

“A review of technology adoption models and research synthesis of pre and post adoption behavior in online shopping”

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Abstract: The research on e-commerce has gained utmost importance globally including various disciplines like marketing. Therefore, in order to understand the consumer Behaviour in changing technological context the pre and post adoption of technology has become an area of interest for the marketing research scholars, specifically in developing countries. These scholars mainly emphasized on the relationship between technology acceptance and human Behaviour. Majority studies of this kind have deployed the classical models like TRA (Theory of Reasoned Actions), TAM (Technology acceptance Model) and TPB (Theory of Planned Behaviour) for understanding the aforementioned relationship in different areas of technology applications. Further, the past scholars have also modified and validated these models for enhancing their appropriateness with the context considered for the study. In order to understand the state of art literature related with e-commerce adoption in general and e-retailing in specific, this review article aims to synthesize existing work on user acceptance of online shopping which leads to identifying factors that may act as an antecedent to Online shopping intention and adoption process in context of pre-adoption behavior and online shopping usage in context of post adoption behavior. On the basis of the outcomes of this review, the researcher has proposed two conceptual models that examine pre and post adoption behavior. These models would be further validated in the context of online shopping in India.

Keywords: Online shopping adoption, online shopping intention, TAM, TPB

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I. Introduction

The technology usage all across the world has enhanced during last decade, due to sustained economic growth, rapid development of IT infrastructure and rise in internet penetration. These aforementioned factors are also found relevant in rapidly emerging and developing nations such as India. India has witnessed a leapfrog growth in PC, Tablet and mobile handset sales which may act as a catalyst for the growth in e-commerce in general and e retailing in specific. According to reports from TRAI (Telecom Regulatory Authority of India) and Gartner, although PC (personal computers) sales in India remained about 11 mn units during FY11-15, the sales of smartphones stood at 7 mn units, nearly tripling in last five fiscals. With roll out of 4G network, improved connectivity and growing usage of social networking, India is set to become second largest market for smartphones in FY17 after China.

According to a joint report by industry body ASSOCHAM and PwC, (“Evolution of e-commerce in India Creating the bricks behind the clicks,[1]”), the e-commerce industry is likely to clock revenue of USD38 bn in FY16, a rise of about ten fold up from USD3.8bn in FY09. This enhanced usage of smart phones, rise in usage of debit/credit cards and improved security in online transactions, the Indian e-commerce industry has gained stupendous momentum, especially after 2011.

E-commerce business model emphasizes on leveraging technology for marketing and selling of products directly to the customers. This leads to elimination of channel intermediaries and makes website and/or mobile applications (Apps) the point of interaction between a company and customers. Therefore, understanding the IT acceptance, identifying factors/antecedents impacting online shopping intention, identifying determinants of online shopping Behavior and areas of research like e-loyalty have started gaining utmost importance.

The objectives of this research work are as follows

1. To review and synthesize existing literature on technology acceptance models
2. To understand the theoretical development of adoption phenomenon by studying the classical models proposed by the past researchers.
3. To study existing work on pre and post adoption of online shopping by summarizing the factors acting as an antecedent in both phases (adoption and post adoption phase) of online shopping and proposing a conceptual model for both the phases.

The study proposes two different conceptual models for examining pre and post adoption behaviour. These models could be validated in Indian context as future research work.

II. Research Background

Technology adoption phenomenon is being widely discussed under various disciplines as a study of human-technology interactions. Researcher have tried to apply and test various models of technology adoption (TAM, TPB and Task-Technology fit) to understand and evaluate various factors acting as an antecedent to technology adoption.

With the advancement of e-commerce across the globe and especially in developing countries such as India, many researchers tried to understand e-commerce adoption phenomenon through application of classical technology adoption models.

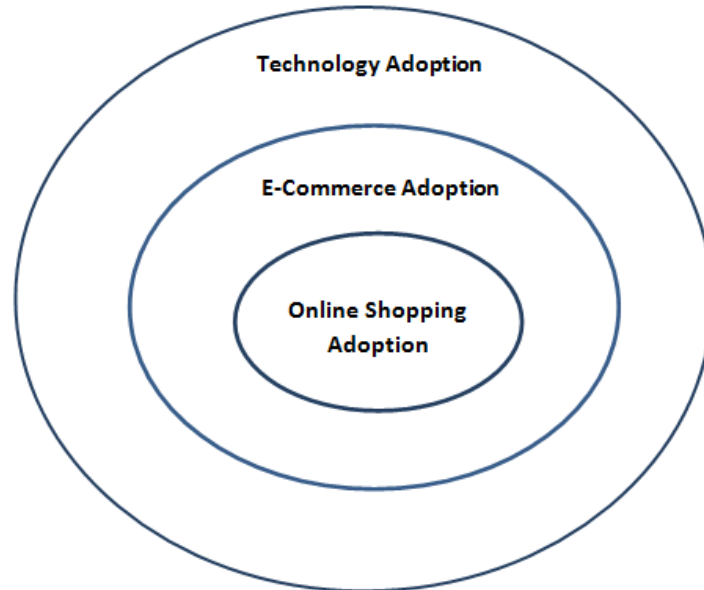


FIGURE 1: Study on Technology Adoption

Taking a base of existing research work in technology adoption in general and in e-commerce adoption in particular, this study would concentrate on online shopping adoption phenomenon. The research work studies pre and post adoption phases of online shopping based on existing literature.

