

The Influence of Culture on M-Banking Technology Adoption: An Integrative Approaches of UTAUT2 and ITM

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Abstract--The proliferation of the information technology, smart phones, and mobile technologies has encouraged the potential customers to use more mobile banking services. Accordingly, banks are offering more m-banking services than competitor do. The adoption of m-banking is depend on the characteristics of the countries people (culture) and the perception (trust) of m-banking to the potential and existing customer. In regards to, we proposed a new model that integrated three models, tUTAUT2 model with ITM model (propensity to trust, structural assurance, firm's reputation) with Hofstede six cultural dimensions model (CVI, MVF, PDI, UAI, PVN, and RVI) to investigate the impact of m-banking adoption in developing country perspectives like Bangladesh. There has been researched on m-banking adoption but we found few researched to investigate cultural dimensions and trust together to measure its impacts on m-banking adoption. The collected data will be analyzed by the partial least squared method (PLS) based on structures equation modelling (SEM) and bootstrapping method. This study found price value, initial trust model, masculinity and power distance have a significant relationship to the behavioral intention to the adoption mobile banking in Bangladeshi customer. And also facilitating condition has an impact on usages behavior. It also found that propensity to trust and structural assurance had influences on m-banking adoption. It will help the banking sectors to regulate their strategies and future plans to successful adoption and diffusion of m-banking services in Bangladesh.

I. INTRODUCTION

In recent year, financial organizations try to retain their customers and provide them better goods and services than before due to the growing tendencies of the internet and web based application. Therefore consumers and firms become benefited by using information technologies though it is difficult to measure the willingness to adopt the technologies [1, 2]. From IS perspectives researchers gives their opinion after emerging internet banking in e-commerce [1] business application mobile banking is considering the most important drivers for financial firms[3] To overcome the customer cost banks introduced internet banking but now mobile banking offers more[4],flexible and convenient banking especially they can access anytime and anywhere [5]. Now a days financial firms more convenient banking services in terms of real-time access [6] in order to reduce customers operational costs by offering electronic channels to their customers [7].

Initially m-banking introduced to the end of the 1990s when the German company Pay box, in collaboration with Deutsche Bank, commences the first service. On that time, it was set out and experienced mostly in European countries: Germany, Spain, Sweden, Austria, and the United Kingdom. But among developing countries, Kenya was the first to

launch a text-based m-banking service, M-Pesa, in 2007 where as in Bangladesh the Guidelines for Mobile Financial Services was issued on 22 September 2011. To cope with the world economy and fulfill the customer needs most of the banks are willing to introduce mobile banking services though they have already introduced internet banking. Due to acceptance of e-commerce in Bangladeshi consumers[8], it is easier for the customer to adopt mobile banking more easily and effectively. The wireless technology gives the opportunity to the customer to adopt banking transaction. This technology (wireless) encourages financials firms to deliver their services in different electronic channels which bring implausible opportunities to the users or m-service users. And this thing happen only the ICT development in this era especially in financial firms willingness to invested a huge amount of money in IT areas [9].

A significant number of research gives clear ideas about Information technology adoption models [10-15] and a few number of models elucidate about final user perspectives[16, 17]. Though the mobile banking is now established in worldwide but still it is growing as much expected by comparing the other country. According to data provided by Bangladesh Telecommunication Regulatory Commission (BTRC), there are around 160 million people in the country of which the total number of mobile phone subscribers has reached 133.163 million by the end of November 2015, (www.btrc.gov.bd). Here, we attached a summary of mobile banking activities in Table 1[18]. And among these The total number of Internet Subscribers has reached 53.941 million by the end of November, 2015(40% people has internet connection on their mobile phone) means 30% mobile users, around 31.20 million (Bangladesh Bankwww.bb.org.bd) are registered under mobile banking services which means 80.5%, around 101.963 million, people have not yet adopted mobile banking services. This provides a good indication of the low rate of mobile banking users compared with the total population who usages the internet.

Researchers found the adoption of ICT depends on the characteristics of the people from where they are living and this research focus on m-banking adoption a part of ICT. They also reveal that trust is very important while consumers are doing transaction with mobile banking. Literature also supports that the adoption of end users behavior depends on the persona trust and the new technology[19, 20]. Prior studies scholars adopted Hofstede four cultural dimensions[21] and five cultural dimensions[22] to study m-banking adoption. And [23]discus about ITM on mobile banking adoption. But no researches have been done in m-

banking adoption in any country perspective which integrates six cultural dimensions and ITM. In this study, we integrated three model, these are ITM[23],UTAUT2[16] and Hofstede cultural model[24]. And we introduce[24] six(IDV,MF,PD,UA,PN, and RI) cultural dimension model and UTAUT2 model.

