ASESSING THE FACTORS MEASUING INTENTION TO USE NEW TECHNOLOGY OF THE CITIZENS OF ABU DHABI

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ABSTRACT
Objective: This paper assessed the factors that motivate users to adopt new mobile application technology and measure their intention to use it**.**
Research Method: A questionnaire was administered to collect the data among the customers of Etisalat in Abu Dhabi Municipality. 396 valid questionnaire forms were received from the respondents analyzed through the SmartPLS software package using the PLS-SEM technique.
Findings: The model evaluated with SmartPLS showed investigated measuring attributes has significant effect on intention to use the technology. R^2 value of the model showed that developed model has substantial power in explaining the effect of the factors. Among the attributes perceived usefulness factors are major drivers for adopting the technology.
Originality: Structural model explaining the drivers for developing intention to use any technology based on perception of the users is developed.
Keywords: Abu Dhabi Municipality, mobile app, technology, intention to use

1. INTRODUCTION

Companies all over the world now have no choice but to use mobile technology to serve their customers better. More than 200 billion downloads have been made from Google Play's 3 million+ active apps in the last ten years. To increase the usefulness of mobile devices, app developers are creating mobile apps. A wide range of applications are possible, from games to social networking to banking and finance to productivity and transportation. The market for mobile apps continues to grow despite its size (Moreno-Munoz et al., 2016). To improve customer service, businesses of all kinds use mobile apps to increase customer involvement. When an organization takes steps to make its customers feel as if they are an integral part of the company's success, it is referred to as "customer engagement". Because they don't give customers the attention they need to have satisfying experiences, call centers aren't enough, they argue. Improved communication between parties, establishing loyalty programs, and a flexible adaptation strategy to deal with constant changes in customer requests can save customer engagement centers money (Moreno-Munoz et al., 2016).

This will be the final frontier for old-school modes of communication within a few years. Similarly to the telegram, letters and other technology channels, such as email, will eventually lose relevance and become obsolete (Moreno-Munoz et al., 2016). However, it has been found that mobile applications like Twitter, Facebook Messenger, and WhatsApp have been successful in customer interaction and participation. Numerous examples have demonstrated the importance of utilising mobile application technology and the associated well-known benefits (Moreno-Munoz et al., 2016).

When it comes to customer service, mobile apps profoundly impact the customer's experience. Customers can interact with organizations, and organizations can provide content to customers. As a result, businesses are shifting away from traditional advertising methods like television, radio, SMS, and phone calls. Maintaining customer satisfaction while reducing the cost of engagement between

institutions and their clients The Smartphone mobile technology outperforms all other modes of information access, including computers, according to Hellstrom (2010).

Mobile application technology implementation should be measured using key metrics, according to Walker (2014). There are a variety of measures that can be used to gauge the success of a website, such as the number of visitors, followers, and downloads. Changing customer loyalty can be tracked via "thumbs up" and other customer affirmation channels. Analyzing database customer records and associated behaviours can reveal the overall financial impact. Promotions and contexts tailored to specific clients can show even more financial ramifications. It is important to note that the user experience is important in increasing the overall intention to use mobile applications. If there are several recommendations and issues to consider, customers or people must accept and use technology. These include personalization, exclusivity, and gamification by Moreno-Muniz et al (2016). To encourage customer loyalty, personalization involves making customers feel special, while exclusivity rewards loyal customers with exclusive access, information, and other offerings. Gamification, on the other hand, can reward customers for their participation in the form of "likes" and "follows," which can be awarded with exclusive offers (Paharia, 2013).

Personal, social, cultural, contextual, and product factors were all considered in an analysis of mobile application technology use by Arhippainen and Tähti (2003). Users' beliefs are the driving force behind IT use. According to Castaneda et. al. (2007) Overtime and in the face of new experiences, people's perceptions change. Several studies on new and experienced IT users have found that the user experience is critical and must be used to improve overall acceptance of technology in any given context (Venkatesh & Davis, 2000). Individual behaviour and differences in technology acceptance can explain how people use online media and mobile applications. Hoffman et al. (1996) note that conceptualization requires an exploratory approach that is focused on a specific goal.

