Citizen's Adoption Of Mobile Land Record Information Systems (mLRMIS): A Case of Pakistan

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Abstract

By implementing a prolonged social cognitive theory (SCT) this article investigates factors including outcome expectation, affect, anxiety, self-efficacy, social influence, trust, facilitating conditions, e-satisfaction, information quality and e-service quality impacting citizen’ s intention to adopt a mobile based e-government system called mobile Land Record Information Systems (mLRMIS) with respect to Pakistan. The prolonged social cognitive theory (SCT) was actually affirmed by analyzing gathered data periodically accumulated over time from 10 different cities in Pakistan. Verifiable results of the proposed model represented mutual significance of relationships of 12 hypothesized relations between 10 different types of constructs. Only a few studies have previously used SCT model to investigate the adoption of an e-government system globally while in case of Pakistan it is the first ever study using SCT model to figure out the adoption of an e-government system. Outcome significance and digital policy substance exhibited in this article can assist e-government planners and practitioners to reform up quality and effectivity of mLRMIS system. This research also contributes to elevate relevant awareness and utilization of mLRMIS system.

Keywords: E-government, LRMIS, Adoption, SCT, Citizens, Pakistan

1. Introduction

A lot of governments have meliorated the frameworks and services to serve up their citizens (Kim, Pan and Pan; 2007). The awareness of electronic government (e-government) is a policy shift adopted by governments to achieve more service oriented functions and to be refocused towards implementation of the modern digital services through one stop spots of online access for citizens (Anthopoulos, Siozos and Tsoukalas; 2007). E-government offers overt advantages to governments, organizations and professionals (Venkatesh, Sykes and Venkatraman; 2014) but actually it is citizens who are anticipated to be benefited (Jaeger, 2003). As governments are interested to acquire modern e-government systems increasing to deliver better services to their citizen hence it is a dire need to actually evaluate the relevant efforts that could investigate those systems effectiveness in terms of their adoption (Wang and Liao, 2008). The most of the research do not specifically focus on developing countries (Venkatesh et al., 2014) only besides few studies (Rana, Dwivedi; 2015, Williams and Lal; 2013, Rana, Dwivedi, Williams and Weerakkody; 2014) Land Record Management Information System (LRMIS) is an e-government system which is designed to digitalize the land record and different issues related to land administration in Punjab; biggest province of Pakistan w.r.t. population. Citizens can observe their land record online anytime regardless of time and location by entering some of their personal information on the web. It provides a lot of advantages to the citizen and in future more would be added. Mobile information systems are designed specifically for mobile devices and used often for education, banking, entertainment, health and other user-centric online mobile-based demands. The adoption of sophisticated mobile services observed slower than expected regardless of availability of huge number of services. Mobile government services are crucial systems/applications of mobile based communications in e-government area. Many researches have noticed that mobile government services comparisons and innovations could be of tremendous value to modern mobile application/services. Critical differentiation between mobile-government systems/services and traditional e-government systems/services is that while traditional applications/services permit more non-mobile applications/services to deliver while mobile-government systems/services/applications permit more mobile-based communication component relatively. Citizens easily may engage and e-participate in discussions of different topics and issues with increasing rate of frequency, improving mobile-based communication skillfulness, enhancing mobile-based communications flexibility, sharing their government's modern digital image and receiving more custom-make services while enjoying high accessibility of relevant services (E-Government, 2010). Adopting successful

and fruitful strategies to promote mobile-based services originates from very good understanding related to users' expectations and their preferences of mobile-based services. Main determinants for the success of mobile systems/services/applications need to identify real potential and actual customers for determining how they are being influenced and how they actually behave and to disclose what they actually expect (S.J. Barnes, 2000). Eventually it is necessary to know the potential mobile users and their needs to develop mobile based services (J. Krogstie, 2001).

