

An Exploratory Comprehension of Consumer Adoption in Technologically Innovative Products

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Abstract

Consumer adoption is a process comprising of certain stages through which consumers go in order to make final decision about the purchase of a new products. In the present scenario, innovation has become a necessity for sustained survival. Technological innovations, associated with product/process, directly affects its performance level. Comprehending consumer's response towards innovation is imperative for corporates. There are many factors affecting consumer adoption decision. The factors may vary with the 'type' of innovation and can be physical or psychological. The marketing strategy acts as a 'ship' which carries the innovation through the gusty waves of market. The strategies can be designed only when the factors affecting 'consumer adoption process' are known. The factors if prejudged can play the role of a compass in shaping the behavioural intention of consumers in favour of specific consumption. The marketing strategies can thus be formed so that consumers' intentions towards product adoption remains favourable throughout the process. Today, various technological innovations have been made in the field of M-commerce, Social Commerce, Internet Banking, Self-Service Technologies etc. Service sector industries are introducing several technologically innovative products and they have refocused their strategies to make their innovations consumer-driven. The outcome can affect consumer in multiple ways. As a marketer, one has to identify these factors and analyse the extent to which it can be controlled by designing appropriate strategy. The paper attempts to explore and identify the factors affecting 'Consumer Adoption Process' in the consumptions of technologically innovative products.

Key words: Consumer Adoption, Technological Innovation, Behavioural Intention, Attitude, Usage

Introduction

In the era of technological advancements, business organisations dealing in such markets are striving hard to catch hold of customers. On one hand, companies are trying to establish their innovations in the market, but on the other hand, customers' preferences are changing rapidly with time. If a certain new product however finds place in the market, consumers starts comparing it with some another one lately introduced. Hence, it becomes crucial for marketers that their consumers adopt their product. During the Consumer Adoption Process, marketers are required to predict the effect of many relevant factors that shape the attitude and hence behavioural intention of consumers towards the use of that product. When the product fully fits as per the consumer needs and the effect of factors remains favourable, the consumers adopt the product. As, competitors in the market are always ready with yet new innovations, a particular company has to do augmentation of its products and process in order to sustain for a long period of time. Non-technological changes such as improvement in the marketing practices, organisational structure etc. can be implemented to a level when our product or process has some 'point of difference' and it only needs a push. But, technological innovations are required at some point of time when a shift is desired by the market either in the form of change in product or a process. This shift can be continuous or disruptive depending upon the resources and need of the hour. A company becomes a market leader if followers want. In case of technological innovation, a company can emerge higher, if its consumer/target group adopts the innovation. For this, a well-planned strategy based on contributing factors to the adoption has to be implemented in the market. Several models have been studied and implemented in this area.

Consumer

The term 'Consumer' has been extensively used in the literature of consumer behaviour. A consumer can be an individual or organisation who pays something for goods or services that he consumes. A consumer is one who buys goods or services for personal use, who decides whether or not to purchase an item and who get influenced by promotional stimuli. According to Rai and Srivastava (2014), "It is difficult to have exact compartmentalisation between customer and consumer and their relative roles and opined that marketers should have explicit image of the customers, consumers and the area that is common in terms of their role and contribution". Rai and Srivastava (2014) stated that, "A customer is one who creates demand. For demand to arise, three conditions must be present – desire to buy, ability to pay and willingness to pay. The fulfilment of these three conditions qualifies a person to process demand and he qualifies to be termed as customer".

Consumer Adoption

Rogers (1962) stated that, 'adoption is a decision to make full-scale and continuous use of an innovation. His definition stressed on 'intention' to continue the use of innovation on complete basis. Robertson (1971) suggested that it is appropriate to state 'repeat purchase decisions' rather than 'continuous use of innovation' and opined that the actual implementation of adoption is based on product class. **Thus, Consumer Adoption is consequent to strong and positive behavioural intention towards repeat use of a consumption.**

Fishbein and Ajzen, 1975 stated that, Behavioural intention (BI) refers to "a person's subjective probability that he will perform some behaviour". Bagozzi (1992) claimed that as soon as the intention is activated, it will function as part of a self-fulfilling mechanism and drive individuals into a status of "must do" or "will do".

Rogers (1962) introduced adoption process model and explained the awareness-interest-evaluation-trial-adoption sequence. Gatignon and Robertson (1991) opined that this model involves cognitive processing. **Consumer adoption thus is the ultimate outcome to a series of steps consisting of psychological and behavioural activities.**

Feder (1982) opined that, Adoption is influenced by product characteristics. Bass (1969) focused on the influence of personal characteristics on adoption of innovation and Ostlund (1974) suggested 'perceived risk' as significant influencer of adoption. Therefore, we can conclude that **Consumer Adoption is dependent on the characteristics of innovation, consumer's personal influences and the impact put by other extrinsic factors during the adoption process.**

Technological Innovation

Rogers (1995) explained in 'diffusion of innovation theory' that the innovation and adoption happens after a consumer goes through different stages including understanding, persuasion, decision, implementation, and confirmation. Rogers (1995) concluded that, Innovation can be called as such when it is perceived new by the unit of adoption. It can be in the form of practice, any object or idea.

