

# **Psychological Constructs as Antecedents of Behavioral Intentions to Use Smart Phones in Arab World<sup>1</sup>**

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*The acceptance technology has been used and adopted extensively in the literature to test and measure the acceptance and to explain user's acceptance of information technology in many fields. The study is important because of two reasons: 1. Lack of previous research to tackle the types of use and intentions to use smartphones, 2. Lack of previous studies that adapt acceptance models in the field of smartphones technology in Arab world. Accordingly, the purpose of this study is building special research model to explore types of uses and to test and evaluate user's acceptance of the new technology "smartphones" in the State of Kuwait. This study finds that there are many constructs affect the intention to use smart phone such as perceived ease of use, attachment motivation, and subjective norm. The most important finding is that perceived usefulness has no important association with intention to use and on contrary to other studies, and this is due to the specific features of the Kuwaiti society and similar ones.*

## **1. Introduction**

Since the first introduction to smart phones in 1992, the market of such devices is flourishing. The IBM Simon was the first smart phones in the market and it was a concept product at the well-known event, the communication industry trade shows COMDEX in Las Vegas in 1992. It is called smart phones because it combines the normal mobile phone features with computing abilities. For example and besides being a normal mobile phone, it supports the users with calendar, writing notes, address book, calculator, e-mail client, send and receive faxes, and multimedia functions and specially being a game device.

One important feature that gives the smart phones its diversity of applications is its touchable screen. Most smart phones are equipped with touchscreen. In later years, the smart phones become more sophisticated because of the increased curve of its applications. For example, most of late smart phones are equipped with double cameras (with 5 to 8 megapixels resolution), browser, writing editor, 3G and 4G, Wi-Fi and Bluetooth connectivity, GPS and maps navigation system, and a long list of computation features. Among famous companies that entered into this market worldwide are: IBM, Palm, Microsoft (Window CE pocket PC operating systems), BlackBerry, Apple (iPhone), Android, and many others.

The expected number of mobile phone connections worldwide is more than 6 billion in 2012 (BBC, 2010). Among this number, just 27 percent is accounted for smart phones (Russel, 2011), which is an indication that there are still many potentials for more market share occupation by communication companies. Looking at the American communication market,

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the biggest four companies (Verizon, AT&T, Spring, and T-Mobile) were able to reach the ceiling of 10 Billion dollars in sales for in year 2009 (Richtel, 2009). It is worthwhile to note that those four American companies are the third, fourth, sixth, and eighth globally after NT DoCoMo and China Mobile.

Since the last decade, the demand for communication services is grown exponentially. In 2007 the MMS was introduced to the customers and henceforth the communication networks were jammed by heavy communication traffic and there were only 16 million subscribers (O'Brien, 2009). The reports state that this number is been doubled and tripled because of the attractiveness of the features that those smart machines are equipped with (e.g. m-net).

Although the global recession that shocked the world, the communication market kept its faith in itself. The crisis was so bad that in November 2008 the wall-street stock exchange index lost 45% of its value compared to 2007. The economist Altman commented on the crisis that it is the most devastating financial crash since 75 years, where Americans lost most of their investments and savings that worth almost 14 trillion dollars (Altman, 2009). However, the global communication kept its solid expansion.

The importance of our study comes for this reason. Our significance of our study is twofold: First, it shadow the lights over subject that is not been explored scientifically to levels shown in Western societies. Second, smartphones is the new level of current technological revolution and still growing to exponential levels according to statistical figures and scholars analyses. The importance of such studies is trivial due to the deep impact that this technology is making over Arab societies such as Kuwaiti population, and specially youngsters. Specifically, we are interested in exploring the type and acceptance of intention to use smartphones among Kuwaiti population, which is future look to the technology in this society.

Next section gives brief look to Kuwaiti communication market. After that we introduce separate section talking about the importance of the study. Following that section dedicated to literature review, which is divided into subsection according to technology acceptance theories and smartphones publications. After that we begin to introduce study research model, which is divided into subsections discussing study latent constructs and hypothesis. Then methodology and statistical analysis and research findings are presented respectively. Finally, conclusion and future research is discussed.