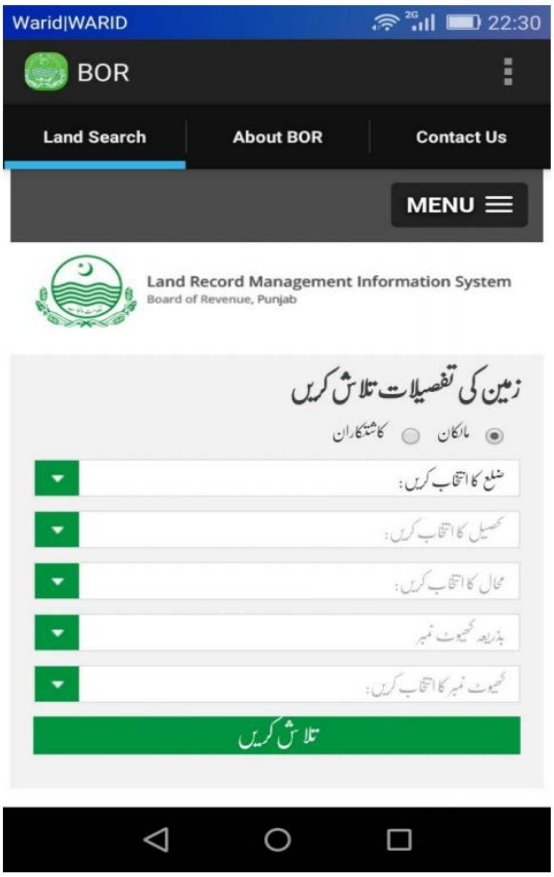

Fig. 1: Mobile application of Land Record Management Information Systems

In above mentioned Fig. 1, mobile application of Land Record Management Information Systems is shown. Reforming land records and the usefulness of land markets in Pakistan is a top priority interest for Pakistan Government in view of the wider circle of E-Government at both the central and local levels. In case of Punjab it has a total area consisting of 205,345 square kilometers being most populated province of Pakistan with 80.7 million inhabitants (55.9% of Pakistan's total population). Land Record

Computerization as always a vital technical factor of the strategy for E-government while focusing requirements to be evenly delivering on improved digital service delivery to the citizen. Land Record Information Systems (LRMIS) supervised and supported under World Bank as some of the details provided by World Bank website can be seen in the following table (The World Bank). In this article we actually try to investigate the citizen's behavior to adopt a mobile based information system known as mobile Land record information systems based on SCT in context of knowing that the SCT is one of the most significant theories of human behavior so it would be very useful to investigate the adoption of the LRMIS using a model based on the SCT by validating a prolonged version of SCT. The lack of use of this model in the e-government adoption research is one of the motivations to use this model as it encompasses all suitable and significant constructs which exhibits relevant and useful factors to actually understand citizen's adoption behavior. The additional constructs like social influence, facilitation conditions and trust are added to this model too.

2. Literature review

Many renowned technology acceptance and success models exist besides the theory of reasoned action (Fishbein and Ajzen, 1975), the technology acceptance model (Davis, 1989), the theory of planned behavior (Ajzen, 1991), the innovation diffusion theory (Rogers, 1995), the IS success models (DeLone and McLean; 1992 and 2003) and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis and Davis; 2003) which have been studied across several researches in e-government (mobile or non‐mobile) contexts in developed and developing countries. The social cognitive theory (SCT) (Bandura, 1986) has not been fully followed in many studies yet to investigate the adoption of any mobile based e-government systems as some of its constructs while in their original style such as anxiety and self-efficacy and some other in their correspondent style like outcome expectations (as that of usefulness (Davis, Bagozzi and Warshaw; 1989, Compeau and Higgins; 1995) and affect (as that of attitude towards use of technology (Venkatesh et al., 2003) have been followed in a lot of researches in e-government adoption to develop respective integrated research model on e-government adoption but a few studies (Sahu and Gupta; 2007, Loo, Paul, Yeow and Chong; 2009) have partly employed the SCT or some of its constructs. Like in case for investigating the acceptance of Malaysian government multi-purpose smartcard application; Loo et al. (2009) added in his proposed model anxiety as the direct factor of intention to use the system. In studies related to e-government in Malaysia results exhibited that responder's while using e-government systems/applications

