

An Empirical Study on the Adoption of E-Commerce in Pondicherry.

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Abstract

Purpose – This study investigates the consumer's technology adoption toward electronic commerce. In addition to the variables perceived usefulness and perceived ease of use derived from TAM, the study included and tested factors like perceived security, perceived product value, personal cost, perceived enjoyment, perceived cost and perceived quality.

Design/methodology/approach – A questionnaire was developed primarily based on the available scales in the already published literature. All model constructs requested participants to indicate their perceptions of Likert-style responses. The data analysis was executed using Smart PLS to test the validity and reliability of the measurement instrument.

Findings – The study results suggest that consumers attitudes toward e-commerce are significantly impacted by perceived cost perceived security and perceived quality and an extended TAM model framework was proposed and empirically tested using the data collected from the survey.

Originality and Value – This is one of the few studies which includes variables like perceived enjoyment and perceived risk in an emerging economy context by using the extended Technology Adoption Model framework.

Managerial Implications – The research provides an essential indication to electronic commerce companies that not only concentrate on the quantifiable usefulness of their services but also all other influencing factors like enjoyment and quality. They should also attempt to increase users security, reduce the risk and value and focus on customer loyalty.

1. Introduction

Electronic commerce is a beneficial tool to minimise the economic gap that exists between countries and as a means to provide products and services online. Though it has turned out to be a source of competitive advantage because of the probabilities offered to both buyers and sellers, its application, specifically in developing economies, is constrained. The chief benefit cited by the authors in the usage of e-commerce links to the

Chance it gives for organisations to multiply the count of customers and its capacity to act as a medium to increase micro, small and medium-sized companies—which are roots of economic growth in several countries. Besides, e-commerce can reconstruct business

management and its ability influences sectors like telecommunications, finance, industry, trade, education, health and government.

Many authors say that e-commerce includes any transaction done through electronic devices which aid in running a business and alters internal and external relationships in order to build value and use the market opportunities impacted by a linked economy's new rules. It comprises all transactions of information, services and products, payment through electronic networks, and combines solutions to any transaction made online—which is perceived as the benefit of digital communication networks to allow the purchase and sale of any good or service. Villa *et al.* (2018)

Consumers' acceptance of technology has been a crucial field of research. Though several models have been suggested to elucidate and foresee a system's use, the Technology Acceptance Model (TAM) is the one that has received the maximum attention of the scientific community and is a significant modelling approach in information technology research. TAM is one of the primarily studied models foreseeing information technology adoption and established as in the field of e-commerce adoption by consumers. Renko (2015)

The chief object of this research is to suggest a theoretical and experimental explanation on how the adoption of electronic retailing is impacted by these perceptions: usefulness and ease of use (base of the TAM model). The sole aim of this study is to validate the TAM model with e-tailing. By doing this, features of e-tailing that are potent to contribute to the easing of use and benefit can be identified. It can generally furnish suggestions about the ease of use and usefulness for retailers.

2. Theoretical Background :

Previous researches have employed several models/theories to explore the factors influencing the adoption of technology; some of these models/theories are Technology acceptance model (TAM), Theory of planned behaviour (TPB) and Diffusion of innovation theory (DOI). These models or theories were the extensions of Theory of Reasoned Action (TRA) which was obtained from social psychology proposed, that is applied to foresee and elucidate behaviour and intention of humans in several areas. TRA states that an individual's actual behaviour is formed by his or her behavioural intention (BI) to perform, which is successively estimated through the combination of the person's attitude (A) towards that Behaviour and the subjective norm (SN). TAM, which is an extension of TRA has got two main factors such as perceived usefulness and perceived ease of use which affect Attitude (A) and sequentially impact Behavioural Intention (BI) and Actual Behaviour. The two significant determinants of TAM are also impacted by external variables; whose nature was not quoted but was left to future research and extension. Davis (1989) King and He (2006) Fishbein and Ajzen (1975) Wagner *et al.* (2013)

TAM has accurately predicted 40% of the variance in usage intention as well as Behaviour. Several types of research have approved TAM as a meritorious model to foresee user adoption of various technologies. TAM was proved to be competent by many

Empirical studies, but it was not enough to elucidate a user ’ s intention to adopt technology only by the determinants such as perceived ease-of-use and perceived usefulness. Electronic commerce includes two dimensions, transactional and non-transactional, user ’ s understanding to accept mobile commerce could be viewed as a multidimensional behavioural intention. Lately, mixed results were got in forecasting the acceptance of mobile services while using the TAM model showing the necessity to extend or modify the TAM model for e-commerce services. Thus researchers have inferred the constraints of TAM and hinted that TAM needs to be extended in order to elucidate mobile commerce adoption. Rahman and Sloan (2017)

