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Acceptance Theory on
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ABSTRACT

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Mobile telecommunications and mobile services/applications have gone through fundamental changes after the introduction of new mobile network technologies such as 3rd and 4th generation (Long Term Evolution). At the same pace, mobile services and applications' development undergo huge changes with the introduction of new software, service platforms and Software Development Kits (SDK). As result of these changes, many new service platforms such Google with Android and Apple with iOS have been emerged. To our knowledge, there are several parties involved in mobile Telecommunication –like network operators, service and application provider and content provider. Several theoretical models have been formulated to investigate individual technology acceptance. However, many of them, if not all, have been criticised for not taking service characteristics and individual service perception into account. Therefore, the current research is intended to investigate whether the conventional acceptance theories are sufficiently enough to study users' intentions and predict their behaviour or not. To do so, we have extensively analyzed literature with regard to mobile services. The results indicate that using the conventional acceptance theories as the sole research approach does not provide sufficient insights to understand user behaviour. Moreover, the findings suggest that we need to take several other critical factors such as context of use, user service perception, technology characteristics and mobile service platforms into account.

CONTENTS

LISTS OF PICTURES, GRAPHS AND TABLES

LIST OF ABBREVIATION

3G (3rd G)	Third Generation
4G (4th G)	Fourth Generation
App	Application
App-store	Application Store
DOI	Diffusion of Innovations
EDGE	Enhanced Data Rate for GSM Evolution
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
ICT	Information and Communications Technology
IM	Instant Messaging
IMS	IP Multimedia Subsystem
IMT	International Mobile Telecommunications
IP	Internet Protocol
IS	Information Systems
IT	Information Technology
LTE	Long Term Evolution
MNO	Mobile Network Operator
OS	Operating Systems
PC	Personal Computer

PDA	Personal Digital Assistant
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
QoS	Quality of Service
RFID	Radio-Frequency Identification
SDK	Software Development Kit
Simple	Session Initiation Protocol for Instance Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SMS	Short Messaging Service
SN	Subjective Norm
SNS	Social Network Service
TAM	Technology Acceptance Model
TPB	Theory of Planned Action
TRA	Theory of Reasoned Action
UMST	Universal Mobile Telecommunications System
UTAUT	Unified Theory of Acceptance and Use of Technology
VoIP	Voice over Internet Protocol
WiFi	Data Exchanged Wirelessly

1 INTRODUCTION

Mobile services and applications are result of technological innovations in recent years. Mobile services and applications are emerged due to the convergence of Internet, Media, IT and advanced Telecommunication technologies. Different areas and disciplines within the Telecommunications industry peruse studies based on their own interest. Moreover, several areas in mobile Telecommunications have been under investigation for many years in Information Technology (IT) and Information Systems (IS) research by many researchers, Telecom carriers, mobile device manufactures, mobile service/content providers and application developers. However, one of the most interesting areas for research is mobile service innovations. It has been argued that the future of mobile communication will rely on mobile services (Carlsson et al., 2006). The rapid development in Telecommunication technologies as a subset of Information and Communication Technology (ICT) can be a plausible reason for Carlsson's prediction. Mobile services are digital services which are added to mobile phone networks or integrated to the mobile devices other than traditional voice services, and it is postulated that the benefit offered by such services are highly diverse (Bouwman et al., 2011).

There are numerous different mobile services and applications available to consumers in the telecommunication market. But, many prior researches indicated that the individual acceptance and adoption of mobile services have not been proliferated (Bouwman et al., 2012) or shown an asynchronous pattern (Carlsson, 2005). From service providers' perspective the mobile service market has not yet reached its optimal level in order to return the massive investments made by Telecommunications industries and Telecom carriers globally. On the other hand, based on service providers' perspective, one can raises many issues and questions due to the slow adoption and acceptance ratio. For example:

- Why mobile service users only use one particular type of service?
- How user's service perception varies in different context and situations?
- Does demographic information play a significant role in service acceptance process?

- What is the role of mobile service providers?
- How mobile service platforms are perceived by consumers?
- What is the role of mobile social network services?

It is worth bearing in mind that the aforementioned questions are just few examples from many others, and we cannot cover all of them in the current study. Therefore, we try to address only those questions which are more relevant to the context of this research. A mobile service will be accepted and will be used by users, if that particular service offers value to its users. It means, there are several factors and criteria that make a service successful or a failure.

A mobile service should be easy to use, provide hedonic value, improve user's performances and in general it should be perceived to be useful. Many of the current mobile services available in mobile communication market do not provide any value to its users. For instance, mobile TV is an example of huge failure in Europe. There are many issues around the mobile TV which made it as unsuccessful mobile services. For example, small screen, lack of sufficient network bandwidth and attractive video content and not comply with users' expectation are just few of them. Mobile TV content have a significant role in consumers intention to use hedonic information technology (mobile services) and mobile TV content has a critical impact on cognitive concentration (Jung et al., 2009).

Another critical issue that may stimulate the individual mobile service adoption is the users' demographic information. Gender, age, education, and income are considered to play critical role with regard to mobile service acceptance. For instance, a service might fit to men's preferences (mobile game), while, some services may only target females 'mobile web browsing' (mWomen, 2012). According to 'mwomen', in a research for comparing male and female mobile web browsing usage, it has been found that on an international basis, it is South Africa wherein the largest proportion of users are female, whilst the UK sits is in fourth place on this particular measure (mWomen, 2012).

Provider of mobile services also has been identified to have impact on users' decisions. While, until recently users have to be lucked to a specific telecom operator, after the changes in telecommunication regulations, users can easily switch from one operator to another without being forced to give up their mobile number. This is according to new telecoms rules for individuals and businesses around the Europe.

"By 25th May 2011, all citizens in Europe have right regarding phones, mobile and Internet. New EU telecoms rules to ensure a more competitive telecoms sector and better services for customers are due to be implemented in national law by this date. They include the right for customers to switch telecoms operators in just one day without changing their phone number (Europa, 2012).

To this end, we discussed issues which were related to consumers' perception and also mobile network operators. However, recently mobile service platforms become increasingly critical issue in mobile telecommunications industry. For long, mobile network operators were the sole provider of mobile services. But, mobile phone manufacturers such as Nokia and Apple have also recently entered into mobile communication market. These device makers have already started to use their platforms as mean of service distribution channel. Device manufacturers like Nokia with 'Ovi' and Apple with 'App-store' are contributing to mobile service delivery. Their participations in mobile service market are seen as a threat by mobile network operators.

Traditionally, mobile network operators require a long time to introduce a new mobile service to the market. This is mainly due to standardization problem. On, the other hand, device makers cooperating with 3rd parties (application developers) has much faster service delivery process. A mobile service platform in this scenario acts as the middleware between the device and service/application from third parties. Mobile service platforms become important because of the pervasive usage of smart-phones.

In order to understand the individual acceptance of Information Technology (IT), several acceptance theories such as Technology Acceptance Model (TAM) (Davis, 1989), Diffusion of Innovation (DOI) (Rogers, 1995) or Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) have been postulated and systematically been tested in many prior studies. In most of the prior researches the acceptance and adoption of mobile services were the main theme of the research. Many of prior researches were interested in studying on how and why a new innovation or technology spread.