for example Driving License (DL) and MyKad National Identity Card (NIC) were uninterested in their anxiety factor and their consequent intentions to use relevant systems. Sahu and Gupta (2007) while investigating the user's acceptance of Indian Central Excise system proposed an incorporated research model by selecting 2 constructs (self-efficacy and anxiety) from SCT. Moreover studies like Carter, Schaupp and McBride (2011) and Fotland (2012) has also investigated the impact of anxiety on behavioral intention. Other additional construct is Trust which is a critical factor for success of a productive e-Government systems considering privacy as the main ingredient in citizen's trust in e-Government system/service (Kim et al., 2009). Mcknight et al. (2002) suggested a model of e-commerce consumer trust examining that trusting beliefs directs to trusting intentions impacting trust related behavior (i-e satisfaction). Customer trust is a set of beliefs owned by online customers involving clear aspect of e-supplier and the future viable behavior of the e-supplier (Coulter and Coulter, 2002). Lee and Lin (2005) advocated that trust inspires online purchasing and affects consumer mentality towards buying from t-retailers. In the U.S Kim et al. (2009) performed a longitudinal study and discovered that online consumer's trust is substantially associated to loyalty. Trust in e-Government discloses that citizens' trust in the government organization decreases their beholding of the risks to use e-Government systems/services (Belanger and Carter, 2008). Due to fast internet penetration internet is a huge origin and source of vast information and related services; a well-crafted and well developed e-Government website or mobile application has become substantially a need of consumers to access respective public related information and to enhance their participation. Government websites would be able to serve as a means and tool to communicate and attached to public relations for relevant general audience public. Information and data would easily be handled, shared with and posted to external stakeholders (Moon, 2002). Henry (2006) described web accessibility as more users to use, perceive, understand, interact and navigate with the web /mobile services. International Standards Organizations (ISO) definition of accessibility is "the usability of a product, service, environment or facility by people with the widest range of capabilities". Gummerus et al. (2004) describes the user interface as the medium through which customers are in touch with the e-service provider. Park and Kim (2003) discovered that the quality of the user interface impacts directly on customer satisfaction since it gives physical symptoms of the service provider's proficiency and to facilitate unstrained use of the service. Gummerus et al. (2004) pointed out that quality of user interface is assumed to directly affect trust. Roy et al. (2001) discovered that interface design, ease of navigation and user guideline really affects

consumer trust. Perceived service quality has two aspects; the technological which is related to what to deliver and the functional aspects which are associated to the service delivery. Feedbacks speed, updates and service effectiveness etc. are attached to the technical quality (Rust and Lemon, 2009). Product/service quality is the customer perception of the quality of related information about the product/service which is offered by website/systems (Park and Kim, 2003). Website/mobile service ingredients quality has been discussed as an antecedent of trust of online customer (Mcknight et al., 2002). Park and Kim (2003) discovered that the information quality impacts customer intentions/satisfaction directly. Chen (2008) investigated the issues of consumer acceptance of m-payment using TAM and IDT models. The outcome showed that consumer acceptance of m-payment was determined by 4 factors: Perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR) and compatibility. Luarn et al. (2005) investigated the factors determining users' acceptance of mobile banking using Extend TAM with 3 additional constructs: perceived self-efficacy, Perceived Credibility and perceived financial cost. The results support strongly the properness of using this extended TAM to know the intentions of people towards use of mobile-banking systems/services.

3. Research model development and hypotheses

Principally abstractive elaboration for this study is based on the SCT model. Bandura (1986) suggested it as one of the most effectual theories of human behavior. Compeau and Higgins (1995 and 1999) utilized and broadened SCT to the context of computer practicality. Theory primarily examined computer usage but the characteristic of the proposed research model and the implicit nature of theory permit it to be broadened to acceptance and use of an e-government system (i-e an information system like LRMIS). Important reasons to utilize the SCT as a base model are two. First it suggests all evidential variables along with investigating them as factors accountable to adopt an e-government system. Second reason is that there is still a huge gap to study while using this theory in research area like information systems especially e-government systems to grasp the prominence of its variables. Based on some legitimate explanations in our proposed research model we included 3 constructs social influence, trust and facilitating conditions. Social influence is the level to which an individual perceives that valuable related other people believe that he or she should use the system (Venkatesh et al., 2003). Adoption of an e-government system by a single person can be impacted substantially by his or her valuable other people in that society so it is worthy to adjust social influence with basic SCT model. Social influence will be substantial in figuring out the adoption of the mobile LRMIS using in the proposed research model because this e-

government mobile system has mainly been designed keeping citizen's aspects in mind and social nature of mLRMIS system as there is a deficiency contextual variables in the SCT.

