SONA GLOBAL
MANAGEMENT REVIEW

Examining the Factors that Affect 3G Mobile Data Service Continuance Intention among Young Indian (IT) Working Professionals

K.A. Asraar Ahmed[a], Dr. A.S. Sathish[b]

[a] PhD Research Scholar, VIT Business School, VIT University, Vellore | asraarvit@gmail.com

[b] Associate Professor, VIT Business School, VIT University, Vellore

Abstract

The surge in sales of smart electronic devices (such as Smartphone, Tablets and Phablets) has increased 3G adoption rate among Indian consumers. Many research firm reports predict India will have 2nd largest mobile data services in upcoming years. The objective of this study is to examine the factors that affect 3G mobile data service continuance intention among young Indian working professionals. An Information system (IS) success model and Theory of planned behaviour (TPB) were used as theoretical background for this study. A self-administered questionnaire was distributed among young (IT) working professional in Bengaluru city. A data of about 286 were collected. The results and implication were discussed at the end.

Keywords: Third generation (3G), mobile internet technology, Mobile data services (MDS), Continuance adoption intention, Information system (IS) success model. Theory of Planned Behaviour (TPB), Perceived Fee (PFEE) and India

Introduction

The third generation (3G) is an advanced mobile internet technology which provides high speed access to internet information sources. India suffered a lot during its initial period of launch of mobile internet technology with a lot of service quality, affordability, and coverage issues (Pau & Motiwalla, 2008). The third generation mobile technology has grown at a rapid pace in the last three years in India. The 4G technology being recently launched in India, the year 2015 witnessed- usage of the 3G surpassed 2G internet for the first time in the country (Nokia network study report, 2016). The reason for this is the large penetration of 3G technology enabled devices (such as smartphones) across the country. Also, there are other factors such as increase in rural income, rapid urbanization, and increased trade growth across tier1, 2, 3 cities in the

country has caused increased mobile internet adoption (Muthukumar and Muthu, 2015). According to a joint report of the Internet and Mobile Association of India (IAMAI) and KPMG (2015) India will have 314 million mobile internet users by the end of the year 2017. The report also revealed that 3G internet in India will grow at a compound annual growth rate (CAGR) of 61.7 % from the year 2013-2017 and there would also be a steep increase in 3G subscription from 82 million in the year 2014 to more than 200 million by the end of the year 2017 (IAMAI & KPMG, 2015). Similarly e-marketer report (2015) also predicted that India will have a second largest smartphone user by the end of the year 2016 which will enable more users to adopt mobile internet. According to Nokia network report (2016) there was 85% of the increase in 3G data traffic in India at the end of the year 2015. Based on these reports the current study tries to explore what drives Indian consumers to adopt 3G continuance.

Only few studies have tried to explain the factors that affect 3G adoption among Indian mobile users. Authors such as Sita (2010) evaluated perception of 3G usage among Indian consumers, Khanna and Agarwal (2013) found Perceived usefulness, Perceived behavioral control and Attitude as a major factor for 3G adoption among Indian consumers, Kumar and Reddy (2014) found service quality and price factor to be important for 3G adoption among mobile users of Indian state of Andhra Pradesh, Madhusudan (2015) found utilitarian value to be the most important factor for 3G adoption among Indian college students of Delhi and Hyderabad and Velmurugan and Velmurugan (2014) stated that usefulness and awareness are the important determinants that drive Indian consumers to adopt 3G technology. We could able see that none of the previous studies in Indian context have tried to explore the factors that drive 3G mobile data service continuance. Thus, based on this gap this study tries to explore the factors that drive Indian consumers to adopt 3G continuance. Velmurugan and Velmurugan (2014) recommended to study the effect of cost and satisfaction in 3G adoption context among Indian consumers. Park et al. (2011) argues that variance explained in satisfaction related studies are found low, thus there is a need for a new framework to achieve high explanatory power. Boakye (2015) and Lee and Chen (2014) also recommended for more research on mobile data service adoption continuance across different nationalities. We used IS success model (DeLone & McLean, 2003) and TPB (Ajzen, 1991) as a theoretical background for this study. This paper is divided into seven parts. First part consists of Introduction, the second part consists of a literature review, the third part consists of conceptual framework and hypothesis formation, the fourth part consists of research methodology, the fifth part consists of data analysis and results, the sixth part consists of conclusion and implications, and the final part consists of the limitations and future research.