There is an extensive body of literature in which, researchers have used one or sometimes even a combination of the acceptance/adoption theories aiming to find an answer to contribute to the understanding of the acceptance and sustainable usage of the mobile services. For example, service perception and mobile service characteristics (Bouwman et al., 2011; Nysveen et al., 2005) and mobile commerce (Mahatanankoon et al., 2005), acceptance of advanced mobile services (López-Nicolás et al., 2008), service platforms (van Halteren and Pawar, 2006) and the impact of use context with regard to mobile ticketing (Mallat et al., 2009) have been extensively under researched. However, none of the prior research results have shown a complete solution for the acceptance and adoption of mobile services problems.

To this end, we have discussed issues and problems that hinder the acceptance of mobile services. Having said that, still there are other issues which are more related to technology, Telecommunication standards, context of use, and cultural diversity which also will be discussed throughout this study.

2   RELATED WORK

Thus far, we have identified some of the critical factors that influence the mobile service acceptance and adoption. Moreover, it is also necessary to address prior researches that their main research stream was the individual technology acceptance. To do so, we need to look at the conventional traditional acceptance theories which were proposed to address these issues.

This chapter therefore, aims to address and discuss some of the most widely used technology acceptance models. The objective of this chapter is to find the similarities and differences between traditional acceptance theories.

2.1 Individual IT Acceptance Theory

In order to understand better individual Information Technology (IT) acceptance, vast varieties of theories and model have been designed, implemented and tested. In many of them, if not all, the central focus is to understand individual intention and predict users' behaviour toward new Information Technology artefacts and new technology innovations. However, one can argue that constructs which have been proposed to predict individual's behaviour are not sufficiently enough to provide a complete understanding toward this issue. Figure 1 shows basic concept of individual Information Technology acceptance.
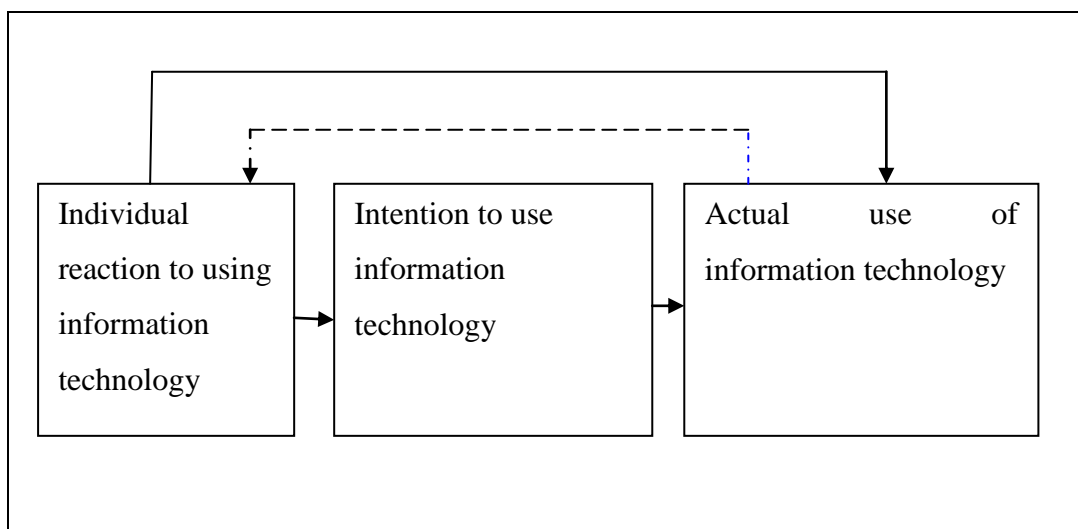

Figure 1. Basic concept underlying user acceptance models

Source: http://www.jstor.org/stable/10.2307/30036540

The figure shows that the individual attitude toward using information technology impacts the intention to use information technology. Therefore, the actual use of IT can be predicted by individual's attitude and intention to use information technology innovation. The following subsections will discuss in detail some of the most used IT acceptance theories and aims to differentiate the similarities and the differences between these theories.

2.1.1   Technology Acceptance Model

Technology Acceptance Model (TAM) postulated by (Davis, 1989), is by far the most widely used acceptance theory in Information Systems (IS) research as well as in other fields. In general, TAM tries to predict individuals' intentions toward using a technology based on their perception of its Ease of Use (POEU) and perceived Usefulness (PU). It is worth bearing in mind that, prior research having individual's acceptance of mobile services as their central research focus have used TAM to understand the adoption of a different mobile (advanced) services (Bouwman et al., 2012; Ha et al., 2007; Hong et al., 2006; Hong et al., 2006; López-Nicolás et al., 2008; Lu et al., 2005; Luarn and Lin, 2005; Mao et al., 2005; Nysveen et al., 2005; Pedersen, 2003, 2005; Wang et al., 2006; Wang et al., 2006; Wu and Wang, 2005; and many more). If we look at the aforementioned researches, one can understand that in all of them the aim was to predict users' intentions towards acceptance and adoption of mobile services by using TAM constructs (PEOU and PU).

However, in many other researches it has been argued that constructs in TAM are not sufficiently enough to predict users' intentions and there is lack of other constructs that can be used for better understanding, (Fishbein and Ajzen, 1975; Kulviwat et al., 2007; Nysveen et al., 2005; Stern et al., 2007). They argue that other predictive variables such as Subjective Norm, Social Influence, Perceived Enjoyment, and Critical Mass (Markus, 1987), must be taken into close consideration in individual IT acceptance.

In summary, we can conclude that although constructs in Technology Acceptance Model (TAM), (PEOU and PU) are valuable predictive constructs; however they cannot be considered as the sole constructs to be used to for individual IT acceptance. It is strongly recommended, by many scholars, that other variables should be added to those constructs to have better prediction and understanding.

2.1.2 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) has been postulated by (Fishbein and Ajzen, 1975). In this theory, it has been argued that individuals are making systematic use of the information which is available to them. In the original conceptualization of this theory, belief, attitudes, behavioural intentions and behaviour were considered as the determinant variables to explain relationships between attitude and behaviour.

We should also notice that according to the theory of reasoned action, individual behavioural intention is due to two variables (i) attitude toward the behaviour and (ii), the social influence perception by individual to perform or not to perform behaviour. The social influence is considered as the Subjective Norm (SN) in the literature. A shortcoming of the TRA articulated by (Azjen, 1975), is that the constructs within this theory cannot explain the attitude-behaviour relationships.

2.1.3 Theory of Planned Behaviour

Theory of Planned Behaviour (TPB) proposed by (Ajzen, 1991), which is the extension of theory of reasoned action argue that determinant variables in TRA are not enough to explain the relationships between the attitude and behaviour, therefore, other variables such as perceived behavioural control and Subjective Norm are added to TRA to explain better the relationships between the behavioural intention (attitude) and behaviour.