Technological innovations comprise new products and processes and significant technological changes of products and processes. As further defined by 'Community Innovation Survey' -

Technological Innovation requires an objective improvement in the performance of a product or in the way in which it is produced or derived. The following changes are not technological innovations as per CIS –

- Improvements of products that make them more attractive to the purchasers without changing their 'technological characteristics'.
- Minor technological changes of products and processes or changes which do not have the sufficient degree of novelty.

- Changes of products and processes, where the novelty does not concern the use or objective performance characteristics of the products or the way they are produced or delivered, but rather their aesthetic or subjective qualities.

Innovation Characteristics Affects Rate of Adoption

In his 'diffusion of innovation' theory, Rogers (1995) mentioned the factors that affect the rate of adoption of innovative products. They are: Relative Advantage, Compatibility, Complexity, Trialability and Observability.

1) Relative advantage: Rogers (1995) defined it as the extent to which a particular innovation is perceived superior to the other comparable ideas. He suggests that greater the perceived relative advantage of an innovation, the more rapid its rate of adoption.

2) Compatibility: Rogers (1995) defined it as the extent to which a particular innovation is perceived as per the given values, the requirements of potential adopters and his past experiences.”.

Tornatzky and Klein (1982) mentioned that compatibility of innovation have more significance for employees particularly with reference to his job responsibilities and value system.

3) Complexity: Rogers (1995) defined complexity as the extent to which a particular innovation is perceived complex to understand and use. He suggests that new ideas that are simpler to understand are adopted rapidly.

Cheung et al. (2000) found that the role of complexity is negative with respect to could the adoption of Internet.

4) Trialability: (Rogers 1995) defined trialability as the extent to which a particular innovation may be put to use on a limited or small basis.

Agarwal and Prasad, 1998 stated that trialability measures the extent to which potential adopters perceive an opportunity to experiment with the innovation prior to committing to its usage.

Tan and Teo (2000) suggested that trialability helps minimizing unknown fears and customers (in banking context) realize that the mistakes could be rectified.

5) Observability: Rogers (1995) defined observability as the extent to which the performance of a particular innovation can be seen by others”.

Agarwal and Prasad (1998), opined that, the characteristics of observability, identified by Rogers was segregated by Moore and Benbasat (1991) as:

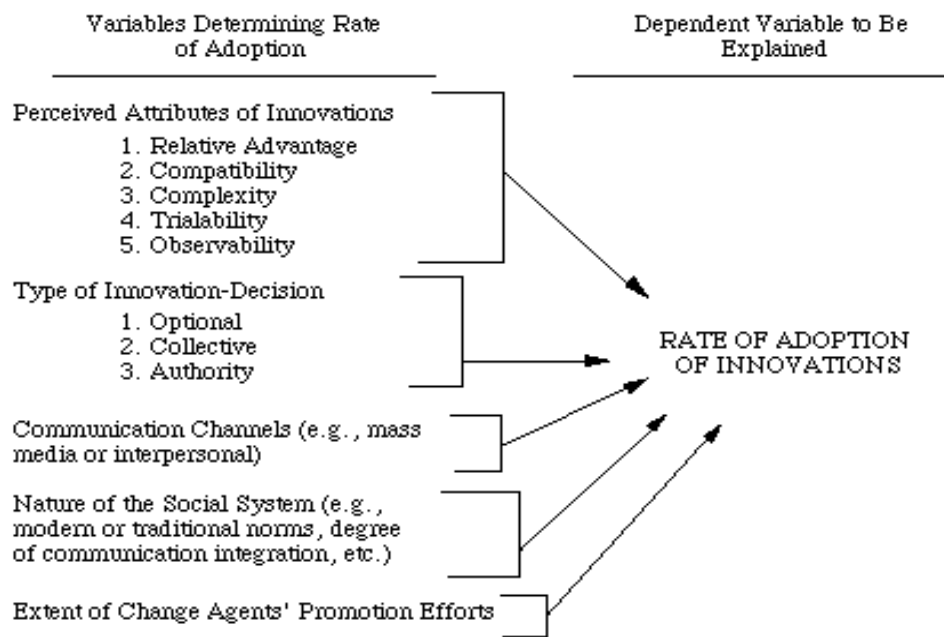
- a) **Result demonstrability**-the tangibility of the results of using an innovation
- b) **Visibility**- the extent to which innovation is visible to the potential adopter, in the context of adoption of innovation.

Tornatzky and Klein (1982) assert that relative advantage, compatibility and complexity are the three most relevant constructs for the adoption of innovation.

