Analyzing the Application of UTAUT2 Model in Predicting the Adoption of Electronic Shopping in Nigeria

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Abstract

Purpose : Electronic shopping has become a global phenomenon with a significant impact on the economy. Previous studies have examined the factors affecting electronic shopping adoption using the unified theory of acceptance and use of technology (UTAUT2) in various countries. But in Nigeria, there are either very few or none at all. This study evaluated the UTAUT2 model and added two new elements to close this gap.

Methodology : The study was descriptive and cross-sectional, and a purposive sampling approach was used to select a sample of 477 online shoppers. A survey questionnaire was used to collect data, and partial least squares (PLS) were used to analyze the data.

Findings : The results of this study showed that the most important variables impacting behavioral intention were effort expectancy, enabling situations, hedonic incentive, habit, trust, and technology awareness. Price, social impact, and performance expectations, however, were not much valued. User behavior was influenced by trust and behavioral intention but not by enabling circumstances, habit, or technological knowledge.

Practical Implications : The findings of this study have important ramifications for future researchers, retailers, marketing managers, and legislators.

Originality : This experiment is distinctive since it is the first to incorporate technology awareness and trust into the UTAUT2 model in the context of online buying. By creating a study model from a Nigerian cultural perspective, the survey increased our previous understanding of technological adoption.

Keywords : **electronic shopping, adoption, UTAUT2 model, behavioral intention, user behavior, Nigeria**

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The rapid expansion of electronic commerce, or e-commerce, has been fueled by the expanding use of the Internet and has had a profound impact on numerous countries and businesses worldwide (Kurup & Jain, 2018). Electronic shopping, sometimes known as online, Internet, or e-shopping, is the buying and selling of goods and services using the Internet. A wide range of advantages, such as convenience, time savings, incredible discounts, a wide selection of products, lower and more competitive costs, 24-hour services, easy access to product information, and unique services, have led businesses and individuals worldwide to embrace this technology (Dewi et al., 2019; Olasanmi, 2019). Each of these benefits influences the desire of customers to make an online purchase. Numerous opportunities have arisen as a result of Internet use, with e-shopping being one of

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the most well-liked (Tomar et al., 2018). Nigeria is one of Africa's most populated consumer marketplaces, with considerable demand for Internet-enabled devices like cell phones, laptop computers, and iPads. The expansion of e-commerce depends on consumer adoption of Internet technology. Nigeria is a country whose Internet usage is expanding rapidly and is expected to continue growing in the future, as seen by the country's growing number of Internet users.

Shopping online has drawn a lot of interest from scholars due to its glaring importance, making it essential to explore how consumers behave toward using the service. When it comes to e-commerce, we are more interested in researching consumer intentions than real shopping activity. Furthermore, despite the high acceptance rate of e-shopping, it was found that many customers have not yet fully embraced the practice, especially in developing countries (Odusanya et al., 2019). Furthermore, earlier research recommended that the UTAUT2 be investigated across a variety of nations, especially those with lower levels of technological development, and across a broad spectrum of technology use contexts in order to find and add additional relevant constructs that might not have been included in the original model, thus enhancing its applicability and variance (Chakraborty & Altekar, 2021). This study aims to close this gap by investigating the application of the UTAUT2 and identifying the elements that influence the acceptability of e-shopping in Nigeria by introducing two new constructs into the model: trust and technical awareness. Moreover, most of the studies on technology adoption in Nigeria were based on TAM or UTAUT, which calls for the need to test the relevance of UTAUT2. Similarly to this, nothing is known about how common and accepted online shopping is in Nigeria, which has made the current study necessary.

The present increases the prior frontier of knowledge regarding technology acceptance by developing a research model from a Nigerian cultural perspective. This study offers stakeholders crucial information regarding e-commerce adoption, allowing them to incorporate the identified factors during the design and execution stages of their marketing goals and objectives. The study is imperative from an academic standpoint and is expected to affect future research on online shopping behavior. This research employs a cross-sectional method and a quantitative survey to collect the data. Collected data were analyzed using partial least squares (PLS) with Smart PLS software.

Literature Review

An Overview of E-shopping in Nigeria

Online searches, purchases, sales, selection, payment, and delivery of products and services are all included in e-shopping (Abubakar, 2015). In Nigeria, there are currently over 200 million people, 99.05 million of whom use the Internet. By 2023, it is expected that this figure will increase to 131.7 million Internet users. By 2025, the country's smartphone user base will have climbed to 140 million (Statista, 2020). As a result of increasing Internet penetration, online shopping is becoming a fashionable and modern way of shopping among consumers in Nigeria (Usman & Kumar, 2021).

In this context, Nigeria's enormous population, massive economy, and abundance of natural resources make it a prototypical developing market. Internet usage in the nation is rising quickly in spite of its serious economic problems, which include a fluctuating power supply and a low per capita income. Thus, e-commerce might have boosted Nigeria's economic activity and economy, provided all the challenges associated with the adoption of new technologies are adequately resolved (Khan & Uwemi, 2018). However, the Nigerian government has initiated the Digital Nigeria program, in collaboration with the National Information Technology Development Agency (NITDA), to improve Nigerians' ability to tackle issues using technology (digitalnigeria.gov.ng). Also, the opening of online shops in Nigeria, including Jiji.com, Konga.com, Jumia.com, and Slot.ng, OXL.com, Supermart.ng, Gidimall, buybetter.ng, Ubuy.ng, Kaymu.com, and more e-shops bring a viable choice for contemporary Nigerians, just like Alixpress, Amazon, and eBay (Olasanmi, 2019).