## 2. Kuwait Communication Market Background

Although Kuwait is a small country, its communication market is lucrative due to exponential growth regionally and globally. There are in Kuwait three mobile service providers: Zain, Wataniya, and Viva. Zain was established in 1983 (used to be named MTC). In October 12th, 1997 Wataniya were introduced to the communication customers. After many discussion and debates among the politicians, Viva were established in 2007. The three companies compete in a market with around 3 million Kuwait's population.

The competition is so severe between the three companies where all tactics are followed, including giving almost free mobiles for yearly subscriptions. The smart phones are became

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one fruitful strategy that is been an important prize to be given to new subscribers. The customers have different options to choose for free (or minor cost) between variety of smart phones such as iPhone and Android devices, hoping to enforce customers engaged into their yearly policies and, henceforth, become loyal customer. "As the market becomes more and more mature, value-added services become more homogeneous and completion for acquiring new customers and retaining existing customers becomes more intense. In this environment, customer satisfaction is a critical factor for mobile service providers to maintain or improve their market share and profitability." (Zhao et al., 2012)

### 3. Importance and Research Questions

According to the previous section, the strategic planning for the communication companies worldwide and not only in Kuwait, their strategic planning is focused upon value-added services. Depending on the last statement in the previous section, Zhao and his colleagues (Zhao et al., 2012) conclude that to increase the market share and compete in this market, those companies can do that through mobile value-added services, which is the path towards increasing the customer satisfaction.

Thus, most of mobile value-added services are designed to be used by 3G and 4G smart phones mobiles. Kuwaiti market is highly developed and equipped with variety of devices and the latest technologies. Moreover, Kuwaiti individual is considered to be one of richest income globally. For this reason most Kuwaitis own more than one phone line with diversion of mobile technologies.

The significance of our research is to concentrate and highlight the quality and intentions to use smartphones among Kuwaiti citizens. Our research is concentrated, precisely, to answer the following questions: 1. What are factors that affect users' intention to use smart mobile phones? 2. Does the ease of use affect the intention to use smart phones? 3. Does the usefulness of smart phones affect the intention to use smart phones?

### 4. Literature Review

#### 4.1 Behavior Theory and Technology Acceptance Model

Looking into the past studies pertaining the mobile services we find that there are plenty of studies that focused upon technology adoption from different theory perspectives such as the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), the Innovation Diffusion Theory (IDT) (Rogers, 1983), the Technology Acceptance Model (TAM) and its related modifications and variations (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Yi et al., 2006; Rouibah, 2008; Rouibah and Abbas, 2010) and other theories that combine more than one of the previous theories to create a new model (Kim and Garrison, 2009).

It is important in this regard to note that TAM is the theory that was developed and invented in the information system environment and used for measuring the acceptance of information technology in this field specifically. This is why it is considered as one of the most attractive theories by the scholars in the field that took attention and, consequently, been used as a

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base for variations and creations of new extended and modified theories (Venkatesh & Davis, 2000; King & He, 2006; Rouibah, 2008; Rouibah and Abbas, 2011; Kim & Garrison, 2009; Liao et al., 2009; Mallat et al., 2009).

Since its first introduction (Davis, 1989; Davis et al., 1989), the TAM research was under the focus of huge number of studies. Plenty of studies verified the goodness and solidness of the model (Chen et al., 2011; ) and, yet, another group of researches extended the original form into different extensions (Lopez et al., 2008; Rouibah et al., 2011; Liqueat and Anjali, 2009; Lung and Peng, 2007; Koury et al., 2010). Precisely, Hong et al. (2002) asserted that extending original TAM to include the following five external variables will positively explain the model since they all influence individual perception: computer's self-efficacy, knowledge of the search domain, relevance, terminology, and finally the screen design. However, Lewis et al. (2003) found the external variables to include the institutional factor, the social factor, and the individual factor.

Although plenty of studies were adopted and successfully tested TAM, the theory (Hasan and Ahmed, 2007), Hsu and Lu (2007) had another point of view. They concluded in their research that TAM has mixed and sometimes-debatable results.

