A Customer Repurchase Behavior Survey for Australian Mobile Telecommunication Services: Research Instrument Validation

Hassan Shakil Bhatti, Ahmad Abareshi, and Siddhi Pittayachawan

***Abstract*—This study aims to investigate and improve the understanding of customer repurchase behaviour in the Unified Theory of Acceptance and Use of Technology (UTAUT2) model that the influence mobile services repurchase behaviour among the Australian customers. Underpinned by UTAUT2, marketing mix theory and expectation confirmation theory, this research proposed model examines the customer satisfaction and customer experience within the mobile service technology context. The proposed model is tested using an empirical study of 364 subjects in Australia. Using partial least squares path modelling, the study assessed the validity of scales. The main purpose of this paper is instrument validation and hypothesis testing will be done in the next phase of this study. The results show that constructs reliability and average variance extracted is within an acceptable range. The model did pass the discriminant validity test as the Fornell-Larcker criterion and Heterotrait-Monotrait ratio (HTMT). These findings will lead to the next phase analysis of hypotheses testing at a later stage. A revised UTAUT model is introduced by the addition of two independent variables such as customer satisfaction and customer experience which helps to understand repurchase behaviour. This research model can be used by the mobile telecommunication businesses and market researcher. Moreover, this model can be used by future researchers.**

***Index Terms*—UTAUT, UTAUT2, customer repurchase behavior, mobile service, Australia.**

I. Introduction

The main purpose of this paper is to explore and develop a research instrument for customer repurchase behaviour. This research instrument aims to measure the extent to which to customer intention to repurchase a service influenced by customer satisfaction, customer experience, habit, hedonic motivation, facilitating conditions, social influence, effort expectancy, performance expectancy and price value. The objective is important because customer repurchase behaviour research is largely fragmented and is in need of an empirical testing in the area of mobile telecommunication sector in Australia. Several studies of telecommunication in developing countries have emphasized the influence of contextual barriers related to technological changes, pricing, customer satisfaction, and customer service as major determinants of behavioural intention to retain their current service providers. Improving customer retention by 5 per cent could increase company profit by 75 per cent [1]. Mobile telecommunication service providers are increasingly relying on data services such as 3rd -generation (3G), 4th -generation (4G) and long-term evolution (LTE), defined as data services, internet services and value-added services that give users access to their banking, entertainment, health and business information from anywhere with an internet connection [2]. Many businesses allocated adequate resources to gauge and monitor quality, satisfaction, customer experience, and loyalty to retain customers and improve service or product performance. However, a high grade of quality of service and customer satisfaction is not enough to promote customer loyalty in many businesses [3]. In literature, there is extensive discussion of service quality and customer satisfaction constructs and their problematic relationships [4]. The relationship between service quality and customer satisfaction is empirically tested in previous studies using the SERVQUAL model [5]-[9]. It is also establishing a link between service quality and satisfaction ratings. Nowadays, companies are measuring the satisfaction rating through a tool known as Net Promoter Score (NPS). Reichheld's Net Promoter Scoring System (NPS) [10] provides customer satisfaction measurement based on customer utility and customer experience. Therefore, in industry NPS tool strongly helps link satisfaction, recommendation and business outcomes. The previous study shows that customer repurchase behaviour has not been consistent and easy for most firms [11].

Repurchase behaviour is the actual relationship maintenance with a product or service and it is measured via repurchase or continuance of service [11]. Researchers [3], [12], [13] argued customer loyalty as the relationship between relative attitude and repeat patronage. Therefore, the most common assessments of loyalty are behavioural measures or repurchase patronage. However, due to the linkage between satisfaction and repurchase behaviour, a few empirical studies [3], [11] can be found that relate satisfaction to actual repurchase behaviour. Furthermore, Mittal and Kamakura [11] argued that under some conditions, satisfaction is completely uncorrelated to repurchase behaviour due to high response bias. Hence, they concluded that satisfaction to purchase behavioural intention is different from the one relating it to repurchase behaviour. Thus, these findings have explained the role of mediators, moderators and methodological aspects that are more likely to impact the relationship between behavioural intention and repurchase behaviour [3]. It has been concluded that the relationship between satisfaction and repurchase behaviour may vary across different products and

Manuscript received on January 19, 2019; revised March 11, 2019.

The authors are with the College of Business, School of Business IT and Logistics at RMIT University Melbourne, Australia (e-mail: hassan.shakilbhatti@rmit.edu.au, ahmad.abareshi@rmit.edu.au, siddhi.pittayachawan@rmit.edu.au).

doi: 10.18178/ijimt.2019.10.2.839

services.

Previous researchers Chang [14], [15] elaborated that service quality and experience can influence the repeat purchases. Thus, products and service characteristics would positively influence the desire to make repeat purchases.

It is well discussed in past studies Mittal and Kamakura [11], Peterson and Wilson [16], Bryant and Cha [17] that in commercial satisfaction, satisfaction ratings vary, although, the amount of variance is generally very small (such as the range of 10-15%). Moreover, Bryant and Cha [17] analysed American Consumer Satisfaction Index in a research study. In this study, the amount of variance is controlled using a valid and consistent scale along with interview methodology. However, this study couldn't conclude that difference in such a rating can impact customer repurchase behaviour. Satisfaction has attracted the attention of researchers due to its critical impact of customer repurchase behaviour. Previous research [18] shows that repurchase was the key for a successful business operation, since developing new customers would cost more than selling services to existing customers.

Previous studies [19]-[21] revealed the relationship between unsatisfactory purchases and customer complaining behaviour which prevents customers to repurchase a product or service.

