. These constructs are widely used to predict individuals' technology acceptance (Plouffe *et al.*, 2001, Karahanna *et al.*, 1999). The role of technology at each stage of acquiring, processing, and delivering information is crucial in the banking industry sector as banking services are highly information sensitive (Acharya *et al.*, 2006). Thus, it is hypothesized that,

H<sub>1</sub>: Identified technology dimensions will significantly predict continued usage of internet banking over and above the influence of the demographic control variables.

### **Channel dimensions**

Channel dimensions are identified to be important in influencing consumers' decision use internet banking on a continued basis. From the extant literature the theorised sub-dimensions within the channel dimensions encompass perceived self-efficacy, perceived risk, perceived trust and perceived personalization. Perceived self-efficacy is the key element in the social cognitive theory and refers to an individuals' belief in his/her capability to perform a specific task (Hernandez and Mazzon 2007). Perceived risk usually arises from the uncertainty that consumers' expect when they cannot foresee the consequences of their purchasing decisions (Gan *et al.*, 2006). Users are influenced by only perceptions of risk, whether or not such risk actually exists. Perceived trust is associated with a set of beliefs and often refers to the role of security and privacy aspects in online environment (Herington and Weaven 2007, Ribbink *et al.*, 2004). Perceived personalization relates to consumers' perception as being unique due to performing internet banking transactions. Furthermore, the perceptions of the consumer also pertain to the promotional offers and information that is tailor-made as an internet banking user (Huang and Lin 2005, Srinivasan *et al.*, 2002). Thus it could be hypothesized that,

H<sub>2</sub>: Identified channel dimensions will significantly predict continued usage of internet banking over and above the influence of the demographic control variables.

### **Social dimensions**

Social dimensions conceptualized for the purpose of this research relate to subjective norm and informational influences. Extant studies indicate the possible influence of friends, family, and colleagues/peers on consumers' intention to adopt internet banking (Tan and Teo 2000). Though there exists no basis on which to predict how each of these groups will affect consumers' intention to adopt internet banking, it is however expected that the influence of these groups as a whole will significantly be related to consumers' continued usage of internet banking (Chan and Lu 2004, Venkatesh and Davis 2000).

H<sub>3</sub>: Identified social dimensions will significantly predict continued usage of internet banking over and above the influence of the demographic control variables.

### **Value dimensions**

The concept of perceived value stems from equity theory. Perceived value is identified as the ratio of the consumers' outcome/input to that of the service providers' outcome/input (Oliver and DeSarbo 1988). In other words, the equity concept refers to customers' evaluation of what is fair, right, or deserved for the perceived cost of the offering (Bolton and Lemon 1999). Monetary payments and non-monetary sacrifices such as time consumption, and stress experienced by consumers' together include perceived costs (Yang and Peterson 2004). Customer perceived value emerges from an evaluation of the relative rewards and sacrifices

associated with the offering. Customer value is “the fundamental basis for all marketing activity” (Holbrook 1994, p. 22, Zeithaml *et al.*, 2002, Sweeney and Soutar 2001).

H<sub>4</sub>: Identified value dimensions will significantly predict continued usage of internet banking over and above the influence of the demographic control variables.

### **Research Methodology**

Data were obtained from respondents by employing a self-administered questionnaire as a research instrument. 372 usable questionnaires were obtained from internet banking users who were contacted through a cross-sectional mall intercept survey. The questionnaire developed consisted of both quantitative and qualitative components with questions related to respondents' general banking habits, internet usage, demographic characteristics, scale items pertaining to technology, channel, social, value and usage dimensions, and few open-ended items. For the purpose of this paper only quantitative results are presented. All the scale items were labelled on a six-point Likert scale such as strongly agree, agree, neither agree nor disagree, disagree, strongly disagree and unable to rate. Scale items used in this study were mostly derived from intention to adopt and adoption of internet banking studies and are subsequently modified to suit consumers' continued usage of internet banking.