Abu Dhabi Municipality's (ADM) mobile technology user experience may be critical to adopting mobile application technology, which is the focus of the current study. This study's scope is restricted to modelling the attributes that measure the intention to use new technology. Multivariate PLS-SEM techniques are used to develop the model. PLS-SEM is becoming increasingly popular as a tool for modelling complex problems in various fields. PLS-SEM was used by Alshurideh et al. (2019) to examine the factors that influence social network acceptance. Rahman et al. (2022) investigated to develop the structural relationships between the causes and effects of change in UAE projects. A study by Almansoori et al. (2021) used PLS-SEM to model the factors influencing PMO in the United Arab Emirates. A structural model of Pakistani green procurement was developed by Khahro et al. in 2021. There have been several studies using PLS-SEM to examine the causes of cost overruns and the impact of resources on project budgets in Malaysia, including Memon and Rahman (2014), Rahman et al. (2013), Memon and Rahman (2013) and Memon et al. (2013). In the United Arab Emirates, digital technology acceptance in e-government services was studied by Jasimuddin et al. (2017), and their model was developed. PLS-SEM was used by Al-Skaf et al. (2021) to examine the acceptance of social media sites.

2. LITERATURE REVIEW

Smartphones have made mobile technology a necessity rather than an option for global organizations to serve their customers effectively. Since its inception a decade ago, Google Play has seen over 200 billion downloads from its 3 million+ active applications. These mobile applications enhance the functionality of mobile devices. Among the applications are gaming, social networking, banking and finance, productivity, transportation, and a slew of other industries. Despite its enormous size, the mobile app market is still considered a young market (Moreno-Munoz et al., 2016). Businesses across all sectors use mobile apps to improve customer service and engagement. Bowden (2008) and Sashi (2012) define customer engagement as the

measures an organization takes to make customers feel as if they are a part of it. In their view, call centres fall short of meeting customers' needs, who, they argue, deserve more personalised attention. Customer engagement centres can save money by using mobile apps to improve communication between parties, establish loyalty actions and have a flexible adaptability strategy to accommodate constant changes in customer requests (Moreno-Munoz et al., 2016).

Many believe that traditional communication methods will be phased out in just a few years. Like telegram, emails and other forms of correspondence via technology will be phased out in favour of mobile applications as the dominant mode of communication (Moreno-Munoz et al., 2016). It has been found that mobile applications like Twitter, Facebook Messenger, and WhatsApp are effective in terms of customer conversation and participation, according to Hallmark Business Connections 2015. In addition, Virgin Mobile, American Express, L'Oreal Garnier Fructis and others have all demonstrated the importance of mobile application technology and its well-known associated advantages (Moreno-Munoz et al., 2016).

According to Arhippainen and Tähti (2003), user experience is influenced by personal, cultural, contextual and product factors when using mobile application technology. Perceptions held by end users have a significant impact on how IT is used (Castaneda et al. 2007). Perceptions shift over time and with exposure to new situations. According to numerous studies of new and experienced IT users, user experience is crucial and should be utilised to improve the overall level of technology acceptance in any given context (Venkatesh & Davis, 2000). User experience is viewed as one of the most important factors explaining an individual's behaviour and contributing to the difference in technology acceptance in online media and mobile application technology.

The UAE government's Smart Government or mGovernment initiatives, which were initially overseen by the Telecommunications Regulatory Authority (TRA), now include mobile application development in the UAE (Ahmad & Khalid 2017). According to the TRA, there are four major stages in the user's journey through a mobile application. When it comes to getting service information, customers want to know what kind of service they need and when, where, and how. The customer contacts the organisation and submits a service application to obtain the requested service. It's time for the user to interact with and pay for the service. This is all that needs to be said about the customer's service interaction.