Positive behavioural intention could result in increased product purchase, however, the negative behavioural intention not only decrease purchase [18]. Thus, also result in switching purchase from current service providers to other. Moreover, there is a research opportunity as there is very little evidence of previous research done to investigate customer repurchase behaviour and behavioural intention relationship along with factors impacting repurchase intention [14], [22]. Moreover, in the mobile telecommunication services, the marketing mix factors such as price, product, customer service and customer experience and the theoretical concepts related to repurchase or post-purchase phase have been less investigated in previous studies [11], [23]. Thus, minimal attention has been given to these issues.

In this empirical study, it is argued that customer repurchase behaviour is influenced by behavioural intention and other factors which are moderated by age, gender and experience. In this paper, the demographics will not be discussed. For this purpose, a conceptual model based on the Unified Theory of Acceptance and Use of Technology (UTAUT) interwoven with expectation confirmation theory and marketing mix theory in the mobile telecommunication context. Data collected from Australian mobile phone users in different demographics i.e. age, gender, and location. The samples are representative of the Australian population. For this purpose, a marketing company Research Now was hired after approval from the ethics committee. The data collected provides the basis of empirical evidence for hypotheses testing. The findings may help to understand the driving forces such as customer satisfaction and customer experience that influence customer repurchase behaviour to use a mobile service. This could lead to wider service adoption rate and increased communication between service provider and mobile service user.

The following section provides the theoretical background and the conceptual model development, followed by the methodology and initial data analysis. Finally, the results are discussed, and theoretical implications are presented, followed by limitations and conclusions.

II. Theoretical Background and Conceptual Model

A. UTAUT Model

This paper discusses a holistic and theoretically constructed model that identifies the relevant contextual, technical and behavioural factors that might affect customer intention to repurchase a mobile product or service. The literature on the adoption of mobile phone [24] promotes technological and behavioural perspective. An individual's belief about technology acceptance and use are driven by many factors as discussed in the UTAUT model [24]. In addition to this, customer satisfaction and customer experience influenced customer behavioural intention [25]. In the technology domain, satisfied customers and good service experiences are found to be a strong determinant of this belief [25]-[28].

The UTAUT 2 model comprises elements from eight competing models and theories to integrate the existing research at the time to identify the factors of intention and usage of information technology. UTAUT, shown in Fig. 1., includes seven direct determinants of behavioural intention to use a technology. Namely, performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, price value. The three moderators affecting the relationship are age, gender and experience. The revised model is clubbed with two new factors customer satisfaction and customer experience. The use of technology or user behaviour is modified with customer repurchase behaviour.

In the mobile service context, customer satisfaction and customer experience have been investigated in the 3G or 4G service adaption context [29], [30].

B. Expectation Confirmation Theory

In order to support the theoretical framework for additional variables such as the customer's experience and satisfaction, expectation confirmation theory will be used. Expectations-confirmation theory articulates that expectations, coupled with perceived performance, lead to post-purchase satisfaction. This outcome is mediated through positive or negative disconfirmation between expectations and performance. If a product outperforms expectations (positive disconfirmation) post-purchase satisfaction will result. Moreover, if a product falls short of expectations (negative disconfirmation) the consumer is likely to be dissatisfied [31], [32]. Similarly, customer experience has been argued by Millard [33], as the expected gap between the level of customer experience that customer thinks they should be getting and the level they actually received. Therefore, expectation and perceived performance play a vital role in customer satisfaction and post-purchase behaviour such as

customer retention. This theory will underpin the relationship between customer experience and behavioural intention which ultimately leads to customer retention. Similarly, this theory will help to underpin customer satisfaction and behavioural intention relationship which will help to determine the customer repurchase behaviour.

C. Marketing Mix Theory

The marketing mix concept is one of the core concepts of marketing theory. McCarthy [34] explained the concept of basic marketing mix 4P's (product, price, promotion and place). Similarly, different modifications to 4P's marketing mix framework have been proposed in various studies [35]-[37]. McCarthy [34], p. 35] defined the marketing mix as a combination of all the factors at the marketing manager's command to satisfy the target market. McCarthy and Perreault [38] have defined the marketing mix as the controllable variable that an organization can coordinate to satisfy its target market. This definition is more elaborated by Kotler and Armstrong [39] as the set of controllable marketing variables that the firm blends to produce the response it wants in the target market. Industrial marketers have claimed that the marketing mix makes it unique due to its features and hence it becomes different from consumer marketing [40]. Bitner, *et al.* [41] have modified the traditional 4P's framework to 7P's marketing mix. Hence, this modification includes the service marketing requirement including physical evidence and process. Moreover, the marketing mix theory framework includes product, price, place, promotion, participants, physical evidence and process. For this study, marketing mix elements such as price, product, promotion, physical evidence, process, and place will be used to determine customer repurchase behaviour in the telecommunication sector.

III. Conceptual Framework and Hypotheses

This study proposes a conceptual model (Fig. 1.) based on UTAUT 2 model and drawn upon expectation confirmation theory [42]. The proposed conceptual model seeks to better understand how the expectation of customer satisfaction and customer experience influence customer repurchase behaviour among mobile phone service users in Australia. The definition of all the constructs is mentioned in Table I.