Venkatesh et al. (2012) developed and evaluated UTAUT2, which was an extension of UTAUT with three more constructs: hedonic motivation, habit, and price value. The purpose of the study is to investigate Hong Kong consumers' acceptance of mobile Internet technologies. Their results showed that effort expectancy, performance expectations, facilitating conditions, social influence, price value, habit, and hedonic motivation had a substantial impact on consumers' intentions toward using mobile internet technology. Habit, behavioral intention, and facilitating conditions significantly influenced user behavior. The authors urged upcoming studies to expand on their findings by evaluating UTAUT2 across diverse contexts, nations, age ranges, and distinct technologies. In a similar vein, Najib and Karima (2022) examined the factors that influence consumers' propensity to employ digital payments when utilizing online transportation services by modifying the UTAUT2. Research indicates that intention is positively impacted by performance expectation, enabling conditions, price value, hedonic drive, and habit, but not by effort expectation or social influence.

Similarly, Hassan and Farmanesh (2022) applied the expanded UTAUT2 with risk factors to examine the main predictors of intentions and usage of self-service technologies (SST) banking channels in Jordan. The intention to use was found to be impacted by price value, perceived risk, hedonic motivation, and performance expectancy; social impact was not found to be important. In addition, a correlation exists between the intention to use and user behavior. A study by Ezennia and Marimuthu (2022) tested UTAUT2 to investigate the predictors of online commerce adoption in Lagos, Nigeria. They extended the model with trust. It was found that effort expectations and performance expectations, social influence, enabling conditions and hedonic motivation, perceived trust, and price value — all had a substantial impact on the intention to adopt e-commerce. Hence, there was no correlation between habit and behavioral intention. The proposed model explained that 65% of the variants in Nigeria's consumers intended to accept e-commerce.

It is noteworthy that there is a correlation between these outcomes and the research conducted in Nigeria by Odusanya et al. (2019). To investigate how social media affects Indian tourists' choice of destinations, Sharma et al. (2023) expanded the UTAUT2 model. Perceived risk, effort expectation, social influence, performance expectancy, and perceived trust were found to have an impact on behavioral intention to utilize social media for destination selection. The real use of social media by travelers is greatly influenced by habit and behavioral intention. Using UTAUT2 as a basis model, Mishra et al. (2023) investigated the factors impacting customer travel buying intention. The strongest correlation between effort expectancy and purchase intention was found in relation to enabling factors, performance expectancy, and social influence.

The Research Model and Hypotheses Development

This study uses the extended UTAUT2, which was created by Venkatesh et al. (2012) and focused on the acceptance and utilization of e-shopping. Because this model may be used to describe customers' intents, its application in technology adoption research has been more widespread recently (Mohamad & Kassim, 2018). UTAUT2 combines eight well-known technology adoption theories to complement the existing UTAUT2 constructs proposed by the authors. Two external variables, namely technology awareness and trust, were added to the model's constructs in response to Venkatesh et al.'s (2012) suggestions. It is expected that consumers' propensity to accept online shopping will be heavily influenced by their level of trust and technological sophistication. Previous research has shown the role of trust and technology awareness in e-commerce adoption (Choshin & Ghaffari, 2017; Tarhini et al., 2015). However, the three moderators of the original model were excluded from this study. The UTAUT2 is ideally suited for the context of the current investigation because it tries to understand behavioral intention and user behavior.

Performance Expectancy

Performance expectancy is defined as the degree to which a user thinks that using a certain technology will help him/her do certain tasks (Venkatesh et al., 2012). This variable incorporates factors from previous research on technology acceptance, such as extrinsic motivation, perceived usefulness, work fit, relative advantage, and outcome expectancies. However, a number of studies have shown that this construct has a positive and significant impact on behavioral intention (Abubakar, 2015; Chang et al., 2019). According to other studies, this construct has little bearing on people's intentions to use technology (Owusu Kwateng et al., 2019; Ramírez-Correa et al., 2014). Consequently, the following hypothesis is proposed:

- **H1 :** The behavioral intention to use e-commerce is significantly influenced by performance anticipation.

Effort Expectancy

The degree of simplicity with which technology can be utilized is how this idea is defined (Venkatesh et al., 2012). Lin (2012) asserted that people are more inclined to utilize technology when they perceive it to be user-friendly. Although effort expectancy did not affect behavioral intention in a prior study (Verkijika, 2018), it has significantly influenced the intentions to adopt technology in a variety of contexts, including mobile banking (Savić & Pešterac, 2019), mobile applications (Palau-Saumell et al., 2019), online shopping (Hungilo et al., 2020), and mobile money services (Penney et al., 2021). Hence, it is posited that:

- **H2 :** An important factor influencing behavioral intent to use e-shopping is effort expectancy.

Social Influence

Social influence refers to the degree to which consumers believe that those important others (e.g., family and friends) think they should utilize a given technology (Venkatesh et al., 2012). Earlier we have demonstrated that societal influence plays a vital role in predicting the acceptance of technology (Mas'ud, 2019; Odusanya et al., 2019). In some studies, social influence did not affect consumers' intention to adopt technology (Baptista & Oliveira, 2015; Kwofie & Adjei, 2019). When more family members and friends utilize technology, it is more likely to be adopted and used positively. Therefore, it is proposed that:

- **H3a :** Social influence has a significant influence on behavioral intent to use e-shopping.

