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Research paper



From Adoption to Intention: The Empirical Relationship Between Digital Technologies and Online Purchasing Behaviour

Rohit Bhagat [1], Pallavi Bhagat [2], Atif Javed Qazi [3], Raashidah Gani [3], Ramona Birau [4,5] *, Virgil Popescu [6], Roxana-Mihaela Nioata (Chireac) [4], Gabriela Ana Maria Lupu (Filip)[4], Cristina Sultănoiu (Pătularu) [4]

[1] The Business School, Bhaderwah Campus, University of Jammu, India
[2] Govt. MAM PG College, Jammu, JKUT, India,
[3] Mittal School of Business, Lovely Professional University, India
[4] University of Craiova, Doctoral School of Economic Sciences "Eugeniu Carada", Craiova, Romania
[5] Constantin Brâncuşi" University of Târgu Jiu, Faculty of Economic Science, Tg-Jiu, Romania
[6] Faculty of Economics and Business Administration, University of Craiova, Craiova, Romania
**Corresponding author E-mail:ramona.f.birau@gmail.com*

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Abstract

The whole world has been severely hit by the pandemic wave with which we are still fighting and trying to start from a new. The pandemic has hit the world in no time. The situation has brought the whole world to a standstill, but the digital technology has come as a ray of hope to tackle the situation and bring the businesses to work with normal pace. The online industry is witnessing a tremendous growth. Considering the present prevailing scenario, acceptance and effectiveness of technology among the consumers has been enhanced furthermore. The online purchasing with help of advanced digital tools and techniques is gaining popularity among customers. In the current scenario, where whole mankind is still living with the fear of pandemic, the applicability and acceptance of digital technology among customers towards online purchasing has been enhanced. The research paper tries to investigate the impact of digital technology adoption on behavioral purchase intention through online mode. The results of study show that digital knowledge, attitude and ease of use positively impact digital technology adoption. The study also shows that there exists a cause-and-effect relationship between digital technology and behavioural intention towards online shopping which was established through regression analysis. The study was conducted by circulating 618 questionnaires to online shoppers across the country. The study also formulates a model giving insight on effect of digital technology adoption on behavioural intention towards online purchasing. The study concludes with suggesting the use of digital technology towards enhancing effectiveness while purchasing through online mode.

Keywords: *Adoption; Attitude; Behavioural Intention; Consumers; Digital Knowledge; Digital Technology;Ease of Use; Online Purchasing.*

1. Introduction

The current era has seen an extraordinary growth in the field of digital tools and technology which makes this era the 'era of technology'. Many studies indicate that the digital technology has played a pivotal role in increasing the sales leading to increased profit margins of online industry. The online platforms have emerged as the primary source of transactions for consumers in the global market. Indian economy has been severely affected by the outbreak of COVID pandemic. The pandemic has grappled the whole world within no time. The devastating effect of coronavirus outbreak brought every industry to a standstill. The disease COVID-19 spreads through a novel coronavirus, which initially attacks the respiratory track and in worse cases leading to the death of the patient. The disease can be easily spread through the droplets in the air and the disease becomes more dangerous as till date no vaccine for the disease is available (Paules et al., 2020; Wu et al., 2020). The disease is more fatal for old age people, young children and people with co-morbidities having less immunity. The dreadful nature of the disease has created a lot of panic among individuals (Bai et al., 2020). The disease has been so contagious that almost majority of the population has been infected by the virus. The prevailing situation has made people so worrisome that they have now become more conscious towards their health and healthy way of lifestyle (Kraemer et al., 2020). Many researchers have stated that people still have fear of the pandemic and the trauma still haunts them from the after effects of the situation (Meng, Hua &Bian, 2020;Koch et al., 2020). The situation at that time in the country has led to a drastic drop in the revenue earned. The ministry issued guidelines from time to time to the general public related to prevention of spread of corona virus, which are still afresh in the minds of public. Due to the situation at that time, many stakeholders experienced the verge of closure or have closed their operation (Daniel, 2020; Whitelaw et al., 2020). The stringent restrictions imposed to curb the spread of the virus led to a drastic decline in revenue