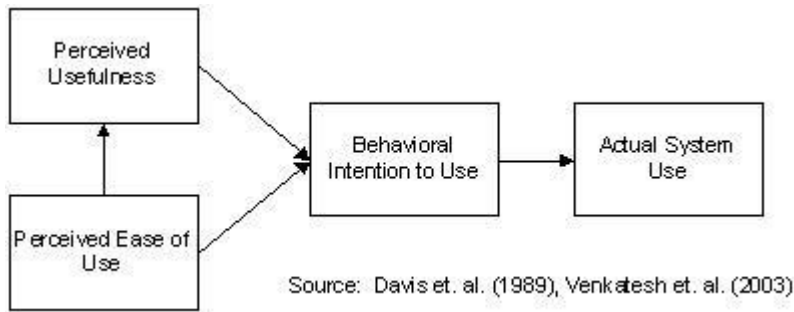


FIGURE 1: TAM MODEL FOR IT ADOPTION

3. Literature Review and Hypothesis Construction :

Perceived value impacts the perceptions of online trust in online buyers and they are interested in purchasing again from the same website. This research initiates a research model that compares the corresponding significance of perceived value and online trust to perceived usefulness in impacting intention of the customers to purchase again. Perceptions of competitive cost and website reputation affect perceived quality, which successively impacts perceived value; and perceived value, website reputation along with perceived risk affect online trust, which consequently impacts s the intention to purchase again. This research confronts that the intention to purchase again in the e-commerce context could be perceived better by evaluating the links between perceived quality, perceived value elements, and trust in e-commerce. Sullivan and Kim (2017)

Significant factors affecting the adoption of e-services, factors such as faction, security and quality and then, several dimensions of these determinants were derived from prior research. The findings of this study exhibited that quality, security and satisfaction greatly affected an individual ’ s intention to adopt e-service and successively the acceptance of e-service technology. Taherdoost (2018)

Factors that affect consumer’s adoption of E-commerce apps. The results showed that social influence, facilitating conditions, hedonic motivations, perceived risk and perceived trust were crucial indicators of the customer’s behavioural intention in adopting E-commerce apps. Verkijika (2017)

The study adds to the literature on that topic by examining the acceptance factors of German customers who have prior experience in mobile shopping. When a modified

Technology acceptance model (TAM) is employed, the findings exhibit that, along with the traditional TAM factors, perceived enjoyment and trust in the e-commerce influence the intention of customer to indulge in e-shopping, which consequently forms general e-shopping behaviour. Discussions of managerial and theoretical implications are made. Gro (2015)

The paper's objective is to explore how consumers' value evaluation and personality factors influence their intention to take-in mobile coupon in Chinese e-commerce apps. The results reveal that perceived value is positively impacted by perceived convenience, perceived enjoyment, and perceived money savings and negatively affected by perceived fees and perceived privacy risk. Liu *et al.* (2015)

Extended Variables definition :

Perceived security :

The degree to which individual trusts a mobile will be free from risk to carry out C2C e-commerce. The degree to which a person senses secure against security threats arising from technology usage.

Perceived risk :

Perceived risk relates to a person's perception of the potential dangers associated with the use of a specified technology. This danger may be financial, psychological, social, physical or temporal. Zhang *et al.* (2012)

Perceived cost :

Adoption costs are a significant factor in internet adoption and use. E-commerce costs include investing in its adoption processes (network, PCs, data storage, proofing, servers, software/hardware and other peripheral devices). Ernst and Young (2001) Wang and Tsai (2002)

Perceived Enjoyment :

Perceived enjoyment is the extent to which the process of using technology is discerned to be enjoyable excluding the consequences of performance that might be anticipated Davis *et al.* (1992)

Perceived quality:

Perceived quality is the consumer's perception of the quality or superiority of a product or service concerning its sole purpose, relative to alternatives. First of all, perceived quality is a perception by customers.