Literature Review

Effect of Service Quality (SQ) on Satisfaction (SAT) and Attitude (ATT)

Service quality is defined as "*the overall support delivered by the service provider, applies regardless of whether this support is delivered by the IS department, a new*

organizational unit, or outsourced to an Internet service provider" (DeLone & McLean, 2003). In the current research, operational definition could be defined as "overall service support provided by 3G service provider". Lee and Chen (2014), Zhao et al. (2012) and Zhou (2011) states that SQ of mobile internet is an important element which affect SAT and CINT. Pau and Motiwalla in the year (2008) reported India has lots of service quality, affordability, and coverage issues so there is a need for more research in this area. SQ factors such as Interactivity, Customization, Responsiveness, and Usefulness (Li & Yen, 2009) was found to have a positive significant impact on SAT among Taiwanese mobile data services (MDS) users (Lee & Chen, 2014; Wu & Wang, 2006). In contrary Wang and Lin (2012) found SQ to have negative significant impact on 3G adoption among Taiwanese mobile data users. SQ was found to have a positive significant impact on 3G adoption among Singapore mobile users (Agarwal et al., 2007). Seyal and Rahman (2015) states that SQ to have significant negative impact on SAT towards mobile service among Brunei mobile users. SQ was found to have no significant impact on CINT among USA mobile users (Boakye, 2015).

Effect of System Quality (SYSQ) on Satisfaction (SAT) and Attitude (ATT).

System Quality (SYSQ) is defined as an overall "*measures the desired characteristics such as usability, availability, reliability, adaptability and response time of an e-commerce system*" (DeLone & McLean, 2003). SYSQ is an important factor that affects mobile commerce continuance (Boakye, 2015; Lee & Chen, 2014; Zhou, 2011). SYSQ was found to have a significant positive impact among Chinese consumers (Zhou, 2011; Zhou, 2014). SYSQ was found to have a significant positive impact on SAT among Taiwanese consumers (Lee & Chen, 2014; Wang & Lin, 2012). SYSQ was found to have a significant positive impact on SAT among Brunei consumers (Seyal & Rahman, 2015).

Effect of Perceived Fee (PFEE) on Satisfaction (SAT), Attitude (ATT) and Continues Intention (CINT)

Perceived fee is defined as "*the amount of economic outlay that must be sacrificed in order to use a product of a service*" (Lichtenstein et al., 1993). PFEE is an important element of mobile data service continuance (Agarwal et al. 2007; Kim et al., 2009; Kim et al. 2010; Zhou, 2013). PFEE was found to have a negative impact on SAT and positive significant impact on CINT among South Korean students (Kim, 2010). Utilitarian value was found to have a positive impact on CINT among USA college students (Park et al., 2011). Lin and Wang (2006) found PFEE to have a positive significant impact on m-commerce CINT. Dhaha and Ali (2014) found PFEE to have a positive significant impact on SAT among Somalian university students. Ong et al. (2008) found PFEE to have no significant impact on 3G adoption among Malaysian consumers. Agarwal et al. (2007) found PFEE to have negative significant impact on the mobile service adoption among Singapore mobile users. Kumar and Reddy (2014) found PFEE to be the most important factor for Indians consumers to adopt 3G technology. Zhou (2011) and Suki and Suki

(2011) recommended to investigate more on effect of PFEE on 3G adoption continuance behaviour among Indian consumers (Velmurugan & Velmurugan, 2014).

Effect of Social Norm (SN) [Interpersonal Social Influence (INTS) and External Social Influence (EXTS)] on CINT

Interpersonal influence refers to "*influence by friends, family members, colleagues, superiors, and experienced individuals known to the potential adopter"* (Bhattacherjee, 2001). External influence refers to "*mass media reports, expert opinions, and other non-personal information considered by individuals in performing a behavior"* (Bhattacherjee, 2001). Zhang et al. (2012) states that SN is a critical component of mobile service adoption. López-Nicolás et al. (2008) found EXTS to have a positive significant impact on 3G adoption. Kim (2010) proposed a framework by integrating ECM and TPB theory to predict mobile data service continuance behaviour among 107 young South Korean students wherein he found INTS and EXTS jointly explained 60% of variance on SN which in turn had a positive significant impact on CINT.

Effect of Perceived Behavioral Control (PBC) on CINT

Perceived Behavioral Control is defined as "*an individual's perceived ease or difficulty of performing the particular behavior*" (Ajzen, 1991). Kim (2010) proposed a framework by integrating ECM and TPB theory to predict mobile data service continuance behaviour among 107 young South Korean students wherein he found PBC to have a positive significant impact on CINT. Zhang et al. (2012) found PBC to have a positive significant impact on mobile value added service adoption among Taiwanese consumers. Khanna and Agarwal (2013) found PBC to have a positive significant effect on 3G adoption among Indians.

Effect of Satisfaction (SAT) on Continuance Intention (CINT)

Satisfaction is defined as "*a measure of opinions of system from information retrieval through purchase, payment, receipt, and service*" (DeLone & McLean, 2003). The SAT is an important construct which significantly affects MDS CINT (Kim, 2010; Lee and Chen, 2014; Zhou, 2014; Li & Yen, 2009; Zhou, 2011; Kim, 2009; Zhao, 2012). Kim (2010) found SAT to have a significant positive significant impact on CINT among South Korean College Students. SAT was to have a positive impact on CINT among Taiwanese consumers (Lee & Chen, 2014; Lin & Wang, 2006) and Chinese consumers (Zhou, 2014; Zhao et al., 2012). Velmurugan and Velmurugan (2014) recommended for more investigation on effect of satisfaction among Indian 3G users. Ng and Kwahk (2010) study shows SAT significantly influence continuance intention.