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generation, pushing many businesses toward closure or severe financial distress (Daniel, 2020; Whitelaw et al., 2020). Government interventions, although necessary, were driven by the alarming rate at which infections were doubling daily (Pokhrel & Chhetri, 2021). Prolonged lockdowns and mobility restrictions further exacerbated economic losses across industries worldwide (Sharma et al., 2022). Most of the industries operating have either earned huge losses or are at the verge of being closed. The pandemic situation has made consumers to cut short on their shopping patterns and save money due to the uncertainty of future (Kitayama et al., 2022). The situation has almost affected every customer and their consumption patterns.

The restriction has forced many consumers to rethink on their shopping instincts and look for some other ways of shopping behaviour, which have inclined majority of consumers to adopt online shopping behaviour (Javedi et al., 2012; Srivastava et al., 2023; Zhang et al., 2023). Online shopping goods refer to those consumables which are purchased through online mode. The online shopping industry has been growing at a very rapid pace. Complementing it is the rising demand and changing consumer preferences, thanks to higher disposal incomes and the online revolution, the online purchases have being posting a rapid growth over the past couple of years (Khare & Rakesh, 2011; De et al, 2023).The daily household requirements which include dairy products, cooking oil, bread, butter, cereals, foodstuff, beverages like tea & coffee, pharmaceuticals, confectionery, biscuits, glassware, cosmetics, toothpaste, dish washing liquid, shaving cream, razor, batteries, shoe polish, toiletries, detergents, shampoos, skin care products, energy drinks, soft drinks, clothing, furniture and household accessories to electronic goods like cell phones, laptops, computers, digital cameras etc. are majorly categorized under Fast Moving Consumer Goods/ Electronics. A major portion of the monthly budget of each household is spent on purchasing these products through online mode (Nagra & Gopal, 2013; Lim et al., 2016; Cahyono et al., 2024). The transaction of products through online has come across as a corner stone in boosting the economy. The online transaction tries to touch and satisfy every aspect of human life. The online medium has created a lot of scope and ample of opportunities for all sectors to exploit.

A noticeable shift from physical to online purchasing has been observed among consumers (Pinca et al., 2024). Online purchasing comes with a bundle of benefits, which include saving of time, less costly, free delivery, credit facility, plenty of options available to select from, return facility available, no transportation cost involved and so on.

The present study aims to analyze changes in online shopping patterns in the post-pandemic scenario and examine the influence of digital technology on consumer purchase decision-making. The paper also tries to analyse the effect of use of digital technology on consumer purchasing decision making. The advanced use of digital technology by firms operating through online mode has enhanced their productivity in this difficult time (Usak et al., 2020; Hong &Satjawathee, 2024). The advanced applicability of digitalized technology in online purchasing has made majority of consumers to be of opinion that purchase and consumption pattern is going to witness a complete changeover in the coming times. The government and policy makers are also of the view that organisations should adopt new ways of innovative digital technological advancement which makes process of buying and selling much simpler and easier (Roggeveen & Sethuraman, 2020). In the post-pandemic environment, digital technology has emerged as a powerful tool in facilitating safe, convenient, and efficient online purchasing (Bao, 2019; Sharma et al., 2024). Online shopping through digital mode has made process of buying more effective in the present prevailing condition which is making the economy of country to stay on right track and keep progressing ahead on the development path.

2. Theoretical Framework

The usage of advanced digital technology is on a rise around the world from a while ago and many online organisations have been practically implementing these tools to make buying and purchasing process much easier and efficient.Many online organisations have deliberately included online mode along with physical purchasing in order to enhance consumer comfort which in turn increases the sales of the product (Trouche, 2004; Arthur et al., 2012; Purwianti& Yulianto, 2024).

