



TECHNOLOGY ACCEPTANCE MODEL IN ONLINE RETAILING ENVIRONMENT: AN ANALYSIS IN INDIAN CONTEXT

DVR.Subrahmanya Sastry.T* Dr.B. Madhusudhana Rao**

**Research Scholar, School of Management Studies, Vignan's University, Vadlamudi. Guntur, AP. India.*

***Professor, School of Management Studies, Vignan's University, Vadlamudi, Guntur, AP. India.*

Abstract

As the number of online users is increasing quickly worldwide and online technologies are improving, more and more retailers are offering their products in online market. One of the continuing issues in launching the new platforms with advanced information technology integration is the difficulty of identifying significant factors that strongly influences consumers to accept and make use of those systems developed and implemented by online retailers. This study attempts to analyze the existing literature to provide insights related to how online consumers attitude and intention to shop online are connected to Technology Acceptance Model (TAM). This study mainly concentrates on analyzing the factors related to Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) in relation to consumer attitude towards new technology adoption for their shopping needs. This study provides a historical overview of the Technology Acceptance Model (TAM) by summarizing the evolution of TAM, its key applications, extensions, and advantages to customers from a selective list of available literature the model. The primary goal of this study is to propose a theoretical explanation of the way the Online Retailing gets influenced by the attributes of TAM.

(Keywords: Online Retailing, Technology Acceptance Model, Online Customer, PEOU, PU)

01.Introduction

Customer Satisfaction is very important to establish long-term business relationship and to sustain profitability in a competing Online Retailing market. Customer Satisfaction is the result of experience during various stages of e-purchase process; namely information search, evaluating the available purchase alternatives, purchase decision making and post-purchase support effectiveness. Innovative Technology platforms play a vital role in achieving customer satisfaction in the advanced online shopping environment. One of the important factor that supports e-customer to accomplish purchase decision is the information gathering using various technology tools in the online environment. As per Technology Acceptance Model, the online retail website is both an information technology platform and the channel through which consumers communicate with Online Retailer.

Online Retailing

Online shopping is one of the recent methods of buying goods in non-physical retail mode. Quick growth and increase in the use of computer based technology has provided both buyers and retailers with a great opportunity to have more effective contact through the web technologies and to increase the efficiency of the exchange process. In the Online shopping environment, it is very difficult for the buyer to measure the reliability of the Online Retailer due to the limited interface of those websites in comparison with the traditional physical stores. Hence, trust is considered as a consumer's important pre-condition to opt any online retail website for their shopping needs. Trust plays an essential role in supporting consumer to overcome the perceived risk and security in online shopping mode. Online consumer's trust can be understood as the trust in a specific object such as trust in the selected online retailer. Technology beliefs projected in TAM are the Perceived Ease of Use and Perceived Usefulness with the aim of determining the consumer's attitude towards the technology adoption, which sequentially will regulate consumer's intention to use that technology.

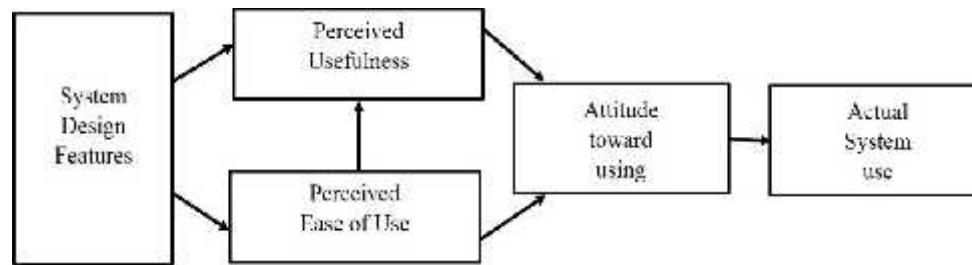
Technology Acceptance Model (TAM):

Technology Acceptance Model (TAM) is the most regularly used models in studying the application of adoption of information system. This model was proposed by Davis in 1989. It describes the probable / potential user's behavioral intention to accept new technology or technology innovation. The Technology Acceptance Model (TAM) adapts the relationship between user's belief, attitude, intention, and behavior to accept the new technology. The main purpose of TAM is to explain and forecast technology acceptance. Technology Acceptance Model (TAM) predicts user acceptance of new technology based on two explicit behavioral beliefs; Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), which determine the user's intention to use a technology platform. Technology acceptance model (TAM) is most efficient and powerful way to understand the level of acceptance or assessment of online shopping mode by a customer. TAM postulates that behavioral intention is an important element of actual system usage, and that behavioral intention is determined by two relevant beliefs, Perceived Ease of Use (PEOU), and Perceived Usefulness (PU). Perceived Ease of Use is a determinant of



Perceived Usefulness because, presumptuous other things are equal, user considers a system as more useful when it is more effort-free. (Davis, 1989)

Diagram:1 Technology Acceptance Model



Source: Davis, 1993

Perceived ease of use and perceived usefulness positively affect the attitudes toward any new technology platform or information system; and further, positively influence the individual's intention to usage and the acceptance of that platform or information system as explained in Diagram - 1.

Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) can be defined as the level to which the user trusts that using a specific system would be free of effort. Effort can be described as the finite resource that a person may allocate to various activities for which that person is responsible. It can be understood that when the intended new technology is easy to use, it encourages user's intention to use. Perceived Ease of Use is the expectation of users that it generates improvement in their performance with the adoption of new technology / platform / system. Perceived ease of use (PEOU) is the concept that defines the perception of the user that the new system will be easy to use.

Perceived Usefulness(PU)

Perceived Usefulness(PU) can be defined as the level to which the user trusts that using a certain system would improve that individual's performance significantly. Basically, Perceived Usefulness is the major determinant of the intention to adopt online shopping for user's buying needs. In general, Perceived Usefulness is a primary attribute that helps online firms to retain the existing customers for long-term. Perceived Usefulness (PU) is well-defined from the prospective user's point of view.

Purchase Intention

Online purchasing intention can be defined as the customer's willingness to participate in an online shopping transaction. If Online Retailing website is perceived as useful, then customers are expected to develop positive attitude and strong intention to buy in online environment. They would find that online buying is very useful as it would improve their shopping efficiency. Consumer's intention to shop online is determined by their attitude towards the Online Retailing website. Online consumers formulate positive purchase intention over a period of time prior to buying a product, initially they search for information, then acquire desired information, and finally feel confident about their choice of a particular retail website based on the gathered information. While talking about online shopping, the buyer's intention to use online retail website is formed by their perceived positive outcome of website usage and consider that it's usage is an additional advantageous buying tool.

02. Literature Review

Davis (1989) mentioned that users get influenced to adopt a new application based on the functions it does for them. It is very important for the designers of new technology systems to consider usefulness factor to achieve the desired goals. Perceived Usefulness (PU) has a strong correlation with the user acceptance of new technology/application/system.^[01]

Moon and Kim (2001) observed that both Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are important to user's perception of the web systems.^[02]

Chen et.al., (2011) opined that Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) positively influence the user's attitudes towards any technology system. They positively affect the user's intention to use and willingness to accept any new technology. Perceived Ease of Use shows positive influence unperceived Usefulness. TAM is a useful theoretical model in helping to understand and explain individual's use behavior in implementing any information system.^[03]



Gefen et.al.,(2003)opined that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) influence online consumer's intention to purchase from the same online vendor in future especially the experienced buyers. Trust influences the customer perception related to Perceived Usefulness (PU) of the website. Familiarity shows influence to the e-customer's assessment about the ease of use of the website.^[04]

Davis (1993) opined that Technology Acceptance Model is a practical tool for early user acceptance testing. Early user acceptance testing can help in designing and refining the application ideas which can yield future use acceptance. Attitude toward using, Perceived Ease of Use and Perceived Usefulness show mediating effect of system design features on actual usage.^[05]

McKechnie et.al.,(2006)studied the application of Technology Acceptance Model in Online Retailing and found that perceived ease of use shows impact unperceived usefulness. Product category involvement and prior purchasing experience are valuable forecasters of ease of use. Perceived Ease of Use and Perceived Usefulness are key in influencing individual's attitude towards the online environment, which is a predecessor to extent of use. It is suggested that importance should be given to the website design. Focus on providing good navigation features in the website is suggested.^[06]

Lim and Ting (2012) studied Technology Acceptance Model in e-shopping context and suggested that suggest to provide effortless and useful web interface to online customers. Online shopping website should implement suitable technologies for providing a great shopping experience to customers. It is found that e-consumer's intention to purchase using online store is determined by their attitude towards e-shopping. PEOU and PU of are important in understanding consumer's attitude in terms of how much effortless the website is and how useful online shopping website is in creating a favorable shopping environment.^[07]

Wei (2009)opined that behavioral intention towards a new technology gets significant positive influenced by both perceived technological compatibility and perceived usefulness. Both behavioral intention towards new technology and perceived usefulness get significant positive influence from perceived ease of use.^[08]