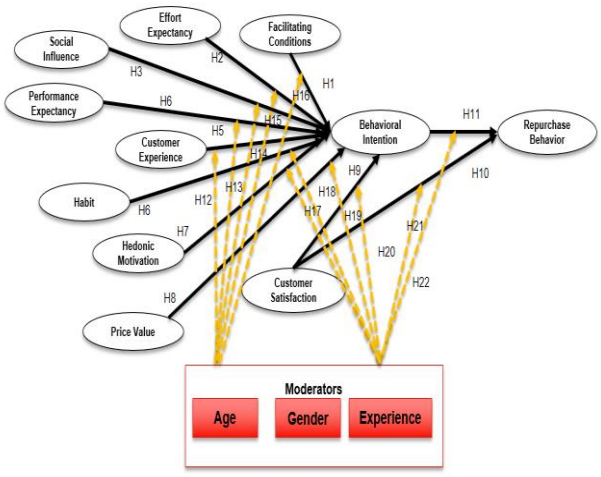

Fig. 1. Conceptual model and hypothesis.

TABLE I: Definition of the Constructs

Constructs	Definition	Reference
Customer Satisfaction	"Satisfaction is defined as the degree to which a business' product or service performance matches up to the expectation of the customer. If the performance matches or exceeds the expectation, then the customer is satisfied, if the performance is below par then the customer is dissatisfied".	Roberts-Lombard (2009, p. 84)
Customer Experience	A customer 's experience can be defined as the expectation gap between the level of customer experience that the customer thinks they should be getting (built up by marketing promises and other experiences) and the level they actually receive.	Millard (2006)
Price Value	Price value is defined as the consumers' cognitive trade-offs between the perceived benefits of the application and the monetary cost of using them.	Dodds *et al.* (1991)
Hedonic Motivation	Hedonic motivation is defined as the practical and emotional incentives for the customer to participate in shopping or buying related actions	(Brown *et al.*2005)
Habit	It is defined as "situation-specific sequences that are or have become automatic so that they occur without self-instruction".	(Limayem *et al.* (2007)
Social Influence	It is defined as the degree that an individual feels that the other important person such as (family, friends, social networking friends and co-workers) influence him/her to use their mobile service.	(Venkatesh *et al.* 2003)
Facilitating Conditions	It is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of mobile service and the mobile support system.	(Venkatesh *et al.* 2003)
Effort Expectancy	Effort expectancy is defined as the degree of ease associated with the use of the mobile service and support system.	(Venkatesh *et al.* 2003)
Performance Expectancy	It is defined as the level or extent that the mobile service consumer believes that using mobile service can improve their performance in doing any task in their daily life.	Venkatesh *et al.* 2003)

Behavioural Intention	It is defined as the degree to which a person has formulated conscious plans to perform or not to perform some specified future behaviour related to mobile service consumption.	(Warshaw & Davis 1985)

IV. Research Methodologies

A. Measurement

Before designing the current instrument to be used, existing instruments were considered. Questionnaire items were adopted from the previous literature for customer satisfaction, customer experience, facilitating conditions, performance expectancy, effort expectancy, social influence, price value, habit, hedonic motivation, behavioural intention and repurchase behaviour [24], [30], [43]-[51]. In order to assure the accuracy and validity of the instrument and to reduce the measurement error, the instrument development procedure suggested by Churchill [52] was followed. This includes specifying the domain of each construct, generating the demonstrative sample of items, purifying the measure through a pilot study, collecting further data, and assessing the validity and reliability of the measure [53].

In quantitative research, defining a construct's meaning and domain are preliminary steps in developing an accurate and content valid instrument.

The initial instrument was prepared in two phases. Pre-test and pilot test are conducted in order to validate the content and convergent validity for each construct. First, an initial pool of 64 items was generated. The items were reviewed and edited to capture the core of the concepts. A pre-test was conducted in this research in order to check the mechanical structure of this questionnaire and to make sure that the response categories to the questions were correct and there were no ambiguous, unclear or misleading items [54], [55] recommends that 10 people from the same study group or people to whom the questionnaire is relevant are enough to do the pre-test. In this study, 10 people of similar work and experience are used for the pre-test. The main objective of running a pre-test study was to obtain feedback about the survey itself.

The researcher developed a preliminary online and hard copy questionnaire in Qualtrics online software, which includes the greetings, plain language statement, and volunteer consent option. The researcher and his supervisors revised the questionnaire thoroughly to eliminate issues and errors in functionality, spelling and wording of the document. The final pre-test document was sent to volunteer participants for feedback. This pre-test study has uncovered some underlying issues and the problem with the research instrument that had not been taken into account before, and those problematic items and wording were modified to improve the overall instrument. Some of the important aspects which arose during the pre-test study were: time, an excessive number of questions, some constructs definition and overlapping issue, repetition of some questions, double barring and mobile technologies naming convention issues.

A pretest study was conducted with ten participants from academics and industry [55]. In this research a 4-point interrater scale is used, 1 not relevant, 2 for somewhat relevant, 3 for moderately relevant, and 4 for extremely relevant. Therefore, based on these judgments made by raters, the consensus among the raters or observer combines to form an important source of accurate measure [56]. The interrater reliability was measured using SPSS software after pre-test and the intra-class coefficient value was 0.8 [57]. The construct relevancy was checked during this pretest and feedback from the panel was added in the research instrument. After the pretest, a pilot study was conducted with fifteen participants. Julius suggests that there should be a minimum of 12 participants. According to the researchers Treece and Treece [58], the sample size of the pilot study should be 10% of the main study sample size. In this study, the researcher considers the minimum sample size 10 for the sake of this pilot study. The researchers' aim was to evaluate the reliability of research constructs items. The researcher emailed the questionnaire link followed by the weekly reminder to the volunteer participants; 15 respondents participated in this study. Based on a number of participants, email was sent to the participant living in all states of Australia including NSW, VIC, QLD, WA, SA, TAS, ACT and NT respectively. The reliability shows that Cronbach's alpha value for this pilot study is 0.8. The indicators for customer repurchase behaviour are formative.