Technology Adoption Studies:

Models and Theories of Individual Technology acceptance/Human –Technology Interaction

TABLE 1: Summary of technology acceptance models

Theory, Author & Year	Title	Construct	Major Contribution
Theory of Reasoned Actions <i>Fishbein, Ajzen (1975, [2])</i>	Belief, attitude, intention and Behaviour: An introduction to theory and research	Behavioral intention is based on 1. Attitude towards act or Behaviour 2. Subjective norms	<ul style="list-style-type: none"> to perform precedes actual Behaviour Stronger intentions leads to increased effort to perform the Behaviour, and also increases the likelihood for the Behaviour
Theory of Planned Behaviour <i>Ajzen (1985, [3])</i>	From Intentions to Actions: A Theory of Planned Behaviour	Behaviour is a direct function of 1. Behavioral Intention s (BI) 2. Perceived Behavioral Control (PBC) Attitude, Subjective Norms (SN) and Perceived Behavioral Control (PBC) determines Behavioral intention s.	<ul style="list-style-type: none"> Human Behaviour is guided by considerations such as Behavioral beliefs, normative beliefs, and control beliefs. Success of a Behavioral plan is based on efforts invested and person’s control over the factors.
Decomposed TPB <i>Taylor & Todd (1995, [4])</i>	Understanding Information Technology Usage: A Test of	Behavioral intention is dependent on 1. Attitude (Perceived usefulness, ease of use, compatibility) 2. Subjective Norms (peer	<ul style="list-style-type: none"> Better understanding of the relationships between belief structures and antecedents of

Theory, Author & Year	Title	Construct	Major Contribution
	Competing Models	influence, superior’s influence) 3. Perceived Behavioral Control (Self efficacy, resource facilitating conditions, technology facilitating conditions)	intention • Better explanatory power than TPB and TRA models
Technology Acceptance Model (TAM) <i>Davis et al</i> (1989, [5])	Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology	Technology adoption is dependent of two major factors such as 1. Perceived Usefulness (PU) 2. Perceived Ease of Use (PEOU)	<ul style="list-style-type: none"> • PU and PEOU have significant correlation technology usage. • PU has a greater significance than PEOU. • First model to adopt in technology acceptance.
TAM 2 <i>Venkatesh, Davis</i> (2000) , [6])	A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies	Core determinants of mandatory usage intention s are as follows, 1. Perceived Usefulness (PU) 2. Perceived Ease of Use (PEOU) 3. Subjective Norms	<ul style="list-style-type: none"> • Subjective norms-significantly affects intention s directly only when usage is mandatory and experience is in early stage. • Social Influence processes (subjective norms, voluntariness & image) & Cognitive instrumental processes (job relevance, output quality, result demonstrability, PEOU)
Unified Theory of Acceptance and Use of Technology (UTAUT) <i>Venkatesh et al.</i> (2003, [7])	User Acceptance of Information Technology: Towards A Unified View	Core determinants of technology usage intention and actual usage are as follows, 1. Performance expectancy 2. Effort expectancy 3. Social influence 4. Facilitating conditions	<ul style="list-style-type: none"> • Three factors posit as direct determinants of intention to use (Performance expectancy, effort expectancy and social influence) and two factors as determinants of usage Behaviour (intention and facilitating conditions). • Demographic variables such as experience, voluntariness, gender, and age act as moderating variables • PEOU can be expected to be more salient only in the early stages of using a new technology and it can have a positive effect on perceived usefulness of the technology
Online Consumer Behaviour Model <i>Koufaris</i> (2002, [8])	Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behaviour	Determinants of shopping enjoyment and in turn on intention of returning back to the online store are as follows, 1. Product involvement, 2. Web skills, 3. Value added mechanism 4. Challenges	<ul style="list-style-type: none"> • Shopping enjoyment & PU are important determinants of new customer’s intention to return. • PU a better predictor than PEOU • Other than utilitarian motives, perceived enjoyment can make users return to website • Perceived Web skills and positive challenges have significant impact on shopping enjoyment & concentration of online user
Technology Acceptance Model 3 (TAM3) <i>Venkatesh, Bala</i> (2008, [9])	Technology Acceptance Model 3 and a Research Agenda on Interventions	PU and PEOU are based on variables segregated into four categories such as individual differences; System characteristics; social influence; and facilitating conditions. The variables having an effect on 1. PU- Job Relevance, Output Quality Result Demonstrability, Subjective Norm, Image 2. PEOU- Computer Self Efficacy, Computer Anxiety, Computer Playfulness, Result Demonstrability, Perceived Enjoyment, Objective Usability, Perception of External Control	<ul style="list-style-type: none"> • Determinants of perceived usefulness will not influence perceived ease of use and vice versa. • With increasing technology experience, effect of PEOU on BI will diminish and the effect of PU will increase • Provided comprehensive list of interventions, an organization can develop to enhance IT adoption.