### 4.2 Smart Phone and Acceptance Models

The flexibility and multi-uses of smart phones made researchers to study the acceptance models on many dimensions such as delivery systems and logistics (Chen et al., 2009; Chen et al., 2011; ), m-commerce and online shopping (Chang and Chen, 2005; Rouibah and Abbas, 2010; Rouibah, Abbas, and Rouibah, 2011), sports and training (Taylor et al., 2011), m-net (Shin, 2007), mobile advertising (Koury et al., 2010), learning and teaching (Hashemi and Ghasemi, 2011; Shin et al., 2011), and many more.

Chen and his colleagues (Chen et al., 2011) used TAM theory in Taiwan in the field of logistics and measured the model with two different forms (with and without self-efficacy), and found that self-efficacy is only a predictor of perceived ease of use construct. Shin (2007) directed his study towards m-net and found in his study that based upon 515 consumers responses that users' perceptions are significantly associated with their motivations towards using mobile Internet. In his study, Shin found that perceived quality and perceived availability are two constructs that have significant effect on users' extrinsic and intrinsic motivations (Shin, 2007).

Shin et al. (2011) used another behavior acceptance theory the unified theory of acceptance and usage technology (UTAUT) to estimate behavior intention to use the smart phones as a ubiquitous learning (u-learning) tool. Their results were consistent with prior research and found that satisfaction and confirmation are the two main predictors of intention.

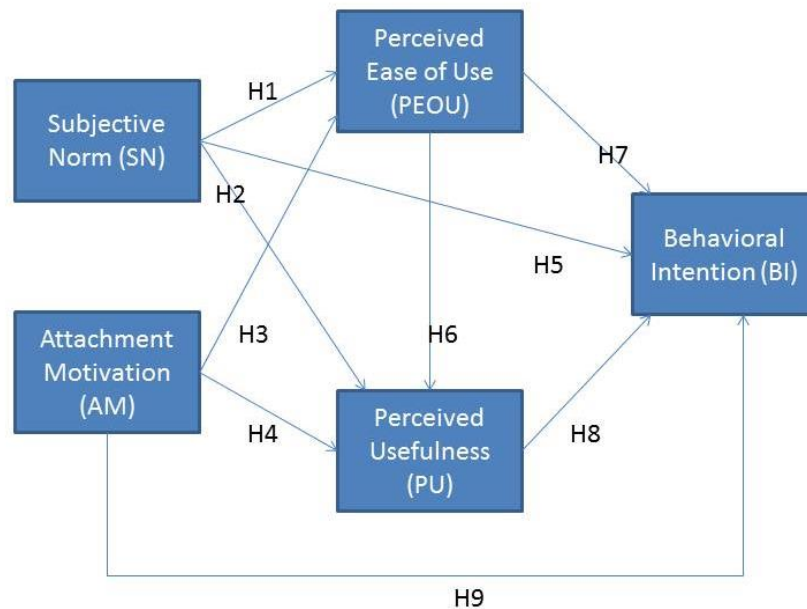
There are huge amounts of acceptance models publications. Respectful percentage of these publications tackles smartphones usage and acceptance. However, applications of acceptance models are rare and scarce when talking about Arab world. Researcher hardly can find research that discusses the smartphones as an environment of acceptance model. Although many studies were published work on smartphones and the State of Kuwait (e.g.

Chaudhry and Ansari, 2013; Alshatti and Alhammad, 2014; Safar, 2012; Aldiahani, 2011), these set of studies differ from our current study. Neither of these studies uses acceptance models in their research to test the intention to use smartphones, even though most of them applied this technology in different fields.

### 5. Research Model

The aim of our project is to study the factors that affect the usage of smart phones in the Arabian world. The model that we developed is depicted in Figure 1. We modified the original TAM model to include the construct attachment motivation. We developed our research model based upon the TAM 2 research of Venkatesh and Davis (2000) since it combines the social factors and cognitive instrumental determinants into one model. The research model 8 hypotheses are included in Figure 1 which were constructed based upon different research projects in the field of communications and mobile phones.