Descriptive statistics were obtained from data by subjecting it for analysis in SPSS 17.0. Data checks were performed for its goodness of fit and normality assumptions. Where ever required data transformations were performed followed by exploratory factor analysis for data reduction and summarization (Cooksey 2007). Sub-dimensions identified include attraction to usability, attraction to trialability, perceived safety and perceived specialty within technology and channel dimensions. Whereas, social and value dimensions resulted as a single solid factors that are entered in subsequent analysis. Categorical variables such as demographic characteristics before entering into the regression model were dummy coded for meaningful interpretations (Cooksey 2007). It has been identified that a hierarchical analysis of a set of independent variables may produce the coefficients necessary to answer the research questions under investigation.

The choice of a particular cumulative sequence of independent variables was made in advance, dictated by the purpose and logic of the research (Cooksey 2007). Some of the basic principles underlying the hierarchical order for entry were causal priority and the removal of the confounding relationships, research relevance, and structural properties of the research factors being studied. Each variable in the investigation were entered only after other variables that may be a potential source of spurious relationship had been entered. This led to a sort of ordering of the variables that reflects their presumed causal priority. Thus, no independent variable entered later would be a presumptive cause of an independent variable that had been entered earlier. The specific order of entry of the predictor sets will be as follows: demographic characteristics, technology, channel, social and value determinants. The logical development of this prespecified order of the predictor sets is based on the entry of more stable individual characteristics to a more general and dynamic contextual factors. Thus, demographic characteristics will be entered first into the model, whose effects are to be controlled for followed by contextual factors such as technology, channel, social and value dimensions based on the theoretical importance. The R<sup>2</sup> values, F change and significance values obtained would give the best indication of the predictor's potential.

### **Results and Discussion**

Hierarchical multiple regression analysis was employed to test for the effects of all independent variable sets in predicting the continued usage of internet banking as the dependent variable. TABLE 1.0 displays the different variable sets entered in their sequential

order, the  $R^2$  change and its associated degrees of freedom, F change and sig. F change including p-values for the partial F test. The Durbin-Watson statistic was used to test for the presence of serial correlation among the residuals i.e., the assumption of independence of errors, which requires that the residuals or errors in prediction do not follow a pattern from case to case (Meyers *et al.*, 2006). For the present research, the Durbin-Watson statistic of 2.105 falls within the acceptable range (1.50 to 2.50). The tolerance values for all the independent variables were larger than 0.10, indicating that multicollinearity was not a problem in progressing with the proposed regression analysis (Cleveland 1984). Model summary of the hierarchical multiple regression analysis displays five models listed. Model 1 refers to the first block of variables that were entered into the analysis as control variables (demographic characteristics), while model 2 includes all the variables that were entered in both the blocks (demographics and technology dimensions). Model 3 relates to the addition of channel dimensions, model 4 includes the addition of social dimensions and model 5 includes all the variables that were entered in all the abovementioned 4 models and value dimensions.

In evaluating the model, the  $R^2$  values in the model summary box were checked. Results indicate that, after the variables in Block 1 (demographic characteristics) have been entered, the overall model explains 0.014% of the variance. After Block 2 variables have also been included, the model as a whole explains 0.246% of the variance. With the addition of Block 3 variables, the model explains 0.378% of the variance. There was no increase in the variance after the inclusion of Block 4 variables. However, with the addition of Block 5 variables, the overall model contributed to 0.434% of the variance.

$R^2$  change explains how much of this overall variance is explained by the variables of interest individually. The  $R^2$  change reported by Model 1 was 0.014, which explains only 1.4% of the variance in the dependent variable and was not a statistically significant contribution as indicated by the sig. F change value (0.527). Model 2  $R^2$  change was 0.232, which means variables included in Block 2 explains an additional 23.2% of the variance in continued usage of internet banking, even when the effects of the demographic characteristics were statistically controlled for. This was a statistically significant contribution as indicated by the sig. F change (0.000). The  $R^2$  change in Model 3 reported was 0.132, indicating that the inclusion of Block 3 variables explains an additional 13.2% of the variance in the dependent variable and was statistically significant (0.000). There was no change in the  $R^2$  value with the inclusion of Block 4 variables, indicating that social determinants did not add significantly to the prediction of the continued usage of the internet banking. However, there was a change in the  $R^2$  with the inclusion of Block 5 variables to 0.056, which explains an additional 5.6% of the variance in the dependent variable and was statistically significant with sig. F change value (0.000).