The main gaps of this study, that need to be investigated is i) penetrate six cultural dimensions ii) focus on website quality and iii) low rate of the m-banking user in Bangladesh. Therefore, we try to investigate the influence of cultural dimensions and ITM to adoption of m-banking adoption in Bangladesh

II. LITERATURE REVIEW

A. The UTAUT2 model

The UTAUT model which consist of four constructs such as performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), and social influence (SI) [15].The [15]UTAUT model has an excellent acceptance in consumer perspective as well as organization perspective but it has some limitation found by [25].Therefore include other three constructs such as hedonic motivation, price value and habit with the UTAUT model to adopt the UTAUT2 model in a particular consumer market hence, we use this model on m-banking adoption in Bangladeshi consumer perspective. (UTAUT2)[16] presents a justification for the taking and apply of information and communication technologies (ICTs) by consumers. It constitutes an extension of the UTAUT [15] designated as UTAUT2[16], which was devised to give details the acceptance and use of ICT specifically by the consumer, since the UTAUT was originally devised in order

to explicate the issues that affect the acceptance and use of ICT by employees where UTAUT [15] was as an extension of the popular TAM[12, 13].

Mobile banking is closely related with the mobile device, telecommunication operator and banking application to make transaction through it [22]. In daily life activities mobile technology become popular day by day [26]. Mobile banking define as a services operated by mobile device or cell phone to do financial transaction [27]. Mobile banking is an important element of online banking that comprises an alternative delivery channel for financial and non-financial services that offered by different institutions [28]. Scholars can also defined mobile banking as an electronic procedure to execution of financial services through mobile devices [29]. The term m-banking represents in various forms such as m-banking[30] branchless banking[31], m-payments, m-transfers, m-finance [32]. M-banking transaction or accessibility of financial information is not popular or spread out through the mass people as expected though they offer more opportunities than before.

Researchers found significant interest in m-banking specially in practice and academia such as, [23, 33, 34].Some well-known accepted theories and models also studied in m-banking adoption such as technology acceptance model (TAM)[12], Innovation diffusion theory (IDT) [6], unified theory of acceptance and usage of technology (UTAUT) [7] have been used to study the adoption or the intention to adopt m-Banking. Some prior studies related to mobile banking in Bangladesh perspectives are given below: [35] using TAM model and [36] used TAM and DTPB model. (Table 1) is the summary of m-banking adoption based on UTAUT, UTAUT+ and UTAUT2 model.

Table 1: Summary of m-banking adoption based on ITM,UTAUT, UTAUT+ , UTAUT2 and Hofstede cultural model

Theory	Author(s)	Countries and sampling ¹	Significant direct relationships with ATT, INT and USE ²
UTAUT2	[22]	Mozambic(252)	UE → INT(0.121);EF PE→ INT(0.362);EE → INT (0.039);SI → INT(- 0.022); FC → INT (0.55); BI → USE (0.121)HM → BI(.184)HT → BI(.401) PV → BI(.059)
UTAUT+	[37]	Nigeria (231)	UE → INT (0.319);EE → INT(0.1041);PD → INT (0.138); INT → USE (0.307)
	[38]	SA, Nigeria (451)	NA
UTAUT	[9]	Portugal (194)	PERE → INT(0.40);EE → INT (0.10);SI → INT 0.10);FC → INT (0.18); BI → USE (0.64).
	[39]	Taiwan (441)	PERE → INT (0.318); EE → INT (0.080); SI → INT 0.721);CRE → INT(0.147);COS → INT → (0.352);FC → INT (0.560); SE → INT (0.165)
	[40]	USA (223)	NA
	[41]	Malaysia (184)	PU → INT (0.439); PEOU → INT (0.291); CONV → INT (0.051);SEC → INT(0.4 97).
	[42]	USA (122)	PERE → INT (0.499); TRU → INT (0.131); RIS → INT (0.231); TRU → INT (0.177); SE → INT (0.167).
	[34]	China (250)	PE → USE (0.37); SI → USE (0.22); FC → USE (0.24); TTF → USE (0.30).
SDM	[43]	Finland and Portugal (3582)	IND → INT (0.083); LTO → INT (0.083); MAS → INT (0.128).
ITM	[23]	Korea (192)	TRU → INT (0.33); PB → INT (0.18)

Notes: ¹Total number of responses of the respective study (Sample size).

² ATT = Attitude toward use/m-banking; INT= Intention and USE= Usages.

BI=Behavioral Intention;PERE=Performance expectancy; EF=Effort expectancy;SI=Social influence ; FC=Facilitation conditions; HB=Habit; HM=Hedonic Motivation; PV=Price Value; PD=Power Distance; USE=User Behavior; CRE=Credibility; COS=Cost;SE=Self-efficacy;PU=Perceived Usefulness; PEOU=Perceived ease of use; CONV=Convenience; SEC=Security; RIS=Perceived risk; TRU=Trust; TTF=Task technology fit; IND= Individualism; LTO= Long-term orientation; MAS= Masculinity; PB= Perceived Benefits.

B. Cultural Model

In the previous few studies examined the impact of six cultural dimensions on mobile banking services adoption but a few research on this area[21, 22] discuss four dimensions of culture on mobile banking adoption. Hofstede's defined culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another" [44]but before that[45] define his views on culture as the process how can people settle their problems and dilemmas. Again[46] given their opinion as it is transmitted and developed ideas, symbols and different patterns of values which in important for human behaviour. Besides these concepts of culture, [47] oppose that "the assumption of homogeneity is not appropriate, particularly if the national constructs are to be integrated into IS models that reflect individual behavior...". Since, Hofstede gather data all over the world and as a country Bangladesh score power distance (80), uncertainty avoidance (60), masculinity versus femininity (55), collectivism versus individualism (20), pragmatic versus normative (47), and restraint versus indulgence (20). Before studies researchers had adopted cultural dimensions for use at the individual level [48]. The study believing that at the individual level of analysis culture can be canned essentially and as such considered appropriate and meaningful[49]. Already more than thirty years have passed from the publication of culture's consequences [50] and Hofstede's cultural model remains current, encouraging thousands of empirical studies [48] whose results sustain and intensify Hofstede's conclusions.(Table 1) is the summary of cultural dimension related prior studies.