Armitage and Conner (2001) argued that the theory of reasoned action can only predict individual behaviour when there is no constrains. Figure 2 shows the TRA model.
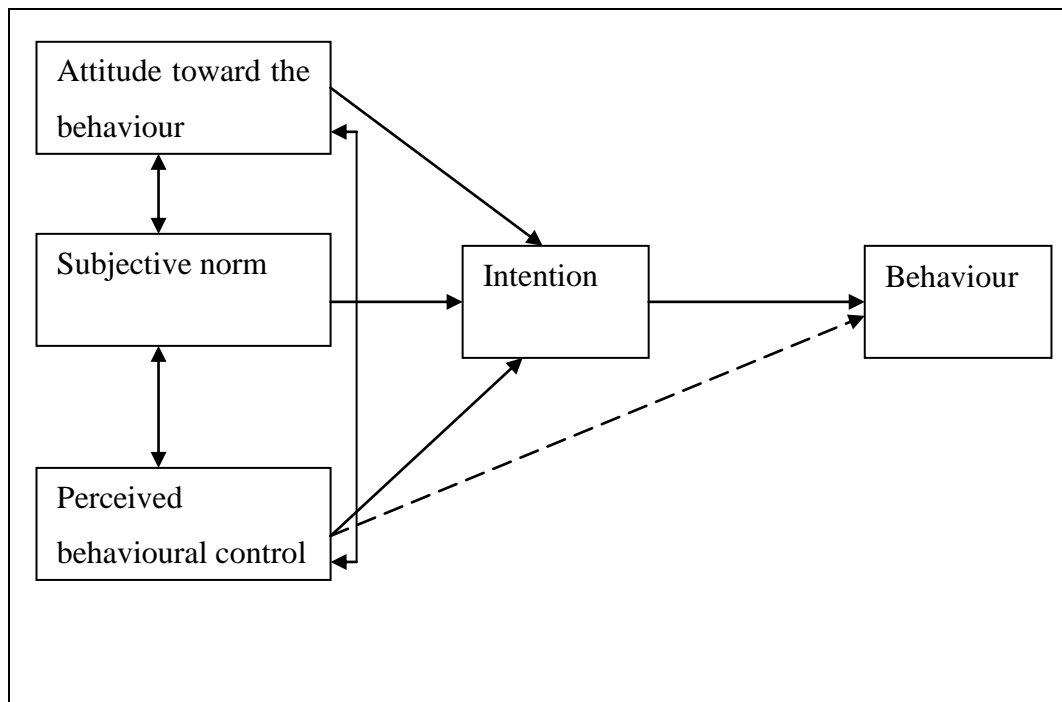
Figure 2. Theory of Planned Behaviour Model, (Ajzen 1991)

However when there is a volitional control constrains then it is impossible to explain the relationships between the attitude and behaviour. However, the main goal of the theory of planned behaviour is the individual's intention to perform a given behaviour. Individual's intentions to perform a given task can be explained via motivational factors that impact behaviour. In other words, it is the individual's willingness to try and put effort on performing a particular behaviour. Consequently, the stronger the intention is, the more likely the particular behaviour will take placed (Ajzen, 1991).

2.1.4 Unified Theory of Acceptance and Use of Technology

Thus far, we have discussed individual technology acceptance –like Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB). Venkatesh et al (2003) however, have taken another initiative by introducing user acceptance of information technology: toward a unified view. They argued that prior research having information technology (IT) acceptance as their central theme of the research introduced many competing models where each of which have different set of acceptance determinants (prediction variables).

Therefore, in their study they combined several traditional IT acceptance theories in order to formulate a unified model. In the original UTAUT model, four core determinants of intention and usage and four other moderating variables acting as the key relationships were considered. The aim of formulating this theory is to provide a deeper understanding of individual and organizational acceptance of IT artifacts to researchers and managers. However, they introduced 'Performance Expectancy', 'Effort Expectancy', 'Social Influence', and 'Facilitating Conditions' as the core and direct determinants of user acceptance and usage behaviour. Furthermore, they also introduced 'Gender', 'Age', 'Experience', and 'Voluntariness of Use' as the moderating factors where they can be used to understand the user acceptance and usage behaviour. Figure 3 shows the connection of the core determinants as well as the moderating factor related to use behaviour.
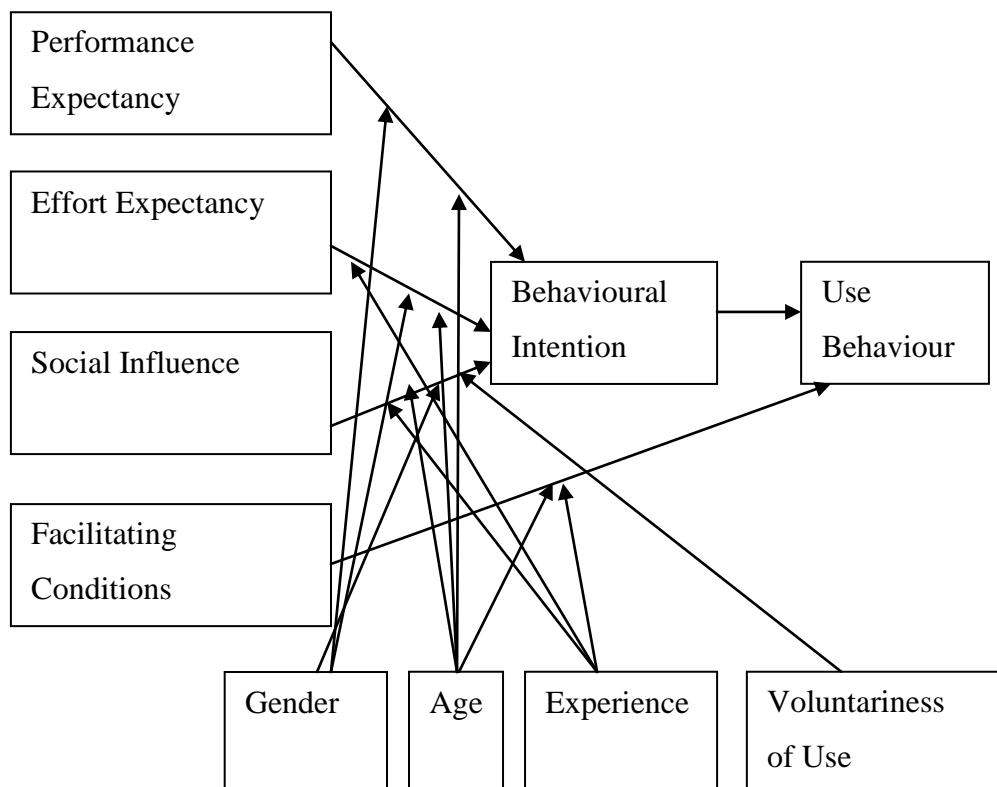

Figure 3. Unified Theory of Acceptance and Use of Technology Model
Source: http://www.jstor.org/stable/10.2307/30036540

Performance Expectancy, according to (Venkatesh et al., 203), is the degree to which an individual believe that using a particular system or technology will improve the performance. It is worthwhile mentioning here that, 'Performance Expectancy' is similar to other acceptance models such as Perceived Usefulness in Technology Acceptance Model (TAM). Effort Expectancy is the degree of ease (Easiness) of using a particular system or a technology, and it is similar to Perceived Ease of Use in TAM model. This construct for behavioural intention is strongly influenced by moderating factors such as 'Age', 'Gender, and 'Experience', a plausible reason is that younger women for instance, are more concerned with the usage of a new technology. Moreover, Social Influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system. Social influence is equivalent to Subjective Norm in Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) model. Finlay, Facilitating Conditions are defined as the degree to which an individual perceives that technical infrastructures can support the user to use the technology or a system. This construct is similar to perceived behavioural control in the Theory of Planned Behavioural (TBP).

2.1.5 Diffusion of Innovations

The main purpose of this theory is to investigate how and why a technology or an idea diffused among different people and cultures. According to Rogers (2003), *'diffusion is the process by which a technology or an innovation is communicated through certain ways between the people in a social system over the time'*. Rogers furthermore, postulated that innovation (an idea), communication channel (the way a message traverse from one person to another), time (a time require for adoption of innovation by member of a social group) and social system (a set of interrelated units having common goal) are the key elements in diffusion research.