Other researchers such as Moore and Benbasat (1991) added image, result demonstrability, visibility and ease of use as the relevant factors which affects rate of adoption of an innovation.

Rogers and Shoemaker (1971) have further developed five variables which affect the adoption rate of any particular innovation. These include:

- Perceived attributes of innovations (5 factors discussed above)
- Type of innovation-decision (Optional, Collective, Authority)
- Communication channels (Mass media or inter-personal)
- Nature of the social system (its norms, degree of network, inter-connectedness)
- Extent of change agents' promotion efforts.



Source: Rogers and Shoemaker 1971

Rogers (1971) identified the factors related to the way the innovation is perceived by potential adopters, the type of decision making processes suitable during the adoption and the social system in the vicinity of adopter.

Stockdill and Morehouse's (1992) introduced a model provided a thorough overview of the many factors that affect the adoption of an innovation. They grouped the factors into 5 categories:

- Educational need
- User characteristics
- Content characteristics
- Technology considerations
- Organizational capacity

Review of Literature

(Eveland, 1979) identified that “adoption” is a very old and important concept in the literature of ‘Diffusion of Innovations’

(Zenobia, 2008) stated that, ‘Adopters are those who take the decision to adopt, on the other hand, rejecters take the decision regarding not to adopt a product. Non-adopters are those, who have yet to begin the process of becoming an adopter’.

Rogers (1983) defined that in ‘Innovation – Decision Process’, an individual or any other decision making unit, first come to know about an innovation, then he forms an attitude towards that particular innovation and takes the adoption or rejection decision related to that innovation. If he decides to adopt the innovation, he enters into the implementation stage and then he confirms his decision. This process was named as- Technology Adoption Decision Process by Zenobia (2008).

As noted by Lewis (2000) “technology adoption rates are an order of magnitude faster than several decades ago, which means that technologies and products are penetrating global markets faster and faster.”

Hatala and Huang (2010) stated that, innovations in mobile technology has become a part of daily lives of people. (Lin (2011) and Shin and Lee (2009) mentioned about both equipment and service related such as m-banking advances in mobile technologies. (Keegan (2002) mentioned about mobile learning related innovations. Roach (2009) mentioned about mobile commerce, Rim and Zerba (2013) mentioned about mobile news and Muk (2007) mentioned

about SMS marketing. Okazaki and Mendez, 2012 stated that technological advances is the main reason towards these developments. Verkasalo et al., 2010 opined that, revenue can be generated only when the end-users will adopt the technology. The owner must not only test the new equipment, but he should use its services as soon as possible to make the adoption happen.

NiinaMallat (2006) examined the 'consumer adoption towards mobile payment' using qualitative research method and highlighted various contributing factors for its adoption.

Previous studies have shown that consumers' rejection decisions relating to (i) household adoption of personal computers, and (ii) non-transactional as well as transaction-based Internet commerce are based on perceived critical barriers to a much higher extent than on a lack of appreciation of the associated benefits (Venkatesh and Brown, 2001; Anckar, 2002)

(Rogers 1995; Gatignon and Robertson 1985) have focussed upon many individual, social, and product factors related to the adoption of new products. (Eyal, et al. 2004) stated that the costs of adopting a new product or service (e.g. monetary cost, learning effort, time commitment) are construed as low-level, subordinate aspects of the new product or service, whereas the benefits of adopting a new product or service (e.g., that which enables one to do new things) are construed as high-level, superordinate aspects of the new product or service.

Findings from a consumer survey conducted in Finland (Anckar, 2002) indicated that m-commerce adoption mainly appears to be driven by a need for solutions that add convenience and flexibility to daily routines rather than excitement and entertainment. They also found that consumers perceive the ability to satisfy spontaneous and time-critical needs as the most important driver of m-commerce adoption.

For a wider adoption, it is necessary to focus on behavioural intention of consumers. In case of use of broadband Internet Service, Behavioural Intention (BI) is defined as a consumer's intention to subscribe (or intention to continue the current subscription) and makes use of Broadband Internet in the future (Brown and Venkatesh, 2005; Venkatesh& Brown, 2001).

Social commerce is closely related to e-commerce. Thus, basic theories used to explain e-commerce adoption are also used to explain consumers' adoption of social commerce (Liang et al. 2011; Shen2012a; Wang and Zhang 2012). For companies, social commerce provides the potential to generate business value from consumers' online social interactions (Stephen and Toubia 2010). However, many e-commerce companies today are still trying to find out which factors influence consumers to participate in social commerce (Turban et al. 2010; Zhou et al. 2013). Technology Acceptance Model (TAM), which explains the user's acceptance of an IT system, has also been widely applied in the context of e-commerce adoption (Gefen et al. 2003; Gefen and Straub 2000).