From the past so many decades, online purchasingis being practiced. The use of advanced digital technology in online purchasing has further enhanced its applicability. Technological advancement not only enhances interaction among consumer and manufacturer but also creates an environment in which the customized product could be made available to the customer in stipulated time period (Mondal & Hasan, 2024). Many studies have firmly supported the view that technological innovations coupled with online purchases enhance the satisfaction level of consumer (Gueudet et al., 2011; Gill &Lashine, 2003). The advent of technology has changed the way in purchases used to be done in earlier times, not only purchasing whole process of purchasing start from identifying the product making payment online and receiving product without any effort and time. The use of specialized digital technology has made shopping just a click away. The e-commerce mode not only provides variety of products to choose from but also provides consumer viewpoints regarding the product by customers who have earlier used the product which makes it easier for the customer to make the choices. E-commerce is among some pioneer sectors which have been using digital technology from very early times. The 21st century is being considered as the technology era and online industry is the one which is proving the statement correct by utilizing technology to fullest and reaping maximum profits.

The online organisations have been using advanced digital tools and technology to sell products from very early times. The main motive of these organisations is to satisfy customers and increase their sales revenue. To keep a pace with developments occurring around the world, innovative use of technology in online purchasing holds the key (Jain, 2024). This has forced all the organisations selling through online mode to integrate advanced digital technology with online purchasing (Reed et al., 2010; Baidoun& Salem, 2024). According to Ruthven et al., 2009 organisations selling products through online mode are known for using innovative digital technology to enhance effectiveness and satisfy customers. The use of advanced digital technology like AI poses a great opportunity for organisations selling products through online mode. Many researchers (Ha, 2020; Iwai, 2020; Liu et al., 2024) have put forth that the organisations adopting advanced digital technology in selling are the one found to have a greater number of consumers visiting their sites and purchasing products. Furthermore, these organisations are having more popularity among the consumers, more customers end up becoming loyal customers and having a positive word of mouth. The consumers are of perspective that the use of digital tools and technology had made buying process much easier and effective. According to Doorman et al (2012) consumer while purchasing product through online mode feels much more comfortable and safer.

Many previous studies have put forth that advanced digital technology usage can be enhanced by having digital knowledge, positive attitude towards using technology and the technology is user friendly (Ting et al., 2020; Kim, 2012; Hoo et al., 2024). In another study by Aggarwal &Rahul (2017)it has been found that the elements of Technological acceptance model and theory of reasoned action help in enhancing the usefulness towards consumers which ultimately affect the purchasing intention of consumer. According to Liet al., (2009) having technological knowledge enhances the practical implication which leads to moulding the intention of consumers towards purchas-

ing the product. Studies have further supported the fact that use of digitalized technology support selling and buying process in more efficient and profitable way.

Taking cognizance of the current situation use of digital technology in online mode of purchasing has emerged as a boon. The online purchasing mechanism not only provides products to customers in the easiest possible manner but also helps in safeguarding the interest of consumers from any fraud. (Pappas et al., 2017; Balakrishnan & Dwivedi, 2024). The use of digital resources in e-commerce has created a rippling effect in increasing the profits and boosting the economy (Pandey & Pal, 2020).

First, while lot of studies suggested that digital technologies significantly foster online purchase intentions by improving convenience, accessibility, and information availability (Roggeveen & Sethuraman, 2020; Usak et al., 2020), some other researchers opined that technology adoption and usage alone does not guarantee higher purchase intention. As suggested by Lim et al. (2016) and Koch et al. (2020) ,highly complex technology interfaces may confuse consumers, leading to exhaustion of technology andfear of wrong decisions thereby negatively affecting purchase decisions. Secondly, studies like Hong &Satjawathee (2024) and Zhang et al. (2023) opined the usefulness of digital tools such as AI-based recommendations, secure payment gateways, and real-time tracking which paves way to online purchase. While other researches like Whitelaw et al. (2020) and Pinca et al. (2024) suggested that cyber frauds and information misuse prevents the consumers to continue with the online shopping.

The Research gaps have also been found from the extant literature review. It has been found that there is a scarcity of studies that focus on post pandemic empirical findings about the extent of digital online purchasing behavior over time. It has also been found that there is a dearth of studies involving psychological constructs in explaining purchasing behavior in the post pandemic times. There is a gap found in the studies focusing on developing countries like India where digital infrastructure, consumer awareness and regulatory frameworks differ substantially.

