

# COGNITIVE FACTOR OF 3G MOBILE VIDEO ESPOUSAL BY THE INDIAN MOBILE USERS

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**Abstract—** Mobile technology has germinated dramatically within the last 10 to 15 years. Real-time visual communication via mobile is feasibly the most signature feature of 3G technology. The anxiety is whether 3G will change any interest and explosive uptake by the mobile user community. In an Indian circumstance with the technology being comparatively new, it proved difficult to guess the Indian Mobile community's response to 3G mobile video. This paper investigate what factors the Indian mobile users regard as most likely to affect the intention to adhere 3G mobile video.

**Keywords—** 3G, Mobile video, Hypothesis, Findings, teledensity, 3GPP, Tele-Medicine

## I. INTRODUCTION

Telecom industry in India has gone through a alteration during the past few years with amazing growth. Additionally, the country's telecom industry is one of the fastest growing and one of the largest telecommunication networks in the world. With the ongoing investments into infrastructure deployment, the country is projected to witness high penetration of Internet, broadband, and mobile subscribers in near future.

The Indian mobile market has undergone a revolutionary change over the past few years to become one of the leading mobile markets on the global map. Easy availability of low-priced devices, better network coverage and affordable services are some of the major factors that have boosted its growth and will continue to do the same in future. Wireless teledensity has also risen to the level of around 45% at the end of 2009, but still there is a vast scope for further improvement because of a wide gap in teledensity between urban and rural areas.

3G represents a postponement of the mobile service-provider model. This is the technology of choice for upgrading existing mobile telephone services to expand capacity and add enhanced services, 3G also gives the power of higher speeds to enjoy multimedia services, internet access and high speed mobile broadband with the ability to view videos on your mobile handset. With a 3G phone and access to the 3G network you can watch live TV, make video calls, access high speed internet and enjoy live streaming at never before speeds. Japan was the first country to introduce 3G on a large commercial scale.

The objective of this research is thus: To determine the factors affecting espousal of 3G mobile video based on variables derived from the Innovation Diffusion Theory, Technology Acceptance model, Diffusion of Innovations Theory,.

## II. LITERATURE REVIEW

Mobile era has changed the Indian culture. It has changed and reformed the way people work and interrelate and a powerful communication medium for influencing social life and business.

### A. Overview of 3G Mobile Technology

3G Systems are intended to provide a global mobility with wide range of services including telephony, paging, messaging, Internet and broadband data. International Telecommunication Union (ITU) started the process of defining the standard for third generation systems, referred to as International Mobile Telecommunications 2000 (IMT-2000). In Europe European Telecommunications Standards Institute (ETSI) was responsible of UMTS standardization process. In 1998 Third Generation Partnership Project (3GPP) was formed to continue the technical specification work. 3GPP has five main UMTS standardization areas: Radio Access Network, Core Network, Terminals, Services and System Aspects and GERAN.[1]

### B. 3G Mobile video espousal

To better understand the attitudes of most Indians with regards to mobile devices, I looked at a study published in June 2010 in the International Journal of Next-Generation Networks. Entitled "The Forecasting of 3G Market in India Based on Revised Technology Acceptance Model," this study was a collaborative effort by some renowned Indian physicians, professors of engineering, and application developers. They define 3G services to include "wide-area wireless voice telephone, video calls, and wireless data, all in a mobile environment... [3G] allows simultaneous use of speech and data services and higher data rates." 3G has been made possible in India as a result of 2-8 Mbps bandwidth availability. Some of its applications include (a) Mobile TV, (b) Video Conferencing, (c) Tele-Medicine (where a remote person can be given attention by a doctor located at a distant place), (d) Location-Based Services, and (e) Video On-Demand. [2]

### III. THEORITICAL MODEL OF TECHNOLOGY ESPOUSAL

To help in finding which things are related is forecasting the intention to espousal of 3G mobile video the following behavioral theories were reviewed and considered: Diffusion of Innovation Theory, Technology Acceptance Model (TAM), Innovation Diffusion Theory, Theory of Planned Behaviour.

#### A. Diffusion of Innovation theory

According to Rogers (1995), this Theory is anxious with the manner in which a new technological technique, idea from creation to use. This theory is at its best as a descriptive tool, less useful still in predicting outcomes, and less strong in its explanatory power, and providing guidance as to how to accelerate the rate of adoption. There is doubt about the extent to which it can give rise to readily refutable hypotheses.[3]

Characteristics of this theory are as follows:

- Relative advantage: the degree to which it is perceived to be better than what it supersedes.
- Compatibility: the degree to which it is consistency with existing values, past experiences and needs.
- Trialability: the degree to which it can be experimented with on a limited basis
- Complexity: the degree to which an innovation is perceived as being difficult to understand and use.
- Observability: the degree that results are visible to all.