Liu et.al.,(2010)opined that the user-interface design shows substantial positive influence on Perceived Ease of Use. Perceived Ease of Use shows some important positive influence on Perceived Usefulness. If the system is easy to use, then user considers it as more useful. User previous online experience plays an important role in shaping up their intention to continue to use the same platform for future needs.^[09]

Lin (2007) opined that it is important to develop the website with valuable technical functions, such as designing simple ordering process. Suggested to implement efficient fulfillment procedures and focus more on providing customization of website. Online Retailer aim should be to improve consumer perception of website usefulness and match their shopping needs.^[10]

Shim et.al.,(2001)opined that the intention to search the website for product related information leads to the intention to actual purchase. The role of information search is significantly prioritized in the context of online shopping as compared to traditional store shopping. Intent to search may be looked as a means for forecasting online purchase.^[11]

03. Need of the study

Online Retail market is still in a developing stage in India. There is a lot of potential in Tier-II and III cities for Online Retailing in India. It is very important for Online Retailers to understand how the potential customers in Tier-II and III cities adopt new technology / platform / system for their shopping needs; so, that they can design the marketing strategies accordingly. The unavailability of the branded goods in local market encourages the consumers in non-metro cities who have purchasing power and desire for branded products to choose online shopping. Online Retailing is a powerful channel for larger brands to reach out to new destinations in smaller cities through in India. This study proposes a theoretical explanation of the way two perceptions of the consumer influence the acceptance of Online Retailing namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), which are the basis of the TAM model.

04. Objectives of the study

- To study the Technology Acceptance Model concept.
- To understand the Technology Acceptance Model pertaining to Online Retailing.
- To suggest the possible recommendations based on Technology Acceptance Model to Online Retailers.



05. Research Methodology

The present research is based on the secondary data and required information is collected from various journals, publications, websites, and reports.

06. Online Retailing in India

Online Retailing is a booming sector in India. India has viewed a uprising in online sales in the last two decades due to the rapid urbanization. This has led retailers to focus their capability and leverage their capacity to utilize the untapped potential appropriately. The entry of the leading corporate entities into Indian Online Retail business created a flow in the growth of the industry. The growth of Online Retail sector has dependency on the broadband / web connectivity. As more and more people in the country are getting connected to the online environment, the retail sector is getting a massive support. The rate of broadband connectivity in the country is increasing day by day, the number of people connected is growing rapidly. Apart from the comfort and competitive price, Online Retailing has become one of the most popular channels due to the growth of smart phones availability in the country. The top possible factors of influence for the growth of Online Retailing in India are rapid growth of broadband connectivity, smart phone penetration, growing acceptability of online payments, favorable demographic conditions, attractive price discounts, and wider choice of products.

Table – 1 Retail e-commerce sales in India from 2012 to 2020

Year	Sales in billion U.S. Dollars
2012	2.31
2013	3.59
2014	6.1
2015	13.31
2016* (projected)	23.39
2017* (projected)	37.5
2018* (projected)	52.54
2019* (projected)	65.09
2020* (projected)	79.41

Source: Statista

The details depicted table – 1 are about the online retail e-commerce sales in India from 2012 to 2016 from a reliable source Statista in August 2016. It provides a forecast until the year 2020 from 2016. In 2015, the retail e-commerce sales amounted to 13.31 billion U.S.Dollars and projected to grow to 79.41 billion U.S.Dollars in 2020. It can be observed from the graph - 1 that the online sales in India are growing year by year. M-commerce (mobile commerce) can be defined as the buying of goods through wireless handheld devices such as mobile phones. Consumers in India are making a gradual shift from computer to mobile phone for shopping online, as many online retailers are offering mobile app based shopping.

Table – 2 Retail m-commerce sales in India from 2015 to 2020

Year	Retail m-commerce sales in India from 2015 to 2020
2015	7.78
2016* (projected)	15.27
2017* (projected)	26.91
2018* (projected)	39.56
2019* (projected)	50.54
2020* (projected)	63.53

Source: Statista

The details depicted in table – 2 are the information on the retail m-commerce revenue in India from 2015 to 2020. In 2015, mobile retail e-commerce sales in India amounted to 7.78 billion U.S. dollars and are projected to reach 63.53 billion U.S. dollars in 2020.