The study of technology-human interaction and technology acceptance is one of the widely researched areas. Various theories and models are deployed to examine this interaction and phenomenon. *Fishbein, Ajzen* (1975) developed **Theory of Reasoned Actions (TRA)** which is considered to be the classical theory that

explains relation between individual’s Behaviour, pre-existing attitudes and behavioral intentions. The theory considers pre-existing attitudes and behavioral intentions as antecedents of an individual’s behavioral responses. **Technology Acceptance Model (TAM)** one of the widely recognized extension of TRA, was proposed by Davis et al (1989). This model explains the adoption process of a new technology. According to Davis et al (1989) factors like perceived usefulness, perceived ease of use influences a person’s decision to accept or reject the technology. TAM theorizes that, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) mediate effect of external variables on intention to use.

Another extension of TRA is a seminal work by Ajzen (1985) that explores relationship between beliefs and Behaviour. The theory enhances predictive power of TRA by adding perceived Behavioral control to the main construct. Todd, Taylor (1985) improved TPB by proposing decomposition of attitudinal beliefs which is popularly known as Decomposed Theory of Planned Behaviour (**DTPB**). It posits that attitude, subjective norms and Behavioral control are the main determinants of Behavioral motivation and usage Behaviour. Taylor & Todd (1995) tried to compare TAM and two versions of TPB, the original and Decomposed Theory of Planned Behaviour (DTPB) and developed Combined TAM-TPB model (C-TAM-TPB).

Venkatesh, Davis (2000) developed theoretical extension of TAM by identifying additional key determinants of TAM’s perceived usefulness and usage intention construct. TAM2 theorizes that there are four cognitive instrumental determinants of perceived usefulness such as: job relevance, output quality, result demonstrability, and perceived ease of use. Venkatesh et al. (2003) empirically compared eight models of user acceptance in information technology and tried to formulate a unified model by combining 32 different effects and 4 major moderators as the determinants of intention and Behaviour. The improved model is called as Unified Theory of Acceptance and Usage of Technology (UTAUT). According this model, Performance expectancy, Effort expectancy, Social influence, Facilitating conditions are four core determinants of technology usage intention and actual usage.

Koufaris (2002) tried to amalgamate three different aspects such as Technology (TAM), Marketing (Consumer Behaviour) & Psychology (flow and environmental psychology) to establish and validate a construct in online consumer Behaviour. The study established that, Product involvement, web skills, value added mechanism and challenges all have a significant impact on shopping enjoyment and in turn on intention of returning back to the online store.

Venkatesh and Bala (2008) presented an integrated model of all determinants of TAM (determinants of perceived usefulness and perceived ease of use), especially in terms of IT adoption by an individual. The model is known as TAM3. Factors that influence Perceived Usefulness are Subjective Norm, Image, Job Relevance, Output Quality, and Result Demonstrability. Perceived Ease of Use is influenced by anchor variables (Computer Self-Efficacy, Perceptions of External Control, Computer Anxiety, and Computer Playfulness) and adjustment variables (Perceived Enjoyment and Objective Usability). It theorizes that the determinants of perceived usefulness will not influence perceived ease of use and vice versa. The model demonstrates that, with increasing experience of technology, the effect of perceived ease of use on behavioral intention will diminish.

III. Online Shopping Adoption

Considering the existing theoretical framework, this review aims to synthesize existing scholarly articles related to online shopping and user acceptance, with emphasis on

- Online shopping intention and adoption process (Pre-adoption Behaviour)
- Online shopping continuance (Post-adoption Behaviour)

III.I Studies on Online Shopping Adoption and Continuance Behaviour

Globally, researchers have applied various theories of technology acceptance to study consumer Behaviour in online shopping. In comparison with other studies of consumer behavior, pre and post adoption behavior are totally different scenarios. Hence, this review treated these two phenomenons separately and made an attempt to identify their respective determinants separately.

The researcher studied and reviewed 28 research papers each, concentrating on pre and post adoption behavior in online shopping respectively. The exhibit lists down these research papers and segregates them on the basis of geographical context (studies in Indian and other than Indian context).

TABLE 2: Summary of research papers reviewed

Focus of the Study	Geographical Context of the study		No. of Research Papers	
	India	Other than India	India	Other than India
Pre Adoption behavior in online shopping	Ganguli et al. (2009, [10]), Hemamalini (2013, [11]), Adapa (2008, [12]), Nayyar & Gupta (2011,[13]), Ganguli et al.	Ramayah & Ignatius (2010,[17]), Su & Huang (2011,[18]), Lian & Lin (2008,[19]), Ko et al.	7	21