Davis (2003) proposed that, in case of Internet Banking, customers' intentions to use internet banking can be affected by customers' attitudes toward using internet banking. Al-Somali et al. (2008) noted that low awareness of Internet banking is a critical factor in causing customers not to adopt internet banking.

Lee and Allaway (2002) stated that, in case of Self-Service Technologies, a successful implementation happens when consumer widely adopt the services so that the investment cost can be justified. Bitner et al. (2002) identified the adoption of Self-Service Technologies as a consumer decision process. He gave a conceptual model which consists of six stages namely, awareness, investigation, evaluation, trial, repeated use and commitment. Anitsal and Schumann (2007) stated that, SSTs will not gain adoption until and unless the service provider considers about the high level participation of customers and their reward inputs.

Technological Innovation Adoption Models

In context of adoption of technological Innovation, many models have been developed till date stating the process of consumer adoption of technological innovation and the intervening role played by different factors during the process. Researchers have given and utilised different theories and models in connection with technological innovation adoption.

Technology Acceptance Model (TAM) - Fred Davis originally proposed this model in 1986. The model replaces many of TRA's attitude measures with the two technology acceptance measures—'Perceived Usefulness' and 'Perceived ease of use'. The model was modified by Davis, Bagozzi and Warshaw in 1989. These two factors have been shown affecting attitude and hence behavioural intention of an individual and actual usage. It was basically developed for predicting user's acceptance of Information System and other technologies.

According to Davis (1989), 'Perceived Usefulness' is defined as the potential user's subjective likelihood that the use of a certain system will improve his/her action.

'Perceived Ease of Use' refers to the extent to which the potential user expects that a particular system that he would be using will not require effort.

External variables were also introduced in 1989 in this model as some other factors which may affect the attitude, intentions and usage.

Venkatesh and Davis (1996) developed final model of TAM in which the factor of attitude was eliminated and PU and PEOU were found to have direct influence on behavioural intention.

Venkatesh and Davis (2000) proposed TAM 2 model. This was basically introduced towards system usage at workplace. In this model, many sub-factors (affecting PU) were stated such as Image, Job Relevance, Output Quality, Result Demonstrability and Subjective Norms. Subjective Norms were also shown as affecting the behavioural intentions directly with Experience & Voluntariness factors as background players.

Venkatesh and Bala (2008) combined TAM2 (Venkatesh & Davis, 2000) and developed an integrated model of technology acceptance known as TAM3. The authors developed the TAM3 using the four different types of sub-factors including the individual differences, system characteristics, social influence, and facilitating conditions which are determinants of main factors like 'Perceived Usefulness' and 'Perceived Ease of Use'. In TAM3 model, the 'perceived ease of use' to 'perceived usefulness', 'computer anxiety' to 'perceived ease of use' and 'perceived ease of use' to 'behavioural intention' were moderated by the factor - 'Experiences'.

The Unified Theory of Acceptance and Use of Technology (UTAUT) –

The theory is given by Venkatesh et al, (2003). It focusses on 4 main factors which directly affect behavioural intention and usage-

- Performance Expectancy – It is the extent to which an individual believes that the use of a particular system will assist him to attain gains in job performance.
- Effort Expectancy – It is the 'extent of ease' related to the use of a particular system
- Social Influence – It is the degree to which an individual perceives the importance of others' belief that he should use the new system.
- Facilitating Conditions – It is the extent to which an individual believes that an organization is having the required technical infrastructure to support the use of the target system.

The moderating factors in the model are Gender, Age, Experience and Voluntariness of Usage.

PE, EE and SI are direct determinants of 'Behavioural Intention'. FC is direct determinant of 'Use Behaviour'. Behavioural intention is both an independent and dependent variable.

The five similar constructs including perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations form the performance expectancy in the UTAUT model while effort expectancy captures the notions of perceived ease of use and complexity.

Theory of Reasoned Action (TRA) was formulated by Ajzen and Fishbein (1975) establishes the connection between beliefs, norms, intentions, attitude and behaviour. According to this model, a person's behavioural intention is developed by his attitude and subjective norms. Further, Attitude of a person towards a behavior is determined by his beliefs on the consequences of this behavior, multiplied by his evaluation of these consequences. Beliefs are defined by the person's subjective probability that performing a particular behavior will

produce specific results. This model therefore suggests that external stimuli influence attitudes by modifying the structure of the person’s beliefs. Subjective norms are determined by the normative beliefs of an individual and by his motivation to comply with the norms.

Thus, Ajzen and Fishbein mentioned 2 factors ‘Attitude’ and ‘Subjective Norm’ that determines behavioural intention. They defined “attitude” as the individual’s evaluation of an object and defined “belief” as a link between an object and some attribute, and defined “behaviour” as a result or intention. They mentioned that, an individual’s ‘subjective norm’ is what he perceives about the attitude of his immediate community about certain behaviour.

