

# FACTORS INFLUENCING INTENTION TO USE E-COMMERCE AFTER COVID-19: THE CASE OF BRUNEI DARUSSALAM

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## ABSTRACT

This study sought to identify the variables affecting Bruneian consumers' propensity to adopt e-commerce in the wake of the COVID-19 outbreak. The research looked at two important variables: perceived utility and perceived usability. The dependent variable, the intention to use e-commerce, was contrasted with these components. Based on the Technology Acceptance Model, the study aimed to forecast and comprehend the factors that will encourage Bruneians to embrace online shopping in the aftermath of the COVID-19 pandemic. Brunei Darussalam provided data for the study's analysis. On the data, this study applied Structural Equation Modeling (SEM) using Partial Least Squares (PLS). Given the study's recent appearance in the e-commerce scene, its conclusions might be useful to the government of Brunei as well as companies aiming to increase e-commerce acceptance and user base in the nation. Additionally, this study advances the field of e-commerce studies by offering new insights on the decision to embrace e-commerce during the COVID-19 epidemic, which was accompanied by a substantial shift in worldwide consumer behavior toward online shopping.

**Keywords:** covid19, e-commerce, intention to use, perceived ease of use, perceived usefulness,

## INTRODUCTION

As the World Health Organization officially declares an end to the global health emergency posed by COVID-19 (United Nations, 2023), nations worldwide continue to grapple with the aftermath of this unparalleled crisis. One significant aftermath has been the notable shift in consumer behavior toward e-commerce. According to Statista (2022), global retail e-commerce sales surged from USD 2,982 billion in 2018 to USD 5,211 billion in 2021, marking an increase of USD 2,229 billion. Projections indicated a further rise to USD 8,148 billion by 2026. E-commerce had already been a channel for purchasing goods and services, but the pandemic significantly accelerated its adoption among consumers, including in Brunei Darussalam.

This widespread adoption presents a unique opportunity for businesses and governments to understand how consumers perceive e-commerce post-pandemic and how it influences their intentions to utilize it. This understanding is particularly crucial for Brunei, where e-commerce adoption is still in its early stages. By investigating Bruneian consumers' intentions to use e-commerce, this study aims to shed light on this evolving landscape. The findings could serve as valuable insights, guiding efforts to enhance e-commerce usage in Brunei. Such efforts are pivotal for supporting local businesses and shaping the nation's future economic trajectory.

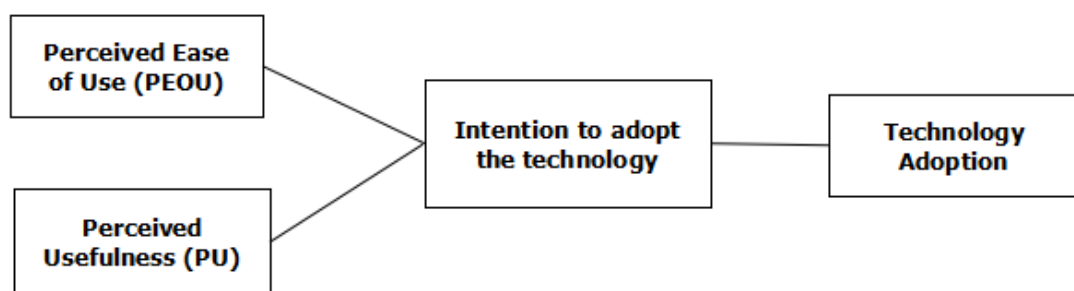
Due to the pandemic, consumers' consumptions have shifted towards e-commerce. According to The Authority for Info-communications Technology Industry of Brunei Darussalam (AITI) of E-commerce Survey for Consumers in Brunei Darussalam 2018 Report, about 76 percent of Bruneians are already using e-commerce. On the other hand, nearly 24 percent of respondents said they would never engage in e-commerce because of worries about things like credit and debit card fraud, preferring to do business directly with physical establishments, and worries about when their orders will arrive. Prior to the onset of the pandemic, it can be presumed that consumers engaged in e-commerce willingly. However, owing to the pandemic, consumers might be compelled to resort to e-commerce involuntarily, as it represents the sole available option for purchasing goods and necessities. In light of the fact that certain consumers may find themselves reluctantly embracing e-commerce, an opportunity arises to gain insights into their perceptions regarding its utility and user-friendliness. Nevertheless, findings on Bruneians' adoption of e-commerce following the