Figure 1: Research model



#### 5.1 Subjective Norm (SN)

According to Hofstede’s collectivist dimension, the Arab societies carry collectivist attitude. The subjective norm is derived from the theory of reasoned action (TRA) and it is been verified to be the determinant of behavioral intention to use. Venkatesh and Davis (2000) were used the subjective norm later on their extension of TAM theory (TAM 2). “Subjective norm refers to a person’s perception of what people important to him think he should or should not perform in accordance to a behavior in question” (Rouibah and Abbas, 2010).

In this regard, the users of the technology may adapt and adopt their behavior according to that is complied with the group that this individual belongs to and he/she thinks is identified with. According to Venkatesh and Davis (2010), “the direct compliance effect of subjective

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norm is the case when an individual perceives that a social actor wants him to perform a certain behavior, and the social actor has the ability to reward the behavior or punish it in case of its absence”.

Previous studies verified a positive link between subjective norm and perceived usefulness (Venkatesh and Davis, 2000; Yi et al., 2006; Schepers and Wetzels, 2007; Rouibah, 2008), and positive effect with behavioral intention (Venkatesh and Davis, 2000; Hung et al., 2003). Thus we hypothesis that:

- **H1:** Subjective norm (SN) is positively affects the perceived ease of use (PEOU).
- **H2:** Subjective norm (SN) positively affects the construct perceived usefulness (PU).
- **H5:** Subjective norm (SN) positively affects behavioral intention (BI) to use smart phones.

### 5.2 Attachment Motivation (AM)

According to Li et al. (2005), “children have the instinctive tendency to be attached to their caregivers”. The same kind of attachment will be moved to consequently to friends and groups when the person grows up and become adult in the future. “To keep up frequent and pleasant interactions with other partners, an individual may actively search for new communications channels to maintain social networks” (Li et al., 2005, p. 111). This construct is very special and interesting when it comes to study an interpersonal communication (Sarbaugh-Thompson and Feldman, 1998). Thus, for communication technologies, people with high degree of attachment motivation may perceived such technologies to be more useful than those who do not. Accordingly, we hypothesize:

- **H3:** Attachment motivation positively affects perceived ease of use.
- **H4:** Attachment motivation positively affects perceived usefulness.

### 5.3 Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)

The original work of TAM by Davis (1989) introduced the cognitive construct. TAM established the connection between perceived ease of use and usefulness. Perceived ease of use has been empirically tested and verified by many studies to be main effector and major predictor of perceived usefulness (King and He, 2006). According to literature (King and He, 2006; Bruner and Kumar, 2005; Hu et al., 1999; Igbaria and Livari, 1995; Shyu et al., 2011) users normally consider a technology is useful when they perceive it to be easy to use. Davis (1989) defines *perceived usefulness (PU)* as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 320). Accordingly, we define perceived usefulness in the context of using smart phones as the degree to which a person believes that using smart phones would enhance his/her daily need performance (may be personal, social, professional, or academic).

In contrast, *perceived ease of use (PEOU)* defined by Davis (1989) as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320). There are plenty of proofs added over time finds strong relationships between PEOU and PU, between PEOU and actual usage, and intention to use (Rouibah, 2008; Rouibah et al.,

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2009). Accordingly, we define perceived ease of use in the context of using smart phones as the degree to which a person believes that using a smart phone would free himself/herself from an effort (can be personal, social, academic, or professional).

In previous studies pertaining TAM, the behavioral intention were effected by both perceived usefulness and perceived ease of use. Variety of studies tested and verified the positive effects of both factors (PU and PEOU) over behavioral intention (BI) (Shyu et al., 2011; Adams et al., 1992; Davis et al., 1992; Hu et al., 1999; Venkatesh and Davis, 1996; Venkatesh and Davis, 2000). Thus the following hypotheses are proposed:

- **H6:** Perceived ease of use positively affects perceived usefulness.
- **H7:** Perceived ease of use positively affects behavioral intention to use smart phones.
- **H8:** Perceived usefulness positively affects behavioral intention to use smart phones.