Fishbien and Ajzen (1975) stated that, any factor affecting the behaviour of a person other than attitude and subjective norms are external factors, as they first affect attitude and subjective norm and then it put an indirect influence on behaviour. (Davis, Bagozzi and Warshaw, on 1989) opined that the external factors can be the characteristics of the tasks, of the interface or of the user, the type of development implementation, the political influences, the organizational structure, etc. TRA can be expressed as the following equation:

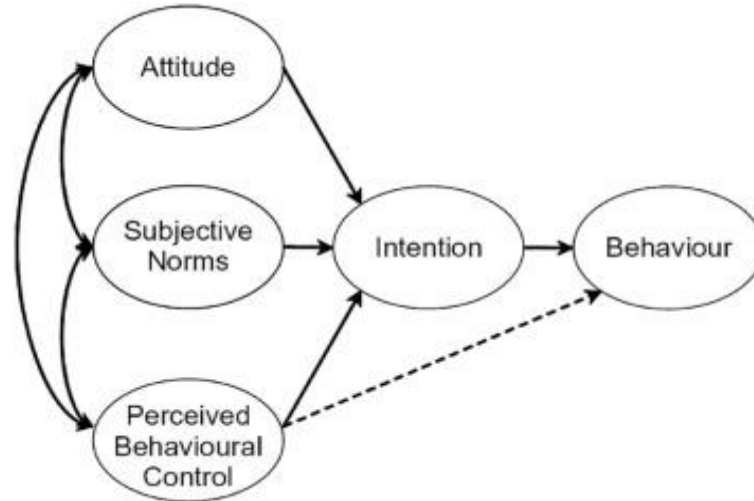
$$BI = (AB) W1 + (SN) W2$$

Where:

- BI = behavioral intention
- (AB) = one's attitude toward performing the behavior
- W = empirically derived weights
- SN = one's subjective norm related to performing the behavior

Theory of Planned Behaviour (TPB) – The model was introduced by Ajzen(1991). It is much like the TRA model, but, it focusses on one extra factor as ‘Perceived Behavioural Control’.

Perceived behavioural control refers to an individual's perceived ease or difficulty in performing a particular behaviour.



Source: Ajzen (1991)

Behavioral intention for the theory of planned behavior can be expressed as:

$$BI = (W_1)AB[\Sigma(b)(e)] + (W_2)SN[\Sigma(n)(m)] + (W_3)PBC[\Sigma(c)(p)]$$

- BI: Behavioral intention
- AB: Attitude toward behavior

(b): the strength of each belief concerning an outcome or attribute

(e): the evaluation of the outcome or attribute

- SN: Subjective norms

(n): the strength of each normative belief of each referent

(m): the motivation to comply with the referent

- PBC: Perceived Behavioral Control

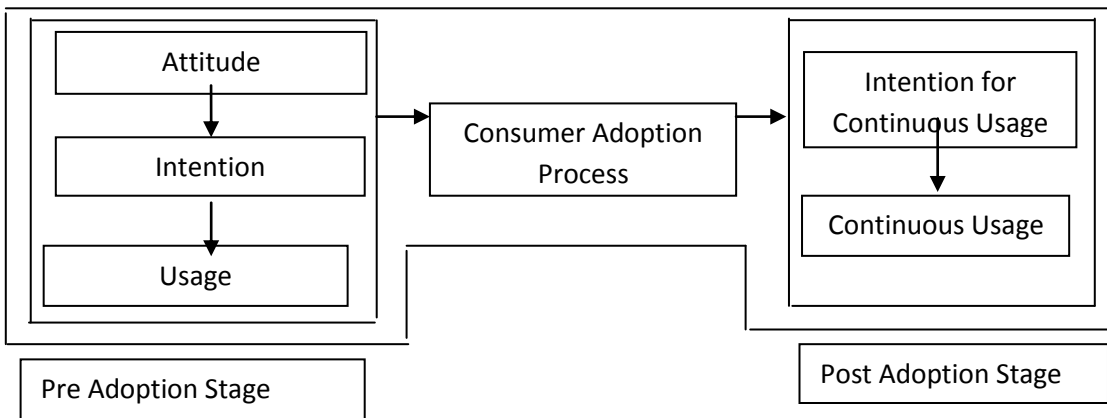
(c): the strength of each control belief

