

# The Impact of Telecom Services Characteristics on Consumer for Use in Pakistan

Muhammad Ibrahim\*, Muhammad Khalil Shahid, Sayed Fayaz Ahmed

Center for Emerging Sciences Engineering and Technology, Gomal University Dera Ismail Khan, Pakistan

\*Corresponding Author: [ibrahimkhanleghari@yahoo.com](mailto:ibrahimkhanleghari@yahoo.com)

Copyright © 2014 Horizon Research Publishing All rights reserved.

**Abstract** The aim of this paper is to investigate the impact of factors like consumer perception, advanced telecomm services, ease of use, low cost and quality towards use of telecom services in Pakistan, with the specific objectives of to develop the technology acceptance model and investigate the role of these factors for adoption of telecom services in Pakistan. The study was based on primary data which was collected from 172 respondents by means of a questionnaire. Random Sampling Technique was applied and Statistical tool SPSS was used to check the correlation analysis in order to reveal the results of the research. Correlation analysis shows the significant, positive, negative, strong and weak relationship among the variables with the significant value ranges from 0.01 to 0.05. In this research there is positive and significant relationship among all the variables. The findings and recommendation of this research will help the managers to develop a deeper insight of research factors into product development and restructure their strategies to capture maximum potential customers.

**Keywords** Consumer Perception Advanced Telecom Services, Ease of Use, Low Cost, Quality, Use of Telecom Services

---

## 1. Introduction

It looks like surprising to know that exchange of huge mega bytes of data both nationally and internationally is a matter of seconds and minuets that is due to Telecommunication which is the main source of exchange of information and interaction between and among individuals and groups. Telecommunication has made the world a global village (McLuhan, 1964). There is violent competition in telecom sector as it is passing through the process of privatization and liberalization (Beard & Hartmann, 1999). As Pakistan is economically growing country of the world but in recent years its telecommunication sector has

advanced very tremendously. According to Pakistan Telecommunication Authority there were more than 122 million mobile users at March 2013 and is gearing up for further growth with annual cellular mobile teledensity of 68.8%. There are six mobile operators working in Pakistan. People from any income group using the telecom services as a result of reduced telecom rates and foreign investment (AFACT, 2013).

The Telecommunication sector in Pakistan has been improving very fast and comparing its telecom services with global advancements. Telecom sector of Pakistan is providing the following the main types of "Value Added service. The short messaging service is type of messaging to communicate to acquaintance through mobile phone any time anywhere without using any computer. Multi-Media Messaging Service helps to share pictures, video clips and sound to intended instead of sending only text message. By using traditional cellular phone by activating alert service you can receive the facility of up dated headlines, game scores, sport results etc. Without going for computer when required we can receive and send e-mails relating to our personnel or business matters or browse any website on our mobile phone. Normal mobile phone can be used for sending or receiving fax. Through on line payment service provided by Telenor Pakistan, China Mobile Pakistan and Mobilink Pakistan money may be easily transferred and received anywhere in Pakistan. Now Utility bill payment is possible while sitting indoor at home. Music, songs, ring tones from online server to mobile are entertainment services provided by all cellular operators. This service is full of joy especially for young customer. To decorate cell phone the facility of online company logos, themes, artistic and famous location is given by all operators. Online directory enquires, voicemail, watching TV on cellular phone and Java games inside mobile are another application attracted by youngster. National economy development has increased as the result of growth in Telecommunication Industry. The following Table 1 and 2 show the Revenue and Teledensity of Telecommunication Services in Pakistan.

**Table 1.** Total Telecom Revenue (Rs. Million) according to Pakistan Telecom Authority

Telecom Revenues (Rs. Million)						
	Cellular	Local Loop	Long Distance & International	Wireless Local Loop	Value Added Services (Estimated)	Total
2003-04	27,840	76,444	1,336	1,152	10,056	116,827
2004-05	48,880	78,828	3,672	275	12,570	144,226
2005-06	89,896	71,186	7,199	12,453	13,827	194,562
2006-07	133,132	68,368	15,567	2,645	15,901	235,613
2007-08	182,122	63,693	23,396	2,704	8,048	279,964
2008-09	212,423	62,568	47,969	2,670	8,179	333,809
2009-10*	236,047	61,464	44,964	2,880	10,202	355,557
2010-11*	262,761	58,342	34,195	4,978	7,052	367,327
2011-12	298,509	63,157	32,675	5,861	11,174	411,377
Source: PTA						