Our new dimension of this research is to test the effect of attachment motivation over the behavioral intention. Large number of studies that we went through did not test the importance and significance effect between the two constructs. Our view is that the attachment motivation is positively associated with behavioral intention. There is clear logic behind it. It is normal that people who are attached to their important people such as friends and family member enjoy a higher level of happiness with their partners (McAdams and Bryant, 1987), they will behave positively towards social gadgets. Reis and Patric (1996) claims that supportive and appropriate emotional response from friends and family members create an enjoyable atmosphere for persons.

The new hypothesis that we claim here in our study is that since there are variety of communication tools (voice, text, and video), and since Kuwaitis are socially driven, this will lead to conclusion that there is a direct positive effect between attachment motivation and behavioral intention. This positive impression results into continues to use and continuously positive behavioral intention to use. Thus we add the final hypothesis as follows:

**H9:** Attachment Motivation (AM) is positively affects Behavioral Intention (BI).

## 6. Research Method

### 6.1 Population Sampling and Data

The questionnaire is built based upon previous studies. Our collection data is a two stage model. We began first collecting the pilot study data. The pilot random sample was chosen of 30 Arabic language speakers. This is needed to analyze and to check the reliability of the instrument. The questionnaire is, then, revised and edited accordingly and many necessary changes were made and updated in order to begin the next stage and launch the complete study. The complete study to collecting the data took around month period of time. Random samples of 450 smart phone users in the State of Kuwait were collected using stratified random sample.

### 6.2 Measurements

We collected the instrument measurements from different studies. Since there is a scarce in literature publication in the Arab world that discuss the acceptance models in general, and in the field of communication in specific, we collected our instrument measurements from those were published in foreign languages and foreign countries. Accordingly, we made a collection from our own statements plus translated ones from English to be used as study measurements.

It is critical to state that we found some degree of variations in the translation between the two languages. After collecting and analyzing the pilot study data, we figured out that there are some gaps between measurements that were used in Foreign language (i.e. English) and native language in Kuwait (i.e. Arabic). Hence, we kept the meaning of the measures and translated the context as much as it is possible in order to reflect the construct into scientific and meaningful way.

### 6.3 Sample Characteristics

We collected as much demographics as is appropriate and related to our study purposes and goals. The respondents' characteristics are as follows: the gender distribution tends to favor the female since there were 57.1% female smart phone users versus 42.9% male users. Among the sample, 92.1% were Kuwaiti nationality, 4.9% were non Kuwaitis (Arabs or non Arabs). The following table (Table 1) shows the distribution of respondents according to their age, academic background, and monthly income respectively.



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**Table 1: Study sample characteristics and distribution**

Characteristic		Number	Valid Percent	Cumulative Percent	
<b>Age</b>	< 12	8	1.8	1.8	1.8
	12 - 15	18	4.0	4.0	5.8
	15 - 20	100	22.2	22.2	28.0
	20 - 25	137	30.4	30.4	58.4
	25 - 30	49	10.9	10.9	69.3
	30 - 35	25	5.6	5.6	74.9
	35 - 40	19	4.2	4.2	79.1
	40 - 45	32	7.1	7.1	86.2
	45 - 50	33	7.3	7.3	93.6
	50 - 55	20	4.4	4.4	98.0
	> 55	9	2.0	2.0	100.0
	Total		450	100.0	100.0
<b>Academic Degree</b>	High school or less	193	42.9	42.9	42.9
	2 years college	57	12.7	12.7	55.6
	BS	179	39.8	39.8	95.3
	MS	14	3.1	3.1	98.4
	PhD	7	1.6	1.6	100.0
	Total		450	100.0	100.0
<b>Income</b>	500 or less	195	43.3	47.2	47.2
	500 - 1000	79	17.6	19.1	66.3
	1000 - 1500	63	14.0	15.3	81.6
	1500 - 2000	45	10.0	10.9	92.5
	2000 - 2500	11	2.4	2.7	95.2
	2500 - 3000	8	1.8	1.9	97.1
	3000 - 3500	4	.9	1.0	98.1
	3500 - 4000	2	.4	.5	98.5
	> 4000	6	1.3	1.5	100.0
	Total		413	91.8	100.0