In the view of the gaps and conflicting findings, the present research study explores the role of digital technology in influencing the online purchasing behavior in the post pandemic times with special emphasis on developing market. The present study focuses on both technological and behavioral dimensions of digital technology and its adoption.

3. Proposed Model and Hypotheses

The current research study tries to narrow down the research gaps of previous researches and develop a relationship towards enhancing effectiveness in online purchasing through usage of digital technology adoption. Gebresilase et al., (2017) has suggested that technological knowledge along with positive attitude enhances the online purchasing effectiveness. The technological tools have emerged as a rich source of information for consumers which help the consumer in comparison and choosing the right product. Many studies have further stated that technological knowledge along with ease of usage motivates consumer to purchase through online mode (Celik et al., 2014; Xu et al., 2013; Soares et al., 2023; Duarte et al., 2024).Many authors have put forth on the need of use of technological skills to enhance customer satisfaction. The TAM model and theory of reasoned action by Ajzen and Fishbein further defines that effective purchasing intention can be delivered through integration of technological knowledge, ease of usage and positive attitude(Angeli &Valanides, 2009; Koh et al., 2010; Chauhan & Bhagat, 2017, Balakrishnan & Dwivedi, 2024). The Technological acceptance model (TAM) shows how technological innovation can be used by potential consumer in satisfying his/her behavioural intention towards a particular purchase. The background of TAM theory is developed from another theory which is theory of reasoned action (TRA) given by Ajzen & Fishbein in 1975. The theory of reasoned action (TRA) puts forth that perceived ease of use and perceived usefulness are the two variables strongly favouring in predicting behavioural intention. Graham et al., (2012)have further stated that use of highly advanced digital techniques can enhance the satisfaction level of customers while purchasing through online medium. Bucko et al., (2018) have also put forth that consumer's technical knowledge related to online purchasing makes him/her much more contented and satisfied. In another study by Voogt et al. (2013) it has been argued that use of technological knowledge plays a major role in positively moulding consumer attitude towards online purchases. Saleh&Mashhour (2014) in their research have stressed on usage of advanced and innovative digital tools related to online purchasing in order to enhance the attractiveness and increase sales of the product. The study considering the gaps of earlier researches has tried establishing a relationship among digital knowledge, attitude, and ease of usage through integration of digital technology adoption. Once the relationship between all the variables has been established the study furthermore tries to analyse the behavioural intention towards online purchases. The study taking into account the current prevailing situation tries to find the effectiveness of digital technology adoption in enhancing behavioural intention towards online purchasing. Based on the objectives of the research following hypotheses have been formulated.

4. Research Hypotheses

H_1:Digital Knowledge, Attitude and Ease of UseSignificantly effects Digital Technology Adoption.

H_2:Digital Technology Adoptionhas positive effect on Behavioural Intention towards Online Purchasing.

Figure 1 below shows the modular framework of different constructs integration towards enhancing behavioural intention towards online purchasing.

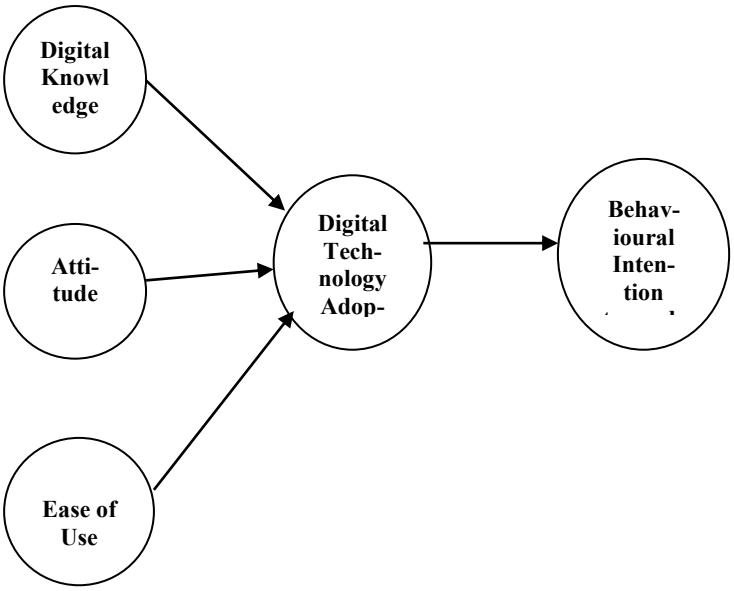


Fig. 1: Proposed Framework of Behavioural Intention Towards Online Purchasing.

