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## 3G TECHNOLOGY USE IN PAKISTAN AND ITS IMPACT ON ACCEPTANCE BEHAVIOUR

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### ABSTRACT

With the development of mobile technologies, mobile services have become an essential part of people's lives and the general public. After an ample research a series of advance experimentation and development, the mobile technology emerged and enter into more advance 3G period. This study aims to investigate Pakistani consumers' approach towards the existing mobile services and classify the factors affecting their preferences towards 3G acceptance. With a view to accomplish this the study suggested an extended TAM model for checking consumers' behavior towards 3G mobile services. Furthermore, the survey methodology was espoused for data collection through a closed type questionnaire. After the data analysis and discussion, the results show that the convenience, price, service quality, self-efficacy and value are the factors affecting consumers' acceptance in the presence of a moderator that is perceived usefulness.

. **Keywords:** Convenience, Service quality, self-efficacy, value, Price, TAM, Perceived Usefulness, Consumer Acceptance

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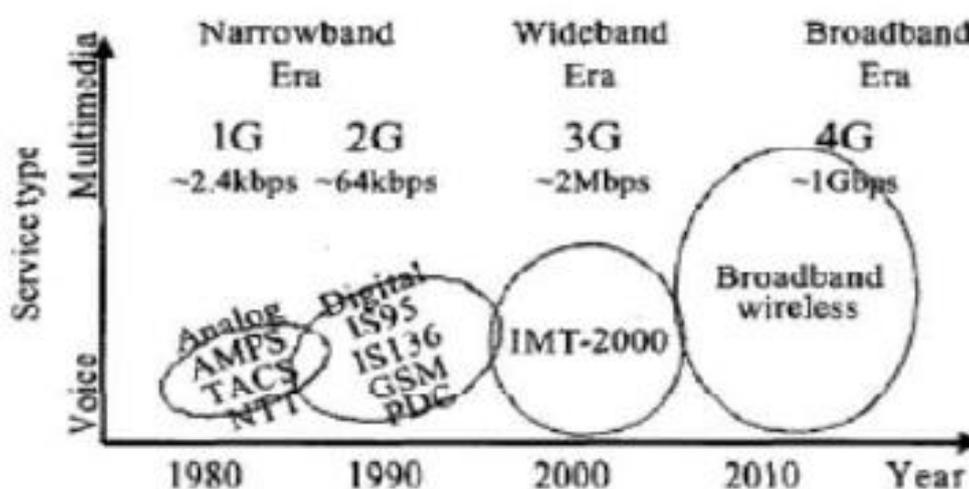
## 1. INTRODUCTION

### 1.1. Background of study

The present era talks about technology. The need of advance and improved technology has been arisen as a result of gradual changes taking place in technology. It has been emerged on both scales large and small scale for instance phones which are now days become smart ones. The introduction of technology came into being in the form of generations and followed by Ist generation. Zero generation was the first one to be introduced globally. The mobile-to-telephone ratio has utilized the zero generation. First Generation (1G) has been followed by zero generation and introduced in year 1980 and referred as standards of analog telecommunication. The speed in first generation ranges from a modem of 28K to a modem possessing 56 K. Then comes second generation (2G) followed by first generation in the year

1991. GSM Standards were the base of 2G technology and became commercial and had several advantages similar to short message services. The services related to mobile phones for instance SMS services and multimedia were introduced by 2G technology. Though, most people around the globe are using 2G, the second generation has been upgraded in terms of benefits and has been introduced in a series of upgraded versions for example 2.5G, 2.75G, 3G and 4G.

Followed by 2G in the year 1998 the third generation technology has been introduced in the world of telecommunications. Apart from the 1G and 2G the acceptance of 3G technology has become crucial, though it is more advanced as compared to previous one but people are reluctant to adopt it. Since 1998 3G has served as an adding tool in supporting internet reachable services for instance video chats and others. The transfer rate of 3G is more than previous two generations that is no less than 200 Kbit/s. The figure below depicts the journey of generation in the world of telecommunication.



**Figure 1: evolution of Mobile generation**

### 1.2 Main Research Problem

Our main research question is “3-G Technology in Pakistan and its impact on consumer behavior”. Other relevant research questions are as follows:

- What are the key variables that significantly impact Consumer Acceptance of 3-G Technology?
- Which variable is the best predictor of technology acceptance leading to consumer acceptance of 3G?