The below-mentioned Table II shows the number of indicators for each construct. The complete list of questions can be found in the Appendix.

TABLE II: The Initial Number of Items Per Factor

Variables	Code	No. item
Facilitating Conditions	FC	7
Performance Expectancy	PE	6
Effort Expectancy	EE	7
Social Influence	SI	6
Hedonic Motivation	HM	7
Habit	HT	6
Price Value	PV	5
Customer Satisfaction	CS	6
Customer Experience	CE	9
Behavioural Intention	BI	5
Total		64

B. Data Collection

The participants are approached via an online survey. For this purpose, a marketing company was hired named as Research Now. The respondents were Australian mobile phone users over the age of 18 and all samples are representing the Australian population according to the demographics. The Qualtrics survey link was shared with the company and responses were saved at RMIT database. The sample size for this survey was 1985 and the response rate was 18.7 per cent. Total 372 fully completed questionnaires were returned prior to data analysis. After the initial data cleaning, i.e. missing values, outliers and normality, 364 valid

responses were used for further analysis.

V. Data Analysis and Results

A. Demographics

There were 364 respondents to questionnaire survey after data cleaning i.e. removal of unengaged responses. There are 184 (50.5 per cent) of with majority of male participants and 180 (49.5 per cent) female in this study. The respondents are in age range of 18-25 (15.1 per cent), 26-35(18.1 per cent), 36-45(17.6 per cent), 46-55(17 per cent), 56-64(16.2 per cent) and >65 (15.9 per cent).

B. Instrument Validation

The partial least square path modelling was used for scales validity because it provides more flexibility with sample size and residual distribution [59]. In this study, the most recent version of SmartPLS 3 is used. In this study, Table II, III and IV indicates the measurement model's construct reliability which was tested by Cronbach's Alpha and they were above the recommended 0.7 value [60]. Convergent validity values in term of average variance extracted (AVE) were above the recommended 0.5 value. [61]. Factors loading of less than 0.7 has been removed to strengthen the item reliability. Item loading less than 0.4 can be retained, unless if it's deletion will lead to improvements in the value of AVE and composite reliability [59]. Since reflective items are interchangeable, some can be omitted and PLS is flexible with a low number of factors per latent variables [59], [62]. According to Hair , *et al.* [59] the outer loading just need to be higher than cross loading. As discriminant validity is established using Fornell-Larcker criterion which compares the square root of the AVE values with latent variable correlations. The results show that AVE exceeds the squared correlation of constructs mentioned in Table III. The constructs with factor loading lower than 0.7 are removed from the measurement model. It hasn't affected the content validity of the constructs, after deleting the items from constructs, such as behavioural intention, customer experience, customer satisfaction, effort expectancy, price value, facilitating conditions, hedonic motivation, and habit.

To investigate the common method variance (CMV), for this study research has implied Harman's one-factor test, which revealed all ten constructs with the first order factor accounting for 35.76% variance. Thus, it is concluded that CMV was not an issue for data analysis.

Discriminant validity is the degree to which a construct is differentiated from other constructs by empirical standards[59]. Moreover, Chin [63] argued that discriminant validity indicates the measure to which each latent variable or construct is more highly related to its own measures than with other constructs. Furthermore, discriminant validity is achieved on the completion of two important criterions. First, according to Straub, *et al.* [64] the measurement item should show high loading on their theoretical intended constructs and must not load highly on other constructs. Secondly, the construct should exhibit adequate discriminant validity when the square root of the AVE is greater than the inter-construct correlations [61], [64], [65]

TABLE III: Construct Reliability, Item Loadings, Composite Reliability and AVE

Items	Loadings	Cronbach's Alpha	CR	AVE	Items	Loading	Cronbach's Alpha	CR	AVE
BI 1	0.82	0.804	0.872	0.63	FC 1	0.809	0.829	0.879	0.593
BI 2	0.798				FC 2	0.777			
BI 3	0.757				FC 4	0.724			
BI 4	0.798				FC 5	0.781			
CE 2	0.811	0.881	0.91	0.628	FC 6	0.758			
CE 3	0.806				HM 3	0.779	0.819	0.893	0.737
CE 6	0.739				HM 6	0.897			
CE 7	0.821				HM 7	0.894			
CE 8	0.799				HT 4	0.89	0.775	0.898	0.737
CE 9	0.776				HT 5	0.916			
CS 2	0.87	0.876	0.911	0.672	PE 1	0.839	0.928	0.944	0.737
CS 3	0.876				PE 2	0.823			
CS 4	0.847				PE 3	0.905			
CS 5	0.781				PE 4	0.908			
CS 6	0.715				PE 5	0.895			
EE 1	0.723	0.892	0.918	0.651	PE 6	0.772			
EE 2	0.759				SI 1	0.84	0.922	0.939	0.72
EE 4	0.844				SI 2	0.804			
EE 5	0.792				SI 3	0.857			
EE 6	0.869				SI 4	0.859			
EE 7	0.846				SI 5	0.847			
PV 1	0.826	0.821	0.883	0.655	SI 6	0.882			
PV 2	0.807								
PV 4	0.834								
PV 5	0.767								

It is concluded as that the shared variance between each latent variable or construct and its items or indicators is greater than the variance among other constructs. Hence, for this study, the model did pass the discriminant validity test as the Fornell-Larcker criterion as mentioned in Table IV.