	(2010,[14]), Jain et al. (2014,[15]), Randive (2005,[16])	(2008,[20]), Ahn et al. (2007,[21]), Poddar et al (2009,[22]), Shim et al.(2001,[23]), Ou et al (2007,[24]), Xu, Paulins (2005,[25]), Slyke et al. (2010,[26]), Heijden et al.(2003,[27]), Wang, Benbasat (2005,[28]), Liat & Wuan (2014,[29]), Rizwan et al (2014,[30]), Lin (2007,[31]), Liu et al. (2013,[32]), Cemberci et al. (2013,[33]), Halimi et al. (2011,[34]), Celik & Yilmaz (2011,[35]), Lee et al. (2000,[36]), Abadi et al. (2011,[37]),		
Post Adoption behavior in online shopping	Joshi & Narwal (2015,[38]), Chandra & Sinha (2013,[39]), Murali & Mallikarjuna (2014,[40]), Malhotra & Chauhan (2015,[41]), Ganapathi (2015,[42]), Khare et al. (2012,[43]), Sharma & Khattari (2013,[44]), Balamurugan et al. (2013,[45]), Patel (2015,[46]), Selvakumar (2014,[47]), Kinker &Shukla (2016,[48]), Raghunath & Sahay (2015,[49]), Singh & Kashyap (2015,[50]), Bhandari & Kaushal (2013,[51]), Chatterjee & Ghoshal (2015,[52]), Jadhav & Khanna (2016,[53]), Shalini & HemaMalini (2015,[54]), Kanchan et al. (2015,[55])	Tan & Urquhart (2011,[56]), Liu et al. (2013,[57]), Velarde (2012,[58]), Lim et al. (2005,[59]), Lin et al. (2011,[60]), Jain, Sadh (2015,[61]), Alam & Yasin (2010,[63]) Wen et al.(2011,[64]) Luo et al.(2012,[65]) Özguven (2011,[66])	18	10

III.II Online Shopping Pre-adoption Behavior (Intent, Motives and Drivers):

Critical analysis of about 28 research papers emphasizing on pre-adoption of online shopping reveals that following factors are considered as important determinants of online shopping intention.

TABLE 3: Determinants of Online Shopping Intentions and Adoption Process

Factor	Positive Impact	Negative Impact	Insignificant/Indirect Impact
Perceived Usefulness (PU)	10	0	3
Perceived Ease of Use (PEOU)	8	0	3
Perceived Risk (PR)	0	10	0
Perceived Trust (PT)	9	0	1
Online Service Quality	5	0	0

Perceived Usefulness (PU): Davis et al (1989), defined Perceived Usefulness as “*The extent to which a person believes that using a particular system will enhance his or her job performance*”. PU forms an integral part of the TAM construct and is being studied by various researchers as one of the most powerful antecedent of technology acceptance. Many researchers have also observed PU as stronger determinant of technology acceptance than Perceived Ease of Use (PEOU).

Research work by Nayyar & Gupta (2011), Wang & Benbasat (2005), Liat & Wuan (2014), Rizwan et al. (2014), Lin (2007), Liu et al. (2013), Halimi et al. (2011), Jain et al. (2014), Lee et al. (2000), Abadi et al. (2011) validated PU as the significant positive determinant of online shopping adoption. This indicates higher chances of online shopping adoption, if a user perceives online shopping activity as useful and would help to improve his/her performance. In contrast to these aforementioned outcomes Shang et al. (2005), Heijden et al. (2003) observed that, PU has an insignificant impact on online shopping intentions.

A study conducted by Lim et al. (2005) also posed an inconsistent finding as PU was found to have no significant direct impact on e-purchase intentions. According to the author, this contradiction may be cause of studying actual e-purchase rather than website usage for navigation. Barring this study, literature provides a strong support to PU as an important antecedent on attitude and Behavioral intentions (online shopping adoption).

Perceived Ease of Use (PEOU): According to Davis et al 1989, “*Perceived ease of use is a person’s belief that using a particular system will be free of effort*”. In terms of technology acceptance, PEOU may be considered as the degree to which a user finds a particular technology as suitable and which would make the required task easier to perform. Researcher have studied and validated relationship between PEOU and PU. Similarly, direct impact of PEOU on attitude and intentions and indirect relationship between PEOU and attitude through a mediating effect of PU is also studied.

Ramayah & Ignatius (2010), Shang et al.(2005), Nayyar & Gupta (2011), Heijden et al.(2003), Lin (2007), Halimi et al. (2011), Jain et al. (2014) and Lee et al. (2000) validated significant positive influence of PEOU on online shopping adoption, thereby supporting original TAM construct.

However, the study observed lesser consensus on PEOU as a strong antecedent of adoption intentions. Research by Wang & Benbasat (2005) proved indirect impact of PEOU on intentions via PU and Trust. Similarly, Liat & Wuan (2014), Rizwan et al. (2014) observed PEOU’s insignificant impact on online shopping adoption. Liat & Wuan (2014) argued that, PEOU may attract a customer to search and find out more information about product but does not necessarily result in actual shopping.

Perceived Risk (PR) - As a human tendency, any risk associated with an activity reduces intention to use it. Perceived risk has been defined as *“The consumer’s perceptions of the uncertainty and the possible undesirable consequences of using the system”* by (Lee 2009; Tanakinjal et al.2010). In terms of online shopping acceptance, financial, security, convenience and product risks are studied by various researchers such as Lian & Lin (2008), Ganguli et al. (2009), Ganguli et al. (2010), Heijden et al.(2003), Cemberci et al. (2013), Jain et al. (2014), Lee et al. (2000), Abadi et al. (2011), Ahn et al. and Sinha & Kim (2012). The studies proved a negative impact of perceived risk on adoption of online shopping. A user tends to avoid online shopping if the risk perceived in online transactions is high.