Table – 3 Number of digital buyers in India from 2014 to 2019

Year	Digital Buyers in millions in India
2014	54.1
2015	82.3
2016* (projected)	112.7
2017* (projected)	153.2
2018* (projected)	192.6
2019* (projected)	239.7

Source: Statista

The details depicted in **Table – 3** are the information related to the forecast of the number of digital buyers in India up to 2019, based on factual figures from the year 2014 to 2015 from a reliable source Statista in February 2016. In 2019, around 239 million people in India are expected to buy goods and services in online market. It can be observed from this graph that the online buyers in India are growing year by year, and still there is lot of potential for Online Retailers to capture the untapped market in India especially the tier-II and III cities.

The broadband connectivity in India especially in rural areas is developing very fast. Most of the people in rural areas prefer to be connected to the web for the purpose of online communication, shopping, and social networking.

Table – 4 Connected Individuals in Rural India

Connected individuals in Rural India			Average Increase per year
Year	2015	2020* (expected)	30%
Individuals in millions	120	315	

Source: Business Insider

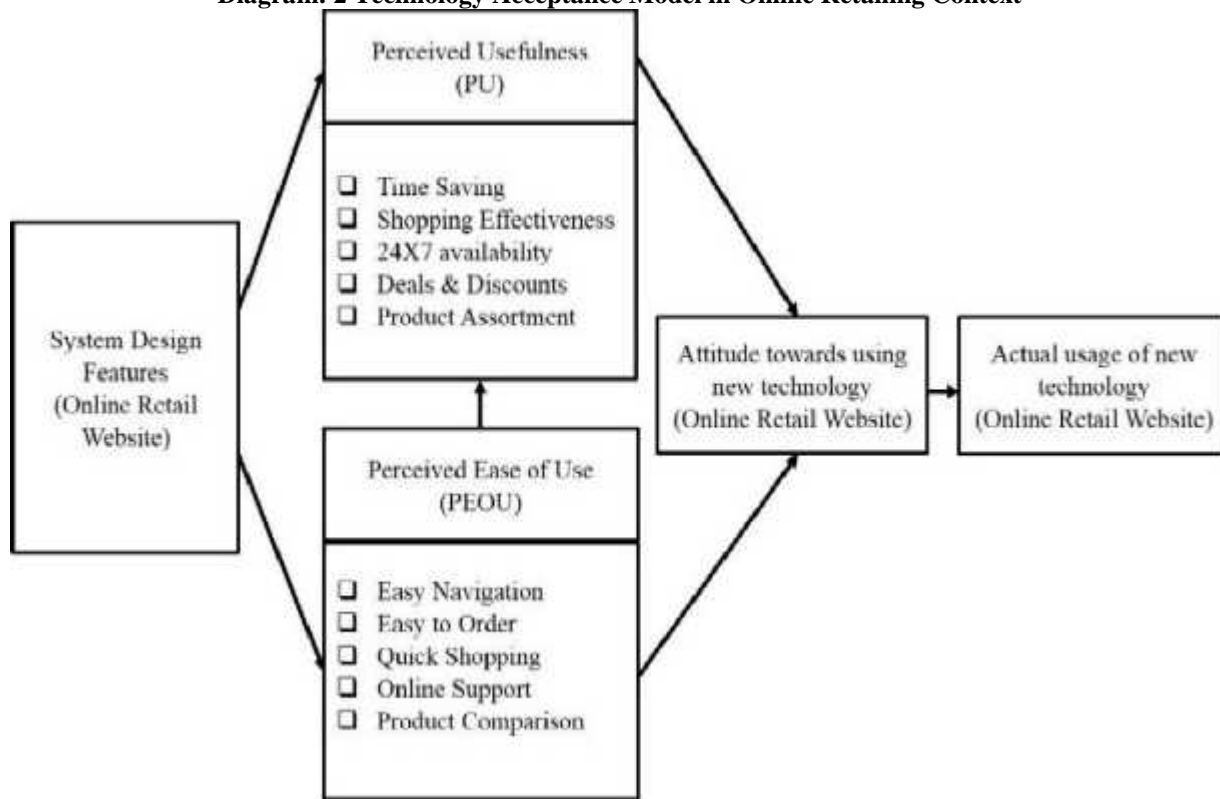
The number of connected individuals in rural India is expected to grow from 120 million in 2015 to roughly 315 million by 2020, an average increase of 30% per year, as depicted in Graph - 4. Rural India has around two-thirds of the country's population, or approximately 807 million people, and their migration to the broadband / online will be a powerful and influential force behind the country's Online Retailing growth opportunities.