### 1.3 Problem Statement

*“What is the impact of 3G Technology Use in Pakistan on Consumer Acceptance Behavior?”*

Wireless communication technology had been developed keeping in view the tremendous growth in other sectors and almost by every industry. Advancement in new technology has paved the way for subscribers to understand and use more of technology. This understanding of technology results in increased demand by subscribers. The resultant outcome is the emergence of new applications for example downloading music, streaming videos and gaming. The combination of 3G technology and wireless technology results in diverse services to users of mobiles and has been utilized for mobile networking globally. International telecommunication union has founded 3G which is narrated to the IMT-2000. The information and communication responsibilities have been taken over by a specialized agency of United Nations named as International telecommunication union (ITU). In Japan 3G network has been first introduced by NTT DoCoMo for the commercial use. 3G services have equipped the new age with a variety of services to those who adore technology. The trend now days has been shifted towards 3G and customers are enjoying many benefits along with diverse features (Wei, 2005).

Most importantly 3G facilitated consumers to with a variety of functions particularly information sharing has been carried out via internet accessibility regardless of time and place constraints which is very constructive and beneficial. Until now as compared to other technologies 3G gives the higher speed. It is because of 3G people are connected to their families and friends through visual communication by making video calls at high speed (Leestma et al, 2001).

The technological advancements have made it necessity rather than a fashion. Users can use it in numerous ways for instances the downloading has made the young generation to download music and user friendly devices (Wei, 2005). The sharing of documents has been made easy via emails. Third generation has made it easy and quicker to download documents of every types as one can download and install games. It is easy now to get access to information of all types and make it convenience for user to update oneself with the outer world (Leestma et al, 2001). Apart from other facilities it provides several services for instance multimedia applications, vast networking and most importantly the strive to get control over noise. Keeping in view the versatility of services provided by 3G but the remarkable thing is the monetary benefit is there. In this regard there is only a minute fluctuation in terms of process in the recent versions of 3G. like 2.5G (TRI,2005). There are few factors which led the way towards the need of 3G and can be called as drawbacks in previous technologies. One of the major

drawback was Poor voice pitch, low battery life, zero security, inadequate capacity, low handoff reliability, incapable to accumulate complex data (Zeng, 2002).

#### **1.4 Objectives of Study**

The objectives of the study are given below: -

1. To check relationship between service quality, price and perceived value.
2. To measure consumer level of 3G technology.
3. To analyze the role of intervening variable, i.e., perceived usefulness.

#### **1.4 Scope of study**

The scope of this study is to clearly define the factors affecting the consumer perception and which external factors are considered the most useful for acceptance and rejection of 3G technology. As 3G technology is being used widely all over the world and as such the scope of this study is also wide.

## **2. LITERATURE REVIEW**

By July 2003, a million new users were expected to utilize their mobile phones a smart ones to watch live match, able to make video calls, and can check-mail. (Whitfield, 2003). 3G is the one which is responsible for this rebellion and new market. Wireless machinery and mobile applications in market have been over advertised. The conception of value to the client and to the buyer is not always distributed via these technologies (Whitfield, 2003). To technologists, the answer to all business crisis is the technology. Conversely, cynics wrap up that wireless mobility elucidations are indefensible for the venture until the 3G of wireless develop into a verified authenticity.

Behavior prophecy remained one of the major rationale of psychological theories. Among all the one more constructive theories take account of TRA (theory of reasoned action) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), SCT (social cognitive theory) (Compeau & Higgins, 1995; Hill et al., 1987) and finally The Acceptance Model (Davis, 1989, 1993). It was formerly presented by Davis (1989), is derivative from theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The Acceptance Model is a behavioral model that illustrates the antecedents of the espousal of information technology (IT), and is well thought-out a vigorous tool for measuring the acceptance of new technology by consumers (Agarwal & Prasad, 1999; Davis, 1989; Doll et al., 1998; Segars & Grover, 1993). Figure.2 below is an explanation of TAM, which comprises six variables which are external variables, attitude, perceived usefulness, behavioral intention, perceived ease of use and actual usage. It

demonstrates that customer behavior is determined by acuity of usefulness and the simplicity in using the technology (Adams et al., 1992; Davis, 1989; Davis et al., 1989; Mathieson, 1991). Technology Acceptance Model (TAM) has been used extensively in order to explain the factors affecting acceptance of consumer regarding 3G. It offers a concrete constitution to explicate the user adaptation procedure of new informational products (Davis, 1989; Davis et al., 1989). Figure above demonstrates the novel TAM (Paul et al., 2003).