C. Initial Trust (IT)

Trust can be define by[51] as the exposure of willingness based on the expectations towards another party's future behavior. In online purchasing risk and uncertainty are associated and trust is the most important element for the in e-commerce perspective[52]. The term "Trust" studies in several areas such as mobile banking[9], mobile payment systems [53], mobile shopping [54], internet banking [55], health websites [56] and online news services [57]. Mobile trust classified by initial trust and continuous trust, both of which are affected by the factors related to mobile vendor and technology, [58]. In our study, we included initial trust and it is significant for user behavior and various factors have been identified to affect initial trust [59].

The concept of "initial trust" comes from the first interaction with an untried e-retailer, because of initial impressions on its website characteristics [60]. In several studies of e-commerce, trust has been analyzed through the TAM model[23, 61, 62] and the UTAUT model[63]. Thus, for LCC e-commerce, The UTAUT, TTF and ITM model[9].Initial trust sort out into three ways by [64, 65]such as institution, personal and environmental. Researchers studied the branches of e-commerce to measure the importance of initial trust such as mobile banking[66, 67], internet shopping[68-70]. In this paper, we focus on initial

trust and define it as "trust in an unfamiliar trustee, a relationship in which the actors do not yet have credible, meaningful information about, or affective bonds with, each other" [71].

The Propensity to trust [72] considered as the user personality that also influence the initial trust and, situational normality [65] pertinent to structural assurance that is increase the trust like social influence and service guarantees [23, 73].Firms reputation, corporate image and size of the company is the indicator of trust and that has an impact on initial trust [55, 74, 75].In this paper we study propensity to trust, structural assurance, firm's reputation because all the variables used by [23] in their Initial trust model (ITM) model except relative benefits. (Table 1) is summary of ITM related studies with mobile banking.

III. RESEARCH MODEL AND HYPOTHESES OF THE STUDY

Based on the literature, we can propose a model and hypothesize. Here, researchers combined three different models to investigate influences of mobile banking services adoption. The UTAUT2 model was the basic determinant of the study and it combined the Hofstede cultural dimensions and ITM model to know the impact of m banking services in Bangladesh (Figure-1). Before introduced the UTAUT2 model, the UTAUT model was considered the most popular model to predict information technology acceptance[9].In this study , the UTAUT2 model used because it significantly improved the variance explained the behavior intention and technology use[16]. Since culture effects on the use of technology and initial trust also have play important role in technology use both are considered to develop the research model and the hypotheses in the study.

A. The UTAUT2 model

The UTAUT2 model was found the most effective and perfect model in (IT) information technology acceptance therefore we investigated this UTAUT2 model here. The first constructs of the UTAUT2 model is performance expectancy (PE) reflects user perception of performance improvement by using Internet banking on tasks. It is the degree to which an individual believes that using Internet banking will help to attain gains in performing banking tasks[15]. It reflects user perception of performance improvement by using Internet banking, such as convenience of payment, fast response, and service effectiveness [34] The second construct, effort expectancy construct represents the perceived ease of use (TAM) of an IS[9, 66, 76-79] and also has a positive influence on the behavioral intention. Some features such as user interfaces, content design, and functional ability[15, 23] of mBanking can influence its adoption. Facilitating conditions is the third construct of the UTAUT2 model that is considered to have a direct effect on the technology adoption. Different promotional activities of mBanking, and support from the organization remove impediment to usage

and influence adoption. A number of literature[80, 81], based on ICT found that hedonic motivation has influence on behavioral intention and actual use of that technology. Especially in consumer context by the UTAUT2, [16]explain that it influences both technology acceptance and usages[82, 83]. The fourth construct, social influence is a direct antecedent of behavioral intention. Previous study [14] defines social influence as the degree to which an individual perceives that it is important for others to believe that he or she uses the new technology or complies with others' expectations.

Fifth, researcher found that hedonic motivation is considered the most important factor and the acceptance will be greater to intention if consumers find more services from mobile services[84]. It has a positive relationship with the behavioral intention on mobile banking[22]. Sixth, The present behavior is depends upon the prior behavior and frequency of behavior[85]. In the prior study [22] found that habit strongly influence on behavior intention on mobile banking adoption. The seventh constructs introduce in UTAUT2 is price value. According to [16], monetary cost will incur when consumer see any technology oriented services and that is related and influence on consumers buying situation. Before introducing the constructs habit in UTAUT2 model, a number of studies [86, 87]. In UTAUT2 habit took from[86] which explained the use of technology has direct effect on it. Therefore, the hypothesis is given below (Table 2).