COVID-19 epidemic are scarce as the pandemic altered the country's consumers' intentions to embrace and be forced to utilize e-commerce. Furthermore, according to data furnished by AITI, a noteworthy segment of the transactions involved sellers based outside of Brunei. In particular, eBay was cited as the main platform by 47 percent of respondents, followed by Zalora (36 percent), Amazon (18percent), and Zalora (37 percent). This data emphasizes how domestic e-commerce has a small consumer base and is still in its infancy as a local industry. Thus, the purpose of this article is to examine the factors that led Bruneians to adopt online shopping following the COVID-19 outbreak.

## LITERATURE REVIEW

### Technology Acceptance Model

The Technology Acceptance Model (TAM) has been used as the theoretical foundation in this investigation. Perceived usefulness (PU) and perceived ease of use (PEOU) are key elements within the TAM and are known for having an impact on users' intentions to adopt new technologies (Van et al., 2021; Cheung et al., 2008; Davis, 1989;). According to Davis (1989), PU stands for a person's conviction that using a specific information system would improve their ability to execute their work, whereas PEOU stands for a person's view that using the same system would require little effort. In Figure 1, the theoretical model is illustrated graphically.



**Figure 1 Technology Acceptance Model**

Source : Fayad and Paper (2015)

This study used TAM because it aimed to explore the factors influencing Bruneian consumers' adoption of e-commerce following COVID 19, which was comparable to TAM's goal of researching technology adoption behavior (Davis 1989). According to Bui et al. (2020),

the Technology Acceptance Model (TAM) has been widely used in numerous research to evaluate the factors impacting e-commerce. According to Qiu et al. (2008), its clarity and simplicity improve the effectiveness of research on the adoption of information technology (IT), making it easier to aggregate findings from various contexts. According to Lee et al. (2003) and King et al. (2006), the model has been shown to be effective in a number of empirical investigations, making it one of the most widely used tools for assessing consumers' acceptance of technology.

TAM's primary predecessor is the Theory of Reasoned Action, which makes TAM an adaptation theory for the model (Ajzen et al., 1980; Fishbein et al., 1975). Davis (1989) developed the TAM, a theoretical framework derived from the TRA, to examine technology adoption behaviour. Davis (1989) then created a belief set for embracing technology in line with the guidance given by Fishbein et al. in 1975. To be relevant to the particular behaviour being researched, the TRA requires salient thoughts about one's attitude toward a particular activity to be triggered each time the behaviour occurs (Fishbein et al. 1975). This theory posits that social behavior is driven by an individual's attitude, specifically formulated to forecast the utilization of information systems (Lin, 2007).

As a result, perceived usefulness refers to how much a consumer believes that using e-commerce will improve their decision-making process and overall experience, while perceived ease of use refers to how much a consumer perceives the ease and simplicity of using e-commerce. This study's goal is to determine what influences Bruneian consumers' propensity to use online shopping in the post-COVID-19 period.

### **Intention To Adopt E-commerce**

This paper's desire to implement e-commerce following COVID 19 is its main focus. The phrase "intention to use e-commerce" describes a person's or a customer's deliberate propensity to engage in online commercial activity. It denotes a deliberate decision and readiness to employ electronic platforms, such as websites or mobile applications, for activities such as product exploration, making purchases, and conducting financial transactions via the internet.

According to studies by Dionysiou et al. (2021) and Bazi et al. (2022), the COVID-19 pandemic and its effects on public health, society, and the economy are causing a change in consumer spending habits across multiple sectors. Notably, a notable result of this pandemic situation has been the growing adoption of e-commerce. This phenomenon has become a primary solution embraced by consumers to procure goods and services, even among those who traditionally abstain from online acquisitions, as evidenced in research conducted by Nicewicz and Bilska (2021) and Kawasaki et al. (2022).