Attitude towards Continuance Intention (CINT)

Attitude is defined as "*the degree to which performance of the behavior is positively or negatively valued*" (Ajzen, 1991). Continuance Intention is defined as "*The degree to which a person has formulated conscious plans to perform or not perform*

some specified future behavior repeatedly" (Ajzen, 1991). Suki & Suki (2011) ATT to have a positive significant impact on 3G adoption. Zhang et al. (2012) found ATT to have a positive significant impact on 3G adoption among Taiwanese consumers. Park et al. (2007) found ATT to have a positive significant impact on mobile service adoption. Rawashdeh (2015) found ATT to have a positive significant impact on the 4G adoption among Saudi Arabian mobile users. Khanna and Agarwal (2013) found ATT to have a positive significant impact on 3G adoption among Indian consumers.

Conceptual Model and Research Hypothesis

The following Hypotheses were formulated for testing with the collected data:

H1A: SYSQ will have a positive significant relationship with ATT

H1B: SYSQ will have a positive significant relationship with SAT

H2A: SQ will have a positive significant relationship with ATT

H2B: SQ will have a positive significant relationship with SAT

H3A: PFEE will have a positive significant relationship with ATT

H3B: PFEE will have a positive significant relationship with SAT

H4C: PFEE will have a positive significant relationship with CINT

H5: ATT will have a positive significant relationship with CINT

H6: SAT will have a positive significant relationship with CINT

H7A: EXTS will have a positive significant relationship with SN

H7B: INTS will have a positive significant relationship with SN

H8: SN will have a positive significant relationship with CINT

Methodology

A quantitative survey was conducted among young IT professional in Bengaluru city. A questionnaire was distributed to IT professionals only to those who use or used 3G mobile internet at least once and those who are aged between 22-26 years. A total of 400 questionnaires were distributed of which only 286 responses were returned. The measuring instrument consists of 32 items, each item were rated on a 5 point Likert scale ranging from 1 as 'Strongly Disagree to 5 as 'Strongly Agree. The three items of system quality (SYSQ) were adapted and modified from- previous studies of (Ahn et al., 2007; Wang & Lin, 2012). The four items of service quality (SQ) were adapted and modified previous studies (Lee & Chen, 2014). The three items of satisfaction (SAT) were adapted from (Bhattacherjee, 2001; Zhou, 2013). The three items of social norms (SN) were adapted from (Mathieson, 1991; Kim, 2010). The three items of interpersonal social influence (INTS) and external sources influence (EXTS) were adapted from (Brown & Venkatesh, 2005; Kim, 2010). The three items of continuance intention (CINT) were adapted from (Bhattacherjee, 2001**;** Kim, 2010). The three items of perceived fee (PFEE) were adapted from (Kim, 2010).

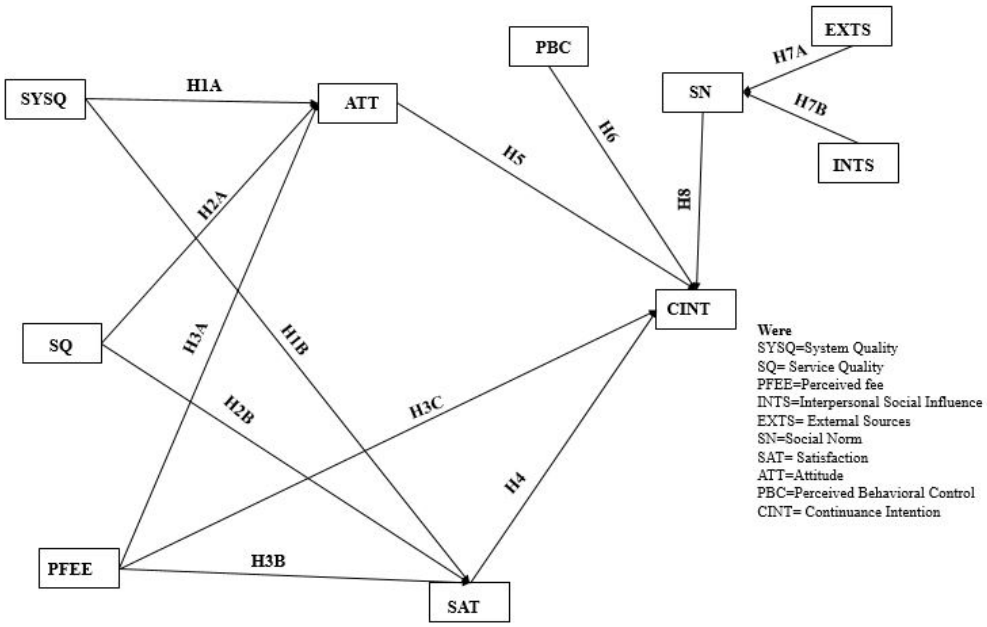

Figure 1

The four items of attitude were adapted from Moon and Kim (2001). Figure 1 shows conceptual framework.