According to the Theory of Diffusion of Innovations (DOI), there are five important stages in the diffusion process, these are:

1. Knowledge: is a stage that individual is getting familiar with an innovation, but complete information is lacking.

2. Persuasion: is a stage that individual actually become familiar with the innovation and become interested in, therefore seeking to get more information about the innovation.

3. Decision: is a very critical stage with regard to accepting or rejecting an innovation. In this stage individual makes their decisions based on their intuitions having in mind the advantages or disadvantages of the innovation.

4. Implementation: in this stage, individual actually adopt the innovation and seek to find the usefulness of the innovation.

5. Confirmation: is again one the critical stage with regard to accepting or rejecting an innovation. In this stage, individual make the final decision whether to continue using the innovation or not.

In theory of Diffusion of Innovation (DOI), several influential factors by which individual make decision to adopt or reject an innovation were identified. These factors are briefly disused below.

1. Relative Advantage: shows that how a new innovation improved compared with previous version. It means individual seek to find what are the advantages of a new innovation over the older one.

2. Compatibility: shows that how compatible a new innovation is with individual daily's life.

3. Complexity or Simplicity: shows that how complex is the using of a new innovation is. If using a new innovation require a lot effort from the individual, then it is more likely that the innovation will be rejected.

4. Trialability: shows that how easy is a new innovation. If it is does not require a lot of effort from the individual to test and examine the innovation, then there is high chance that the innovation will be adopted.

5. Observability: shows that how visible the innovation is among the individual and member of social system. The more the innovation is visible, the more likely the innovation will be adopted.

The final important issue with regard to Rogers theory, is the categorization of the individuals among the member of social systems. Rogers, classified the individuals into five groups:

1. Innovators: who are the first to adopt a new innovation

2. Early adopters: who are the second largest group of the individuals mainly youth, with high education and income

3. Early majority: who are required a long time to adopt a new innovation, individuals who have above the average social status

4. Late majority: who are usually adopt an innovation after when the average of the members in a social system adopted the innovation

5. Laggards: are the last group of member in a social system who adopts a new innovation. The individuals belong to this group are usually concern with traditions.
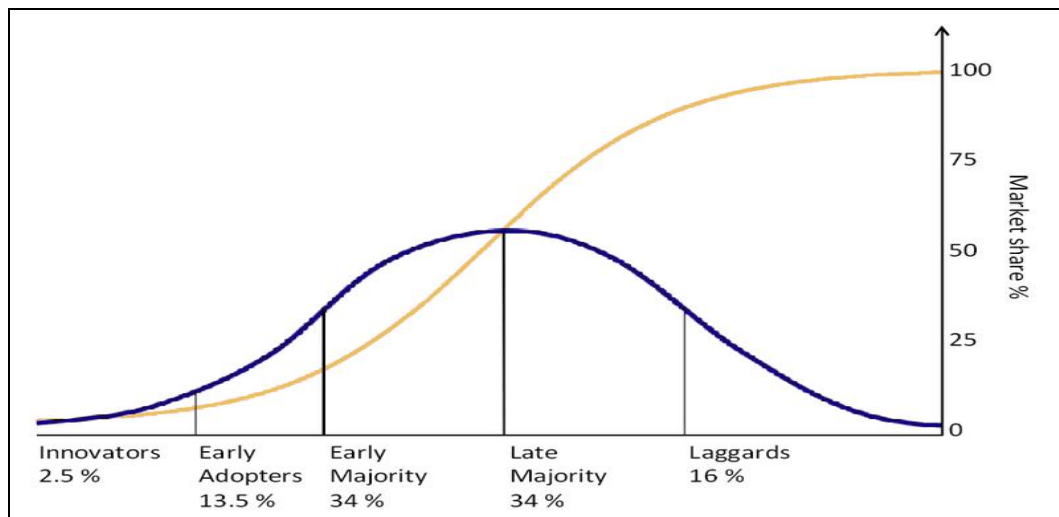
Figure 4. Diffusion of Innovation (adopter's classification)

http://en.wikipedia.org/wiki/Diffusion_of_innovations

2.2 Telecommunication Technologies and Standards

Mobile technologies have great impacts on the success of mobile service acceptance and adoption as well as leading to sustainable service usage. Hence, in order to have better understanding of mobile service acceptance by users, it is very important to have an overview on the technological issues. After the introduction of Global System for Mobile communications (GSM), we have been witnessing a tremendous growth in the area of wireless communication.

A second technology, which indeed improved the GSM networks fundamentally were EDGE (Enhanced Data rate for GSM Evolution) and GPRS (General packet radio service). Both of these technologies, GPRS and EDGE, offered valuable benefits such as saving cost when accessing data networks and IP-based networks are the example (Ballon et al., 2000). A second benefit is that EDGE provides an IP platform which is independent from communication standards. The tremendous growth and rapid development in technology in addition to increasing number of demands for accessing Internet via mobile devices has led to the third generation of mobile technology.

3G or 3rd generation mobile telecommunications is a standard for mobile phones and mobile telecommunication services fulfilling the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International

Telecommunication Union. Services that 3G provides include wide-area wireless voice telephone, mobile Internet access, video calls and mobile TV, for mobile telecommunications (Wikipedia, 2012). Universal Mobile Telecommunications System (UMTS) technology which is a 3G branded standard provides robust telecommunication networks infrastructures to Telecom carriers enabling them to provide different services to consumers. The UMTS technology provides multimedia services, as well as to unify the disparate standards of today's wireless networks. Moreover, increasing consumers' demand to access the Internet via their mobile devices has led to what is termed as 4th generation of network technology and it is called Long Term Evolution (LTE). As results of this, most of the Telecom carriers' networks which are currently based on 3rd generation of mobile network technology are moving towards Long Term Evaluation (LTE). Long Term Evolution (LTE) (Lte Encyclopedia, 2012), is the latest standard in the mobile network technology. The LTE technology is generally developed to increase the capacity and speed of mobile telephone networks. It is also estimated that LTE eventually will be replaced the GPRS network. The main objective of LTE technology is for mobile broadband system to enhance and improve multimedia services.

3 SERVICE CHARACTERISTICS

This chapter discusses the characteristics of mobile services; the aim is to find the most important factors that impact individual's decision toward accepting and adopting a mobile service.

The overall objective of this chapter is to identify several mobile service characteristics which were not previously discussed in traditional acceptance theories. It will then be easier to differentiate the importance of service characteristics over the constructs in traditional acceptance theories. Moreover, the results of this chapter will shed some light to our understating regarding the individual IT acceptance.

3.1 Mobile Service Innovations Characteristics

Mobile devices with embedded software can support users' functionalities in their day-to-day lives or in their social systems. The benefits offered by these vast variety of advanced mobile services and applications are diverse. In other words, mobile services, applications and devices enable users to access all kind of information, interact with each other, perform a task, communicate, make banking transaction and even entertain themselves. Presumably, one can argue that the opportunities and benefits in mobile technology based on its ubiquitous character make the adoption/acceptance of these technologies inevitable. However, disregard for many opportunities and benefits in mobile services and application, many prior researches show the failure of the adoption/acceptance of mobile service innovations (Bouwman et al., 2008a) and (López-Nicolás et al., 2008).