Based on the literature review research gaps, theoretical implications and constructs have been studied. Based on the understanding of the studies the following research hypothesis has been proposed

H 1: Perceived security positively influences the behavioural intention to adopt e-commerce. Taherdoost (2018)

H2: Perceived risk negatively influences the behavioural intention to adopt e-commerce. Zhang *et al.* (2012) Verkijika (2017)

H3: Perceived cost positively influences the behavioural intention to adopt e-commerce. Sullivan and Kim (2017) Liu *et al.* (2015)

H4: Perceived enjoyment positively influences the behavioural intention to adopt e-commerce. Davis *et al.* (1992) Gro (2015) Liu *et al.* (2015)

- H5: Perceived quality positively influences the behavioural intention to adopt e-commerce. Sullivan and Kim (2017) Taherdoost (2018)
- H6: Perceived usefulness positively influences the behavioural intention to adopt e-commerce. Davis (1989) King and He (2006) Fishbein and Ajzen (1975) Wagner et al. (2013) Davis et al. (1992)
- H7: Perceived ease of use positively influences the behavioural intention to adopt e-commerce.
- Davis (1989) King and He (2006) Fishbein and Ajzen (1975) Wagner et al. (2013) Davis et al. (1992)

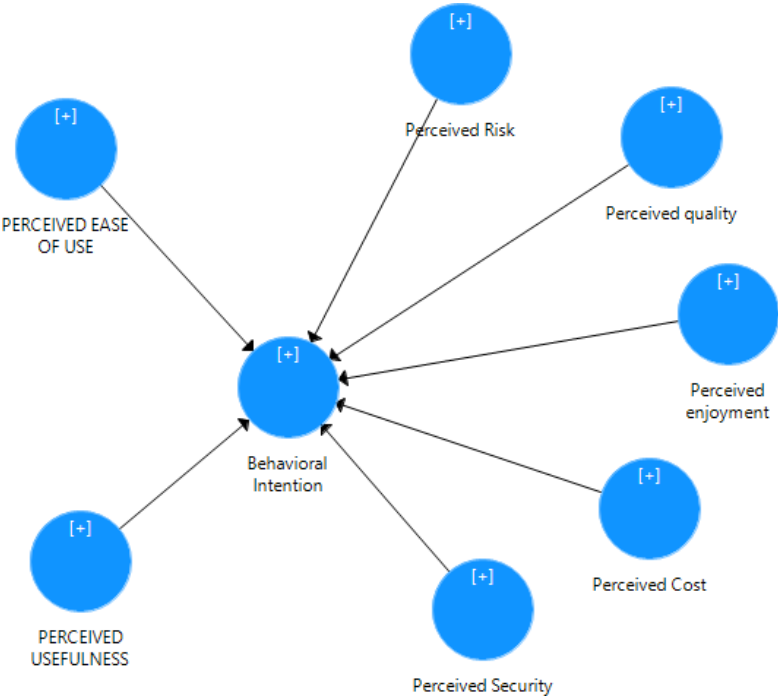


FIGURE 2: RESEARCH MODEL

4. Research Method

The research methodology has been carried out through quantitative research. In this study, the respondents were chosen using convenient sampling techniques for 180 individuals, with 102 men and 78 women, aged 21 to 42 years. Table 1.

Respondents questionnaire is the primary instrument for gathering data. The survey included questions about the satisfaction and loyalty status of the customer. The study took place from July 12, 2019, to July 18, 2019. SmartPLS was employed for data processing and statistical analysis. Cronbach’s Alpha, Average Variance Extracted (Pvc) and Composite Reliability (Pc) have assessed the reliability and validity of the scale. The

TABLE 1
Respondents profile

Educational Background	No	(%)
UG	55	30.55
PG	34	18.89
Research Scholars	12	6.67
Corporate Workers	61	33.89
Government Workers	18	10
Total	180	100.0

research hypotheses were evaluated using a linear structural model SEM.

5. Results

Structural Equation Modeling (SEM) is used in the theoretical framework. PLS is used because even if there is multicollinearity, the Partial Least Square technique can manage many independent variables. PLS can be used as a regression model, predicting one or more dependent variables from a set of one or more independent variables or as a path model. The Partial Least Square (PLS) technique can combine several dependent variables with a set of independent variables.

5.1 Consistency and Reliability

The convergent validity is evaluated by composite reliability or Cronbachs alpha in this model. Cronbach’s alpha sometimes underestimates the reliability of the scale, so Composite reliability is used as the reliability metric. Table 2 indicates that the composite reliability is above a preferred 0.5 value. This shows that the model is consistent internally. To verify whether the variable indices show convergent validity, the Cronbachs alpha is used. From Table 2, the reliability of all variables (> 0.60) and Pvc > 0.5 can be seen.