(p): the perceived power of the control factor

- W' : empirically derived weight/coefficient

Significance of Factors in the Consumer Adoption Process

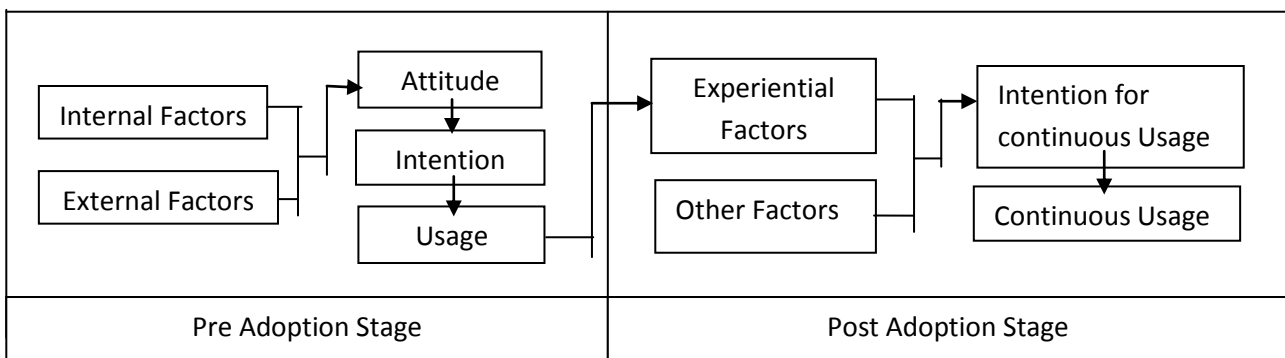
Pandey and Rai (2018) proposed the model - Pre and Post Stages of Consumer Adoption Process and stated that, as and when consumer develops a behavioural intention to continue the use of any product after its first use, he/she is said to enter into the stage of Post Adoption. Before that, he remains in the Pre-Adoption Stage.



Model on Pre & Post Stages of Consumer Adoption Process

Source: Pandey and Rai (2018)

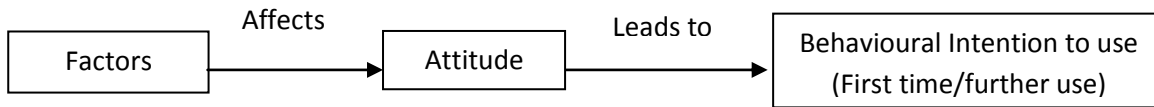
Later, they discussed the role of factors and stated that, in both Pre and Post Stages of Adoption, there are some factors which play significant role in affecting the attitude and hence behavioural intention of consumers. In the pre-adoption stage, either internal or external factors affect the behavioural intention of consumers towards use of a particular innovative product and in the post-adoption stage, experiential and other factors affect the behavioural intention of consumers towards continuous use of the product and thus affect the consumer adoption process as a whole.



Model on Behavioural Intention towards Adoption of Technological Innovation

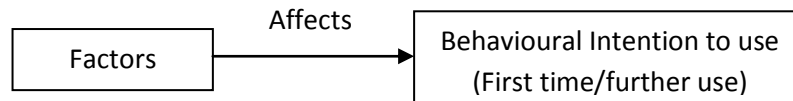
Source: Pandey and Rai (2018)

Through this model, they further stated the significance of factors in the consumer adoption process by highlighting its influence on behavioural intention –



Source: Pandey and Rai (2018)

Study of literature suggests that factors can directly affect behavioural intention. Venkatesh and Davis (1996) in their final model of TAM eliminated ‘attitude’ and stated that factors can have direct influence on ‘Behavioural Intention’. In UTAUT model, Venkatesh et al (2003) have also shown the direct influence of factors on intentions to use. Thus, the relevance of factors can also be presented as –



Different Theories emphasize on certain key factors which influences consumer adoption of Technological Innovation.

Teo and Pok (2003) in their paper examined the factors influencing the adoption of Wireless Application Protocol (WAP) - enabled mobile phones among Internet users. They used ‘Theory of Reasoned Action’, ‘Theory of Planned Behaviour’, ‘Technology Acceptance Model’, and ‘Diffusion of Innovation Model’ in their study. They explained about intention of behaviour towards adoption of a particular technology. They concluded that it is not ‘Perceived Behavioural Control’, but factors related to ‘Attitude’ and ‘Subjective Norms’ influence intention to use a WAP – enabled mobile phone.

Research Methodology

Aim of the Study

The study attempts to explore the factors affecting consumer adoption process in technologically innovative products.

Research Design

The study follows exploratory research design

Data Sources

The study has resorted to secondary sources primarily the outputs of the researches conducted in the related literature.

Significance of the Study

Technology is changing fast and hence changing the consumer adoption. It is therefore of enormous significance to explore the factors extrinsic and as well as intrinsic affecting the adoption process. It offers academic as well as corporate value which may be leveraged for sustained survival.

Factors Underlying the Adoption in Different Innovations

N Mallat (2006) in “Exploring Consumer Adoption of **Mobile Payments**- A Qualitative Study” – from ‘Helsinki School of Economics’ stated that the important factors affecting consumer adoption of Mobile Payment are Relative Advantage, Compatibility, Trust, Complexity, Cost, Network External, and Perceived Security Risk.