5. Methodology

The information for the research has been gathered through circulating questionnaire among consumers preferring online purchases from different regions of India. A total of 700 questionnaires were circulated among customers out of which 618 were found valid. The study has been developed on basis framing a structured questionnaire to develop the framework of digital technology adoption leading to behavioural intention towards online purchasing. The structured questionnaire comprises of questions developed on seven- point Likert scale. The technique administered for collecting samples was a combination of convenience as well as simple random sampling. Initially, convenience sampling was applied to find those respondents who were ready and willing to participate in the study. This type of sampling was done to save time, accessibility and the diversity of target population, particularly in the post-pandemic times.The simple random sampling was utilized to lessen the biasness and get the actual representation of the target population. Once the potential respondents were obtained by convenience sampling, simple random sampling was ensured that each individual had an equal probability of being included in the final sample.

The questionnaire has two sections: section Ideals with demographic profile of respondents and its result indicate that 61.8% population is of male category and 38.2% population belongs to female category. Section II of the questionnaire dealt with the study of factors which are Digital knowledge, Attitude, Ease of Use, Digital Technology Adoption and Behavioural Intention towards Online Purchasing. The scales used in the research were taken from the studies of Venkatesh (2000), Gunawan &Huarng(2015), Erkan & Evans (2016), Schmidt et al., (2009), Parsakia et al., 2023;Jusoh & Ling, (2012), Zhou et al., 2024;Ajzen & Fishbein (1977), Hamid et al., 2023;Ptts et al., 2018, Sagnier et al., (2020) and Zhang & Gupta (2018).

6. Data Analysis and Results

To evaluate the reliability and validity of the study the data was administered to Cronbach alpha test. On applying Cronbach alpha test, the results suggest the data to be reliable and valid. The values of Cronbach alpha test calculated are as follows .687for Digital Knowledge, .693 for Attitude, .702 for Ease of Use, .715 for Digital Technology Adoption and .737 for Behavioural Intention towards online purchasing. The results show that the data used in the research to be reliable and valid.

6.1. Factor analysis

The data was reduced to different factors by applying EFA. Harman's single-factor test was applied to reduce the common bias and all the items of study variables were entered simultaneously into an exploratory factor analysis (EFA) using an unrotated factor solution. The findings suggested that multiple factors were obtained with eigen values more than one and the first factor explained less than 50% of total variance indicating that no single factor dominated the variance. So, the data is found adequate for further analysis.

After applying EFA to data, the KMO value comes out is .804 which predicts that the data used in research is appropriate for conducting factor analysis. On applying EFA, the data was summarized and reduced into different factors which are Digital Knowledge, Attitude, Ease of Use, Digital Technology Adoption and Behavioural Intention towards Online Purchasing. The results of variance extracted from EFA comes out to be 69.57% showing 69.57% of variance can be explained from the factors found by applying EFA. After applying EFA the factors were further administered to CFA to confirm the factors extracted. The factors extracted have been found to be appropriate and valid to develop a modular framework as shown in table1.

Table 1: Confirmatory Factor Analysis& Construct Measures.

Constructs	Retained Items	FL/SRW	Sig.
Digital Knowledge	DK1: The more I know about technology, easier it gets while purchasing online products.	.704	***
	DK2: I am always eager to acquire digital Knowledge.	.722	***
	DK3: Digital Knowledge makes me feel confident.	.714	***
Attitude	AT1: I associate myself with technological advancement.	.723	***
	AT 2: I am positive towards online products with advanced digital technology.	.765	***
	AT3: I am willing to use digital technology for its enhanced effectiveness in online purchasing.	.745	***