Generally speaking, the users expect mobile services or applications to be available at any moment, and any place, disregard for a specific context. In other words, it means that users want to use mobile services wherever they are and whenever they want to. Thus, we can argue that "mobility" plays a significant role in adoption/acceptance of mobile services. Mobility can be defined as moving around, either in time or in a place. Individual carry their mobile devices at anytime, anyplace to be in touch.

Regardless of many effective attributes and benefits that mobile services offer, the concept of mobility is not the only character which has to be taken into account. Mobile services and applications, due to its ubiquitous characteristics, should be classified into many different ways to understand better individual acceptance toward mobile services and applications. Therefore, it is necessary to classify mobile services and applications in very understandable manner. Although, due to recent technological advancement many mobile services can fit in more than one group, however, we will classify them in the following ways (Bouwman et al., 2011), (Varshney, 2005), (Open Garden, 2009), (Kuo and Chen, 2006) and (Jeon and Lee, 2008).

- Communication services (mobile call services and SMS)

- Information services (mobile weather, map information and mobile news)

- Entertainment service (mobile game, mobile music an mobile TV)

- Web 2.0 (mobile health)

- Transaction services (mobile banking, mobile shopping)

Services such as telephony and SMS have been available to users for a quite long time, while some other service have recently been introduce and are available to uses such as social network services (Facebook) and Mobile monitoring RFID (Radio-Frequency Identification) information.

While some services are designed specifically for individual, some other services are only designed for groups. Some of the mobile services can be used to access information such as looking for weather forecast, while other services provide information to the users such as advertisements via SMS. Some mobile services are designed to have information consumption purposes such as watching video or reading news. While some mobile services have the users participation purposes such as mobile chat or uploading a video in YouTube. In a discussion on user-generated content, (Shao, 2009) categorized mobile services into two groups, (i) consumption, and (ii) participation.

In another research (Feijoo et al., 2009) has introduced a taxonomy for mobile services having two dimensions, (i) processed information (mobile stock market information) versus creative content (mobile game), and (ii), existing content adapted to mobile (mobile banking, mobile email) versus content which specifically developed for mobile (location based services or mobile augmented reality).

3.2 Context of Use

In order a mobile service to be accepted and adopted by a user, the service should provide values to its user. In other words, it means that the service should enhance user performance in doing a particular task. However, many prior researches indicated that context of use influences the user attitude and behaviour. If the contextual aspects match with the user requirement for using a particular service, the acceptance of that particular service will be increased.

As the usage of mobile phones become increasingly pervasive, people carry their devices almost anywhere (Mallat et al., 2009). Consequently, the use context has become increasingly important (Dourish, 2004). It is important to address that some contextual use poses implication to use a mobile service. For instance, due to lack of technological infrastructures or lack of network coverage in some areas, therefore, using a service might not be possible.

One can argue that, use context plays a significant role in individual decision making toward acceptance and adoption of mobile services. In general, user expects that in every situation the ubiquitous computing will be available. Thus, this can be an indication for mobile service providers and developers to take contextual aspects of mobile service into an account while designing a service.

3.3 Consumer's Acceptance toward New Technology

Advanced mobile technology has an impact on consumers' service perception. Over the last years, mobile communication has been identified as the fastest growing segment of telecommunications (Glodsmith, 2005). Mobile devices and in particular smart-phones have become increasingly important device for people

around the world. It has been argued that the number of mobile devices in many countries has already been exceeded the number of fixed access lines.

According to, (ITU, 2011), "At the end of 2011, there were 6 billion mobile subscriptions, estimates The International Telecommunication Union (2011). That is equivalent to 87 percent of the world population. And is a huge increase from 5.4 billion in 2010 and 4.7 billion mobile subscriptions in 2009". Users can use their mobile devices to make or receive calls and videos and perform other tasks such as shopping and banking transactions. These are services which are specifically designed to perform certain tasks. Therefore, if services are designed according to users' preferences, then users' acceptance toward technology and particularly mobile technology will be increased.

3.4 Cultural Characteristics and Diversities

For long, cultural differences between people have been a central topic of the research, this issue has also been discussed in mobile service adoption and how cultural differences impact the service adoption (Gallivan and Srite, 2005). Moreover, cultural traits have also been identified as one of the most important factor that impacts users' perceptions towards different features of IT and mobile services (Hiller, 2003). Cultural differences have undeniable effect on organizations and behaviour (Sarala, 2010). Firstly, in different cultures people have different values on the same topic. Secondly, cultural differences also lead to diverse type of behaviour. Thirdly, way of thinking is also different in different countries.

For instance, due to the cultural differences between the Asian and the European users, some mobile services are perceived to be more useful than the other ones. Mobile game, for example is very popular in Japan, South Korea and China, but not in the European countries. Another example, is mobile TV, as people in Japan and Korea spend hours for commuting in daily bases, therefore they have more spear time to kill, consequently they use more entertainment services. On the other hand, people in Finland for example, they do not spend time as much as Asian for commuting, therefore the adoption and acceptance of mobile TV has

failed. The perception of IT artifacts (mobile services in this study) is greatly influenced by cultural traits.

4 MOBILE SERVICE PLATFORM AND OPERATING SYSTEMS

It has been defined that a platform can be referred to a hardware configuration, an operating system, a software framework or any other common entity on which a number of associated components or services run (Ballon and Van Heesvelde, 2011).

This chapter introduces mobile service platforms and explains the similarities and the differences between each mobile service platforms. Moreover, mobile Operating Systems (OSs) will be discussed in details and some of the major mobile Operating Systems will be introduced.

4.1 Introduction to Service Platforms

Mobile service platforms are becoming increasingly important due to divers benefits in using them. Their importance in telecommunication service market becomes even more visible if we take service provisioning mechanism into consideration. Traditionally, mobile services were accessible only from telecom carriers' portal; however after emergence of App-Stores the situation has been change. Since 2007, when the first official app-store has been launched, mobile users have the opportunity to obtain their desire mobile services applications via the app-store. Apple is the first company that introduced a new service delivery and distribution channel to the mobile service market. App-store phenomenon has been replicated by many other players such as Nokia with Ovi, BlackBerry with BlackBerry App World, HTC with Market and Windows with Market place. These application-stores are known as the service platforms which act as the middleware between the mobile device and third party applications. Some of these platforms offer unlimited number of applications –like Apple app-store and HTC Market, while others have only limited number of applications Nokia Ovi.

Consumers in order to obtain the services and applications are required to access the app-stores via their mobile devices or provider's web page and then select the

application they want to download. While some of the applications are free to download, others have to be purchased. It means, consumers are required to pay a certain amount of money in order to get access to download the application. Another concern with service platforms is the service development process and how the application developers can participate in the service development process. Some of the platforms providers set certain rules for the developers' participation; it means application designers or developers must agree to follow the rules in order to have permission to contribute to the service and application development. These models of platforms are called 'Closed' type of platform; Apple and BlackBerry are the example of such platforms. On the other hand, Google with Android and Nokia with Symbian are called Open platforms and application developers have more freedom in order to participate in service development process.

There are currently three major mobile service platform providers in the telecommunication market. These are known as the operator-centric, device-centric and service-centric platforms, in the following section these three platforms will be discussed in details.

4.2 Operator based platforms

For long, mobile telecommunications market used to be dominated by mobile network carries through what is termed as an operator portal. However the situation is now changed and they are observing that their main source of revenue specifically in mobile voice and SMS services are declining. Traditionally, mobile Telecom operators were used to have full control of the network, services provision and any interaction with the consumers. Despite of their importance in telecommunication market, platforms developed by Mobile Network Operators (MNOs) are seldom discussed in the literature. Moreover, consumers' perceptions, behaviours, preferences and demands are not discussed extensively, (Gonçalves & Ballon, 2011; Gueguen & Isckia, 2009). Many of the prior researched only focused on conceptual level and mainly focused on the differences between OS platforms (Stanoevska-Slabeva & Wozniak, 2010).