**Table 2.** Annual cellular Mobile Teledensity according to Pakistan Telecom Authority

Total Teledensity (Fixed Line+ Wireless Local Loop + Mobile)	
Years	Total Teledensity (%)
2002-03	4.31
2003-04	6.25
2004-05	11.89
2005-06	26.26
2006-07	44.06
2007-08	58.90
2008-09	62.0
2009-10	64.1
2010-11	68.4
2011-12	72.0
Jul-12	71.1
Aug-12	71.5
Sep-12	71.8
Oct-12	72.3
Nov-12	73.3
Dec-12	72.3
Jan-13	71.5
Feb-13	71.5
Mar-13	72.1
Apr-13	72.7
May-13	73.5
<i>Including Azad Jamu Kashmir (AJK) &amp; Northern Areas (NAs)</i>	

Five major national and multinational operators are providing GSM/Cellular services in all over the country. These operators are named as M/s Pakistan Mobile Company Limited (36.7 million subscribers at May, 13), China Mobile Pakistan (20.2 million Subscribers at May, 2013), M/s Telenor Pakistan Limited (23.7 million Subscribers at May, 2013), M/s Warid Telecom Limited (12.5 million Subscribers at May, 2013) and M/s Ufone (23.9 million Subscribers at May, 2013). Basic telephony, IP services, wireless and mobile markets and technologies, broadband markets and technologies are the services provided by Pakistan Telecommunication Company limited. The Fixed-line subscribers dropped down from 5.2 million in 2005-06 to 3.4 million in 2009-10 and broadband (DSL, HFC, WiMax, FTTH, EvDO) subscribers has exceed beyond 2,616,861 at May, 2013 all over the Country. Telecom sector of Pakistan has very important role in economy of country. According to Pakistan telecommunication Authority at May, 2013 Rs.411, 37Million revenue was produced.

## 2. Objectives

On usage of telecom services this research is second timely initiated in Pakistan and before this attempt there exists very little research. Regarding to this problem it makes our research difficult to conduct due to lack of such studies to have lot of references but on the other side makes it more and more valuable, which have strong aim and claim to conduct due to its need and importance. The research is carried out with the following objectives.

1. To develop the technology acceptance model (TAM) from literature reviewed
2. To find out the impact of consumer perception towards use of telecom services.
3. To find out the impact of quality towards use of telecom services.
4. To find out the impact of cost towards use of telecom services.
5. To find out the impact of advance telecom services towards use of telecom services.
6. To find out the impact of ease of use towards use of telecom services.

## 3. Literature Review

### 3.1. Consumer Perception

Theories of psychology argue that individual perception is predictable and influenced by individual intention and proved that the perception has significant influence on technology usage (Venkatesh et al. 2003). The aim of telecom services providers is to attract consumers and use their services rather than the intention to adopt services; some results from a research have examined the relationship between behavioral intention and actual use. However, only

one work in telecom services studies has been taken this relationship into the research structure (Sripalawat et al. 2011), and encourages a need to examine the relationship between behavioral intention and actual behavior of consumer in the use of telecom services. Lot of time it has been noted that attitude of consumers towards use of new IT system has great impact on its use (davis, 1989).As (Cronin & Taylor, 1992) were the first to suggest a theoretical reasoning for discarding the expectations portion of SERVQUAL in favor of performance measures. The term “performance-only measures” has thus come to refer to service quality measures that are based only consumers’ perceptions of the performance of a service provider, as opposed to the difference (or gap) between the consumers’ performance perceptions and their performance expectations. The following hypothesis has been proposed to further elaborate the impact of consumer perception towards usage of telecom services:

***Hypothesis 1:** Consumer Perception has a positive effect towards adoption of Telecommunication service.*

### 3.2. Quality of Service

Quality is the extent which always repeats the buying behavior of a customer which is adopted during the consumption of that product and service. Lot of extensive studies has been made to understand concept of quality. Organizations make huge investment in new IT systems, cutting costs, producing more without any increase in cost and improving quality of service (Lederer et al., 1989). Quality has key role in order to attain success and create competitive advantage to increase sales of product and services. Telecom sector has been made great efforts to win profitable and loyal customer by improving Quality of services (Leisen and Vance, 2001). Getting feedback from satisfied consumers, provide accurate service and service delivery is helpful for telecom operators to enhance company sales. (Johson, 2002) The characteristics of product play a vital role for economics and marketing especially in field of telecommunication which in operational management it is considered as an important pillar (Wang & Lo, 2002). In service industry service quality is a critical issue and is important for financial service providers who characteristically offer products and services that are similar (Stafford et al., 1998). The ability to deliver superior service is the key of success for service business (Gale, 1990). It should be measured first before we want to manage something whether service quality gaps exist or not (Christopher et al., 2006). Measurement is essential to know whether goals for productivity are being met after changes have been made (Christopher et al., 2006) and It is difficult to measure the service quality; the main purpose of measuring is to ensure whether service is provided as per the needs of the customers (Zeithaml et al. 990) Studied that consumers in molding their expectations and perceptions lie in five dimensions of service quality: tangibles, reliability, responsiveness, assurance and empathy. (Parasuraman et al.

1988) suggested that quality has become the most powerful competitive weapon, which is adopted by many leading service organizations. The buying behavior of loyal customer can be modified by providing best quality which is adopted during the consumption of that product and service. To understand perception of quality is mind set of potential customer extensive studies have been conducted. It must not be consider as first impression phenomena (Crosby, 1979). The consumer will not only prefer the low price of product or service at the cost of QoS (Boyer, K. K. and Hult, G. T, 2005). As (Wal, R. W. E., Van der, P. A., & Bond, C, 2002) stated that consumer expectation must meet which shows the extent of telecom service quality. The literature clarifies to assume the following hypotheses for the relationship between Quality of service and use of telecom services:

**Hypothesis 2:** *Quality of Service has a direct positive effect on consumer towards use of Telecommunication service.*

### 3.3. Ease of Use

Al-Ghatani studied that actual behavior of consumer is determined by ease of use of product and service (al-ghatani-2001). According to Davis a person always believes that use of a particular system increases the job performance (Davis, 1989). Increasing complexity of technology is barrier in its usages therefore it is hard for firms to implement new technology. But some most advanced technological innovation reduces the complexity of technology as well and increased the adoption of innovation and trust of customers. (J. Puschel, J. Mazzon, and J. Hernandez, 2010 p.389-409) There might be an ability to personalize the display to appeal to likes of different users. In case of detail information regarding to transactions, there should the provision in design to satisfy such needs (Pedersen, P.E., Methli, L.B. & Thorjbornsen, 2002). In addition to add the value for the consumer mobile device must have the ability to provide timely alerts and there should judicious use of such an application. The users have ability to use extensive features in electronic service (Dholakia & Dholakia, 2002). People prefer those services which have many uses and which offer a lot of benefits and usefulness to them. The ease of use and user friendly product and service doesn't require extra skills on the part of consumer to easily adopted (Tornatzky & Klein, 1982). Innovative

Services are perceived less user friendly services. The services which are easy to use will adopt easily (Rogers & Shoemaker, 1971). The same thing is studied and observed that easy applications are frequently adopted by consumers as compare to complex one (Davis, Bagozzi, & Warshaw, 1989). The probability of use of easily understandable services is much higher than difficult one. As it requires less efforts on the part of consumer which raise the chances to use, (Ma & Liu, 2004; Davis, 1989; Venkatesh, 2000) further investigated the attitude of consumer to use Telecommunication Services which is directly link with ease

of use. The above literature survey summarizes that consumers will like to use those telecommunication services which have more benefits and seems to be friendlier to them in their uses and much easy in their adaptation.

The below hypothesis regarding to this variable was developed and was included in the research.

**Hypothesis 3:** *Ease of Use has a direct positive effect on consumer towards use of Telecommunication service.*

### 3.4. Telecom Services

Lot of same services is offered by telecommunication service providers to the customers. Every day comes with lot of new advantages of these services. Now it depends upon the consumers whom, why and which services they should use (Rogers, 1995). All the situation is defined as to perceive new service is better than the service it supersedes. The relative advantage is considered to best indicator of its usage among consumers. People use those services which have the most relative advantages as provide by the competitors services (Agarwal & Parshad, 1999). Lot of influence over attitude of the customers is due to elative advantages which further shape their perception towards usages of telecom services (Rogers, 1983). Telecom services give the sense of enjoyment to consumers which is considered to one of importance factors apply a greater impact to use innovative telecommunication services (Hoflich & Rossler, 2001). While using very advance telecom services increases interest which further enhances enjoyment and raise the chances to use these services in future. It is true that in low information services in contrast with high information services influence negatively the thinking of consumer towards telecom services. Immense amount of data is required to develop and process Low information intensive services (Davis, 1989). The below hypothesis has derived from this literature. Today is the word of telecom by giving a one touch you can explore the word. Even you can check your all bank transactions by the facilities of advanced telecom services (Deloitte, 2010).