(Kirjoita 2000) in “Consumer Adoption in **Mobile Wallet**, Bachelor’s Thesis - Turku University of Applied Sciences (published in 2014), concluded that the Usefulness of Mobile Wallet, Utility of Innovation Service, Secured Transaction, Secured Privacy, Brand Loyalty, Ease of Use, Convenience, and Pricing are the prominent factors affecting adoption of Mobile Wallet.

In the paper titled “Consumer Adoption of Mobile Technologies: a literature review”, Sanakulov, N., & Karjaluoto, H. (2015) – studied factors affecting consumer adoption in Mobile Technologies. Under this, they focussed on ‘Mobile Data Services’, ‘Mobile Banking’ and ‘Mobile Learning’. They stated that, ‘Performance Expectancy’, ‘Perceived Value’, ‘Perceived Enjoyment’, ‘Social Influence’, ‘Voice Service Experience’, ‘Perceived Availability’, ‘Flow Experience’, ‘Variety of Services’ and ‘Perceived Advantage’ are the major factors influencing the adoption of Mobile Data Services; whereas, in case of **Mobile Banking**, Perceived Usefulness and Perceived ease of use has been found to be most dominating factor; In case of **Mobile Learning**, Perceived Usefulness, Perceived ease of use, Subjective norms, and Facilitating Conditions are the crucial factors affecting its adoption.

Bill Anckar, Christer Carlsson, Pirkko Walden (2003) in their paper- “Factors Affecting Consumer Adoption Decisions and Intents in **Mobile Commerce**: Empirical Insights” stated that, Flexibility, Ubiquity, Localization, Personalization, Mobility are the factors influencing its adoption. This study was mainly done in Finland.

Andrew Musiime and Malinga Ramadhan (Sept 2011) in their paper, “**Internet Banking**, Consumer Adoption and Customer Satisfaction” cited (Gao and Owolabi, 2008) and concluded that the major factors affecting adoption of Internet Banking are Level of awareness, Accessibility to computers, Convenience, Privacy, Price/Cost, and Availability of knowledge.

Dwivedi et al. (2008) in their paper- “Understanding Factors Affecting Consumer Adoption of **Broadband** in India: A Pilot Study” concluded that the major factors affecting Consumer Adoption in Broadband are relative Advantage, hedonic outcomes and price.

Wee (2003) confirmed and built on the findings of Rogers (2003) in the domain of **Electronic Durables** to conclude that the seven most important factors in adoption of new consumer, ranked in order of importance are trialability, compatibility, relative advantage, observability, complexity, image and perceived risk of adoption.

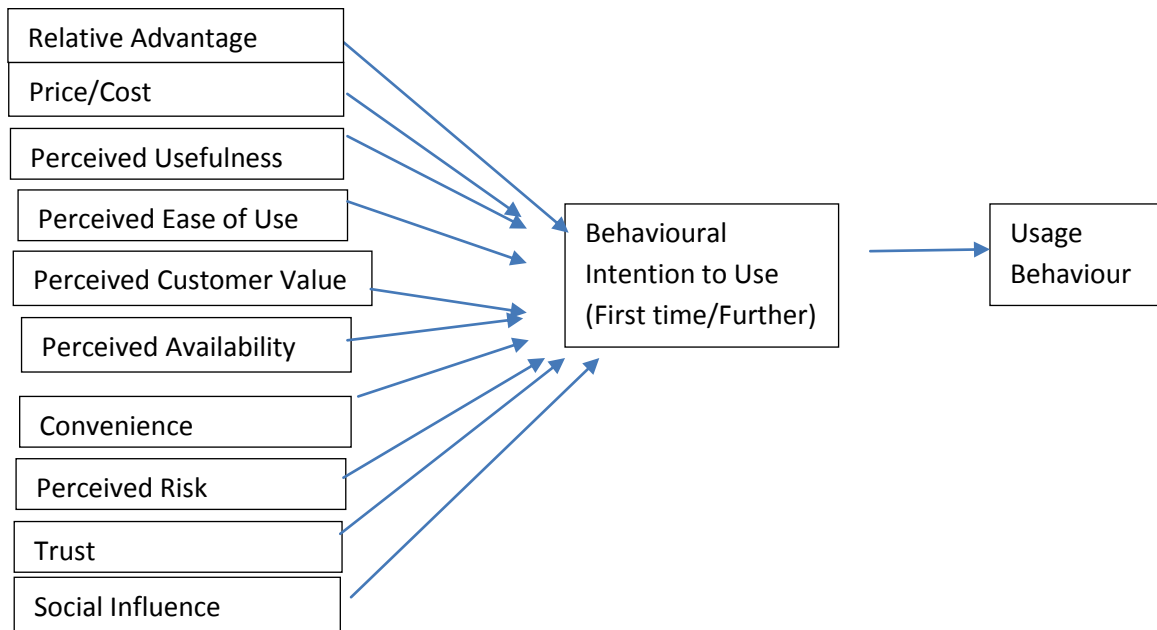
Thomas Friedrich (2015) in “Analysing the Factors that influence Consumer’s Adoption of **Social Commerce**- A Literature Review” – ‘University of Bamberg’ stated that the key factors affecting adoption amongst consumers are Trust, Usefulness, Social presence, Social influence, Social commerce components, Website quality, Ease of use, Value, Centrality, Social support, Enjoyment, Satisfaction, Commitment, Familiarity, Relationship.