Facilitating Conditions

This refers to a user's perception of the existence of an organizational and technical infrastructure to assist system use, including knowledge, capabilities, and consumer resources (Venkatesh et al., 2012). In Nigeria, some issues, such as electricity shortage and internet access limit the accessibility and availability of the Internet essential for e-shopping (Odusanya et al., 2019). Despite these challenges, e-shopping is becoming prevalent in many cities in Nigeria. However, findings from previous research reported the influence of enabling conditions on both the intention and user behavior (Chang et al., 2019; Verkijika, 2018). Hence, we hypothesize that:

- **H4a :** Facilitating conditions have a significant influence on behavioral intent to use e-shopping.
- **H4b :** Facilitating conditions have a direct influence on the use of e-shopping.

Hedonic Motivation

Hedonic motivation, according to Venkatesh et al. (2012), is the perceived enjoyment or pleasure obtained from employing a technology. Users who found mobile phone usage enjoyable were more likely to utilize their cell phones. Thus, for some users, the mobile phone has been thought to be a source of amusement, and hedonic incentives can be seen as crucial in the adoption of e-shopping. Venkatesh et al. (2012) considered hedonic motivation as a significant factor in determining consumers' intention toward technology adoption. Studies found a positive link between hedonic motivation and the intention to adopt technology (Odusanya et al., 2019; Ramírez-Correa et al., 2014). As such, the following hypothesis is proposed:

- **H5 :** An important factor influencing behavioral intent to utilize e-shopping is hedonic incentive.

Price Value

Price value is defined as consumers' cognitive tradeoff between the expected benefits of products and their monetary cost. Venkatesh et al. (2012) described the process through which price value influences behavioral intention as follows: When people believe the gains of a technology outweigh the monetary cost of adopting it, it is said to have a positive price value. Consumers will be more ready to purchase from websites if the perceived pricing value of using e-shopping applications, including the websites, is that it gives higher returns relative to its monetary value (e.g., Internet access charges and the price of mobile phones). The price value is a crucial element in determining behavioral intention toward technology adoption (Hungilo et al., 2020; Owusu Kwateng et al., 2019). Based on these, the following hypothesis is generated:

- **H6 :** Price value has a significant influence on behavioral intent to use e-shopping.

Habit

Venkatesh et al. (2012) described habit as the extent to which people prefer to perform behaviors automatically as a result of learning and can be viewed as a perceptual construct that reflects the impacts of prior experiences. Wong et al. (2014) reported that habit influences the continued use of informational systems and that using new technology on a daily, routine basis leads to the development of habit, which supports the adoption of new technology. The habit was found to have a significant influence on behavioral intention (Huang, 2018; Tak & Panwar, 2017). Hence, the following hypotheses are formulated:

- **H7a :** Habit has an influence on behavioral intention to use e-shopping.
- **H7b :** Habit has a direct influence on the use of e-shopping.

Trust

Trust is an important predictor of consumer behavior and determines the success of e-commerce adoption. Trust is a subjective expectation that someone or something is reliable and willing to take risks (Tarhini et al., 2017). Scholars have investigated the role of trust as a significant predictor of behavioral intention and consumer acceptance and use of technology in different contexts, including online shopping (Bulsara & Vaghela, 2022). Based on this, the following hypotheses are proposed :

- **H8a :** Trust has a significant impact on behavioral intent to use e-shopping.

↳ **H8b :** Trust has a direct influence on the use of e-shopping.

Technology Awareness

The buying process consists of several steps that follow awareness of a product or service, interest in it, and eventual purchase. Understanding the benefits and existence of technology is referred to as technology awareness (Mofleh et al., 2008). However, scholars in Nigeria cited that a lack of knowledge of the immense potential of e-commerce is one of the most significant obstacles to its adoption (Agwu & Murray, 2014; Odusanya et al., 2019). Although technology awareness does not affect behavioral intention in the findings of Mas'ud (2019), several empirical research reported a significant impact of technology awareness on the intention and user behavior toward technology adoption (Ahmed et al., 2016; Han et al., 2014). Hence, the following hypotheses are proposed :

↳ **H9a :** Technology awareness has an influence on behavioral intention to use e-shopping.

↳ **H9b :** Technology awareness has a direct influence on the usage of e-shopping.

Behavioral Intention and User Behavior

Behavioral intention is the anticipated possibility that an activity will be carried out. Studies confirmed that behavioral intention is positively related to user behavior in several contexts (Owusu Kwateng et al., 2019). User behavior depicts how the technology is used. The extent to which a system will be used by its intended users is measured by intention. Behavioral intention, as reported by Venkatesh et al. (2012), has a direct positive impact on user behavior. Thus, the following hypothesis is put forth:

↳ **H10 :** Behavioral intention has a direct influence on the use of e-shopping.