3. RESEARCH METHODOLOGY

A self-administered questionnaire was used to collect data in this study. 51 items were used to monitor the influence of the independent variables on the dependent one. To ensure that all units of measurement are measuring the same thing, the Likert scale was developed as a unidimensional measurement system. For surveys it's one of the most common scales of measurement to use (Giudici, 2005; Oppenheim, 2000). The 6-Point Likert Scale is used in the study. To analyze the data, we used SmartPLS, a programme for multivariate PLS-SEM analysis. As depicted in Figure 1, the SmartPLS software was used to create a conceptual model for analysis.

Based on Figure 3, the following hypotheses are set for the study:

H1: Perceived usefulness significantly affects the intention to use the technology.

H2: Perceived ease of use significantly affects the intention to use the technology.

H3: Attitude significantly affects the intention to use the technology.

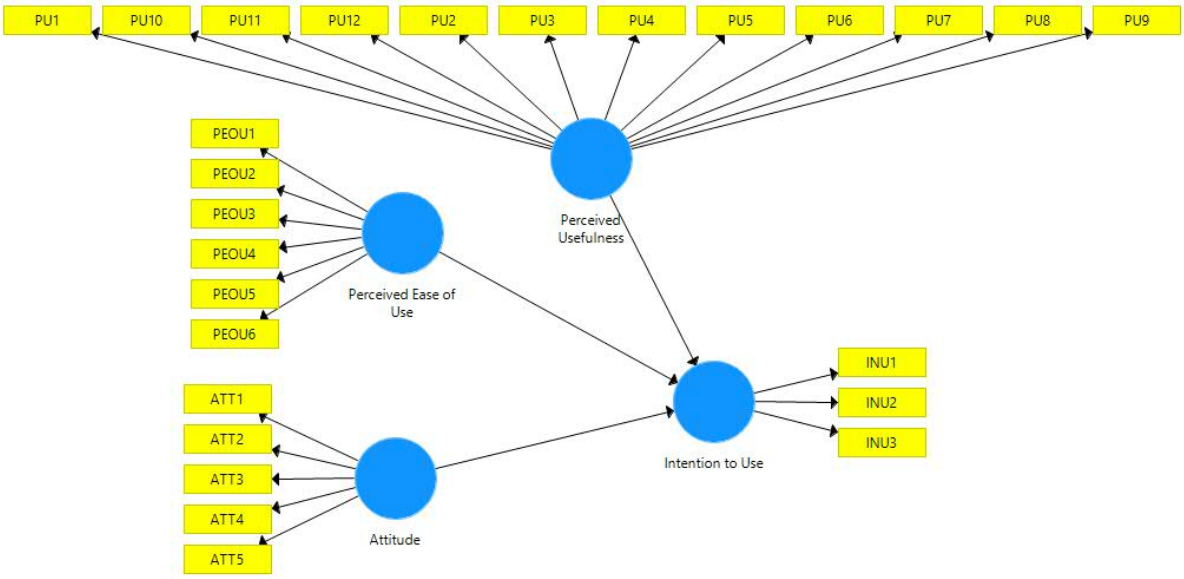

Figure 1: Conceptual Model

The attributes measuring the variables are identified from the literature as presented in Table 1.

Table 1: Measuring Variables

Construct	Coding	Formation	Variable Description
Intention to use	INU	Dependent Variable	INU1 - I intend to use mobile app in the next few months. INU2 - I predict that I would use mobile app in the next few months. INU3 - I plan to use mobile app in the next few Months
Perceived Usefulness	PU	Independent Variable	PU1 - Using mobile app enhances my effectiveness. PU2 - Using mobile app makes it easier to do the tasks. PU3 - Using mobile app improves my performance. PU4 - Overall, I find the mobile app system useful. PU5 - The mobile app makes it easy for you to find the content you need. PU6 - The mobile app provides useful content. PU7 - The mobile app makes it easy for you to choose what you want to learn. PU8 - I believe mobile app can assist interaction to whom you want. PU9 - Overall, I find the mobile app system easy to use. PU10 - My interaction with the mobile app system is clear and understandable. PU11 - I find it easy to get the mobile app system to do what I want it to do. PU12 - Mobile app enables me to accomplish tasks more quickly