Nevertheless, technological growth especially after introduction of advanced mobile technology GPRS (General Packet Radio Service), mobile Telecom carriers realized that they need to cooperate with 3rd parties. The benefit of cooperating with 3rd parties is that it enables them to offer advanced mobile services and applications which are attractive to their users. Therefore, Telecom carriers copied Japanese i-mode (Natsuno & Wiley, 2003) to manage the relationships with 3rd parties (content providers and application developers). This model is referred to what is known as the 'walled garden'. In 'walled garden' model, mobile operators are acting as mobile Internet portal where their main task is to provide access to content and services from parties provides. This model enables the operators to retain their market position and to control all the transaction, communication network in addition to controlling the access to customer's data.

Nevertheless, in order to be active in the telecommunication service market, mobile network operators are also developing various advanced service using IMS-based technologies to provide advanced communication services. Using IMS-based technologies also enable the network operators to improve their market position. IP Multimedia Subsystem (IMS) is a technology which enables mobile network operators to improve the QoS (Quality of Service) of communication and multimedia services. Accordingly, one of the most significant functionality of IMS technology is providing service interoperability between different network technologies (Vrdoljak, Vrdoljak, & Skugor, 2000).

Despite of the benefits offered by IMS technologies, Mobile Network Operators (MNOs) are facing that their strategic position is weakening in mobile service market. Moreover, they are also facing major challenges for their future role in telecommunication service market due to the entrant of other service platform providers such as IP-based companies (Facebook and Google) and Device manufacturers (Apple and Nokia). Therefore, mobile network operators (telecom carriers) are struggling and trying to come up with the new mobile service and application which are attractive to consumers and enabled them somehow to compete with the IP-based communication services offered by new mainly

Internet-based (IP-based) companies and device manufacturers. To do so, they are using their advanced technological infrastructures and telecommunications standards to achieve their goal.

4.3 Device based platforms

Device manufacturers, -like Nokia, Apple (iPhone), HTC, Research in Motion (BlackBerry) have recently entered to mobile service market. They are offering high-end application on the user handset, including advanced communication platforms which are known as the Device-Centric Platform model. Typically, device manufacturers use their own platforms to reach the end-users. Applications for smart phones are accessible via app-stores which are provided by device manufacturers' websites or App-stores. These market players also define what specific platform is used to provide services to the customers and they may also provide tools and resources in the forms of a Software Development Kit (SDK) to service developers to design new services. Application developers, in order to participate in service development process need to follow certain rules assigned by device manufacturers. Some device makers (Apple and BlackBerry have very strict policy to be followed by developers, while some other device makers have more convenient regulations (HTC and Nokia). Platforms provided by Apple and BlackBerry are considered to be Closed type of platform (closed source), while platforms provided by Nokia Symbian and HTC Android are considered to be Open (open source). The difference between the Closed and Open platform is basically due to policies and regulations that device manufacturers or platform providers assigned. If the participation of the application developers' and third parties is free to everyone, the platform is called Open type, whereas if the participation should be followed by strict rules, then the platform is considered as Closed.

4.4 Service provider based platforms

In addition to, operator-centric and device-centric platforms, there is another type of platform which is offered by proprietary service providers. Services providers such as Google, Facebook and Skype are looking to disrupt mobile

telecommunication market in the shape of service oriented model. These market players provide easy-to-use, often useful, innovative services and solutions to users. These so called full IP-based companies and proprietary platforms use their own platform to provide services to the end-users. Services are often offered based on the best effort service delivery. This is mainly due to the fact that Internet service providers do not own the network infrastructures and they rely on the Internet Protocol (IP). These types of services are not generally capable of ensuring the highest Quality of Service (QoS), customer privacy, and security. One of the most used and user appreciated such services is Voice over Internet Protocol (VoIP), which is built based on SIMPLE (Wikipedia, 2012), (Session Initiation Protocol for Instance Messaging and Presence Leveraging Extensions). SIMPLE is originated from SIP (Session Initiation Protocol). SIP is a protocol that originally is designed for setting-up media sessions, including voice over IP (VoIP).

4.5 Mobile Operating Systems

A mobile operating system is a piece of software that is responsible to run on mobile devices such as smart-phones, tablets, PDA or any other mobile devices. A mobile operating system is software which is integrated on the mobile phones to enable other services and applications to run and function. Generally speaking, device manufacturers have their own proprietary operating systems; however there are some device manufacturers where they use mobile operating systems designed by others on their devices (Samsung, LG).

Currently, there are quite a few well established operating systems in mobile communication market that most of device manufacturers are using them. Apple operating system is 'iOS', Nokia with 'Symbian', BlckBerry with 'BlackBerry OS', Google with 'Android' and Microsoft with 'Windows Mobile' are most popular mobile operating systems. However, there are some differences between these mobile OSs, while some of them can be run in many different brands (devices), others are only designed to be used specifically only on one particular brand (device). For instance, Apple iOS and BlackBerry OS are designed only for

Apple's and BlackBerry's products and they do not license these OSs for installation on non-Apple and non-BlackBerry devices. Unlike, Apple and BlackBerry, Symbian from Nokia and Android from Google can be installed on other hardware; this implies that other device manufacturers which they do not have their own proprietary mobile operating systems can use them.

According to, Gartner, (2011) the worldwide mobile OS market share, predict that in 2012, the market will be dominated by Android with 49.2% of shares; this is followed by Apple iOS with 18.9% market share. Symbian from Nokia has 5.2%, BlackBerry OS has 12.9% and Microsoft has 10.8% market share. Other operating systems have only little market share 3.4%.

The following table illiterates the major mobile operating systems with their market share in April 2011 (source: www.gartner.com/it/page.jsp?id=1622614). .

Table 1 The Mobile Service Operating Systems.

Mobile Operating Systems (Mobile Software Platform)	Provider	Market Share
Android	Google	38.5%
Symbian	Nokia	19.2%
iOS	Apple	19.4%
BlackBerry OS	BlackBerry	13.4%
Windows Mobile	Microsoft	5.6%
Others	------	3.9%

4.6 Security, Privacy and Quality of Service

The security and privacy of the consumers' information and data is of decisive concern for most of the Internet-base companies and application providers. Traditionally, services which are offered by Telecom carriers are more secure and reliable and guaranteed service quality. This relies on the fact that the Telecom carriers have robust network infrastructures at their disposal. On the other hand, device makers and service providers are only capable to provide service quality to what is termed as ''Best-Effort'. Best effort delivery describes a network service in which the provider does not provide any guarantees that data is delivered with a certain priority or that a user is given a guaranteed quality of service level (Wikipedia, 2011).

Protecting customers' information and personal details is one of the top priorities for service and application providers. Application providers such as, Skype, ooVoo, fring, and MSN as well as Yahoo, eBuddy, Facebook and Gtalk have invested heavily in developing controls to protect their customers' information and profile. However, services offered via Internet-based companies are based on best effort delivery which means it does not guarantee the highest service quality. Therefore, users sometimes encounter poor voice, video quality or lack of enough available network bandwidth. This can lead to assumption that, Telecom carriers can use the weakness of the Internet-based companies as granted to gain a competitive positioning by offering high service quality, more secure and reliable services.