TABLE IV: Discriminant Validity (Fornell-Larcker Criterion)

	BI	CE	CS	EE	FC	HM	HT	PE	PV	SI
BI										
CE	0.765									
CS	0.833	0.757								
EE	0.73	0.702	0.794							
FC	0.813	0.874	0.845	0.757						
HM	0.848	0.82	0.69	0.75	0.726					
HT	0.621	0.605	0.578	0.77	0.541	0.848				

Henseler, *et al.* [66] argued that HTMT value above the threshold value of 0.9 shows a lack of discriminant validity. The below-mentioned Table V shows that all values are less than 0.9 threshold value. Hence, the research model meets the criterion for discriminant validity.

TABLE V: Heterotrait-Monotrait Ratio (HTMT)

Factors	BI	CE	CS	EE	FC	HM	HT	PE	PV	SI
BI	**0.793**									
CE	0.633	**0.799**								
CS	0.654	0.715	**0.817**							
EE	0.618	0.654	0.657	**0.773**						
FC	0.717	0.685	0.729	0.612	**0.787**					
HM	0.602	0.611	0.498	0.644	0.578	**0.791**				
HT	0.656	0.656	0.713	0.594	0.584	0.675	**0.903**			
PE	0.615	0.498	0.508	0.557	0.627	0.552	0.511	**0.858**		
PV	0.705	0.672	0.659	0.481	0.680	0.473	0.636	0.493	**0.809**	
SI	0.250	0.178	0.160	0.142	0.242	0.199	0.199	0.406	0.170	**0.848**

VI. Discussion

This study examined the effect of customer satisfaction, customer experience, facilitating conditions, effort expectancy, performance expectancy, social influence, habit, hedonic motivation and price value on customer repurchase behaviour mediated by behavioural intention. The conceptual model was built on UTAUT model, expectation confirmation theory and marketing mix theory. For this purpose, a research instrument was developed from previous literature followed by pretest and pilot study. In this paper, the construct reliability, average variance extracted, and composite reliability was measured by running analysis in PLS software. The item loading was measured, and discriminant validity was tested. In the next phase, hypothesis testing will be done to measure the direct effect of the independent and dependent variable. Also, the moderating effect created by age, gender and experience will be measured in further analysis. The significance of this paper is to test and validate the research instrument. This instrument can be used for further studies by other researchers in the field of IT and telecommunications. From this study, managers and business can implement this model in order to increase company revenues.

The present research extends the UTAUT2 model to the mobile service context and investigates factors affects users repurchase behaviour. The theoretical framework has passed the measurement model criterions. The results show that all the constructs have adequate item loadings with acceptable CR and AVE. The measurement model did pass the discriminant validity test, which shows that every construct is distinguished in characteristics from all the other constructs in this research model.

VII. Conclusions and Further Work

This model is suitable for structural model testing and hypotheses testing for this study. This model needs to follow the structural model steps in the further analysis. In the previous step, the validation of the research model is thoroughly assessed through different reliability and validation methods. In this next, the structural model is assessed. In this step, the model is evaluated based on some criterions. The structural or inner model evaluates the relationship between constructs. Furthermore, it is defined as the casual and correlation relationships between constructs via direct or indirect links. As, in this study, the coefficients between latent variables are examined using PLS-PM (Partial least square path modelling) analysis. The model testing identifies and examines whether there is empirical evidence for the hypothesised relationship between latent variables. The model testing for structural modelling includes the examination of variance explained by each construct, the signification of each relationship, and the model's predictive relevance.

This model can be used with other demographic samples for further testing in other service industry context. As in this study, it is being studied in the context of mobile telecommunication services. The theoretical implications of this paper are three-fold. First, this research contributes towards filling a gap in the IS discipline that customer satisfaction is a critical factor for customer behavioural intention. Secondly, this research contributes in developing an extended model which can help the mobile businesses and networks that what type of customer experience issues can cause an impact on the behavioural intention of the customer for mobile service repurchase. Given the importance of soliciting recommendations from mobile service users, the finding of this research could benefit the practitioners in various ways. First, the companies can understand customer needs and this model enhances the factors affecting users' intention to repurchase mobile service. Thus, this research helps in cultivating value to enhance users' intention to recommend services to other by positive word of mouth.

This model can be used by mobile telecommunication businesses for building up their marketing and business plans. This research model has provided a framework for the extension UTAUT2 model in the field of mobile telecommunication services. By the virtue of this model, research can further investigate the issues in other service industries.

Appendix

Appendixes, List of Items

Code	Item
EE1	It is easy for me to become skilful at using mobile services such as voice and data.
EE2	My interaction with mobile services such as voice and data is clear and understandable.
EE3	Mobile services such as voice and data services.
EE4	Mobile online billing & payment service.
EE5	Overall, mobile services.
EE6	Mobile internet services.
EE7	The terms and conditions of the mobile services.
PE1	Using mobile services has saved the time during my routine tasks.
PE2	The mobile value-added services are useful in my daily routine.
PE3	Using mobile services increases my productivity in daily life.
PE4	The use of mobile services will increase my chances to improve my overall performance in daily life.
PE5	The mobile services enable me to accomplish tasks more quickly.
PE6	Mobile services have helped me generate more innovative ideas.
BI1	I will repurchase the offerings from my service provider.
BI2	I will recommend the mobile products and services of my service provider to others.
BI3	I intend to continue using mobile services such as bundle packages (mobile phone and home broadband) offered by my service provider in the future.
BI4	I plan to continue to use the mobile phone product and services frequently.
BI5	If the price is reduced, I will be glad to use the mobile services of another service provider.
SI1	My friends can influence me in choosing the mobile data services of their service provider.
SI2	My family has influenced when choosing the mobile service provider.
SI3	Whenever I feel difficulties in investigating mobile products or services, I contact my friends to take their opinion.
SI4	My colleagues have influenced me to choose the mobile service such as voice, data and bundle mobile broadband plans.
SI5	Social media friends have affected my decision to stay with my service provider.
SI6	My family and friends can influence me in choosing the data services of their service provider.
FC1	My service provider has provided resources such as network coverage, necessary to use my mobile service products.
FC2	My service provider facilitates with the necessary technical