**Hypothesis 4:** *Advanced telecom services have direct positive effect on consumer towards use of Telecommunication service.*

### 3.5. Low Cost

Consumers are agreeing to pay a reasonable fee to use the service; however it all depends on the service provider. Paying of a lower service cost is also a major benefit for users; so the "value for money" barrier may be a factor influencing the adoption of telecom services. As (Nah, Siau, and Sheng, 2005), suggested that the cost of mobile devices and mobile services was considered as an investment concern. (Luarn and Lin, 2004) studied that financial cost was the greatest barrier in adoption of telecom services in the shape of mobile banking services. A one of the major hardens to disperse telecom services usage is its cost (Tarasewich, Nickerson and Warkentin, 2002). The analysis of 196 respondents in the Sultanate of Oman, proved that

high cost was crucial for unwilling to use telecom services specially banking services which provided at the mobile phone (Sadi et al. 2010). Buying a hand set and getting connected through a service provider causing a cost problem (Nah, Siau and Sheng, 2005). Based on the above survey, the author assumed the following hypothesis:

*Hypothesis5: Low cost has positive effect on consumer towards use of Telecommunication service.*

## 4. Research Methodology

### 4.1. Measures

The research has been conducted on the basis of primary data. In order to fulfill this requirement a questionnaire was developed having 5 questions on each variable (Shown in Figure 1). In this questionnaire Likert Scale is used with choices of Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. The questionnaire shows the introduction of topic and reason of research. Further it was ensured to all respondents that their information would be kept confidential.

### 4.2. Sample

As telecom sector of Pakistan is growing very rapidly and playing its vital role in economy of country. There are six operators named as M/s Pakistan Mobile Company, China Mobile Pakistan, M/s Telenor Pakistan Limited, M/s Warid Telecom Limited and M/s Ufone and Pakistan Telecommunication Company limited providing different types of telecom services. But a very small research has been conducted on use of telecom services. This research is consisting of hypotheses testing to investigate the relationships among variables like consumer perception, advanced telecomm services, ease of use, cost and quality and their impact towards use of telecom services in Pakistan. An introduction session was carried out regarding to research before providing questionnaire to each respondent. The collected data was assumed to be bias free from side of respondents to avoid any deviation in findings. The questionnaire was filled by 200 respondents living at Rawalpindi and Islamabad two main cities of Pakistan for both sexes and profession groups. After imputing missing values, the final sample was composed of 172 useable responses. A simple random sampling technique was used in this research in order to ensure that equal opportunity was given to all potential respondents.