#### B. Technology Acceptance model

The technology acceptance model (TAM) specifies the casual relationships between system design features, perceived usefulness, perceived ease of use, attitude towards of using and actual usage behaviour.

The TAM is based on two beliefs (A) Perceived usefulness is defined as “ the degree to which an individual believes that using a particular system would enhance job performance.” (B) Perceived ease of use is defined as “the degree to which a particular system would be free of physical and mental effort.” [4]

#### C. Innovation Diffusion Theory

Rogers [1983] explained the process of innovation diffusion as one which is dictated by uncertainty reduction behaviour amongst potential adopters during the introduction of technological innovations.

Innovation Diffusion Theory (IDT) consists of six major components: innovation characteristics, individual user characteristics, adopter distribution over time, diffusion networks, innovativeness and adopter categories, and the individual adoption process.[5]

#### D. Theory of planned Behaviour

TPB posits that individual behaviour is driven by behaviour intentions where behaviour intentions are a function of an individual's attitude toward the behaviour, the subjective norms surrounding the performance of the behaviour, and the individual's perception of the ease with which the behaviour can be performed (behaviour control).[6]

### IV. RESEARCH HYPOTHESES

The purpose of this research is to find out the factors intended 3G mobile video espousal in India. The proposal hypotheses relate to the factors recognized that could affect probably espousal.

#### A. Relative Advantage

Refers to the degree with which an individual believes that a new innovation or Information Technology offers a relative advantage over another. According to Clarke (1999), the relative advantage of one technology over another is positively related to its rate of adoption. 3G mobile video communication will enable a real-time visual communication experience anywhere anytime and subsequently offer a relative advantage to those who prefer to hear and see who they communicate with.

- *H1: The greater the comparative advantage of using 3G mobile the more likely the objective to espouse 3G mobile video.*

#### B. Compatibility

Compatibility is best described where an innovation is more likely to be adopted when it supports an individual's lifestyle, needs, job responsibilities and values. [7] Consequently, the more an individual perceives his/her cell phone to be compatible with his/her lifestyle the more likely 3G mobile video will be adopted.

- *H2: The greater the compatibility of using 3G mobile the more likely the objective to espouse 3G mobile video.*

#### C. Trialability

Allowing potential adopters to experiment with the new technology makes them more comfortable using it and subsequently more likely to adopt it. This can also be defined as the degree to which new technology may be experimented with on a limited basis.

- *H3: The greater the Trialibility of using 3G mobile video the more likely the objective to espouse 3G mobile video.*

**D. Complexity**

Within the context of this study, complexity is the degree of difficulty to understand and use the technology or new innovation. When considering the TAM model, complexity stands in direct contrast with “Ease of Use”. It implies that the greater requirement for technical skills to operate or use the technology, the less likely that it will be adopted.

- *H4: The greater the density of using 3G mobile the less likely the objective to espouse 3G mobile video.*

**E. Technological Experience**

Refer to the amount of experience that an individual have with technology and more specifically cell phones and the Internet in the context of this study. This view is supported by Agarwal and Prasad (2001).

- *H5: the greater the technological experience of the individual, the more likely the objective to espouse 3G mobile video.*

**F. Self-Efficacy**

In the context of this study, the more confident an individual is in his/her technical skills or the greater the experience he/she has with a cell phone, the more likely that 3G mobile video would be adopted. This view is supported by Taylor and Todd (1995) who states that the higher the level of self-efficacy, the more likely the intention to adopt the technology.

- *H6: The greater the self-efficacy of using 3G mobile the more likely the objective to espouse 3G mobile video.*

**G. Cost**

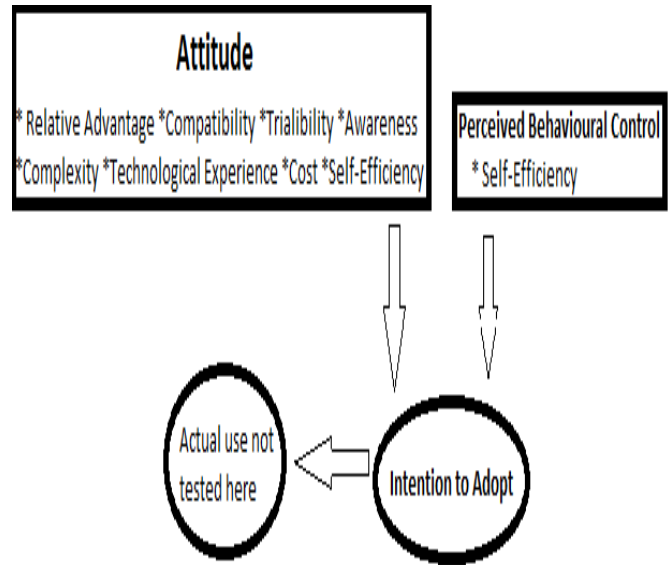
This refers to the extent that an individual perceives that 3G mobile video would be a costly technology to adopt [Azjen 2002]. The greater the cost the less likely would be the intention to adopt the technology.