Table 1: Hypothesis Definitions & Supporting studies

H#	Hypothesis	Supporting studies
H1	Outcome expectation → affect	Davis (1989),Taylor and Todd (1995a), Sahu and Gupta (2007), Chiang (2009), Hung et al.(2006, 2009), Lu et al. (2010), Venkatesh et al.(2011), Sahu and Gupta (2007) Sahu and Gupta (2007), Carter et al. (2008), Al-Shafi and Weerakkody (2010), Koh et al. (2010), Gao and Deng (2012), Hu et al. (2011), Or et al. (2011) Seyal and Pijpers (2004), Wang (2002) Ye et al. (2006), Fotland (2012), Tohidinia and Mosakhani (2010) Sahu and Gupta (2007), Fotland (2012), Carter, Schaupp and McBride (2011) (Kim et al., 2009), Mcknight et al. (2002), (Coulter & Coulter, 2002). Lee and Lin (2005) Venkatesh et al., 2003 Oliver (1980), (Zinkhan et al., 1987) Zavareh et al. (2012). Lee et al. (2009) (Rust and Lemon, 2009), (Park and Kim, 2003), (Mcknight et al., 2002).
H2	Affect → behavioral intention	
H3	Social influence → behavioral intention	
H4	Social influence → outcome expectation	
H5	Self-efficacy → outcome expectation	
H6	Self-efficacy → affect	
H7	Anxiety → behavioral intention	
H8	Trust→ behavioral intention	
H9	Facilitating Conditions → behavioral intention	
H10	e-Satisfaction→ behavioral intention	
H11	Information Security → e-Satisfaction	
H12	e-Service Quality → e-Satisfaction	

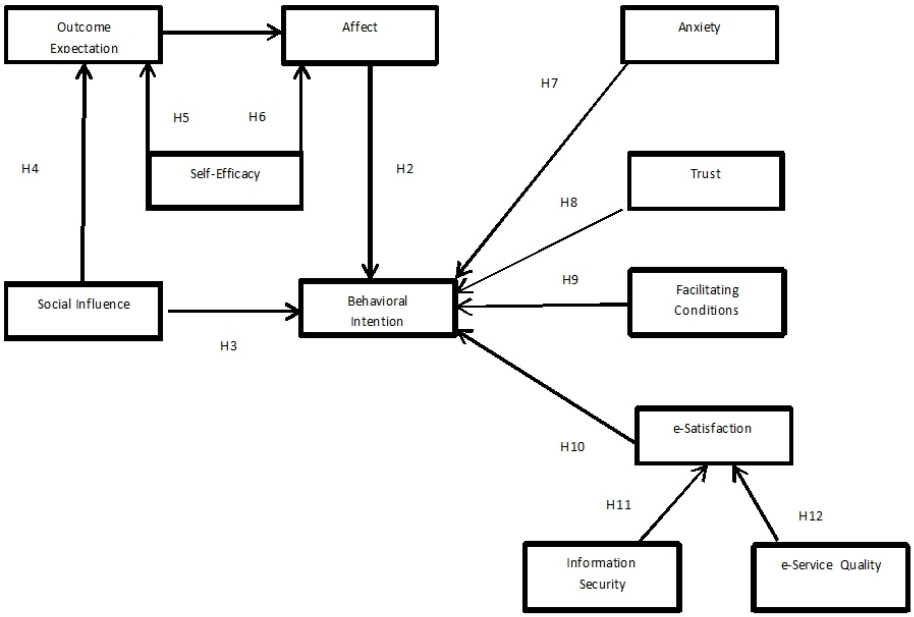

Fig. 1: Proposed Research Model.

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4. Research methodology

To investigate e-government system adoption of the mobile based LRMIS we believed that survey is a proper research method. Our questionnaire was composed of total 27 questions including 10 questions from respondent's demographic characteristics and remaining 17 questions on 9 different constructs of the proposed research model. Multiple-type questions, close-ended and seven-point Likert scale type questions. For all non-demographic questions Likert scales (1 – 7) with covering from ‘strongly disagree’ to ‘strongly agree’ was used. Appendix (A) lists all the items for the constructs used in this study.

Sample of research comprised of responders from different cities of Pakistan including Lahore, Gujranwala, Gujrat, Wazirabad, Sialkot, Jhehlum and Kharian. Total 600 questionnaires were spread out to respondents. Responders were exhibited and detail demonstrations were given about mobile based LRMIS system. Total of 395 questionnaires returned. Further inspection of questionnaires showed that 95 among them were partly filled and hence rejected. 300 valid responses were selected for the empirical analysis to measure adoption of mobile based LRMIS. A brief introduction were given to all of the respondents about Mobile based service of LRMIS. Some of them already used it and some used it for the first time.