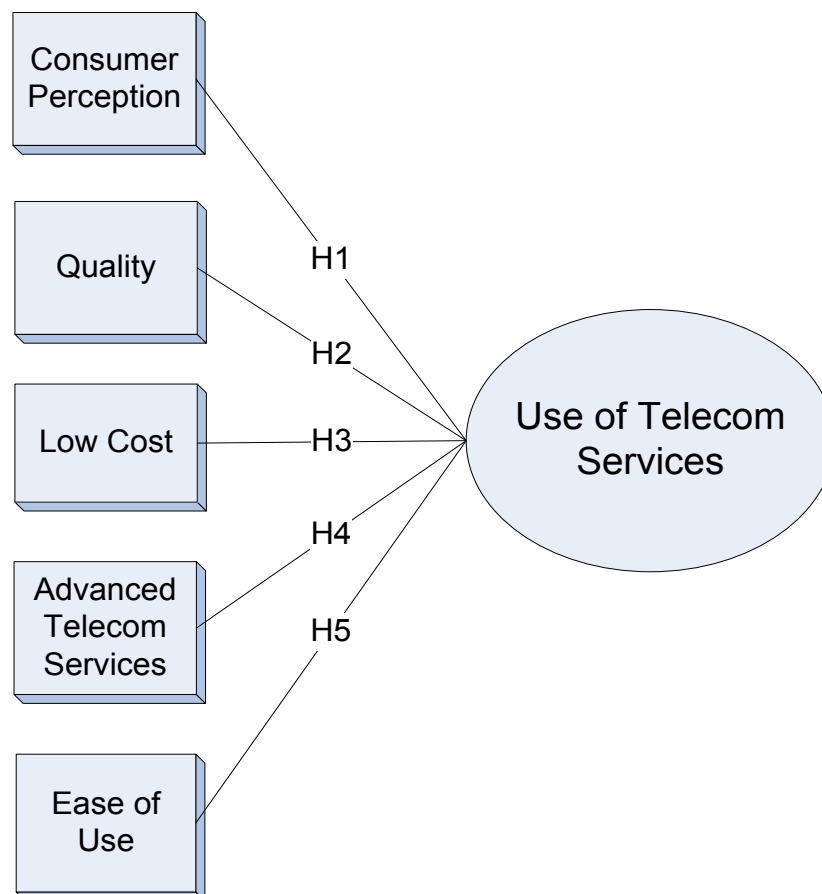


Figure 1. The conceptual model

### 4.3. Validity and Reliability

First of all the questionnaire is checked for validity and reliability if it is valid then it can be used for further research and research results can be achieved. In case of our research the value of cronbatch alpha was 0.88 which is exceeded than thresholds. We evaluated total 30 questions of five independent and one dependent variable by using SPSS software. Each variable contained 5 questions. Hence gender wise responses received are as follow in table 3 and Profession wise distribution in table 4.

**Table 3.** Gender wise Distribution

Gender	Frequency	Percent	Valid Percent
Male	140	81	81
Female	32	19	19
Total	172	100.00	100.00

**Table 4.** Profession wise Distribution

Profession	Frequency	Percent	Valid percent
University students	72	41.8	41.8
Business people	30	17.4	17.4
Private sector	30	17.4	17.4
Public sector	20	11.6	11.6
House wife	20	11.6	11.6
Total	172	100.00	100.00

## 5. Analysis and Results

### 5.1. Analysis

A technology acceptance model was developed to assess the proposed relationship among factors like consumer perception, advanced telecomm services, ease of use, low cost and quality towards adoption of telecom services in Pakistan. For this purpose to check the relationship among above said factors we draw the correlation analysis which is shown in table 5 and details are given below.

### 5.2. Correlation Analysis

The correlation analysis among variables Consumer Perception, Quality, Ease of Use, Low Cost and Telecom Services regarding their impact on consumer towards use the telecom services. The value of significance ranges from 0.05 to 0.01. Following table also shows formulation of hypothesis.

**H1:** *Consumer Perception has a positive effect towards adoption of Telecommunication service.*

The relationship between consumer perception and usage of telecommunication service is positive and significant with values of (.310\*\*), P=.000). So there exists significant positive relationship between consumer perception towards telecom service and its usage.

**H2:** *Quality of Service has a positive effect on consumer towards the usage of Telecommunication service:*

The value (.497\*\*), P=.000) shows the significant relationship between quality of service and its impact on user to use telecom service.

**H3:** *Ease of Use has a positive effect on consumer towards use of Telecommunication service:*

Ease of use is connected with the values of (.379\*\*), P=.000) with use of a telecom service. Hence there exists significant positive relationship between them.

**Table 5.** Correlation Analysis among the variables

	Consumer perception	Quality	Low Cost	Advanced Telecom Services	Ease of Use	Use of Telecom Services
Pearson Correlation	1					
Sig. (2-tailed)	.000					
Pearson Correlation	.756(**)	1				
Sig. (2-tailed)	.000	.000				
Pearson Correlation	.745(**)	.791(**)	1			
Sig. (2-tailed)	.000	.000				
Pearson Correlation	.545(**)	.718(**)	.748(**)	1		
Sig. (2-tailed)	.000	.000	.000	.000		
Pearson Correlation	.595(**)	.699(**)	.790(**)	.697(**)	1	
Sig. (2-tailed)	.000	.000	.000	.000		
Pearson Correlation	.310(**)	.497(**)	.379(**)	.498(**)	.565(**)	1
Sig. (2-tailed)	.000	.000	.000	.000	.000	

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

**H4:** *Advanced telecom services have direct positive effect on consumer towards use of Telecommunication service.*

There exists significant positive relationship between advanced telecom services and its impact on consumer to use telecom services. Which is presented with the values of (.498\*\*), P=.000). This clarifies our assumption.