E-commerce has been distinguished by its convenience and significance, particularly in the post-COVID-19 era. Kawasaki et al. (2022) demonstrated that consumers swiftly acknowledged the importance of e-commerce in the aftermath of the pandemic, and this recognition remained stable over time. Their research indicated that consumers consistently perceived e-commerce as highly important, and individuals who recognized its utility were inclined to persist in its usage. Conversely, those who diminished the importance of e-commerce did so primarily to mitigate the risk of infection, rather than weighing its benefits. Consequently, these individuals displayed a decreased likelihood of continuing to use e-commerce post the pandemic period.

Numerous research endeavors have sought to ascertain the principal determinants influencing consumers' adoption of e-commerce. In the study conducted by Higuera-Castillo et al. (2023), it was discerned that behavioral attributes primarily hold sway over the inclination to engage in e-commerce and its ramifications for traditional commercial transactions, when compared to socio-demographic factors. The investigation revealed that habitual patterns, trust, and expectations of effort exertion significantly influence the intention of Spanish consumers to partake in e-commerce, while factors such as switching costs and perceived risks act as deterrents, prompting them to persist with brick-and-mortar establishments. Conversely, Portuguese consumers' intention to embrace e-commerce is found to be driven by habit, trust, enabling circumstances, and the influence of social groups, whereas concerns related to privacy, technological apprehension, and gender considerations impede their transition to e-commerce and prompt their continued patronage of physical retail outlets.

Warganegara and Babolian Hendijani (2022) have contended that factors such as ease of use, usefulness, attitude, and reference group exerted statistically significant influence on

the intention and actual utilization of e-commerce for grocery purchases in Indonesia during the COVID-19 pandemic. Interestingly, their study revealed that neither health risk nor price exhibited significant correlations with respondents' purchasing intent. This finding diverges from research conducted in developed countries, where studies by Frank et al. (2020), Andersen et al. (2015), and Chiang et al. (2003) emphasized the importance of price, and studies by Kim et al. (2016), Yang et al. (2017), Eriksson et al. (2022), and Honey-Roses et al. (2020) highlighted the significance of perceived health risk in customers' decision-making processes regarding online grocery shopping.

### **Perceive Usefulness**

Perceived Usefulness (PU), as articulated by Davis (1989), denotes an individual's degree of confidence in the ability of a specific information system to enhance their occupational proficiency (p. 320). Succinctly put, perceived usefulness essentially encapsulates how individuals perceive the consequences arising from their interactions (Nguyen-Viet et al., 2017) (p. 104). Additionally, it is possible to define the perceived usefulness of online buying as the degree to which it benefits consumers relative to offline purchasing (Gefen & Straub, 2000; Jullie, 2017). This comes down to the fact that online shopping provides various benefits that enhance the efficiency of the entire digital purchasing process. It allows customers to compare prices from different retailers, seek out product details, make orders, complete transactions, track shipments, and evaluate customer service quality (Bauerová & Klepek, 2018; Celik & Yilmaz, 2011; Jullie, 2017).

The majority of empirical studies offer compelling evidence indicating that Perceived Usefulness (PU) significantly and directly impacts users' intentions to adopt new technologies, as demonstrated in research by Pham et al. (2023), Elwalda et al. (2016), and Liang et al. (2013). Notably, Davis (1989) carried out a groundbreaking study that empirically supported the relationship between perceived usefulness and the propensity to use online retail platforms for purchases. Gefen et al., 2003, carried out a separate investigation that underscored the importance of the favorable connection between the perceived value of a service and the inclination to employ online platforms for shopping purposes. Correspondingly, Alagoz and Hekimoglu, 2012, demonstrated that there exists a constructive correlation between how beneficial a service is perceived to be and the desire to engage with e-commerce websites for

shopping. Research delving into consumer behavior has revealed that customers' intention to make online purchases is influenced by their perception of the practicality of an online store (Gefen et al., 2003; Lim & Ting, 2012).

The findings of the study by Warganegara & Babolian Hendijani (2022) on the factors influencing real grocery purchases made through online shopping platforms in Indonesia during the COVID-19 pandemic highlight the positive relationship between perceived utility and the intention to use. The study shows that since most customers value online grocery platforms, a positive opinion of utility has a considerable impact on the desire to purchase goods online. The survey also shows that those who think favorably of online meal delivery services are more inclined to use them in the future. Furthermore, a study about the elements influencing the adoption of electronic commerce was carried out in Tanzania by Makame et al. (2014). Their research showed a strong correlation between e-commerce's perceived utility and propensity to use it. This implies that people are more likely to accept something when they see its benefits.