Sinha & Kim (2012) studied perceived risk elements pertaining to online shopping in Indian context and found that, only convenience risk affects Indian online shopper’s intention s but not the product and financial risk. However, Cemberci et al. (2013) proved both (Product and financial risk) have a negative impact on intention to shop.

Ahn et al. (2001) tried to test various important determinants of e-commerce adoption model across two culturally diverse countries (USA and Korea) and validated negative impact of Risk (Product risk and Transaction risk) on e-commerce adoption. However, the impact appeared to be direct only in case of sample taken from USA. Also, the degree of impact varies in both the samples, considering the cultural impact.

Perceived Trust (PT)- Trust is another important determinant of technology acceptance and is being widely researched by adding it to original TAM construct, thereby validating addition of ‘Trust’ element to the model of technology acceptance. According to Mayor et al (1995); Gefen (2000), *“Trust can be described as the belief that the other party will behave in a socially responsible manner, and, by so doing, will fulfill the trusting party’s expectations without taking advantage of its vulnerabilities”*.

Abadi et al. (2011) reported trust as the strongest determinant of online shopping intentions over PU and perceived enjoyment (PE). Murali & Mallikarjuna (2014) mentioned Trust as a major predictor of shopping intention and highlighted that the Cash on Delivery (COD) facility builds trust and mitigates risk factors associated with online shopping.

Ganguli et al. (2009), Ou et al (2007), Ganguli et al. (2010), Slyke et al. (2010), Heijden et al.(2003), Wang, Benbasat (2005) and Liat & Wuan (2014) also validated significantly positive impact of trust on online shopping adoption process. In other words, trust related with e-shopping company, products and financial security acts as an antecedent for online shopping adoption.

Online Service Quality (PT) –since end to end business transaction in online shopping is handled through a User Interface (UI), perceived service quality of a shopping website becomes a key element to study. In case of web service quality, Barnes & Vidgen (2002) proposed a new matrix called as ‘WEBQUAL’ which includes 10 different dimensions such as aesthetics, navigation, reliability, competence, responsiveness, access, credibility, security, communication, and understanding the individual.

Ahn et al. (2007) proposed argued the need consider other values of service from the consumer’s viewpoint especially in online shopping scenario where entire purchase process is based on ease of finding, ordering and delivering the product. The researcher divided service quality concept into three different aspects and found out strong positive impact of service quality on perceived playfulness, PEOU and PU.

Similarly, Ramayah & Ignatius (2010) validated a strong positive impact of customer service quality on PEOU and on intention to shop online. Poddar et al (2009), Lin (2007), Lee & Lin (2005) also validated the positive impact of customer service quality on shopping intention s.

The literature review also revealed existence of following paths validated through structural equation model (SEM)

TABLE4: Paths Observed

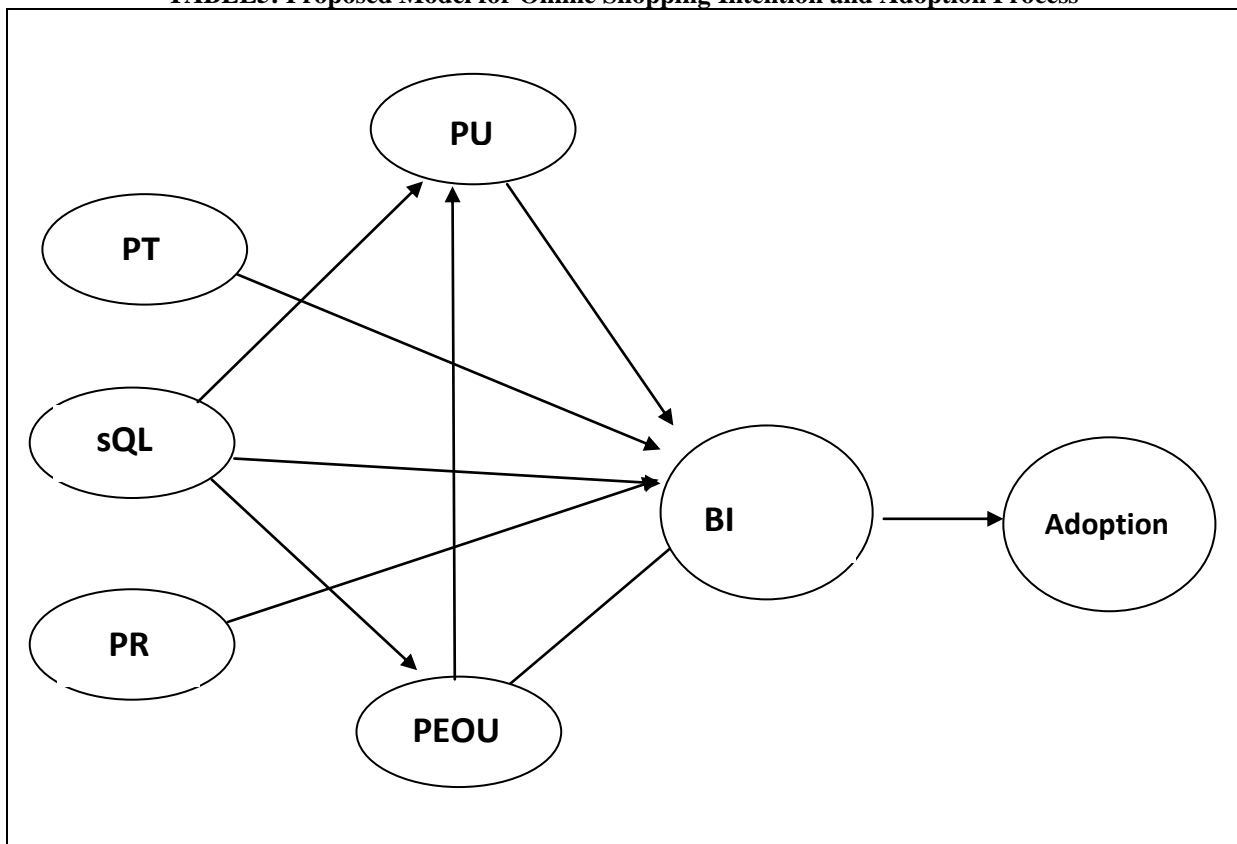
Path	Research Papers
Online Service Quality ⇨⇨PEOU	Ramayah & Ignatius (2010), Ahn et al. (2007), Cho (2015,[67]), Mustapha & Obid (2015,[68]), Khurshid et al. (2014,[69])
Online Service Quality ⇨⇨PU	Ahn et al. (2007), Cho (2015), Khurshid et al. (2014)