	customer support for the use of their mobile phone services.
FC3	I cannot get help from my service provider when I have difficulties using mobile services.
FC4	Whenever I have encountered difficulty with the use of mobile service, I can use the information from a service provider to solve the problems.
FC5	Whenever I connected my mobile data service from my location, network service is available.
FC6	Whenever I use my mobile data service from my location, network service is available.
FC7	Mobile broadband service connectivity from my home location to service providers' network is:
HM1	New data technologies such as (3G/4G/LTE) in mobile service can increase my interest to use the mobile service.
HM2	Using mobile services can bring some recreation.
HM3	Using the mobile services of my service provider
HM4	My mobile service providers' offers
HM5	Using the mobile services of my service provider, including voice and data.
HM6	Using the mobile services of my service provider, including voice and data.
HM7	The mobile value-added services of a service provider.
HT1	The use of mobile services has become routine for me.
HT2	I am addicted to using mobile services such as voice and data.
HT3	I must use mobile services including mobile data services.
HT4	I would not find hard to use the mobile service.
HT5	Using mobile services has become natural to me.
HT6	Using mobile service would require minimum effort to use it.
CS1	The mobile services such as voice, data and broadband services that you use.
CS2	The performance of mobile services.
CS3	The speed of mobile phone data services offered by the service provider.
CS4	The accurate billing information related to usage by the service provider.
CS5	Overall, I am satisfied with my mobile service provider.
CS6	I received adequate required information for the service that I needed.
CE1	The employees of my service provider as per my experience are willing to help, whenever I need any assistance.
CE2	My experience with mobile services of my service provider.
CE3	I will rate my experience with my previous service provider plan.
CE4	My information privacy protection experience as a customer.
CE5	My customer care experience with my service provider, such as (receiving outage notification)
CE6	The mobile value-added service -Less than my expectation.
CE7	The quality of voice calls such as (voice clarity, signal strength).
CE8	The resolution of service complaints -Less than my expectation.
CE9	The reliability of data services -Less than my expectation.
PV1	My mobile services are a good value for the money.
PV2	The service provider provides a variety of price plan.
PV3	The mobile plan offered by my service provider is reasonably priced.
PV4	At the current price, my mobile service provider provides good value for data bundle plan (mobile phone, broadband and home broadband).
PV5	The service provider provides the flexibility of changing the price plan.

REFERENCES

[1] M. Chan, L. Lau, T. Lui, S. Ng, E. Tam, and E. Tong, "Final report: Customer relationship management," *Customer Relationship Management Consortium Study, Asian Benchmarking Clearing House, Hong Kong*, 2001.

[2] TIO, *Telecommunications Industry Ombudsman 2014 Annual Report*, 2014.

[3] S. O. Olsen, "Comparative evaluation and the relationship between quality, satisfaction, and repurchase loyalty," *Journal of the Academy of Marketing Science*, vol. 30, no. 3, pp. 240-249, 2002.

[4] P. Grewal and Dhruv, "The impact of technology on the quality-value-loyalty chain: A research agenda," *Journal of the Academy of Marketing Science*, vol. 28, no. 1, pp. 168-174, January 1, 2000.

[5] W. B. Dodds, K. B. Monroe, and D. Grewal, "Effects of price, brand, and store information on buyers' product evaluations," *Journal of Marketing Research*, pp. 307-319, 1991.

[6] Z. Zhu, C. Nakata, K. Sivakumar, and D. Grewal, "Fix it or leave it? Customer recovery from self-service technology failures," *Journal of Retailing*, vol. 89, no. 1, pp. 15-29, 2013.

[7] P. Zeithaml and A. Berry, "Servqual - A multiple-item scale for measuring consumer perceptions of service quality," *Journal of Retailing*, vol. 64, no. 1, pp. 12-40, 1988.

[8] V. A. Zeithaml, L. L. Berry, and A. Parasuraman, "The behavioral consequences of service quality," *The Journal of Marketing*, pp. 31-46, 1996.

[9] P. Zeithaml and A. Berry, "Reassessment of expectations as a comparison standard in measuring service quality: Implications for further research," *Journal of Marketing*, vol. 58, no. 1, pp. 111-124, 1994.

[10] F. Reichheld and T. Teal, "The loyalty effect," *Harvard Business School Press, Boston*, 1996.

[11] V. Mittal and W. A. Kamakura, "Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics," *Journal of Marketing Research*, vol. 38, no. 1, pp. 131-142, 2001.

[12] A. S. Dick and K. Basu, "Customer loyalty: Toward an integrated conceptual framework," *Journal of the Academy of Marketing Science*, vol. 22, no. 2, pp. 99-113, 1994.

[13] Bloemer and Kasper, "The complex relationship between consumer satisfaction and brand loyalty," *Journal of Economic Psychology*, vol. 16, no. 2, pp. 311-329, 1995.