Data Analysis and Results

Data analysis was carried out using Statistical Package for the Social Sciences SPSS 22 and Amos 22 software packages. The descriptive statistics obtained using SPSS 22 shows that the sample of this study consist of 54.5% of male and 45.5 % of female. All respondents' ages are between 22-26 years. More than 60% of respondents were pursuing their undergraduates. About 37% of respondents were pursuing their post graduate degree. Around 36% of respondents use 3G data of about 1GB/month. Over 55 % of respondents use 3G data of about 2GB/ month. Table 1 shows descriptive statistics of respondents.

Table 1: Sample Profile

Descriptive Statistics		
Gender	**Frequency**	**Percent**
Male	156	54.5
Female	130	45.5
Qualification		
Under Graduate	180	62.9
Post Graduate	106	37.1
3G Mobile data usage/Month		
1GB/Month	104	36.4
2GB/Month	160	55.9
> 2GB /Month	22	7.7
Total	**286**	**100.0**

The first part of any analysis is to check the reliability and validity of the constructs. The individual item reliability was evaluated as per the recommendations of Hair et al. (2006) on the individual item reliability the loading values of items should be above 0.7. Our results show that the loadings of all

items vary from (0.844- 0.923) thus fulfils the criteria Hair et al. (2006) of cut of value above 0.5. All Item values showed high (α > 0.80) (Nunnally, 1978). All the constructs have average variance explained (AVE) loadings values above 0.5 (ranging from .703-.866) thus fulfils the criteria of Chin et al. (1997) and Chin (1998). The discriminant validity was evaluated based on Fornell and Larcker (1981) method. According to Fornell and Larcker (1981) "*the AVE of a construct should be greater than the square of the correlation estimates with the other constructs*". The results of this study satisfy the recommendation of Fornell and Larcker (1981) for discriminant validity (see Table 3). Table 2 shows factor loadings of items, AVE and Cronbach Alpha values.

The covariance based structural equation modelling was done. The structural model relationships were drawn using the Amos 22 software. The model fitness was measured based on Bentler (1990) and Hu and Bentler (1999) recommendations. According to Bentler (1990) the model is said to be fit if Goodness of Fit Index (GFI), Normed Fit Index (NFI), and Comparative Fit Index (CFI) are greater than 0.90. According Hu and Bentler (1999) if the Root Mean Square Error of Approximation (RMSEA) value is less than 0.08 than it is considered to be a good fit. Adjusted Goodness of Fit Index AGFI is greater than 0.8 Henry and Stone (1994) states that if AGFI values are greater than 0.8 it is said to be a good fit. The model is said to be good if the degrees of freedom ratio are less than 3 (Chin and Todd, 1995). The results of this study show CMIN= 1.075 which has less than 3 thus satisfied the criteria of Hair et al. (2006). Root Mean Square Error of Approximation (RMSEA) = 0.016 which satisfies the criteria of (Hu & Bentler, 1999; Hair et al., 2006). CFI= 0.996, NFI= 0.946 and GFI= 0.926 which has satisfied the criteria of (Bentler, 1990; Hu & Bentler, 1999; Hair et al., 2006; Hair et al., 1998). Table 4 shows the results of goodness of fit index. Figure 2 shows structural equation modelling (SEM) output.

Table 2: Factor loadings, Average Variance Extracted (AVE) and Cronbach α values

Constructs	Items	Loadings	AVE	α
CINT	CINT1	0.936	0.810	0.902
	CINT2	0.921		
	CINT3	0.840		
EXTS	EXTS1	0.852	0.774	0.882
	EXTS2	0.895		
	EXTS3	0.892		
PBC	PBC1	0.870	0.775	0.854
	PBC2	0.844		
	PBC3	0.925		
PFEE	PFEE1	0.924	0.866	0.854
	PFEE2	0.933		
	PFEE3	0.935		
INTS	INTS1	0.884	0.776	0.923
	INTS2	0.906		
	INTS3	0.852		
SN	SN1	0.868	0.839	0.844
	SN2	0.941		
	SN3	0.937		
SAT	SAT1	0.910	0.763	0.856
	SAT2	0.868		
	SAT3	0.840		
SYSQ	SYSQ1	0.862	0.755	0.891
	SYSQ2	0.909		
	SYSQ3	0.809		

ATT	ATT1	0.899	0.774	0.904
	ATT2	0.898		
	ATT3	0.885		
	ATT4	0.835		

SQ	SQ1	0.818	0.703	0.860
	SQ2	0.869		
	SQ3	0.808		
	SQ4	0.859		

Table 3: AVE and the correlation estimates

	ATT	CINT	EXTS	PBC	PFEE	SAT	INTS	SN	SQ	SYS
ATT	**.880**									
CINT	0.537	**.900**								
EXTS	0.083	0.318	**.880**							
PBC	0.209	0.421	0.209	**.880**						
PFEE	-0.378	-0.567	-0.060	-0.295	**.931**					
SAT	0.484	0.736	0.138	0.304	-0.520	**.873**				
INTS	0.174	0.384	0.229	0.107	-0.182	0.170	**.881**			
SN	-0.048	0.328	0.571	0.182	-0.056	0.198	0.377	**.916**		
SQ	-0.312	-0.510	-0.248	-0.258	0.343	-0.463	-0.071	-0.172	**.839**	
SYS	0.461	0.468	0.052	0.114	-0.211	0.369	0.171	0.033	-0.215	**.869**