B. Cultural dimensions

Prior studies suggest that cultural dimensions should be included in the acceptance model[88]. Now,[49] cultural values plays an important role in technology acceptance. That's why we incorporate cultural dimension with the mobile banking in this study because few study combines these two variable together[22, 89]. People in generally are more concern about themselves in individual society than collective and in collective society people show more concern to take advice from other about technology[90]. To avoid uncertainty, individuals are feeling uncomfortable to use technology. In low involvement society, people are feeling relax[91] and try to use new technology[92]. In short run orientation [93]people have a low propensity to save, are focusing on the immediate success and also show respect for customs[91]. In the case of a masculinity society most important factor is earnings, firmness, determination and dealings[24]. In high power distance society people always agree to their superior command because of fear[50]. If the hierarchy accepts mobile banking it is likely to be accepted by subordinates, too. In case of restraint(IR) [94] also exposed that those who actually want to use ICT, restraint can have an impact on ICT. In the UTAUT2 model supports behavioral intention has significant influence in technology use[15, 16]. Therefore, the hypotheses are given below (Table 3):

TABLE 2: HYPOTHESIS OF THE STUDY

No.	Hypothesis	Source
H1-H6	The influence of performance expectancy (PE), effort expectancy (EE), social influence (SI), hedonic motivation (HM), habit (HB) and price value (PV) on behavioural intention (BI) will be positive .	[16]
H7	The influence of facilitating conditions (FC) on usage behaviour (UB) will be positive.	[16]
H18	Behavioural intention (BI) will have a significant positive influence on usage behaviour (UB) to use m-banking services.	[16]

TABLE 3: SUMMARY OF M-BANKING ADOPTION

H8-H13	Cultural dimensions power distance (PD), uncertainty avoidance (UA), collectivism versus individualism (IDV), masculinity versus femininity (MF), pragmatic versus normative (PN), and restraint versus indulgence (IR) will have a positive and significant influence on behavioural intention (BI) to use m-banking services.	[22, 95]
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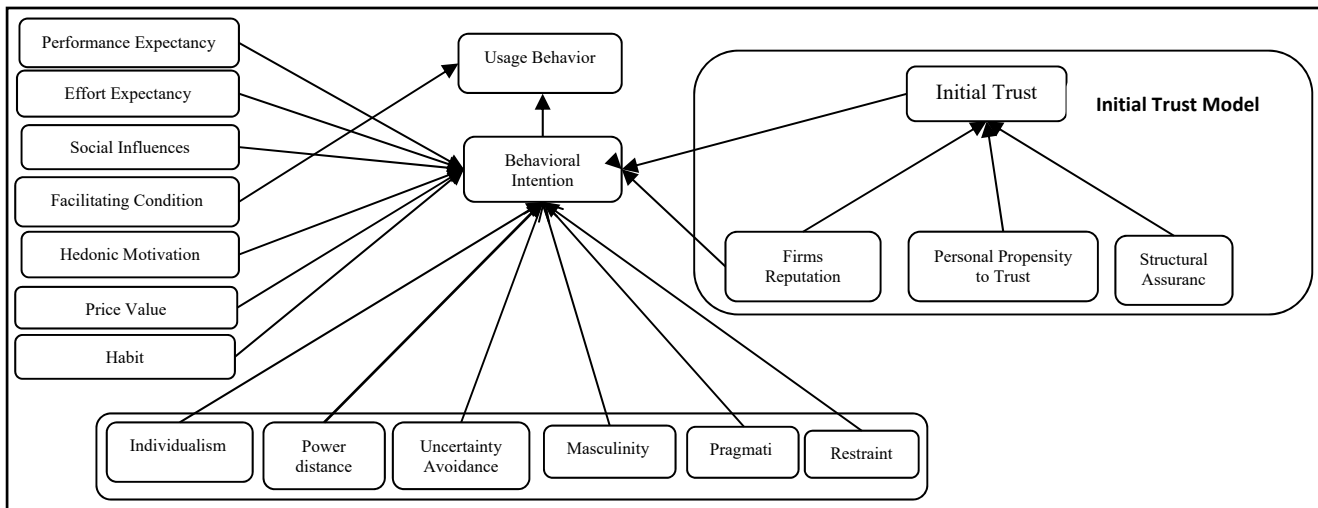


Figure 1: Conceptual Model of The study

C. Initial Trust Model

According to [61]Users will get future positive upshot through trust because it lessens the uncertainty, reduce perceived risk and positively affects on buying intention[96-98].

- *Structural assurance*

Since, mBanking is relatively a new area under m-commerce, it faces multidimensional risks and consumers are not interested to adopt that services [66].For that reason, consumer considered structural assurance as an important element before the adoption of mBanking services and it influences on initial trust. [59] especially, lack of direct experience, users may rely on structural assurances to construct their trust in mobile banking and have relatively larger effects on initial trust. In addition, structural assurances refer to protection of network i.e. legal resources, guarantees, and regulations be present in a specific circumstance” [61, 64, 99]. In the case of monetary transaction, structural assurances are even more imperative [100]. When users receive structural assurances from mobile banking, the trust will be improved [33, 64]. Structural assurances have direct effect on trust and strongest antecedent of trust, which could amplify behavioral intention of mobile banking[33]. As a key element of institution-based trust, structural assurance is define as the legal and technologically protected perceived by individual users [65, 71] and effects on initial trust.