**H5:** *Low cost has positive effect on consumer towards use of Telecommunication service.*

The value of correlation analysis (.565\*\*), P=.000) for cost shows that there exists significant positive relationship between cost and consumer behavior to use telecom services.

## 6. Conclusion

All the variables like Consumer Perception, Quality of Service, Ease of Use, Advance Telecom Services and Cost have positive relationship with their impact on use of telecom services. This research expanded our knowledge regarding the consumer perception and behavior towards use of telecom services. It is concluded from this research that all these variables must be considered by the managers during the designing and launching of industrial product and services in order to get good match between consumer and organizational goals. Hence the technology acceptance model design is of high importance showing the relationship among these factors in much arranged and easily understandable sequence. There exists significant correlation among the variables which strongly recommends positive intention of consumer perception towards use of telecom services. The significant positive relationship regarding the cost shows that the telecom services reduces overall cost which reduces the time for contacting overseas partner and provided opportunity to communicate the people around the world. Different services especially online payment services offered by Telecom Companies may help to enhance business in short time. The significant positive correlation regarding telecom services has become substantial in term of social networking and relations .The popularity of social contacts sites are experienced where consumers are exchanging their profiles, pictures and post different comments about daily events. Which are further categorized according to age and relationship and causing engagements on social perspectives? Due to rapid advancement and easy provision of IPTV and internet TV, the ability of consumers to access the music, current affairs, political news and movies has been increased as they have not seen before.

## 7. Recommendations

We recommend the following points for telecom service provider operators, managers and researchers.

- As positive significant correlation has been seen among all research factors so Telecom service providers must take into account the above discussed attributes, when they want to develop and offer a

telecom service to their consumers.

- Telecom service operators should design and provide individual services to different groups on the basis of gender and profession and according to their needs and wants.
- Different characteristics of factors like Consumer Perception, Quality of Service, Ease of Use, Advance Telecom Services and Cost Enjoyment are directly proportional to the use and service providers must increase their value to the best possible level like as make their services easily available with best quality and acceptable to their consumers.
- Telecom related organizations and future researches can take help from this research, as this research is second timely conducted in Pakistan.

## 8. Limitation

The research is based on convenience sample of only 172 male and female respondents living at Rawalpindi/Islamabad having different profession groups and gender. The generalizability of results would depend on future research including age groups, income level, culture, geographic and demographic research

---

## REFERENCES

- [1] Pedersen, P. E., Methlie, L.B., and Thorbjornsen, H. (2002). Understanding mobile commerce end-user adoption: a triangular perspective and suggestion for an exploratory services evaluation from work. Proceeding of 35 Hawaii International Conferences on system science.
- [2] AFACT, Year Book. Pakistan Progress Report. E-Commerce Resource Center- Pakistan, 2009. State Bank of Pakistan. Banking Consumer's Education: Provision of Mobile Banking. 2006.
- [3] Agarwald, R. & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30(2), 361-391.
- [4] Beard, C. and Hartmann, R. (1999). European and Asian Telecoms – Their Role in Global Sustainable Development. *European Business Review*, 99(1), 42-54.
- [5] Boyer, K. K. and Hult, G. T. (2005). Customer Behavior in an Online Ordering Application: A Decision Scoring Model. *Decision Sciences*, 36(4) 569-598.
- [6] Christopher L, Jochen W, Jayanta C (2006). Marketing of services, people, technology, strategy, Pearson education, 393.
- [7] Cronin J, Taylor A (1992). Measuring Service Quality: A Reexamination and Extension. *J. Mark.* 6:55-68.
- [8] Crosby, P. B. (1979). *Quality is Free: The Art of Making Quality Certain*, New York: New American Library.
- [9] Davis (1989), "perceived usefulness, perceived ease of use