Note: The diagonally bold lettered values are square root of AVE

Table 4: Goodness of fit statistics

Goodness of Fit Statistics	Values Obtained	Recommended Values
CMIN/DF	**1.075****	< 3 (Chin & Todd, 1995)
Degrees of Freedom	**374**	as low as possible
Minimum Fit Function Chi-Square	**402.123**	as low as possible
Root Mean Square Error of Approximation (RMSEA)	**0.016****	<0.08 (Hu & Bentler, 1999 ; Hair et al., 2006)
Normed Fit Index (NFI)	**0.946****	>.9 Bentler (1990).
Comparative Fit Index (CFI)	**0.996****	> .90 (Hu & Bentler, 1999)
Root Mean Square Residual (RMR)	**0.09***	<.08 (Hair et al., 2006)
Goodness of Fit Index (GFI)	**.926****	>.90 (Bentler, 1990; Hu & Bentler, 1999; Hair et al., 2006; Hair et al., 1998)

Note: * = Close to fit, **= Absolute Fit

Table 5: Path coefficients

Path			β	ρ	Hypothesis	Supported
SYSQ	→	**ATT**	0.357	***	H1A	Supported
SYSQ	→	**SAT**	0.185	.001**	H1B	Supported
SQ	→	**SAT**	-0.265	***	H2B	Supported
SQ	→	**ATT**	-0.151	.012**	H2A	Supported
PFEE	→	**ATT**	-0.294	***	H3A	Supported
PFEE	→	**SAT**	-0.332	***	H3B	Supported
PFEE	→	**CINT**	-0.35	***	H3C	Supported
SAT	→	**CINT**	0.156	.001**	H4	Supported
ATT	→	**CINT**	0.23	***	H5	Supported
PBC	→	**CINT**	0.169	***	H6	Supported
EXTS	→	**SN**	0.604	***	H7A	Supported
INTS	→	**SN**	0.241	***	H7B	Supported
SN	→	**CINT**	0.304	***	H8	Supported

Note: ** = ρ <.05, ***= ρ <.001.

Hypotheses Testing

The results of SEM analysis show support for all hypothesis. Hypothesis H1A, H2B, H3A, H3B, H3C, H5, H6, H7A, H7B, and H8 are significant at ρ <0.001 level. Hypothesis H1B, H2A, and H4 are significant at ρ <0.05 level. SYSQ has a positive significant influence on ATT (β= 0.357, ρ= <0.001) and SAT (β= 0.185, ρ= <0.05). SQ has negative significant influence on ATT (β= -.151, ρ= <0.05) and SAT (β= -0.265, ρ= <0.001). PFEE has negative significant influence on ATT (β= -0.294, ρ= <0.001), on SAT (β= -0.332, ρ= <0.001) and CINT (β= -.350, ρ= <0.001).

Table 6: Previous supported studies

Path			β	Supported previous studies	Contradicts the studies
SYSQ	→	**ATT**	0.357	-	Boakye (2015); Lee and Chen (2014); Zhou (2011); Zhou (2014); Lee and Chen (2014); Wang and Lin (2012)
SYSQ	→	**SAT**	0.185		
SQ	→	**SAT**	-0.265	Wang and Lin (2012) ; Seyal and Rahman (2015)	Lee and Chen (2014); Zhao et al. (2012); Zhou (2011); Li and Yen (2009); Lee and Chen (2014); Wu and Wang (2006); Boakye (2015)
SQ	→	**ATT**	-0.151		

PFEE	→	**ATT**	-0.294	Kim (2010) ; Agarwal et al. (2007)	Lin and Wang (2006); Dhaha and Ali (2014)
PFEE	→	**SAT**	-0.332		
PFEE	→	**CINT**	-0.35		
SAT	→	**CINT**	0.156	Kim (2010) ; Lee and Chen (2014); Zhou (2014); Li and Yen (2009); Zhou (2011) ; Kim (2009) ; Zhao (2012)	-
ATT	→	**CINT**	0.23	Suki and Suki (2011); Zhang et al. (2012); Park et al. (2007); Rawashdeh (2015); Khanna and Agarwal (2013)	-
PBC	→	**CINT**	0.169	Kim (2010) ; Zhang et al. (2012); Khanna and Agarwal (2013)	-
EXTS	→	**SN**	0.604	López-Nicolás et al. (2008); Kim (2010) ; Zhang et al. (2012)	-
INTS	→	**SN**	0.241		
SN	→	**CINT**	0.304		