Methodology

Data Collection and Sample

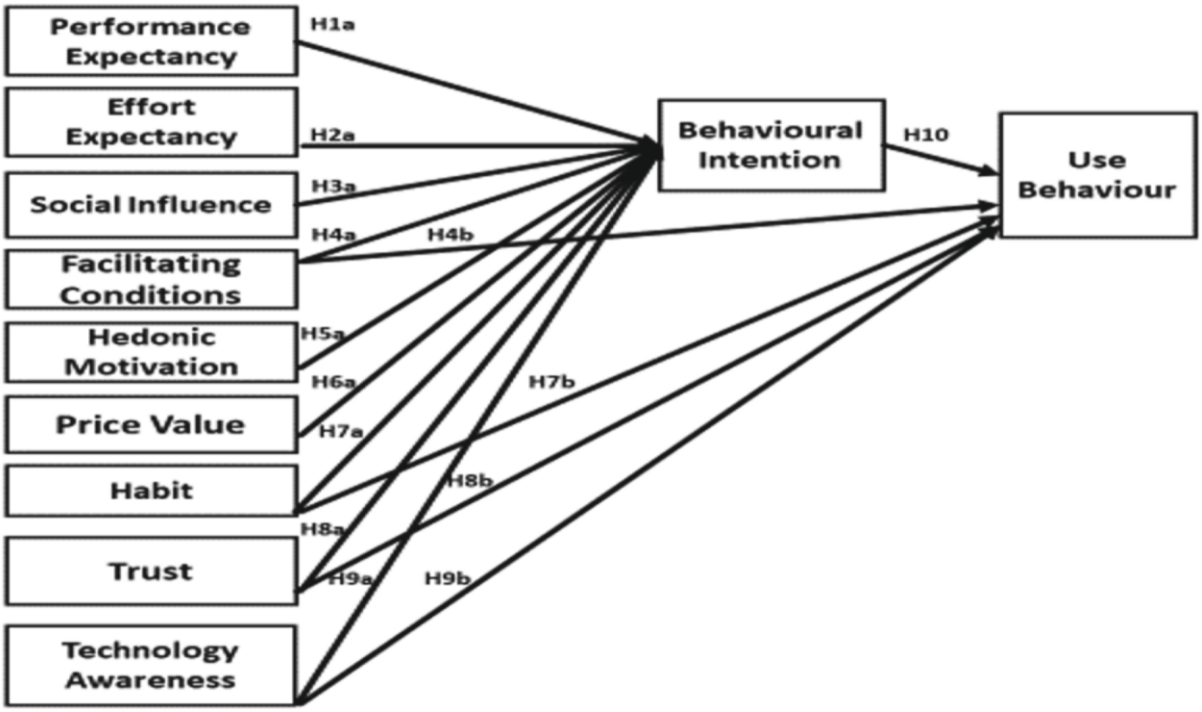
In this investigation, a cross-sectional design was used, enabling data collection at a specific moment in time. Based on prior online purchases, 477 customers were chosen as a sample using purposive sampling. Respondents received their surveys in January through March of 2021.

Instrument Development

Trust and technological awareness were included in the model along with the other nine independent variables (IVs) for this study, which are derived from the original UTAUT2 model (Venkatesh et al., 2012), as shown in Figure 1. The technological awareness and trust measures were derived from Dinev and Hu (2007), Han et al. (2014), Gefen et al. (2003), and Kim et al. (2010). Behavioral intention, user behavior measurements, and dependent variables (DVs) were modified from studies by Alshehri et al. (2012), Tak and Panwar (2017), and Venkatesh et al. (2012).

A structured questionnaire with 46 statements was created after the variable's good measures were established and used to measure the dimensions included in the suggested model. There were two sections to the questionnaire, the first of which focused on the demographic characteristics of the respondents, as listed in Table 1.

Figure 1. ***Conceptual Framework of the Study***



Note. Adapted with Modifications from the UTAUT2 Model Developed by Venkatesh et al. (2012).

Table 1. ***Demographic Analysis of the Respondents***

Variable	Category	Frequency	Percentage
Gender	Male	260	54.5%
	Female	217	45.5%
Age	Below 20	66	13.8%
	21 – 30	212	44.4%
	31 – 40	115	24%
	41 – 50	61	12.8%
	51 and above	23	4.8%
Occupation	Public Sector Employee	121	25.4%
	Self-employed	75	15.7%
	Unemployed	10	2.1%
	Student	132	27.7%
	Private Sector Employee	118	24.7%
	Housewife	21	4.4%
Education	Primary School	0	0%
	Secondary School	55	11.5%
	Diploma/NCE	134	28.1%
	Degree/HND	198	41.5%

	Masters	74	15.5%
	PhD	16	3.4%
Income	Less than N30,000	164	34.4%
	N31,000 – N50,000	142	29.8%
	N51,000 – N70,000	44	9.2%
	N71,000 – N90,0000	37	7.8%
	N91,000 – N110,000	21	4.4%
	N111,000 Above	69	14.5%
Marital Status	Married	224	47%
	Single	250	52.4%
	Divorced	1	0.2%
	Widow	2	0.4%
Experience	Less than 1 year	98	20.5%
	1 – 2 years	157	33.9%
	3 – 4 years	127	26.6%
	5 – 6 years	46	9.6%
	Above 6 years	49	10.3%

A 5-point Likert scale was used to evaluate the 46 statements in the second portion. Responses ranged from *strongly disagree* (1) to *strongly agree* (5).

Data Analysis and Results

Method of Analysis

The preliminary analysis was done to determine the questionnaire response rate about the demographic characteristics of the respondents. The Statistical Package for Social Sciences (SPSS) version 23 was used for all preliminary analyses. The partial least squares structural equation modeling (PLS-SEM) was employed to test the study's hypotheses, allowing us to reply to the survey questions and achieve the research objectives. Smart PLS version 3.0 was utilized to run the analysis. It is worth noting that the use of a two-stage process was recommended when using PLS-SEM (Hair et al., 2011), which covers a measurement model analysis and a structural model analysis.

PLS-SEM Results

Measurement Model Results

The purpose of the measurement model evaluation is to establish the reliability and validity of the data before evaluating the hypothesized relationships so that the study's findings can be trusted. The validity and reliability of the measured constructs were evaluated to ensure that the theory was consistent with the sampled data. The PLS algorithm was employed as part of the general rule of thumb for evaluating measurement models in order to evaluate measures of composite reliability, indicator reliability, convergent validity, average variance extracted, and discriminant validity (Hair Jr. et al., 2016).