In Summary, the platform's war in mobile telecommunication market is pushing mobile operators to reconsider their market role if they want to have a key role in the growth of mobile telecommunication revenues. One possible alternative for them is to focus on bit-pipe provision. This means that they only provide network infrastructures and Internet access and do not participate in mobile service provisioning. The other alternative is that they invest in new services that can compete with the IP-based companies and device manufacturers' platforms. From end-users perspective, this war between different players in the

telecommunication market may lead to huge declines in prices, but also may cause confusion on where to select the services. This market fragmentation may result in emerging of multiple service provisioning models for advanced communication services.

It is worthwhile mentioning that operator-centric platform model gives all control and power at the operator; on the other hand, services provider-centric and device-centric are gaining market competitive advantages by offering services that take less time to be launched in the market. Traditionally, mobile Telecom carriers should deal with many issues such as standardization before launching their service to the mobile service market.

4.7 Mobile Services and Applications

The following section provides information with regard to some of the most used and famous mobile services and applications. The applications in this study have been chosen based on their popularities and their ease of use, most downloaded application or even according to their customer base such as Facebook, Yahoo messenger, Skype, Gtalk and MSN messenger. Moreover, some of the services and applications are also chosen based on innovativeness of the applications such as eBuddy, fring, Apple Facetime, Truphone and Apple WhatsApp. There are also enormous number of communication/social networking applications provided by Internet-based companies or device makers available on the Internet, for instance Apple Store has more than 200 hundred social networking applications. Therefore, due to the limitation in this study we are only introducing some of them.

APPLE FACETIME

Is an application designed only for Apple users (iPhone 4, iPad 2, iPod touch or Mac) to make only video calls, there is no text messaging or audio call option. The interesting feature is the ability to switch between devices, if one has more than one Mac, incoming calls ring on every device so a user can answer on the Mac that is most convenient. It is worthwhile mentioning that, only one device

can be chosen to answer. The price for the application is $0.99 and the system requirement is: Mac OS X 10.6.6 or later (FaceTime, 2012).

Figure 5. Apple FaceTime App: Source: http://www.apple.com/mac/facetime/

Facebook

Facebook is a social networking service, and currently has more than 850 million active users. It is estimated that Facebook will reach 1 billion by 2012, (Hunter, 2012). Text messaging is available and it is free Web/mobile application. Facebook is ranked as the most used social networking service globally. In the U.S. facebook users are leading in terms of nation users in the world with approximately 19% of the total facebook users globally (Lim, 2012). Moreover, according to CheckFacebook (2012), Brazil is the second largest country in terms of facebook users, there are roughly 47 million Brazilian users, and India is in the third place and it is estimated soon will be the second (Lim, 2012).

eBuddy

Is an application to connect all of the users' IM accounts to a single ID, it is designed for Web, mobile phone, PC, iPhone, iPod Touch, Sony PSP and Nintendo DS. The application is used only for text messaging. The audio or video

call feature is not supported by this application. Only picture files can be sent or received on ebuddyPro, no other file type can be transferred using this application. The application price is; eBuddy Pro Messenger is $4.99 and it is available for 37 languages (ebuddy, 2012).

Figure 6. eBuddy Application: Source: www.afreecodec.com/windows/top-windows-software/ebuddy-23590.html

Fring

Fring is a free mobile application that allows users to communicate with their friends over their mobile phone's internet connection (Fring, 2012). Fring users make free mobile calls, video calls, and live chat. Fring has millions of users in more than 200 countries and one can send and receive files using it. A fringster's profile shows whether your friends in the contact list are currently available (presence feature) via fring or other online networks and users can see his or her photo and real-time status. Fring is not designed for any other device (i.e. Web based or PC) as it is designed basically to be a mobile application. Fring works with MSN Messenger, ICQ, Google Talk, Twitter, AIM and Yahoo! Fring works via mobile phone's internet connection.

Figure 7. Fring Application: Source: http://www.fring.com/

Truphone

With Tru one can travel the world and only pay what the locals pay for calls, texts and data, (tru, 2012). The application can be used in UK, USA and Australia and can be installed on computer and mobile device. The application installation is free. It is possible for users to call other Tru App users for free, and perform cost effective calls to any landline or mobile worldwide. Tru application can be installed in PC, Mac and Linux. However if a user would like to use the advanced features of the application, they are required to pay a certain amount of fee.

Figure 8. Truphone Application: Source: forums.techarena.in

WhatsAPP

The application is designed for almost most popular smart-phones such as iPhone, Android, BlackBerry and Nokia phones, and it is considered as one the most innovative messaging application. The users can send and receive messages, pictures, audio notes, and video messages for free, WhatsApp is known as the messenger application (WhatsApp, 2012). WhatsApp provides the possibility of performing group chatting and conferencing. The application uses a feature which is called "push notifications" to instantly get messages from contacts in contact list. Another feature of WhatsApp is the possibility to switch from SMS to WhatsApp to send and receive messages, sharing audio, video files and pictures for free (inter-changeably functionality. Some of the advanced features are also offered without the need to pay for. WhatsApp uses the Internet connection: 3G/EDGE or Wi-Fi, and users should have enabled Internet connection in order to be able to use the service.

Figure 9. WhatsApp: Source: http://www.whatsapp.com/

SKYPE

Perhaps, Skype is the most popular application worldwide. Skype is an application designed for instant messaging, file sharing, audio and video calling. Skype can be used for calling other people all over the world on their wired-phone or mobile. Skype also supports group video calling (conference feature). Skype

had an average of 124 million connected users per month in the second quarter of 2010, (Jazinga, 2012). Skype users made 95 billion minutes of voice and video calls in the first half of 2010, approximately 40% of which was video, (Skype, 2012). It is interesting to mention here that, due to high usage of this application, one can realize how much network bandwidth is required to provide high quality voice and video calling. Traditionally, Quality of Service (QoS) is of utmost important issue that Internet service providers such as Skype are dealing with. It is worth mentioning here that, Telecom carriers do not have such a problem, as they own network infrastructures and the core network facilities. This can be considered as an advantage for Telecom carriers over their competitors 'the Internet service providers', to use their trusted image to retain their customers. From consumers' point of view, the Quality of Service and reliability of services is utmost important.

MSN Messenger

MSN is an application provided by Microsoft Windows. MSN application can be used with PC, mobile phones, Tablets. MSN has also a web supporting instant messaging application. User can make audio and video call, sharing files as well as exchanging text messages. In order to be able to use advanced feature of the application, users should pay a certain amount of fee. It is possible to share photos and videos during the chat or a conference session. User can see who is online and start to chat with each other or view social updates and share photos using their mobile phones (Windows, 2012).