07. Technology Acceptance Model in Online Retailing Context:

When talking about Online Retailing, Perceived Usefulness (PU) is consumer's perception of how the Online Retailing website facilitates to simplify shopping task and improves their shopping experience in terms of effectiveness, money saving and time saving as depicted in Diagram - 2. One of the major advantages in online retailing is that consumers can order the desired products from any location of their comfort, no dependency on their location, this can influence consumer opinion on Perceived Usefulness (PU). Multiple brands and various products is another important factor that influences consumer assessment of Perceived Usefulness in Online Retailing context. Perceived Ease of Use (PEOU) is consumer's perception of how much easy it is to acquire the required knowledge on how to use and navigate the online retail website. In simple Perceived Ease of Use (PEOU) in online retailing context can be defined by the ease of purchase. Functionalities like information search, navigational features and website speed play a vital role in shaping consumer opinion on Perceived Ease of Use (PEOU). In Online Retailing context, Perceived Usefulness (PU) shows some influence on the post-purchase expectations of the consumer which will lead to e-Satisfaction. Satisfaction will increase the customer's re-purchase intention resulting in loyalty. These three constructs define the success of a retail website and show influence on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). While shopping online, e-consumers basically expect the website to support them totally. Obtaining accurate and useful information on the desired products is important for consumers. There are three factors in assessing the quality level of a website in general, namely the service quality, information quality, and system quality.



Diagram: 2 Technology Acceptance Model in Online Retailing Context



When applied the concept of PEOU to Online Retailing context, the information gathering using search feature and product comparison feature play a very vital role in easing out the user's task of making a purchase decision based on the quality of information and the available alternatives for the desired product. One of the major challenge in Online Retailing is the cart abandonment by the buyer, PEOU plays an important role to minimize the cart abandonment.

08. Recommendation

This study suggests that Perceived Ease of Use and Perceived Usefulness have a positive influence on consumers in accepting Online Retailing. This can be used when creating online marketing strategies by Online Retailers. Presenting benefits of Online Retailing to consumers and creating an easily accessible online retail website may help Online Retailers to generate more sales in the competing online market. It is suggested to new Online Retailers to incorporate a three-dimensional(3D) image of the product(s) which can create positive attitude and increase purchase intention in the online buyer. Online Retailers should design their website with required features which can increase their customer performance levels and benefits; emphasis should be more on these characteristics as a support to their market promotion effort. It is suggested to provide video-graphic promotional material which can apprise the target customers about the advantages of the online retail website for their shopping needs. Online Retailers should advance technical capability of order processing, to increase delivery mechanism which can result in enlightening the potential customers as an advantage of effective TAM implementation. There is huge potential for Online Retailing in India especially in tier-II & III cities and rural areas; nowadays broadband penetration in the rural areas has created an enormous opportunity for Online Shopping in India. It is suggested that before introducing any new technology / platform / system, the user utilization mechanism and business process efficiency of the system shall be tested thoroughly and required modifications to be implemented for users to have easy learning and utilization as easy as possible.

09. Conclusion

The acceptance of technological innovation has been an important field of study with lot of importance. The Technology Acceptance Model (TAM) has been understood as the most powerful and productive way to provide explanation for the assessment or acceptance of online buying by a customer. Online customers who have a positive attitude towards online shopping environment and their associated experience with online retail website are expected to perceive Online Retailing as



being useful as Online Retailers could enhance their shopping efficiency, productivity, ability, effectiveness, and efficiency. The website features design quality, the perception of usefulness and the perception of ease of use in Online Retailing platform show significant influence on trust towards online shopping. Learning the vital role of Technology Acceptance Model can provide appropriate guidance to design relevant UI for different groups of online consumers, which can result in achieving high user usage in the market. Technology Acceptance Model explains the Online Retailers in detail on what potential buyers want, and how to encourage them to become buyers. It is very difficult to predict online customer's purchasing pattern and willingness to adopt new technology. To attract, convince and retain the online customers, the Retailers particularly the OnlineRetailershaveto invest more effort than just to attract. Perceived Usefulness (PU) is a measure of the buyer's subjective assessment of the utility offered by the new technology in specific task-related context. In the Online Retailing context, PU is the assessment of the benefits to the buyer by using the website for shopping needs. Perceived Ease of Use (PEOU) is an indicator of the cognitive effort needed to learn and to utilize the new technology. In the Online Retailing context PEOU is the assessment of the website features and how easy they are to learn.

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