It is evident from Table 2 that the requirements for indicator reliability have been achieved. Specifically, the factor loading used to measure the indicator reliability is higher than the minimum threshold of 0.4; the lowest is 0.408 for UB 4, while the highest is 0.883, which satisfied the threshold recommended by Hair et al. (2011). According to Hair Jr et al. (2014), indicator loadings above 0.4 should be kept unless removing them improves the AVE or CR loadings. According to Hair Jr. et al. (2014), all the indicators with a loading of 0.4 are therefore kept since the AVE and CR requirements have been satisfied. This demonstrates that every construct indicator met the acceptable level of reliability.

The internal consistency reliability criteria have been met, as demonstrated by the findings in Table 2. The composite reliability values are determined to be above the minimum threshold of 0.6, while the Cronbach's alpha values for all the constructs were greater than the suggested minimum level of 0.7. All variables have an average variance exceeding the minimum cut-off value of 0.5, as reported by Hair Jr et al. (2014).

Table 2. ***Measurement Model (Internal Consistency, Reliability, and Convergence Validity)***

Constructs	Items	Outer Loadings	Composite Reliability	Cronbach's Alpha	AVE
Behavioral Intention	*BI 1*	0.766	**0.863**	**0.788**	**0.611**
	BI 2	0.799			
	BI 3	0.813			
	BI 4	0.748			
Effort Expectancy	*EE 1*	0.762	**0.850**	**0.765**	**0.587**
	EE 2	0.742			
	EE 3	0.804			
	EE 4	0.755			
Facilitating Conditions	*FC 1*	0.721	**0.808**	**0.685**	**0.516**
	FC 2	0.790			
	FC 3	0.757			
	FC 4	0.588			
Habit	*HB 1*	0.868	**0.912**	**0.871**	**0.721**
	HB 2	0.865			
	HB 3	0.838			
	HB 4	0.824			
Hedonic Motivation	*HM 1*	0.747	**0.840**	**0.747**	**0.568**
	HM 2	0.812			
	HM 3	0.737			
	HM 4	0.715			
Performance Expectancy	*PE 1*	0.777	**0.816**	**0.703**	**0.527**
	PE 2	0.723			
	PE 3	0.707			
	PE 4	0.694			
Price Value	*PV 1*	0.787	**0.866**	**0.794**	**0.618**
	PV 2	0.830			
	PV 3	0.810			

	PV 4	0.714			
Social Influence	*SI 1*	0.732	**0.860**	**0.783**	**0.606**
	SI 2	0.799			
	SI 3	0.810			
	SI 4	0.772			
Technology Awareness	*TA 1*	0.833	**0.843**	**0.768**	**0.526**
	TA 2	0.741			
	TA 3	0.829			
	TA 4	0.700			
	TA 5	0.460			
Trust	*TR 1*	0.782	**0.868**	**0.796**	**0.622**
	TR 2	0.826			
	TR 3	0.822			
	TR 4	0.719			
User Behavior	*UB 1*	0.834	**0.862**	**0.796**	**0.571**
	UB 2	0.883			
	UB 3	0.870			
	UB 4	0.408			
	UB 5	0.674			

Table 3. *Discriminant Validity*

Fornell – Larcker Criterion											
Constructs	***BI***	***EE***	***FC***	***HB***	***HM***	***PE***	***PV***	***SI***	***TA***	***TR***	***UB***
BI	**0.782**										
EE	0.468	**0.766**									
FC	0.479	0.569	**0.718**								
HB	0.544	0.362	0.402	**0.849**							
HM	0.457	0.519	0.540	0.425	**0.753**						
PE	0.371	0.584	0.471	0.403	0.462	**0.726**					
PV	0.419	0.382	0.408	0.535	0.471	0.410	**0.786**				
SI	0.360	0.498	0.445	0.473	0.412	0.470	0.374	**0.779**			
TA	–0.122	–0.085	–0.021	–0.051	–0.044	–0.041	–0.007	–0.017	**0.726**		
TR	0.486	0.384	0.397	0.558	0.426	0.395	0.557	0.405	–0.062	**0.789**	
UB	0.687	0.338	0.335	0.350	0.326	0.260	0.229	0.241	–0.043	0.271	**0.755**

All variables meet the requirements set out by Fornell and Larcker, as indicated by the results displayed in Table 3. Every latent variable's square root of AVE is greater than its squared correlation with each other construct in the model (Fornell & Larcker, 1981).

Structural Model Results

The evaluation of the structural model is mainly used to test the hypothesized relationships. However, it enables

Table 4. ***Hypotheses Testing (Direct Effect)***

No.	Hypotheses	Beta	*t* -Statistics	*p* - Values	Decision
1	*PE –> BI*	–0.031	0.556	0.289	Not Supported
2	*EE –> BI*	0.181	2.659	0.004	Supported
3	*SI –> BI*	–0.044	0.935	0.175	Not Supported
4a	*FC –> BI*	0.164	3.495	0.000	Supported
4b	*FC –> UB*	0.025	0.637	0.262	Not Supported
5	*HM –> BI*	0.100	1.968	0.025	Supported
6	*PV –> BI*	0.014	0.254	0.400	Not Supported
7a	*HB –> BI*	0.305	5.301	0.000	Supported
7b	*HB –> UB*	–0.004	0.087	0.465	Not Supported
8a	*TR –> BI*	0.156	2.564	0.005	Supported
8b	*TR –> UB*	–0.086	1.860	0.032	Supported
9a	*TA –> BI*	–0.076	2.262	0.012	Supported
9b	*TA –> UB*	0.040	1.048	0.148	Not Supported
10	*BI –> UB*	0.724	15.495	0.000	Supported

the evaluation of effect sizes for the exogenous variables on the endogenous, predicative relevance and coefficient of determination. The results are presented in Table 4. The PLS algorithm calculates the degree to which the path coefficients and variance are significant (R^2), which is the proportion of the dependent variables explained by the independent variables.