The basic objective of this model is to construct basis for tracing back the effect of external constructs on internal beliefs, feelings and plans. TAM proposes that there are two factors which explains the system usefulness in far better way and considered as most important one. One of the variable among six is perceived usefulness of technology followed by the perceived ease-of-use.

The model fundamentally gauges the consumer's mind-sets and convictions regarding recognition or denunciation of 3G technology. Many scholars have done work in different Asian countries likewise China, Malaysia, India etc, to study the factors that has an impact on consumer espousal of 3G technology and their insights about 3G service. In few studies theory of planned behavior has been argued. Quan, Jianxin, & Hao (2010) envisages and explicates human behavior transversely among different information technologies. This theory elucidates that one's actual behavior is persuaded by person's behavior intent. On the other hand, Technology Acceptance Model focuses on two major factors among six. Perceived usefulness is narrated to putting less force in certain job. In few studies Quan, Jianxin, & Hao (2010) TAM basic constructs do not fully examine the persons agreement towards technology. Consequently, in previous studies, the acceptance model has been broadened by other variables for instance perceived playfulness, perceived credibility, compatibility, trust, perceived user resource, and trustworthiness.

Previously ample empirical work has used the acceptance model. Ajay K. Garg & Garg (2013) further confer that acceptance or rejection towards technology has been explored using different psychological models for instance TPB, TRA, and TAM which was extended for studying the behavior of the consumers towards information technology. Among three TAM is the extensively modified model. In few studies it has been combined with additional external variables and a little bit it has been associated with dispersal related variables for example perceived benefits and social influence. The Acceptance Model focused on perceived usefulness and perceived ease of use directly attached to person's intention towards using a technology and it further explores the consumer rejection or recognition persuaded by the

behavioral intention of the consumer. Margherita (2004) worked on end user espousal of multimedia mobile services by accumulating price and speed of use to the TAM model. It has been explored that perceived usefulness, ease of use, price and speed of use are the most significant determinants of acceptance of multi- subscribers' practice in consuming mobile data services.

According to technology acceptance model, external variables affect the acceptance of 3G technology service. Agarwal, Wang, Xu, & Poo (2007) termed such variables as facilitating circumstances which consist of the type of support provide to individuals that influence their adoption and use of the technology. Agarwal, Wang, Xu, & Poo (2007) further explained facilitating conditions as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (p. 3). After viewing past studies on 3G adoption we have identified a group of external variables affecting 3G adoption. Based on their relevance to 3G technology, the following variables are selected – Service quality, Convenience, Computer self-efficacy, Perceived value and Perceived price/cost.