## 7. Reliability and Validity

The overall Cronbach's reliability coefficient Alpha was 92.2%. This overall Cronbach's reliability coefficient Alpha is high and illustrates an acceptable consistency among instruments. The measurements that were used are more than those explained in the following table. However, we need to emphasize the point that we only considered those measurements which passed both tests: the reliability and the exploratory factor analysis. Table (Cronbach's reliability coefficient) presents the reliability tests for the study constructs. Table 2 explains the Cronbach's reliability Alpha coefficient and explained variance per each latent construct. Table 3 collects the factor loadings of study measurements.

**Table 2: Cronbach's reliability coefficients and explained variance of study latent constructs**

	Explained Variance	Cronbach's Reliability Coefficient
Subjective Norm (SN)	84.12	81.1%
Attachment Motivation (AM)	74.085	82.0%
Perceived Usefulness (PU)	77.9	92.9%
Perceived Ease of Use (PEOU)	76.9	92.4%
Behavioral Intention (BI)	73.3	81.3%

The data were under many analyses and testing in order to build sound research model. We ran into different stages of discriminate validity test before going into further analysis. Finally, and after many rounds of pilot studies, we gathered our data that were found to be sound (see Table 3).

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**Table 3: Factor loadings of study measurements**

	Component				
	1	2	3	4	5
SN1					.873
SN2					.870
AM1				.768	
AM2				.774	
AM3				.759	
PU1	.804				
PU2	.880				
PU3	.891				
PU4	.854				
PU5	.770				
PEOU1		.814			
PEOU2		.838			
PEOU3		.874			
PEOU4		.804			
PEOU5		.689			
BI1			.747		
BI2			.783		
BI3			.791		

**Table 4: Inter-construct correlations.**

	PU1	PU2	PU3	PU4	PU5	PEOU1	PEOU2	PEOU3	PEOU4	PEOU5	BI1	BI2	BI3	SN1	SN2	AM1	AM2	AM3	
PU1	1.00																		
PU2	0.81	1.00																	
PU3	0.82	0.88	1.00																
PU4	0.75	0.80	0.82	1.00															
PU5	0.69	0.73	0.76	0.83	1.00														
PEOU1	0.50	0.40	0.42	0.53	0.53	1.00													
PEOU2	0.41	0.36	0.36	0.44	0.45	0.85	1.00												
PEOU3	0.45	0.34	0.37	0.42	0.43	0.85	0.86	1.00											
PEOU4	0.47	0.37	0.37	0.43	0.43	0.79	0.82	0.82	1.00										
PEOU5	0.34	0.30	0.28	0.36	0.35	0.71	0.73	0.76	0.70	1.00									
BI1	0.37	0.37	0.36	0.43	0.47	0.63	0.64	0.62	0.59	0.76	1.00								
BI2	0.39	0.35	0.32	0.39	0.44	0.48	0.49	0.44	0.53	0.53	0.76	1.00							
BI3	0.33	0.30	0.29	0.31	0.33	0.49	0.48	0.48	0.51	0.55	0.72	0.71	1.00						
SN1	0.37	0.34	0.37	0.26	0.30	0.30	0.32	0.29	0.35	0.21	0.37	0.32	0.28	1.00					
SN2	0.33	0.30	0.34	0.26	0.32	0.19	0.21	0.18	0.27	0.17	0.31	0.28	0.26	0.76	1.00				
AM1	0.43	0.32	0.38	0.41	0.45	0.49	0.50	0.42	0.50	0.42	0.54	0.44	0.46	0.43	0.43	1.00			
AM2	0.35	0.34	0.36	0.45	0.50	0.54	0.57	0.52	0.55	0.53	0.63	0.54	0.52	0.36	0.38	0.81	1.00		
AM3	0.43	0.47	0.42	0.41	0.42	0.42	0.39	0.37	0.44	0.25	0.39	0.42	0.33	0.39	0.39	0.62	0.70	1.00	

As it is seen from Table 2, both reliability and composite reliability of study constructs were greater than the thresholds, indicating that the scales were reliable.