Discussion

The findings indicate that the UTAUT2 model is an acceptable model to analyze online shopping acceptance in Nigeria. The model shows a good fit for standardized root mean squared residual (SRMR = 0.055) and explains 42.8% of the variance in behavioral intention and 47.4% in use behavior. Despite being a new system in the study area, the model obtained a good R^2. Facilitating conditions, hedonic motivation, habit, effort anticipation, trust, and technological awareness are the factors that determine behavioral intention. However, behavioral intention is unaffected by financial value, social influence, or performance expectations. The findings show that behavioral purpose and trust are important direct determinants of user behavior while facilitating conditions, habit, and trust are not.

The result of hypothesis H1 suggests that performance expectancy has a negative and insignificant influence on behavioral intention, which contradicts the hypothesis's prediction of a positive impact. This result aligns with the previous studies (Hungilo et al., 2020; Owusu Kwateng et al., 2019; Verkijika, 2018). This finding contradicts those of Abubakar (2015) and Chang et al. (2019). However, the contradictory findings are not surprising, given that most users are students with lower incomes who may prefer to spend their free time physically shopping in malls and stores with their families rather than shopping online. According to H2, behavioral intention to embrace online shopping has been significantly impacted by effort expectancy. The results confirm the hypothesis by demonstrating how behavioral intention is influenced by effort anticipation. Respondents are more likely to embrace Internet shopping if they believe it requires less work to make purchases. The results of Faqih (2016) and Venkatesh et al. (2012) are in line with this conclusion. This suggests that Kano online customers' perceptions of how easy it is to use the Internet to navigate shopping apps and websites when performing online shopping will

have a substantial impact on their decision to purchase. However, in the work of Verkijika (2018), effort expectancy was not significant.

H3, which predicts that social influence has a significant impact on behavioral intention to accept online buying, is unsupported. Social influence has a negative and insignificant effect on behavioral intention to embrace online shopping. Surprisingly, this result agrees with Owusu Kwateng et al. (2019). This conclusion contrasts previous findings by Faqih (2016) and Venkatesh et al. (2012), who found a significant relationship between social influence and behavioral intention.

H4a proposes that facilitating conditions have a significant impact on behavioral intention to adopt e-shopping. The results corroborate the hypothesis, revealing that facilitating settings have an important effect on behavioral intention. Thus, this hypothesis is confirmed. Individuals will create an intention to purchase online when they have the appropriate resources (i.e., Internet service, smartphones, laptops, expertise) and compatibility with online purchasing. This result is consistent with the findings of the study conducted by Palau-Saumell et al. (2019). Therefore, the following interpretation of our data is possible: The accessibility of information, a respondent's degree of experience with online shopping, and the ease of usage — all affect their intention. Similarly, H4b states that facilitating conditions have a direct impact on the actual use of e-shopping. In contrast to the hypothesis's assertion, the results reveal that facilitating conditions do not affect the use of online shopping. The hypothesis is unsupported. This result is in direct opposition to hypothesis H4a, which states that facilitating conditions have a direct impact on respondents' purchase intentions. This implies that even if the necessary resources, knowledge, and compatibility of online shopping are available, such resources may not encourage users' behavior to make the actual purchase.

This finding contrasts with the results of Chang et al. (2019), who found that facilitating conditions have a significant influence on user behavior. Contrarily, a study by Odusanya et al. (2019) reported an insignificant effect of facilitating conditions on user behavior.

H5 predicts that hedonic motivation has a significant impact on behavioral intention to accept e-shopping, which is predicted to have a significant impact on behavioral intention to accept e-shopping in H5. The findings reveal that when consumers believe that shopping online is enjoyable, interesting, and fun and that they should always be at ease while doing so, this can impact their willingness to accept online purchasing. A previous study by Baabdullah et al. (2019) found a significant influence of hedonic motivation on behavioral intention. Contrarily, Kwofie and Adjei (2019) found that hedonic motivation was not a determinant of m-commerce adoption.

H6 proposes that price value has a significant positive impact on a consumer's willingness to accept e-shopping. The price value is not found to have a positive influence on customers' intention to shop online, contrary to our assumption, indicating that the hypothesis is not supported. This result is consistent with the findings of Odusanya et al. (2019), who found that price value has no significant impact on customers' intentions to accept and use online purchasing in Nigeria. This result contradicts the findings of Tak and Panwar (2017) and Venkatesh et al. (2012), but it is consistent with an earlier study that revealed no effect of price on behavioral intention (Baptista & Oliveira, 2015; Ramírez-Correa et al., 2014). This means that even if people believe that online shopping products are reasonably priced and provide good value for money, they will not be influenced to create a behavioral intention to purchase online.

Similarly, H7a predicts that habit has an influence on behavioral intention to use e-shopping. Interestingly, the result finds that habit significantly influences behavioral intention to use e-shopping. This finding is supported by Venkatesh et al. (2012) and Hung et al. (2019). However, this implies that those who are accustomed to and addicted to Internet-related activity are more likely to develop a preference for online buying. This may be because many people in Kano have become addicted to using their phones and computers for several purposes. H7b predicts that habit has a direct influence on the use of e-shopping.