- *Firm’s reputation*

Reputation considered to be an important feature of initial trust [101] and it plays a vital role in forming and growing confidence as well as to use the services offered by the firms. It also helps the customers to identify the new services and hold confidence for future. Recently researcher found that [102] source credibility (same to reputation) affects user attitude/intention throughout the peripheral route. The Reputation of an organization comprises the capability to delivered its services, the reliability of business engagement and the credibility of a firms[64].

- *Propensity to trust*

Trust propensity is defined as “the extent to which a person displays a tendency to be willing to depend on others across a broad spectrum of situations and persons” [65]. According to [65, 71], Trust propensity refers a consumer’s natural tendency towards other people. When consumers adopt new technologies with the higher propensity to trust that will increase the intensity of confidence in using mBanking [52, 66]. [59] users have a significant effect on initial trust and it will more enthusiastically create initial trust in mobile banking. Online retailers can’t persuade an individual’s trust propensity through applying trust building strategies [103, 104].It is not an important element to build up trust [70, 96]and others, mentioned a positive impact on consumers initial trust-building in online service provider. [51]reports it is as a psychological characteristics which build up from the childhood of an individual to throughout his or her life and that depends on the social and cultural background of that person.

- *Initial trust*

According to[52], initial trust makes understandable to the user that to increase living and working performance, only mobile banking services adoption can fulfill their expected demand. In the case of little or no prior experience, initial trust plays a vital role to adopt any new technology services like mobile banking [23, 100]. Therefore, we hypothesize from the following Table:

No.	Hypothesis	Source
H14- H16	Firm’s reputation (FR), Structural assurance (SA) and personal propensity to trust (PPT) will have a positive and significant influence on initial trust (IT) to use m-banking.	[23]
H17	Initial trust will have a positive and significant influence on behavioural intention (BI) to use m-banking.	[23]

IV. METHODOLOGY

A comprehensive set of a questionnaire were used as survey instruments of the study. The data collection was conducted in Dhaka city, Bangladesh within the population targeted, who have at least one mobile banking account with a mobile device to operate the banking activities. And finally, 115 data were collected from the respondent. It should be noted that small sample is appropriate for partial least squared (PLS)[105]. To analyze PLS needed a minimum sample size suggested by[106] that is ten times the greater of the following condition, first the most complex formative construct second, the largest number of predictors leading to the dependent construct(initial trust ,behavior intention and usages behavior) of the study. Here, the largest no of predictor leading to endogenous construct is three and we have no formative construct. The previous research suggests that 100 to 200 sample is generally good to run the path modeling[107]. The questionnaire design was divided into two sections. The first section is comprised of six questions which consist of demographic profile.

The second section consists of 54 questions of 19 constructs. The items and scales for the UTAUT2 constructs were adapted from [15, 16], use behaviour from [108] , cultural dimension[22] and [95], Initial trust from [23] to improve content validity [109].The participants were asked to scale the relevant facts on a Likert scales from 1 to 7 with a response continuum from “strongly disagree” to “strongly agree” based on the Likert scale (i.e., seven-point) established by [110]. The reason for selecting the Likert scale is twofold: it is the most common and easiest method of gathering information from respondents using survey method [111].It has been used widely (either five or seven points) in the published literature relevant to the current study [15, 16, 112-116].

We prefer to convenient sampling for our research because it is cost effective[117].For data analysis SmartPLS 2.0 were used[118] Expert researchers differentiate between measurement and structural models and explicitly take measurement error into account[119].Smart PLS 2.0M3[118] was the software used to analyze the relationships defined by our theoretical model. For multivariate analyses [120] PLS

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was an appropriate technique of analysis for smaller sample size.

V. RESULT ANALYSIS

The proposed model is unique which describes the demographic and other information of the respondent, then measurement model and structural model respectively.

A. Demographic and other Information

Many studies found that demographic factors impact significantly on consumer attitudes and behaviour especially in online banking [121-124]. And also [124] indicated that young, educated and financially solvent person mostly adopt online banking. Since, the previous literature revealed that the mobile banking users are typically highly educated, relatively young and wealthy person with sufficient knowledge of computers and internet [125]. Therefore, our respondents are

knowledgeable to use the mobile banking because That's why, to conduct this study, the survey instruments as a questionnaire were distributed to the students as well as to job holders who have at least one mobile banking account, he or she have one mobile device to operate mobile banking activities. In this research, total one hundred fifteen respondent data was finally analyzed and among them male respondents and female respondents were respectively 78 and 37. The ratio of the male respondent is twice than female. Here, most of the respondent age between 20-30 and the most interesting things is the young generation whose age below 20 is 16.5 percent. And our demographic findings also similar with the researchers reference[125] because most of the respondents had bachelor and master's degree. Here, the respondents were asked about the experience of using information technology which is also satisfactory and the most important matter is that they are using mobile banking several times as well as occasionally.