5. Research findings

5.1. Respondents' demographic profile

In Table 2 we analyzed the demographic data of respondents. Questionnaire feedbacks showed the average responder's age from 20 to 50 with males accounting for 75 percent of the sample and 25 percent were female. The most of sample population (i.e. 70%) are from student community along with a some representing from private and public sector employees (i.e. 30%). More than 85% of the total population is having a minimum of graduation degree or in studying at graduation level in case of educational background/qualification of responders. Internet/computer knowledge and awareness of the responders can be observed from their very high Internet/computer related experience percentage (≈98%). Hence it is suggested and believed that the sample of responders were to be the best-fitted potential adopters of the LRMIS systems.

Table 2: Demographics of responders

Variable	**Count (%)**
Gender	
Male	225 (75%)
Female	75 (25%)
Age (in years)	
<18	3 (1.0%)
19 – 30	227(75.7%)
31 – 40	37 (12.3%)
41 – 50	27 (9.0%)
Over 50	6 (2.0%)
Education	
Senior high school and under	20 (6.66%)
Undergraduate	80 (26.66%)
Graduate and higher	200 (66.68%)

5.2. Descriptive statistics

Table 3 shows means, standard deviations and ranges for all eight variables. Overall high and individual factor’ s means for many of the constructs shows that responders respond favorably to the all measurements directly or indirectly associated to behavioral Intention. Using AMOS in Table 4; squared pair correlations of potential variables computed are shown.

Table 3. Mean, S.D. , Cronbach's alpha of Constructs

Constructs/Measurement	N	Mean	S.D.	Cronbach's alpha
Outcome expectation (OE)	300	**5.14**	**1.10**	0.763
OE1	300	5.13	1.29	
OE2	300	5.14	1.27	
OE3	300	5.17	1.21	
Affect (AFT)	300	**5.11**	**1.11**	0.711
AF1	300	5.09	1.41	
AF2	300	5.14	1.33	
AF3	300	5.11	1.38	
Self-efficacy (SE)	300	**5.09**	**1.21**	0.639
SE1	300	5.11	1.37	
SE2	300	5.08	1.46	
Social influence (SI)	300	**4.65**	**1.24**	0.708
SN1	300	4.72	1.51	
SN2	300	4.91	1.46	
Anxiety (ANX)	300	**4.01**	**1.21**	0.729
ANX2	300	4.11	1.61	
ANX3	300	3.79	1.69	
ANX4	300	4.11	1.43	
Trust(TR)	300	**5.33**	**1.12**	0.753
TR1	300	5.35	1.34	
TR2	300	5.31	1.31	
Facilitating Conditions(FC)	300	**5.24**	**1.11**	0.779
FC1	300	5.21	1.41	
FC2	300	5.27	1.33	
e-Satisfaction(SAT)	300	**5.19**	**1.10**	0.778
SAT1	300	5.23	1.32	
SAT2	300	5.24	1.31	
Information Security(I-Sec)	300	4.99	**1.09**	0.766
I-Sec 1	300	4.98	1.09	
I-Sec 2	300	4.97	1.11	
I-Sec 3	300	4.98	1.32	
I-Sec 4	300	5.11	1.31	
e-Service Quality(e-SQ)	300	**5.15**	**1.14**	0.789
SQ1	300	5.11	1.34	
SQ2	300	5.18	1.29	
Behavioral intention (BI)	300	**5.27**	**1.21**	0.781
BI1	300	5.29	1.45	
BI2	300	5.27	1.41	
BI3	300	5.25	1.39	

Table 4 shows results as AMOS is used to compute pairwise Squared correlations for different variables.