### 3. CONCEPTUAL MODEL

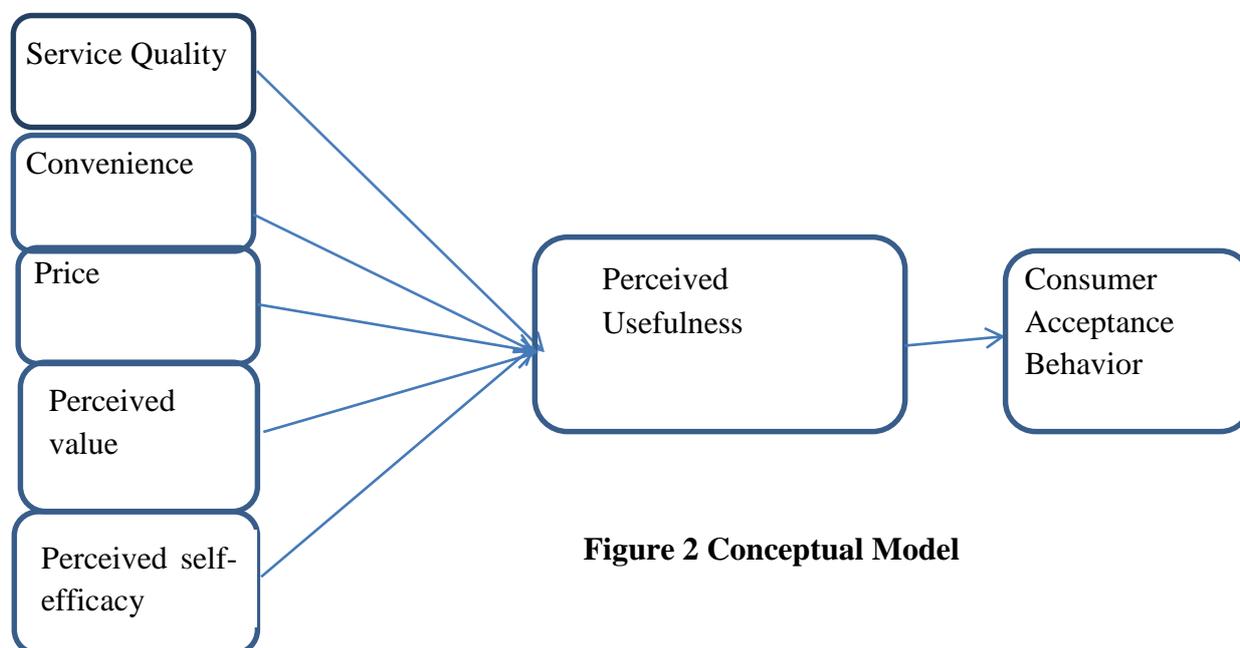


Figure 2 Conceptual Model

#### 3.1. Hypothesis

*H<sub>1</sub>*: Service quality is significantly correlated to perceived usefulness.

*H<sub>2</sub>*: Convenience is significantly correlated to perceived usefulness.

*H<sub>3</sub>*: Value is significantly correlated to perceived usefulness.

*H<sub>4</sub>*: Price is significantly correlated to perceived usefulness.

*H5*: Self efficacy has significant impact on perceived usefulness.

*H6*: Perceived usefulness is significantly correlated to Consumer acceptance of 3G

#### **4. RESEARCH METHODOLOGY**

##### **4.1. Type of Research**

The basic purpose of the study is to check the relationship between service quality, price, perceived value, convenience, computer self-efficacy and consumer acceptance in the presence of a intervening variable that is perceived usefulness. These variables are adopted from various studies based on technology acceptance model i.e., TAM.

##### **4.2. Study Setting**

The study is conducted in the populous city Multan of Pakistan to check the behavior of consumers towards the 3G technology. that It is cross sectional as it is conducted in single frame of time.

##### **4.3. Unit of Analysis**

The aim of the study is to examine the relationship between service quality, price, perceived value, convenience, computer self-efficacy and consumer acceptance in the presence of a intervening variable that is perceived usefulness. Therefore, the unit of analysis in this study is common end users from different areas of national Multan city.

##### **4.4. Sample and Technique**

A non-probability convenience sampling technique was adopted to draw the samples from the part of the population as it is cross sectional study due to time constraint this method has used.

##### **4.5. Instrument & Data collection procedure**

Data has been collected using questionnaire. Questionnaires were distributed to different age group of people ranging between 15-45 years old living in different areas of Multan.

With respect to gender majority comprises of female constituting 58% and male were 42% of total valid responses.

#### **5.DATA ANALYSIS**

##### **5.1 Frequency Distribution**

Frequency distribution has been performed after categorizing the variables on the basis of demographics for instance age, gender, locality, occupation and main 3G service providers in the relevant area chosen.

Table 1 Frequency distribution based on gender

Gender	Percent	Frequency
Male	42%	181
Female	58%	249
Total	430	430

## 5.2 Correlation between Variables

Table 2 Correlation Matrix

		PU	PSE	PR	SQ	CNV	PV
PU	Pearson Correlation	1					
	N	430					
PSE	Pearson Correlation	.239*	1				
	N	430	430				
PR	Pearson Correlation	.458**	.357**	1			
	N	430	430	430			
SQ	Pearson Correlation	.451**	.294**	.751**	1		
	N	430	430	430	430		
CNV	Pearson Correlation	.527**	.750**	.556**	.661**	1	
	N	430	430	430	430	430	
PV	Pearson Correlation	.510**	.773*	.643**	.343	.487**	1
	N	430	430	430	430	430	430

\*\* . Correlation is significant at the 0.01 level (2-tailed). \*

Correlation is significant at the 0.05 level (2-tailed).