Ease of Use	EOU1: Technology makes purchasing much more easily.	.689	***
	EOU2: Technology is the key to make online buying and selling process simpler.	.674	***
	EOU3: Online manufacturer with easy-to-use technology is found to have more consumers buying their products.	.638	***
Digital Technology Adoption	DTA1: Digital Technology makes the interaction between consumer and seller more effective.	.675	***
	DTA2: Digital Technology is playing a crucial role in current scenario.	.765	***
	DTA3: Digital tools have simplified the buying process through virtual mode.	.772	***
Behavioural Intention towards Online Purchasing	BI1:Consumers are found to be more satisfied with use of advanced digital technology.	.781	***
	BI2: Online purchases with advanced digital technology save consumer time as well as money.	.792	***
	BI3: Digital technology comes with plenty of opportunity in terms of benefitting consumers.	.796	***

FL= Factor Loading; SRW= Standardized Regression Weight.
*** mean significance < .05.

6.2. Correlation matrix

The correlation matrix has been used to analyse correlation between different constructs. The correlations among different constructs predict to possess a significant and positive correlation among the variables as shown in Table 2.

Table 2: Correlation Matrix

Constructs	Digital Knowledge	Attitude	Ease of Use	Digital Technology Adoption	Behavioural Intention
Digital Knowledge	1				
Attitude	.514	1			
Ease of Use	.427	.512	1		
Digital Technology Adoption	.578	.576	.603	1	
Behavioural Intention	.524	.488	.533	.689	1

6.3. Impact assessment analysis

The study was administered by regression analysis to analyse the impact of different variables like Digital knowledge, Attitude, Ease of Use, and Digital Technology, in which it was found that Digital knowledge, Attitude, and Ease of Use possess a positive and significant relationship while predicting Digital Technology Adoption. Furthermore, the adjusted value calculated from regression analysis comes out to be .673, which predicts that 67.3% Digital Technology Adoption can be predicted through Digital knowledge, Attitude, and Ease of Use.
From the calculations of regression analysis, below given equation has been formed to study the effect of Digital knowledge, Attitude and Ease of Use on Digital Technology.

DTA =1.783+ .496 (DK) + .388 (AT) + .369 (EOU)

Where:DTA=Digital Technology Adoption
DK =Digital Knowledge
AT=Attitude
EOU =Ease of Use
The research study was further applied to analyse the effect of Digital Technology Adoption on Behavioural Intention towards Online Purchasing. After administering regression analysis, it was analysed that Digital Technology Adoption positively impacts Behavioural Intention towards Online Purchasing. The adjusted R^2 value calculated comes out to be 0.616 predicting 61.6% of Behavioural Intention towards Online Purchasing can be explained with the support of Digital Technology Adoption.
From the calculations of regression analysis, below given equation has been formed to study the effect of Digital Technology Adoption on Behavioural Intention towards Online Purchasing:

BI=1.713+ .697 (DTA)

Where:BI =Behavioural Intention towards Online Purchasing
DTA =Digital Technology Adoption

6.4. Structural equation model

The proposed modular framework has been developed by applying SEM AMOS as shown in Fig.2. Results of the formulated model have been found appropriate and fit with CMIN/DF= 2.597, GFI= .911, AGFI= .907, CFI= .923 and RMSEA= .044. The values of AGFI, GFI & CFI are found to be greater than .9, whereas the RMSEA value is found to be less than .05, predicting and supporting model fitness. Thus, from the results of the study, it can be concluded that the model formed can be used to amplify the effect of Behavioural Intention through digital technology adoption in online purchasing.