### **Perceived Ease of Use**

According to Davis (1989), perceived ease of use (PEOU) refers to a person's opinion of how simple it will be for them to use a certain information system without having to put in a lot of effort (p. 320). To reiterate, perceived ease of use constitutes perceptual constructs that revolve around the procedural path leading to eventual accomplishment (Nguyen-Viet et al., 2017) (p. 104). According to Nguyen-Viet et al. (2017) and Gefen et al. (2003), the advantageous characteristics connected to perceived ease of use in the context of electronic commerce include the seamless facilitation of order placement, free from temporal or geographic restrictions, the perception of ease in information retrieval, and an overall perception of comprehensive user-friendliness.

Davis proposed that Perceived Ease of Use (PEOU) primarily influences intended use through Perceived Usefulness (PU) in the original Technology Acceptance Model (TAM). However, later studies by other academics, such those by Gefen et al. (2000), have suggested that PEOU might have a direct impact on the adoption of information technology (IT), particularly when the task is integral to the IT system. It is shown that there is a strong

correlation between perceived ease of use and the propensity to engage in e-commerce activities in Makame et al.'s (2014) scholarly investigation into the factors influencing the adoption of electronic commerce within developing countries, particularly Tanzania. This finding supports the idea that when people perceive e-commerce to be simple to use and require little effort, they indicate a desire to engage in it.

As per the research conducted by Yoon (2009) investigating the impacts of national cultural values on consumer reception of e-commerce within China, the validation emerged that the consumer acceptance framework devised by researchers from more developed nations is transferable and pertinent for application not only in advanced countries but also in developing nations. This assertion underscores the significance of Perceived Ease of Use (PEOU) as a pivotal factor influencing the acceptance of e-commerce among consumers.

## **METHODOLOGY**

### **Sample and Data Collection**

The analytical facet of this study concentrated on individual Bruneian consumers as subjects. A convenience sampling technique was employed within the non-probability sampling framework due to the absence of precise information regarding the entire target population, as elucidated by Sekaran and Bougie (2013). This method entails screening potential candidates within the population to pinpoint the most appropriate individuals for inclusion as samples or respondents, as outlined in the methodology by Sekaran and Bougie (2013).

For this research, the determination of factors influencing the intention to use e-commerce post-Covid-19 among Bruneian consumers necessitated the utilization of G\*Power 3.1 software (Faul et al., 2009) to compute an adequate sample size. The effect size derived from G\*Power was established at 0.15, denoting a medium effect size as defined by Hair et al. (2014). A significance level (alpha,  $\alpha$ ) of 0.05 was set, alongside a minimum statistical power ( $1-\beta$ ) of 0.80, accounting for two predictors. The sample size analysis indicated that a minimum of 68 participants was required. Consequently, 68 participants drawn from the Bruneian consumer population were deemed an appropriate and acceptable sample size for this study.

## **Measurement Instruments**

The research instrument utilized in this inquiry was quantitative and took the form of a survey questionnaire. The questionnaires used in this study consisted of two main sections: one aimed at collecting demographic information about the respondents, and the other designed to assess the factors influencing their intention to use e-commerce, further divided into Sections A, B, and C. In Section A, respondents encountered a series of queries related to the perceived usefulness of e-commerce, while Section B explored the perceived ease of use of e-commerce, both adapted and refined from the research conducted by Makame, Kang, and Park (2014). Meanwhile, Section C was dedicated to evaluating respondents' intent to utilize e-commerce, drawing inspiration and modifications from the works of Makame, Kang, Park (2014), as well as Anuar, Ravintharan, Rosli, and Ng (2023). Each item in the questionnaire employed a five-point Likert Scale, providing respondents with the opportunity to express their agreement or disagreement on a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

## **RESULTS**

### **Respondents Profile**

Based on the demographic details gathered from the questionnaires among the respondents, 40 individuals (39.6 percent) were male, while 61 individuals (60.4 percent) were female. In terms of age distribution, the majority, 61 respondents (60.4 percent), fell within the 20 to 29 years range, with 21 respondents (20.8 percent) aged between 30 to 39 years. Subsequently, 10 respondents (9.9 percent) were in the 40-49 years age group, and the remaining 9 respondents (8.9 percent) fell within the 50-59 years category.