Discussions on Pre adoption behavior: Considering these theoretical supports the researcher identified direct positive impact of PU, PEOU, perceived risk, perceived trust and online service quality on intention to shop online (Behavioral Intention). The indirect effect of online service quality on shopping intention through mediating role of PEOU also found significant and is supported by past researchers. Another relationship; impact of online service quality on PU was found relevant in the studies conducted by Ahn et al. (2007), Cho (2015), Khurshid et al. (2014).

It is observed that, factors such as perception about a service’s usefulness, potential benefits from usage ease of use, trust factors and risk associated with such usage have a strong impact on a user’s adoption of online shopping.

Based on the observations and relationships validated by various studies, the researcher proposed a conceptual model presented as exhibit 5. Along with the classical TAM construct (PU, PEOU has a direct relationship with BI and PEOU has an indirect impact on BI through mediating effect of PU), the proposed model suggests direct relationship between Behavioral Intention and factors such as (Perceived Risk, Perceived Trust and Service Quality). Relationship between BI and adoption of online shopping is also proposed.

TABLE5: Proposed Model for Online Shopping Intention and Adoption Process



Abbreviations: PU- Perceived Usefulness, PEOU- Perceived Ease of Use, PT- Perceived Trust
PR- Perceived Risk, SQL- Online service quality, BI- Behavioral Intentions

III. III Online Shopping Post-adoption Behavior (Continuance and its Determinants):

28 research papers on post adoption of online shopping reveals following factors are considered to be an important determinant of online customer satisfaction.

TABLE6: Determinants of Online Shopping Continuance

Factor	Positive Impact	Insignificant/Indirect Impact
Convenience	11	0
Website design & related factors	11	0
Product/service related Factors	9	1
Perceived Ease of Use (PEOU)	9	0
e-Service Quality Factors	8	0
Security	7	0

Factor	Positive Impact	Insignificant/Indirect Impact
Perceived Trust (PT)	7	0
Perceived Usefulness (PU)	4	1

Convenience: Studies emphasizing on post adoption Behaviour in online shopping had considered ‘Convenience’ as one of the strongest determinants of continuance intention. A user continues to shop online, if the services offered are perceived to be convenient and adding value to the shopping experience. Past studies like Murali & Mallikarjuna (2014), Ganapathi (2015), Selvakumar (2014), Kinker & Shukla (2016), Raghunath & Sahay (2015), Jadhav & Khanna (2016), Shalini & HemaMalini (2015), Lin et al. (2011), and Guo et al. (2012) reported about significant positive impact of ‘convenience’ factor on intention to repurchase from online shopping websites.

Bhandari & Kaushal (2013) revealed that five factors (quick delivery, anytime, anywhere shopping, trendy and glamorous shopping) act as the core determinants of ‘convenience’ in online shopping and resulting a positive impact on repurchase intentions. Jain & Sadh (2015) found ‘ease of return’ as one of the key drivers of online shopping satisfaction and loyalty.

Website Related Factors: Website designs, aesthetics, information flow, time taken for website upload and navigate are some of the key factors in website design. Chandra & Sinha (2013), Ganapathi (2015), Khare et al. (2012), Sharma & Khattari (2013), Singh & Kashyap (2015), Lin et al. (2011), Guo et al. (2012), Alam & Yasin (2010), Luo et al. (2012) found website design factors to be an important driver for continuance in online shopping. Users prefer and like to revisit websites that are perceived as user friendly and are easy to use and navigate.

Liu et al. (2013) studied effect of website attributes in impulsive purchase on e-shopping websites and concluded that, the website ease of use have positive and significant effects on visual appeal, which in turns stimulates impulse intention to purchase online. While Khare et al. (2012) validated vital role of ‘technology related website factors and ease’ on customer Behaviour towards online insurance services.