## 8. Testing the Research Model

We used LISREL 8.54 software for further analysis. The structured equation modeling is been used to identify the importance and significance of the relationships between our study constructs. Figure 2 is the research model with path significance.

**Figure 2: Results of Hypotheses Testing and Path Analysis**

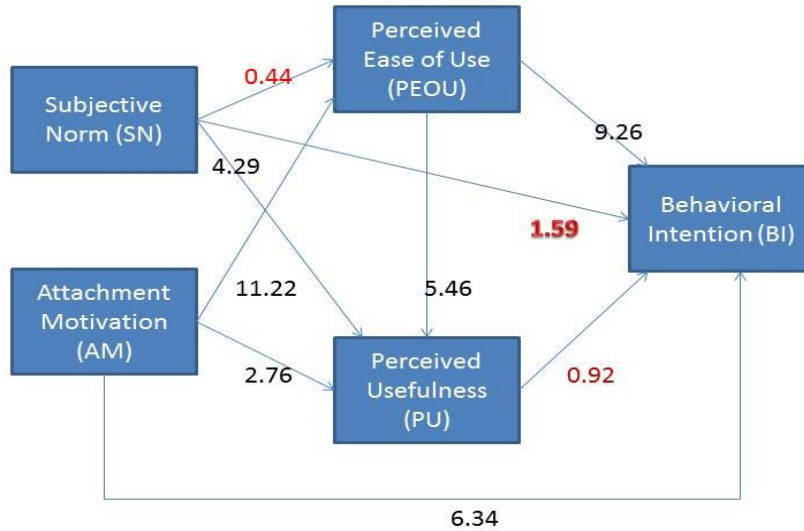


Figure 2 shows that there are some significant paths and effects and some are non-significant. Table 5 shows the goodness of fit statistics of the structured equation modeling analysis.

**Table 5: Goodness of fit statistics of the study**

	Values in study
Root mean Square Residuals (RMR)	0.054
Goodness of Fit Index (GFI)	0.82
Root Mean Square Error of Approximation (RMSEA)	0.11
Adjusted Goodness of Fit Index (AGFI)	0.76
Normed Fit Index (NFI)	0.95
Comparative Fit Index (CFI)	0.95
Relative Fit Index (RFI)	0.94

Results show that subjective norm has no significant effect over perceived ease of use. The same is true for subjective norm over behavioral intention. The following table (Table 6) presents the study hypothesis and whether they were supported.

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**Table 6: Testing Study Hypotheses.**

Hypothesis	1 <sup>st</sup> Construct	2 <sup>nd</sup> Construct	Impact factor	Significance
H1	SN	PEOU	0.44	NOT
H2	SN	PU	4.29	SIG.
H3	AM	PEOU	11.22	SIG.
H4	AM	PU	2.76	SIG.
H5	SN	BI	1.59	NOT
H6	PEOU	PU	5.46	SIG
H7	PEOU	BI	9.26	SIG
H8	PU	BI	0.92	NOT
H9	AM	BI	6.34	SIG

One of most important findings in our study is that perceived usefulness (PU) has no significant association with behavioral intention (H8). This is one interesting finding from our result. This finding contradicts previous study that show positive relationship between the two (Rouibah, 2008; Rouibah et al., 2009).

Another new claim that we can make depending on our study results is the last hypothesis (H9). We found that there is a significant relationship between attachment motivation and behavioral intention. This new finding can add positive and significant benefits to the literature.

### **9. Conclusion, Limitations and Future Research**

Our research findings were interesting. We found that there are many significant associations between study research model constructs. Subjective norm has positive association with perceived usefulness and not with perceived ease of use not with behavioral intention. Attachment motivation has a significant association with perceived usefulness, and perceived ease of use. Perceived ease of use has a positive significant association with behavioral intention and perceived usefulness. However, the new addition that we have in our results is that subjective norm didn't have significant association with behavioral intention. One major addition in our research is that we found a positive significant association between attachment motivation and behavioral intention to use smart phones in the State of Kuwait.