Table 4. CFA model based (Measurement model estimations)

Fit index	CFA model	Recommendation
Chi-square	218.987	N/A
Degree of freedom (DF)	99	N/A
P	0.001	>0.05
Chi-square/DF	2.211	<2.500
GFI	0.899	>0.80
AGFI	0.895	>0.80
CFI	0.896	>0.80
RMSEA	0.051	0.05 < RMSEA < 0.09

5.3. Measurement model

By using (CFA) confirmatory factor analysis discriminant validity and convergent of the scales were reported. To avert any contact between 2 models considering measurement errors quantifications characteristic of the model is assessed antecedent in testing of structural model. To determine Uni-dimensionality a correlation matrix of a 9 factor model (Outcome expectation, Affect, Self-efficacy, Social influence, Anxiety, Trust, Accessibility, Service Quality and Behavioral intention) was standardized and evaluated. Internal consistency and fit statistics were calculated to mark reliability, fitness of model and discriminant validity. Fit statistics are shown in above mentioned Table 4. In Table 5 we show the composite reliabilities, factor loading and variance-extracted estimates. Relevant loadings were discovered significant. Composite reliabilities similar to Cronbach's alpha were calculated as surpassing the minimum range of 0.70 for all under-analysis constructs but self-efficacy (CR 0.634). The reliability exhibits severe internal level consistency for 9 constructs and adequate level for self-efficacy.

Table 5: Confirmatory Factor Analysis

Constructs	Factor Loading	Composite Reliability	Variance Extracted Estimates
Outcome expectation (OE)		0.760	0.653
OE1	0.738		
OE2	0.735		
OE3	0.762		
Affect (AFT)		0.701	0.518
AF1	0.705		
AF2	0.699		
AF3	0.709		
Self-efficacy (SE)		0.634	0.449
SE1	0.638		
SE2	0.641		
Social influence (SI)		0.729	0.587
SN1	0.732		
SN2	0.731		
		0.738	0.589
Anxiety (ANX)	0.721		
ANX2	0.719		
ANX3	0.744		
ANX4		0.749	0.643
Trust(TR)	0.721		
TR1	0.711		
TR2		0.774	0.633
Facilitating	0.754		
Conditions(FC)	0.765		
FC1		0.768	0.623
FC2	0.769		
e-Satisfaction(SAT)	0.767		
SAT1		0.773	0.647
SAT2	0.699		
Information Security(I-Sec)	0.698		
I-Sec 1	0.695		
I-Sec 1	0.693		
I-Sec 1			
I-Sec 1		0.785	0.621
	0.774		
	0.779		
Service Quality(SQ)		0.771	0.653
SQ1	0.767		
SQ2	0.789		
Behavioral intention (BI)	0.765		
BI1			
BI2			
BI3			

Table 6 shows test results to analyze discriminant validity as proposed by Anderson and Gerbing (1988). Squared correlation between a

pair of potential variables always should be fewer than square root of variance extracted estimate of each variable as mentioned in the table 6 below.

Table 6: Squared pair-wise correlation

Variable	OE	AFT	SE	SI	ANX	TR	FC	SAT	I-Sec	SQ	BI
OE	0.801[a]										
AFT	0.469[b]	0.713[a]									
SE	0.468[b]	0.515[b]	0.665[a]								
SI	0.487[b]	0.301[b]	0.351[b]	0.761[a]							
ANX	0.205[b]	0.128[b]	0.169[b]	0.302[b]	0.768[a]						
TR	0.464[b]	0.501[b]	0.349[b]	0.353[b]	0.308[b]	0.					
FC	0.459[b]	0.341[b]	0.386[b]	0.305[b]	0.315[b]	771[a]	0.				
SAT	0.453[b]	0.321[b]	0.343[b]	0.311[b]	0.323[b]	0.313[b]	775[a]	0.777[a]			
I-Sec	0.467[b]	0.401[b]	0.403[b]	0.321[b]	0.311[b]	0.332[b]	0.311[b]	0.344[b]	0.765[a]		
SQ	0.451[b]	0.469[b]	0.381[b]	0.313[b]	0.323[b]	0.411[b]	0.311[b]	0.389[b]	0.383[b]	0.719[a]	
BI	0.429[b]	0.501[b]	0.409[b]	0.351[b]	0.091[c]	0.319[b]	0.517[b]	0.365[b]	0.427[b]	0.319[b]	0.816[a]
						0.343[b]	0.299[b]				

a Square root of VEE as given on diagonal.
b Significant at p b 0.01,
c Significant at p b 0.05.