[14] W. S. Chang, "The adoption of tech-art in cultural creative derivatives influences on customers' repurchase behavior," *Journal of Convergence Information Technology*, vol. 9, no. 2, p. 181, 2014.

[15] P. Murphy, M. P. Pritchard, and B. Smith, "The destination product and its impact on traveller perceptions," *Tourism Management*, vol. 21, no. 1, pp. 43-52, 2000.

[16] R. A. Peterson and W. R. Wilson, "Measuring customer satisfaction: fact and artifact," *Journal of the Academy of Marketing Science*, vol. 20, no. 1, pp. 61-71, 1992.

[17] B. E. Bryant and J. Cha, "Crossing the threshold," *Marketing Research*, vol. 8, no. 4, p. 20, 1996.

[18] T. P. Kuo and C. Y. Yang, "The study of consumer intention, service quality cognition and repurchase behavior of consumers in exotic restaurants–mexican restaurant," *Journal of Information and Optimization Sciences*, vol. 32, no. 3, pp. 551-560, 2011.

[19] D. Halstead and T. J. Page, "The effects of satisfaction and complaining behavior on consumer repurchase intentions," *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, vol. 5, no. 1, pp. 1-11, 1992.

[20] A. R. Andreasen, "A taxonomy of consumer satisfaction/dissatisfaction measures," *Journal of Consumer Affairs*, vol. 11, no. 2, pp. 11-24, 1977.

[21] R. L. Day and M. Bodur, "Consumer response to dissatisfaction with services and intangibles," *Advances in Consumer Research*, vol. 5, no. 1, 1978.

[22] M. Paulssen and M. M. Birk, "Satisfaction and repurchase behavior in a business-to-business setting: Investigating the moderating effect of manufacturer, company and demographic characteristics," *Industrial Marketing Management*, vol. 36, no. 7, pp. 983-997, 2007.

[23] D. A. Francken, "Postpurchase consumer evaluations, complaint actions and repurchase behavior," *Journal of Economic Psychology*, vol. 4, no. 3, pp. 273-290, 1983.

[24] V. Venkatesh, J. Y. Thong, and X. Xu, "Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology," *MIS Quarterly*, vol. 36, no. 1, pp. 157-178, 2012.

[25] M. Anaman, "Toward a model of customer experience," *Brunel University, School of Information Systems, Computing and Mathematics*, 2010.

[26] Y. W. Chang and Y. H. Chang, "Does service recovery affect satisfaction and customer loyalty? An empirical study of airline services," *Journal of Air Transport Management*, vol. 16, no. 6, pp. 340-342, 2010.

[27] M. B. Islam and A. R. Rima, *Factors Affecting Customer Experience in Telecommunication Services and Its Importance on Brand Equity: A Study on Telecommunication Companies in Bangladesh*, 2013.