5.2 Structural Equation Modeling (SEM)

The findings of SEM showed first that the model is compatible with data and data research. Behavioural Intention to use e-commerce is significantly influenced by perceived cost perceived security perceived quality,
perceived enjoyment and perceived product risk along with perceived usefulness and perceived ease of use. (Fig. 3). (Table 3.)

TABLE 2
Cronbach’s alpha, composite reliability (Pc) and AVE values (Pvc)

	Cronbach’s Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Behavioral Intention	0.949	0.951	0.963	0.867
PERCEIVED EASE OF USE	0.778	0.779	0.9	0.818
PERCEIVED USEFULNESS	0.909	0.91	0.937	0.788
Perceived Cost	0.79	0.794	0.905	0.826
Perceived Risk	0.9	0.901	0.937	0.833
Perceived Security	0.906	0.919	0.934	0.779
Perceived enjoyment	0.874	0.875	0.923	0.799
Perceived quality	0.947	0.947	0.962	0.863

SRMR value was found to be 0.055. Model is considered good fit if SRMR value is zero, its value ranges from zero to .08 is considered as proper fit, and if the value ranges from .08 to .10 is treated as poor fit. So the results show that the empirically tested extended TAM model is a good fit model.

TABLE 3
Structural Equation Modeling (SEM) – Path Coefficients

Behavioural Intention	Behavioural Intention
PERCEIVED EASE OF USE	0.187
PERCEIVED USEFULNESS	0.172
Perceived Cost	0.236
Perceived Risk	-0.136
Perceived Security	0.148
Perceived enjoyment	0.122
Perceived quality	0.184

Resampling methods are used in bootstrapping to calculate the significance of PLS coefficients. The output of significance levels can be retrieved from the boot-strapping option. Table 4 illustrates the results of testing hypotheses; at .05 significant level, all t values above 1.96 are essential. The hypothesis H1, H2, H3, H4, H5, H6 and H 7 have all been supported. The findings showed that PERCEIVED COST was associated most positively ($\beta= 0.236$) and significant ($p<0.05$) (Table 4). Observations have external loads larger than 0.5 ($P < 0.05$), and are important (Wong 2013). Outer weights of observations are below 0.05 ($P<0.05$) and are therefore endorsed.

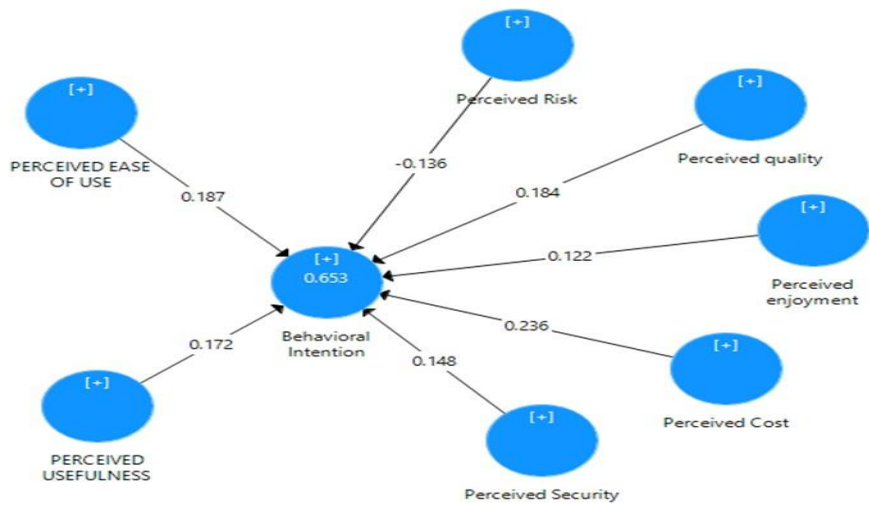


FIGURE 3: SEM RESULTS

TABLE 4
Bootstrapping Results:

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Value
PERCEIVED EASE OF USE -> Behavioral Intention	0.187	0.183	0.078	2.383	0.018
PERCEIVED USEFULNESS -> Behavioural Intention	0.172	0.174	0.053	3.241	0.001
Perceived Cost_ -> Behavioural Intention	0.236	0.237	0.083	2.838	0.005
Perceived Risk -> Behavioural Intention	-0.136	-0.132	0.054	2.534	0.012
Perceived Security -> Behavioural Intention	0.148	0.149	0.069	2.139	0.033

Intention					
Perceived enjoyment ->	0.122	0.121	0.041	2.971	0.003
Behavioural Intention					
Perceived quality ->	0.184	0.183	0.052	3.541	0
Behavioural Intention					

6. Conclusion

As a result of data analysis in results and discussion, seven hypotheses were accepted. With the Beta equals to 0.236, perceived cost was considered impacting the most positive on customer behavioural intention to use e-commerce. Followed by Perceived ease of use(0.187) and perceived quality(0.184) was having higher beta values too. Perceived risk had Beta of -0.136 the only negatively impacting factor, which gives further implications. Finally, Perceived use, perceived enjoyment and perceived security also had a positive influence on e-commerce behavioural intention.