5.4. Structural Model Testing

In Table 7 we illustrate model fit for the structural model testing. In a typical manner research workers inform a number of fit-statistics to investigate the relative fit of data to relevant model and here we suggest goodness of-fit index (GFI), adjusted GFI (AGFI) and comparative fit index (CFI). Gerbing and Anderson (1992) found the CFI as one of the most stable and robust fit indices. We also describe RMSEA (Root Mean Square Error of Approximation) which evaluates the difference per degree of freedom (Steiger and Lind, 1980) and discovered it as similar to the proposed range of values. GFI should be at 0.90 or above 0.90 (Hoyle, 1995) while AGFI should be at 0.80 or above 0.80 (Chin and Todd; 1995, Segars and Grover; 1993). CFI statistics should be at 0.90 or above 0.90 (Bentler and Bonett; 1980, Hoyle; 1995). RMSEA should be in range of 0.05 – 0.08 to show rational errors of approximation (Browne and Cudeck; 1993) but has been proposed to correspond a strong good fit if it is beneath the more suppressive threshold of 0.08 (Belanger and Carter, 2008).

Table 7: Model Fit Analysis of Our Proposed Model

Fit index	Structural model	Recommendation
Chi-square	339.234	N/A
Degree of freedom (DF)	102	N/A
P	0.001	>0.05
Chi-square/DF	3.321	<2.500
GFI	0.894	>0.80
AGFI	0.891	>0.80
CFI	0.893	>0.80
RMSEA	0.077	<0.07

Table 8: Path Coefficients

H#	Hypothesis	Coefficients	CRT	Sig.	Supported
H1	Outcome expectation → affect	0.29	4.567	***	YES
	Affect → behavioral intention	0.53	7.768	***	YES
H2	Social influence → behavioral intention				
H3	Social influence → outcome expectation	0.23	4.123	***	YES
	Self-efficacy → outcome expectation				
H4	Self-efficacy → affect	0.49	6.499	***	YES
	Anxiety → behavioral intention				
H5	Trust→ behavioral intention	0.41	6.119	***	YES
H6	Facilitating Conditions → behavioral intention	0.53	6.109	***	YES
H7	Satisfaction → behavioral intention	−0.14	−1.877	*	YES
	Information Security → Satisfaction	0.33	5.111	***	YES
H8					
H9	Service Quality → Satisfaction	0.39	5.123	***	YES
H10		0.31	5.011	***	YES
H11		0.32	5.121	***	YES
H12		0.31	5.114	***	YES

Fig. 2 shows validated research model.

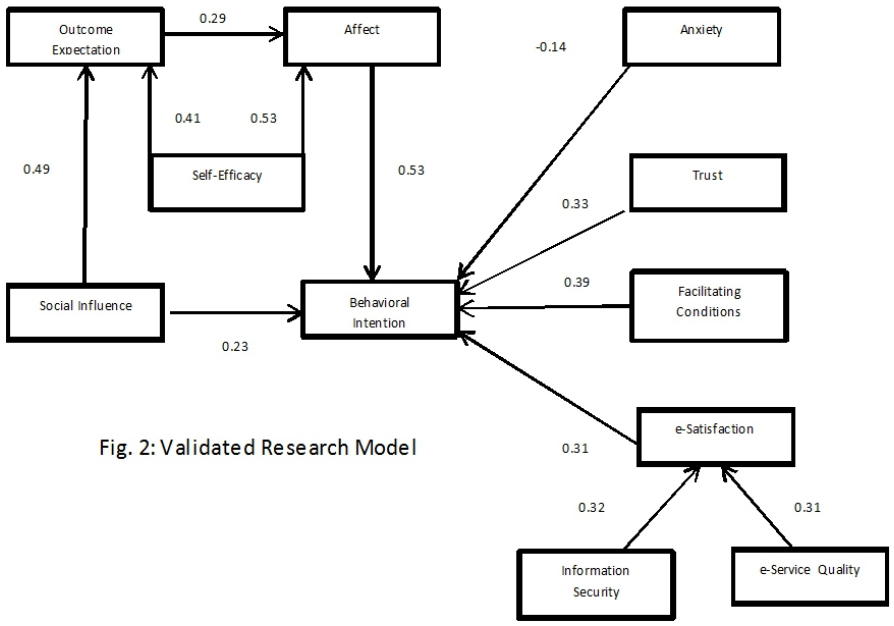

Fig. 2: Validated Research Model

6. Discussion

Using the prolonged social cognitive theory objective of this article is to investigate factors impacting the adoption of LRMIS system in context of