**TABLE 1.0 Hierarchical multiple regression model summary**

Model	$R^2$	Adj. $R^2$	$R^2$ Change	F Change	Df	Sig. F
1	0.014	-0.002	0.014	0.857	6	0.527
2	0.246	0.229	0.232	55.873	2	0.000*
3	0.378	0.361	0.132	38.319	2	0.000*
4	0.378	0.359	0.000	0.192	1	0.661
5	0.434	0.415	0.056	35.491	1	0.000*
Durbin-Watson Statistic		2.105				

To find out how well each of the variables contributes to the equation, examination of the coefficients is important which summarizes the results, with all the variables entered into the equation. Scanning the sig. column, technology dimensions including usability (part corr = 0.458, partial F = 10.043,  $p < 0.001$ ) and attraction to trialability (part corr = 0.189, partial F = 2.383,  $p < 0.001$ ), channel dimensions including perceived safety (part corr = 0.236, partial F = 5.693,  $p < 0.001$ ) and perceived specialty (part corr = 0.199, partial F = 4.793,  $p < 0.001$ ) and

value dimensions (part corr = 0.236, partial F = 5.957,  $p < 0.001$ ) made statistically significant contribution. The abovementioned details were presented in TABLE 1.1. Beta values represent the unique contribution of each variable, when the overlapping effects of all other variables were statistically removed.

**TABLE 1.1: Effects of the individual variables on continued usage of internet banking**

Model	Variable set and variables	Part Corr	Partial F	Beta	Sig.
1	Demographic characteristics				NS
2	Technology determinants				
	Attraction to Usability	0.458	10.043	0.468	<0.001*
	Attraction to trialability	0.189	2.383	0.115	<0.001*
3	Channel determinants				
	Perceived Safety	0.236	5.693	0.287	<0.001*
	Perceived Specialty	0.199	4.793	0.218	<0.001*
4	Social determinants				NS
5	Value determinants	0.236	5.957	0.322	<0.001*

The addition social determinants in step 4, did not add significantly to the prediction of the continued usage of internet banking. Higher numeric values of the independent variables are also associated with the higher numeric values of the dependent variable. Thus respondents as internet banking users who strongly agreed on the attraction to usability and attraction to trialability nature of internet banking as technology dimensions also strongly agreed on the continued usage of internet banking in future. Also, respondents who strongly agreed on the perceived safety and perceived specialty aspects as the internet banking service delivery channel dimensions agreed strongly on the continued usage of internet banking. Respondents also exhibited positive and significant association between the value dimensions and continued usage of internet banking.

### Conclusion

It is evident that social determinants did not add significantly in influencing consumers' usage of internet banking on a continued basis. Technology dimensions with sub-dimensions such as attraction to usability and attraction to trialability systematically relates to the continued usage of internet banking. Similarly perceived safety and perceived specialty sub-dimensions relating to the channel dimensions significantly influence consumers' continued usage of internet banking. Value dimensions also have a significant positive impact on consumers' continued usage of internet banking. Thus it could be concluded that consumers' value determinants are important in influencing their continued usage of internet banking. Results obtained are useful in formulation of the effective channel management strategies. Also the study provides important implications for bank managers to improve their internet presence by indicating the key factors responsible for promoting the consumer continued usage of internet banking transactions. The study is limited in the sense, results obtained relate to the Australian context. Similar results may or may not be obtained if the study is extended to different contexts. The role of culture might be prominent in developing nations.

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