[28] R. Verma, *et al.*, "Customer experience modeling: From customer experience to service design," *Journal of Service Management*, vol. 23, no. 3, pp. 362-376, 2012.
[29] S.-T. Park, H. Im, and K. S. Noh, "A study on factors affecting the adoption of LTE mobile communication service: The case of South Korea," *Wireless Personal Communications*, vol. 86, no. 1, pp. 217-237, 2016.
[30] Y. L. Wu, Y. H. Tao, and P. C. Yang, "The use of unified theory of acceptance and use of technology to confer the behavioral model of 3G mobile telecommunication users," *Journal of Statistics and Management Systems*, vol. 11, no. 5, pp. 919-949, 2008.
[31] Oliver and Richard, "Measurement and evaluation of satisfaction processes in retail settings," *Journal of Retailing*, 1981.
[32] R. A. Spreng and R. D. Mackoy, "An empirical examination of a model of perceived service quality and satisfaction," *Journal of Retailing*, vol. 72, no. 2, pp. 201-214, 1996.
[33] N. Millard, "Learning from the 'wow'factor — How to engage customers through the design of effective affective customer experiences," *BT Technology Journal*, vol. 24, no. 1, pp. 11-16, 2006.
[34] E. J. McCarthy, "Basic marketing: a managerial approach. Homewood, IL: Richard D. Irwin," *Inc., 1979McCarthyBasic Marketing: A Managerial Approach1979*, 1960.
[35] H. Barich and P. Kotler, "A framework for marketing image management," *Sloan Management Review*, vol. 32, no. 2, p. 94, 1991.
[36] Kotler, *Marketing Management*, Prentice-Hall, Englewood Cliffs, NJ, 2003.
[37] E. W. Anderson, C. Fornell, and D. R. Lehmann, "Customer satisfaction, market share, and profitability: findings from Sweden," *The Journal of Marketing*, pp. 53-66, 1994.
[38] E. J. McCarthy and W. D. Perreault, "Basic marketing, homewood, IL: Richard D. Irwin," *Inc.(Warwick: HO 5000 M2)*, 1984.
[39] P. Kotler and G. Armstrong, *Principles of Marketing*, 5th ed. Prentice Hall: Englewood Cliffs, New Jersey, 1991.
[40] M. Rafiq and P. K. Ahmed, "Using the 7Ps as a generic marketing mix: An exploratory survey of UK and European marketing academics," *Marketing Intelligence & Planning*, vol. 13, no. 9, pp. 4-15, 1995.
[41] M. J. Bitner, B. H. Booms, and M. S. Tetreault, "The service encounter: diagnosing favorable and unfavorable incidents," *The Journal of Marketing*, pp. 71-84, 1990.
[42] C. S. Lin, S. Wu, and R. J. Tsai, "Integrating perceived playfulness into expectation-confirmation model for web portal context," *Information & Management*, vol. 42, no. 5, pp. 683-693, 2005.
[43] T. Escobar-Rodr ́guez and E. Carvajal-Trujillo, "Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model," *Tourism Management*, vol. 43, pp. 70-88, 2014.
[44] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Quarterly*, pp. 425-478, 2003.
[45] Y. Wang, H. P. Lo, and Y. Yang, "An integrated framework for service quality, customer value, satisfaction: Evidence from China's telecommunication industry," *Information Systems Frontiers*, vol. 6, no. 4, pp. 325-340, 2004.
[46] H. Chang, Y. H. Wang, and W. Y. Yang, "The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value," *Total Quality Management & Business Excellence*, vol. 20, no. 4, pp. 423-443, 2009.
[47] T. Zhou and Y. Lu, "Examining postadoption usage of mobile services from a dual perspective of enablers and inhibitors," *International Journal of Human-Computer Interaction*, vol. 27, no. 12, pp. 1177-1191, 2011.
[48] C. Ranaweera and J. Prabhu, "The influence of satisfaction, trust and switching barriers on customer retention in a continuous purchasing setting," *International Journal of Service Industry Management*, vol. 14, no. 4, pp. 374-395, 2003.
[49] D. A. Baker and J. L. Crompton, "Quality, satisfaction and behavioral intentions," *Annals of Tourism Research*, vol. 27, no. 3, pp. 785-804, 2000.
[50] N. M. Kassim, "Telecommunication industry in Malaysia: demographics effect on customer expectations, performance, satisfaction and retention," *Asia Pacific Business Review*, vol. 12, no. 4, pp. 437-463, 2006.
[51] P. G. Patterson and R. A. Spreng, "Modelling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: An empirical examination," *International Journal of Service Industry management*, vol. 8, no. 5, pp. 414-434, 1997.
[52] G. A. Churchill. Jr, "A paradigm for developing better measures of marketing constructs," *Journal of Marketing Research*, pp. 64-73, 1979.
[53] A. Molla and P. S. Licker, "eCommerce adoption in developing countries: a model and instrument," *Information & Management*, vol. 42, no. 6, pp. 877-899, 2005.
[54] L. Baxter and E. Babbie, "The basics of communication research," *Cengage Learning*, 2003.
[55] M. N. Saunders, M. Saunders, P. Lewis, and A. Thornhill, "Research methods for business students," *Pearson Education India*, 2011.
[56] B. J. Weiner, L. A. Savitz, S. Bernard, and L. G. Pucci, "How do integrated delivery systems adopt and implement clinical information systems?" *Health Care Management Review*, vol. 29, no. 1, pp. 51-66, 2004.
[57] J. P. Robinson, P. R. Shaver, and L. S. Wrightsman, "Criteria for scale selection and evaluation," *Measures of Personality and Social Psychological Attitudes*, vol. 1, no. 3, pp. 1-16, 1991.
[58] E. W. Treece and J. W. Treece, "Elements of research in nursing," *Nursing2015*, vol. 7, no. 6, pp. 12-13, 1977.
[59] J. F. Hair, G. T. M. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications, 2016.
[60] J. B. Nunnally, "Psychometric theory," *Psychometric Theory*, 1994.
[61] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, pp. 39-50, 1981.
[62] J. F. Hair, C. M. Ringle, and M. Sarstedt, "PLS-SEM: Indeed a silver bullet," *The Journal of Marketing Theory and Practice*, vol. 19, no. 2, pp. 139-152, 2011.
[63] W. W. Chin, "How to write up and report PLS analyses," in *Handbook of Partial Least Squares*, Springer, 2010, pp. 655-690.
[64] D. Straub, M. C. Boudreau, and D. Gefen, "Validation guidelines for IS positivist research," *The Communications of the Association for Information Systems*, vol. 13, no. 1, p. 63, 2004.
[65] S. Petter, D. Straub, and A. Rai, "Specifying formative constructs in information systems research," *Mis Quarterly*, pp. 623-656, 2007.
[66] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *Journal of the Academy of Marketing Science*, vol. 43, no. 1, pp. 115-135, 2015.

Hassan Shakil Bhatti is a telecommunication engineer at Telstra Australia.

Hassan's area of interest is building statistical and analytical models in telecom. His expertise lies in building predictive models in scalable big data architecture. His work at telecommunication involves, building analytics models and architecture for Reporting and Analytics on Telecom Data

He is a Ph.D research student at RMIT University Melbourne. Prior to doing his Masters, he was working with Telenor R&D, Norway. He was involved in analytics suite product building where his primary goal was to build specific data mining models for telecom customer segmentation and profiling.

Ahmad Abareshi is a senior lecturer at the School of Business IT and Logistics, RMIT University, Australia. His areas of expertise are in IT applications in logistics and green supply chains management. Dr Abareshi's work has appeared in transportation research part E, Information technology & people, transportation research part D, and International Journal of Logistics Research and Applications.

Siddhi Pittayachawan is a senior lecturer of information systems and supply chain management in the School of Business IT and Logistics at RMIT University. He was a program director, bachelor of business (Honours) for three years, and is currently an OUA program coordinator, bachelor of business (logistics and supply chain management). With experiences from lecturing research and data analytical courses for over six years, he is a versatile research methodologist. Coupling with a multiple educational background leads him to have a wide range of research interests including trust, information system adoption, information security behaviour, sustainable business, supply chain management, and business education. His work has been cited over 400 times on Google Scholar.