Product/Service Related Factors: Product display, easy search of the product and availability, quality of product information and ease of segregating products on various parameters are found to be important elements of product factors which have a positive relationship with satisfaction of online shopping. Joshi & Narwal (2015), Murali & Mallikarjuna (2014), Malhotra & Chauhan (2015), Khare et al. (2012), Sharma & Khattari (2013), Kinker & Shukla (2016), Lin et al. (2011), Alam & Yasin (2010) discussed various product/service related factors and proved its importance in continuance intention.

Balamurugan et al. (2013) stated that, the product attributes which consist of factors like time saving, less or no travelling, product customization, and access to global brands have a positively correlation with intention to purchase online. In a study on online shopping satisfaction in China, Guo et al. (2012) found ‘product quality’ and ‘product variety’ as the key determinants of customer satisfaction.

Perceived Ease of Use (PEOU): Positive impact of PEOU on attitude and intentions in online shopping context is validated by Liu et al. (2013), Velarde (2012), Khare et al. (2012), Balamurugan et al. (2013), Selvakumar (2014), Chatterjee & Ghoshal (2015), Jadhav & Khanna (2016) and Wen et al. (2011).

Lim et al. (2005) developed three alternative causal models and validated to determine the factors of e-purchase and found dual mediation impact model with perceived ease-of-use as the mediator as the best-fit model. PEOU was found to be much significant predictor of online shopping intentions when compared with PU.

E-Service Quality Factors: Similar to pre adoption phase, e-service quality and its various determinants plays an important role in customer satisfaction and repurchase intentions in online shopping. Studies by Joshi & Narwal (2015), Murali & Mallikarjuna (2014), Malhotra & Chauhan (2015), Khare et al. (2012), Bhandari & Kaushal (2013), Lin et al. (2011), Alam & Yasin (2010), Luo et al. (2012) tried to explore and validated relationship between e-service quality and customer satisfaction.

Lee & Lin (2005) mentioned that factors like web site design, online store reliability, responsiveness and trust as the key determinants of e-service quality and a direct positive relationship between e-service quality and customer satisfaction. However, this study proved no significant impact of website personalization features on service quality.

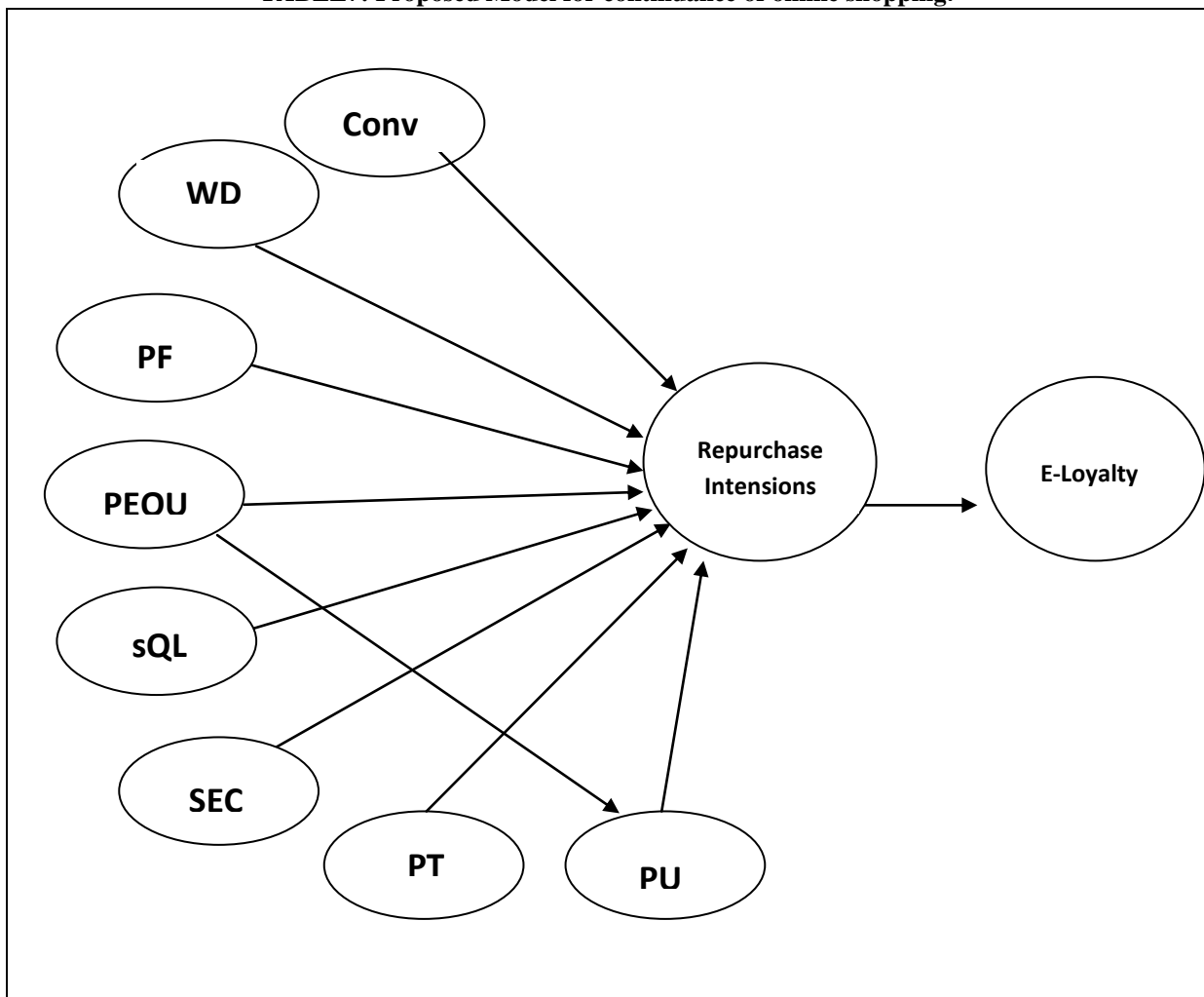
Chen et al. (2013) categorized e-service quality parameters into three groups such as Interaction Quality (ease of use, responsiveness and information quality), environmental quality (visual appearance, clarity of layout) and outcome quality (order fulfillment, reliability and emotional benefits). All three groups are proved to have impact on customer loyalty through mediation effect of hedonic and utilitarian motives, although the degree of impact varies in each of the group.