TABLE 4: ITEM LOADING, CONVERGENT VALIDITY, AND DISCRIMINANT VALIDITY & RELIABILITY

Construct/ Indicator	No of Item	Item	Factor Loading	AVE	CR	CA
PE	3	PE2	.939	0.810	0.927	0.915
		PE3	.956			
		PE4	.797			
EF	3	EF1	0.929	0.821	0.932	0.894
		EF2	0.906			
		EF3	0.883			
SI	3	SI1	0.937	0.855	0.947	0.916
		SI2	0.927			
		SI3	0.911			
FC	3	FC1	0.926	0.756	0.925	0.895
		FC2	0.916			
		FC3	0.809			
HM	3	HM1	0.852	0.787	0.917	0.887
		HM2	0.87			
		HM3	0.938			
PV	3	PV1	0.917	0.806	0.926	0.88
		PV2	0.84			
		PV3	0.935			
HB	3	HB1	0.908	0.775	0.911	0.865
		HB2	0.971			
		HB3	0.747			
IND	2	IDV1	0.952	0.915	0.956	0.907
		IDV2	0.961			
IR	2	IR1	0.923	0.809	0.894	0.767
		IR3	0.875			
IT	3	IT1	0.941	0.883	0.958	0.934
		IT2	0.944			
		IT3	0.934			
MF	3	MF1	0.948	0.878	0.956	0.93
		MF2	0.946			
		MF3	0.916			
PD	3	PD1	0.970	0.939	0.968	0.935
		PD2	0.968			
UA	3	UA1	0.95	0.793	0.92	0.884
		UA2	0.86			
		UA3	0.859			
PN	3	PN2	0.915	0.878	0.956	0.941
		PN3	0.979			
		PN4	0.929			
SA	2	SA1	0.967	0.924	0.973	0.959
		SA2	0.957			
		SA3	0.959			
FR	4	FR1	0.929	0.87	0.964	0.95
		FR2	0.908			
		FR3	0.942			
		FR4	0.95			
PPT	3	PPT1	0.965	0.93	0.976	0.963
		PPT2	0.969			
		PPT3	0.959			
BI	3	BI1	0.975	0.924	0.973	0.959
		BI2	0.954			
		BI3	0.954			

B. Path Result

• Analysis of the Measurement Model

In this research, measurement model was tested by the internal reliability, convergent and discriminant validity [126] where internal reliability is determined by Cronbach's alpha (CA) and composite reliability (CR) and the acceptance level of indicator is 0.70 [127]. In this study the calculated value (Table 4) both CA (range from 0.767 to 0.959) and CR (range from 0.897 to 0.972) is more than the acceptance value.

Convergent validity is acceptable when constructs have an average variance extracted (AVE) of at least 0.50 [128] where in our study also support this because AVE values stand from 0.76 to 0.96 from (Table 4).

The discriminant validity was evaluated by the square root of the AVE and cross loading matrix. The square root of the AVE of a construct should be larger than its correlation with other construct for satisfactory discriminant validity [129]. The square roots of AVE, shown in Table 5, were greater than their corresponding correlation, representing that our data had achieved discriminant validity. Due to low factor loading we excluded PE1, PN1, IR2, PD3 and IDV3 item for further analysis.

• Analysis of the Structural Model

The structural model was developed to identify the relationships among the constructs in the research model. Bootstrap method was used to test the hypothesis [130, 131]. In our study tested the relationship between dependent and independent variables by path coefficient (β). [128] path coefficients with standardized values above 0.20 are usually significant and those with values below 0.10 are usually not significant. The model explains 80.9% of the variance in intention to use m-banking (0.809), 70.6% of variance in initial trust are statistically significant to behavioral intention (BI) and 39.4 % of variance in actual use of m-banking (0.394) from figure 2. In this study, we determined the findings based on resulting the empirical t-value is above 1.96, we can assume that the path coefficient is significantly different from 0 at a significance level of 5 percent ($\alpha = 0.05$; two-sided test). The critical t-values for significance levels of 1 percent ($\alpha = 0.01$; two-sided test) and 10 percent ($\alpha = 0.10$; two sided test) probability of error are 2.57 and 1.65, respectively. Here, eight hypotheses to be found statistically significant from nineteen hypotheses based on evaluating the t-statistics (Table-6).

TABLE 5: SQUARE ROOT OF AVE (IN BOLD ON DIAGONAL) AND FACTOR CORRELATION COEFFICIENTS.