Perceived Ease of Use	PEOU	Independent Variable	PEOU1 - Learning to use the mobile app was easy for me. PEOU2 - I found it easy to get the mobile app to do what I want it to do to manage my tasks. PEOU3 - Using the mobile app was clear and understandable. PEOU4 - I found the mobile app to be flexible to use. PEOU5 - It was easy for me to become skilful at using the mobile app. PEOU6 - I found the mobile app to be easy to use
Attitude	ATT	Independent Variable	ATT1 - Using mobile app is good. ATT2 - My using mobile app is favourable. ATT3 - It is a positive influence for me to use mobile app. ATT4 - I think it is valuable to use mobile app. ATT5 - I think it is a trend to use mobile app

4. RESEARCH METHODOLOGY

4.1 DEMOGRAPHY OF THE RESPONDENTS

A total of 537 questionnaires were distributed to the target audience. 417 questionnaires were returned as a result. Respondents completed 73.74% of the 396 questionnaires, used for further analysis to meet the study's objectives. Table 2 summarizes the demographics of the respondents who completed the questionnaire.

Table 2: Demography of the Respondents

Demographic Variable	Category	Frequency	% age
Gender	Male	300	75.8%
	Female	96	24.2%
Marital Status	Married	332	81.4%
	Single	64	17.4%
Age group	21-30	144	36.2%
	31-40	127	32.1%
	41-50	93	23.5%
	More than 50 Years	32	8.3%
Education	Diploma	6	1.5%
	Bachelors	261	65.9%
	Masters	125	31.6%
	PhD	4	1%

There were 75.8% male respondents, with the remaining 24.2 percent being females, according to Table 2. Eighty-one percent of those surveyed were married, while only 18 percent were single. In addition to revealing the respondents' ages, the characteristics revealed their gender. Respondents under the age of 30 made up the majority of those who participated. A total of 36.2% of those polled were under the age of 30, while 32.1% were 31 to 40. In addition, 23.5% of those surveyed are in the age bracket of 41-50. Finally, those over the age of 50 were the only ones to respond to the survey. Sixty-four percent of those polled had a bachelor's degree or higher; 31.6% had a master's degree in a different field; 1% had a doctorate; and only 1.5% had a diploma in a different field.

4.2 MEASUREMENT MODEL ANALYSIS

Convergent and discriminant validity are used to evaluate the measurement model (Hair et al. 2011). If the Cronbach Alpha, Composite Reliability, and AVE values meet the minimum requirements, the convergent validity is acceptable (Hair et al. 2010). The concept of validity is defined as criteria that accurately reflect the study's concept, such as the absence of any non-random or systemic errors (Hair et al., 2010). Whether or not an array of measured items reflects the theoretical framework of a latent construct is known as construct validity (Hair et al., 2010). The degree to which one measure positively correlates with other measurements of the same structure is known as convergent validity (Hair et al., 2016). The indicator's outer loading and the average variance extracted are used to determine the indicator's converging validity (AVE). The AVE should be at least 0.50 to be considered satisfactory (Hair et al., 2016).

On the other hand, discriminant validity measures the degree to which a construct is theoretically demonstrated to be truly distinct from other constructs (Hair et al., 2016). According to Fornell-Larcker criteria, discriminant validity can be evaluated. The latent variable's correlation is compared to the AVE values' square root. An individual construct's AVE must be greater than the AVE of other constructs to have a higher degree of discriminant validity (Hair et al., 2016). The Fornell-Lacker criterion has been widely used to assess discriminant validity in general research. When evaluating a concept, reliability refers to the instrument's consistency and stability, and it helps to determine a more accurate measurement (Blumberg et al. 2014, Sekran and Bougie 2016). An alpha of 0.6 is the most commonly used measure of internal consistency. The Cronbach' alpha is used to calculate the average of the intercorrelations between the items that measure the concept. On the other hand, this metric is capable of withstanding a wide range of external loadings. According to the composite reliability scale, from 0% to 100%, the more reliable the system is (Hair et al., 2016). Any construct's Cronbach's alpha and composite reliability values should be at least 0.7. The model's convergent and item reliability tests are shown in Table 3.