Perceived Security: In post adoption phase, the fear or risk perceived about online shopping tend to diminish. However security concerns over payment, non-delivery or data security remains an important determinant of customer satisfaction and online shopping continuance. Perceived security and its various elements are being studied by Chandra & Sinha (2013), Murali & Mallikarjuna (2014), Malhotra & Chauhan (2015), Ganapathi (2015), Singh & Kashyap (2015), Kanchan et al. (2015), and Guo et al. (2012).

Perceived Trust: Studies by Murali & Mallikarjuna (2014), Sharma & Khattari (2013), Singh & Kashyap (2015), Bhandari & Kaushal (2013), Jadhav & Khanna (2016), Jain, Sadh (2015), Wen et al.(2011) validated a direct and significant impact of perceived Trust on repurchase intensions.

Perceived Usefulness (PU):Velarde (2012), Lim et al. (2005), Selvakumar (2014), Chatterjee & Ghoshal (2015), Wen et al.(2011) validated a direct impact of PU on repurchase intensions. This indicates that, even in post adoption behavior, PU remains as one of the important determinants of repurchase intensions.

TABLE7: Proposed Model for continuance of online shopping.



Abbreviations: Conv-Convenience, WD- Website design, PF- Product factors, PEOU- Perceived Ease of Use, sQL- Online service quality Sec- security factors, PT- Perceived Trust, PU- Perceived Usefulness

Discussion on Post adoption behavior: Critical review of studies on post adoption behavior (determinants, usage continuance and repurchase intensions) reveals that, similar to pre-adoption phase, PU, PEOU and Perceived Trust continues to remain as one of the strongest antecedents of repurchase intensions. However other important factors such as convenience, website design, product information factors, and online service quality and security concerns also have significant impact on a user’s intensions to repurchase.

In case of post adoption behavior, a direct relationship between factors such as Convenience, Website design, Product factors, PEOU, online service quality, security factors, Perceived Trust and PEOU with repurchase intentions was established. Also, the indirect impact of PEOU on repurchase intentions through the mediating effect of PU was validated in various research papers under the review. The model also proposes direct positive impact of repurchase intention on e-loyalty.

IV. Conclusion

The research aimed at studying existing literature work on pre and post adoption of online shopping and synthesizing factors associated with the pre and post adoption phenomenon. For review, about 84 research papers related to technology adoption phenomenon (basic models such as TAM, TPB) and studies focusing on technology adoption in online retailing were selected, on the basis of contribution to knowledge base and citation numbers.

A critical review of the selected research work finds support for original TAM construct (PU and PEOU has a direct relationship with BI and PU acting as a mediator in impact of PEOU on intention) in pre-adoption phase of online retailing. A direct relationship between Behavioral Intention and factors such as (PU, PEOU, PR, PT, and Service Quality) was also explored. A model for online shopping intention and adoption process was proposed, by taking a base of validated relationship between various variables and BI. The model also assumes direct and positive relationship between BI and adoption of online shopping, taking a clue from original TAM construct.

In case of post adoption phase of online retail, a direct relationship between factors such as Convenience, Website design, Product factors, PEOU, online service quality, security factors, Perceived Trust and PEOU with repurchase intentions was established.

However, it is observed that, the importance of factors such as PU, PEOU and Perceived Risk tend to diminish during a user's transition from pre to post adoption stage. On the other hand, as a user gains experience, factors such as convenience, website design, product information and online service quality factors acts as an important antecedent for continuance of online shopping. In other words, as a user gains confidence of shopping, quality of online shopping experience (convenience, website design, and product information) becomes a driving force for repurchase intentions and continuance of online shopping.

Limitation and Further Scope:

The research work is a synthesis of existing knowledge base related to pre and post adoption phenomenon of online shopping. Naturally, it does not have an empirical contribution. Hence, the researcher would like to test and validate proposed models for both the phases (pre and post adoption) as a part of future research work. Testing the proposed models on a large and demographically diverse sample may lead to many insights about adoption and repurchase intention on online retailing, especially in Indian context.

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