Kelly P., Lawlor J., and Mulvey, M. (2011) in their paper – “A Review of Key Factors Affecting Consumers’ Adoption and Usage of **Self-service Technologies** in the Tourism Sector” reviewed key factors affecting consumer adoption of SSTs in Tourism. The factors are Perceived Risk, Trust, Perceived Ease of Use ‘Perceived Usefulness’, ‘Demographic Variables’, ‘Preference for Personal Contact’, and ‘Technology Readiness’ and Demographic Variables.

A. Johannes T. Solbraa Bay (2016) in his thesis – “Innovation Adoption in Robotics: Consumer Intentions to Use **Autonomous Vehicles**” indicated that for marketing managers, it is very essential to focus on motivational factors – ‘Perceived Enjoyment’, ‘Perceived Risk’, ‘Perceived Usefulness’, and ‘Perceived Self-Identity’. Moreover, they should also concentrate on variables like ‘Attitude towards Use’ and should try to establish the desired compatibility required in case of autonomous vehicles as per the habits and lifestyles of target consumers.

Dominant Factors Affecting Technological Innovation

Today, Technology is being developed at a faster pace, but at the same time its acceptance amongst the consumers and then maintenance of its penetration level is a complex task. After a vast literature review, some factors have been found to be most dominating which affects consumer’s adoption of technological innovations in a broader way. The factors are: Relative Advantage, Price/Cost, Perceived Usefulness, Perceived Ease of Use, Perceived Customer Value, Perceived Availability, Convenience, Perceived Risk, Trust, and Social Influence. Consideration of these intervening variables will support the technological innovations to get it accepted amongst target prospects. Innovative Stimulus adjusted according to these factors will help marketers to have a positive response with respect to their innovations.



Taylor-West et. al. (2013) concluded that in case of low complexity products, adequate information needs to be supplied by marketers so that consumers have a clear understanding of the product and its functionalities. Rogers (1995) stated that high degree of complexity of a new product can become a potential barrier to adoption by consumers. Rogers (2003) concluded that the decision to adopt an innovation is a function of five distinctive innovation attributes, namely, relative advantage, compatibility, complexity, trialability, and observability.

The basic thrust lies upon judging the behavioural intention of consumers in that particular market. Many models have been developed in this area since 1990s. Venkateshet. al. (2003) concluded that societal influence is a major factor in decision to adopt a superior technology based innovation. According to Laaksonen (1994), consumers’ perception of new products are guided by their perceived relevance of the product to the individual in terms of needs, goals, values, knowledge and attitude.

After 2000, with the advent of more advanced technical features in mobile phones, banking, e-commerce, m-commerce, broadband etc, markets have become competitive clusters. Internet Penetration is also one of the reason of introduction of different augmented products in the market. Adoption of new technological innovations in any area is strongly based on consumers’ behavioural intentions.

Conclusion

Consumer Adoption of Technological Innovations is the outcome of strong and positive behavioural intentions developed by an individual under the aura of dominating factors related to the innovation characteristics, perceived assumptions about its attributes, personal and social influences.

Technological Innovation Adoption Models play vital role in suggesting the categorical factors which are driving behavioural intentions of consumers to adopt desired innovations. These categorical factors consist of many sub-factors which have been analysed in many research studies specific to particular sector. Different cluster of variables in the form of sub-factors are affecting technological innovations of particular area. These factors play important role with varying intensity in affecting behavioural intentions of consumers. Exploring such significant variables will pave way for innovators to anticipate the adoption level and rate of particular innovation. A well planned strategy based on these predictable future scenarios will synchronize the deviation problems which occur in actual adoption.

Implication of the Study

The study helps in understanding the consumer adoption process particularly in case of technological innovation. It signifies the importance of various models explaining the factors affecting behavioural intention towards use and further use of a new product that leads to its adoption. Adoption of a product does not happen at once. Factors play important role in affecting attitude and hence behavioural intention towards use of the product. Different resultant factors have been highlighted from various studies which are affecting the process of consumer adoption of technological product. A model has been proposed in the paper explaining the pre and post stages of adoption with the background focus on intention to behave which actually leads to consumer adoption. Further, a conceptual framework have been submerged into the model as to how different factors pave way for this behavioural Intention to actually happen which affects the overall process of adoption.

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