In contrast to this hypothesis, the result is negative and insignificant, indicating that the hypothesis is

unsupported. This means that even when people become addicted to internet-related tasks, it shouldn't have a significant impact on their actual purchasing behavior. Odusanya et al. (2019) reported the influences of habit on user behavior.

Trust has an important effect on behavioral intention to use e-shopping, according to hypothesis H8a. This hypothesis is supported, as it is discovered that trust is a strong predictor of online purchasing intention. This finding implies that individuals who have trust in using internet technology will be more likely to have an interest in online buying. Owusu Kwateng et al. (2019), Singh and Matsui (2018), and Siddiqui and Siddiqui (2021) have found similar results. In this regard, e-retailers must earn consumers' trust first to facilitate their use of online purchasing platforms. H8b predicts that trust has a direct impact on the user's behavior. The findings prove that trust has a significant but negative effect on the use of e-shopping. This hypothesis is supported. Surprisingly, the findings of Han et al. (2014) reveal an interesting pattern in support of this negative direct effect of trust on actual usage. Individuals who believe online purchasing is reliable, safe, and trustworthy will use e-shopping platforms more frequently.

Moreover, H9a proposes that technology awareness has an influence on the intention to use e-shopping. According to this finding, technology awareness has a significant but negative effect on behavioral intention to use internet purchasing, and this hypothesis is supported because the *p*-value is also significant. This finding is consistent with Dinev and Hu (2007) and Han et al.'s (2014) findings. However, this conclusion is pioneering because previous research has not looked at the impact of this variable in combination with UTAUT2 variables. H9b technology awareness has a positive and direct effect on the actual use of e-shopping. The results do not support the hypothesis's postulation, revealing that technology awareness has an insignificant effect on use behavior in terms of online purchasing acceptability. Thus, the hypothesis is not supported. Our findings contradict those of Ahmed et al. (2016), who observed a strong link between technological awareness and the usage of e-services. Equally, Han et al. (2014) explored that technology awareness had a significant impact on the actual use of free third-party security apps, which is different from online shopping. Although the relationship is unsupported, it adds to our understanding of the effect of technology awareness on user behavior, as most empirical evidence to date has focused on the impact of technology awareness on behavioral intention (Ahmed et al., 2016; Dinev & Hu, 2007).

Hypothesis H10 asserts that behavioral intention has a direct impact on use behavior. It is discovered that behavioral purpose significantly influences the behavior of online shoppers, supporting this hypothesis. This finding is consistent with those of Owusu Kwateng et al. (2019), Tak and Panwar (2017), and Venkatesh et al. (2012), who found that behavioral intention has a significant impact on use behavior.

Implications

Theoretical Contribution

This research adds to our knowledge of the UTAUT2 model's explanatory and predictive power in a Nigerian context, as it is one of the most recent e-commerce models in use. Two new factors were added to the UTAUT2 model, namely, technology awareness and trust, as recommended in past studies (Venkatesh et al., 2012). This study proves the applicability of the UTAUT 2 model as an advantageous theoretical instrument to investigate the adoption of consumer use technology in various contexts. The study investigates the improved model's predictive value. This work also offers empirical evidence for most of the postulated correlations, allowing the model to be validated using robust analytical techniques. However, the application of the UTAUT2 model in this research will give room for more future research on technology adoption in Kano state and other parts of Nigeria.

Managerial Implications

This thesis would be helpful to e-retailers and telecom firms because it demonstrates a substantial correlation between consumer trust and behavioral intention. This, in turn, will help e-retailers to analyze the level of trust that consumers have in online shopping. Also, creating a level of trust will encourage consumers to shop online without fear. This will help them create user-friendly and secure payment services that will encourage consumers to continue shopping online with confidence. For applications to be appealing to users, web developers should create a dynamic and enjoyable experience. On the other hand, the results of this study demonstrate that e-retailers, marketing managers, and site designers might leverage hedonic drive, habit, effort expectation, trust and technological awareness, and behavioral intention characteristics to serve their current clientele better and draw in new ones.

Practical Implications

A deeper comprehension of customer values will significantly aid the growth of these marketplaces. Due to the gap between potential and actuality, practitioners and marketers need to get a more detailed grasp of Nigerian customers' value perceptions in order to translate those perceptions into actual usage behavior. This research sheds light on the relative impact of technological awareness and trust perceptions, which can help practitioners better understand the usefulness of risk reduction and trust-building techniques. Understanding the importance of trust in e-commerce acceptance may be beneficial to website designers.

Conclusion

The focus of this study is to adapt the UTAUT2 model to investigate the factors influencing behavioral intention and use of e-shopping in Kano, Nigeria. By understanding these factors, e-commerce investments can evolve, aligning online service provisions with significant consumer needs. The study reveals that consumers' intentions toward e-shopping are influenced by effort expectancy, facilitating conditions, hedonic motivation, habit, trust, and technology awareness, while social influence, performance expectancy, and price value are not. Trust and behavioral intention are found to be the most significant predictors of use behavior. Facilitating conditions, habit, and technology awareness, on the other hand, are found to be insignificant predictors of use behavior. Additionally, this survey adds to the increasing body of knowledge on e-shopping and the UTAUT2 model's expansions. The study provides researchers and policymakers with information on how to promote the use of e-commerce in the state.