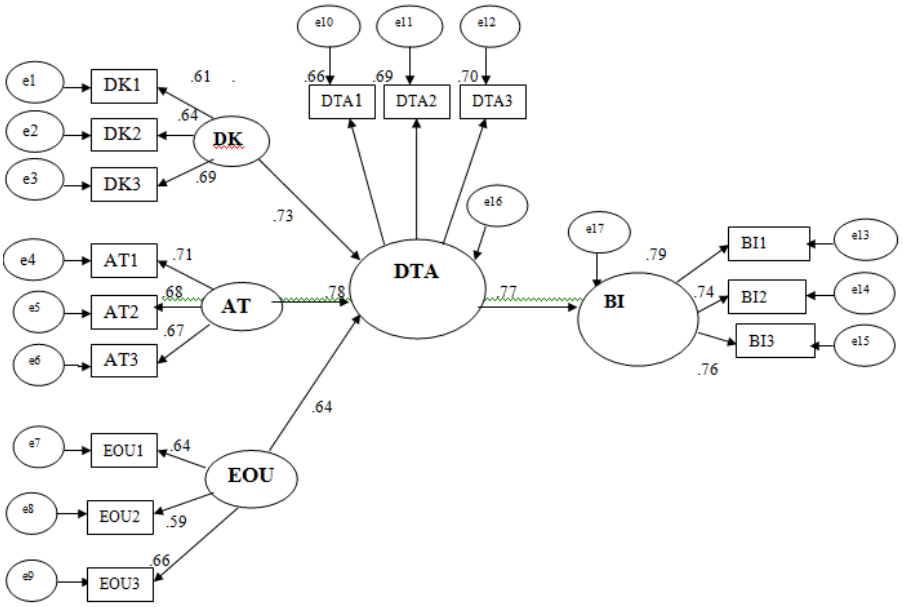


Fig. 2: Framework of Digital Technology Adoption to enhance Behavioural Intention.

DK = Digital Knowledge, AT = Attitude, EOU = Ease of Use,
DTA = Digital Technology Adoption and BI= Behavioural Intention towards Online Purchasing.

7. Results and Implication

The result of EFA has reduced and summarised the data into five major factors which are Digital Knowledge, Attitude, Ease of Use, Digital Technology Adoption, and Behavioural Intention towards Online Purchasing. The study further shows that 69.57% of variance can be explained by the factors derived. Furthermore, regression analysis was applied to analyse the relationship between dependent and independent variables. The regression analysis results show that 67.3% variance in Digital Technology Adoption can be predicted through Digital knowledge, Attitude and Ease of Use. Furthermore, regression analysis predicted that 61.6% of Behavioural Intention towards Online Purchasing can be enhanced through Digital Technology Adoption. A modular framework has also been developed for the study. The rationale of the study is based on the innovative use of technology and the impact of Digital Technology Adoption in enhancing Behavioural intention through online purchases. The study becomes even more imperative in the current scenario when due to the pandemic; all the businesses switch to e-business by adopting technology-based virtual environment. The study predicts that use of advanced digital technology in selling products to consumers through online mode enhances his/her satisfaction level. Results also show that the technology enhances the ease of usage and willingness of consumers towards purchasing online products as it is more convenient and user friendly. The technology used by online shopping sites has made purchasing much easier for consumers with lots of options available at much affordable prices to choose from and saves customer effort and time. The research helps in narrowing down the gap between customers and manufacturers in online purchases with use of digital tools and technology. The study also suggests that digital knowledge of consumers moulds the attitude of consumers towards purchasing products through the online medium. The marketer can also take insights from the research study and include new advanced digital technology to sell online products to satisfy customer and increase its profit margin. The research study contributes significantly to formulating a framework that suggests the usage of advanced digital tools to enhance the effectiveness of consumers' purchasing through online mode.

8. Conclusion

The paper predicts that in coming future, technology is going to play an important role in every business activity. The paper predicts that digital technology adoption has emerged as an important tool for manufacturers when it comes to satisfying the needs and wants of online consumers. The study also predicts that technological advancement in field of online purchasing enhances the effectiveness in analysing consumers' choices and satisfying his/her requirements. The current scenario is further motivating consumers to use their digital knowledge in satisfying their needs through online mode. On the basis of responses, consumers are willing to use online purchasing because of its ease of use and effectiveness in satisfying their needs. The results of the study favourably incline towards the inclusion of digital technology in online purchasing to enhance customer effectiveness. The findings of the study also suggest that marketers to gain insight into the decision-making process by using digital tools and techniques. The study also leaves a scope for future researchers to study other variables affecting online purchasing decisions and an in-depth study of advanced digital techniques required for the enhancement of consumers' behavioural intention towards the purchasing decision.

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