	BI	EF	FC	FR	HB	HM	IDV	IR	IT	MF	PD	PE	PN	PPT	PV	SI	UA	UB	SA
BI	0.96																		
EF	0.38	0.90																	
FC	0.19	0.42	0.86																
FR	0.66	0.27	0.14	0.93															
HB	0.04	0.22	0.17	0.12	0.88														
HM	-0.08	-0.01	-0.00	-0.15	-0.19	0.88													
IDV	0.74	0.22	0.15	0.56	0.16	-0.10	0.95												
IR	0.04	-0.09	-0.01	0.13	-0.18	-0.19	0.12	0.89											
IT	0.69	0.32	0.12	0.70	0.09	-0.11	0.56	0.02	0.93										
MF	0.84	0.29	0.16	0.59	0.001	-0.08	0.77	0.04	0.65	0.93									
PD	0.74	0.93	0.13	0.52	0.08	-0.02	0.86	0.14	0.53	0.72	0.96								
PE	-0.05	0.12	0.02	0.07	-0.14	0.05	-0.003	0.31	-0.03	-0.08	0.06	0.9							
PN	-0.06	-0.15	0.02	-0.05	0.15	-0.08	-0.03	-0.18	-0.09	0.08	-0.09	-0.16	0.93						
PPT	0.50	0.56	0.13	0.70	0.08	-0.092	0.39	-0.009	0.63	0.39	0.32	0.03	-0.12	0.96					
PV	0.23	0.13	0.1	0.19	0.13	-0.10	0.15	0.07	0.21	0.18	0.04	0.08	0.09	0.186	0.89				
SI	0.44	0.70	0.45	0.34	0.11	0.00	0.34	0.01	0.32	0.35	0.43	0.19	0.04	0.243	0.15	0.92			
UA	-0.10	0.59	-0.06	-0.09	-0.05	0.028	-0.01	0.07	-0.09	-0.02	0.06	0.03	0.28	-0.24	0.00	-0.04	0.89		
UB	0.56	0.52	0.37	0.36	-0.02	-0.02	0.35	-0.12	0.34	0.38	0.37	0.00	-0.00	0.302	0.19	0.53	-0.14	1	
SA	0.70	0.07	0.16	0.86	0.08	-0.13	0.58	0.10	0.83	0.62	0.57	0.00	-0.09	0.703	0.15	0.33	-0.07	0.35	0.96

TABLE 6: SUMMARY OF TEST RESULTS FOR THE STRUCTURAL MODEL

Path	Coefficient	t Statistics	Comments
BI -> UB	0.514	5.176	Supported
EF -> BI	0.052	0.932	Not Supported
FC -> UB	0.273	2.627	Supported
FR -> IT	-0.113	0.881	Not Supported
HB -> BI	-0.028	0.526	Not Supported
HM -> BI	-0.013	0.212	Not Supported
IDV -> BI	0.012	0.129	Not Supported
IR -> BI	-0.006	0.093	Not Supported
IT -> BI	0.167	1.813	Supported
MF -> BI	0.496	3.856	Supported
PD -> BI	0.229	1.891	Supported
PE -> BI	-0.058	0.814	Not Supported
PN -> BI	-0.074	1.265	Not Supported
PPT -> IT	0.118	1.999	Supported
PV -> BI	0.089	1.74	Supported
SI -> BI	0.092	1.598	Not Supported
UA -> BI	-0.057	1.144	Not Supported
SA -> IT	0.85	7.131	Supported

R² for BI=.809, R² for UB=.394 and R² for ITM=.706

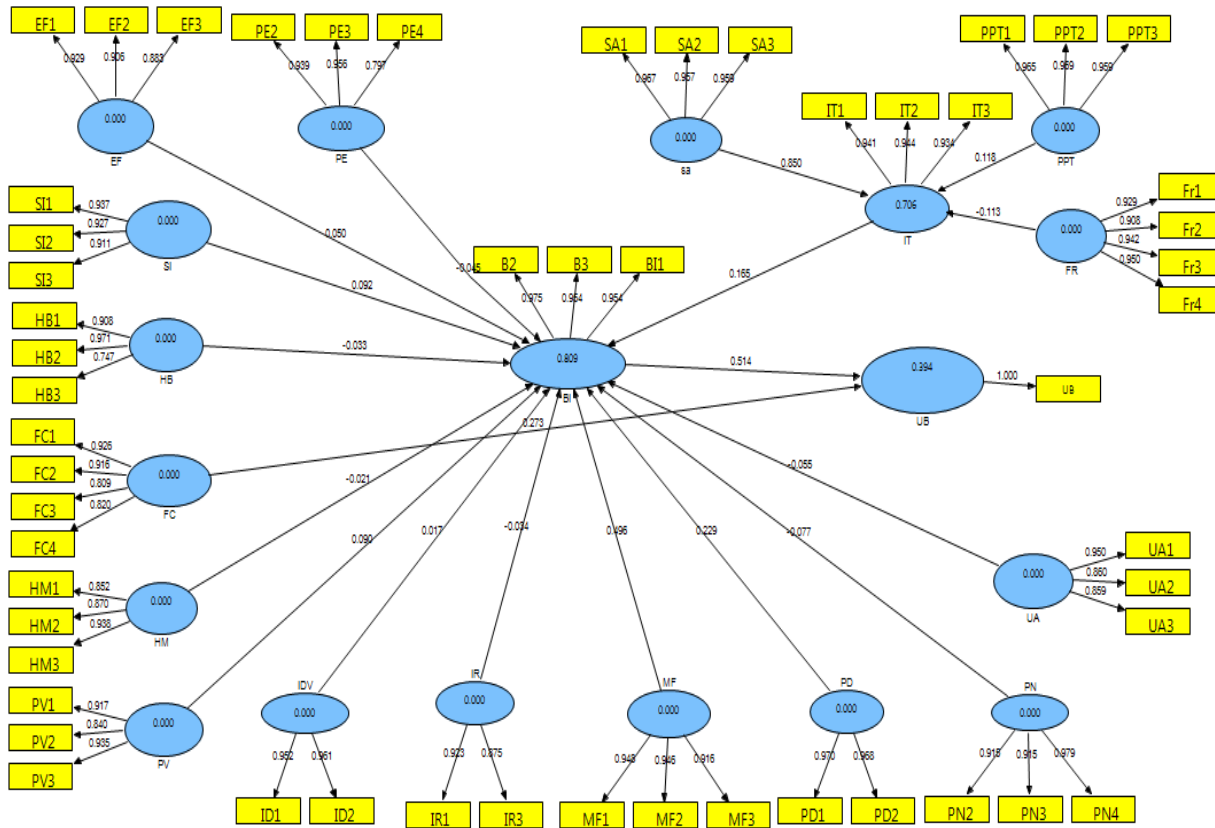


Figure 2. Path Model of the Mobile banking adoption.