Regarding marital status, a significant portion of the respondents were single (58.4 percent), while the remaining 41.6 percent were married; none of the participants were reported to be separated or divorced. Ethnically, 95 percent of the respondents identified as Malay, 4 percent as Chinese, and the remaining 1 percent belonged to other ethnicities.

The data also revealed information about the respondents' job circumstances. The majority (30.7%) worked in the private sector, while students made up the same proportion. 19.8% of the workforce worked in the public sector, 7.9% were jobless, and 6.9% were self-

employed. In addition, 2.9% of respondents had a PhD, 6.9% had a master's degree, 24.8% had a bachelor's degree, 29.7% had a 'A' level or diploma, and 30.7% had passed the 'O' Level exam.

### **Model Assessment Using PLS-SEM**

This study employed the Partial Least Square Structural Equation Modeling (PLS-SEM) methodology, utilizing the SmartPLS 3.0 software for scrutinizing the research model. The research process adhered to a two-stage approach, involving the assessment of both the measurement model and the structural model, as outlined in the methodology proposed by Anderson and Gerbing (1988). The choice of PLS-SEM was based on its suitability for exploratory research or studies aiming to predict relevant constructs, and its effectiveness as an analytical tool for studying numerous indicators and constructs, as highlighted by Hair et al. (2011) and Urbach and Ahleman (2010), factors particularly relevant to the objectives of this study.

In the initial phase of PLS-SEM data analysis, the focus was on evaluating the measurement model to ensure the alignment of indicators or questions with the theoretically established latent variable (Ramayah, 2014; Urbach and Ahleman, 2010; Chin, 2010; Anderson and Gerbing, 1988). The second phase concentrated on examining the structural model, which entails exploring connections between latent constructs and testing hypotheses, aligning with the SEM data analysis recommendations by Hair et al. (2014), Ramayah (2014), Urbach and Ahleman (2010), and Anderson and Gerbing (1988). To determine the significance of the path coefficients and loadings, a bootstrapping method with 101 resamples was employed, following the methodology proposed by Hair et al. (2011).

### **Assessment of The Measurement Model**

As previously indicated in studies by Hair et al. (2014), Lewis et al. (2005), and Straub et al. (2004), the assessment of reflective measurement models involves several crucial dimensions, such as internal consistency reliability, indicator reliability, convergent validity, and discriminant validity. A comprehensive depiction of the evaluation of the measurement model is illustrated in Table 1.

The Table 1 reveals that all indicator loadings exceed 0.70, signifying the effective measurement of their respective constructs. The Average Variance Extracted (AVE) values exhibit variability, ranging from 0.635 to 0.683, indicating that the corresponding constructs capture a significant amount of variance in the observed indicators. Furthermore, the composite reliabilities for all constructs vary, with values ranging from 0.874 to 0.896, reflecting good internal consistency and reliability, as outlined by Hair et al. (2014). Based on these findings, the measurement model demonstrates acceptable convergent validity.

**Table 1 : Loadings, Average Variance Extracted (Ave) And Composite Reliability (CR) Extracted**

Construct	Measurement Item	Loadings	AVE	CR
<b>Intention to adopt the technology</b>	IE1	0.806	0.642	0.877
	IE2	0.797		
	IE3	0.835		
	IE4	0.765		
<b>Perceived Ease of Use (PEOU)</b>	PEOU1	0.873	0.683	0.896
	PEOU2	0.844		
	PEOU3	0.803		
	PEOU4	0.782		
<b>Perceived Usefulness (PU)</b>	PU1	0.818	0.635	0.874
	PU2	0.834		
	PU3	0.816		
	PU4	0.713		

**Table 2 : Discriminant Validity of Measurement Model**

No.	Latent	1	2
1.	<b>Intention to Use E-commerce</b>		
2.	<b>Perceived Usefulness</b>	<b>0.534</b>	
3.	<b>Perceived Ease of Use</b>	0.625	<b>0.675</b>

Following the advice of Hair et al. (2014), discriminant validity was employed to examine the extent to which a certain construct effectively distinguishes itself from other constructs in the study. The correlations between the latent components were consistently outperformed by the square root values of the Average Variance Extracted (AVE), as shown

in Table 2. According to the findings, which are consistent with the guidelines provided by Fornell and Larcker (1981), sufficient discriminant validity has been effectively established.