Table 3: Convergent Validity of the Model

Construct	Alpha	rho_A	CR	AVE
Perceived Usefulness (PU)	0.917	0.933	0.928	0.519
Perceived Ease Of Use (PEOU)	0.933	0.938	0.947	0.75
Attitude (ATT)	0.915	0.916	0.936	0.745
Intention to Use (INU)	0.914	0.918	0.946	0.853

Table 3 shows that Alpha, rho_A, and Composite Reliability values for all constructs are greater than 0.7, while the AVE value is greater than 0.5. This means that all of the constructs have achieved a high level of convergent validity. The developed model based on SmartPLS software is shown in Figure 2.

Afterwards, the discriminant validity of the model is evaluated. Validity discriminant measures the degree of variation among latent and remaining variables (Farrell and Rudd 2009). According to Fornell and Larker's (1981) recommendations, this study relied on AVE values to forecast discriminant validity. The discriminant validity was assessed by calculating the AVE square root and the correlation between the latent variables. According to Fornell and Larcker (1981), the value of AVE should not be less than 0.50. AVE values should also be greater than the values of other variables' square roots (Henseler et al., 2009). Discriminant validity results from SmartPLS software for the created model are shown in Table 4

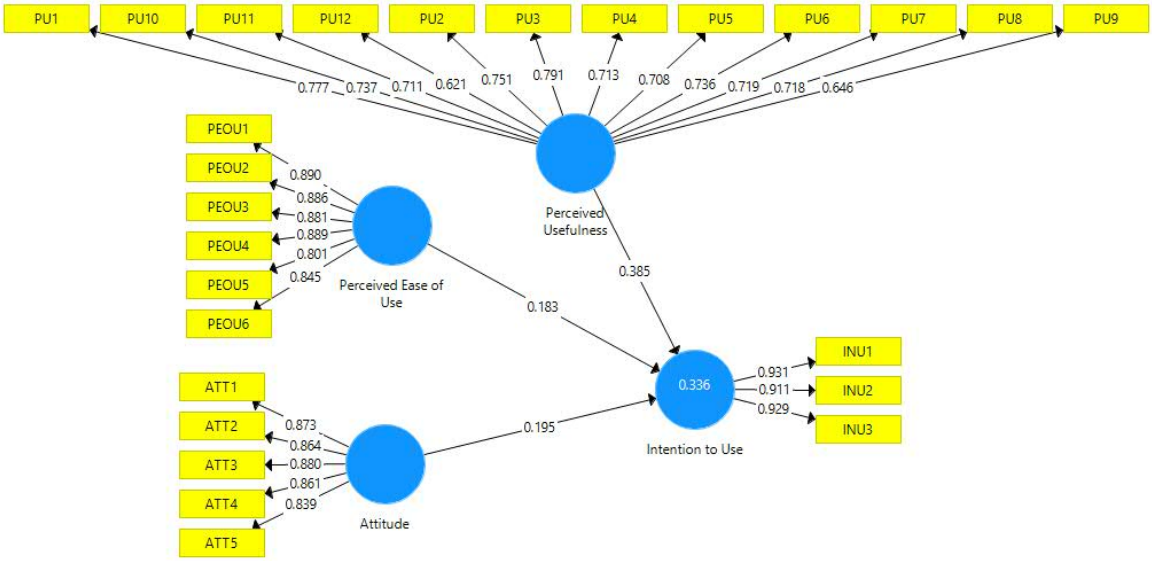

Table 2: Results of Measurement Model

Table 4: Discriminant Validity of the Model

Construct	Attitude	Intention to Use	Perceived Ease of Use	Perceived Usefulness
Attitude	0.863			
Intention to Use	0.387	0.924		
Perceived Ease of Use	0.324	0.359	0.866	
Perceived Usefulness	0.345	0.506	0.293	0.721

Discriminant validity is demonstrated in Table 4 by the fact that AVE's square root is greater than the correlation values among latent variables. Cross-loading of the indicators, which compares the indicators loaded across each construct, was also assessed. Discriminant validity is confirmed if cross loading values are greater than other variables, according to Hair et al. (2013). Table 5 shows the results of cross loading.