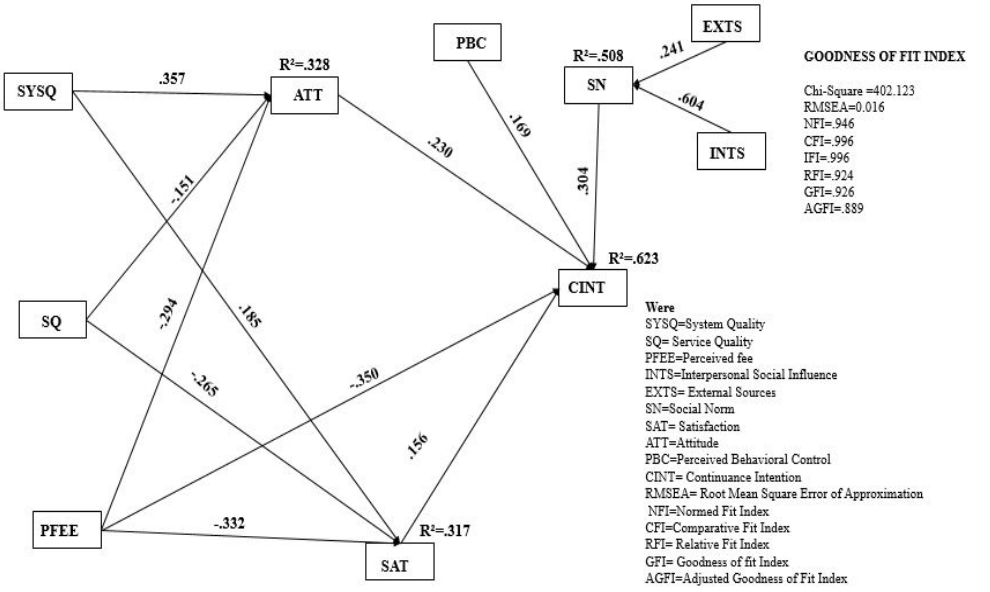

Figure 2

SAT has positive significant influence on CINT (β= 0.156, ρ= <0.05). ATT has a positive significant influence on CINT (β= 0.230, ρ= <0.001), PBC has a positive significant influence on CINT (β= 0.169, ρ= <0.001), EXTS has a positive significant influence on SN (β= 0.640, ρ= <0.001), INTS has a positive significant influence on SN (β= 0.6241, ρ= <0.001) and SN has a positive significant influence on CINT (β= 0.304, ρ= <0.001). Table 5 shows path coefficient values. Table 6 shows supported previous studies. The INTS and EXTS jointly explains 50.8 % of variance on SN. The variance R square explained = 62.3 %, which is considered to be good (Hair et al., 2006).

Conclusions and Implications

The objective of this study is to explore the factors that affect continuance intention to adopt 3G among young Indian working professionals (IT employees). From the results of this study it can be concluded that SN, SAT, SYSQ, ATT, PFEE, SQ and PBC are important constructs that determine 3G continuance adoption. SN, EXTS, INTS, SYSQ, ATT, SAT and PBC have a positive effect on 3G continuance. SQ and PFEE has a negative effect on 3G continuance. The respondents of this current study are not satisfied with price and service quality of 3G service operator. This is a serious issue which policy makers must make a note on, because young consumers will be the major contributors for m-commerce development in India in the future (Velmurugan & Velmurugan, 2014). The 3G providers must focus on pricing strategies because it was found to have a significant negative impact on a continuance adoption. Also policy makers must focus on improving service quality, especially after sale service through voice calls. 3G operators must also make a note on the effect of EXTS on CINT, which indicates that external media also influences the consumers to adopt 3G technology. 3G operators must strategize more advertisements and promotions through social media networks to attract more customers.

Limitations And Future Research

There are several limitations in this study. First the selected sample size consist of only one profession. Future research should include samples from other professions for generalization of results. Secondly, the other relevant factors such as Habit (Lin & Wang, 2006; Kim et al., 2010), Flow (Zhou, 2014) and Switching costs (Ng & Kwahk, 2010) should be examined in future. Also the effect of prior experience on CINT should be examined in future (Kim et al., 2009; Boakye, 2015). Fee perception will keep on fluctuating time to time so longitudinal studies should be conducted in future for better results. Future research should also examine the effect of other relevant theoretical constructs on 3G continuance (Wang & Lin, 2012). There is a need for more research on cost involved in 3G and 4G adoption (Rawashdeh, 2015). Future research should consider moderating effect of age, gender, income and profession on 3G service continuance. Similar study with 4G technology in the future could bring more knowledge about Indian consumers' mobile internet adoption, as it is new to India and predominant only in urban areas.

Note: 3G= Third generation mobile internet technology, IS success model= Information system success model, TPB= Theory of planned behaviour, ATT= Attitude, SN= Social Norm, EXTS= External social influence, INTS= Interpersonal Social Influence, PBC= Perceived Behavioral Control, SQ= Service Quality, SYSQ= System Quality, MDS= Mobile data services, CINT= Continuance intention, PFEE= Perceived Fee, SAT= Satisfaction, GFI= Goodness of Fit Index, NFI= Normed Fit Index, CFI= Comparative Fit Index , RMSEA= Root Mean Square Error of Approximation and AGFI= Adjusted Goodness of Fit Index.