### **Assessment of The Structural Model**

The second part of the data analysis process centers on scrutinizing the structural model which entails a comprehensive exploration of the connections between latent constructs and the rigorous testing of the hypotheses established earlier, drawing upon the research conducted by Hair et al. (2014), Ramayah (2014), Urbach and Ahleman (2010), and Anderson and Gerbing (1988). The significance of path coefficients, the extent of  $R^2$  values, the effect size ( $f^2$ ), and the predictive relevance value known as  $Q^2$  are the main criteria for evaluating the structural model, according to study by Soto-Acosta et al. (2015) and Hair et al. (2014). Table 3 displays the results of the structural model analysis.

In this study utilized the bootstrapping procedure, encompassing all 101 subsamples derived from the original 101 cases. The path coefficients indicate that the intention to use e-commerce was directly and positively influenced by both hypotheses, namely perceived usefulness ( $\beta = 0.375$ ,  $t = 4.363$ ,  $p < 0.01$ ) and perceived ease of use ( $\beta = 0.252$ ,  $t = 2.785$ ,  $p < 0.01$ ).

The R-squared ( $R^2$ ) values of the study model expounded on 0.31 percent of the overall variance in the intention to use e-commerce. This implies that the collective impact of the exogenous factors elucidated 0.31 percent of the variation in the desire of consumers from Brunei to engage in e-commerce.

The effect size, denoted as  $f^2$ , offers a means to assess the influence of an exogenous construct on the R-squared ( $R^2$ ) value of an endogenous latent variable, as detailed by Hair et al. (2016) and consistent with Cohen's (1998) recommendations. Perceived usefulness ( $f^2 = 0.062$ ) and perceived ease of use ( $f^2 = 0.18$ ) exhibit the most substantial effect sizes on the intention to utilize e-commerce. Both exogenous latent variables fall into the category of having a small effect on the intention to use e-commerce, adhering to the criteria set forth by Cohen (1988).

**Table 3 : Significance Testing Results of the Structural Model Path Coefficients (Direct relationship)**

Hypothesis	Relationship	Std Beta	Std Error	t-value	Decision	F <sup>2</sup>	R <sup>2</sup>
H1	PU > IE	0.375	0.085	<b>4.363**</b>	<b>Supported</b>	0.062	0.31
H2	PEOU > IE	0.252	0.089	<b>2.785**</b>	<b>Supported</b>	0.138	

## DISCUSSION

The purpose of this study was to identify the elements influencing Bruneian consumers' propensity to embrace online shopping in the wake of the COVID-19 outbreak. The study found that customer perceptions of e-commerce's usefulness and user-friendliness had a significant impact on Bruneian consumers' propensity to adopt it.

Firstly, the results in Table 3 show a strong association between perceived usefulness and customers' intentions to use e-commerce in Brunei which are in consonance with previous studies findings (Pham et al., 2023; Elwalda et al., 2016; Liang et al., 2013; Davis, 1989; Gefen et al., 2003; Alagoz and Hekimoglu, 2012; Lim & Ting, 2012; Warganegara & Babolian Hendijani, 2022; Makame et al., 2014).

Secondly, the findings also support H2, indicating a significant relationship between perceived ease of use and willingness to embrace e-commerce among Bruneian customers which consistent with previous research studies (Gefen et al., 2000; Makame et al., 2014; Yoon, 2009) that investigated the relationship between perceived ease of use and e-commerce intent. This study can deduce that the perceived usefulness and perceived ease of use is a pivotal determinant affecting the inclination to engage in e-commerce among Bruneian consumers post the COVID-19 pandemic.

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