Limitations of the Study and Scope for Further Research

First, a cross-sectional method and a quantitative survey were used to collect data. This method limits the ability to see the phenomenon under investigation in great detail, which is a feature of qualitative research. Subsequent studies may utilize diverse approaches. It would be more typical to look into whether our developed model can be applied to other parts of Nigeria or even other developing countries as consumer intentions and user behavior vary depending on cultural, social, and situational beliefs and levels of technology acceptance. Furthermore, the findings of our research vary depending on the setting. Determining the study model's validity and robustness in various cultural contexts will be aided by this. The Kano metropolis is home to the study's participants, and it is more urbanized and cosmopolitan than the other local government districts in the state. This makes generalizing the findings to the rest of the state problematic.

Authors' Contribution

Dr. Pawan Kumar conceived the idea and developed the framework to undertake the empirical study. Dr. Muhammad Umar Usman extracted research papers with high repute, filtered these based on keywords, and generated concepts and codes relevant to the study design. Dr. Muhammad Umar Usman conducted the survey. Dr. Pawan Kumar verified the analytical methods and supervised the study. The statistical analysis done in the research paper was done by Muhammad Umar Usman using SMART-PLS. Dr. Kumar vetted the final manuscript, and Muhammad Usman wrote the manuscript in guidance with the co-author.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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Appendix

Appendix. *List of Questionnaire Items*

Construct	Cronbach's Alpha	Items	CFA Loadings	Source
Performance Expectancy *(PE)*	0.703	I find online shopping useful in my daily life *[PE 1].*	0.777	Venkatesh et al. (2012)
		Using online shopping increases my chances of saving time and getting good services *[PE 2].*	0.723	
		Using online shopping enables me to accomplish my shopping more quickly *[PE 3].*	0.707	
		Using online shopping increases the effective use of my time in handling my shopping *[PE 4].*	0.694	
Effort Expectancy *(EE)*	0.765	Learning how to do online shopping is easy for me *[EE 1].*	0.762	Venkatesh et al. (2012)
		My interaction with online shopping is clear and understandable *[EE 2].*	0.742	
		I find online shopping easy to use *[EE 3].*	0.804	
		It is easy for me to become skillful at using online shopping *[EE 4].*	0.755	
Social Influence *(SI)*	0.783	People who are important to me think that I should use online shopping *[SI 1].*	0.732	
		People who influence my behavior think that I should do online shopping *[SI 2].*	0.799	
		People whose opinions I value prefer that I use online shopping *[SI 3].*	0.810	
		My friends and family members value my choice of online shopping *[SI 4].*	0.833	
Facilitating Conditions *(FC)*	0.68	I have the resources necessary to use online shopping *[FC 1].*	0.721	Venkatesh et al. (2012)
		I have the knowledge necessary to use online shopping *[FC 2].*	0.790	
		Online shopping is not compatible with other systems I use *[FC 3].*	0.757	
		I can get help from others when I have difficulties using online shopping *[FC 4].*	0.588	
Hedonic Motivation *(HM)*	0.747	Using online shopping is enjoyable *[HM 1].*	0.747	Venkatesh et al. (2012)
		Using online shopping is very entertaining *[HM 2].*	0.812	
		Online shopping is fun *[HM 3].*	0.737	
		I am always at peace with shopping online *[HM 4].*	0.715	
Price Value *(PV)*	0.794	Online shopping products are reasonably priced *[PV 1].*	0.787	Venkatesh et al. (2012)
		Online shopping offers good value for my money *[PV 2].*	0.830	
		At the current price, online shopping provides a good value compared to shopping at a physical store *[PV 3].*	0.810	
		Online shopping can save money compared to offline shopping *[PV 4].*	0.714	
Habit *(HB)*	0.871	The use of online shopping has become a habit for me *[HB 1].*	0.868	Venkatesh et al. (2012)
		I am addicted to online shopping *[HB 2].*	0.865	
		Using online shopping has become natural to me *[HB 3].*	0.838	
		I must use online shopping *[HB 4].*	0.824	

Trust *(TR)*	0.796	I believe that online shopping is trustworthy *[TR 1].*	0.782	Gefen (2000);
		Online shopping is reliable *[TR 2].*	0.826	Kim et al. (2009)
		Online stores have integrity *[TR 3].*	0.822	
		I believe that online stores have the necessary technological knowledge to carry out online transactions *[TR 4].*	0.719	
Technology Awareness *(TA)*	0.768	I am aware of the problems and consequences involved in using online shopping *[TA 1].*	0.833	Dinev & Hu (2007); Han
		I follow the news and developments about online shopping systems *[TA 2].*	0.741	et al. (2014)
		I discuss with friends and people around me the security issues of online shopping *[TA 3].*	0.829	
		I am aware of the risks involved in using online shopping *[TA 4].*	0.700	
		I have received enough information about the benefits of using online shopping *[TA 5].*	0.460	
Behavioral Intention *(BI)*	0.788	I intend to continue using online shopping in the future *[BI 1].*	0.766	Davis (1989);
		I will always try to use online shopping in my daily life *[BI 2].*	0.799	Venkatesh
		I plan to continue to use online shopping frequently *[BI 3].*	0.813	et al. (2012)
		I will recommend others to use online shopping *[BI 4].*	0.748	
User Behavior *(UB)*	0.796	I rarely use online shopping *[UB 1].*	0.834	Alshehri
		I sometimes use online shopping *[UB 2].*	0.883	et al. (2012);
		I often use online shopping *[UB 3].*	0.870	Tak &
		I use online shopping on a regular basis *[UB 4].*	0.408	Panwar (2017)
		I always use online shopping *[UB 5].*	0.674	

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