 Yahoo Messenger

Yahoo messenger functionality is similar to MSN. It can be installed and used freely for PC-to-PC, mobile application which enables its users to place calls from PC-to-phone or PC to PC, sharing files, and also sends text messages (SMS) to friends' mobile phones (Yahoo, 2012). Yahoo messenger has the option of enhanced video call with high-quality, full screen video and voice calling. Nonetheless, it is important to keep in mind that, the service quality in this application and similar application is not guaranteed. In other words, the providers

of these services can only provide service quality to what is termed to 'Best-Effort' delivery. "*Best effort delivery describes a network service in which the network does not provide any guarantees that data is delivered or that a user is given a guaranteed quality of service level or a certain priority' (Wikipedia, 2011).* In this scenario all the users receive depending to network traffic unspecified/un-prioritized delivery time or bit rate. The network traffic will be over-loaded if there will be many simultaneous users using the application.

ooVoo

ooVoo is an application that can be used for voice, video chatting, or performing group video chat. Initially, the application allows the users to set up a group video call up to 6 people simultaneously. However, it is possible to purchase the advanced version of the application, if one prefer to have group communication more than 6 people. One of the advantages of this application over the other application is the possibility of recording and sending video messages, recording and storing an audio call. OoVoo application can be used either in PC or with mobile phone. The Web-based application is designed for user who does not have ooVoo installed on his or her mobile device. The Web-based application is a free browser-based chat application (Oovoo, 2012).

Figure 10. OoVoO Application: Source: http://www.sodahead.com

5 MOBILE SOCIAL NETWORK SERVICES

Mobile social network services have become increasingly popular among mobile users. These types of services become a mean to communication with friends, relatives and colleagues among consumers. Moreover, Social Network Service (henceforth it is called SNS), are becoming a research theme for many researchers (Boyd and Ellison, 2007). Currently, there are many SNSs which have attracted the attention of millions of people globally.

5.1 Social Network Services

Some of the social network services enable users to create their own network and communicate with each other, while others attract certain group of people based on their, for instance their political view or nationality. According to Boyd and Ellison (2007) social network services allow individuals to built a public or semi-public profile, define a list of friends whom they share interest.

Users are allowed to search others in the system (service) with whom they want to create connection. Many of SNSs require the user to construct their personal profile, and then search for people whom they want to become friend. Many of SNSs require the friendship to be bi-directional process, it means a user can send an invitation to person whom he or she wants to become friend, and then the other person can accept or reject the invitation.

Given that social network services become increasingly pervasive, it is not surprising that these services become an integral part of users' live. For instance, Facebook is one the most widely used of such services. Facebook has been introduced to mass market in 2007, since then we are seeing that the number of users increases exponentially every day. Facebook can also be use with mobile devices, and it almost provides the same functionalities as the web-based application. Facebook is available to more than 70 languages and currently has more than 850 million users (Facebook, 2012).

 Other popular mobile SNSs is in China from Renren.com with what is known as Tencent QQ application. Tencent QQ has 145 million users. Moreover,

Renren.com is currently the largest social network platform in China. Tecent QQ provides opportunity to its users to create their personal profiles and build relationships with other people. Tencent QQ is the interactions platform to improve the efficiency of communication within a group of individuals (Li, 2011). In addition to Web-based application, Tencent QQ provides a mobile application to its users as well.

Figure 11. Tencent QQ Application: Source: http://www.imqq.com

However, in order to have better understanding on why people are attracted to this type of services and what factors impact their behaviour toward using it, we need to address several influential factors. Variables such as, critical mass, social influence, perceived enjoyment, perceived ease of use, perceived usefulness and individual mobile accessibility have been recognized to have impact on individual behaviour (Allen, 1998; Davis, 1989; Davis, Bagozzi and Warshaw, 1992; Mallat et al., 2006; Markus 1987).

With regard to Social Influence variable, (Venkatesh et al., 2003), argued that Social influence can be defined as the degree to which people have the impression that important others believe they should use a new system. Moreover, regarding to Critical Mass variable (Shapiro and Varian, 1999), argued that a critical mass of consumers is needed for users to receive an acceptable level of value from using a particular service and product.

Furthermore, perceived enjoyment has been identified to play a significant role in individual's behaviour toward using a mobile SNS. People may adopt a technology if its usage provides hedonic value and becomes enjoyable. According to studies on uses and gratifications, it is argued that users seek gratifications in media and technology use based on their needs and motivations (Lin, 1996).

6 DISCUSSIONS AND CONCLUSION

In the current study, the central focus is on the acceptance of mobile service and application innovations. The acceptance and the adoption of mobile services have been the theme of the research in past decades. Several individual Information Technology (IT) acceptance theories (theoretical models), have been formulated and have extensively been used to predict individuals' behaviour. The findings of the current study strongly suggest that, the traditional acceptance theories (theoretical models) cannot provide complete and meaningful solution in understanding of individual IT acceptance. The shortcomings of the theoretical models such as, Technology Acceptance Model (TAM), Diffusion of Innovations (DOI), Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) are discussed. The results indicate that, constructs in each model cannot be used separately in predicting users' behaviours. Moreover, the results show that even using the combination of theoretical models in research cannot provide sufficient validation to researchers and practitioners, if other factors such as cultural differences, service characteristics, context of use, service platforms or individual service perception are not be taken closely into consideration.

Therefore, this study has taken other relevant issues into account to investigate the phenomenon under research. For instance, mobile service characteristics which are believed to have significant role in decision making of consumers are profoundly discussed. The findings indicate that mobile service characteristics are very important indicators in research regarding to mobile service innovations. Generally speaking, mobile services are different based on their usage context, the degree of the innovativeness, potential target group (users), and to which extent their usage is useful and easy to use.

The findings of the current research point out that, mobile service platforms are becoming increasingly important in mobile service and application market. The results strongly recommend keeping into consideration while one study mobile service acceptance and adoption. The findings with regard to mobile service platforms suggest that, although telecom operator are used to be the market leader in mobile service provisioning, after the entrant of other players in the market

their strategic market position is weakening. Platform provided by device manufacturers and IP-based service providers are getting a massive attention among users with their diverse mobile service innovations. This is mainly due to the availability of the unlimited number of services, often innovative, to users. Users are not locked to only one service provider anymore. They are free to choose their desire services according to their preferences from different providers.

The findings of this study indicate that platform characteristics can be differentiated from each other according to the type of platform. Platform can be called Open by which application developers can freely participate in designing and developing mobile service innovations. On the other hand, a platform can be called as Closed if the participation of the application developers is more restricted.

Moreover, the findings show that, there are only few, widely used, mobile Operating Systems (OSs) in mobile communications industry. The market is dominated by Android Operating System provided by Google, and the second largest market share belongs to iOS provided by Apple. Other Operating Systems –like Symbian form Nokia and BlackBerry OS from BlackBerry have considerably little market share.

Mobile social network services are attracting the attention of millions of people worldwide. Mobile social network services enable individuals to create their profiles, build their network group and interact with the other people globally. The findings show that the importance of mobile SNSs become visible due to its usage pervasiveness. These types of services are becoming increasingly popular among the individuals all around the world. The role of the traditional social network services has gone through a massive change. They become a channel for communications and users can interactively share their interests and values with others.

In summary, the findings of this study suggest that, in order to have better understanding of individual mobile service acceptance and adoption, several

crucial factors must be taken into account. The traditional theoretical models, by which the individual IT acceptance can be studied, are not sufficiently enough to predict users' behaviour. Mobile service characteristics, mobile service platform, context of use, cultural diversities and individual service perceptions are also critical factors that need to be taken into consideration in addition to theoretical models.

The current study has some limitations that need to be addressed. First of all, there are many other determinant variables which were not covered in this study. For example, habitual effect or business model of services that needs to be extensively studied. The findings of this study need to be empirically examined to see whether they are applicable in real life or not. Furthermore, lifestyle of people plays a significant role in service acceptance. While some people might be interested in using entertainment service, others might be interested in using other types of service based on their lifestyles. Thus, the service providers and application developers should pay close attention to users' demand, preferences and requirement, while designing a service.

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