Limitations and Further Studies

In addition to the implications, this study has certain constraints. The scope of this study has specific restrictions on how widely its results can be applied. These constraints must be recognised in order to add context to the findings of the outcomes of the study. First, participants residing in Pondicherry and Cuddalore only responded to this questionnaire used in this study. Further study can consider the following points, depending on the results of this research and the constraints above: the results of this study apply only to India. In other nations, the same results may not happen due to cultural differences.

Further study could use the results of this study as an indication in other nations for the e-commerce industry. Also, further study can explore other factors, such as the effect of cultural differences on behavioural intention, provide a clear image and better comprehension of customer behavioural intention to use e-commerce. In future studies, various and additional variables that could affect customer BI can also be studied.

In conclusion, the study results in guide e-commerce to determine which characteristics should improve client engagement in general. The study is worthwhile because it proposes and justifies a theoretical model for explaining customer BI in the Indian e-commerce context.

References

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, pp. 319–340.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1992), "Extrinsic and intrinsic motivation to use computers in the workplace", *Journal of Applied Social Psychology*, Vol. 22, pp. 1111–1132.

Ernst and Young (2001), “Advancing with E-commerce.”, Advancing with E-commerce.

Fishbein, M. and Ajzen, I. (1975), “Belief, attitude, intention and behavior: An introduction to theory and research”.

Gro, M. (2015), “Exploring the acceptance of technology for mobile shopping: an empirical investigation among Smartphone users. The International Review of Retail”, *Distribution and Consumer Research*, Vol. 25 No. 3, pp. 215–235.

King, W.R. and He, J. (2006), “A meta-analysis of the technology acceptance model”, *Information & Management*, Vol. 43 No. 6, pp. 740–755.

Liu, F., Zhao, X., Chau, P.Y. and Tang, Q. (2015), “Roles of perceived value and individual differences in the acceptance of mobile coupon applications”, *Internet Research*, Vol. 25 No. 3, pp. 471–495.

Rahman, M.M. and Sloan, T. (2017), “User adoption of mobile commerce in Bangladesh : Integrating perceived risk , perceived cost and personal awareness with TAM”,

Renko, S. (2015), “Exploring the Consumers Acceptance of Electronic Retailing Using the Technology Acceptance Model.”, .

Sullivan, Y.W. and Kim, D.J. (2017), “Assessing the effects of consumers product evaluations and trust on repurchase intention in e-commerce environments”, *International Journal of Information Management*, Vol. 39, pp. 199–219, URL 10.1016/j.ijinfomgt. 2017.12.008.

Taherdoost, H. (2018), “Development of an adoption model to assess user acceptance of e-service technology: E-Service Technology Acceptance Model”, *Behaviour and Information Technology*, Vol. 37 No. 2, pp. 173–197, URL 10.1080/0144929X.2018.1427793.

Verkijika, S.F. (2017), “Factors influencing the adoption of mobile commerce applications in Cameroon”, *Telematics and Informatics*, pp. 0–1, URL 10.1016/j.tele.2018.04.012.

Villa, E., Ruiz, L., Valencia, A. and Picn, E. (2018), URL 10.4067/S0718-18762018000100104.

Wagner, G., Schramm-Klein, H. and Steinmann, S. (2013), “Effects of cross-channel synergies and complementarity in a multichannel e-commerce system”, *International Review of Retail, Distribution & Consumer Research*, No. 5, pp. 23–23.

Wang, J.C. and Tsai, K.H. (2002), *Factors in Taiwanese Firms Decisions to Adopt Electronic Commerce: An Empirical Study*, Blackwell Publishers Ltd, Oxford, 1145-1167 pp.

Zhang, L., Zhu, J. and Liu, Q. (2012), “A meta-analysis of mobile commerce adoption and the moderating effect of culture”, *Comput. Human Behav*, Vol. 28, pp. 1902–1911.