- *H7: The higher the cost of using 3G mobile the less likely the objective to espouse 3G mobile video.*

**H. Awareness**

Awareness in the initial stages of the innovation is a significant determinant in the intention to adopt or reject the innovation. Since 3G mobile video is a relatively unknown and new innovation in South Africa, awareness of the innovation will influence the acceptance of 3G mobile video.

- *H8: The greater the awareness of 3G mobile video the more likely the objective to espouse 3G mobile video.*



**Figure 1 – Research Framework and Hypotheses**

**V. RESEARCH METHODOLOGY**

Out of 65 questionnaires, only 37 were usable. The questionnaire consists of two things: attitude towards using 3G Mobile video and demographic profile of respondents. To overcome geographical constraints, an internet website was used to survey. Data collected through a survey and analyzed by correlation and regression analysis.

**VI. RESULTS AND DISCUSSION**

**A. Regression and Correlation Analysis**

Many linear regressions were used to examine the survey responses in an effort to find out:

- Whether any of the independent variables will affect the objective to espouse 3G mobile video.
- The level of statistical significance of each of the hypotheses on the objective to espouse 3G mobile video

The result of these analyses will show acceptance or rejection of the hypotheses by examining the pvalue. A p-value less than 0.05 (\*) indicate a statistically significant hypothesis i.e. a factor which affects the intention to adopt 3G mobile video. A pvalue of 0.02 (\*\*) indicates high significance. H1 to H8 all relate to the construct “attitude towards the technology” except H6 is the separate construct “behavioural control”. Where significant correlation was found, the correlation coefficient has been shown. Note that the significant variables explain between 5% and 15% of the variance each.

Hypotheses	Variable	p-level	R x,y
H1	Relative Advantage	0.3002	
H2	Compatibility	0.0213*	0.217
H3	Trialibility	0.1865	
H4	Complexity	0.0025**	0.287
H5	Tech. Experience	0.0201*	0.241
H6	Behavioural Control	0.2135	
H7	Cost	0.0058**	0.256
H8	Awareness	0.4265	

**B. Accepted Hypotheses**

As per the result of p-value by the regression analysis the following hypotheses will true:

H1: The greater the *relative advantage* of using 3G mobile the more likely the objective to espouse 3G mobile video.

It is useful to users, because they can easily get the information which they want.

H2: The greater the *compatibility* of using 3G mobile the more likely the objective to espouse 3G mobile video.

Although 3G mobile video is only possible existing the end of dec-2008. So user can easily compatible with 3G system.

H4: The greater the *complexity* of using 3G mobile the less likely the objective to espouse 3G mobile video.

Now days, users can easily adjust with new mobile technology, so there are no complexity to espouse this.

H5: The greater the *technological experience* of the individual the more likely the objective to espouse 3G mobile video.

In this study, 3G service is experience the following variables were used: years of experience.

**C. Rejected Hypotheses**

As per the result of p-value by the regression analysis the following hypotheses will false:

H3: The greater the *Trialibility* of using 3G mobile video the more likely the objective to espouse 3G mobile video.

A possible reason for the refusal of these hypotheses could relate to most respondents being mobile phones and also the internet.

H6: The greater the *self-efficacy* of using 3G mobile the more likely the objective to espouse 3G mobile video.

This result is in contrast with the view of Taylor and Todd (1995) on this hypothesis. [8]

H7: The higher the *cost* of using 3G mobile the less likely the objective to espouse 3G mobile video.

As compared to 2G services, the cost of 3G service are comparative high, so all user can not afford this.

H8: The greater the awareness of 3G mobile video the more likely the objective to espouse 3G mobile video.

This result is possibly due to the way with words of the test items for this construct.

As per the result, we examine that only relative advantage, compatibility, complexity and technological experience are significant predictors of 3G mobile video.

**VII. CONCLUSIONS**

This study explores user’s behavioral objective to espouse 3G mobile video service. The following major conclusions and suggestions were obtained from eight hypotheses.

First, 3G mobile communication has been available for some times, although consumers can easily adopt mobile video service through the 3G system. Second, these sample were small, the results were depending upon the following factors: complexity of technology means it is easily operate, cost means its cost is not higher than other services, compatibility means capable of performing in combinations with user’s life style.

The limitations of this study is that, 3G service is still under development, so all the sampling all the users of 3G video are not sufficient and other main point is time because, the survey was performed at a specific time point for analysis.

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