VI. DISCUSSION AND FINDINGS

In our study, behavior intention and facilitating condition have significant relationship usages behavior and price value has positive impact on behavior intention on the basic UTAUT2 model. The rest of the variables were found insignificant in our study. In case of ITM model initial trust, structural assurance and propensity to trust were found significant relationship with behavioral intention, and firm's reputation have no influence on behavior intention. The Hofstede cultural model masculinity/feminity and power distance have significant relation with behavior intention but the rest of the cultural dimensions were found insignificant relationship with behavior intention. It means that Facilitating condition has positive influence on usages behavior to adopt m-banking services this result is consistent with the [22, 108, 132] but this result contradicts with many prior findings[34, 39, 66]. Performance expectancy result is not consistency with the research [22, 34, 66] but supported with the previous study[132]. Effort expectancy is supported by [21, 22, 108] to the behavioral intention. Social influences was supported by [21, 22] and same as our findings. Price value is consistent with the [16, 78] prior research but has no influence on behavioral intention revealed by our findings is supported by with some earlier research[22, 133, 134]. Prior research found that habit to use m-banking is considered as an important

predictor [135] and the relationship between habit and behavioral intention is not consistent with this study and prior findings [22, 34, 42]. Masculinity has an influence on m-banking adoption that revealed by this study and [50, 136] but contradict with by[22, 137]. Individualism had an influence on m-banking adoption that revealed by [22, 50] which is consistent with this research findings but not supported by [49] [136] along with our study. Power distance was supported by [22, 49, 50, 137] that is same as this research findings. Pragmatism is not supported by our findings while supported by [22]. Uncertainty avoidance is supported by our study as well as [22, 50, 138] . The rest of the cultural dimensions were to be found insignificant relationship with the mobile banking adoption. By studying the ITM model, structural assurance and propensity to trust have impact on initial trust and initial trust have influence on behavior intention. Our findings is consistent with the main ITM model[23, 66] findings in structural assurance and initial trust constructs perspectives but contradict with propensity to trust perspectives. On the other hand, firms reputations findings is consistent with the ITM model[23]. So, the firms should emphasize to increase the firm's reputation, when it will enhanced, the no of users also increase to adopt mobile banking services. Since, in this study initial trust have significant effects on mobile banking services adoption, the financials firms should concerned about the confidentiality of

the customer from the very beginning, and that will lead to increase trust to the existing customer which will increase the total number of customer in future. Facilitating condition also an important consideration in this study. Therefore, banks can develop sufficient infrastructure to support their customers, developed special site to solved customer problem as well as to developed 24 hour call center services and that should be free of cost. Therefore, from this study, we can conclude that the cultural dimensions influences on mobile banking technology adoption in Bangladesh. To overcome the main UTAUT2 model, this study conducted in other low technology developed country like Bangladesh. Another reason is to study the research is to extend the existing model with other new variables. Therefore, author, contributes to adding new two models with the existing UTAUT2 model. The final reason is to tests the existing UTAUT2 model with different technology rather than the mobile technology in this study. Therefore, the study has the implication for the researchers and the practitioners. The practitioners can design, refine and introduced the new proposed integrated model in mobile banking services perspectives to increase the number of users. Through this study local and international banks can realizes their understanding the specific area they should concentrate to launch their services in Bangladesh. It also helps the practitioners to introduce technology based services in cultural diversities. The financials firms can identify the real need of the customers and cultural differences. That will help them to design their marketing strategies, service development and improvement to increase the level of acceptance of mobile banking services in Bangladesh. In addition , it also implement ITM model in Bangladesh perspective which was suggested by the prior study[66].

VII. CONCLUSION

In his study, describes about the adoption of mobile banking in Bangladesh especially the influence of cultural dimensions and ITM. In this research, our purpose was to innovate a new model by combining the UTAUT2 model with other two popular model, Hofstede cultural dimensions and ITM. The findings of the study also give some indication to support the proposed new model. Cultural values are important factor for the adoption of mobile banking in Bangladesh which is supported by [139]that when implementing the technology like mobile banking local culture should be considered. According to[8], the e-commerce providers and the users are financially benefited as like this study, the mobile banking users also benefitted to adopt it. The main limitation of the study is to the number and patterns of respondents because we consider only those who are the existing mobile banking users. Further study suggested that compare the non-user or ex-user of mobile banking users to know the real scenarios. Further research should include cultural dimension like willingness to share[140]or demographic variables as moderators and

perceived risk, trust or brand equity as external variable which can explain behavioral intention and usages behavior better than our research.

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