Table 5: Results of Cross Loading

	Attitude	**Intention to Use**	**Perceived Ease of Use**	**Perceived Usefulness**
ATT1	**0.873**	0.357	0.268	0.31
ATT2	**0.864**	0.316	0.297	0.295
ATT3	**0.88**	0.322	0.293	0.274
ATT4	**0.861**	0.33	0.298	0.311
ATT5	**0.839**	0.342	0.245	0.298
INU1	0.405	**0.931**	0.341	0.479
INU2	0.324	**0.911**	0.289	0.443
INU3	0.341	**0.929**	0.361	0.479
PEOU1	0.275	0.308	**0.89**	0.257
PEOU2	0.284	0.326	**0.886**	0.262
PEOU3	0.279	0.336	**0.881**	0.233
PEOU4	0.297	0.332	**0.889**	0.267
PEOU5	0.291	0.255	**0.801**	0.21
PEOU6	0.26	0.298	**0.845**	0.29
PU1	0.209	0.352	0.182	**0.777**

PU10	0.307	0.356	0.236	**0.737**
PU11	0.313	0.357	0.231	**0.711**
PU12	0.134	0.231	0.123	**0.621**
PU2	0.218	0.331	0.159	**0.751**
PU3	0.24	0.338	0.193	**0.791**
PU4	0.17	0.258	0.16	**0.713**
PU5	0.179	0.299	0.154	**0.708**
PU6	0.176	0.276	0.14	**0.736**
PU7	0.337	0.587	0.283	**0.719**
PU8	0.332	0.386	0.303	**0.718**
PU9	0.218	0.356	0.245	**0.646**

Table 5 confirms the discriminant because the variables have a high loading in their own variable compared to the other variables.

4.3 STRUCTURAL MODEL ASSESSMENT

The structural model will now be evaluated after the measurement model has been successfully validated. In the opinion of Henseler et al. (2015), the most important criterion for validating the structural path is evaluating the path coefficient significance. The significance of path coefficients was evaluated with 389 cases using a standard bootstrapping procedure. For this study, a total of 5000 subsamples were bootstrapped (Hair et al., 2016). Hair et al. (2013) pointed out that the hypothesis must have the same sign and significant values to be considered valid.. Therefore, each relationship's P-values and t-values were calculated using bootstrapping along the path coefficient. The coefficient is significant if the t-value is above the critical value. T-test results for two-tailed tests are acceptable at 1.967, whereas one-tailed tests require 1.645 at a 0.05 significance level. (Hair et al., 2016). Table 6 displays the results of the direct hypothesis.

Table 6: Results of Cross Loading

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Inference
Perceived Usefulness -> Intention to Use	0.385	0.389	0.059	6.538	0.000	Supported
Perceived Ease of Use -> Intention to Use	0.183	0.184	0.055	3.311	0.001	Supported
Attitude -> Intention to Use	0.195	0.195	0.056	3.481	0.001	Supported

As shown in Table 6, perceived usefulness, perceptions of ease of use, and attitudes all significantly impact the intention to use. A structural model's R^2, or coefficient of determination of endogenous constructs, can be used to ascertain its adequacy (Henseler et al., 2009). To determine the significance of the path coefficients, R^2 must be included in the model (Hair et al., 2010). R^2 has a value of 0.02, 0.13, and 0.26 are considered moderate and substantial, respectively (Cohen, 1988). Therefore,

the intention to use R^2 value is 0.336, which meets Cohen's criteria for significance (1988).

5. CONCLUSION

This paper presented a structural model explaining the attributes which drive intention to use technology by the respondents. This study focused on the customers of Etisalat in Abu Dhabi Municipality. Through questionnaire survey, the perception of 396 users was recorded and model statistically with SmartPLS software package. The SmartPLS model revealed that the investigated measuring attributes have a significant effect on the intention to use the technology. The R^2 value of the model demonstrated that the developed model has significant power in explaining the effect of the factors. Among the attributes, perceived usefulness factors are major drivers of technology adoption.

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