It has found that all the variables are strongly co-related to each other. This way all the alternate hypothesis has been accepted for the study.

### 5.3. Regression Analysis

The Regression Analysis was used to find the impact of independent variable on dependent variable as the study is using moderator so multiple regressions had been used as presented in Table 3.

Table 3 Regression Coefficients

Model	Unstandardized		Standardized	t	Sig.
	Coefficients				
	B	Std. Error	Beta		
PSE	.358	.143	0.337	4.323	.005
PR	.940	.085	1.020	8.845	.005
SQ	.527	.022	0.489	9.974	1.05
PV	.480	.039	0.090	0.444	.000
CON	.870	.093	0.762	10.665	.000

Dependent Variable: Perceived Usefulness

Table 4 Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.970 <sup>a</sup>	.895	.8567	.20875

a. Predictors: (Constant), PSE, SQ, PR, PV, CON

b. Dependent Variable: PU

Impact of Price, Service Quality, Perceived Value and Service Quality on Perceived Usefulness

The table above shows that the model has Adjusted R square value was 0.856 which depicts that the four variables can significantly accounts for 89.5 percent towards perceived usefulness. Moreover the Price has a beta of 0.940 with a t value of 8.845 at significance level of 0.005 showing positive significant effect on perceived usefulness. Then comes perceived self-efficacy with a beta of 0.358, t value of 4.323 at significance level of 0.005 presenting positive

impact on dependent variable. The other variables also showed positive impact. This way the alternate variables have been accepted showing the significance of model.

## **6.FINDINGS AND RESULTS**

The results depict that apart from service quality which has non-significant relation all other factors that is perceived self-efficacy, price, perceive value and convenience, show significance towards the perceived usefulness. Perceived value show the highest effect then followed by others in descending order that is convenience, price and perceived self-efficacy. Perceived value can be explained as it shows the extent to which value has been associated by consumer keeping in view the price along with the effort which is essential to take benefit from the service simply the ease of use. Thus it has been recorded that greater the perceived value embeds in the mind of consumer the greater the perceived usefulness will be as they are interrelated to each other. On the other hand, convenience go side by side with the understanding in using the technology can be called as energy or effort put by consumer to use along with the time it takes to use the technology. The results of this study consistent with the studies carried out by Agarwal (et al , 2007) and Suki, (2011). The relation of price with the perceived usefulness depicts a sensitive nature of consumer dwelling in a developing nation likewise in Pakistan and are more conscious about price they are ready to pay for the technology. The impact of service quality is insignificant and the reason behind this is because of many service providers it is cumbersome to identify the best service until and unless someone is able to use all the services provided by all the service providers and then can identify the best service provider delivering quality service.

## **7.CONCLUSIONS**

This research gives us real support and authorizes the findings of past research. Theoretically, this study provides the progressive relationship between usefulness of 3G technology with consumer acceptance, also with price, convenience, service quality, self efficacy and value in Pakistan Now, people are very interested in buying 3G technology devices and other tools. Everyone wants to relish these remuneration of the technology. 3G technology unwrapped an innovative way of life for all technology lover.

## **8.RECOMMENDATIONS**

This research would not only support production of 3G shared networking technology. This would also provide quick acceptance of any innovation of technology applications. There are some recommendations based upon the results created for the collected data: i. Gender preferences are not likely to be expected the 3G technologies in Multan; therefore, service

providers should motivate and attract through addition of value in services. ii. Age group also not likely to be adopted the 3G technology therefore 3G technology attentiveness should be marketplace among the teenagers. iii. Since professional people are very profounder to adopt technology, but according to this research they also denied 3G technology service so, this is a disquieting situation because professional people can give more revenue for the companies. Therefore, 3G technology service providers have to emphasis on this area.

### **9.LIMITATIONS**

All the facilities about 3G technologies that have been designated above need a device or tool like mobile handset which can support all these structures. Here we have targeted the Multan city population. That is why this research cannot be applicable another area. This is the main limitation to use this technology in Multan as majority of people do not want to buy luxurious or latest devices.

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