References

Agarwal, N. K., Wang, Z., Xu, Y., & Poo, D. C. (2007). Factors affecting 3G adoption: An empirical study. *PACIS 2007 Proceedings*, 3.

Ahn, T., Ryu, S., & Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. *Information & management*, 44(3), 263-275.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, 107(2), 238.

Bhattacherjee, A. (2000). Acceptance of e-commerce services: the case of electronic brokerages. Systems, Man and Cybernetics, Part A: *Systems and Humans*, IEEE Transactions on, 30(4), 411-420.

Bhattacherjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS quarterly*, 351-370.

Boakye, K. G. (2015). Factors influencing mobile data service (MDS) continuance intention: An empirical study. *Computers in Human Behavior*, 50, 125-131.

Brown, S. A., & Venkatesh, V. (2005). Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle. *MIS quarterly*, 399-426.

Cheng, L. C., & Sun, L. M. (2012). Exploring consumer adoption of new services by analyzing the behavior of 3G subscribers: An empirical case study. *Electronic Commerce Research and Applications*, 11(2), 89-100.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, 295(2), 295-336.

Chin, W. W., & Todd, P. A. (1995). On the use, usefulness, and ease of use of structural equation modeling in MIS research: a note of caution. *MIS quarterly*, 237-246.

Chin, W. W., Gopal, A., & Salisbury, W. D. (1997). Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation.

Information Systems Research, 8(4), 342-367.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, 19(4), 9-30.

Dhaha, I. S. Y. A., & Ali, A. Y. S. Mediating Effects Of Behavioral Intention Between 3g Predictors And Service Satisfaction. *Malaysian Journal of Communication Jilid*. 30 (Special Issue) 2014: 107-128

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of marketing research*, 382-388.

Hair, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1998). Black (1998), *Multivariate data analysis*.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.

Henry, J. W., & Stone, R. W. (1994). A structural equation model of end-user satisfaction with a computer-based medical information system. *Information Resources Management Journal (IRMJ)*, 7(3), 21-33.

Ho Cheong, J., & Park, M. C. (2005). Mobile internet acceptance in Korea. *Internet research*, 15(2), 125-140.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: *a multidisciplinary journal*, 6(1), 1-55.

Khanna, S., & Agarwal, N. (2013). Factors influencing adoption intentions of 3G mobile services in India. *Zenith International Journal of Business Economics & Management Research*, 3(4), 156-168.

Kim, B. (2010). An empirical investigation of mobile data service continuance: Incorporating the theory of planned behavior into the expectation–confirmation model. *Expert Systems with Applications*, 37(10), 7033-7039.

Kim, B. (2010). An empirical investigation of mobile data service continuance: Incorporating the theory of planned behavior into the expectation–confirmation model. *Expert Systems with Applications*, 37(10), 7033-7039.

Kim, B., & Oh, J. (2011). The difference of determinants of acceptance and continuance of mobile data services: A value perspective. *Expert Systems with Applications*, 38(3), 1798-1804.

Kim, B., Choi, M., & Han, I. (2009). User behaviors toward mobile data services: The role of perceived fee and prior experience. *Expert Systems with Applications*, 36(4), 8528-8536.

Kim, H. W., Kwahk, K. Y., & Lee, H. Y. (2010). An integrated model of mobile internet services usage and

continuance. *International Journal of Mobile Communications*, 8(4), 411-429.

Kumar, D. P., & Reddy, K. R. H. (2014). A Study on Adoption Levels of 3G Services in Andhra Pradesh. *Asian Journal of Research in Business Economics and Management*, *4*(4), 1-13.

Kumar, R., Malik, A., & Sikri, D. (2014). Factors affecting behavioral intention to adopt 3G mobile value-added services in India. *International Journal of Electronic Business,* 11(4), 354-383.

Lee, H. M., & Chen, T. (2014). Perceived quality as a key antecedent in continuance intention on mobile commerce. *International Journal of Electronic Commerce Studies*, 5(2), 123.

Li, Y. M., & Yen, Y. S. (2009, January). Service quality's impact on mobile satisfaction and intention to use 3G service. In System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on (pp. 1-10). *IEEE.*

Lichtenstein, D. R., Ridgway, N. M., & Netemeyer, R. G. (1993). Price perceptions and consumer shopping behavior: a field study. *Journal of marketing research*, 234-245.

Lin, H. H., & Wang, Y. S. (2006). An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & management*, 43(3), 271-282.

López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2008). An assessment of advanced mobile services acceptance: Contributions from TAM and diffusion theory models. *Information & Management*, 45(6), 359-364.

Madhusudhan, M. (2015). Use of 3G Services by Research Scholars in Central Universities in India: A Study. *World Digital Libraries-An international journal*, 8(1), 33-48.

Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Information systems research*, 2(3), 173-191.

Moon, J. W., & Kim, Y. G. (2001). Extending the TAM for a World-Wide-Web context. *Information & management*, 38(4), 217-230.

Muthukumar, S., & Muthu, N. (2015). The Indian kaleidoscope: emerging trends in M-Commerce. *International Journal of Advanced Research in Computer and Communication Engineering*, 4(1), 7.

Ng, E. H., & Kwahk, K. Y. (2010). Examining the determinants of Mobile Internet service continuance: a customer relationship development perspective. *International Journal of Mobile Communications*, 8(2), 210-229.

Nunnally, J. (1978). C. (1978). *Psychometric theory*.

Ong, J. W., Poong, Y. S., & Ng, T. H.

(2008). 3G services adoption among university students: Diffusion of innovation theory. *Communications of the IBIMA*, 3(16), 114-121.

Park, J., Snell, W., Ha, S., & Chung, T. L. (2011). Consumers 'post-Adoption Of M-Services: Interest In Future M-Services Based on Consumer Evaluations of Current M-Services. *Journal of Electronic Commerce Research*, 12(3), 165.

Pau, L. F., & Motiwalla, J. (2008). India: a case of fragile wireless service and technology adoption?. *International Journal of Mobile Communications*, 6(3), 376-389.

Rawashdeh, A. (2015). Adoption of 4G mobile services from the female student's perspective: Case of Princess Nora University. *Malaysian Online Journal of Educational Technology*, 3(1), 12-27.

Seyal, A. H., & Rahman, N. A. A Preliminary Investigation of Measuring Users Satisfaction & Success on Financial & Accounting Information System: Bruneian Perspective. *International Journal of Business and Management Review*. Vol.3, No.2, pp.1-22, December 2015.

Sita, M. (2010). Perception of youth towards 3G technology in mobile phone in India. *International Journal of Business Innovation and Research*, 5(1), 89-100.

Suki, N. M., & Suki, N. M. (2011). Exploring the relationship between perceived usefulness, perceived ease of use, perceived enjoyment, attitude and subscribers' intention towards using 3G mobile services. *Journal of Information Technology Management*, 22(1), 1-7.

Teo, T. S., Lim, V. K., & Lai, R. Y. (1999). Intrinsic and extrinsic motivation in Internet usage. *Omega*, 27(1), 25-37.

Velmurugan, M. S., & Velmurugan, M. S. (2014). Consumer Behaviour toward Information Technology Adoption on 3G Mobile Phone Usage in India. *Journal of Internet Banking and Commerce*, 19(3).

Velmurugan, M. S., & Velmurugan, M. S. (2014). Consumers' awareness, perceived ease of use toward information technology adoption in 3G mobile phones' usages in India. *Asian Journal of Marketing*, 8(1), 1-23.

Wang, K., & Lin, C. L. (2012). The adoption of mobile value-added services: Investigating the influence of IS quality and perceived playfulness. *Managing Service Quality: An International Journal*, 22(2), 184-208.

Wu, J. H., & Wang, Y. M. (2006). Measuring KMS success: A re-specification of the DeLone and McLean's model. *Information & Management*, 43(6), 728-739.

Zhang, M. Y., Lee, K. H., & Chen, S. C. (2012). Subscriber behavior in adopting 3G value-added services. *African Journal of Business*

Management, 6(3), 1089.

Zhao, L., Lu, Y., Zhang, L., & Chau, P. Y. (2012). Assessing the effects of service quality and justice on customer satisfaction and the continuance intention of mobile value-added services: An empirical test of a multidimensional model. *Decision Support Systems*, 52(3), 645-656.

Zhou, T. (2011). Examining the critical success factors of mobile website adoption. *Online Information Review*, 35(4), 636-652.

Zhou, T. (2013). Understanding continuance usage of mobile services. *International Journal of Mobile Communications*, 11(1), 56-70.

Zhou, T. (2013). Understanding continuance usage of mobile sites. *Industrial Management & Data Systems*, 113(9), 1286-1299.

Zhou, T. (2014). Understanding continuance usage intention of mobile internet sites. *Universal Access in the Information Society*, 13(3), 329-337.

Web sources

Chakravarthi, N. (20th July, 2015). "*India on the go – Mobile Internet Vision Report 2017*". IAMAI & KPMG Report, 2015. URL: http://iamai.in/media/details/3679.

Singh, M. (8th March, 2015). "*Nokia study shows multimedia and expanding device ecosystem will fuel mobile data traffic growth as India moves towards 4G LTE*". Nokia Networks study report, 2015.URL:http://company.nokia.com/en/news/press-releases/2016/03/08/nokia-study-shows-multimedia-and-expanding-device-ecosystem-will-fuel-mobile-data-traffic-growth-as-india-moves-towards-4g-lte.

E-marketer report, (2015). "*Two Billion Consumers Worldwide to Get Smartphones) by 2016*". URL://www.emarketer.com/Article/2-Billion-Consumers-Worldwide-Smartphones-by-2016/1011694.