Pakistan. We incorporated constructs social influence, trust, accessibility and service quality in the SCT model to examine our e-government systems. The hypotheses outcomes exhibited that there are noteworthy linkages for all structural relations supporting relevant hypotheses. Significant impact of outcome expectation affect is very similar like positive and significant impact of the similar kind of constructs such as performance expectancy or perceived usefulness on attitude. Outcome expectation in our proposed model is attached to user's personal aspects as it shows citizen's increased efficiency, capability to enhance quantity and quality of related output for same amount of effort by using the LRMIS system and its positive impact on attitude. Self-efficacy discovered to have a vital and significance relations showing that even users who are not much used to the LRMIS system but their comfort level with other relevant information and e-government systems help them to maintain a positive attitude toward using LRMIS system. Social influence was discovered to impact noteworthy on both behavioral intention and outcome expectation. Noteworthy impact of effect on behavioral Intention shows that citizens having stronger attitude towards LRMIS are more eager and likely to actually use the system. In our article a vital and positive relation between attitude and behavioral intention shows that positive affect to use the LRMIS system directs citizens to strongly produce favorable intentions to use it. Anxiety is a very direct and vital forecaster of behavioral intention discovered. Trust also impact directly and positively on behavioral intentions. Accessibility has a deep and direct influence of behavioral intentions on citizens to adopt LRMIS. Service quality also impact directly and positively on the behavioral intentions of citizens to adopt LRMIS. SCT model with some addition of constructs is validated for the very first time in context to Pakistan on e-government adoption. Our research has provided an opportunity for E-government researchers to investigate factors influencing the adoption intentions of LRMIS and some similar systems which would develop in near future in developing countries like Pakistan. Final results of the hypotheses attached to the suggested model would assist researchers toward a deep knowledge and realization of citizen's behavioral intention of LRMIS. Outcomes will allow e-government managers to recognize the factors to understand for enhancing the citizen's behavioral intentions of LRMIS.

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Appendix A. Description of the final survey items

Outcome Expectation (OE)
OE1. If I use mobile LRMIS, I will increase my effectiveness.
OE2. If I use mobile LRMIS, I will increase the quality of output.
OE3. If I use mobile LRMIS, I will increase the quantity of output for the same amount of effort.
Affect (AFT)
AF1. I would like see my land records using the mobile LRMIS.
AF2. I look forward to those aspects of observing my land records that require me to use mobile LRMIS.
AF3. Using the mobile LRMIS would be interesting to me.

Self-Efficacy (SE)
SE1. I would feel comfortable while using mobile LRMIS on my own.
SE2. If I wish, I could easily operate mobile LRMIS on my own.

Anxiety (ANX)
ANX1. It frightens me to think that I could lose my land information using mobile LRMIS by hitting the wrong key.
ANX2. I hesitate to use the mobile LRMIS for fear of making mistakes I cannot correct.
ANX3. mobile LRMIS would be somewhat intimidating to me.

Social influence (SI)
SN1. People who influence my behavior think that I should use mobile LRMIS.
SN2. People who are important to me think that I should use mobile LRMIS.
SN3. I would use mobile LRMIS because of the certain section of people who use the system.

Trust (TR)
TR1: I can always trust LRMIS services.
TR2: LRMIS implementation is the right Government policy.

Facilitating Conditions (FC)
FC1: Better organizational and technical infrastructures strongly motivate me to use m LRMIS.
FC2: Good infrastructural facilities would always increase my efficiency to use m LRMIS.

e-Satisfaction (SAT)
(SAT1) I am highly satisfied by the LRMIS services.
(SAT2) After using, LRMIS I always feel high level of satisfaction

Information Security (I-Sec)
(I-Sec1) Online mobile land record activities while using LRMIS are secure.
(I-Sec2) I worry about information security while using LRMIS.
(I-Sec3) I have confidence in LRMIS.
(I-Sec4) While looking at my data on LRMIS, I worry about its accuracy.

e-Service Quality (e-SQ)
e-SQ1: I think service quality of mobile LRMIS is very good.
e-SQ2: People who are important to me also think that service quality of mobile LRMIS is very good.

Behavioral intention (BI)
BI1. I intend to use mobile LRMIS.
BI2. I predict that I would use mobile LRMIS.
BI3. I plan to use mobile LRMIS in the near future.