- and user acceptance for IT” IMS quarterly, September, pp. 319-40
- [10] Deloitte (2010). Mobile banking a catalyst for improving bank performance. Retrieved 15 July 2011 from [http://www.Deloitte.com/asset/DcomUnitedState/Local %20 assets/Documents/US\\_consulting \\_Mobilbanking\\_010711. pdf](http://www.Deloitte.com/asset/DcomUnitedState/Local%20assets/Documents/US_consulting_Mobilbanking_010711.pdf)
- [11] Dholakia, R. R., and Dholakia, N. (2002). Mobility and markets: Immerring online of M. Commence. *Journal of Business Research*. 57, 1391-1396.
- [12] Gale TB (1990). The role of marketing in total quality management. In: QUIS-2 Quality in Services Conference Proceedings, University of St. John " s. Minnesota, 5 November 1990
- [13] Höflich, J. R. & Rössler, P. (2001). Mobile schriftliche kommunikation oder: E- mail für das handy. *Medien & Kommunikationswissenschaft*, 49, 437-461.
- [14] J. Pu"schel, J. Mazzon, and J. Hernandez, "Mobile banking: proposition of an integrated adoption intention framework," *International Journal of Bank Marketing*, vol. 28, no. 5, pp. 389-409.
- [15] Johnson, W. C. and Sirikit, A. (2002). Service Quality in the Thai Telecommunication Industry: A Tool for Achieving a Sustainable Competitive Advantage. *Management Decision*, 40(7) 693-701.
- [16] Ledrer, (1989), "The role of ease of use, usefulness and attitude in prediction of world wide web usage" proceeding 1989 association for computing machinery special interest group on computer personnel research, conference, pp. 195-204.
- [17] Leisen, B. & Vance, C. (2001). Cross-national Assessment of Service Quality in the Telecommunication Industry: Evidence from the USA and Germany. *Managing Service Quality*, 11(5), 307-317.
- [18] Luarn, P. (2005). Towards an understanding the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21, 873-891.
- [19] Ma, Q., & Liu, L. (2004). The technology acceptance model: A Meta analysis of empirical findings. *Journal of Organizational and End User Computing*, 16(1), 59-72.
- [20] McLuhan, M. (1964). *Understanding Media: The Extensions of Man*, New York: Mentor in Levinson.
- [21] Nah, F., Siau, K. & sheng, H. (2005). The value of mobile application: a study on a public utility company. *Communications of the ACM*, 48, 2, 85-90.
- [22] Nah, F., Siau, K. & sheng, H. (2005). The value of mobile application: a study on a public utility company. *Communications of the ACM*, 48, 2, 85-90.
- [23] Parasuraman A, Zeithaml VA, Berry LL (1988). A multiple item scale for measuring consumer perceptions of service quality, *Journal of retailing*, 64(1): 12-40.
- [24] Rogers, E. M. (1995). *Diffusion of Innovations* (4th ed.). New York: Free Press.
- [25] Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of Innovations: A Cross-Cultural Approach*. Free Press, New York, NY.
- [26] Sadi, A. H. M. S., I. Azad, and M. F. Noorudin, "The prospects and user perceptions of m-banking in the Sultanate of Oman," *Journal of Internet Banking and Commerce*, Vol.15, No. 2: 1-11, 2010.
- [27] Sripalawat, J., M. Thongmak, and A. Ngramyarn, "M-banking in metropolitan Bangkok and a comparison with other countries," *The Journal of Computer Information Systems*, Vol. 51, No. 3: 67-76, 2010.
- [28] Stafford M, Stafford TF, Wells BP (1998). Determinants of Customer Satisfaction in the Auto Casualty Claims Process. *J. Serv. Mark.* 12(6):426-460.
- [29] Tarasewich, P., Nicleerson, R.C., & Warkatin, M. (2002). Issues in mobile e-commerce. *Communication of the Association of Information System*, 8, 41-64.
- [30] Venkatesh, V., M. G. Morris, G. B. Davis, F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Quarterly*, Vol. 27, No. 3: 425-478, 2003.
- [31] Wal, R. W. E., Van der, P. A., & Bond, C. (2002). Service quality in a cellular telecommunications company: A South African experience. *Managing Service Quality*, 12(5), 323-335.
- [32] Wang, Y. and Hing-Po, L. (2002). Service Quality, Customer Satisfaction and Behavior Intentions: Evidence from China's Telecommunication Industry. *Info*, 4(6), 50-60.
- [33] Zeithaml VA, Parasuraman A, Berry LL (1990). *Delivering Quality Service: Balancing Consumer Perceptions and Expectations*. The Free Press, New York, NY.