Those findings are beneficial for mobile and communication companies. The findings can help and direct the companies working in either the local or regional market (such as Zain) to initiate fruitful advertising campaigns. Note that the societies here in Gulf and Middle East regions have different meanings of using those smart phones than in Western societies. This is very clear from our finding that Kuwaiti people do not consider this smart device to be useful in their professional and working environment. Instead, they are more laying towards social and cultural motivations as major forces behind using such complicated gadgets compared to other societies such as the Western ones. In other terms, the study shows that Kuwaiti and other Arabian societies are adopting and may continue to use those devices based upon other constructs such as attachment motivation and ease of use rather than work and professional factors.

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The research model is based upon psychological constructs. Thus our research model is an extension to TAM. One limitation in this regard is that there are many important psychological constructs that can play significant role and improve the research model outcome. The first construct is *perceived enjoyment* that originated from theory of flow – TOF (Csikszentmihalyi, 1990) and *personal innovativeness* that is originated from Innovation Diffusion Theory – IDT (Agarwal and Prasad, 1998), which found to have impact on both intermediate constructs perceived usefulness and perceived ease of use (Lu et al., 2005; Hung and Chang, 2005; Lian and Lin, 2008; Thompson et al. 2006; Fang et al., 2009). Our future study will focus on adding further psychological constructs to improve the research model performance.

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## Appendix: Questionnaire

Measurement		Totally Dis Agree						Totally Agree
		1	2	3	4	5	6	7
<i>Subjective Norm (SN) measures</i>	1. People who are important to me think that I should use smart phone. (Rouibah et al, 2010; Rouibah et al., 2011). <b>(SN1)</b>							
	2. People who are important for me pressure me to use adopt smart phone. (Rouibah et al, 2010; Rouibah et al., 2011). <b>(SN2)</b>							
<i>Attachment Motivation (AM)</i>	3. Smart phone makes me attached and close to others, I can see them more frequently and help me as if they are available for me. (Rouibah et al., 2010). <b>(AM1)</b>							
	4. Smart phone allows me to be around others and empower me to know about them more, and this is the most interesting thing about this technology. (Rouibah et al., 2010). <b>(AM2)</b>							
	5. I feel as if I achieved a great success and high value when I am close to others because of using smart phone. (Rouibah et al., 2010). <b>(AM3)</b>							
<i>Perceived Usefulness (PU)</i>	6. I use the smart phone in my job to improve my performance. (Davis, 1989; Lim et al., 2011). <b>(PU1)</b>							
	7. I use smart phones to increase my productivity. (Davis, 1989). <b>(PU2)</b>							
	8. Using smart phones would enhance my effectiveness on the job. (Davis, 1989). <b>(PU3)</b>							
	9. Using smart phones make it easier to do my job. (Davis, 1989). <b>(PU4)</b>							
	10. In general, I would find smart phones are useful in my job. (Davis, 1989). <b>(PU5)</b>							
<i>Perceived Ease of Use (PEOU)</i>	11. Learning to operate smart phone is easy for me. (Davis, 1989). <b>(PEOU1)</b>							

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	12. I would find it easy to get to do what I want it to do. (Davis, 1989). <b>(PEOU2)</b>								
	13. My interaction with smart phone would be clear and understandable. (Davis, 1989). <b>(PEOU3)</b>								
	14. I would find smart phone to be flexible to interact with. (Davis, 1989). <b>(PEOU4)</b>								
	15. I would find smart phone easy to use in general. (Davis, 1989). <b>(PEOU5)</b>								
<i>Behavioral Intention (BI)</i>	16. I think I will continue using smart phone in coming years. <b>(BI1)</b>								
	17. I will not hesitate to increase my dependence on smart phone in my daily life. <b>(BI2)</b>								
	18. I think I will hesitate to use smart phones when I have chance to do so. <b>(BI3)</b>								